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Seacoast Utility Authority

Construction and Testing Report

Floridan Aquifer Test Well F-1

July 2007

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Our Ref.:
WF005600.0000

Date:
July 2007

Table of Contents

Figures

Tables

Appendices

1. Introduction

In February 2006, Seacoast Utility Authority (SUA) retained ARCADIS G&M, Inc., (ARCADIS) to provide hydrogeologic consulting services for the construction and testing of a test well, designated as Well F-1, to be constructed into the Floridan aquifer at the Hood Road Water Treatment Plant in Palm Beach Gardens, Florida. A site map showing the general location of the test well is presented as **Figure 1**, with a more detailed site plan provided in **Figure 2**.

The well was designed as a test-production well, so that relevant data could be obtained during construction, and so that the well could have future potential use as a production well for Seacoast's planned reverse osmosis water treatment system. An open-hole well design was proposed for F-1. Well construction and testing procedures were performed in accordance with the July 2006 contract and specifications entitled "Seacoast Utility Authority Floridan Aquifer Test Well No. 1 Construction", prepared by ARCADIS. The Contractor selected for the construction and testing of Well F-1 was All Webb's Enterprises, Inc. a Florida state licensed water well contractor.

2. Test Objectives

The prime objective of the test well was to establish the optimal design for future Floridan aquifer supply wells proposed for the Hood Road Water Treatment site. Seacoast Utility Authority requires a total of 8.0 million gallons per day (mgd) to be produced from the supply wells (three wells rated at 1,850 gallons per minute each), and need reasonable assurance that the water quality will remain at levels which may be treated by the proposed reverse osmosis water treatment plant.

The Floridan aquifer at this location contains brackish groundwater, which is known to vary with depth, with salinities as measured by Total Dissolved Solids (TDS), exceeding 10,000 milligrams per liter (mg/L) at depths greater than approximately 1,800 feet below land surface (bls). Experience elsewhere has shown that the aquifer is complex, with discrete flow zones that vary in depth and quality regionally. Therefore, important data include identifying zones of preferred water quality (lower salinity) which are sufficiently permeable to yield the required quantities of groundwater without causing vertical migration of poorer quality groundwater (either from upconing of saline groundwater with TDS greater than 10,000 mg/L, or by downwards movement of poorer quality groundwater known to exist in some locations directly beneath the Hawthorn Group which confines the Floridan aquifer).

To achieve these objectives, a carefully designed testing program consisting of pilot-hole drilling, drill-stem, water quality sampling, flow measurements, geophysical logging and packer testing was completed, prior to reaming the test hole to a larger diameter and completing the well with a final casing string sufficiently sized to allow installation of a deep well submersible or vertical turbine pump.

3. Regional Hydrogeological Setting

The regional stratigraphy and hydrogeological setting of the area surrounding the Hood Road Water Treatment Plant is summarized in **Table 1**. Two major aquifer units present at this location - the Surficial aquifer and the Floridan aquifer, separated by a thick sequence of clays belonging to the Hawthorn Group

The Surficial aquifer is composed mainly of limestone, sandstone and clay, with varying amounts of unconsolidated sand and shell between land surface and 220 feet deep. This aquifer contains the water table and water within it under mainly unconfined conditions. These sediments correspond to descriptions of the Pleistocene-age Pamlico Sand and Anastasia Formations. Below 220 feet to 420 feet deep, the sediments are mainly composed of interbedded limestone, sand and shell. These descriptions correspond to the Post-Miocene sediments of the Tamiami Formation.

The lower limit of the Surficial aquifer coincides with the top of laterally extensive and vertically persistent beds of much lower permeability. These beds, which belong to the Hawthorn Group, consist of approximately 450 feet of Miocene age clays and marls (with some limestones) which form a confining sequence between the Surficial aquifer and the Oligocene to Eocene-age limestones and dolomites of the Floridan aquifer. The Hawthorn Group is found throughout South Florida and has been redesignated (from the Hawthorn, Peace River and Arcadia Formations) to the Hawthorn Group based on extensive work to define the areal extent of the several formations comprising these sediments in Florida.

The Hawthorn Group sediments overlie the Floridan aquifer which exists under artesian conditions with a potentiometric water level above land surface. Although permeable beds (comprising the Intermediate Aquifer System) exist sometimes within the Hawthorn Group, the Hawthorn Group units generally form a confining sequence (or aquiclude) in northern Palm Beach County and nearby Martin County and the water quality is poor in comparison to the overlying Surficial aquifer.

The Floridan aquifer includes the thick carbonate sequence of all or part of the Paleocene to early Miocene Series and, in south Florida, serves as a regionally significant water-yielding unit under confined conditions. The Floridan aquifer underlies all of Florida and southern Georgia and includes all of the middle and upper Eocene-age Ocala Group (Avon Park and Lake City Formations) and the Oligocene-age Suwannee limestone and those permeable Hawthorn Group beds in contact with the rest of the aquifer. Water from the Floridan aquifer in this area contains concentrations of total dissolved solids (TDS) which exceed drinking water standards. However, use of Floridan aquifer water has become an established necessity in order to reduce pumping of the better-quality water from the Surficial aquifer (both to mitigate potential impacts to environmentally sensitive wetlands and to reduce the potential for saltwater intrusion in the Surficial aquifer). The Floridan aquifer is artesian in all parts of Palm Beach and Martin Counties, except in areas of eastern Martin County where land surface is more than 50 feet above mean sea level.

4. Construction and Testing

Construction of the test Well F-1 was undertaken in three stages;

- Installation of the outer casing strings down to the base of the Hawthorn Group to ensure artesian pressures (approximately 26 feet above land surface) from the Floridan aquifer were contained, and less competent rock formations within the Surficial aquifer were isolated;

- Pilot-hole drilling and testing to determine the water quality and flow characteristics within the Floridan aquifer;

- Final construction, including installation of final casing following reaming, well development, test pumping, completion of headworks and final water quality sampling.

Final well construction and a summary of the testing completed during pilot-hole drilling is shown graphically in **Figure 3**. Detailed results from the drilling and testing are contained in the Appendices.

4.1 Construction of F-1 Outer Casing Strings

4.1.1 Surface Casing:

Between January 9 and January 11, 2007, a nominal 32-inch diameter borehole was drilled by the mud-rotary method from land surface to 453 feet below land surface (bls), where more competent sediments belonging to the Tamiami Formation were encountered. Caliper and gamma-ray logging was performed on the drilled hole prior to installation of a 26-inch outside diameter, 0.375-inch wall thickness steel surface casing, installed to 452 feet bls. This casing was then cemented in place.

4.1.2 Intermediate Casing:

On January 16, 2007, the Contractor began to drill a nominal 12-inch diameter pilot-hole using a 10.75-inch diameter tri-cone (roller) bit from the base of the 26-inch diameter steel surface casing (452 feet bls) to a depth of approximately 1,015 feet bls using the mud-rotary drilling method. This drilling was completed on January 17, 2007. Geologic descriptions of the drill cuttings were prepared and these descriptions are included in **Appendix A**.

Following completion of the pilot hole, geophysical surveys were performed to determine the appropriate depth for the intermediate casing. Logging was completed by All Webb's Enterprises, Inc., geophysical logging unit and observed by ARCADIS personnel. Geophysical logging of the completed pilot-hole included Spontaneous Potential, Dual-Induction, Single-Point Resistance, Gamma-Ray and X-Y Caliper logs. Copies of the log plots are included in **Appendix B**. The base of the Hawthorn Group clays was noted at a depth of approximately 860 feet bls. A depth of approximately 1,000 feet below grade was selected as most suitable for the Intermediate Casing setting.

The pilot-hole was then reamed to a nominal 26-inch diameter size using the mud-rotary method and 20-inch outside diameter, 0.375-inch wall thickness steel intermediate casing was set between 397 and 999 feet bls on January 24, 2007. The intermediate casing was cemented in place during 3 stages of cementing. Upon completion, the Contractor installed equipment required for well testing and for drilling the remainder of the borehole using the reverse-air method of drilling.

4.2 Pilot-Hole Drilling

From February 8 to February 21, 2007, the Contractor drilled a nominal 12-inch diameter pilot-hole from the base of the 20-inch diameter intermediate casing to a total depth of 1,750 feet bls by the reverse-air method using a 9.75-inch diameter drilling bit. Geologic descriptions of the drilled cuttings were prepared by ARCADIS personnel and are included in **Appendix A**.

A 1,000-gallon capacity, above-ground steel tank, was used by the Contractor to collect suspended solids prior to discharging the circulation water into a sequence of holding ponds (located within Plant boundaries) which allowed for further settlement of any turbidity, prior to final discharge / overflow to the off-site canal. All discharges were made in accordance with the Contractor's temporary FDEP generic discharge permit.

During drilling, an ARCADIS hydrogeologist collected water samples from the reverse-air discharge at 10-foot depth intervals for field measurements of chloride, temperature, specific conductance and pH. Turbidity, dissolved oxygen and hydrogen sulfide field measurements were also performed, but less frequently, due to time restrictions. In addition, the Contractor performed short (30-minute) specific capacity and recovery tests at the completion of each drill rod (every 30 feet) by allowing the artesian well to flow and by measuring the drawdown in the open hole while not re-circulating fluids from the well. The flow from the well was then shut in and static water level was measured. Water levels were measured by extending clear vinyl tubing from a fitting on the blow-out preventer (well casing header) to a height of approximately 35 feet above grade (taped to the rig mast). A survey measuring tape was taped to the mast adjacent to the tubing to provide accurate water-level information.

On February 16, 2007, an extended flow test and development of the 1,002 to 1,135 feet bls section of an open hole was performed and the first water sample for laboratory analyses was collected.

On February 22, 2007, upon reaching a final depth of 1,750 feet bls, geophysical surveys were performed on the nominal 12-inch diameter borehole by Florida Geophysical Logging, Inc. Logging was initially conducted under static conditions. The logging suite was comprised of X-Y caliper, temperature, static flowmeter, gamma-ray, spontaneous potential, single-point resistance and dual-induction. Geophysical surveys were then performed under pumping conditions (fluid resistivity, temperature and dynamic flowmeter). Copies of the log plots are included in **Appendix C**.

Based on the geophysical surveys, water-quality data, and the lithologic descriptions, four sections of the open pilot hole were then targeted for single packer tests to determine water quality and test capacity of the water-bearing formation. Results from the packer tests and the other data obtained are summarized below in the following sections.

4.2.1 Geological Profile

From land surface to a depth of 150 feet, the sediments consist primarily of unconsolidated fine to medium grained quartz sand, (very fine to fine-grained, and slightly phosphatic below 60 feet), with traces of shell fragments. Between 40 and 50 feet bls and 90 and 110 feet bls, up to 40% of shell, 20% sandstone and 10% limestone was logged. A layer of shelly sand extends from 150 to 210 feet bls underlain by very silty sand. These sediments belong to the Anastasia Formation which forms a portion of the Surficial aquifer underlying the surface sand (Pamlico Sand from the surface to approximately 10 feet bls).

From 240 feet bls a mix of limestone, shell, and sand extends to 330 feet bls and is separated from phosphate-bearing Miocene clayey sediments of the Hawthorn Group by a 90-foot layer of very silty sand. These relatively thick layers of deposits belong to the Tamiami Formation.

At the top of the Hawthorn Group, encountered at 420 feet bls, is the Hawthorn Formation clayey sediments, described as light olive gray to yellowish gray, mostly calcareous and sandy clay, with traces of limestone and shell. The thickness of the Hawthorn Formation is approximately 570 feet, with sediments of the Arcadia Formation (former Tampa Formation - Scott, 1988) at the base of the Hawthorn Group between 800 and 994 feet bls. The Arcadia Formation is a transitional lithological zone represented by calcareous clay (marl) with small amounts of chert and traces of weathered limestone extending from 800 to 860 feet bls, and another 134 feet of interbedded layers of clay (marl), limestone, (phosphatic) sand and shell to a depth of 994 feet bls.

At 994 feet bls, fossiliferous, weathered limestone was encountered (top of Oligocene Suwannee Limestone). This limestone is regarded as the upper portion of the Floridan aquifer (Scott 1992), although, in some locations in southeast Florida, permeable horizons within the Arcadia Formation where hydraulically linked to the Suwannee Limestone, are sometimes regarded as also belonging to the Upper Floridan aquifer. For a further 74 feet, limestone was so unconsolidated, accompanied by large amounts

of calcareous, detritic sand, that it posed a serious drilling problem (disrupting circulation) for the reverse-air method.

From approximately 1,070 feet to 1,200 feet bls, the limestone becomes more competent, better cemented, with large amounts of foraminifera (mostly lepidocyclina) and mollusk shells with an occasional small amount of calcareous clay (marl). Limestone is represented mainly by oolitic grainstone. Micritic, slightly dolomitic limestone began to increase to almost 50% between approximately 1,170 and 1,200 feet bls (attributed to the top of the Ocala Limestone).

For the next 518 feet, lithology is best described as interbedded layers (10 to 40 feet thick) of two types of limestone: soft, poorly cemented yellowish gray oolitic grainstone with fossils (mainly forams), and light to dark gray, slightly dolomitic, fine-grained, moderately hard, moderately well-cemented micritic limestone (packstone to wackestone). This sequence was disrupted only in four, relatively thin intervals: 1,337 to 1,340 feet (90% dolomite, pale yellowish brown), 1,356 to 1,359 feet (calcareous clay with 30% limestone), 1,510 to 1,520 feet (95% dolomite, pale yellowish brown) and 1,650 to 1,660 feet (90% dolomite, dark to medium gray).

The Ocala Limestone belongs to the Upper Eocene and is underlain by the Middle Eocene sediments of the Avon Park Formation which is composed of fossiliferous limestone interbedded with vuggy dolomite (dolostone). This distinction becomes apparent from 1,718 feet bls to the bottom of the well (1,750 feet bls) when layers of pale yellowish brown and medium to light gray, micritic, moderately hard to hard dolomite are interbedded with very pale orange to white, micritic or sucrosic, moderately hard dolomitic limestone. The carbonate sediments of the Avon Park Formation are part of the lower Floridian aquifer and are further subdivided into an upper and lower aquifer (Scott, 1992).

4.2.2 Water Quality and Flow Profile

During pilot-hole drilling, water samples were collected at 10-foot intervals and analyzed in the field for basic parameters: temperature, specific conductivity, pH and chloride concentration. Less frequent samples were analyzed for dissolved oxygen, turbidity, and hydrogen sulfide.

Samples were taken from the drill pipe under artesian flow, and therefore represent, in broad terms, the likely groundwater quality at the depth of the drill bit. At every drilling rod change, the drill bit was raised several feet and the well was allowed to flow until clarity improved, so the reliability of these samples was improved after this short development period. During sampling the artesian flow rate was also measured, providing an initial summary of the flow accretion profile as drilling progressed. On several occasions, the outlet from the well casing was also opened and allowed to flow, thereby allowing a composite water quality sample to be taken. Results from these preliminary flow tests and water quality analysis are summarized in **Table 2**.

4.2.3 Geophysical Logging

The following geophysical logs were conducted during construction and testing:

1. Caliper and gamma-ray logs of the nominal 32-inch diameter open hole from surface to 451 feet bls, prior to installation of the surface casing (January 12, 2007).

2. Caliper, gamma-ray, spontaneous potential and single-point resistance logs were run in the pilot hole from the bottom of the surface casing to 1,015 feet bls on January 18, 2007. These logs were run to confirm the depth of the Hawthorn Group and to determine the appropriate depth for the intermediate casing.

3. Caliper log and video (TV) survey of the intermediate casing seat and pilot-hole section from 999 to 1,063 feet bls were completed on February 12, 2007 due to concerns with well stability and sand dredging problems. Total depth of the drilled hole at the time of survey was 1,073 feet bls, but 10 feet of sand accumulated almost instantaneously.

4. Detailed logging of the pilot hole in the interval 999 feet to the total depth of 1,750 feet bls occurred on February 26, 2007 following completion of drilling, with a video survey taking place the next day. Logging comprised caliper, gamma-ray, temperature, spontaneous potential, single-point resistance, dual-induction and fluid velocity logs which were run under static conditions. After the well was initially developed (free flow) for 2 hours, the flow was restored and stabilized at a rate of 2,650 to 2,670 gpm. Temperature, resistivity and fluid velocity logs were then run under dynamic (flowing) conditions.

5. A caliper log was run on the reamed, nominal 20-inch diameter open hole in the 999 feet to 1,600 feet interval, on March 30, 2007, prior to final casing installation.

Copies of the geophysical logs are included in **Appendix B**. These logs were important for determining the lithological, water quality and flow profile of the test well, as well as assisting with the construction of the well.

4.2.4 Dynamic Flow Profile

One geophysical log of particular value was the dynamic flow profile obtained while pumping from the pilot hole (open hole section 999 to 1,750 feet bls) at approximately 2,700 gpm (refer to Item 4 above). Results from this log are shown in **Figure 4**, where the flow rate has been converted to percent flow. This detailed log has been generalized so that the relative contribution of flow may be determined. Key features of this profile are summarized below:

Interval	Flow Contribution
Base of casing to 1,040 feet bls	No flow
1,050 feet bls	Flow zone (evidenced as loss into formation)
1,050 to 1,140 feet bls	Limited or no flow
1,140 feet bls	Major Flow Zone (single fracture zone)
1,140 to 1,260 feet bls	Flow accretion and loss (loss at 1220 feet)
1,260 to 1,470 feet bls	Significant flow accretion via multiple flow zones
1,470 to 1,525 feet bls	No flow
1,525 to 1,585 feet bls	Flow Zone
1,585 to 1,710 feet bls	Limited Flow
1,710 to base of pilot-hole, 1,750 feet bls	Flow Zone

4.2.5 Packer Testing

Intervals for packer testing the open hole from 999 to 1,750 feet bls were selected after reviewing data collected during pilot-hole drilling (geological logs, water quality field parameters, flow test data and geophysical logs). Four specific intervals were selected for single packer tests after it was determined that straddle packer testing would be more problematic. Using single packers also provided the opportunity to test water quality and flow from both above and below the packer assembly, and to simulate potential vertical hydraulic leakance.

Careful selection of the packer depths was required to ensure confidence that the inflated packers would adequately seal against the formation. Final selection was made using the X-Y caliper log (to ensure the maximum packer inflate size was not exceeded), and the vertical and horizontal side-scan video survey (to ensure the packer was not seated against any minor vertical or horizontal fractures not discernable on the caliper survey).

Testing procedures involved suppressing the artesian head, setting and inflating the packer at the selected depth, restoring the artesian flow (both above and below the packer) and then developing the test zone by free flow via a 3.5-inch diameter drill pipe connected to the packer assembly until monitored field water quality parameters stabilized. Flow rates from the test zone were recorded via an inline flow meter and a water sample taken.

After sampling of the “test zone” below the packer was complete, both the test zone and the interval above the packer (referred to as the “annulus”) was shut in to allow artesian water levels to recover and an accurate measurement of static water level both above and below the packer to be recorded using pressure transducers and data loggers installed. Following water level recovery, the interval above the packer was then allowed to flow by opening the valve on the intermediate casing. Water quality samples of the annulus were then taken, and flow rates were measured using a calibrated orifice flow meter. Water level changes in the test zone (i.e., below the packer) were measured to determine vertical hydraulic connection. Test intervals are summarized in **Table 3**, and results are contained in **Appendix C**.

Packer Test No. 1 (PT-1) was conducted in the bottom portion of the borehole in the interval 1,684 and 1,750 feet bls, with the centerline of the 3.5-foot long packer assembly set at 1,684 feet bls. The test zone was developed on March 8, 2007 at a rate of 62 gallons per minute. A total of 22,630 gallons was purged from the test interval (more than 18 pipe and test zone volumes) prior to laboratory sample collection. The zone was then allowed to recover overnight and on March 9, 2007, an annular flow test (i.e. above the packer from the interval 1,002-1,684 feet bls) took place with a constant artesian flow rate of 2,530 gpm. Changes in water levels in both zones were monitored and recorded by transducers to determine vertical hydraulic connection. After approximately 226 minutes, water levels in the test zone stabilized, flow was stopped and water level recovery measurements were taken. Maximum recorded drawdown in the test zone was 0.62 feet and 19.36 feet in the annular flow zone.

Packer Test No. 2 (PT-2) took place on March 10, 2007, and tested the interval between 1,625 and 1,750 feet bls. Approximately 15,800 gallons (almost 9 pipe and zone volumes) were purged at the rate of 78 gpm during development. This time, drawdown in the test zone was minimal (0.09 feet) and water levels returned to the static level during the flow test. This indicates minimal vertical hydraulic connection. Maximum drawdown in the annular flow zone was 19.75 feet while flowing at the same rate (2,530 gpm) as conducted during PT-1.

Packer Test No.3 (PT-3) was conducted on March 12, 2007 with the test interval between 1,500 and 1,750 feet bls. The test interval was developed at a rate of 78.5 gpm and approximately 18,500 gallons (more than 6 pipe and open hole volumes) were purged to stabilize field parameters. Free flow above the packer was again at a constant 2,530 gpm. Drawdown in the test zone was 4.53 feet, and 21.08 feet in the annular flow zone. This suggests that at 1,500 feet bls, the aquifer is more 'leaky' vertically. Water levels in the test pipe and annulus stabilized after approximately 250 minutes.

Water quality testing undertaken during pilot-hole drilling and during the first 3 packer tests indicated that groundwater salinity (as measured by conductivity and chloride) began to increase below 1,600 feet bls, although the flow contribution at this depth was limited. PT-2 (packer set at 1,625 feet bls) also indicated that vertical hydraulic connection was limited. Therefore, the decision was made to cement back the pilot hole to a depth of 1,600 feet prior to undertaking the final packer test.

Packer Test No. 4 (PT-4) was conducted on March 20, 2007 in the interval from 1,114 to 1,595 feet bls to simulate the likely water quality if final casing was set at 1114 feet. The test zone was developed with a free flow rate of 88 gpm. Approximately 27,400 gallons (more than 5.5 pipe and open hole volumes) were purged during development before sampling. A 500 gpm maximum sustained flow rate was established for the annular test with substantial drawdown in the flow zone (22.86 feet). Drawdown in the test zone was 0.22 feet, with 0.27 feet maximum reached after approximately 200 minutes elapsed time.

4.2.6 Water Quality and Flow Summary

Using the packer test data, interval tests, field water quality drill-stem tests, and the geophysical dynamic flow profile, five zones of different water quality (salinity) have been identified. These zones are summarized graphically in **Figure 3**.

Zone 1, extending from the bottom of the intermediate casing (999 feet bls) to approximately 1,100 feet bls is characterized by moderate salinity with specific conductance between 7,000 and 8,000 µS/cm and chloride concentration of 2,500 to 3,000 mg/L. Total Dissolved Solids for the wider test interval, 1,000 to 1,134 feet bls, was measured as 5,000 mg/L in the laboratory.

Zone 2 from approximately 1,100 to 1,270 feet bls has higher salinity than Zone 1, with chloride concentration between 3,000 and 4,000 mg/L and specific conductance almost 10,000 µS/cm on average. A significant flow zone was identified at 1,140 feet bls, which contributed at least 25 percent of the flow from the entire well (flow gain from this zone exceeded 700 gpm). This zone had the poorest quality water, with salinity as measured by specific conductance up to 11,550 µS/cm.

Zone 3 between approximately 1,270 and 1,370 feet bls is a transitional zone comprising only 100 feet, where an improvement in water quality is taking place. Chloride concentration drops gradually by more than 1,000 mg/L from 3,000 mg/L to 2,000 mg/L or less, and specific conductance decreases from over 9,000 µS/cm to approximately 6,000 µS/cm. The increase in artesian flow from this zone as measured from the drill-stem tests was approximately 300 gpm. The dynamic flow profile suggests a greater contribution of flow, in the order of 20 percent or approximately 520 gpm when the well flowed at 2,650 gpm.

The largest of the zones, Zone 4, extends for 310 feet from 1,370 to approximately 1,680 feet bls. This zone represents the best water quality in the whole hydrogeological profile of Well F-1. Average chloride concentration for this zone is approximately 2,000 mg/L and specific conductance for the most part is oscillating around 5,000 µS/cm. Groundwater with the lowest salinity was measured in the interval 1,430 to 1,510 feet bls. Water quality from Zone 4 was in part confirmed by the sample taken from the final open-hole interval (1,300 to 1,600 feet bls), with chloride concentration 1,400 mg/L, and specific conductance 3,300-3,400 µS/cm. Flow contribution from this zone was approximately 1,000 gpm or around 35% of the total flow.

The lowest zone, Zone 5, from 1,680 to 1,750 feet bls shows an increase (almost 20%) in both chloride concentration and specific conductance. Dynamic flow logging suggests a flow contribution of approximately 10%, although the increase in artesian flow measured by the drill-stem tests was less, approximately 120 gpm. The base of the USDW (defined as groundwaters with salinity less than a TDS of 10,000 mg/L) was not intercepted, although it is possible that the final drilled depth of 1,750 feet was close.

4.3 Final Construction

After completion of all four Packer Tests, the Contractor reamed the pilot hole at a nominal 20-inch diameter size to 1,600 feet and installed and cemented in place 12-inch I.D. PVC final casing to a depth of 1,300 feet bls.

Initially, two construction options were presented by ARCADIS, with a recommendation for Option 1, which was to install final casing to 1,114 feet bls with an open hole between 1,114 and 1,600 feet bls. The casing was targeted at the base of a dolomitic layer to ensure a competent casing seat. Although moderate salinity (conductivity approximately 7,500 µS/cm) was sampled above this interval, the presence of less competent rock meant a deeper casing seat was preferred. However, following consultation with other advisors, Seacoast opted for setting the casing deeper at 1,300 feet bls. Although this meant reducing the well yield significantly, the considered opinion was that the interval between 1,300 to 1,600 feet bls would produce water with the lowest salinity and therefore reduce the immediate treatment requirements for the proposed RO water treatment plant.

4.3.1 Final Casing

The final casing (inner liner) for the well consists of approximately 360 feet of 17.4-inch outside-diameter, CertainTeed Certa-Lok, SDR 17 (0.762-inch wall thickness) PVC casing attached to 940 feet of 12-inch inside-diameter CertainTeed Certa-Lok, SDR 17 (0.823-inch wall thickness) PVC casing. This construction is summarized in **Figure 3**.

On April 11, 2007, the Contractor installed all sections of the 12-inch diameter final casing to a depth of approximately 940 feet bls. The 17.4-inch diameter portion of the final casing was then installed (attached to the top of the 12-inch diameter casing) to extend from a depth of approximately 360 feet bls (to provide for the installation of a large diameter submersible pump, as needed) to just above land surface. Stainless-steel centralizers were attached (banded) within 20 feet of both the top and bottom of the final casing and at 50-foot intervals on the PVC casings as centering guides.

By April 12, 2007, the Contractor had completed the casing installation (with the casing seat at a depth of approximately 1,300 feet bls). The Contractor then began gravel placement in the open hole prior to cementing the final casing. On April 16, 2007, the top of the gravel was tagged at approximately 1,301 feet bls. Tremie pipe was installed between the 20-inch diameter intermediate casing and the final PVC casing to a depth just above final casing seat and two barrels (11.2 cubic feet) of neat Portland cement (ASTM Type II) were pumped into the annulus. The cementing of the final casing was completed on April 21, 2007, bringing the top of cement in the annulus to land surface after 6 cementing stages.

On April 23, 2007, the Contractor began gravel removal from the interval 1,300 to 1,600 feet bls. By April 28, 2007 all gravel had been removed and the excess cement plug (installed during pilot-hole cementing) was drilled out to 1,600 feet bls.

4.3.2 Well Development

On April 30, 2007, the open-hole section of the well between the bottom of the final casing (1,300 feet bls) and cement plug (1,600 feet bls) was developed by free flow and field tested for initial water quality and flow rate. After approximately 140 minutes of development, a water sample for laboratory analyses was collected (all laboratory results are included in **Appendix D**). During this period, greater than 135,000 gallons were purged and the artesian flow from the well stabilized at 990 gpm.

Production zone development resumed on June 25, 2007 with a pump intake located at 100 feet bls. The development method comprised alternating pumping and surging, with approximate 20-minute periods of pumping followed by 10 minutes of resting to allow water level recovery. Maximum pumping rate was established at 2,200 gpm. Water quality samples were collected and analyzed in the field, and sand content was monitored using a Rossum Sand Tester during the initial surge and at the constant rate flow. After approximately three hours of development, the water quality stabilized and after six hours, sand content dropped to approximately 5 ppm. At that time, well development was terminated and the water levels allowed to recover overnight in preparation for a step-rate pumping test.

4.3.3 Step Rate Test

A step-rate pumping test was conducted on June 26, 2007. The test consisted of 4 steps of increased pumping at rates of 600, 1,100, 1,680 and 2,130 gpm. Each step was pumped at a constant rate for approximately 30 minutes, followed by approximately 30 minutes of non-pumping (recovery). The first step was conducted by controlling the artesian flow, subsequent steps were pumped.

The Contractor installed a data-logging system with a pressure transducer installed in the well at a depth of 93 feet bls. The static potentiometric head measured by the transducer (prior to pumping) was recorded at 33.71 feet above land surface. The data logger was calibrated to display potentiometric head above the transducer in units of feet. A calibrated flowmeter was installed in the 12-inch diameter section of the discharge line, which was capable of recording instantaneous and totalizing flow and was sufficiently removed from valves, elbows, reductions and obstructions.

The data from the test are summarized on **Table 4,** and the water level drawdown data are provided in **Appendix C.** Using the measured flow rates and water level drawdowns, specific capacities (SC) were calculated for each step. As shown on Table 4, the specific capacity for Step No. 1 was approximately twice the SC calculated for the subsequent steps.

The reason for the large decrease in specific capacity between Steps 1 and 2 from 43.5 gallons per minute per foot of drawdown (gpm/ft-dd) to 23.7 gpm/ft-dd, is unclear, although dramatic declines in specific capacity when a well is pumped compared to the free-flow specific capacity is common for Floridan aquifer wells. Step 1 was conducted at a low (unpumped) free-flow rate, and the flow rate was well below even the maximum free-flow rate of approximately 990 gpm. Subsequent steps were conducted

by pumping the well. At these higher flow rates, friction and turbulence in the aquifer near the well, in the well bore, and within the casing are a greater contribution to overall head loss. Given these preliminary test results, and the difference in well performance between Steps 1 and 2, it is strongly recommended that the well be acidized before it is operated as a production well to try to improve the well performance.

During the step-rate test, sand content samples were periodically collected from a Rossum Sand Tester, first at the initial 'surge' for 5 minutes and then during constant-rate pumping for 20 minutes. Sand content during the surge period showed increased sand concentration with increased pumping rate, although following the 'surge' acceptable sand concentrations between 1 and 2 ppm were measured. These results indicate that further development of the well is needed. However, further development is not recommended until a decision has been made on whether or not to acidize the well (following acidization the well will need to be re-developed regardless of the level of development completed pre-acidization).

After completion of the step-rate test, valve settings for completing a constant-rate pumping test at 1,750 gpm were set, and the well was left to recover overnight.

4.3.4 Constant Rate Test

An 8-hour, constant-rate pumping test of Well F-1 was conducted on June 27, 2007. Water levels in the pumped well were measured periodically during the pumping phase using a water level indicator to ensure accuracy of the pressure transducer and data logger installed by the Contractor during the step-rate test. Data from the test are contained in **Appendix E**.

The pre-test static water level (potentiometric head) measured by the transducer prior to pumping was 33.77 feet above land surface. The pumping rate was stabilized after the first 2-3 minutes of the test and was held close to 1,800 gpm. A small decrease in pumping rate occurred during the next 30 minutes until it stabilized at approximately 1,750 gpm for the remainder of the test. Water level recovery data was collected electronically for over 20 hours after the pump was turned off and the well was shut in.

The drawdown data from the test indicated that the pumped water level approached equilibrium after less than 10 minutes of pumping, with water levels stabilized at approximately 44.2 feet below grade (approximately 78 feet of drawdown) after 30 minutes of pumping. The depth to water measured at the end of the 8-hour pumping phase was 45.68 feet below land surface (indicating a drawdown of approximately 79.45 feet). The overall specific capacity was determined to be 22.4 gallons per minute per foot of drawdown (gpm/ft), by all measures identical to the average specific capacity for the step-rate test (22.1 gpm/ft).

Within an hour of the pump being shut off, the water level had recovered to within 1.30 feet of the original pre-test static level. An estimate of transmissivity in the vicinity of the pumped well was made by analyzing the recovering water-level data (water level vs. time since pumping stopped) graphed on semi-log paper. The use of recovery data is generally preferable because those data are less impacted by radial and convergent flow into the pumped well and inherent well inefficiency.

Analysis of the recovery data was performed using the Cooper-Jacob residual drawdown method, applicable for both confined and semi-confined aquifers. This method of analysis tends to overestimate transmissivity because it does not account for leakance from confining units, and does not account for partial penetration of the aquifer by the borehole. The transmissivity was estimated at 37,000 gpd/ft. A plot of the recovery in the well during the pumping test is included in **Appendix E**.

Because of these well losses, the estimated transmissivity using the pumped-well data likely overestimates the true aquifer transmissivity. The estimated value should not be relied upon for predicting the impact of future withdrawals.

A more reliable transmissivity value could have been obtained if an observation well had been available for measurement during the test. An observation well would also allow calculation of aquifer storage coefficient and leakance, and would also allow for measurement of well interference and predicted drawdown from the future operation. These values could then in turn be used to determine appropriate well spacing for future wells, or based on certain well spacings, the likely pumping water levels in each well at given pumping rates.

It is understood that a second Floridan aquifer production well will be drilled on site shortly. When this well is completed, it is strongly recommended that a further aquifer tests be conducted and water level interference drawdown be measured so that wellfield design assumptions may be verified. In the interim, the pumping water level for Well F-1 using the tested specific capacity of 22.4 gpm/ft-dd has been predicted for a pumping rate of 1,850 gpm.

Seasonal variation of Floridan aquifer water levels regionally is expected to be on the order of 3 feet (based on limited historical data from wells in Martin County and West Palm Beach). Any additional interference effect from pumping the nearest Floridan aquifer wells (Jupiter and Tequesta) will likely be small, probably in the range of 3 feet or less. Because wells typically decrease in efficiency over time, a 10% decline in specific capacity (to 20.2 gpm/ft-dd) has been assumed. Using the static water level in the well measured (in feet above land surface) prior to initiation of the step-rate pumping test, the pumping water level for F-1 can be predicted as:

Static depth to water	33.7 feet above land surface
Seasonal decline	3.0 feet
Local interference	3.0 feet
Stabilized drawdown	84.0 feet
Total depth to water	56.4 feet below land surface at 1,850 gpm

4.3.5 Silt Density Index Test

On June 28, 2007, the Contractor conducted three silt density index tests (SDI). These tests are a requirement of most RO membrane suppliers to demonstrate that fouling and potential damage to the membranes will not occur due to the turbidity of the raw well water.

The pumping rate was established at 1,750 gpm, which was the same rate as the constant rate test, and very close to the desired flow rate of 1,850 gpm required if three (duty) Floridan wells are constructed. The tests were performed by a licensed laboratory technician and observed by an ARCADIS geologist. Test results are sumarized in **Table 5**. All SDI test results passed with values less than 1.0, and an average after 15 minutes of 0.52.

4.3.6 Final Water Quality Sampling

Final water sample for a complete set of water quality analyses was collected on June 27, 2007 at the end of the 8-hr constant rate pumping test. Results for the major ions are summarized in **Table 6**, and the complete results are contained in **Appendix E**.

4.3.7 Final Video Inspection

Final Video inspection was completed on July 11, 2007. This survey confirmed that the final casing string was sound and installed from 358 to 1,300.6 feet bls. Cement seal behind the base of the final casing could not be detected, although a minor cement/gravel "overspill" on one side of the open hole was observed down to a depth of approximately 1,310 feet bls. A damaged casing centralizer embedded in the cement immediately below casing was also observed. This very minor construction defect should not impact on the well performance.

The open hole section from 1,300.6 to 1,600 feet bls was in good condition, with uniform lithology comprising very light, vuggy limestone. The cement backplug at the base of the borehole was clearly visible, and with the exception of two further casing centralizer fragments, the borehole was clear of debris.

A copy of the television survey is contained in **Appendix F**.

5. Summary

A Floridan aquifer test well, F-1, was successfully constructed and tested at the Seacoast Water Utility Hood Road Water Treatment facility. Construction of F-1 was completed in three stages: Installation of outer casing strings down to the base of the confining Hawthorn Group; pilot-hole drilling and testing to determine the water quality and flow characteristics within the Floridan aquifer; final construction, including installation of final casing, well development, test pumping, completion of headworks and final water quality sampling.

Total depth of the Floridan aquifer investigated was 1,750 feet below land surface. Pilot-hole drilling and testing for the interval 999 to 1,750 feet bls included logging of drill cuttings, drill-stem tests which measured water quality and artesian flow rates, geophysical logging, packer tests and interval tests.

Five zones of different water quality in the Floridan aquifer, as measured by salinity, were identified. In simple terms, the salinity profile with depth progressed from 'moderate' to 'poor' to 'moderate' to 'good' and then back to 'moderate'. The base of the USDW (defined as groundwater with a TDS less than 10,000 mg/L) was not intercepted, although it is suspected that the reason for the increasing salinities at the base of the pilot hole was due to close proximity of more saline groundwater.

Groundwater with the lowest salinity was identified in the interval 1,430 to 1,510 feet bls. This interval lies within a wider zone between 1,370 and 1,680 feet bls, with chloride concentrations less than 2,000 mg/L and specific conductance approximately 3,300-3,400 µS/cm. Groundwater with the highest salinity coincided with a significant flow zone located at 1,140 feet bls. Although a discrete water sample was not obtained from this zone, drill-stem water quality samples suggest the specific conductance was up to 11,550 µS/cm.

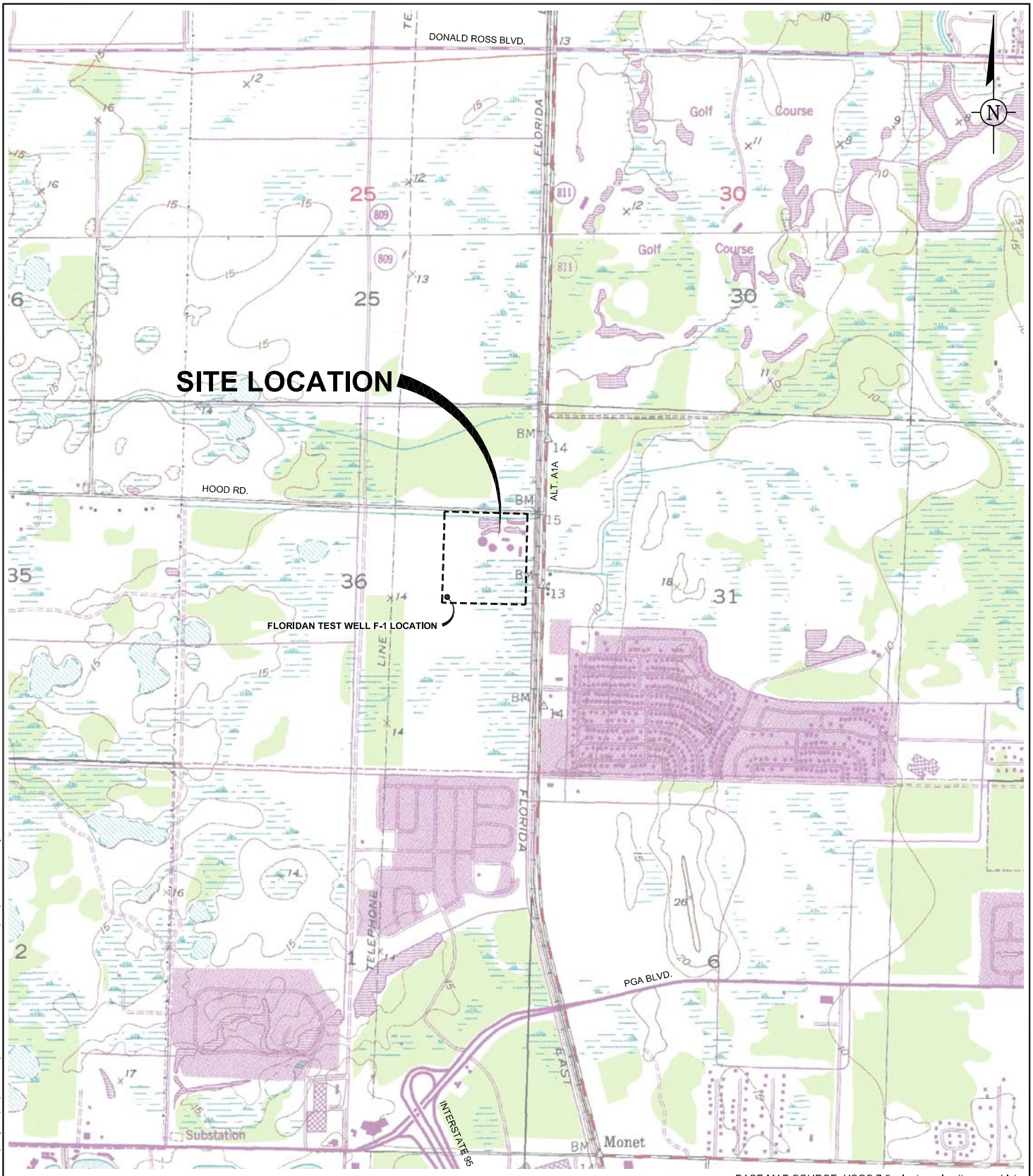
Significant artesian flows were measured during drilling. Maximum artesian head was measured at +33.7 feet above land surface, with a total flow of 2,700 gpm produced from the entire pilot-hole interval. Dynamic flow logging successfully identified the major flow zones. The most significant single zone coincided with a fractured zone at 1,140 feet bls, with greater than 25 percent of the total flow produced from this depth. However, significant flow accretion via multiple flow zones also occurred in the interval 1260 to 1470 feet bls, with approximately 30 percent of the total flow.

During final construction, the pilot-hole was back-plugged with neat cement to a depth of 1,600 feet bls, then reamed to a diameter of 20 inches; final casing was installed to a depth of 1,300 feet bls. This back-plugging and final casing depth meant that a significant percentage (approximately 60 percent) of the flow intercepted in the pilot-hole was isolated. Artesian flow following installation of the 12-inch diameter casing was measured at 990 gpm. However, this well design also meant that only groundwater with relatively low salinity was intercepted.

Specific capacity, a measure of well yield per unit drawdown in water levels, was determined to be 22.4 gpm/ft-dd. This result is significantly lower than the specific capacity of over 125 gpm/ft-dd measured for the pilot-hole interval 999 to 1,750 gpm/ft, and is approximately half of the specific capacity measured during step-rate testing of the well at flow rates below 900 gpm.

The high transmissivity and relatively low corresponding specific capacity suggests that well losses are very significant at the high pumping rates anticipated for future operation. Calculated pumping water levels for a single well pumping at 1,850 gpm is 56 feet below land surface. It is strongly recommended that the well be acidized to try and improve the well performance.

Final water quality measured from a sample taken at the end of the constant rate pumping test exceeded expectations. Salinity was significantly lower than measured during the drill stem tests and also slightly lower than the interval test, with TDS, 3,000 mg/L; Specific Conductance, 5,270 mg/L and Chloride, 1,500 mg/L.



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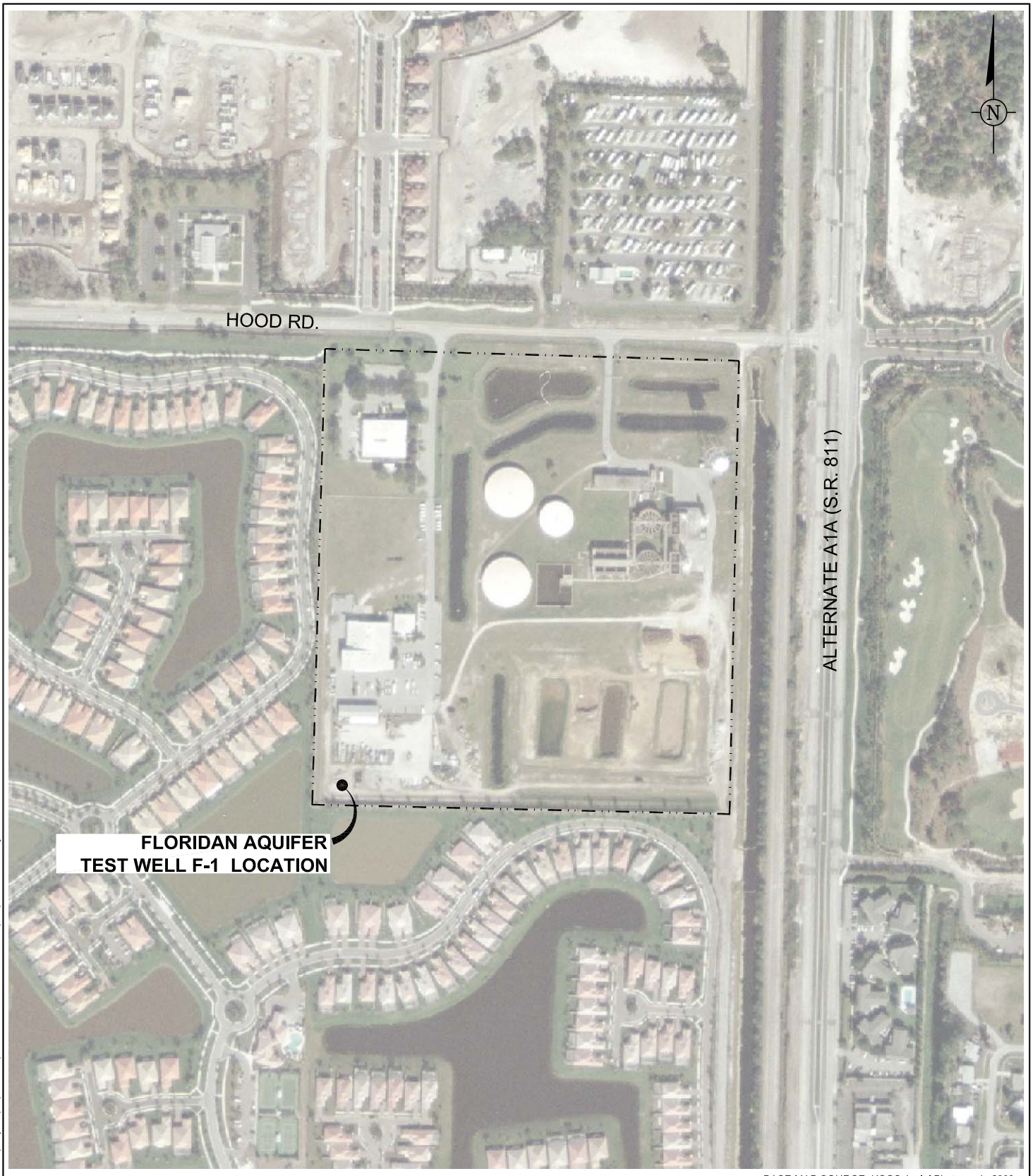
SEACOAST UTILITY AUTHORITY
HOOD ROAD WATER TREATMENT PLANT

SITE LOCATION MAP

PALM BEACH COUNTY, FLORIDA

Project Number	WF005600.0000
Drawing Date	11JUL07
Figure	1



BASE MAP SOURCE: USGS Aerial Photograph, 2003.

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SEACOAST UTILITY AUTHORITY
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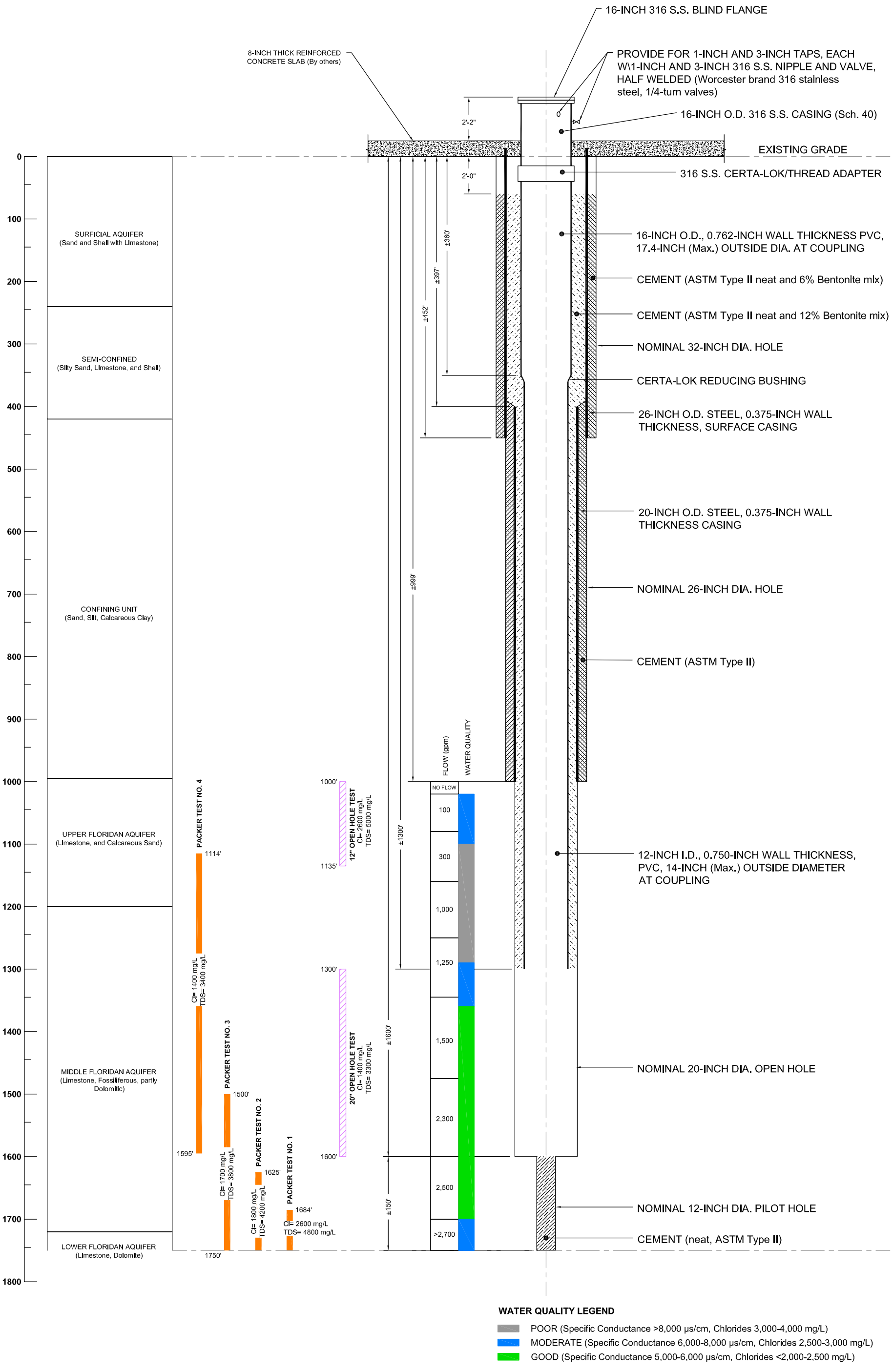
FLORIDAN AQUIFER
TEST WELL F-1 LOCATION

PALM BEACH COUNTY, FLORIDA

Project Number	WF005600.0000
Drawing Date	11JUL07
Figure	2



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SEACOAST UTILITY AUTHORITY
HOOD ROAD WATER TREATMENT PLANT

FLORIDAN AQUIFER TEST WELL F-1
CONSTRUCTION AND TESTING DETAILS

PALM BEACH COUNTY, FLORIDA

Project Number	WF005600.0000
Drawing Date	11JUL07
Figure	3

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DYNAMIC FLOW PROFILE
Seacoast Floridan Aquifer Test Well F-1
(Pumping Rate 2700 GPM)

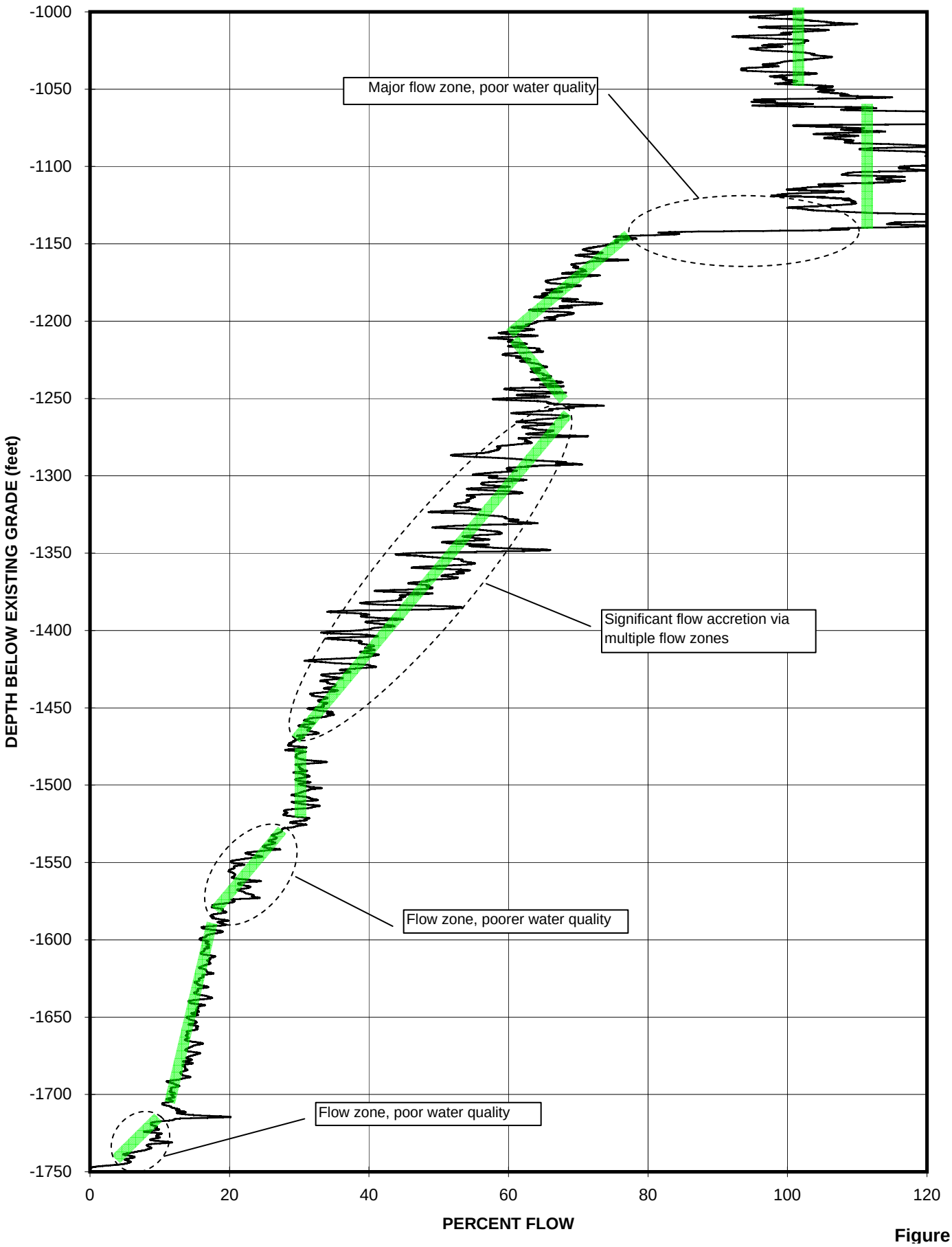

Figure 4

TABLE 1 Geologic and Hydrogeologic Summary

Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Depth (ft)	Geologic Age	Lithologic Description	Formation Name	Hydrogeologic Unit
0				
10	Recent	Soil, sand.	Pamlico Formation	
	Pleistocene	Sand and Shell with Sandstone and Limestone	Anastasia Formation	Surficial Aquifer
240				
	Pliocene	Silty Sand With Limestone and Shell	Tamiami Formation	Semiconfining Unit
420				
	Miocene	Sandy, Silty, Calcareous Clay	Hawthorn Group Arcadia Formation	Confining Unit
994				
	Oligocene	Limestone and Calcareous Sand	Suwanee Formation	Upper Floridan Aquifer
1200				
	Upper Eocene	Limestone, Fossiliferous, Partly Dolomitic	Ocala Formation	Middle Floridan Aquifer
1720				
1750	Middle Eocene	Limestone and Dolomite	Avon Park Formation	Lower Floridan Aquifer

Water Quality Summary Table

TABLE 2 Drilling Water Quality Data Summary

Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Nominal 20- inch diameter Open Hole (1300-1600 ft b.g.)
Flow and Water Quality Pre-Acidization Test

Date	Time	Static Head (feet agl)	Flow (gpm)	Est. Total Flow (gals)	Field Analysis								Comments
					Chloride (mg/L)	Specific Conductance (µS/cm)	Temperature (°C)	H2S (mg/L)	pH	Turbidity (NTU)	ORP (mV)	D.O. mg/L	
04/30/07	15:12	33.10	na	0	nm	nm	nm	nm	nm	nm	nm	nm	Start flow (fully open)
	15:15	nm	1,000	3,000	nm	nm	nm	nm	nm	nm	nm	nm	
	15:45	nm	1,000	33,000	2,000	5,543	23.2	nm	7.38	1.00	-130.7	1.55	
	16:15	nm	1,000	63,000	2,000	5,481	23.2	nm	8.02	0.39	-175.3	3.50	
	16:30	nm	990	78,850	2,000	5,524	23.2	nm	7.70	0.58	-193.5	0.99	
	16:45	nm	990	93,700	2,000	5,510	22.9	nm	7.71	0.63	-200.5	0.95	
	17:00	nm	990	108,550	2,000	5,528	22.7	nm	7.68	0.49	-191.9	0.89	
	17:15	nm	990	122,400	2,000	5,510	22.8	nm	7.70	0.40	-198.4	0.90	
	17:30	nm	990	137,250	2,000	5,497	22.7	1.10	7.75	0.36	-199.5	0.86	
	17:35	nm	990	142,200	nm	nm	nm	nm	nm	nm	nm	nm	Collect lab. sample
	17:45	nm	990	147,150	nm	nm	nm	nm	nm	nm	nm	nm	Stop flow.

"agl" denotes "above ground level"
"mg/L" denotes "milligrams per liter"
"µS/cm" denotes "microSiemens per centimeter"
"°C" denotes "degrees Celsius"
"mV" denotes "milivolts"
"nm" denotes "not measured"
"na" denotes "not applicable"
Green font- surface water sample.

"DO" denotes "Disolved Oxygen"

Note: one well volume= 13000 gallons.

TABLE 2 Drilling Water Quality Data Summary

Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Nominal 12- inch diameter Pilot Hole
Reverse-Air Drilling

Date	Time	Depth (feet bgl)	Static Head (feet agl)	Flow (gpm)	Field Analysis						
					Chloride (mg/L)	Specific Conductance (mS/cm)	Temperature (°C)	H2S (mg/L)	pH (units)	Turbidity (NTU)	D.O. (mg/L)
02/08/07	13:05	Canal	na	na	40	602	22	nm	7.48	12.70	3.71
	12:10	1,002	33.18	86	nm	nm	nm	nm	nm	nm	nm
	13:30	1,005	nm	nm	2,250	7,040	24.1	nm	7.31	>50	nm
	14:55	1,011	31.75	120	3,000	7,400	24.1	nm	7.14	>50	nm
	15:10	1,021	nm	nm	3,000	7,480	24.4	0.50	7.30	>50	nm
	15:20	1,031	nm	nm	3,000	7,500	24.5	0.50	7.38	>50	nm
	16:45	1,042	32.15	133	3,000	7,500	24.2	0.50	7.33	>50	nm
	17:35	1,052	nm	nm	2,500	7,830	23.1	nm	7.36	>50	nm
	17:45	1,062	nm	nm	2,500	7,810	22.8	nm	7.34	>50	nm
02/09/07	6:30	1,073	31.1 (overnight)	180	nm	nm	nm	nm	nm	nm	nm
	8:30	Canal	na	na	40	604	18.7	nm	7.41	14	3.58
	14:45	1,071	nm	nm	2,500	7,560	24.1	0.50	7.05	>50	nm
02/12/07	11:15	Canal	na	na	80	685	22.7	nm	7.55	15	4.34
02/13/07	15:45	1,048	33.10	213	2,500	7,840	24.3	0.60	7.15	36	nm
02/16/07	10:15	1,103	30.80	375	3,000	8,350	22.1	1.60	7.30	>50	nm
	11:15	1,113	nm	nm	3,000	9,020	21.8	nm	7.35	>50	nm
	11:30	1,123	nm	nm	3,000	9,890	21.6	nm	7.25	>50	nm
	11:45	1,135	31.53	515	3,000	10,450	21.6	1.50	7.03	>50	nm
	13:15	Canal	na	na	380	1,677	13.9	nm	7.60	8.15	4.55
02/16/07	14:50	1,135	nm	530	3,000	8,490	21.5	nm	7.27	>50	nm
	17:45	1,135	nm	530	3,000	8,870	21.3	nm	7.10	11.50	nm
	18:15	1,135	nm	530	3,000	8,700	20.9	1.70	7.09	2.11	2.84
	18:45	1,135	nm	530	3,000	8,600	20.9	1.70	7.09	0.42	1.96

TABLE 2 Drilling Water Quality Data Summary

Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Nominal 12- inch diameter Pilot Hole
Reverse-Air Drilling

Date	Time	Depth (feet bgl)	Static Head (feet agl)	Flow (gpm)	Field Analysis						
					Chloride (mg/L)	Specific Conductance (mS/cm)	Temperature (°C)	H2S (mg/L)	pH (units)	Turbidity (NTU)	D.O. (mg/L)
02/17/07	9:10	1,145	nm	nm	4,000	11,550	20.1	nm	7.28	>50	nm
	9:23	1,155	nm	nm	4,000	11,460	20.5	nm	7.32	>50	nm
	9:55	1,166	29.68	1,000	4,000	11,140	21.3	1.05	7.26	>50	nm
	10:45	1,176	nm	nm	3,500	10,780	22.5	nm	7.16	>50	nm
	11:00	1,186	nm	nm	3,500	10,270	22.5	nm	7.22	>50	nm
	11:35	1,197	29.56	1,070	3,500	9,620	22.6	1.20	7.38	>50	2.52
02.17/07	12:30	1,207	nm	nm	3,000	8,340	22.6	nm	7.41	>50	nm
	12:43	1,217	nm	nm	3,000	8,730	22.4	nm	7.46	>50	nm
	13:00	1,229	29.63	1,170	3,000	9,180	22.4	1.10	7.45	>50	2.23
	13:45	1,239	nm	nm	3,000	9,280	22.1	nm	7.39	>50	nm
	13:50	Canal	na	na	240	1,120	19.0	nm	7.68	6.12	4.78
	14:00	1,249	nm	nm	3,000	9,470	22.1	nm	7.49	>50	nm
	14:30	1,260	29.50	1,240	3,000	9,440	22.0	0.90	7.59	>50	2.73
	15:20	1,270	nm	nm	3,000	9,220	21.8	nm	7.80	>50	nm
	15:40	1,280	nm	nm	3,000	8,470	21.6	nm	7.86	>50	nm
	16:00	1,292	31.15 (overnight)	1,330	3,000	8,310	21.3	0.75	7.75	>50	2.89

TABLE 2 Drilling Water Quality Data Summary

Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Nominal 12- inch diameter Pilot Hole
Reverse-Air Drilling

Date	Time	Depth (feet bgl)	Static Head (feet agl)	Flow (gpm)	Field Analysis						
					Chloride (mg/L)	Specific Conductance (mS/cm)	Temperature (°C)	H2S (mg/L)	pH (units)	Turbidity (NTU)	D.O. (mg/L)
02/19/07	8:55	1,300	nm	nm	3,000	7,850	19.1	nm	7.47	>50	nm
	9:05	1,310	nm	nm	2,500	7,810	21.6	nm	7.33	>50	nm
	9:20	1,320	nm	nm	2,500	7,820	21.4	nm	7.20	>50	nm
	9:45	1,324	29.30	1,420	3,000	7,810	21.3	nm	7.19	>50	nm
	10:30	1,330	nm	nm	2,500	7,690	21.9	nm	7.31	>50	nm
	10:40	1,340	nm	nm	2,500	7,820	20.2	nm	7.47	>50	nm
	10:50	1,350	nm	nm	2,500	6,660	21.5	nm	7.48	>50	nm
Combined	11:10	1,356	nm	nm	2,500	9,620	22.0	nm	7.32	>50	nm
02/19/07	11:15	1,356	29.54	1,530	2,500	7,700	21.4	nm	7.60	>50	nm
	12:00	1,360	nm	nm	2,500	6,720	21.7	nm	7.68	>50	nm
	12:12	1,370	nm	nm	2,500	6,100	21.9	nm	7.68	>50	nm
	12:23	1,380	nm	nm	2,000	5,520	21.7	nm	7.76	>50	nm
	12:35	1,385	29.63	1,640	2,000	5,450	20.8	nm	7.54	>50	nm
	13:12	1,390	nm	nm	2,000	5,450	22.6	nm	7.51	>50	nm
	13:28	1,400	nm	nm	2,000	5,410	22.4	nm	7.58	>50	nm
	13:45	1,410	nm	nm	2,000	5,430	22.1	nm	7.53	>50	nm
	14:05	1,416	29.95	1,760	2,000	5,460	21.1	nm	7.57	>50	nm
	15:00	1,426	nm	nm	2,000	5,250	23.2	nm	7.64	>50	nm
	15:15	1,436	nm	nm	2,000	5,130	23.0	nm	7.53	>50	nm
Combined	15:40	1,447	30.35	1,830	2,000	5,000	22.4	0.60	7.70	>50	nm
02/19/07	16:49	1,457	nm	nm	2,000	5,100	21.6	nm	7.67	>50	nm
	17:08	1,467	nm	nm	2,000	5,020	21.8	nm	7.69	>50	nm
	17:55	1,478	nm	1,850	2,000	4,910	21.4	0.75	7.88	>50	3.05

TABLE 2 Drilling Water Quality Data Summary

Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Nominal 12- inch diameter Pilot Hole
Reverse-Air Drilling

Date	Time	Depth (feet bgl)	Static Head (feet agl)	Flow (gpm)	Field Analysis						
					Chloride (mg/L)	Specific Conductance (mS/cm)	Temperature (°C)	H2S (mg/L)	pH (units)	Turbidity (NTU)	D.O. (mg/L)
02/20/07	7:00	1,478	31.72 (overnight)	2,300	2,000	8,310	19.9	1.50	7.23	14.20	3.23
	9:00	1,488	nm	nm	2,000	4,930	20.1	nm	7.18	>50	nm
	9:20	1,498	nm	nm	2,000	4,910	20.5	nm	7.15	>50	nm
	9:45	1,510	30.29	2,300	2,000	4,940	21.0	1.00	7.24	>50	2.85
	10:40	1,520	nm	nm	2,000	5,000	22.7	nm	7.21	>50	nm
	10:55	1,530	nm	nm	2,000	4,990	23.0	nm	7.23	>50	nm
	11:30	1,542	30.00	2,315	2,000	5,070	22.5	0.30	7.42	>50	3.11
	12:30	1,552	nm	nm	2,000	5,310	22.7	nm	7.38	>50	nm
	12:50	1,562	nm	nm	2,000	5,360	23.0	nm	7.42	>50	nm
	13:20	1,573	30.30	2,400	2,000	5,410	22.8	0.75	7.60	>50	3.25
	14:15	1,583	nm	nm	2,000	5,460	22.9	nm	7.78	>50	nm
	14:20	Canal	na	na	340	1,410	16.2	nm	7.84	2.10	3.96
	14:45	1,593	nm	nm	2,000	5,390	22.8	nm	7.69	>50	nm
	15:35	1,605	30.31	2,490	2,000	5,580	22.7	0.70	7.48	>50	3.05
Combined	15:40	1,605	nm	nm	2,000	7,980	23.6	1.80	7.49	>50	2.23
02/20/07	16:45	1,615	nm	nm	2,000	5,540	22.8	nm	7.78	>50	nm
	17:05	1,625	nm	nm	2,000	5,560	22.9	nm	7.80	>50	nm
	17:55	1,636	32.44 (overnight)	2,530	2,500	5,630	22.1	0.70	7.72	>50	3.6
	18:15	Canal (N side)	na	na	160	913	12.3	nm	7.73	6.08	4.01

TABLE 2 Drilling Water Quality Data Summary

Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Nominal 12- inch diameter Pilot Hole
Reverse-Air Drilling

Date	Time	Depth (feet bgl)	Static Head (feet agl)	Flow (gpm)	Field Analysis						
					Chloride (mg/L)	Specific Conductance (mS/cm)	Temperature (°C)	H2S (mg/L)	pH (units)	Turbidity (NTU)	D.O. (mg/L)
02/21/07	7:30	Canal (S side)	na	na	140	883	15.0	nm	7.51	1.23	4.35
	8:15	1,646	nm	nm	2,500	5,730	21.2	nm	7.33	>50	nm
	8:35	1,656	nm	nm	2,500	5,710	21.2	nm	7.30	>50	nm
	9:00	1,668	nm	nm	2,500	5,720	21.3	nm	7.32	>50	nm
	9:10	1,668	31.40	2,610	2,500	5,670	21.3	0.75	7.25	>50	3.08
	9:55	1,678	nm	nm	2,500	5,800	22.2	nm	7.18	>50	nm
02/21/07	10:35	1,688	nm	nm	2,500	5,840	22.3	nm	7.38	>50	nm
	10:45	1,690	nm	nm	2,500	5,820	23.0	0.90	7.39	>50	2.25
Combined	11:08	1,699	30.30	2,630	3,000	7,820	23.8	2.10	7.22	>50	2.87
02/21/07	12:15	1,710	nm	nm	2,500	5,920	23.2	nm	7.36	>50	nm
	13:05	1,720	nm	nm	2,500	6,000	23.1	nm	7.48	>50	nm
	13:45	1,731	30.69	2,680	3,000	6,200	23.3	0.70	7.51	>50	3.2
	14:45	1,740	nm	nm	3,000	7,010	23.2	nm	7.58	>50	nm
	15:25	1,750	nm	nm	3,000	7,310	23.2	1.00	7.65	>50	3.32
Combined	15:40	1,750	nm (stop flow)	2,750	3,000	7,590	23.7	1.60	7.62	49.00	1.55
02/26/07	15:55	1,750	30.65	nm	na	na	na	na	na	na	na
	16:10	1,750	31.18	nm	na	na	na	na	na	na	na
	16:25	1,750	31.40	nm	na	na	na	na	na	na	na
	16:35	1,750	31.56	nm	na	na	na	na	na	na	na
	16:55	Canal (N side)	na	na	160	895	20.4	um	7.89	16.10	4.22
	14:15	1,750	33.36	3,230	3,000	6,720	23.3	1.55	7.00	0.00	2.75

"bgl" denotes "below ground level"
"gpm" denotes "gallons per minute"
"mg/L" denotes "milligrams per liter"
∀µS/cm" denotes "microSiemens per centimeter"
°C" denotes "degrees Celsius"
"nm" denotes "not measured"
"n/a" denotes "not applicable"
"DO" denotes "Disolved Oxygen"

TABLE 3 Packer and Open Hole Testing Summary

Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Test	Date	Type of Test (Free Flow)	Depth Interval (feet bls)	Tested Aquifer Thickness (ft)	Flow Rate 12-inch pipe (gpm)	Flow Rate 3.5-inch pipe (gpm)	Time to Stabilization (min)	Stabilized Drawdown 12-inch pipe (ft)	Stabilized Drawdown 3.5-inch pipe (ft)	Time to Static Level 12-inch pipe (min)	Time to Static Level 3.5-inch pipe (min)
1	16-Feb-07	12"Open Hole	1002-1135	133	533	n/a	135	24.7	n/a	25	n/a
2	09-Mar-07	Single Packer (PT#1)	1684-1750	59	2530	62	226	19.31	0.39	24	85
3	10-Mar-07	Single Packer (PT#2)	1625-1750	125	2530	78	165	18.9	0.01	78	120
4	12-Mar-07	Single Packer (PT#3)	1500-1750	250	2530	78.5	277	21.1	0.34	n/a	131
5	20-Mar-07	Single Packer (PT#4)	1114-1595	481	500	88	310	22.8	0.22	n/a	139
6	30-Apr-07	20" Open Hole	1300-1600	300	1000	n/a	n/a	n/a	n/a	n/a	n/a

Note: Open Hole tests primary target was to determine water quality, therefore water- level monitoring devices were not installed.
"bls" denotes "feet below grade"
"gpm" denotes "gallons per minute"
"n/a" denotes "not applicable"

TABLE 4 Step Rate Pumping Test Summary

Floridan Aquifer Test Well No. F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Date: 06/26/07

Step No.	Static WL (feet above grade)	Ending WL (feet below grade)	Pumping Rate (average) (gpm)	Drawdown below original static (feet)	Drawdown below step static (feet)	Specific Capacity from original static (gpm/ft-dd)	Specific Capacity from step static (gpm/ft-dd)	Sand Content (parts/million)	
								surge	continuous
1	33.71	19.91*	600	13.80	13.80	43.48	43.48	<1	<1
2	33.35	13.11	1100	46.82	46.46	23.49	23.67	6.3	1
3	33.09	44.24	1680	77.95	77.35	21.55	21.72	5.1	2
4	32.85	69.28	2130	102.99	102.13	20.68	20.86	11.2	2

Steps consisted of 30 minutes of pumping followed by 30 minutes of recovery.
"WL" signifies "water level" above or below grade as measured by a transducer (set at 93 feet below grade)
"gpm" denotes "gallons per minute"
"ft" denote "feet"
"gpm/ft-dd" denote "gallons per minute per foot of drawdown"
* feet above grade
Note: maximum free flow from well was previously stabilized at 990 gpm; well wasn't pumped during first step.

The equation to predict the drawdown after 30 minutes of pumping at any rate is:

$$s = 0.188193Q + 1.52337 \times 10^{-5} Q^2 \text{ (Jacob, 1944)}$$

TABLE 5 SDI Testing Summary

Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Date: 06/28/07

Test No.	TIME	Flow Rate (gpm)	Initial Reading (T_i)	After 5 Minutes (T_5)		After 10 Minutes (T_{10})		After 15 Minutes (T_{15})	
			Seconds to Fill 500 ml	Seconds to Fill 500 ml	SDI	Seconds to Fill 500 ml	SDI	Seconds to Fill 500 ml	SDI
1	14:28	1,750	12.08	12.55	**0.75**	13.00	**0.71**	13.43	**0.67**
2	14:58	1,750	11.50	11.52	**0.03**	11.75	**0.21**	11.62	**0.07**
3	15:33	1,750	11.53	11.98	**0.75**	12.74	**0.95**	13.12	**0.81**
Average SDI					**0.51**		**0.62**		**0.52**

Note: water supply pressure was 30 PSI during all tests.
Pumping rate of 1,750 gallons per minute was the same as pumping rate during constant 8-hr pump test conducted on 06/27/07.

TABLE 6 Water Quality Summary

Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Sample ID:	TW-1/1048	TW-1/1135	PT No.1	PT N0. 2	PT No.3	PT No. 4	TW-1 Prelim.	Final
Sample Date	2/13/07	2/16/07	3/8/07	3/10/07	3/12/07	3/20/07	4/30/07	6/27/07
Sampled Interval (ft bg)	1000-1048	1000-1135	1684-1750	1625-1750	1500-1750	1114-1595	1300-1600	1300-1600
Source	(12" Open Hole)	(12" Open Hole)	Packer Test No.1	Packer Test No.2	Packer Test No.3	Packer Test No.4	(20" Open Hole)	(Final)
General Chemistry (mg/L)								
Ammonia as N	1.9	1.8	1.2	1.2	0.89	0.78	0.77	0.51
Chloride	2300	2600	2100	1900	1700	1400	1400	1500
Nitrate as N	<0.1	<0.1	na	na	na	na	<0.1	0.28
Total Dissolved Solids	4800	5000	4800	4200	3800	3400	3300	3000
Alkalinity-Bicarbonate	97	120	150	150	140	150	140	150
Alkalinity-Carbonate	n/a	na	<10	<10	<10	<10	<10	<0.64
Sulfate	410	470	420	410	390	340	330	370
Calcium Hardness	380	320	na	na	na	na	na	na
Magnesium Hardness	120	na	na	na	na	na	na	na
Total Hardness as CaCO3	510	460	na	na	na	na	na	na
Hydrogen Sulfide	0.60*	1.70*	1.4	1.7	1.2	1.3	1.1*	0.53
Additional Analyses								
Ox-Red Potential (mV)*	-200	-490	-288.2	-280.8	-328.3	-336.8	-199.5	na
Gross Alpha (pCi/L)	10.1	6.8	na	na	na	na	n/a	4.5
Specific Conductance (uS/cm)	7840*	8600*	7500	7000	6400	5600	5500	5270*
pH (su)	7.15*	7.09*	7.33*	7.76*	7.64*	7.71	5.82	7.29
Turbidity (NTU)	73	0.42*	0*	10.5*	0*	0*	0.36*	na
TOC (mg/L)	n/a	n/a	n/a	n/a	n/a	n/a	1.7	na
DOC (mg/L)	n/a	n/a	n/a	n/a	n/a	n/a	1.9	na
Silica (mg/L)	n/a	n/a	n/a	n/a	n/a	n/a	13	14
Fluoride (mg/L)	n/a	n/a	n/a	n/a	n/a	n/a	2.1	1.1
Color (PCU)	n/a	n/a	n/a	n/a	n/a	n/a	1	5
Metals (200.8), mg/L								
Manganese	0.017	0.0041	na	na	na	na	n/a	0.0025
Arsenic	0.0024	0.0011	0.0039	0.0039	0.0029	<0.00032	0.006	0.0042
Magnesium	30	36	180	130	130	120	n/a	120
Potassium	5.5	7.7	35	41	39	30	n/a	35
Calcium	150	130	150	110	110	120	n/a	110
Iron	1.3	<0.020	0.58	<0.020	0.071	0.29	n/a	0.02
Sodium	230	270	1200	1100	850	790	n/a	820
Dissolved Metals (200.8), mg/L								
Arsenic	0.0036	0.0099	na	na	na	na	na	na
Iron	0.54	<0.020	na	na	na	na	na	na

Footnotes:

* Parameter analyzed in the field

mV - milivolts

NTU - Turbidity Units

mg/L - milligrams per liter; ug/L - micrograms per liter

na - Not Analyzed

uS/cm - milisiemens/centimeter

pCi/L - picocuries/Liter

PCU - color uints

ARCADIS

Appendix A

Geologic (Well) Log

ARCADIS

GEOLOGIC LOG
Seacoast Utility Authority
North Palm Beach, FL
Test Well TW-1

GEOLOGIC LOG	DRILLING COMMENTS	DEPTH INTERVAL	THICKNESS
SAND – Sand, 100%, clear to dark yellowish orange (10YR 6/6), quartz, fine grained; Organic matter, trace, dark yellowish brown (10YR 4/2) to black (N1), partly decomposed; Shell, trace, white (N9) to very pale orange (10YR 8/2), small tests to 0.2 inch.	Nominal 32-inch drilling bit and stabilizer assembly. Mud-rotary method.	0 - 10	10
SHELLY SAND – Sand, 60%, clear to grayish orange (10YR 7/4), quartz, very fine to medium grained, rounded to sub-rounded; Shell, 40%, white (N9) to medium light gray (N6), tests up to 0.5 inch; Organic matter, trace, dark yellowish brown (10YR 4/2) to black (N1), partly decomposed.		10 - 40	30
SAND AND SHELL WITH SOME SANDSTONE – Sand, 40%, clear to grayish orange (10YR 7/4), quartz, very fine to medium grained, rounded to sub-rounded; Shell, 40%, white (N9) to medium light gray (N6), tests to 0.3 inch; Sandstone, 20%, clear to medium gray (N5), quartz, very fine grained, moderately hard, moderately well cemented; Organic matter, trace, dark yellowish brown (10YR 4/2) to black (N1), partly decomposed.		40 - 50	10
SILTY SAND – Sand, 100%, clear to yellowish gray (5Y 7/2), quartz, very silty, very fine to fine grained; Organic matter, trace, dark brown, decomposed; Shell, trace.		50-60	10
SAND – Sand, 100%, clear to yellowish gray (5Y 7/2), quartz, very fine to fine grained, rounded to sub-rounded, slightly phosphatic; Shell, trace, small (0.2 inch) tests.		60-80	20
SAND – Sand, 100%, clear to light gray (N7), quartz, phosphatic, fine to medium grained, sub-rounded; Shell, trace, very small tests.		80-90	10
SAND AND SHELL WITH LITTLE LIMESTONE – Sand, 50%, clear to very pale orange (10YR 8/2), quartz, little calcareous, phosphatic, very fine to fine grained, rounded to sub-rounded; Shell, 40%, white (N9) to medium light gray (N6), small tests to 0.2 inch; Limestone, 10%, very pale orange (10YR 8/2) to light gray (N7), few quartz grains, very fine to fine grained with shell intraclasts, moderately hard, moderately well cemented, slightly phosphatic.		90-110	20
SILTY SAND – Sand, 100%, clear to yellowish gray (5Y 7/2), quartz, very silty, very fine to fine grained, phosphatic; Organic matter, trace, dark brown, decomposed; Shell, trace.		110-120	10
SAND – Sand, 100%, clear, quartz, little calcareous -light gray to yellowish gray (5Y 8/1), phosphatic, very fine to fine grained, rounded to sub-rounded; Limestone, trace, white (N9) to very pale orange (10YR 8/2), moderately hard, moderately well cemented, phosphatic; Shell, trace, small fragments.		120-150	30

GEOLOGIC LOG	DRILLING COMMENTS	DEPTH INTERVAL	THICKNESS
SAND WITH SOME SHELL – Sand, 80%, clear, quartz, some calcareous- very pale orange (10YR 8/2) to light gray (N7), phosphatic, fine to medium grained, sub-rounded to sub-angular; Shell, 20%, white (N9) to very pale orange (10YR 8/2), small (0.1-0.2 inch) tests; Limestone, trace, very pale orange (10YR 8/2), moderately hard, moderately well cemented.		150-210	60
SILTY SAND – Sand, 100%, clear to yellowish gray (5Y 7/2), quartz, very silty, very fine to fine grained, phosphatic; Shell, trace.		210-220	10
SAND – Sand, 100%, clear, quartz, little calcareous- light gray (N7) to yellowish gray (5Y 8/1), phosphatic, fine grained with some medium grained, sub-rounded; Limestone, trace, white (N9) to very pale orange (10YR 8/2), moderately hard, moderately well cemented, phosphatic; Shell, trace, small fragments.		220-240	20
LIMESTONE WITH SOME SHELL AND LITTLE SAND – Limestone, 55%, very pale orange (10YR 8/2) to light gray (N7), few quartz grains, very fine to fine grained with shell intraclasts, moderately hard, moderately well cemented, slightly phosphatic; Shell, 35%, white (N9) to very pale orange (10YR 8/2), small fragments (0.1-0.3 inch); Sand, 10%, clear to yellowish gray (5Y 7/2), quartz, very silty, very fine to fine grained, phosphatic.		240-300	60
SAND , LIMESTONE AND LITTLE SHELL – Sand, 50%, clear to very pale orange (10YR 8/2), quartz, little calcareous, phosphatic, very fine to fine grained, rounded to sub-rounded; Limestone, 40%, very pale orange (10YR 8/2) to light gray (N7), few quartz grains, very fine to fine grained with shell intraclasts, moderately hard, moderately well cemented, slightly phosphatic; Shell, 10%, white (N9) to medium light gray (N6), small tests to 0.2 inch.		300-330	30
SILTY SAND – Sand, 100%, clear to yellowish gray (5Y 7/2), quartz, very silty, very fine to fine grained, slightly phosphatic; Shell, trace.		330-420	90
SILTY CLAY – Clay, 100%, light olive gray (5Y 6/1) to yellowish gray (5Y 7/2), calcareous and silty, slightly phosphatic, low plasticity, little cohesive; Limestone, trace, white (N9), to very light gray (N8), well cemented, with shell intraclasts, phosphatic, poorly cemented.		420-510	90
CLAY – Clay, 100%, light olive gray (5Y 6/1) to yellowish gray (5Y 7/2), slightly calcareous, low plasticity, slightly cohesive; Limestone, trace, white (N9) to very light gray (N8), well cemented with shell intraclasts, phosphatic; Shell, trace, white (N9) to medium light gray (N6), small tests to 0.1 inch.		510-800	290

GEOLOGIC LOG	DRILLING COMMENTS	DEPTH INTERVAL	THICKNESS
CLAY WITH VERY LITTLE CHERT– Clay, 95%, light olive gray (5Y 6/1), cohesive, low plasticity, slightly calcareous; Chert, 5%, yellowish gray (5Y 8/1) to medium light gray (N6), well cemented, hard; Limestone, trace, yellowish gray (5Y 7/2), to very pale orange (10YR 8/2) with some light olive gray (5Y 6/1), moderately hard, well cemented.		800-860	60
CLAY AND SOME LIMESTONE – Clay, 70%, light olive gray (5Y 5/2), calcareous (marl), very soft, cohesive, non-plastic, slightly phosphatic; Limestone, 30%, yellowish gray (5Y 7/2) to very pale orange (10YR 8/2), coquina, very soft, poorly cemented; Shell, trace, very light gray (N8), tests to 0.1-inch.		860-870	10
LIMESTONE, CLAY AND LITTLE SHELL – Limestone, 60%, yellowish gray (5Y 7/2), to very pale orange (10YR 8/2), coquina, very soft, poorly cemented; Clay, 30%, light olive gray (5Y 5/2) to white (N9), calcareous (marl), very soft, cohesive, non-plastic, slightly phosphatic; Shell, 10%, very light gray (N8), tests to 0.1-inch.		870-900	30
CLAY, LIMESTONE AND VERY LITTLE SHELL – Clay, 60%, light olive gray (5Y 5/2) to white (N9), calcareous (marl), very soft, cohesive, non-plastic, slightly phosphatic; Limestone, 35%, yellowish gray (5Y 7/2) to very pale orange (10YR 8/2), coquina, very soft, poorly cemented; Shell, 5%, very light gray (N8), tests to 0.1-inch.		900-920	20
LIMESTONE, SAND, SOME CLAY AND VERY LITTLE SHELL – Limestone, 35%, yellowish gray (5Y 7/2), to very pale orange (10YR 8/2), coquina, very soft, poorly cemented; Sand, 35%, yellowish gray (5Y 7/2), fine grained, calcareous, detritic; Clay, 25%, light olive gray (5Y 5/2) to white (N9), calcareous (marl), very soft, cohesive, non-plastic, slightly phosphatic; Shell, 5%, very light gray (N8), tests to 0.1-inch.		920-930	10
CLAY, SOME LIMESTONE AND LITTLE SHELL – Clay, 60%, light olive gray (5Y 5/2) to white (N9), calcareous (marl), very soft, cohesive, non-plastic, slightly phosphatic; Limestone, 35%, yellowish gray (5Y 7/2) to very pale orange (10YR 8/2), coquina, very soft, poorly cemented, between 954 and 960 ft b.g. limestone moderately hard and moderately well cemented (bit chatter); Shell, 5%, very light gray (N8), tests to 0.1-inch.	954-960 ft b.g. occasional bit chatter	930-960	30
CALCAREOUS SAND AND LITTLE CLAY– Sand, 95%, yellowish gray (5Y 7/2), calcareous, detritic, very fine to fine grained, phosphatic; CLAY, 5%, yellowish gray (5Y 7/2), calcareous (marl), very soft, non plastic.		960-980	20

GEOLOGIC LOG	DRILLING COMMENTS	DEPTH INTERVAL	THICKNESS
LIMESTONE WITH VERY LITTLE CLAY AND SAND – Limestone, 90%, yellowish gray (5 YR 8/1) to (trace) medium gray (N5), oosparite grainstone, with trace of forams, fine grained, soft to moderately hard, poorly to moderately well cemented, vuggy; Clay, 5%, yellowish gray (5 YR 8/1), calcareous (marl), very soft, non plastic; Sand, 5%, yellowish gray (5Y 7/2), calcareous, detritic, very fine to fine grained, very slightly phosphatic.		980-994	14
LIMESTONE AND VERY LITTLE SHELL – Limestone, 95%, yellowish gray (5 YR 8/1) to (trace) medium gray (N5), oosparite grainstone, fossiliferous with trace of forams, fine grained, moderately hard, moderately well cemented, vuggy; Shell, 5%, yellowish gray (5 YR 7/2) to light gray (N7), tests to 0.1- inch; Clay, trace, yellowish gray (5 YR 8/1), calcareous (marl), very soft, non plastic, very slightly phosphatic.		994-1015	21
LIMESTONE – Limestone, 100%, yellowish gray (5 YR 8/1), oolitic grainstone, slightly fossiliferous with trace of forams (lepidocyclina), fine grained, few shell intraclasts, moderately hard to soft, moderately well to poorly cemented, slightly vuggy; Shell, trace, yellowish gray (5 YR 7/2) to light gray (N7), tests to 0.1- inch.	Drilled by Reverse-Air Method below 1015ft b.g.	1015-1030	15
LIMESTONE WITH SOME SAND – Limestone, 80%, yellowish gray (5 YR 8/1), oolitic grainstone, slightly fossiliferous with trace of forams (lepidocyclina), fine grained, soft to very soft, poorly cemented, slightly vuggy; Sand, 20%, yellowish gray (5 YR 8/1) to very light gray (N8), calcareous, detritic, very fine to fine grained, sub-angular to sub-rounded; Clay, trace, white (N9) to yellowish gray (5YR 8/1), calcareous (marl), chalky, very soft, non plastic. Frequent (20%) cement cuttings.	WOB= 1-2K RPM= 62-72 Pressure= 180 lbs Some dredging.	1030-1050	20
LIMESTONE WITH SAND AND LITTLE CLAY– Limestone, 50%, yellowish gray (5 YR 8/1), oolitic grainstone, slightly fossiliferous with trace of forams (lepidocyclina), fine grained, soft to very soft, poorly cemented, slightly vuggy; Sand, 40%, yellowish gray (5 YR 8/1) to very light gray (N8), calcareous, detritic, very fine to fine grained, sub-angular to sub-rounded; Clay, 10%, white (N9) to light olive gray (5Y 5/2), calcareous (marl), chalky, very soft, non plastic. Occasional cement fragments.	WOB= 1K RPM= 62-72 Pressure= 180 lbs Heavy dredging.	1050-1070	20

GEOLOGIC LOG	DRILLING COMMENTS	DEPTH INTERVAL	THICKNESS
LIMESTONE – Limestone, 100%, yellowish gray (5 YR 7/2), oolitic grainstone, very fine grained, little (10%) micritic, fossiliferous with forams (lepidocyclina), soft to moderately hard, moderately well to poorly cemented, slightly vuggy. Large amount (80%) of cement fragments from 1074 to 1080 ft b.g., less below.	WOB= 2-4K RPM=70 Pressure= 180 lbs	1070-1100	30
LIMESTONE – Limestone, 100%, yellowish gray (5 YR 7/2), oolitic grainstone, very fine grained, some (20%) micritic, slightly dolomitic, fossiliferous with forams (lepidocyclina), moderately hard to hard, moderately well to well cemented. Small amount (10%) of cement fragments.	WOB= 5-6K RPM= 70 Pressure= 180 lbs	1100-1120	20
LIMESTONE – Limestone, 100%, pale yellowish brown (10YR 6/2), oolitic grainstone, very fossiliferous with shell intraclasts and forams (lepidocyclina), fine grained, partly slightly dolomitic, soft to moderately hard, poorly to moderately well cemented, vuggy. Small amount (10%) of cement fragments.	WOB= 2-4K RPM= 70 Pressure= 180 lbs	1120-1130	10
LIMESTONE – Limestone, 100%; 80% pale yellowish brown (10YR 6/2) grainstone, abundant fossils (forams), fine grained, soft to very soft, poorly cemented, vuggy; 20% light gray (N7) and very light gray (N8), micritic, slightly dolomitic, moderately hard, moderately well cemented; Shell, trace, pale yellowish brown (10YR 6/2), tests to 0.1-inch. Up to 20% of cement fragments in cuttings.	WOB= 2-4K RPM= 70 Pressure= 180 lbs	1130-1170	40
LIMESTONE – Limestone, 100%; 50% yellowish gray (5YR 8/1) grainstone, few fossills (forams), fine grained, soft to very soft, poorly cemented, vuggy; 50% light gray (N7) to medium gray (N5), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 2-4K RPM= 70-75 Pressure= 180 lbs	1170-1180	10
LIMESTONE – Limestone, 100%; 90% yellowish gray (5YR 8/1) oolitic grainstone, fossiliferous (forams), fine grained, very soft, poorly cemented; 10% very light gray (N8), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 1-2K RPM= 70-75 Pressure= 180 lbs	1180-1200	20
LIMESTONE – Limestone, 100%; 50% yellowish gray (5YR 8/1) grainstone, few fossills (forams), fine grained, soft to very soft, poorly cemented, vuggy; 50% light gray (N7) to medium gray (N5), micritic, slightly dolomitic, moderately hard, moderately well cemented; Clay, trace, very light gray (N8), calcareous, very soft, non plastic.	WOB= 2-4K RPM= 70-75 Pressure= 180 lbs	1200-1210	10
LIMESTONE – Limestone, 100%; 90% yellowish gray (5YR 8/1) oolitic grainstone, few fossils (forams), fine grained, soft, poorly cemented; 10% very light gray (N8), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 1-4K RPM= 70-75 Pressure= 180 lbs	1210-1250	40

GEOLOGIC LOG	DRILLING COMMENTS	DEPTH INTERVAL	THICKNESS
LIMESTONE WITH VERY LITTLE CLAY – Limestone, 95%; 70% yellowish gray (5YR 8/1) oolitic grainstone, few fossils (forams), fine grained, soft, poorly cemented, chalky; 30% very light gray (N8), micritic, slightly dolomitic, moderately hard, moderately well cemented; Clay, 5%, white (N9) to yellowish gray (5YR 8/1), calcareous, very soft, non plastic.	WOB= 2-4K RPM= 70-75 Pressure= 180 lbs	1250-1270	20
LIMESTONE – Limestone, 100%; 50% yellowish gray (5YR 8/1) grainstone, few fossills (forams), fine grained, soft to very soft, poorly cemented, vuggy; 50% light gray (N7) to medium gray (N5), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 2-4K RPM= 70-75 Pressure= 180 lbs	1270-1337	67
DOLOMITE AND LITTLE LIMESTONE – Dolomite, 90%, pale yellowish brown (10YR 6/2) to light olive gray (5Y 5/2), very fine grained, slightly vuggy, hard, well cemented; Limestone, 10%, very light gray (N7) to yellowish gray (5YR 8/1) grainstone, fine grained, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 10-12K RPM= 55 Pressure= 180 lbs	1337-1340	3
LIMESTONE – Limestone, 100%; 60% light gray (N7) to medium gray (N5), micritic, slightly dolomitic, moderately hard, moderately well cemented; 40% yellowish gray (5YR 8/1) grainstone, few fossills (forams), fine grained, soft to very soft, poorly cemented, vuggy.	WOB= 2-4K RPM= 70-75 Pressure= 180 lbs	1340-1356	16
CLAY AND SOME LIMESTONE – Clay, 70%, medium light gray (N6), calcareous, limey (marl), very soft to soft, non plastic; Limestone, 30%; yellowish gray (5YR 8/1) oolitic grainstone, fine grained, soft, poorly cemented, vuggy.	WOB= 2-4K RPM= 70-75 Pressure= 180 lbs	1356-1359	3
LIMESTONE – Limestone, 100%; 90% yellowish gray (5YR 8/1) oolitic grainstone, fossiliferous (forams), fine grained, very soft to soft, poorly cemented; 10% very light gray (N8), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 2-4K RPM= 70-75 Pressure= 180 lbs	1359-1370	11
DOLOMITIC LIMESTONE – Limestone, 100%; 95%, medium gray (N5) to medium light gray (N6), very fine grained , little micritic, dolomitic, moderately hard to hard, moderately well to well cemented; 5%, yellowish gray (5YR 8/1), oolitic grainstone, few fossills (forams), fine grained, soft to very soft, poorly cemented, vuggy ; Clay, trace, medium gray (N5), calcareous, limey (marl), very soft to soft, non plastic	WOB= 4-10K RPM= 60-70 Pressure= 180 lbs	1370-1380	10
DOLOMITIC LIMESTONE – Limestone, 100%; yellowish gray (5Y 7/2), very fine grained, little micritic, dolomitic, moderately hard to hard, moderately well to well cemented; Clay, trace, yellowish gray (5Y 7/2), calcareous (marl), very soft, non plastic	WOB= 4-10K RPM= 50-60 Pressure= 180 lbs	1380-1390	10

GEOLOGIC LOG	DRILLING COMMENTS	DEPTH INTERVAL	THICKNESS
DOLOMITIC LIMESTONE – Limestone, 100%; 90%, pale yellowish gray (5Y 6/4), grainstone, very fine grained, slightly dolomitic, moderately hard, moderately well cemented; 10%, white (N9) to light gray (N8), fine grained, soft, poorly cemented.	WOB= 4-6K RPM= 60-70 Pressure= 180 lbs	1390-1400	10
DOLOMITIC LIMESTONE – Limestone, 100%, very light gray (N8) to dark gray (N3), very fine grained, dolomitic, moderately hard to hard, moderately well to well cemented, vuggy.	WOB= 4-6K RPM= 60-70 Pressure= 180 lbs	1400-1425	25
LIMESTONE – Limestone, 100%; 50%, pale yellowish gray (5Y 6/4), grainstone, very fine grained, fossiliferous (few forams), soft, poorly cemented; 50%, very light gray (N8), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 4-6K RPM= 60-70 Pressure= 180 lbs	1425-1440	15
LIMESTONE – Limestone, 100%; 70%, pale yellowish gray (5Y 6/4), grainstone, very fine grained, fossiliferous (few forams), soft, poorly cemented; 30%, very light gray (N8), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 4-6K RPM= 70 Pressure= 180 lbs	1440-1450	10
DOLOMITIC LIMESTONE – Limestone, 100%, very light gray (N8) to yellowish gray (5Y 8/1), very fine grained, dolomitic, moderately hard to hard, moderately well to well cemented, slightly vuggy; Clay, trace, very light gray (N8), calcareous, very soft, non plastic.	WOB= 8-10K RPM= 60-70 Pressure= 180 lbs	1450-1460	10
LIMESTONE WITH VERY LITTLE CLAY – Limestone, 95%; 85% yellowish gray (5YR 8/1), oolitic grainstone, few fossils (forams), fine grained, soft, poorly cemented, chalky; 15% very light gray (N8), micritic, slightly dolomitic, moderately hard, moderately well cemented; Clay, 5%, white (N9) to yellowish gray (5YR 8/1), calcareous, very soft, non plastic.	WOB= 2-4K RPM= 70-75 Pressure= 180 lbs	1460-1470	10
LIMESTONE – Limestone, 100%; 60%, pale yellowish gray (5Y 6/4), oolitic grainstone, very fine grained, fossiliferous (few forams), soft, poorly to moderately-well cemented; 40%, very light gray (N8) to medium gray (N5), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 2-4K RPM= 70 Pressure= 180 lbs	1470-1480	10
LIMESTONE – Limestone, 100%; 90%, pale yellowish gray (5Y 8/1), oolitic grainstone, very fine grained, fossiliferous (few forams), very soft, poorly cemented; 10%, very light gray (N8) to medium gray (N5), micritic, slightly dolomitic, moderately hard, moderately well cemented; Clay, trace, yellowish gray (5YR 8/1), calcareous, very soft, non plastic.	WOB= 4-6K RPM= 70 Pressure= 180 lbs	1480-1490	10

GEOLOGIC LOG	DRILLING COMMENTS	DEPTH INTERVAL	THICKNESS
LIMESTONE – Limestone, 100%; 50%, pale yellowish gray (5Y 8/1), oolitic grainstone, very fine grained, fossiliferous (large forams), very soft, poorly cemented; 50%, very light gray (N8) to medium gray (N5), micritic, slightly dolomitic, moderately hard to hard, moderately- well to well cemented.	WOB= 4-6K RPM= 70 Pressure= 180 lbs	1490-1510	20
DOLOMITE AND VERY LITTLE LIMESTONE – Dolomite, 95%, pale yellowish brown (10YR 6/2) , micritic, some very fine grained, slightly vuggy, hard, well cemented; Limestone, 5%, very light gray (N7) to yellowish gray (5YR 8/1), grainstone, fine grained, slightly dolomitic, soft, poorly cemented.	WOB= 10-12K RPM= 55 Pressure= 180 lbs	1510-1520	10
LIMESTONE – Limestone, 100%; 50%, yellowish gray (5Y 7/2), oolitic grainstone, very fine grained, fossiliferous (forams), very soft, poorly cemented; 50%, very light gray (N8) to medium gray (N5), micritic, slightly dolomitic, moderately hard to hard, moderately well to well cemented.	WOB= 4-6K RPM= 70 Pressure= 180 lbs	1520-1550	30
LIMESTONE – Limestone, 100%, pale yellowish gray (5Y 8/1), oolitic grainstone, slightly dolomitic, fine grained, trace of fossils (forams), soft to moderately hard, poorly to moderately well cemented; Clay, trace, yellowish gray (5YR 8/1), calcareous, very soft, non plastic.	WOB= 2-4K RPM= 70 Pressure= 180 lbs	1550-1560	10
LIMESTONE – Limestone, 100%; 95%, pale yellowish gray (5Y 8/1), oolitic grainstone, very fine grained, fossiliferous (forams), very soft, poorly cemented; 5%, light gray (N7) to medium gray (N5), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 1-2K RPM= 75 Pressure= 180 lbs	1560-1570	10
LIMESTONE – Limestone, 100%; 70-90%, pale yellowish gray (5Y 7/2 to 5Y8/1), oolitic grainstone, very fine grained, fossiliferous (forams), very soft, poorly cemented; 10%-30%, light gray (N7) to medium gray (N5), very fine grained, slightly dolomitic, vuggy, moderately hard, moderately well cemented; Clay, trace, yellowish gray (5YR 8/1), calcareous, very soft, non plastic.	WOB= 2-4K RPM= 70 Pressure= 180 lbs	1570-1620	50
DOLOMITIC LIMESTONE – Limestone,100%; 95%, yellowish gray (5Y 8/1), micritic to very fine grained, dolomitic, trace of fossils, moderately hard to soft, moderately well to poorly cemented, slightly vuggy; 5% pale yellowish gray (5Y 8/1), oolitic grainstone, very fine grained, fossiliferous (forams), very soft, poorly cemented; Clay, trace, yellowish gray (5YR 8/1), calcareous, very soft, non plastic.	WOB= 4-6K RPM= 70 Pressure= 180 lbs	1620-1630	10

GEOLOGIC LOG	DRILLING COMMENTS	DEPTH INTERVAL	THICKNESS
LIMESTONE – Limestone, 100%; 90% yellowish gray (5Y 7/2) to pale yellowish brown (10YR 6/2), oolitic grainstone, very fine grained, fossiliferous (forams), very soft, poorly cemented; 10%, light gray (N7) to medium gray (N5), micritic, slightly dolomitic, moderately hard, moderately- well cemented.	WOB= 1-2K RPM= 70 Pressure= 180 lbs	1630-1650	20
DOLOMITE AND LITTLE LIMESTONE – Dolomite, 90%, dark gray (N3) to medium gray (N5), micritic, very slightly vuggy, moderately hard, moderately well cemented; Limestone, 10%, very pale orange (10YR 8/20 to grayish orange (10YR 7/4), grainstone, fine grained, very soft to soft, poorly cemented.	WOB= 10-12K RPM= 55 Pressure= 180 lbs	1650-1660	10
LIMESTONE – Limestone, 100%; 90%, yellowish gray (5Y 7/2 to 5Y 8/1), oolitic grainstone, fine grained, abundant fossils (forams), very soft, poorly cemented; 10%, light gray (N7) to medium gray (N5), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 1-2K RPM= 75 Pressure= 180 lbs	1660-1670	10
DOLOMITIC LIMESTONE – Limestone,100%; 95% yellowish gray (5Y 8/1), micritic to very fine grained, dolomitic, trace of fossils, moderately hard to soft, moderately well to poorly cemented, slightly vuggy; 5% yellowish gray (5Y 8/1), oolitic grainstone, very fine grained, fossiliferous (forams), very soft, poorly cemented; Clay, trace, yellowish gray (5YR 8/1), calcareous, very soft, non plastic.	WOB= 6-10K RPM= 70 Pressure= 180 lbs	1670-1680	10
LIMESTONE – Limestone, 100%, very light gray (N8) to medium gray (N5), very fine grained, slightly dolomitic, soft to moderately hard, moderately well to poorly cemented, slightly vuggy.	WOB= 2-4K RPM= 60-70 Pressure= 180 lbs	1680-1686	6
DOLOMITIC LIMESTONE – Limestone, 100%; 90% grayish orange (10YR 7/4), grainstone, fine grained, dolomitic, few forams, moderately hard, moderately well cemented, slightly vuggy; 10% light gray (N7) to very light gray (N8), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 6-10K RPM= 70 Pressure= 180 lbs	1686-1690	4
DOLOMITIC LIMESTONE – Limestone, 100%; 90% very pale orange (10YR 8/2) to grayish orange (10YR 7/2), sucrosic grainstone, fine grained, dolomitic, slightly fossiliferous, moderately hard to soft, moderately well, slightly vuggy; 10% light gray (N7) to very light gray (N8), micritic, slightly dolomitic, moderately hard, moderately well cemented.	WOB= 4-6K RPM= 70 Pressure= 180 lbs	1690-1700	10
DOLOMITIC LIMESTONE – Limestone, 100%; 80% medium light gray (N6) to very light gray (N8), micritic to very fine grained, dolomitic, moderately hard, moderately well cemented; 20% yellowish gray (5Y 8/1), oolitic grainstone, very fine grained, some forams, soft, poorly cemented; Clay, trace, medium gray (N6), calcareous, very soft, non plastic.	WOB= 4-6K RPM= 70 Pressure= 180 lbs	1700-1718	18

GEOLOGIC LOG	DRILLING COMMENTS	DEPTH INTERVAL	THICKNESS
DOLOMITE – Dolomite, 100%, medium light gray (N6) to light gray (N7), little pale yellowish brown (10YR 6/2), micritic, moderately hard to hard, well cemented, slightly vuggy.	WOB= 24K RPM= 50 Pressure= 180 lbs	1718-1726	8
DOLOMITE AND DOLOMITIC LIMESTONE – Dolomite, 50%, pale yellowish brown (10YR 6/2) to medium light gray (N6) and light gray (N7), micritic, moderately hard to hard, well cemented, slightly vuggy; Limestone, 50%, very pale orange (10YR 8/2) to grayish orange (10YR 7/2), sucrosic grainstone, fine grained, dolomitic, slightly fossiliferous (forams), moderately hard, moderately well cemented.	WOB= 10-12K RPM= 65 Pressure= 180 lbs	1726-1730	4
DOLOMITIC LIMESTONE – Limestone, 100%, very pale orange (10YR 8/2) to white (N9), micritic, dolomitic, trace of forams, moderately hard, moderately well cemented, slightly vuggy.	WOB= 4-6K RPM= 70 Pressure= 180 lbs	1730-1740	10
DOLOMITIC LIMESTONE AND DOLOMITE - Limestone, 70%, very pale orange (10YR 8/2) to grayish orange (10YR 7/2), micritic, some very fine grained, dolomitic, slightly fossiliferous (forams), moderately hard to soft, moderately well to poorly cemented.; Dolomite, 30%, pale yellowish brown (10YR 6/2) to medium light gray (N6) and light gray (N7), micritic, moderately hard, moderately well cemented, slightly vuggy.	WOB= 4-6K RPM= 75 Pressure= 180 lbs	1740-1750	10

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Appendix B

Geophysical Logs

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Appendix C

Packer Tests

Packer Test No. 1

Start date: 3/8/07
End date: 3/10/07

Flowmeter Total-Start (gal) : n/a	**Open Hole Total Depth (feet bpl) : 1750 ft BG**
Flowmeter Total- End (gal) : 110530	**Packer Depth (feet bpl): 1684 Ft BG**
Average Test Free Flow Rate (gpm) : 62	**Tested Interval: 1684-1750 ft BG**
Development Duration (min): ~205	**Transducer Depth (feet b. TOC): 60 (no annular space transducer installed)**
Static DTW Before Test (ft AG): 34.77	**Top of test pipe: 2.83+31.05+11= 44.88 Ft AG**

Approximately 21400 gls (17 well volumes) purged from well prior to lab. samples collection (at 13:15).

Development

Well Parameters						Field Parameters							
Date	Time	Elapsed Time (min)	Flow Rate (gpm)	Total Volume (gal)	Depth to Water (feet bpl)	Temp. (°C)	Cond. (mS/cm)	Chlorides (mg/L)	pH	Turbidity (NTU)	H2S (mg/L)	ORP mV	D.O. (mg/L)
3/8/07	7:45	0	0.0	0	start	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3/8/07	10:15	150	62.0	9300	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3/8/07	12:28	283	63.0	17829	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3/8/07	12:38	303	62.0	18786	n/a	22.5	7698	3000	7.35	0.0	n/a	-245	0.50
3/8/07	12:48	313	62.0	19406	n/a	22.6	7697	3000	7.32	0.0	n/a	-254.6	0.49
3/8/07	12:58	323	62.0	20026	n/a	22.6	7698	3000	7.36	0.0	n/a	-271.2	0.49
3/8/07	13:08	333	62.0	20646	n/a	22.6	7697	3000	7.34	0.0	1.35	-280.8	0.49
3/8/07	13:40	365	62.0	22630	n/a	22.6	7696	3000	7.33	0.0	n/a	-288.2	0.49
3/8/07	13:40	365	62.0	22630	Flow off	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Total duration of development and total volume of purged water are estimated.

Note: Overnight recovery wasn't monitored by ARCADIS personel

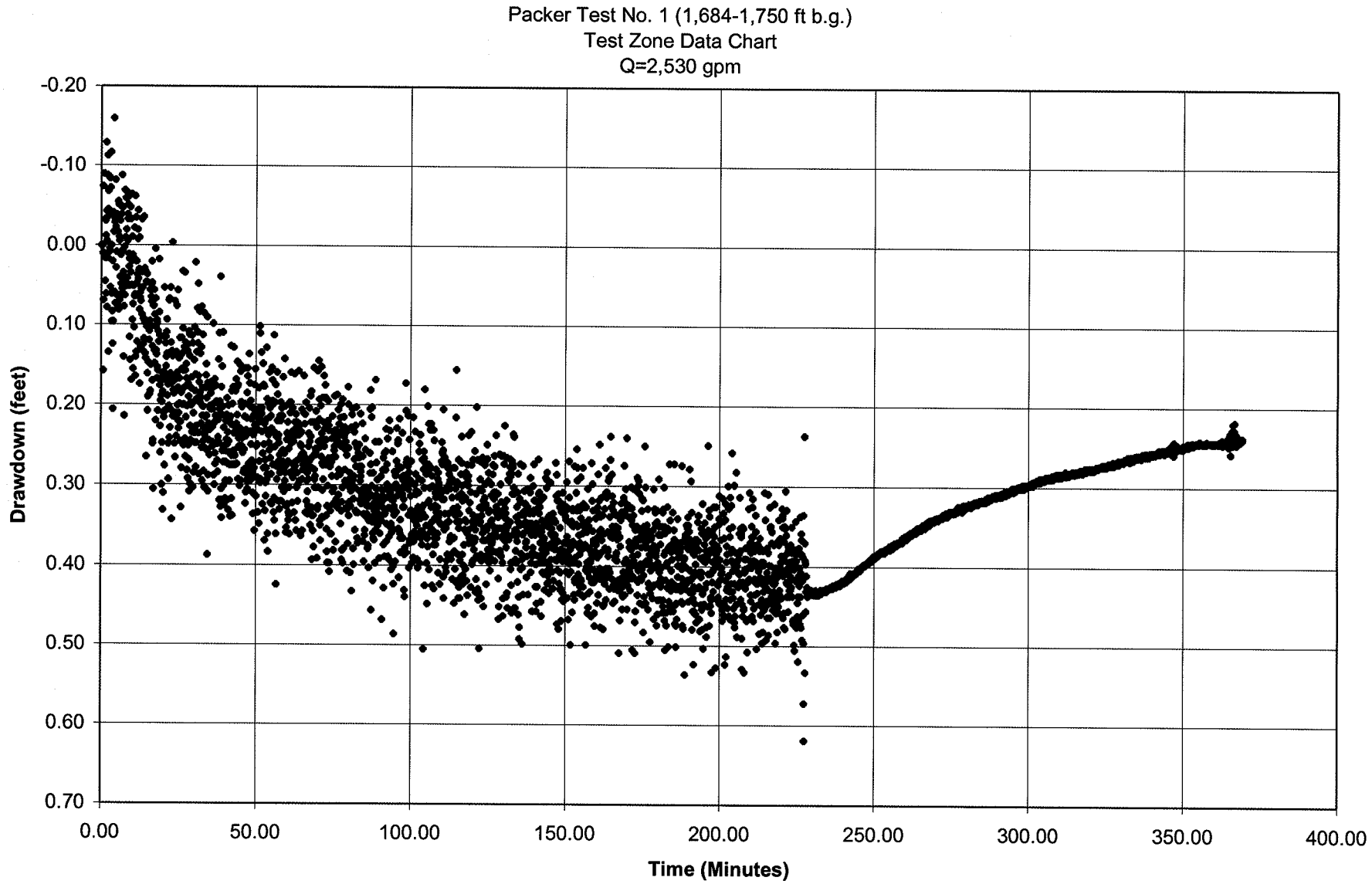
Free Flow (annular space) Test

Date	Time	Elapsed Time (min)	Flow Rate (ft Man.)	Flow Rate (gpm)	Total Volume (gal)	Head 12" (ft AG)	Ft of water Transd. Annulus	DTW 3.5" Pipe (feet b. TOC)	Water level 3.5" Pipe (Ft AG)	Water level 3.5" Pipe (transd. Ft)	Water level 3.5" Pipe (Tr. Ft AG)	Comments	
3/9/07	10:55	0.0	0.0	0	Recovery	n/a	n/a	10:11	34.77	n/a	n/a		
3/9/07	13:40	0.0	0.0	0	Recovery	33.31	33.29	10:11	34.77	49.36	34.24		
3/9/07	13:52	0.0	0.0	0	Start test	n/a	n/a	n/a	n/a	n/a	n/a	Open Valve	
3/9/07	13:52.5	0.5	31.0	2770	~1390	n/a	n/a	n/a	n/a	n/a	n/a		
3/9/07	14:05	13.0	29.8	~2500	~32500	16.55	n/a	n/a	n/a	49.30	34.18		
3/9/07	14:15	23.0	28.8	2485	~57300	n/a	n/a	n/a	n/a	49.13	34.01		
3/9/07	14:25	33.0	28.0	2400	~82500	n/a	n/a	n/a	n/a	n/a	n/a	Adjust Flow	
3/9/07	14:36	44.0	30.0	2530	~110350	n/a	n/a	n/a	n/a	49.04	33.92		
3/9/07	14:50	58.0	30.0	2530	~145800	n/a	n/a	n/a	n/a	49.11	33.99		
3/9/07	15:05	73.0	30.0	2530	~183800	n/a	n/a	n/a	n/a	49.09	33.97		
3/9/07	15:20	88.0	30.0	2530	~221800	14.70	n/a	n/a	n/a	49.06	33.94		
3/9/07	15:35	103.0	30.0	2530	~259800	n/a	n/a	n/a	n/a	49.03	33.91		
3/9/07	15:50	118.0	29.5	~2450	~297300	14.65	n/a	n/a	n/a	48.97	33.85	Adjust Flow	
3/9/07	16:05	133.0	30.0	2530	~335300	14.13	n/a	n/a	n/a	48.94	33.82		
3/9/07	16:20	148.0	30.0	2530	~373200	14.10	n/a	n/a	n/a	48.94	33.82		
3/9/07	16:35	163.0	30.0	2530	~411100	14.05	n/a	n/a	n/a	48.97	33.87		
3/9/07	16:50	178.0	30.0	2530	~449100	14.00	n/a	n/a	n/a	49.03	33.91		
3/9/07	17:05	193.0	30.0	2530	~487000	14.00	n/a	n/a	n/a	48.97	33.85		
3/9/07	17:20	208.0	30.0	2530	~525000	13.96	n/a	n/a	n/a	48.97	33.85		
3/9/07	17:38	226.0	30.0	2530	~570500	n/a	n/a	10.61	34.27	n/a	n/a	Stop Flow	

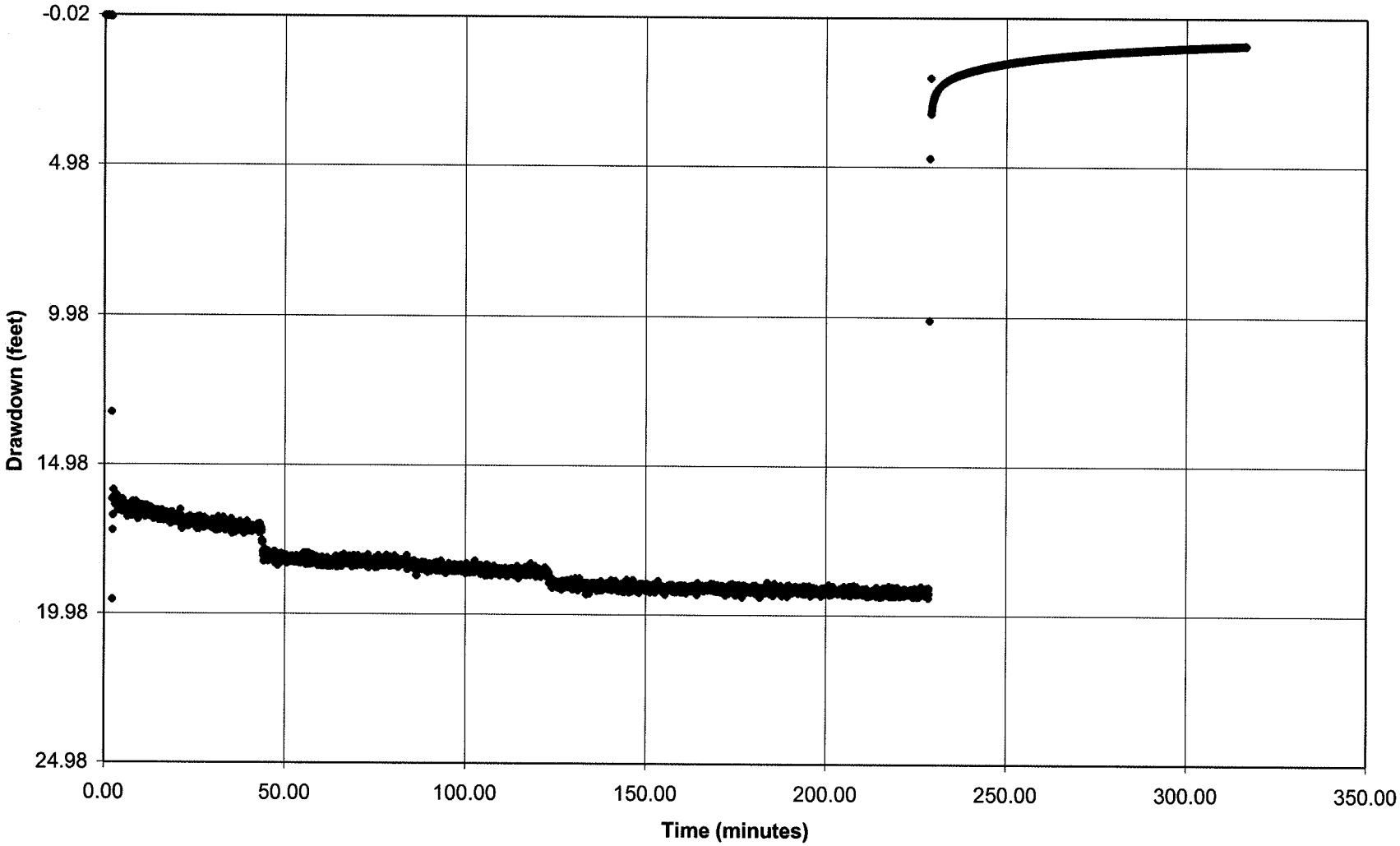
						Field Parameters							
	Final annular space water sample					Temp.	Cond.	Chlorides	pH	Turbidity	H2S	ORP	D.O.
Time: 17:36		224.0	30.0	2530	~565500	22.6	7100	3000	6.82	0.00	1.60	n/a	2.24

Note: Recovery (overnight) wasn't monitored by ARCADIS personel

gpm denotes gallons per minute
ft AG denotes feet above grade, ft BG feet below grade.
°C denotes degrees celcius.
mS/cm denotes milliSiemans per centimeter.
mg/L denotes milligrams per liter.
psi denotes pressure in pounds per square inch.
mV denotes milivolts
n/a denotes data not available.
DTW denotes "depth to water"


Packer Test No. 1 (1,684-1,750 ft b.g.)
Test Zone Data Chart
Q=2,530 gpm
-0.20
-0.10
0.00
0.10
0.20
0.30
0.40
0.50
0.60
0.70
Drawdown (feet)
0.00
50.00
100.00
150.00
200.00
250.00
300.00
350.00
400.00
Time (Minutes)

Packer Test No. 1 (1,684-1,750 ft b. g.)
Annular Space Data Chart
Q=2,530 gpm



Packer Test No. 2

Start date: 3/10/07
End date: 3/11/07

Flowmeter Total-Start (gal) : 110700	Open Hole Total Depth (feet bpl) : 1750 ft BG
Flowmeter Total- End (gal) : 126480	Packer Depth (feet bpl): 1625 Ft BG
Average Test Free Flow Rate (gpm) : 78	Tested Interval: 1625-1750 ft BG — Annulus transducer is located 5.30 ft AG
Development Duration (min): ~205	Transducer Depth (feet b. TOC): 30
Static DTW Before Test in the Test Pipe (ft AG): 34.83	Top of test pipe: 2.65+31.05+11= 44.64 Ft AG

Approximately 15400 gls (9.6 well volumes) purged from well prior to lab. samples collection (at 11:25).

Development

Well Parameters						Field Parameters							
Date	Time	Elapsed Time (min)	Flow Rate (gpm)	Total Volume (gal)	Depth to Water (feet bpl)	Temp. (°C)	Cond. (mS/cm)	Chlorides (mg/L)	pH	Turbidity (NTU)	H2S (mg/L)	ORP mV	D.O. (mg/L)
3/10.07	~8:05	0	0.0	0	start	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3/10/07	10:15	130	78.0	~10300	n/a	22.0	7156	3000	7.65	10.7	n/a	-245.0	0.50
3/10/07	10:35	145	78.0	~11100	n/a	22.2	7142	3000	7.7	n/a	n/a	-254.6	0.49
3/10/07	10:50	153	78.0	~12100	n/a	22.3	7139	3000	7.69	10.6	n/a	-271.2	0.49
3/10/07	11:05	163	78.0	~13300	n/a	22.3	7140	3000	7.74	n/a	1.35	-280.8	0.49
3/10/07	11:20	173	78.0	~14400	n/a	n/a	7138	3000	7.76	10.5	1.35	-280.8	0.49
3/10/07	11:25	205	78.0	~15400	n/a	Lab. sample	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3/10/07	11:30	205	78.0	~15800	Flow off	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Note: Total duration of development and total volume of purged water are estimated.

Recovery

Date	Time	Elapsed Time (min)	DTW 3.5" Pipe (feet b. TOC)	Water level 3.5" Pipe (Ft AG)	Water level 3.5" Pipe (transd. Ft)	Water level 3.5" Pipe (Tr. Ft AG)	Head Annulus (ft AG)	Ft of water Annulus (Transd.)	Ft of water Annulus (Tr. Ft AG)	Comments
3/10.07	11:57	27	10.11	34.53	20.50	35.14	n/a	n/a	n/a	
3/10/07	12:15	45	n/a	n/a	20.17	n/a	n/a	n/a	n/a	
3/10/07	12:43	73	n/a	n/a	20.22	n/a	n/a	n/a	n/a	
3/10/07	12:45	75	n/a	n/a	20.23	n/a	n/a	n/a	n/a	
3/10/07	12:47	77	n/a	n/a	20.24	n/a	n/a	n/a	n/a	
3/10/07	12:49	79	n/a	n/a	20.24	n/a	n/a	n/a	n/a	
3/10/07	12:52	82	n/a	n/a	20.24	n/a	n/a	n/a	n/a	
3/10/07	12:54	84	n/a	n/a	20.25	n/a	n/a	n/a	n/a	
3/10/07	12:57	87	n/a	n/a	n/a	n/a	n/a	27.31	32.61	
3/10/07	13:00	90	n/a	n/a	n/a	n/a	n/a	27.32	32.62	
3/10/07	13:02	92	n/a	n/a	20.26	n/a	n/a	n/a	n/a	
3/10/07	13:05	95	n/a	n/a	20.27	n/a	n/a	n/a	n/a	
3/10/07	13:10	100	n/a	n/a	20.27	n/a	n/a	n/a	n/a	
3/10/07	13:17	107	9.81	34.83	n/a	n/a	n/a	n/a	n/a	
3/10/07	13:23	113	n/a	n/a	20.30	n/a	32.80	n/a	n/a	
3/10/07	13:25	115	n/a	n/a	n/a	n/a	n/a	27.37	32.67	
3/10/07	13:27	117	n/a	n/a	20.31	n/a	n/a	n/a	n/a	
3/10/07	13:30	120	n/a	n/a	20.31	34.95	n/a	n/a	n/a	

Packer Test No. 2

Free Flow (annular space) Test

Date	Time	Elapsed Time (min)	Flow Rate (ft Man.)	Flow Rate (gpm)	Total Volume (gal)	Head 12" (ft AG)	Ft of water Transd. Annulus	DTW 3.5" Pipe (feet b. TOC)	WL 3.5" Pipe (Ft AG)	WL 3.5" Pipe (transd. Ft)	WL 3.5" Pipe (Tr. Ft AG)	Comments
3/10/07	13:30	0.0	0.0	0	0	start	n/a	9.81	34.83	20.32	34.95	Open Valve
3/10/07	13:31	1.0	30.0	2530	2530	15.9	n/a	n/a	34.77	n/a	n/a	
3/10/07	13:32	2.0	30.0	2530	5060	n/a	n/a	n/a	n/a	20.36	34.91	
3/10/07	13:33	3.0	30.0	2530	7590	15.75	n/a	n/a	n/a	20.33	34.94	
3/10/07	13:35	5.0	30.0	2530	12650	n/a	n/a	n/a	n/a	20.33	34.94	
3/10/07	13:50	20.0	28.0	2445	50000	15.10	n/a	n/a	n/a	20.37	34.9	Adjust Flow
3/10/07	13:53	23.0	30.0	2530	57590	n/a	n/a	n/a	n/a	n/a	n/a	
3/10/07	14:06	36.0	30.0	2530	65180	13.95	n/a	n/a	n/a	20.37	34.9	
3/10/07	14:25	55.0	30.0	2530	113250	13.60	n/a	n/a	n/a	20.36	34.91	
3/10/07	14:40	70.0	30.0	2530	176500	13.25	n/a	n/a	n/a	20.35	34.92	
3/10/07	14:55	85.0	30.0	2530	214450	13.20	n/a	n/a	n/a	20.35	34.92	
3/10/07	15:15	105.0	30.0	2530	252400	13.10	n/a	n/a	n/a	20.33	34.94	
3/10/07	15:30	120.0	30.0	2530	290350	13.08	n/a	n/a	n/a	20.34	34.93	
3/10/07	15:45	135.0	30.0	2530	328300	13.05	n/a	n/a	n/a	20.34	34.93	
3/10/07	16:00	150.0	30.0	2530	366250	13.03	n/a	n/a	n/a	20.33	34.94	
3/10/07	16:15	165.0	30.0	2530	404200	13.02	n/a	n/a	n/a	20.33	34.94	Stop Flow
Note: Total volume of purged water is estimated.												
			Note: Recovery (overnight) wasn't monitored by ARCADIS personel									
	Final annular space water sample					Temp.	Cond.	Chlorides	pH	Turbidity	H2S	ORP / D.O.
Time: 15:36		126.0	30.0	2530	305400	22.9	7250	3000	7.24	0.78	1.50	n/a / n/a

ft AG denotes feet above grade, ft BG feet below grade.

°C denotes degrees celcius.

mS/cm denotes milliSiemans per centimeter.

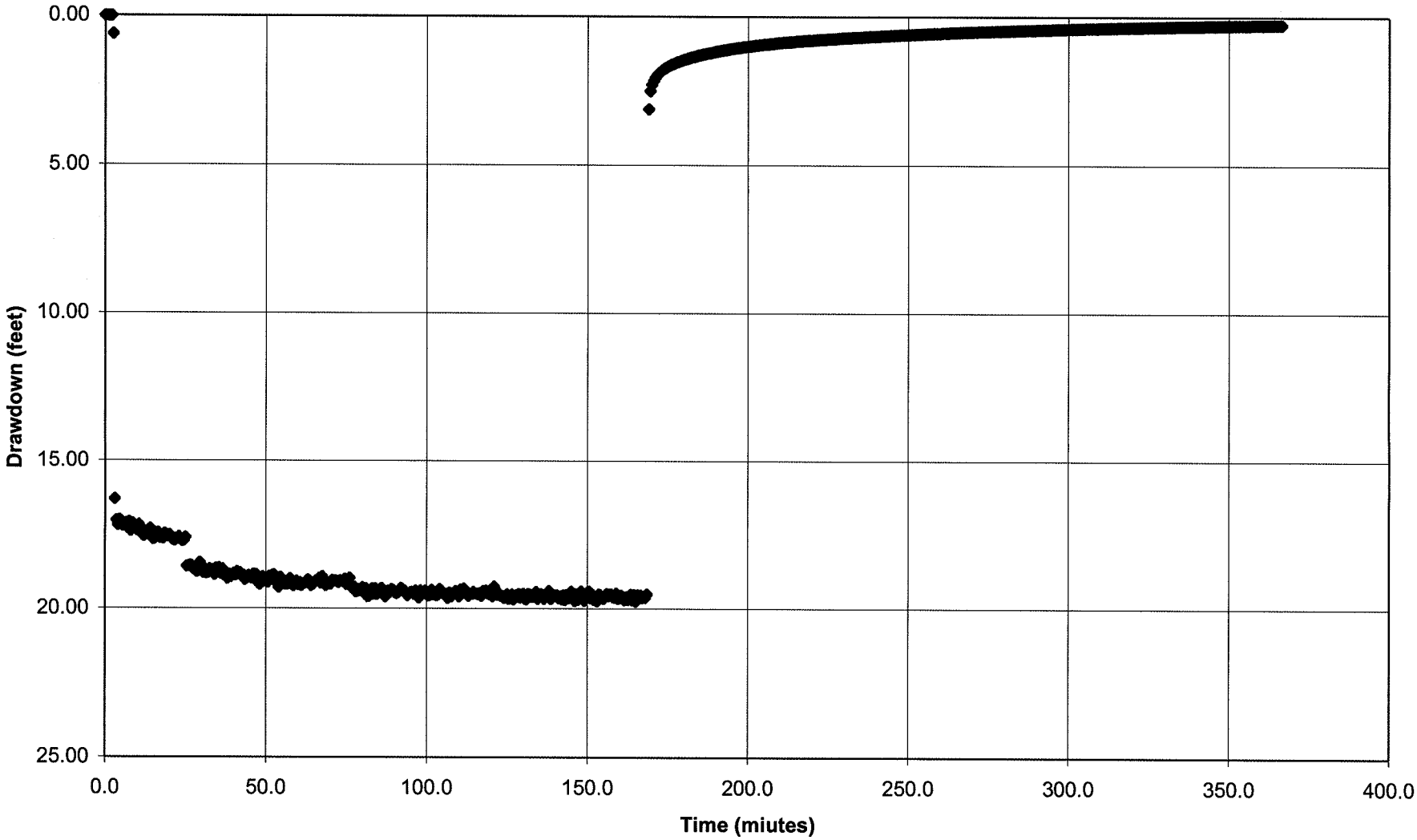
mg/L denotes milligrams per liter.

psi denotes pressure in pounds per square inch.

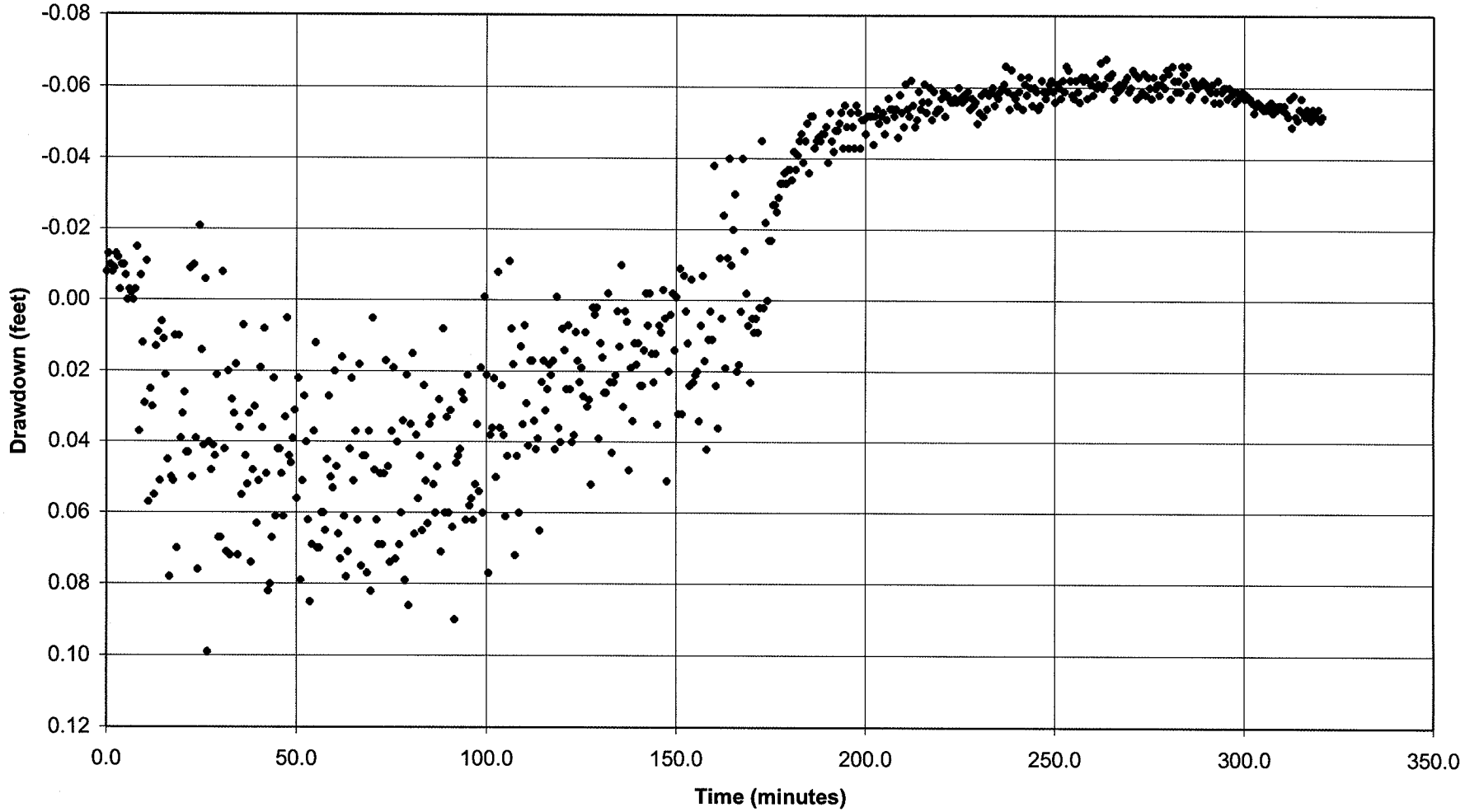
n/a denotes data not available.

n/a denotes data not available.

Packer Test No.2 (1,625-1,750 ft.b.g.)
Annular Space Data Chart
Q=2,530 gpm



Packer Test No.2 (1625-1750 ft b.g.)
Test Zone Data Chart
Q=2,530 gpm



Packer Test No. 3

Start date: 3/12/07

End date: 3/13/07

Flowmeter Total-Start (gal) : 126480

Flowmeter Total- End (gal) : 144940

Average Test Free Flow Rate (gpm) : 78.5

Development Duration (min): ~235

Static DTW Before Test (ft AG): 35.03

Open Hole Total Depth (feet bpl) : 1750 ft BG

Packer Depth (feet bpl): 1500 Ft BG

Tested Interval: 1500-1750 ft BG **Annulus transducer is located 5.30 ft AG**

Transducer Depth (feet b. TOC): 30

Top of test pipe: 2.60+31.05+11= 44.65 Ft AG

Approximately 17700 gls (7 well volumes) purged from well during prior to lab. samples collection (at 12:15).

Development

Well Parameters						Field Parameters							
Date	Time	Elapsed Time (min)	Flow Rate (gpm)	Total Volume (gal)	Depth to Water (feet bpl)	Temp. (°C)	Cond. (mS/cm)	Chlorides (mg/L)	pH	Turbidity (NTU)	H2S (mg/L)	ORP mV	D.O. (mg/L)
3/12/07	~8:30	0	0.0	0	start	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3/12/07	11:00	~150	78.5	~11775	n/a	22.1	6454	2500	7.51	0.0	n/a	-255.1	0.87
3/12/07	11:15	~165	78.5	~12952.5	n/a	22.0	6432	2500	7.66	0.0	1.30	-295	0.81
3/12/07	11:40	~190	78.5	~14915	n/a	22.0	6421	2500	7.62	0.0	n/a	-322.5	0.58
3/12/07	12:05	~215	78.5	~16877.5	n/a	22.1	6405	2500	7.64	0.0	1.30	-328.8	0.54
3/12/07	12:25	~235	Flow off	~18447.5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Note: Total duration of development and total volume of purged water are estimated.

Recovery

Date	Time	Elapsed Time (min)	DTW 3.5" Pipe (feet b. TOC)	WL 3.5" Pipe (Ft AG)	WL 3.5" Pipe (transd. Ft)	WL 3.5" Pipe (Tr. Ft AG)	Head Annulus (ft AG)	Ft of water Annulus (Transd.)	Ft of water Annulus (Tr. Ft AG)	Comments
3/12/07	13:50	85	n/a	n/a	20.32	34.97	n/a	27.73	33.03	
3/12/07	13:56	91	n/a	n/a	20.34	34.95	n/a	n/a	n/a	
3/12/07	14:15	110	n/a	n/a	20.37	34.92	n/a	n/a	n/a	
3/12/07	14:25	120	9.62	35.03	20.36	34.91	n/a	27.75	33.05	
3/12/07	14:30	125	n/a	n/a	20.36	34.91	n/a	n/a	n/a	
3/12/07	14:36	131	n/a	n/a	20.36	34.91	33.03	n/a	n/a	

Packer Test No. 3

Free Flow (annular space) Test

Date	Time	Elapsed Time (min)	Flow Rate (in.Man.)	Flow Rate (gpm)	Total Volume (gal)	Head 12" (ft AG)	Ft of water Transd. / Annulus	DTW 3.5" Pipe (feet b. TOC)	WL 3.5" Pipe (Ft AG)	WL 3.5" Pipe (transd. Ft)	WL 3.5" Pipe (Tr. Ft AG)	Comments
3/12/07	14:38	0.0	0.0	0	0	n/a	n/a	9.62	35.03	16.22	30.87	Open Valve
3/12/07	14:40	2.0	30.0	2530	2530	n/a	n/a	n/a	n/a	17.22	31.87	
3/12/07	14:42	4.0	30.0	2530	10120	15.05	n/a	n/a	n/a	17.10	31.77	
3/12/07	14:44	6.0	30.0	2530	15180	n/a	n/a	n/a	n/a	16.82	31.47	
3/12/07	14:45	7.0	29.0	2490	17390	14.90	n/a	n/a	n/a	16.88	31.53	Adjust Flow
3/12/07	14:50	12.0	30.0	2530	30320	14.25	n/a	n/a	n/a	16.70	31.35	
3/12/07	15:05	27.0	29.5	2510	68310	13.90	n/a	n/a	n/a	16.59	31.24	Adjust Flow
3/12/07	15:20	42.0	30.0	2530	45400	13.55	n/a	n/a	n/a	16.49	31.14	
3/12/07	15:35	57.0	29.5	2510	144210	13.00	n/a	n/a	n/a	16.39	31.04	Adjust Flow
3/12/07	15:50	72.0	30.0	2530	156700	12.90	n/a	n/a	n/a	16.30	30.95	
3/12/07	16:05	87.0	30.0	2530	220110	12.80	n/a	n/a	n/a	16.25	30.90	
3/12/07	16:25	107.0	30.0	2530	270710	12.70	n/a	n/a	n/a	16.22	30.87	
3/12/07	16:45	127.0	30.0	2530	321310	12.58	n/a	n/a	n/a	16.19	30.84	
3/12/07	17:05	147.0	30.0	2530	371910	12.55	n/a	n/a	n/a	16.16	30.81	
3/12/07	17:20	162.0	30.0	2530	409860	12.15	n/a	n/a	n/a	16.10	30.75	
3/12/07	17:45	187.0	30.0	2530	473110	12.10	n/a	n/a	n/a	16.02	30.67	
3/12/07	18:05	207.0	30.0	2530	523710	12.10	n/a	n/a	n/a	16.00	30.65	
3/12/07	18:25	227.0	30.0	2530	574310	12.05	n/a	n/a	n/a	15.96	30.61	
3/12/07	18:45	247.0	30.0	2530	624910	n/a	n/a	n/a	n/a	15.96	30.61	
3/12/07	19:00	262.0	30.0	2530	662860	12.05	n/a	n/a	n/a	15.90	30.55	
3/12/07	19:10	272.0	30.0	2530	688160	n/a	n/a	n/a	n/a	15.91	30.56	
3/12/07	19:15	277.0	30.0	2530	700810	11.95	n/a	14.43	30.22	15.89	30.54	Stop flow

Note: Total volume of purged water is estimated.

Note: Recovery (overnight) wasn't monitored by ARCADIS personel

		Temp.	Cond.	Chlorides	pH	Turbidity	H2S	ORP	D.O.
Time: 19:05	**Final annular space water sample**	22.3	7290	3000	7.15	1.40	1.70	n/a	n/a

ft AG denotes feet above grade, ft BG feet below grade.

°C denotes degrees celcius.

mS/cm denotes milliSiemans per centimeter.

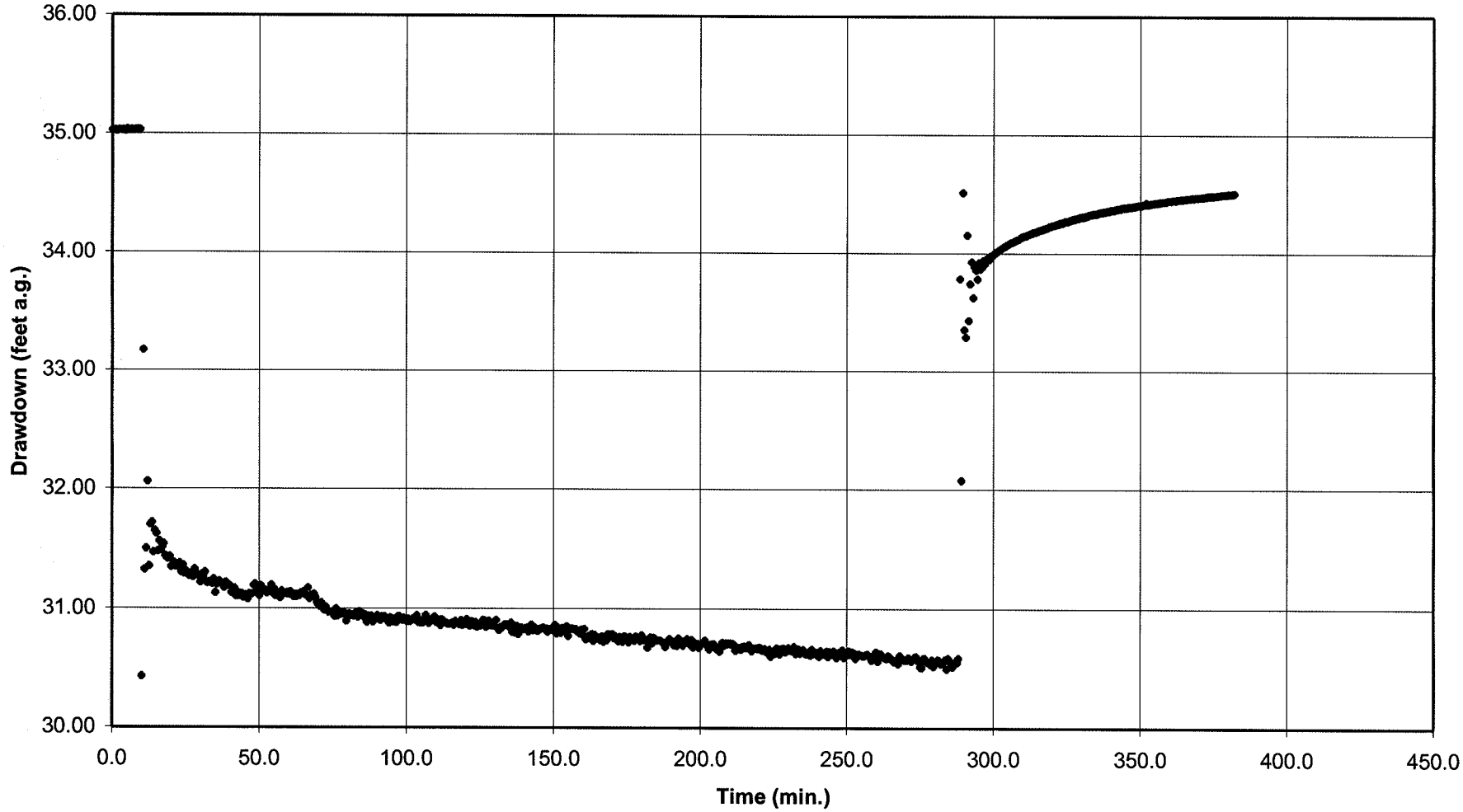
mg/L denotes milligrams per liter.

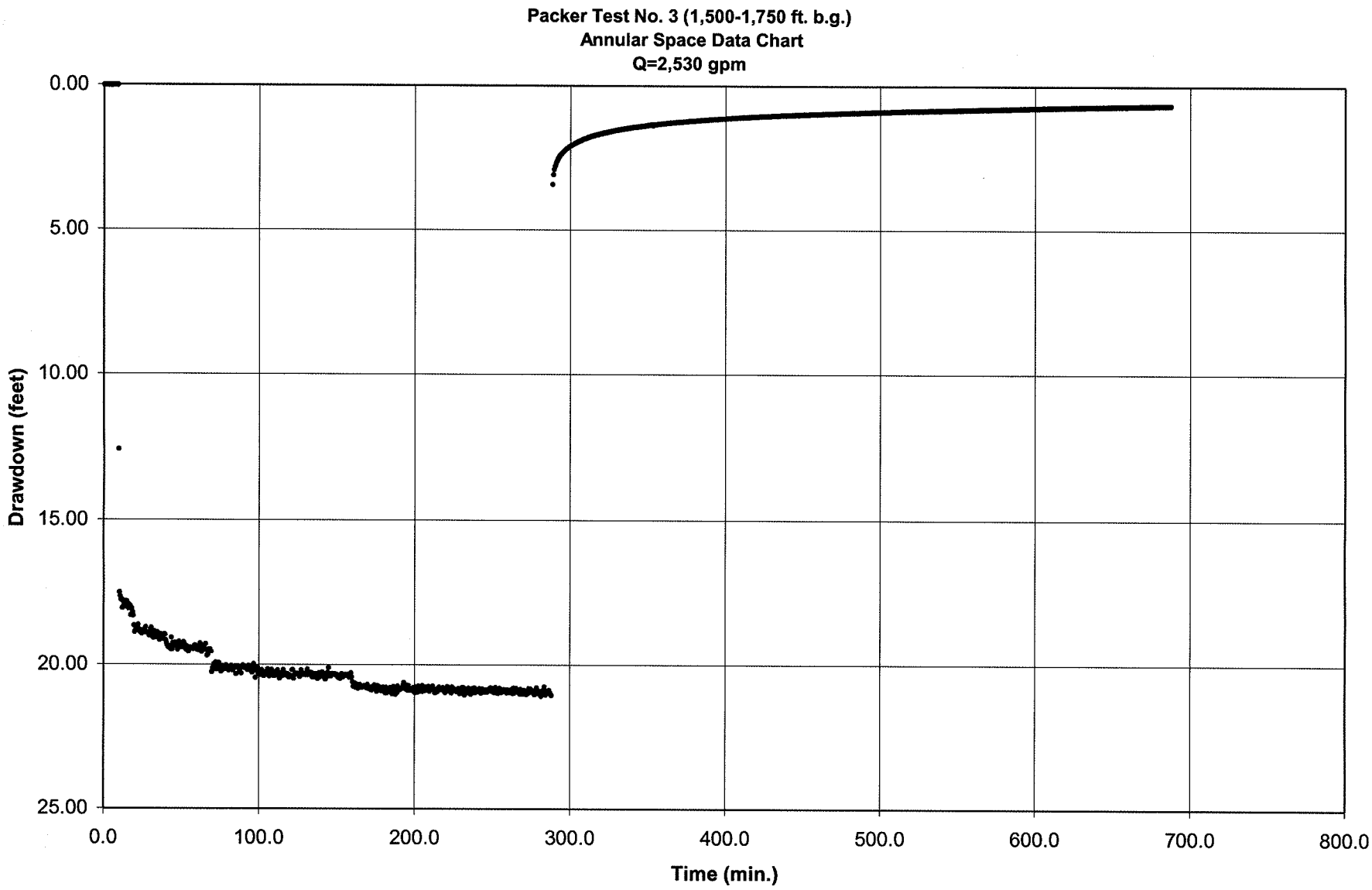
psi denotes pressure in pounds per square inch.

n/a denotes data not available.

n/a denotes data not available.

Packer Test No. 3 (1500-1750 ft bg)
Test Zone Data Chart
Q=2,530 gpm




Packer Test No. 3 (1,500-1,750 ft. b.g.)
Annular Space Data Chart
Q=2,530 gpm
Drawdown (feet)
0.00
5.00
10.00
15.00
20.00
25.00
0.0
100.0
200.0
300.0
400.0
500.0
600.0
700.0
800.0
Time (min.)

ARCADIS

Floridan Aquifer Test Well No. 1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Packer Test No. 4

Start date: 3/20/07

End date: 3/21/07

Flowmeter Total-Start (gal) : 144940

Flowmeter Total- End (gal) : 172345

Average Test Free Flow Rate (gpm) : ~88.4

Development Duration (min): ~310

Static DTW Before Test (ft AG): 33.17

Open Hole Total Depth (feet bpl) : 1595 ft BG

Packer Depth (feet bpl): 1114 Ft BG

Tested Interval: 1114-1595 ft BG **Annulus transducer is located 5.30 ft AG**

Transducer Depth (feet b. TOC): 30

Top of test pipe: 4.60+31.45+11= 46.05 Ft AG

Approximately 26600 gls (6 well volumes) purged from well during prior to lab. samples collection (at 13:10).

Development

Well Parameters						Field Parameters							
Date	Time	Elapsed Time (min)	Flow Rate (gpm)	Total Volume (gal)	Depth to Water (feet bpl)	Temp. (°C)	Cond. (mS/cm)	Chlorides (mg/L)	pH	Turbidity (NTU)	H2S (mg/L)	ORP mV	D.O. (mg/L)
3/20/07	~8:15	0	0.0	0	start	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
3/20/07	11:50	~215	88.0	~18900	n/a	22.4	5992	2500	7.74	0.0	1.4	-271.8	0.62
3/20/07	12:55	~280	88.0	~24640	n/a	22.4	5998	2500	7.72	0.0	1.35	-336.8	0.56
3/20/07	13:24	~310	n/a	~27405	stop dev.	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Note: Total duration of development and total volume of purged water are estimated.

Recovery

Date	Time	Elapsed Time (min)	DTW 3.5" Pipe (feet b. TOC)	WL 3.5" Pipe (Ft AG)	WL 3.5" Pipe (transd. Ft)	WL 3.5" Pipe (Tr. Ft AG)	Head Annulus (ft AG)	Ft of water Annulus (Transd.)	Ft of water Annulus (Tr. Ft AG)	Comments
3/20/07	15:35	129	12.88	33.17	n/a	n/a	31.19	n/a	n/a	
3/20/07	15:45	139	12.88	33.17	17.36	33.41	31.21	n/a	n/a	
3/20/07	15:47	141	n/a	n/a	n/a	n/a	n/a	n/a	n/a	

Packer Test No. 4

Free Flow (annular space) Test

Date	Time	Elapsed Time (min)	Flow Rate (in.Man.)	Flow Rate (gpm)	Total Volume (gal)	Head 12" (ft AG)	Ft of water Transd. Annulus	DTW 3.5" Pipe (feet b. TOC)	WL 3.5" Pipe (Ft AG)	WL 3.5" Pipe (transd. Ft)	WL 3.5" Pipe (Tr. Ft AG)	Comments
3/20/07	15:47	0.0	0.0	0	0	n/a	n/a	12.88	33.17	17.36	33.41	Open Valve
3/20/07	15:48	1.0	14.0	500	500	12.75	n/a	n/a	n/a	17.29	33.34	
3/20/07	15:49	2.0	14.0	500	1000	11.95	n/a	n/a	n/a	17.31	33.36	
3/20/07	15:50	3.0	14.0	500	1500	10.70	n/a	n/a	n/a	17.31	33.36	
3/20/07	15:51	4.0	14.0	500	2000	10.55	n/a	n/a	n/a	17.31	33.36	
3/20/07	15:53	6.0	14.0	500	2500	10.53	n/a	n/a	n/a	17.29	33.34	
3/20/07	15:55	8.0	14.0	500	4000	10.48	n/a	n/a	n/a	17.28	33.33	
3/20/07	15:57	10.0	13.0	480	4950	10.12	n/a	n/a	n/a	n/a	n/a	Adjust Flow
3/20/07	16:03	14.0	14.0	500	6950	9.80	n/a	n/a	n/a	17.26	33.31	
3/20/07	16:20	33.0	13.0	480	16400	9.45	n/a	n/a	n/a	17.23	33.28	Adjust Flow
3/20/07	16:35	48.0	14.0	500	23900	8.95	n/a	n/a	n/a	17.23	33.28	
3/20/07	16:55	68.0	14.0	500	33500	8.65	n/a	n/a	n/a	17.15	33.20	
3/20/07	17:15	88.0	13.0	480	43500	8.62	n/a	n/a	n/a	17.22	33.27	Adjust Flow
3/20/07	17:35	108.0	14.0	500	53500	8.61	n/a	n/a	n/a	17.17	33.22	
3/20/07	17:55	128.0	14.0	500	63500	8.60	n/a	n/a	n/a	17.20	33.25	
3/20/07	18:15	148.0	14.0	500	73500	8.42	n/a	n/a	n/a	17.13	33.18	
3/20/07	18:35	168.0	14.0	500	83500	8.35	n/a	n/a	n/a	17.16	33.21	
3/20/07	18:55	188.0	14.0	500	93500	8.39	n/a	n/a	n/a	17.15	33.20	
3/20/07	19:15	208.0	14.0	500	103000	8.40	n/a	n/a	n/a	17.14	33.19	Stop flow

Note: Total volume of purged water is estimated. 6-inch orifice on 12-inch pipe used for flow measurements.

		Temp.	Cond.	Chlorides	pH	Turbidity	H2S	ORP	D.O.
Time: 16:20	annular space water sample	22.4	7668	3000	7.99	24.00	n/a	-200.7	0.60
Time: 17:55	annular space water sample	22.4	7689	3000	8.02	21.10	n/a	-208.5	0.56
Time: 18:57	annular space water sample	22.2	7682	3000	8.01	14.10	1.80	-209.1	0.53

Note: Recovery (overnight) wasn't monitored by ARCADIS personel

ft AG denotes feet above grade, ft BG feet below grade.

°C denotes degrees celcius.

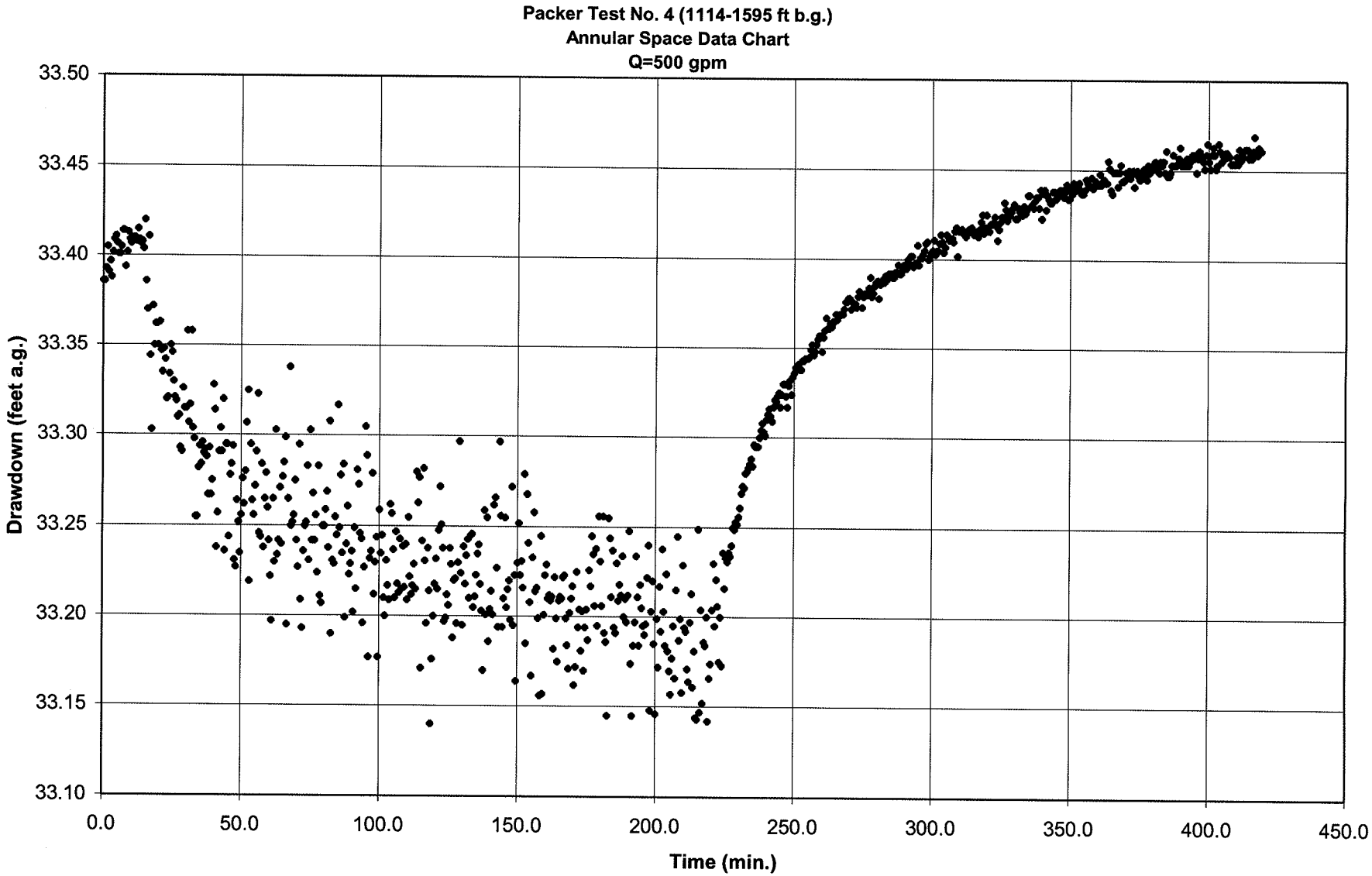
mS/cm denotes milliSiemans per centimeter.

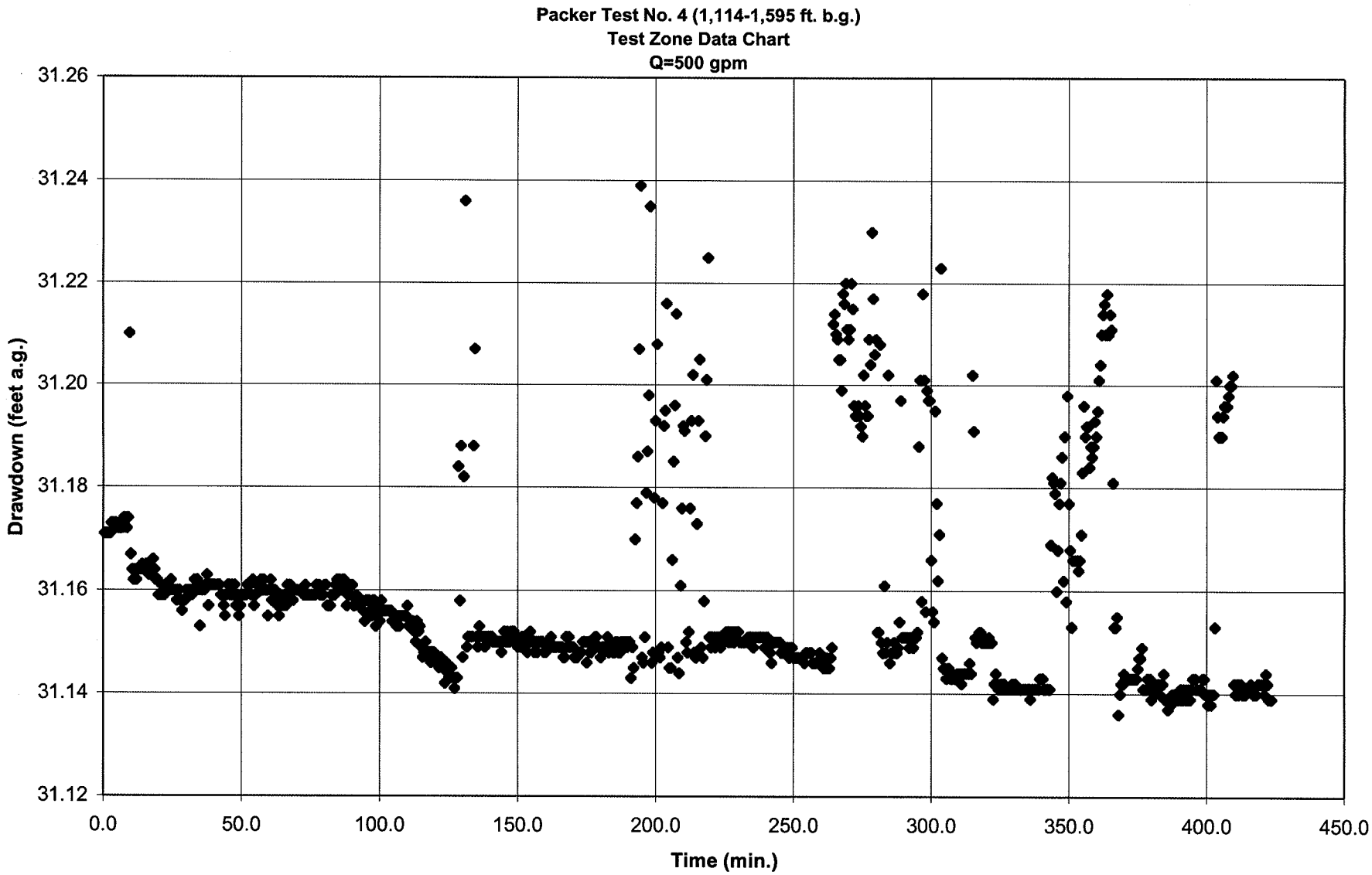
mg/L denotes milligrams per liter.

psi denotes pressure in pounds per square inch.

n/a denotes data not available.

n/a denotes data not available.


Packer Test No. 4 (1114-1595 ft b.g.)
Annular Space Data Chart
Q=500 gpm
Drawdown (feet a.g.)
33.50
33.45
33.40
33.35
33.30
33.25
33.20
33.15
33.10
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
400.0
450.0
Time (min.)


Packer Test No. 4 (1,114-1,595 ft. b.g.)
Test Zone Data Chart
Q=500 gpm
Drawdown (feet a.g.)
31.26
31.24
31.22
31.20
31.18
31.16
31.14
31.12
0.0
50.0
100.0
150.0
200.0
250.0
300.0
350.0
400.0
450.0
Time (min.)

ARCADIS

Appendix D

Laboratory Data

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150-S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118
www.jupiterlabs.com
clientservices@jupiterlabs.com

May 14, 2007

Tami Wells
All Webb's Enterprises, Inc.
309 Commerce Way
Jupiter, FL 33458

RE: LOG# 716393
Project ID: Seacoast
COC# 32067

Dear Tami Wells:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, May 01, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report.

The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted.

Samples are disposed of after 30 days of their receipt by the laboratory unless archiving is requested in writing. The laboratory maintains the right to charge storage fees for archived samples.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Footnotes section of this report for NELAC certification numbers of laboratories used.

A Statement of Qualifiers is available upon request.
If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Erin Beauregard for
Kacia Baldwin
kbaldwin@jupiterlabs.com

Enclosures

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE ANALYTE COUNT

LOG# 718393
Project ID: Seacoast

Lab ID	Sample ID	Method	Analytes Reported
718393001	TW-1 1300-1600 Preline	EPA 110.2	1
718393001	TW-1 1300-1600 Preline	EPA 120.1	1
718393001	TW-1 1300-1600 Preline	EPA 150.1	1
718393001	TW-1 1300-1600 Preline	EPA 160.1	1
718393001	TW-1 1300-1600 Preline	EPA 200.8 (Total)	8
718393001	TW-1 1300-1600 Preline	EPA 310.2	2
718393001	TW-1 1300-1600 Preline	EPA 325.2	1
718393001	TW-1 1300-1600 Preline	EPA 340.1	1
718393001	TW-1 1300-1600 Preline	EPA 350.1	1
718393001	TW-1 1300-1600 Preline	EPA 353.2	1
718393001	TW-1 1300-1600 Preline	EPA 375.4	1
718393001	TW-1 1300-1600 Preline	5310B	1
718393001	TW-1 1300-1600 Preline	EPA 6010B	1
718393001	TW-1 1300-1600 Preline	EPA 9060	1

Jupiter
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Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE SUMMARY

LOG# 718393
Project ID: Seacoast

Lab ID	Sample ID	Matrix	Date Collected	Date Received
718393001	TW-1 1300-1600 Preline	Aqueous Liquid	4/30/2007 17:35	5/1/2007 17:00

FDOH# E86546
CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 718393
Project ID: Seacoast

Lab ID: 718393001 Date Received: 5/1/2007 17:00 Matrix: Aqueous Liquid
Sample ID: TW-1 1300-1600 Preline Date Collected: 4/30/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: Specific Conductance (Field) (W)			Analytical Method: EPA 120.1								
Specific Conductance	5500	umhos/cm			1			04/30/07	GD		
Analysis Desc: TDS by EPA 160.1 (REF) (W)			Analytical Method: EPA 160.1								
Total Dissolved Solids	3300	mg/L	1.0		1			05/04/07	ESC		
Analysis Desc: Ammonia by EPA 350.1 (W)			Analytical Method: EPA 350.1								
Ammonia	0.77	mg/L	0.020		1			05/14/07	SS		7664-41-7
Analysis Desc: Silica 6010B Calc (REF) (W)			Analytical Method: EPA 6010B								
Silica	13000	ug/L	430		1			05/04/07	ESC		7631-86-9
Analysis Desc: TOC by EPA 9060 (REF) (W)			Analytical Method: EPA 9060								
TOC	1.7	mg/L	1.0		1			05/08/07	ESC		
Analysis Desc: pH by EPA 150.1			Analytical Method: EPA 150.1								
pH	5.82	su			1			05/03/07	VA		
Analysis Desc: DOC by 5310B (REF) (W)			Analytical Method: 5310B								
Dissolved Organic Carbon	1.9	mg/L	1.0		1			05/03/07	ESC		
Analysis Desc: Chloride by EPA 325.2 (W)			Analytical Method: EPA 325.2								
Chloride	1400	mg/L	50		100			05/14/07	SS		16887-00-6
Analysis Desc: Sulfate by 375.4 (W)			Analytical Method: EPA 375.4								
Sulfate	330	mg/L	100		100			05/14/07	SS		14808-79-8
Analysis Desc: Fluoride by EPA 340.1 (W)			Analytical Method: EPA 340.1								
Fluoride	2.1	mg/L	0.50		5			05/14/07	SS	J4	16984-48-8
Analysis Desc: Alkalinity-Bicarbonate, EPA 310.2(REF) (W			Analytical Method: EPA 310.2								
Alkalinity-Bicarbonate	140	mg/L	10		1			05/04/07	ESC		
Alkalinity-Carbonate	U	mg/L	10		1			05/04/07	ESC		

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 718393
Project ID: Seacoast

Lab ID: 718393001 Date Received: 5/1/2007 17:00 Matrix: Aqueous Liquid
Sample ID: TW-1 1300-1600 Preline Date Collected: 4/30/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: Color by EPA 110.2 (REF) (W)			Analytical Method: EPA 110.2								
Color	1.0	PCU	1.0		1			05/02/07	ESC		
Analysis Desc: Nitrite-Nitrate by EPA 353.2 (W)			Analytical Method: EPA 353.2								
Nitrite-Nitrate	U	mg/L	0.10		1			05/08/07	ESC		
Analysis Desc: EPA 200.8 Total RCRA 8 Metals (W)			Analytical Method: EPA 200.8 (Total)								
Chromium	0.0010	mg/L	0.000075	0.000038	1	05/03/07	ZS	05/03/07	ZS		7440-47-3
Arsenic	0.0060	mg/L	0.00032	0.00016	1	05/03/07	ZS	05/03/07	ZS		7440-38-2
Selenium	0.026	mg/L	0.00094	0.00047	1	05/03/07	ZS	05/03/07	ZS		7782-49-2
Silver	U	mg/L	0.00014	0.000070	1	05/03/07	ZS	05/03/07	ZS		7440-22-4
Cadmium	U	mg/L	0.00018	0.000091	1	05/03/07	ZS	05/03/07	ZS		7440-43-9
Barium	0.018	mg/L	0.00028	0.00014	1	05/03/07	ZS	05/03/07	ZS		7440-39-3
Mercury	U	mg/L	0.0020	0.0012	1	05/03/07	ZS	05/03/07	ZS		7439-97-6
Lead	U	mg/L	0.00024	0.00012	1	05/03/07	ZS	05/03/07	ZS		7439-92-1

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS QUALIFIERS

LOG# 718393
Project ID: Seacoast

PARAMETER QUALIFIERS

J4	MS/MSD recovery exceeded control limits due to matrix interference. LCS/LCSD recovery was within acceptable range.

PROJECT COMMENTS

718393	A reported value of U indicates that the compound was analyzed for but not detected above the MDL. A value flagged with an "I" flag indicates that the reported value is between the laboratory method detection limit and the practical quantitation limit. Report Limit = PQL

SUBCONTRACTOR NELAC CERTIFICATION

718393	ESC = E87487

FDOH# E86546

CERTIFICATE OF ANALYSIS

BAR CODE

Chain of Custody Record

LAB USE ONLY

J.E.L. Log # 718393
P.O. #
Quote#

Jupiter Environmental Laboratories

Company Name: All Webb's Enterprises
Address: 309 Commerce Way
City: Jupiter State: FL Zip: 33458
Sampling Site Address: SEACoast
Attn: Tami Wells Fax/Email: twells @ allwebbs.com
Project Name: SEACOAST Project #:
Sampler Name/Signature:

LAB ANALYSIS — Parameters: Metals (including As); Ammonium; Alk-carb + bicarb; SO4, Cl, F [illegible]; Nitrate + Nitrite; Silica; TDS; TOC; DOC; Color

#	Sample I.D. (Client)	Collected Date	Collected Time	Matrix Code	# of Cont	Metals (including As)	Ammonium	Alk-carb + bicarb	SO4, Cl, F [illegible]	Nitrate + Nitrite	Silica	TDS	TOC	DOC	Color		Field Filtered (Y/N)	Preserved OK (Y/N)	Comments
1	TN-1, 1500-1600 [illegible]	4/30/07	17:35	GW	10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				Field Param.
2																			pH = 7.75
3																			T = 22.7°C
4																			cond. = 5497 µS/c
5																			D.O. = 0.86 mg/L
6																			
7																			
8																			
9																			
0																			

ORIGINAL

Matrix Codes:
S Soil/Solid Sediment; SW Surface Water; GW Ground Water; SL Sludge; WW Waste Water; O Other (Please Specify); DW Drinking Water

Preservative Codes:
A- none; B- HNO_3; C- H_2SO_4; D- NaOH; E- HCl; I- Ice; O- Other; M- MeOH

Relinquished by	Date	Time	Received by	Date	Time
[signature]	5/1/07	5:00	Adams [signature]	5/1/07	5:00

QA/QC level with report
None___ 1___ 2___ 3___ See price guide for applicable fees

T.A.T. Request: X Standard; ___ Rush
FDEP___ SFWMD___ Date Required______

Temp Control: 4 °C

Jupiter Environmental Laboratories, Inc.
150 Old Dixie Highway, Jupiter, FL 33458
(561) 575-0030 • Fax (561) 575-4118 • clientservices@jupiterlabs.com

C.O.C.# 32067

Page____ of____

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118
www.jupiterlabs.com
clientservices@jupiterlabs.com

July 10, 2007

Tami Wells
All Webb's Enterprises, Inc.
309 Commerce Way
Jupiter, FL 33458

RE: LOG# 718760
Project ID: Floridan TW1
COC# 31429

Dear Tami Wells:

Enclosed are the analytical results for sample(s) received by the laboratory between Wednesday, June 27, 2007 and Thursday, June 28, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report.

The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted.

Samples are disposed of after 30 days of their receipt by the laboratory unless archiving is requested in writing. The laboratory maintains the right to charge storage fees for archived samples.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Footnotes section of this report for NELAC certification numbers of laboratories used.

A Statement of Qualifiers is available upon request.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Erin Beauregard for
Kacia Baldwin
kbaldwin@jupiterlabs.com

Enclosures

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE SUMMARY

LOG# 718760
Project ID: Floridan TW1

Lab ID	Sample ID	Matrix	Date Collected	Date Received
718760001	TW1	Drinking Water	6/27/2007 16:00	6/27/2007 17:11
718760002	TW1	Drinking Water	6/28/2007 15:20	6/28/2007 16:30

FDOH# E86546

CERTIFICATE OF ANALYSIS

ACCREDITED IN ACCORDANCE WITH nelac

DOH Certification #E84025
DEP COMPQAP # 870251

KNL LABORATORY SERVICES
2742 N. Florida Ave.
P.O. Box 1833
Tampa, Florida 33601
(813) 229-2879
Fax (813) 229-0002

Report Date: July 9, 2007

Jupiter Environmental Laboratories
150 S. Old Dixie Highway
Jupiter, FL 33458

Field Custody: Client
Client/Field ID: 718760001
Sample Collection: 6-27-07

Lab ID No: 07.6560
Lab Custody Date: 6-29-07
Sample description: DW

CERTIFICATE OF ANALYSIS

Parameter	Units	Results	Analysis Date	Method	Detection Limit
Gross Alpha	pCi/l	4.5 ± 0.8	07-09-07/0800	EPA 00-02	0.5

Alpha Standard: Th-230

James W. Hayes
Laboratory Manager

Test results meet all requirements of the NELAC standards.
Contact person: Jim Hayes (813) 229-2879).

KNL LABORATORY SERVICES, INC.
2742 N. Florida Ave. Tampa, FL 33602
Phone: (813) 229-2879 Fax: (813) 229-0002

CHAIN OF CUSTODY RECORD

Email: knl2@tampabay.rr.com
www.knllaboratory.com

Company Name:	JUPITER ENV. LABS
Address:	150 S. OLD DIXIE HWY
City/State/Zip:	JUPITER, FL
Phone #	561-575-0030 Attn Erin

Preservative: HNO3

SAMPLE ID	SAMPLE DESCRIPTION/LOCATION	DATE/TIME	MATRIX*	# of containers	Analysis Requested	GA				
	718760001	6/10/07 /1600	DW			X				
	copper ok per Erin 7-03-07. JMC									

07 6580

Due July 9

*WW - Wastewater DW - Drinking Water GW - Groundwater SW - Surface Water SL - Sludge Other:

Special Instructions:

Relinquished By: Print Name/Company	Signature	Date/Time	Accepted By: Print Name/Company	Signature	Date/Time
STEVEN SHOEMAKER	[signature]	6/28/07 1605	KNL	[signature]	6/29/07 1015

July 10, 2007

Ms. Kacia Baldwin
Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458

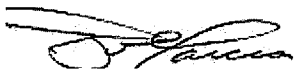
RE: ERIN Order No.: F07061267

Dear Ms. Kacia Baldwin:

ELAB, Inc. received 2 samples on 6/29/2007 10:25:00 for the analyses presented in the following report.
Analyses are performed with method-required calibration and QA/QC samples whenever applicable. Method performance, which is based on the calibration and QA/QC samples, establishes the validity and certainty of the reported sample results. This data is provided along with the sample results when requested.

Thank you for this opportunity to be of service. If you have any questions regarding this data, please feel free to call me at (386) 672-5668, extension 310.

Sincerely,
Vincent "Bo" Garcia



Project Manager
ELAB, Inc.
P.O. Box 468
Ormond Beach, FL 32175-0468

THIS DOCUMENT MEETS NELAC
STANDARDS NELAC Certification #E83079

The following acronyms may be utilized within this report:

%REC	Percent Recovery
A	Absent
ABLK	Analytical Method Blank
CG	Confluent Growth
CGB	Confluent Growth Without Coliforms
CGC	Confluent Growth With Coliforms
DUP	Sample Duplicate
LCS	Laboratory Control Spike (may also be appended with an abbreviation indicating spiking level)
MBLK	Preparation Method Blank
MDL	Laboratory Method Detection Limit
MS	Matrix Spike (may also be appended with an abbreviation indicating spiking level)
MSD	Matrix Spike Duplicate (may also be appended with an abbreviation indicating spiking level)
P	Present
PQL	Practical Quantitation Limit
QCS	Alternate source Calibration Verification Standard (may also be reported as analytical LCS in some
RL	Reporting Limit
RPD	Relative Percent Difference
SPK	Spike
TIC	Tentatively Identified Compound
TNTC	Too Numerous To Count

The following notes may apply to analytical results within this report:

Residue (solids) analysis may employ a single, heated drying process of at least 12 hours duration in lieu of employing short, repeated drying cycles, which represents a deviation from the methodology.

Because the EPA-recommended holding time for pH, residual chlorine, chloramines and chlorine dioxide is 15 minutes from time of collection, these analyses are routinely performed outside of their EPA-recommended holding time when performed in the laboratory.

Analytical results for ammonia analysis, or calculated analytical results depending on ammonia analysis, do not include a sample distillation procedure. A study comparing distilled versus non-distilled analytical results has been performed to document the validity of the analysis without prior distillation, and represents equivalent results for the represented project matrices.

Since N-nitrosodiphenylamine decomposes in the GC inlet and cannot be chromatographically resolved from diphenylamine, these compounds are reported as a single analyte in the report.

Since m-cresol and p-cresol cannot be chromatographically resolved, these compounds are reported as a single analyte in the report.

The following certifications may apply to analytical results within this report:

Alabama	DEM	41320
Arizona	DHS	AZ0640
Colorado	DPHE	FL NELAC Reciprocity
Connecticut	DPH	PH-0216
Florida	DOH	E83079
Georgia	DNR	955
Kentucky	DEP	90050
Maine	LCP	2006032
Massachusetts	DEP	M-FL020
Michigan	DEQ	9911
Mississippi	DOH	FL NELAC Reciprocity
Nevada	EP	ELAB FL-00020
New Hampshire	DES	295805
New Jersey	DEP	FL765
New York	DOH	11608
Pennsylvania	DEP	68-00547
Puerto Rico	DOH	FL 00020
South Carolina	DHEC	96027001
Tennessee	DOH	02974
Texas	CEQ	T104704184-05-TX

Case Narrative

CLIENT: Jupiter Environmental Laboratories, Inc.
Project: ERIN
Lab Order: F07061267

I. SAMPLE RECEIVING/ CUSTODY

The samples were received and processed by the Sample Custody section of the laboratory. There were no significant logistics or quality problems unless noted below.

II. ANALYTICAL DATA

The samples were analyzed according to ELAB Standard Operating Procedures for the methodologies requested. There were no significant logistics or quality problems unless noted below or in the text of the report.

III. QUALITY CONTROL

There were no significant quality control problems unless noted below or in the text of the report.

Analytical Report

CLIENT: Jupiter Environmental Laboratories, Inc. **Client Sample ID:** 718760001
Lab Order: F07061267 **Collection Date:** 6/27/2007 16:00:00
Project: ERIN **Sample Description:**
Lab ID: F07061267-001 **Matrix:** Drinking Water

Analyses	Result	Qual	MDL	RL	Units	DF	Date Analyzed	Batch ID
ICP METALS		**E200.7**	PrepDate:				Analyst: **TPI**	
Barium	0.017		0.0050	0.010	mg/L	1	07/02/07 15:53	R58693A
Beryllium	0.00050	U	0.00050	0.0010	mg/L	1	07/02/07 15:53	R58693A
Cadmium	0.00050	U	0.00050	0.0010	mg/L	1	07/02/07 15:53	R58693A
Calcium	110		0.25	0.50	mg/L	1	07/02/07 15:53	R58693A
Chromium	0.0025	U	0.0025	0.0050	mg/L	1	07/02/07 15:53	R58693A
Iron	0.020	U	0.020	0.040	mg/L	1	07/02/07 15:53	R58693A
Magnesium	120		0.25	0.50	mg/L	1	07/02/07 15:53	R58693A
Manganese	0.0025	U	0.0025	0.0050	mg/L	1	07/02/07 15:53	R58693A
Nickel	0.0025	U	0.0025	0.0050	mg/L	1	07/02/07 15:53	R58693A
Potassium	35		1.2	2.5	mg/L	5	07/05/07 18:27	R58841A
Silver	0.0025	U	0.0025	0.0050	mg/L	1	07/02/07 15:53	R58693A
Sodium	820	x	2.5	5.0	mg/L	5	07/05/07 18:27	R58841A
Strontium	9.7		0.0050	0.010	mg/L	1	07/02/07 15:53	R58693A
Zinc	0.022		0.010	0.020	mg/L	1	07/02/07 15:53	R58693A
ICP/MS METALS		**E200.8**	PrepDate:				Analyst: **DSK**	
Aluminum	0.0050	U	0.0050	0.010	mg/L	1	07/04/07 00:11	R58769-B
Antimony	0.0013		0.00050	0.0010	mg/L	1	07/04/07 00:11	R58769-B
Arsenic	0.0042	I	0.0025	0.0050	mg/L	5	07/05/07 16:16	R58818-A
Copper	0.0016		0.00072	0.0010	mg/L	1	07/04/07 00:11	R58769-B
Lead	0.00050	U	0.00050	0.0010	mg/L	1	07/04/07 00:11	R58769-B
Selenium	0.00050	U	0.00050	0.0010	mg/L	1	07/04/07 00:11	R58769-B
Thallium	0.00050	U	0.00050	0.0010	mg/L	1	07/04/07 00:11	R58769-B
MERCURY		**E245.1**	PrepDate: **7/3/2007 14:08:00**				Analyst: **TPI**	
Mercury	0.000050	U	0.000050	0.00010	mg/L	1	07/06/07 16:23	45353
ALKALINITY AS CACO3		**SM2320 B**	PrepDate:				Analyst: **LSM**	
Alkalinity, Bicarbonate (As CaCO3)	150		0.64	5.0	mg/L	1	07/06/07 12:15	R58843
Alkalinity, Carbonate (As CaCO3)	0.64	U	0.64	5.0	mg/L	1	07/06/07 12:15	R58843
Alkalinity, Total (As CaCO3)	150		0.64	5.0	mg/L	1	07/06/07 12:15	R58843
ANIONS BY ION CHROMATOGRAPHY		**E300.0**	PrepDate:				Analyst: **SSM**	
Chloride	1500	x	0.52	10	mg/L	20	06/29/07 14:08	R58738
Fluoride	1.1		0.13	1.0	mg/L	20	06/29/07 14:08	R58738
Nitrogen, Nitrate-Nitrite	0.28	U	0.28	1.0	mg/L	20	06/29/07 14:08	R58738
Sulfate	370	x	1.2	10	mg/L	20	06/29/07 14:08	R58738

Data Qualifier Code Key:

I	Analyte detected below quantitation limits	Q	Holding times for preparation or analysis exceeded
U	Not Detected Above the MDL	x	Value exceeds Maximum Contaminant Level

Analytical Report

CLIENT: Jupiter Environmental Laboratories, Inc. **Client Sample ID:** 718760001
Lab Order: F07061267 **Collection Date:** 6/27/2007 16:00:00
Project: ERIN **Sample Description:**
Lab ID: F07061267-001 **Matrix:** Drinking Water

Analyses	Result	Qual	MDL	RL	Units	DF	Date Analyzed	Batch ID
CYANIDE, TOTAL		**E335.4**	PrepDate: **7/2/2007 11:00:00**				Analyst: **TKE**	
Cyanide	0.0015	U	0.0015	0.010	mg/L	1	07/02/07 16:11	45331
MBAS, CALCULATED AS LAS, MOL WT 340		**SM5540C**	PrepDate: **6/29/2007 16:00:00**				Analyst: **TKE**	
MBAS	0.060	I	0.043	0.10	mg/L	1	06/29/07 17:05	45329
NITROGEN, AMMONIA		**E350.1**	PrepDate:				Analyst: **ACO**	
Nitrogen, Ammonia (As N)	0.51		0.0063	0.050	mg/L	1	07/02/07 13:30	R58734
PH		**SM4500 H B**	PrepDate:				Analyst: **HMA**	
pH	7.29	Q	0.100	0.100	pH units	1	06/29/07 14:24	R58717
SILICA, REACTIVE		**E370.1**	PrepDate:				Analyst: **SSM**	
Silica, Dissolved (as SiO2)	14	x	0.14	2.0	mg/L	2	07/06/07 15:27	R58876
SOLIDS, TOTAL DISSOLVED		**E160.1**	PrepDate: **7/3/2007**				Analyst: **ACO**	
Solids, Total Dissolved	3000		3.7	5.0	mg/L	1	07/03/07 09:34	45347
SULFIDE		**E376.1**	PrepDate:				Analyst: **SSM**	
Sulfide	4.0		0.46	1.0	mg/L	1	07/02/07	R58759
SULFIDE, HYDROGEN		**E376.1**	PrepDate:				Analyst: **SSM**	
Sulfide	0.53	I	0.46	1.0	mg/L	1	07/02/07	R58759

Data Qualifier Code Key:

I	Analyte detected below quantitation limits	Q	Holding times for preparation or analysis exceeded
U	Not Detected Above the MDL	x	Value exceeds Maximum Contaminant Level

Analytical Report

CLIENT: Jupiter Environmental Laboratories, Inc. **Client Sample ID:** 718760002
Lab Order: F07061267 **Collection Date:** 6/28/2007 15:20:00
Project: ERIN **Sample Description:**
Lab ID: F07061267-002 **Matrix:** Drinking Water

Analyses	Result	Qual	MDL	RL	Units	DF	Date Analyzed	Batch ID
COLOR (TRUE)		**SM2120 B**	PrepDate:				Analyst: **HMA**	
Color	5.0	U	5.0	5.0	c.u.	1	06/29/07 14:45	R58722
ODOR		**SM2150B**	PrepDate:				Analyst: **HMA**	
Odor	200	x	1.0	1.0	t.o.n.	1	06/29/07 13:45	R58721

Data Qualifier Code Key:

I	Analyte detected below quantitation limits	Q	Holding times for preparation or analysis exceeded
U	Not Detected Above the MDL	x	Value exceeds Maximum Contaminant Level

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: AA-HG245.1_W

Sample ID	MB-45353	SampType:	MBLK	TestCode:	AA-HG245.1_	Units:	µg/L	Prep Date:	7/3/2007	RunNo:	58877
Client ID:	MB-45353	Batch ID:	45353	TestNo:	E245.1		E245.1	Analysis Date:	7/6/2007	SeqNo:	1615941

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Mercury	0.050	U	0.050								

Sample ID	LCS-45353	SampType:	LCS	TestCode:	AA-HG245.1_	Units:	µg/L	Prep Date:	7/3/2007	RunNo:	58877
Client ID:	LCS-45353	Batch ID:	45353	TestNo:	E245.1		E245.1	Analysis Date:	7/6/2007	SeqNo:	1615942

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Mercury	2.2		0.050	2.0	0	109	85	115			

Sample ID	F07061269-001JMS	SampType:	MS	TestCode:	AA-HG245.1_	Units:	µg/L	Prep Date:	7/3/2007	RunNo:	58877
		Batch ID:	45353	TestNo:	E245.1		E245.1	Analysis Date:	7/6/2007	SeqNo:	1615955

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Mercury	2.2		0.050	2.0	0	108	70	130			

Sample ID	F07061309-001CMS	SampType:	MS	TestCode:	AA-HG245.1_	Units:	µg/L	Prep Date:	7/3/2007	RunNo:	58877
		Batch ID:	45353	TestNo:	E245.1		E245.1	Analysis Date:	7/6/2007	SeqNo:	1615968

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Mercury	2.2		0.050	2.0	0	110	70	130			

Sample ID	F07061309-001CMSD	SampType:	MSD	TestCode:	AA-HG245.1_	Units:	µg/L	Prep Date:	7/3/2007	RunNo:	58821
		Batch ID:	45353	TestNo:	E245.1		E245.1	Analysis Date:	7/5/2007	SeqNo:	1613858

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Mercury	2.2	R	0.050	2.0	0	110	70	130	0.050 U	**200**	20

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- Q Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Not Detected Above the MDL

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: AA-HG245.1_W

Sample ID	F07061269-001JMSD	SampType:	MSD	TestCode:	AA-HG245.1_	Units:	µg/L	Prep Date:	7/3/2007	RunNo:	58877
		Batch ID:	45353	TestNo:	E245.1	E245.1		Analysis Date:	7/6/2007	SeqNo:	1615956

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Mercury	2.1		0.050	2.0	0	105	70	130	2.2	2.85	20

Sample ID	QCS TV=4.0	SampType:	QCS	TestCode:	AA-HG245.1_	Units:	µg/L	Prep Date:		RunNo:	58821
Client ID:	QCS TV=4.0	Batch ID:	R58821	TestNo:	E245.1			Analysis Date:	7/5/2007	SeqNo:	1613763

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Mercury	4.2		0.050	4.0	0	105	90	110			

Sample ID	QCS TV=4.0	SampType:	QCS	TestCode:	AA-HG245.1_	Units:	µg/L	Prep Date:		RunNo:	58877
Client ID:	QCS TV=4.0	Batch ID:	R58877	TestNo:	E245.1			Analysis Date:	7/6/2007	SeqNo:	1615907

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Mercury	4.1		0.050	4.0	0	102	90	110			

Data Qualifier Code Key:

I	Analyte detected below quantitation limits
R	RPD outside accepted recovery limits
U	Not Detected Above the MDL
Q	Holding times for preparation or analysis exceeded
S	Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ALKALINITY

Sample ID	CCB-1	SampType:	ABLK	TestCode:	ALKALINITY	Units:	mg/L	Prep Date:		RunNo:	58843
Client ID:	CCB-1	Batch ID:	R58843	TestNo:	SM2320 B			Analysis Date:	7/6/2007	SeqNo:	1615583

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Alkalinity, Bicarbonate (As CaCO3)	0.64	U	0.64								
Alkalinity, Carbonate (As CaCO3)	0.64	U	0.64								
Alkalinity, Total (As CaCO3)	0.64	U	0.64								

Sample ID	QCS	SampType:	QCS	TestCode:	ALKALINITY	Units:	mg/L	Prep Date:		RunNo:	58843
Client ID:	QCS	Batch ID:	R58843	TestNo:	SM2320 B			Analysis Date:	7/6/2007	SeqNo:	1615585

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Alkalinity, Total (As CaCO3)	250		0.64	250	0	101	90	110			

Sample ID	F07060975-063DMS	SampType:	MS	TestCode:	ALKALINITY	Units:	mg/L	Prep Date:		RunNo:	58843
		Batch ID:	R58843	TestNo:	SM2320 B			Analysis Date:	7/6/2007	SeqNo:	1615588

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Alkalinity, Total (As CaCO3)	170		0.64	100	74	99.6	90	110			

Sample ID	F07061197-001AMS	SampType:	MS	TestCode:	ALKALINITY	Units:	mg/L	Prep Date:		RunNo:	58843
		Batch ID:	R58843	TestNo:	SM2320 B			Analysis Date:	7/6/2007	SeqNo:	1615602

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Alkalinity, Total (As CaCO3)	210		0.64	100	110	97.9	90	110			

Sample ID	F07060975-063DDUP	SampType:	DUP	TestCode:	ALKALINITY	Units:	mg/L	Prep Date:		RunNo:	58843
		Batch ID:	R58843	TestNo:	SM2320 B			Analysis Date:	7/6/2007	SeqNo:	1615587

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- U Not Detected Above the MDL
- Q Holding times for preparation or analysis exceeded
- S Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ALKALINITY

Sample ID **F07060975-063DDUP** SampType: **DUP** TestCode: **ALKALINITY** Units: **mg/L** Prep Date: RunNo: **58843**
Batch ID: **R58843** TestNo: **SM2320 B** Analysis Date: **7/6/2007** SeqNo: **1615587**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Alkalinity, Bicarbonate (As CaCO3)	74		0.64						74	0.217	20
Alkalinity, Carbonate (As CaCO3)	0.64	U	0.64						0.64 U	0	20
Alkalinity, Total (As CaCO3)	74		0.64						74	0.217	20

Sample ID **F07061197-001ADUP** SampType: **DUP** TestCode: **ALKALINITY** Units: **mg/L** Prep Date: RunNo: **58843**
Batch ID: **R58843** TestNo: **SM2320 B** Analysis Date: **7/6/2007** SeqNo: **1615601**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Alkalinity, Bicarbonate (As CaCO3)	110		0.64						110	0.224	20
Alkalinity, Carbonate (As CaCO3)	0.64	U	0.64						0.64 U	0	20
Alkalinity, Total (As CaCO3)	110		0.64						110	0.224	20

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- U Not Detected Above the MDL
- Q Holding times for preparation or analysis exceeded
- S Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: CN335.4_DW

Sample ID	LCS-LOW	SampType:	LCS-LOW	TestCode:	CN335.4_DW	Units:	mg/L	Prep Date:	7/2/2007	RunNo:	58741
Client ID:	LCS-LOW	Batch ID:	45331	TestNo:	E335.4	E335.4		Analysis Date:	7/2/2007	SeqNo:	1610247

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Cyanide	0.049		0.0015	0.050	0	98.0	90	110			

Sample ID	MB-45331	SampType:	MBLK	TestCode:	CN335.4_DW	Units:	mg/L	Prep Date:	7/2/2007	RunNo:	58741
Client ID:	MB-45331	Batch ID:	45331	TestNo:	E335.4	E335.4		Analysis Date:	7/2/2007	SeqNo:	1610246

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Cyanide	0.0015	U	0.0015								

Sample ID	LCS-45331	SampType:	LCS	TestCode:	CN335.4_DW	Units:	mg/L	Prep Date:	7/2/2007	RunNo:	58741
Client ID:	LCS-45331	Batch ID:	45331	TestNo:	E335.4	E335.4		Analysis Date:	7/2/2007	SeqNo:	1610248

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Cyanide	0.19		0.0015	0.20	0	95.5	90	110			

Sample ID	F07061142-001PMS	SampType:	MS	TestCode:	CN335.4_DW	Units:	mg/L	Prep Date:	7/2/2007	RunNo:	58741
		Batch ID:	45331	TestNo:	E335.4	E335.4		Analysis Date:	7/2/2007	SeqNo:	1610250

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Cyanide	0.20		0.0015	0.20	0.0050	98.5	90	110			

Sample ID	F07061142-001PMSD	SampType:	MSD	TestCode:	CN335.4_DW	Units:	mg/L	Prep Date:	7/2/2007	RunNo:	58741
		Batch ID:	45331	TestNo:	E335.4	E335.4		Analysis Date:	7/2/2007	SeqNo:	1610251

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Cyanide	0.19		0.0015	0.20	0.0050	92.0	90	110	0.20	6.65	20

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- U Not Detected Above the MDL
- Q Holding times for preparation or analysis exceeded
- S Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: COLOR_DW

Sample ID	**QCS**	SampType: **QCS**	TestCode: **COLOR_DW**	Units: **c.u.**	Prep Date:			RunNo: **58722**				
Client ID:	**QCS**	Batch ID: **R58722**	TestNo: **SM2120 B**		Analysis Date: **6/29/2007**			SeqNo: **1608868**				
Analyte		Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Color		20		5.0	20	0	100	90	110			

Sample ID	**MB-R58722**	SampType: **MBLK**	TestCode: **COLOR_DW**	Units: **c.u.**	Prep Date:			RunNo: **58722**				
Client ID:	**MB-R58722**	Batch ID: **R58722**	TestNo: **SM2120 B**		Analysis Date: **6/29/2007**			SeqNo: **1608867**				
Analyte		Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Color		5.0	U	5.0								

Sample ID	**F07061267-002ADUP**	SampType: **DUP**	TestCode: **COLOR_DW**	Units: **c.u.**	Prep Date:			RunNo: **58722**				
Client ID:	**718760002 DUP**	Batch ID: **R58722**	TestNo: **SM2120 B**		Analysis Date: **6/29/2007**			SeqNo: **1608870**				
Analyte		Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Color		5.0	U	5.0						5.0 U	0	20

Data Qualifier Code Key:

I	Analyte detected below quantitation limits
R	RPD outside accepted recovery limits
U	Not Detected Above the MDL
Q	Holding times for preparation or analysis exceeded
S	Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: IC300_W

Sample ID	QCS	SampType:	QCS	TestCode:	IC300_W	Units:	mg/L	Prep Date:		RunNo:	58738
Client ID:	QCS	Batch ID:	R58738	TestNo:	E300.0			Analysis Date:	6/28/2007	SeqNo:	1609617

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Chloride	5.2		0.026	5.0	0	103	90	110			
Fluoride	0.49		0.0067	0.50	0	98.9	90	110			
Nitrogen, Nitrate-Nitrite	1.0		0.014	1.0	0	104	80	120			
Sulfate	5.2		0.062	5.0	0	104	90	110			

Sample ID	MB	SampType:	ABLK	TestCode:	IC300_W	Units:	mg/L	Prep Date:		RunNo:	58738
Client ID:	MB	Batch ID:	R58738	TestNo:	E300.0			Analysis Date:	6/28/2007	SeqNo:	1609618

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Chloride	0.026	U	0.026								
Fluoride	0.0067	U	0.0067								
Nitrogen, Nitrate-Nitrite	0.014	U	0.014								
Sulfate	0.062	U	0.062								

Sample ID	F07061222-001FMS	SampType:	MS	TestCode:	IC300_W	Units:	mg/L	Prep Date:		RunNo:	58738
		Batch ID:	R58738	TestNo:	E300.0			Analysis Date:	6/28/2007	SeqNo:	1609621

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Chloride	29		0.026	10	18	102	80	120			
Fluoride	1.6		0.0067	1.0	0.61	98.3	80	120			
Nitrogen, Nitrate-Nitrite	2.1		0.014	2.0	0.15	98.5	80	120			
Sulfate	44		0.062	10	34	97.3	80	120			

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- Q Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Not Detected Above the MDL

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: IC300_W

Sample ID **F07061231-003AMS** SampType: **MS** TestCode: **IC300_W** Units: **mg/L** Prep Date: RunNo: **58738**
Batch ID: **R58738** TestNo: **E300.0** Analysis Date: **6/29/2007** SeqNo: **1609650**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Chloride	12		0.026	10	2.2	98.4	80	120			
Fluoride	1.1		0.0067	1.0	0.043	102	80	120			
Nitrogen, Nitrate-Nitrite	2.1		0.014	2.0	0	104	80	120			
Sulfate	13		0.062	10	2.4	101	80	120			

Sample ID **F07061309-001BMS** SampType: **MS** TestCode: **IC300_W** Units: **mg/L** Prep Date: RunNo: **58738**
Batch ID: **R58738** TestNo: **E300.0** Analysis Date: **6/29/2007** SeqNo: **1609662**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Chloride	81	S	0.026	10	73	**78.7**	80	120			
Fluoride	2.1		0.0067	1.0	1.0	102	80	120			
Nitrogen, Nitrate-Nitrite	2.0		0.014	2.0	0.20	90.2	80	120			
Sulfate	32		0.062	10	22	99.9	80	120			

Sample ID **F07061222-001FMSD** SampType: **MSD** TestCode: **IC300_W** Units: **mg/L** Prep Date: RunNo: **58738**
Batch ID: **R58738** TestNo: **E300.0** Analysis Date: **6/28/2007** SeqNo: **1609622**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Chloride	28		0.026	10	18	100	80	120	29	0.673	20
Fluoride	1.6		0.0067	1.0	0.61	98.9	80	120	1.6	0.403	20
Nitrogen, Nitrate-Nitrite	2.1		0.014	2.0	0.15	97.9	80	120	2.1	0.563	20
Sulfate	44		0.062	10	34	94.7	80	120	44	0.577	20

Data Qualifier Code Key:

I	Analyte detected below quantitation limits
R	RPD outside accepted recovery limits
U	Not Detected Above the MDL
Q	Holding times for preparation or analysis exceeded
S	Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: IC300_W

Sample ID **F07061231-003AMSD** SampType: **MSD** TestCode: **IC300_W** Units: **mg/L** Prep Date: RunNo: **58738**
Batch ID: **R58738** TestNo: **E300.0** Analysis Date: **6/29/2007** SeqNo: **1609651**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Chloride	12		0.026	10	2.2	96.3	80	120	12	1.72	20
Fluoride	1.0		0.0067	1.0	0.043	100	80	120	1.1	1.63	20
Nitrogen, Nitrate-Nitrite	2.1		0.014	2.0	0	103	80	120	2.1	1.73	20
Sulfate	12		0.062	10	2.4	99.1	80	120	13	1.78	20

Sample ID **F07061309-001BMSD** SampType: **MSD** TestCode: **IC300_W** Units: **mg/L** Prep Date: RunNo: **58738**
Batch ID: **R58738** TestNo: **E300.0** Analysis Date: **6/29/2007** SeqNo: **1609663**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Chloride	81		0.026	10	73	80.0	80	120	81	0.160	20
Fluoride	2.1		0.0067	1.0	1.0	104	80	120	2.1	0.676	20
Nitrogen, Nitrate-Nitrite	2.0		0.014	2.0	0.20	90.6	80	120	2.0	0.413	20
Sulfate	32		0.062	10	22	102	80	120	32	0.505	20

Data Qualifier Code Key:

I	Analyte detected below quantitation limits	Q	Holding times for preparation or analysis exceeded
R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits
U	Not Detected Above the MDL		

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP-200.7_DW

Sample ID **MBLANK** SampType: **ABLK** TestCode: **ICP-200.7_D** Units: **µg/L** Prep Date: RunNo: **58693**
Client ID: **MBLANK** Batch ID: **R58693** TestNo: **E200.7** Analysis Date: **7/2/2007** SeqNo: **1610121**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Barium	5.0	U	5.0								
Beryllium	0.50	U	0.50								
Cadmium	0.50	U	0.50								
Calcium	250	U	250								
Chromium	2.5	U	2.5								
Iron	20	U	20								
Magnesium	250	U	250								
Manganese	2.5	U	2.5								
Nickel	2.5	U	2.5								
Potassium	250	U	250								
Silver	2.5	U	2.5								
Sodium	500	U	500								
Strontium	5.0	U	5.0								
Zinc	10	U	10								

Sample ID **QCS** SampType: **QCS** TestCode: **ICP-200.7_D** Units: **µg/L** Prep Date: RunNo: **58693**
Client ID: **QCS** Batch ID: **R58693** TestNo: **E200.7** Analysis Date: **7/2/2007** SeqNo: **1610125**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Barium	500		5.0	500	0	101	90	110			
Beryllium	51		0.50	50	0	102	90	110			
Cadmium	51		0.50	50	0	102	90	110			
Calcium	26000		250	25000	0	104	90	110			
Chromium	510		2.5	500	0	102	90	110			
Iron	5100		20	5000	0	102	90	110			
Magnesium	25000		250	25000	0	101	90	110			
Manganese	500		2.5	500	0	101	90	110			

Data Qualifier Code Key:

I Analyte detected below quantitation limits
R RPD outside accepted recovery limits
U Not Detected Above the MDL
Q Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP-200.7_DW

Sample ID **QCS** SampType: **QCS** TestCode: **ICP-200.7_D** Units: **µg/L** Prep Date: RunNo: **58693**
Client ID: **QCS** Batch ID: **R58693** TestNo: **E200.7** Analysis Date: **7/2/2007** SeqNo: **1610125**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nickel	500		2.5	500	0	101	90	110			
Potassium	26000		250	25000	0	102	90	110			
Silver	49		2.5	50	0	98.6	90	110			
Sodium	25000		500	25000	0	101	90	110			
Strontium	500		5.0	500	0	101	90	110			
Zinc	2500		10	2500	0	99.6	90	110			

Sample ID **F07061219-001LMS** SampType: **MS** TestCode: **ICP-200.7_D** Units: **µg/L** Prep Date: RunNo: **58693**
Batch ID: **R58693A** TestNo: **E200.7** Analysis Date: **7/2/2007** SeqNo: **1610142**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Barium	290		5.0	250	34	101	70	130			
Beryllium	25		0.50	25	0	101	70	130			
Cadmium	26		0.50	25	0	103	70	130			
Calcium	75000		250	12000	62000	101	70	130			
Chromium	260		2.5	250	1.1	102	70	130			
Iron	2600		20	2500	0	102	70	130			
Magnesium	38000		250	12000	26000	101	70	130			
Manganese	250		2.5	250	0	102	70	130			
Nickel	250		2.5	250	0	101	70	130			
Potassium	17000		250	12000	2300	118	70	130			
Silver	26		2.5	25	0	103	70	130			
Sodium	15000		500	12000	2600	102	70	130			
Strontium	340		5.0	250	88	101	70	130			
Zinc	1300		10	1200	6.6	103	70	130			

Data Qualifier Code Key:

I Analyte detected below quantitation limits
R RPD outside accepted recovery limits
U Not Detected Above the MDL
Q Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP-200.7_DW

Sample ID **F07061219-001LMSD** SampType: **MSD** TestCode: **ICP-200.7_D** Units: **µg/L** Prep Date: RunNo: **58693**
Batch ID: **R58693A** TestNo: **E200.7** Analysis Date: **7/2/2007** SeqNo: **1610143**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Barium	290		5.0	250	34	101	70	130	5.0 U	0	20
Beryllium	25		0.50	25	0	101	70	130	25	0	20
Cadmium	26		0.50	25	0	104	70	130	26	1.16	20
Calcium	75000		250	12000	62000	105	70	130	75000	0.665	20
Chromium	260		2.5	250	1.1	103	70	130	260	0.775	20
Iron	2600		20	2500	0	102	70	130	2600	0.391	20
Magnesium	39000		250	12000	26000	103	70	130	38000	0.780	20
Manganese	260		2.5	250	0	102	70	130	250	0.393	20
Nickel	260		2.5	250	0	102	70	130	250	1.18	20
Potassium	17000		250	12000	2300	117	70	130	250 U	0.590	20
Silver	26		2.5	25	0	104	70	130	26	1.54	20
Sodium	15000		500	12000	2600	102	70	130	500 U	0	20
Strontium	340		5.0	250	88	101	70	130	5.0 U	0	0
Zinc	1300		10	1200	6.6	103	70	130	1300	0	20

Sample ID **MBLANK** SampType: **ABLK** TestCode: **ICP-200.7_D** Units: **µg/L** Prep Date: RunNo: **58841**
Client ID: **MBLANK** Batch ID: **R58841** TestNo: **E200.7** Analysis Date: **7/5/2007** SeqNo: **1614416**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Barium	5.0	U	5.0								
Beryllium	0.50	U	0.50								
Cadmium	0.50	U	0.50								
Calcium	250	U	250								
Chromium	2.5	U	2.5								
Iron	20	U	20								
Magnesium	250	U	250								
Manganese	2.5	U	2.5								

Data Qualifier Code Key:

I Analyte detected below quantitation limits
Q Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits
U Not Detected Above the MDL

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP-200.7_DW

Sample ID	MBLANK	SampType:	ABLK	TestCode:	ICP-200.7_D	Units:	µg/L	Prep Date:		RunNo:	58841
Client ID:	MBLANK	Batch ID:	R58841	TestNo:	E200.7			Analysis Date:	7/5/2007	SeqNo:	1614416

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nickel	2.5	U	2.5								
Potassium	250	U	250								
Silver	2.5	U	2.5								
Sodium	500	U	500								
Strontium	5.0	U	5.0								
Zinc	10	U	10								

Sample ID	QCS	SampType:	QCS	TestCode:	ICP-200.7_D	Units:	µg/L	Prep Date:		RunNo:	58841
Client ID:	QCS	Batch ID:	R58841	TestNo:	E200.7			Analysis Date:	7/5/2007	SeqNo:	1614420

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Barium	500		5.0	500	0	99.2	90	110			
Beryllium	50		0.50	50	0	99.0	90	110			
Cadmium	50		0.50	50	0	99.8	90	110			
Calcium	25000		250	25000	0	101	90	110			
Chromium	500		2.5	500	0	100	90	110			
Iron	5000		20	5000	0	99.0	90	110			
Magnesium	25000		250	25000	0	98.8	90	110			
Manganese	500		2.5	500	0	99.0	90	110			
Nickel	500		2.5	500	0	100	90	110			
Potassium	25000		250	25000	0	102	90	110			
Silver	49		2.5	50	0	98.8	90	110			
Sodium	25000		500	25000	0	99.6	90	110			
Strontium	500		5.0	500	0	100	90	110			
Zinc	2400		10	2500	0	98.0	90	110			

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- Q Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Not Detected Above the MDL

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP-200.7_DW

Sample ID **F07070114-001AMS** SampType: **MS** TestCode: **ICP-200.7_D** Units: **µg/L** Prep Date: RunNo: **58841**
Batch ID: **R58841A** TestNo: **E200.7** Analysis Date: **7/5/2007** SeqNo: **1614428**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Barium	270		5.0	250	14	101	70	130			
Beryllium	25		0.50	25	0	99.6	70	130			
Cadmium	26		0.50	25	0	103	70	130			
Calcium	130000		250	12000	120000	96.0	70	130			
Chromium	260		2.5	250	0	102	70	130			
Iron	2500		20	2500	0	98.4	70	130			
Magnesium	17000		250	12000	4100	99.8	70	130			
Manganese	260		2.5	250	0	102	70	130			
Nickel	260		2.5	250	0	102	70	130			
Potassium	22000		250	12000	8900	107	70	130			
Silver	27		2.5	25	0	109	70	130			
Sodium	52000		500	12000	39000	101	70	130			
Strontium	970		5.0	250	740	93.6	70	130			
Zinc	1300		10	1200	0	104	70	130			

Sample ID **F07070114-001AMSD** SampType: **MSD** TestCode: **ICP-200.7_D** Units: **µg/L** Prep Date: RunNo: **58841**
Batch ID: **R58841A** TestNo: **E200.7** Analysis Date: **7/5/2007** SeqNo: **1614430**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Barium	270		5.0	250	14	102	70	130	5.0 U	0.746	20
Beryllium	25		0.50	25	0	99.6	70	130	25	0	20
Cadmium	26		0.50	25	0	102	70	130	26	1.17	20
Calcium	130000		250	12000	120000	96.0	70	130	250 U	0	20
Chromium	260		2.5	250	0	102	70	130	260	0	20
Iron	2500		20	2500	0	98.8	70	130	2500	0.406	20
Magnesium	17000		250	12000	4100	99.8	70	130	250 U	0	20
Manganese	260		2.5	250	0	102	70	130	260	0	20

Data Qualifier Code Key:

I Analyte detected below quantitation limits
Q Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits
U Not Detected Above the MDL

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP-200.7_DW

Sample ID **F07070114-001AMSD** SampType: **MSD** TestCode: **ICP-200.7_D** Units: **µg/L** Prep Date: RunNo: **58841**
Batch ID: **R58841A** TestNo: **E200.7** Analysis Date: **7/5/2007** SeqNo: **1614430**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nickel	260		2.5	250	0	103	70	130	260	0.390	20
Potassium	22000		250	12000	8900	107	70	130	250 U	0.449	20
Silver	27		2.5	25	0	106	70	130	27	2.23	20
Sodium	52000		500	12000	39000	104	70	130	52000	0.768	20
Strontium	980		5.0	250	740	96.0	70	130	970	**0.615**	0
Zinc	1300		10	1200	0	105	70	130	1300	0.766	20

Data Qualifier Code Key:

I Analyte detected below quantitation limits
R RPD outside accepted recovery limits
U Not Detected Above the MDL
Q Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP-200.8_DW

Sample ID	QCS S-2202	SampType:	QCS	TestCode:	ICP-200.8_D	Units:	µg/L	Prep Date:		RunNo:	58769
Client ID:	QCS S-2202	Batch ID:	R58769	TestNo:	E200.8			Analysis Date:	7/3/2007	SeqNo:	1611609

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Aluminum	490		5.0	500	0	98.5	90	110			
Antimony	75		0.50	75	0	101	90	110			
Arsenic	47		0.50	50	0	94.0	90	110			
Copper	24		0.72	25	0	96.4	90	110			
Lead	49		0.50	50	0	98.7	90	110			
Selenium	72		0.50	75	0	95.8	90	110			
Thallium	80		0.50	75	0	106	90	110			

Sample ID	ICB S-2233	SampType:	ABLK	TestCode:	ICP-200.8_D	Units:	µg/L	Prep Date:		RunNo:	58769
Client ID:	ICB S-2233	Batch ID:	R58769	TestNo:	E200.8			Analysis Date:	7/3/2007	SeqNo:	1611614

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Aluminum	5.0	U	5.0								
Antimony	0.50	U	0.50								
Arsenic	0.50	U	0.50								
Copper	0.72	U	0.72								
Lead	0.50	U	0.50								
Selenium	0.50	U	0.50								
Thallium	0.50	U	0.50								

Sample ID	F07061232-001JMS	SampType:	MS	TestCode:	ICP-200.8_D	Units:	µg/L	Prep Date:		RunNo:	58769
		Batch ID:	R58769-B	TestNo:	E200.8			Analysis Date:	7/3/2007	SeqNo:	1611630

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Antimony	41		0.50	50	0	82.4	75	125			
Lead	51		0.50	50	2.1	97.0	75	125			
Selenium	53		0.50	50	0.93	104	75	125			

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- Q Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Not Detected Above the MDL

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP-200.8_DW

Sample ID **F07061232-001JMS** SampType: **MS** TestCode: **ICP-200.8_D** Units: **µg/L** Prep Date: RunNo: **58769**
Batch ID: **R58769-B** TestNo: **E200.8** Analysis Date: **7/3/2007** SeqNo: **1611630**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Thallium	52		0.50	50	0	105	75	125			

Sample ID **F07061232-001JMSD** SampType: **MSD** TestCode: **ICP-200.8_D** Units: **µg/L** Prep Date: RunNo: **58769**
Batch ID: **R58769-B** TestNo: **E200.8** Analysis Date: **7/3/2007** SeqNo: **1611631**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Antimony	44		0.50	50	0	87.3	75	125	41	5.76	20
Lead	53		0.50	50	2.1	101	75	125	51	4.22	20
Selenium	53		0.50	50	0.93	103	75	125	53	0.663	20
Thallium	55		0.50	50	0	109	75	125	52	4.51	20

Sample ID **QCS S-2202** SampType: **QCS** TestCode: **ICP-200.8_D** Units: **µg/L** Prep Date: RunNo: **58818**
Client ID: **QCS S-2202** Batch ID: **R58818** TestNo: **E200.8** Analysis Date: **7/5/2007** SeqNo: **1612858**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Aluminum	520		5.0	500	0	105	90	110			
Antimony	74		0.50	75	0	99.2	90	110			
Arsenic	48		0.50	50	0	96.6	90	110			
Copper	25		0.72	25	0	100	90	110			
Lead	50		0.50	50	0	99.4	90	110			
Selenium	72		0.50	75	0	95.9	90	110			
Thallium	78		0.50	75	0	104	90	110			

Data Qualifier Code Key:

I	Analyte detected below quantitation limits	Q	Holding times for preparation or analysis exceeded
R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits
U	Not Detected Above the MDL		

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP-200.8_DW

Sample ID	ICB S-2233	SampType:	ABLK	TestCode:	ICP-200.8_d	Units:	µg/L	Prep Date:		RunNo:	58818
Client ID:	ICB S-2233	Batch ID:	R58818	TestNo:	E200.8			Analysis Date:	7/5/2007	SeqNo:	1612864

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Aluminum	5.0	U	5.0								
Antimony	0.50	U	0.50								
Arsenic	0.50	U	0.50								
Copper	0.72	U	0.72								
Lead	0.50	U	0.50								
Selenium	0.50	U	0.50								
Thallium	0.50	U	0.50								

Sample ID	F07061202-001LMS	SampType:	MS	TestCode:	ICP-200.8_D	Units:	µg/L	Prep Date:		RunNo:	58818
		Batch ID:	R58818-A	TestNo:	E200.8			Analysis Date:	7/5/2007	SeqNo:	1612867

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Aluminum	430		5.0	500	0	86.0	75	125			
Antimony	41		0.50	50	0	81.3	75	125			
Arsenic	51		0.50	50	0.42	101	75	125			
Copper	45		0.72	50	0	89.1	75	125			
Lead	51		0.50	50	0	101	75	125			
Selenium	53		0.50	50	0	106	75	125			
Thallium	53		0.50	50	0	105	75	125			

Sample ID	F07061202-001LMSD	SampType:	MSD	TestCode:	ICP-200.8_D	Units:	µg/L	Prep Date:		RunNo:	58818
		Batch ID:	R58818-A	TestNo:	E200.8			Analysis Date:	7/5/2007	SeqNo:	1612868

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Aluminum	430		5.0	500	0	86.6	75	125	5.0 U	0.635	20
Antimony	42		0.50	50	0	83.0	75	125	41	2.06	20
Arsenic	50		0.50	50	0.42	99.9	75	125	51	1.46	20

Data Qualifier Code Key:

I	Analyte detected below quantitation limits	Q	Holding times for preparation or analysis exceeded
R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits
U	Not Detected Above the MDL		

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ICP-200.8_DW

Sample ID **F07061202-001LMSD** SampType: **MSD** TestCode: **ICP-200.8_D** Units: **µg/L** Prep Date: RunNo: **58818**
Batch ID: **R58818-A** TestNo: **E200.8** Analysis Date: **7/5/2007** SeqNo: **1612868**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Copper	45		0.72	50	0	89.0	75	125	45	0.0584	20
Lead	50		0.50	50	0	101	75	125	51	0.249	20
Selenium	50		0.50	50	0	100	75	125	53	5.01	20
Thallium	53		0.50	50	0	105	75	125	53	0.0874	20

Data Qualifier Code Key:

I Analyte detected below quantitation limits
R RPD outside accepted recovery limits
U Not Detected Above the MDL
Q Holding times for preparation or analysis exceeded
S Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: MBAS_DW

Sample ID	MB-45329	SampType:	MBLK	TestCode:	MBAS_DW	Units:	mg/L	Prep Date:	6/29/2007	RunNo:	58723
Client ID:	MB-45329	Batch ID:	45329	TestNo:	SM5540C	E425.1		Analysis Date:	6/29/2007	SeqNo:	1608931

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
MBAS	0.043	U	0.043								

Sample ID	LCS-45329	SampType:	LCS	TestCode:	MBAS_DW	Units:	mg/L	Prep Date:	6/29/2007	RunNo:	58723
Client ID:	LCS-45329	Batch ID:	45329	TestNo:	SM5540C	E425.1		Analysis Date:	6/29/2007	SeqNo:	1608932

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
MBAS	0.58		0.043	0.60	0	96.7	90	110			

Sample ID	F07061267-001AMS	SampType:	MS	TestCode:	MBAS_DW	Units:	mg/L	Prep Date:	6/29/2007	RunNo:	58723
Client ID:	718760001 MS	Batch ID:	45329	TestNo:	SM5540C	E425.1		Analysis Date:	6/29/2007	SeqNo:	1608935

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
MBAS	0.46		0.043	0.40	0.060	100	80	120			

Sample ID	F07061267-001ADUP	SampType:	DUP	TestCode:	MBAS_DW	Units:	mg/L	Prep Date:	6/29/2007	RunNo:	58723
Client ID:	718760001 DUP	Batch ID:	45329	TestNo:	SM5540C	E425.1		Analysis Date:	6/29/2007	SeqNo:	1608934

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
MBAS	0.070	I	0.043						0.060	0	20

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- U Not Detected Above the MDL
- Q Holding times for preparation or analysis exceeded
- S Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: N-NH3_W

Sample ID	QCS	SampType:	QCS	TestCode:	N-NH3_W	Units:	mg/L	Prep Date:		RunNo:	58734
Client ID:	QCS	Batch ID:	R58734	TestNo:	E350.1			Analysis Date:	7/2/2007	SeqNo:	1609942

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nitrogen, Ammonia (As N)	11		0.0063	11	0	100	90	110			

Sample ID	CCB	SampType:	ABLK	TestCode:	N-NH3_W	Units:	mg/L	Prep Date:		RunNo:	58734
Client ID:	CCB	Batch ID:	R58734	TestNo:	E350.1			Analysis Date:	7/2/2007	SeqNo:	1609943

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nitrogen, Ammonia (As N)	0.0063	U	0.0063								

Sample ID	F07060619-011AMS	SampType:	MS	TestCode:	N-NH3_W	Units:	mg/L	Prep Date:		RunNo:	58734
		Batch ID:	R58734	TestNo:	E350.1			Analysis Date:	7/2/2007	SeqNo:	1609946

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nitrogen, Ammonia (As N)	10		0.0063	1.0	9.2	94.6	90	110			

Sample ID	F07060975-029BMS	SampType:	MS	TestCode:	N-NH3_W	Units:	mg/L	Prep Date:		RunNo:	58734
		Batch ID:	R58734	TestNo:	E350.1			Analysis Date:	7/2/2007	SeqNo:	1609974

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nitrogen, Ammonia (As N)	1.1		0.0063	1.0	0.15	93.9	90	110			

Sample ID	F07060975-050BMS	SampType:	MS	TestCode:	N-NH3_W	Units:	mg/L	Prep Date:		RunNo:	58734
		Batch ID:	R58734	TestNo:	E350.1			Analysis Date:	7/2/2007	SeqNo:	1610089

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nitrogen, Ammonia (As N)	21	S	0.031	5.0	15	**128**	90	110			

Data Qualifier Code Key:

I Analyte detected below quantitation limits
Q Holding times for preparation or analysis exceeded
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits
U Not Detected Above the MDL

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: N-NH3_W

Sample ID **F07060619-011ADUP**	SampType: **DUP**	TestCode: **N-NH3_W**	Units: **mg/L**	Prep Date:	RunNo: **58734**
	Batch ID: **R58734**	TestNo: **E350.1**		Analysis Date: **7/2/2007**	SeqNo: **1609945**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nitrogen, Ammonia (As N)	9.1		0.0063						9.2	0.219	20

Sample ID **F07060975-029BDUP**	SampType: **DUP**	TestCode: **N-NH3_W**	Units: **mg/L**	Prep Date:	RunNo: **58734**
	Batch ID: **R58734**	TestNo: **E350.1**		Analysis Date: **7/2/2007**	SeqNo: **1609971**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nitrogen, Ammonia (As N)	0.15		0.0063						0.15	2.68	20

Sample ID **F07060975-050BDUP**	SampType: **DUP**	TestCode: **N-NH3_W**	Units: **mg/L**	Prep Date:	RunNo: **58734**
	Batch ID: **R58734**	TestNo: **E350.1**		Analysis Date: **7/2/2007**	SeqNo: **1610038**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Nitrogen, Ammonia (As N)	15		0.0063						15	0.324	20

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- U Not Detected Above the MDL
- Q Holding times for preparation or analysis exceeded
- S Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: ODOR_DW

Sample ID	**MB-R58721**	SampType:	**MBLK**	TestCode:	**ODOR_DW**	Units:	**t.o.n.**	Prep Date:		RunNo:	**58721**
Client ID:	**MB-R58721**	Batch ID:	**R58721**	TestNo:	**SM2150B**			Analysis Date:	**6/29/2007**	SeqNo:	**1608863**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Odor	1.0	U	1.0								

Sample ID	**F07061269-001LDUP**	SampType:	**DUP**	TestCode:	**ODOR_DW**	Units:	**t.o.n.**	Prep Date:		RunNo:	**58721**
		Batch ID:	**R58721**	TestNo:	**SM2150B**			Analysis Date:	**6/29/2007**	SeqNo:	**1608866**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Odor	2.0	Q	1.0						2.0	0	20

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- Q Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Not Detected Above the MDL

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: PH4500HB_DW

Sample ID **F07061267-001ADUP** SampType: **DUP** TestCode: **PH4500HB_D** Units: **pH units** Prep Date: RunNo: **58717**
Client ID: **718760001 DUP** Batch ID: **R58717** TestNo: **SM4500 H B** Analysis Date: **6/29/2007** SeqNo: **1608808**

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
pH	7.39	Q	0.100						7.29	**1.36**	0

Data Qualifier Code Key:

I	Analyte detected below quantitation limits	Q	Holding times for preparation or analysis exceeded
R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits
U	Not Detected Above the MDL		

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: S-376.1

Sample ID	LCS-LOW	SampType:	LCS-LOW	TestCode:	S-376.1	Units:	mg/L	Prep Date:		RunNo:	58759
Client ID:	LCS-LOW	Batch ID:	R58759	TestNo:	E376.1			Analysis Date:	7/2/2007	SeqNo:	1610337

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Sulfide	2.7		0.46	2.7	0	98.5	80	120			

Sample ID	MB-R58759	SampType:	MBLK	TestCode:	S-376.1	Units:	mg/L	Prep Date:		RunNo:	58759
Client ID:	MB-R58759	Batch ID:	R58759	TestNo:	E376.1			Analysis Date:	7/2/2007	SeqNo:	1610322

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Sulfide	0.46	U	0.46								

Sample ID	LCS-R58759	SampType:	LCS	TestCode:	S-376.1	Units:	mg/L	Prep Date:		RunNo:	58759
Client ID:	LCS-R58759	Batch ID:	R58759	TestNo:	E376.1			Analysis Date:	7/2/2007	SeqNo:	1610323

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Sulfide	5.2		0.46	5.4	0	95.2	80	120			

Sample ID	F07061092-003AMS	SampType:	MS	TestCode:	S-376.1	Units:	mg/L	Prep Date:		RunNo:	58759
		Batch ID:	R58759	TestNo:	E376.1			Analysis Date:	7/2/2007	SeqNo:	1610326

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Sulfide	12		0.77	9.1	3.6	95.4	80	120			

Sample ID	F07061092-003ADUP	SampType:	DUP	TestCode:	S-376.1	Units:	mg/L	Prep Date:		RunNo:	58759
		Batch ID:	R58759	TestNo:	E376.1			Analysis Date:	7/2/2007	SeqNo:	1610325

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Sulfide	3.6		0.77						3.6	0	20

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- Q Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Not Detected Above the MDL

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: S-376.1-H2S

Sample ID	**MB-R58759**	SampType: **MBLK**	TestCode: **S-376.1-H2S**	Units: **mg/L**	Prep Date:			RunNo: **58759**				
Client ID:	**MB-R58759**	Batch ID: **R58759**	TestNo: **E376.1**		Analysis Date: **7/2/2007**			SeqNo: **1618010**				

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Sulfide	0.46	U	0.46								

Data Qualifier Code Key:

I	Analyte detected below quantitation limits	Q	Holding times for preparation or analysis exceeded
R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted recovery limits
U	Not Detected Above the MDL		

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: SILICA-370.1

Sample ID	MB-R58876	SampType:	MBLK	TestCode:	SILICA-370.1	Units:	mg/L	Prep Date:		RunNo:	58876
Client ID:	MB-R58876	Batch ID:	R58876	TestNo:	E370.1			Analysis Date:	7/6/2007	SeqNo:	1615519

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Silica, Dissolved (as SiO2)	0.072	U	0.072								

Sample ID	LCS-R58876	SampType:	LCS	TestCode:	SILICA-370.1	Units:	mg/L	Prep Date:		RunNo:	58876
Client ID:	LCS-R58876	Batch ID:	R58876	TestNo:	E370.1			Analysis Date:	7/6/2007	SeqNo:	1615520

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Silica, Dissolved (as SiO2)	11		0.072	10	0	105	90	110			

Sample ID	F07061269-001KMS	SampType:	MS	TestCode:	SILICA-370.1	Units:	mg/L	Prep Date:		RunNo:	58876
		Batch ID:	R58876	TestNo:	E370.1			Analysis Date:	7/6/2007	SeqNo:	1615524

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Silica, Dissolved (as SiO2)	45	S	0.14	8.0	40	**69.0**	80	120			

Sample ID	F07061269-001KDUP	SampType:	DUP	TestCode:	SILICA-370.1	Units:	mg/L	Prep Date:		RunNo:	58876
		Batch ID:	R58876	TestNo:	E370.1			Analysis Date:	7/6/2007	SeqNo:	1615523

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Silica, Dissolved (as SiO2)	39	x	0.14						40	1.78	20

Data Qualifier Code Key:

I	Analyte detected below quantitation limits
R	RPD outside accepted recovery limits
U	Not Detected Above the MDL
Q	Holding times for preparation or analysis exceeded
S	Spike Recovery outside accepted recovery limits

CLIENT: Jupiter Environmental Laboratories, Inc.
Work Order: F07061267
Project: ERIN

ANALYTICAL QC SUMMARY REPORT

TestCode: SOLIDS-TD

Sample ID	MB-45347	SampType:	MBLK	TestCode:	SOLIDS-TD	Units:	mg/L	Prep Date:	7/3/2007	RunNo:	58761
Client ID:	MB-45347	Batch ID:	45347	TestNo:	E160.1	E160.1		Analysis Date:	7/3/2007	SeqNo:	1614991

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Solids, Total Dissolved	3.7	U	3.7								

Sample ID	LCS-45347	SampType:	LCS	TestCode:	SOLIDS-TD	Units:	mg/L	Prep Date:	7/3/2007	RunNo:	58761
Client ID:	LCS-45347	Batch ID:	45347	TestNo:	E160.1	E160.1		Analysis Date:	7/3/2007	SeqNo:	1614993

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Solids, Total Dissolved	300		3.7	300	0	101	90	110			

Sample ID	F07070020-004Bdup	SampType:	DUP	TestCode:	SOLIDS-TD	Units:	mg/L	Prep Date:	7/3/2007	RunNo:	58761
		Batch ID:	45347	TestNo:	E160.1	E160.1		Analysis Date:	7/3/2007	SeqNo:	1615035

Analyte	Result	Qual	MDL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit
Solids, Total Dissolved	450		3.7						450	0.221	20

Data Qualifier Code Key:

- I Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- U Not Detected Above the MDL
- Q Holding times for preparation or analysis exceeded
- S Spike Recovery outside accepted recovery limits

CHAIN OF CUSTODY RECORD

No. E 111645 Page ___ of ___

Elab, Inc.
8 East Tower Circle
Ormond Beach, FL 32174
(904)672-5668 ● FAX (904)673-4001
(INSTRUCTIONS ON BACK OF THIS FORM)

FOR LAB USE ONLY
Temp. of Contents: 2 °C (or Received on Ice, ROI) Condition of Contents: ICE Condition of Seals: ____

FOR LAB USE ONLY
Submission No. F070601207

1. Client: (Company or Individual) JUPITER ENV. LABS
Address: 150 S. OLD DIXIE HWY Phone: (561) 575-0030
City JUPITER State FL Zip Code 33458 Fax: ( )

2. Report to: (if different from above) ERIN
Address: Phone: ( )
City State Zip Code Fax: ( )

3. Client Project Name: 718760
4. Client Project No.:
5. P.O. No.:
6. Custody Seal No.:
7. Sampled By:
8. Shipping Method:

Water Sample Codes (for Item 13)	Container Codes (for Item 16)
DW = Drinking Water	V = VOA vial
GW = Ground Water	G = glass
SW = Surface Water	P = plastic
PW = Processed Water	M = micro bag/cup
WW = Waste Water	O = other

18. Report Type: ☐ Routine ☐ Standard QC ☐ Datapackage
19. Turnaround Time ☐ Standard ☐ Rush: / /

Preservative Codes (for Item 15)
C = Cool Only
H = Hydrochloric Acid
M = Monochloroacetic Acid
N = Nitric Acid
OH = Sodium Hydroxide
S = Sulfuric Acid
T = Sodium Thiosulfate

Item	9. Sample ID or No.	10. Sample Description	11. Date	11. Time	12. Comp.	12. Grab	13. Water (Codes)	13. Air	13. Soil	13. Sludge	13. Other	No. of Containers	17. Analyses Requested: As, Ba, Be, Cd, Cr, Pb, Hg	Ni, Se, Ag, Zn, Sb, Tl, Al, Cu, Fe, Mn, CN, Sn, Se	Fluoride, NOx, Chloride	mBAS, SO4, TDS, pH	ALK (CARBIBICARB)	NH3, NO3, SILICA	TOTAL SULFIDE	COLOR / ODOR	20 REMARK	LAB USE ONLY LAB SAMPLE NO.
1	718760001		6/27/07	1600			DW					11	✓	✓	✓	✓	✓	✓	✓			
2	718760002		6/28/07	1520			DW													✓		
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

21. RELINQUISHED BY	DATE	TIME	22. RECEIVED BY	DATE	TIME
1 SAMPLING KIT EMPTY	6/29/07				
2	6/28/07	1620		6/29	10:25
3					
4					

FOR LAB USE ONLY
Sampling Fee: ____ Hrs.
Equipment Rental Fee: ____
Profile No.: Quote No.:

DISTRIBUTION: White with report; Blue, Green, Yellow to labs; Gold to submitter

Revised: 1/99

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax:(561)575-4118
www.jupiterlabs.com
clientservices@jupiterlabs.com

May 14, 2007

Tami Wells
All Webb's Enterprises, Inc.
309 Commerce Way
Jupiter, FL 33458

RE: LOG# 718393
Project ID: Seacoast
COC# 32067

Dear Tami Wells:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, May 01, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report.

The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted.

Samples are disposed of after 30 days of their receipt by the laboratory unless archiving is requested in writing. The laboratory maintains the right to charge storage fees for archived samples.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Footnotes section of this report for NELAC certification numbers of laboratories used.

A Statement of Qualifiers is available upon request.
If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Erin Beauregard for
Kacia Baldwin
kbaldwin@jupiterlabs.com

Enclosures

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE ANALYTE COUNT

LOG# 718393
Project ID: Seacoast

Lab ID	Sample ID	Method	Analytes Reported
718393001	TW-1 1300-1600 Preline	EPA 110.2	1
718393001	TW-1 1300-1600 Preline	EPA 120.1	1
718393001	TW-1 1300-1600 Preline	EPA 150.1	1
718393001	TW-1 1300-1600 Preline	EPA 160.1	1
718393001	TW-1 1300-1600 Preline	EPA 200.8 (Total)	8
718393001	TW-1 1300-1600 Preline	EPA 310.2	2
718393001	TW-1 1300-1600 Preline	EPA 325.2	1
718393001	TW-1 1300-1600 Preline	EPA 340.1	1
718393001	TW-1 1300-1600 Preline	EPA 350.1	1
718393001	TW-1 1300-1600 Preline	EPA 353.2	1
718393001	TW-1 1300-1600 Preline	EPA 375.4	1
718393001	TW-1 1300-1600 Preline	5310B	1
718393001	TW-1 1300-1600 Preline	EPA 6010B	1
718393001	TW-1 1300-1600 Preline	EPA 9060	1

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE SUMMARY

LOG# 718393
Project ID: Seacoast

Lab ID	Sample ID	Matrix	Date Collected	Date Received
718393001	TW-1 1300-1600 Preline	Aqueous Liquid	4/30/2007 17:35	5/1/2007 17:00

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 718393
Project ID: Seacoast

Lab ID: **718393001** Date Received: 5/1/2007 17:00 Matrix: Aqueous Liquid
Sample ID: **TW-1 1300-1600 Preline** Date Collected: 4/30/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: Specific Conductance [Field] (W)			**Analytical Method: EPA 120.1**								
Specific Conductance	5500	umhos/cm			1			04/30/07	GD		
Analysis Desc: TDS by EPA 160.1 [REF] (W)			**Analytical Method: EPA 160.1**								
Total Dissolved Solids	3300	mg/L	1.0		1			05/04/07	ESC		
Analysis Desc: Ammonia by EPA 350.1 (W)			**Analytical Method: EPA 350.1**								
Ammonia	0.77	mg/L	0.020		1			05/14/07	SS		7664-41-7
Analysis Desc: Silica 6010B Calc. [REF] (W)			**Analytical Method: EPA 6010B**								
Silica	13000	ug/L	430		1			05/04/07	ESC		7631-86-9
Analysis Desc: TOC by EPA 9060 [REF] (W)			**Analytical Method: EPA 9060**								
TOC	1.7	mg/L	1.0		1			05/08/07	ESC		
Analysis Desc: pH by EPA 150.1			**Analytical Method: EPA 150.1**								
pH	5.82	su			1			05/03/07	VA		
Analysis Desc: DOC by 5310B [REF] (W)			**Analytical Method: 5310B**								
Dissolved Organic Carbon	1.9	mg/L	1.0		1			05/03/07	ESC		
Analysis Desc: Chloride by EPA 325.2 (W)			**Analytical Method: EPA 325.2**								
Chloride	1400	mg/L	50		100			05/14/07	SS		16887-00-6
Analysis Desc: Sulfate by 375.4 (W)			**Analytical Method: EPA 375.4**								
Sulfate	330	mg/L	100		100			05/14/07	SS		14808-79-8
Analysis Desc: Fluoride by EPA 340.1 (W)			**Analytical Method: EPA 340.1**								
Fluoride	2.1	mg/L	0.50		5			05/14/07	SS	J4	16984-48-8
Analysis Desc: Alkalinity-Bicarbonate, EPA 310.2[REF](W			**Analytical Method: EPA 310.2**								
Alkalinity-Bicarbonate	140	mg/L	10		1			05/04/07	ESC		
Alkalinity-Carbonate	U	mg/L	10		1			05/04/07	ESC		

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 718393
Project ID: Seacoast

Lab ID: 718393001
Sample ID: **TW-1 1300-1600 Preline**
Date Received: 5/1/2007 17:00 Matrix: Aqueous Liquid
Date Collected: 4/30/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: Color by EPA 110.2 [REF] (W)			**Analytical Method: EPA 110.2**								
Color	1.0	PCU	1.0		1			05/02/07	ESC		
Analysis Desc: Nitrite-Nitrate by EPA 353.2 (W)			**Analytical Method: EPA 353.2**								
Nitrite-Nitrate	U	mg/L	0.10		1			05/08/07	ESC		
Analysis Desc: EPA 200.8 Total RCRA-8 Metals (W)			**Analytical Method: EPA 200.8 (Total)**								
Chromium	0.0010	mg/L	0.000076	0.000038	1	05/03/07	ZS	05/03/07	ZS		7440-47-3
Arsenic	0.0060	mg/L	0.00032	0.00016	1	05/03/07	ZS	05/03/07	ZS		7440-38-2
Selenium	0.026	mg/L	0.00094	0.00047	1	05/03/07	ZS	05/03/07	ZS		7782-49-2
Silver	U	mg/L	0.00014	0.000070	1	05/03/07	ZS	05/03/07	ZS		7440-22-4
Cadmium	U	mg/L	0.00018	0.000091	1	05/03/07	ZS	05/03/07	ZS		7440-43-9
Barium	0.018	mg/L	0.00028	0.00014	1	05/03/07	ZS	05/03/07	ZS		7440-39-3
Mercury	U	mg/L	0.0020	0.0012	1	05/03/07	ZS	05/03/07	ZS		7439-97-6
Lead	U	mg/L	0.00024	0.00012	1	05/03/07	ZS	05/03/07	ZS		7439-92-1

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS QUALIFIERS

LOG# 718393
Project ID: Seacoast

PARAMETER QUALIFIERS

J4	MS/MSD recovery exceeded control limits due to matrix interference. LCS/LCSD recovery was within acceptable range.

PROJECT COMMENTS

718393	A reported value of U indicates that the compound was analyzed for but not detected above the MDL. A value flagged with an "I" flag indicates that the reported value is between the laboratory method detection limit and the practical quantitation limit. Report Limit = PQL

SUBCONTRACTOR NELAC CERTIFICATION

718393	ESC = E87487

FDOH# E86546

CERTIFICATE OF ANALYSIS

BAR CODE

Chain of Custody Record

LAB USE ONLY

J.E.L. Log # 118393
P.O. # ____
Quote# ____

Jupiter Environmental Laboratories

Company Name
Address
City State Zip
Sampling Site Address
Attn: Fax/Email
Project Name SEACOAST Project #
Sampler Name/Signature

#	Sample Label (Client ID)	Collected Date	Collected Time	Matrix Code*	# of Cont	Metals (including As)	Ammonium	Alk-carb + bicarb	SO4, Cl, F (pH+...)	Nitrate + Nitrite	Silica	TDS	TOC	DOC	Color		Field Filtered (Y/N)	Integrity OK (Y/N)	Comments
1	TN-1, 1300-1600 Perm	4/30/07	17:35	GW	10	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				Field Param.
2																			pH = 7.75
3																			T = 22.7°C
4																			cond. = 549 µS/cm
5																			D.O. = 0.86 mg/L
6																			
7																			
8																			
9																			
0																			

ORIGINAL

Matrix Codes*

S	Soil/Solid Sediment	SW	Surface Water
GW	Ground Water	SL	Sludge
WW	Waste Water	O	Other (Please Specify)
DW	Drinking Water		

Pres. Codes

A- none	I- Ice
B- HNO_3	O- Other
C- H_2SO_4	M- MeOH
D- NaOH	
E- HCl	

Relinquished by	Date	Time	Received by	Date	Time
[signature]	5/1/07	5:00	Adam [signature]	5/1/07	5:00

QA/QC level with report
None ___ 1 ___ 2 ___ 3 ___ See price guide for applicable fees

T.A.T. Request FDEP ___
___ Standard SFWMD ___
___ Rush Date Required ______

Temp Control: 4 °C

Jupiter Environmental Laboratories, Inc.
150 Old Dixie Highway, Jupiter, FL 33458
(561) 575-0030 • Fax (561) 575-4118 • clientservices@jupiterlabs.com

C.O.C.# 32067

Page ____ of ____

JUPITER ENVIRONMENTAL LABORATORIES, INC.
150 S. OLD DIXIE HWY JUPITER, FL 33458
PH: 561-575-0030 FX: 561-575-4118 E: CLIENTSERVICES@JUPITERLABS.COM

4-30-07	All Webbs	
Date	*Client*	*Project*
Tami Wells		
Contact	*PH/Fx*	*Email*
Monday	(M)TWRF AM (PM)	**Drop;** UPS; FXgrnd; 8am; 10am; other________
Date required / *Shipping address* / *MUST have client PHONE*		

Client or PM complete this section. | **Lab MUST complete this section for client / always copy this page & include with COC in cooler going out**

Method / ANALYTE Total or dissolved	# of Sites or wells:	Water	Soil	preserved Y	N	# bottles per station	total # bottles for kit	Volume	Plastic Glass	Total or Dissolved	Preservation (circle)
Metals	1	(W)	S	(Y)	N	1	1	125ml	plastic	(T) {F}	C S (N) H B Z
Ammonium As	1	(W)	S	(Y)	N	1	1	125ml	P	(T) {F}	C (S) N H B Z
Alk - carb + bicarb	1	(W)	S	Y	(N)	1	1	250ml	P	(T) {F}	(C) S N H B Z
SO4, Cl, F, Br	1	(W)	S	Y	(N)	1	1	125ml	P	(T) {F}	(C) S N H B Z
Nitrate + Nitrite	1	(W)	S	(Y)	N	1	1	125ml	P	(T) {F}	C (S) N H B Z
Silica	1	(W)	S	(Y)	N	1	1	250ml	P	(T) {F}	C S (N) H B Z
TDS	1	(W)	S	Y	(N)	1	1	250ml	P	(T) {F}	(C) S N H B Z
TOC	1	(W)	S	(Y)	N	1	1	250ml	AG	(T) {F}	C S N (H) B Z
DOC	1	(W)	S	(Y)	N	1	1	250	AG	{T} (F)	C S N (H) B Z
Color	1	(W)	S	Y	(N)	1	1	250	P	(T) {F}	(C) S N H B Z
		W	S	Y	N					{T} {F}	C S N H B Z
		W	S	Y	N					{T} {F}	C S N H B Z
		W	S	Y	N					{T} {F}	C S N H B Z
		W	S	Y	N					{T} {F}	C S N H B Z
		W	S	Y	N					{T} {F}	C S N H B Z
		W	S	Y	N					{T} {F}	C S N H B Z

CIRCLE TYPE of PROJECT: FDEP SFWMD SJRWMD

{T}=Total {F}=Field filtered/dissolved
C=Chilled on ice to < 4C
N= nitric acid (HNO3)
B=sodium hydroxide(NaOH)
S=sulfuric acid (H2SO4)
H= hydrochloric acid (HCl)
Z= zinc acetate + NaOH

Circle/fill in:	Filters:	droppers___	Bubble wrap	COC	Coolers:	sm___	med___	lg_____	Custody seals/ other_________

Equipment Rental:

NOTES:

Order prepared By: Erin Beauregard **Kit prepared by:** BM

CLIENT: To comply with NELAC/FDOH regulations please:
All samples MUST be returned on ice regardless of acid preservation method (except Hg by EPA method 1631E).
Return a copy of this document with your samples and COC

You can request kits and download a blank Chain of Custody in PDF or Excel on our website: www.jupiterlabs.com

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118
www.jupiterlabs.com
clientservices@jupiterlabs.com

April 5, 2007

David Webb, Jr.
All Webb's Enterprises, Inc.
309 Commerce Way
Jupiter, FL 33458

RE: LOG# 718160
Project ID: SVA TW-1
COC# 30115

Dear David Webb, Jr.:

Enclosed are the analytical results for sample(s) received by the laboratory on Wednesday, March 21, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report.

The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted.

Samples are disposed of after 30 days of their receipt by the laboratory unless archiving is requested in writing. The laboratory maintains the right to charge storage fees for archived samples.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Footnotes section of this report for NELAC certification numbers of laboratories used.

A Statement of Qualifiers is available upon request.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ann McKewin for
Kacia Baldwin
kbaldwin@jupiterlabs.com

Enclosures

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE ANALYTE COUNT

LOG# 718160
Project ID: SVA TW-1

Lab ID	Sample ID	Method	Analytes Reported
718160001	PT #4 (1114 FT)	EPA 120.1	1
		EPA 150.1	1
		EPA 160.1	1
		EPA 200.8 (Total)	6
		EPA 310.2	2
		EPA 325.2	1
		EPA 350.1	1
		EPA 375.4	1
		EPA 376.1	1

FDOH# E86546

CERTIFICATE OF ANALYSIS

nelac

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE SUMMARY

LOG# 718160
Project ID: SVA TW-1

Lab ID	Sample ID	Matrix	Date Collected	Date Received
718160001	PT #4 (1114 FT)	Aqueous Liquid	3/20/2007 13:10	3/21/2007 16:35

FDOH# E86546

CERTIFICATE OF ANALYSIS

nelac

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Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 718160
Project ID: SVA TW-1

Lab ID: **718160001** Date Received: 3/21/2007 Matrix: Aqueous Liquid
Sample ID: **PT #4 (1114 FT)** Date Collected: 3/20/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: Specific Conductance [REF] (W)			Analytical Method: EPA 120.1								
Specific Conductance	5600	umhos/cm			1			03/29/07	BFM		
Analysis Desc: TDS by EPA 160.1 [REF] (W)			Analytical Method: EPA 160.1								
Total Dissolved Solids	3400	mg/L	1.0		1			03/27/07	ESC		
Analysis Desc: Ammonia by EPA 350.1 (W)			Analytical Method: EPA 350.1								
Ammonia	0.78	mg/L	0.020		1			03/28/07	SS	J4	7664-41-7
Analysis Desc: pH by EPA 150.1			Analytical Method: EPA 150.1								
pH	7.71	su			1			03/29/07	BFM		
Analysis Desc: Chloride by EPA 325.2 (W)			Analytical Method: EPA 325.2								
Chloride	1400	mg/L	50		100			03/28/07	SS		16887-00-6
Analysis Desc: Sulfate by 375.4 (W)			Analytical Method: EPA 375.4								
Sulfate	340	mg/L	100		100			03/28/07	SS		14808-79-8
Analysis Desc: Alkalinity-Bicarbonate, EPA 310.2[REF](W			Analytical Method: EPA 310.2								
Alkalinity-Bicarbonate	150	mg/L	10		1			03/26/07	ESC		
Alkalinity-Carbonate	U	mg/L	10		1			03/26/07	ESC		
Analysis Desc: Hydrogen Sulfide by EPA 376.1 [REF](W)			Analytical Method: EPA 376.1								
Hydrogen Sulfide	1.3	mg/L	0.0020		1			03/27/07	FL		
Analysis Desc: EPA 200.8 Metals (W)			Analytical Method: EPA 200.8 (Total)								
Sodium	790	mg/L	0.0070	0.0035	1	03/23/07	ZS	03/23/07	ZS		7440-23-5
Magnesium	120	mg/L	0.00082	0.00041	1	03/23/07	ZS	03/23/07	ZS		7439-95-4
Potassium	30	mg/L	0.0068	0.0034	1	03/23/07	ZS	03/23/07	ZS		7440-09-7
Calcium	120	mg/L	0.048	0.024	1	03/23/07	ZS	03/23/07	ZS		7440-70-2
Iron	0.29	mg/L	0.020	0.010	1	03/23/07	ZS	03/23/07	ZS		7439-89-6
Arsenic	U	mg/L	0.00032	0.00016	1	03/23/07	ZS	03/23/07	ZS		7440-38-2

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS QUALIFIERS

LOG# 718160
Project ID: SVA TW-1

PARAMETER QUALIFIERS

J4	MS/MSD recovery exceeded control limits due to matrix interference. LCS/LCSD recovery was within acceptable range.

PROJECT COMMENTS

718160	Report Limit = PQL

SUBCONTRACTOR NELAC CERTIFICATION

718160	ESC = E87487
718160	FL = E83018

FDOH# E86546

CERTIFICATE OF ANALYSIS

BAR CODE

Chain of Custody Record

LAB USE ONLY

J.E.L. Log # 718160
P.O. # _____
Quote# _____

Jupiter Environmental Laboratories

Company Name ALL WEBB

Address

City State Zip

Sampling Site Address

Attn: Fax/Email

Project Name SJA TW-1 Project #

Sampler Name/Signature

#	Sample Label (Only 10)	Collected Date	Collected Time	Matrix Code*	# of Cont.
1	PT#4 (1114 Ft)	3/20/07	13:10	GW	5
2					
3					
4					
5					
6					
7					
8					
9					
10					

LAB ANALYSIS

Parameters

Mg, Na, Ca, Fe, K | Chloride/SO4/Cond/pH | NH3 | ALK (CaCO3/HCO3) | TDS | H_2S | Field Filtered (Y/N) | Integrity OK (Y/N)

Same parameters as PT 1-3

Comments

Please run As analysis.
pH = 7.72
T = 12.4°C
Cond. = 599 µmhos

ORIGINAL

Matrix Codes*

S	Soil/Solid Sediment	SW	Surface Water
GW	Ground Water	SL	Sludge
WW	Waste Water	O	Other (Please Specify)
DW	Drinking Water		

Preservation Codes*

A- none I- Ice
B- HNO_3 O- Other
C- H_2SO_4 M- MeOH
D- NaOH
E- HCl

Relinquished by	Date	Time	Received	Date	Time
X Jonathan Taylor	3/21/07	1635		3/21/07	1635

QA/QC level with report
None ___ 1 ___ 2 ___ 3 ___ See price guide for applicable fees

T.A.T. Request
___ Standard
___ Rush

FDEP ___
SFWMD ___
Date Required _____

Temp Control: 6 °C

Page 1 of 1

Jupiter Environmental Laboratories, Inc.
150 Old Dixie Highway, Jupiter, FL 33458
(561) 575-0030 • Fax (561) 575-4118 • clientservices@jupiterlabs.com

C.O.C.# 30115

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118
www.jupiterlabs.com
clientservices@jupiterlabs.com

March 21, 2007

David Webb, Jr.
All Webb's Enterprises, Inc.
309 Commerce Way
Jupiter, FL 33458

RE: LOG# 718074
Project ID: SVA TW-1
COC# 29732

Dear David Webb, Jr.:

Enclosed are the analytical results for sample(s) received by the laboratory on Friday, March 09, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report.

The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted.

Samples are disposed of after 30 days of their receipt by the laboratory unless archiving is requested in writing. The laboratory maintains the right to charge storage fees for archived samples.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Footnotes section of this report for NELAC certification numbers of laboratories used.

A Statement of Qualifiers is available upon request.
If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Erin Beauregard for
Kacia Baldwin
kbaldwin@jupiterlabs.com

Enclosures

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE ANALYTE COUNT

LOG# 718074
Project ID: SVA TW-1

Lab ID	Sample ID	Method	Analytes Reported
718074001	PT #1 (1684 FT)	EPA 120.1	1
718074001	PT #1 (1684 FT)	EPA 150.1	1
718074001	PT #1 (1684 FT)	EPA 160.1	1
718074001	PT #1 (1684 FT)	EPA 200.8 (Total)	6
718074001	PT #1 (1684 FT)	EPA 310.2	2
718074001	PT #1 (1684 FT)	EPA 325.2	1
718074001	PT #1 (1684 FT)	EPA 350.1	1
718074001	PT #1 (1684 FT)	EPA 375.4	1
718074001	PT #1 (1684 FT)	EPA SM4500SH	1

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE SUMMARY

LOG# 718074
Project ID: SVA TW-1

Lab ID	Sample ID	Matrix	Date Collected	Date Received
718074001	PT #1 (1684 FT)	Aqueous Liquid	3/8/2007 13:15	3/9/2007 14:35

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 718074
Project ID: SVA TW-1

Lab ID: **718074001** Date Received: 3/9/2007 14:35 Matrix: Aqueous Liquid
Sample ID: **PT #1 (1684 FT)** Date Collected: 3/8/2007 13:15

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: Specific Conductance [REF] (W)			Analytical Method: EPA 120.1								
Specific Conductance	7500	umhos/cm			1			03/20/07	BFM		
Analysis Desc: TDS by EPA 160.1 [REF] (W)			Analytical Method: EPA 160.1								
Total Dissolved Solids	4800	mg/L	1.0		1			03/15/07	ESC		
Analysis Desc: Ammonia by EPA 350.1 (W)			Analytical Method: EPA 350.1								
Ammonia	1.2	mg/L	0.20		10			03/19/07	SS	J4	7664-41-7
Analysis Desc: pH by EPA 150.1			Analytical Method: EPA 150.1								
pH	7.84	su			1			03/16/07	BFM		
Analysis Desc: Chloride by EPA 325.2 (W)			Analytical Method: EPA 325.2								
Chloride	2100	mg/L	50		100			03/15/07	SS	J4	16887-00-6
Analysis Desc: Sulfate by 375.4 (W)			Analytical Method: EPA 375.4								
Sulfate	420	mg/L	100		100			03/15/07	SS		14808-79-8
Analysis Desc: Alkalinity-Carbonate, EPA 310.2[REF](W)			Analytical Method: EPA 310.2								
Alkalinity-Carbonate	U	mg/L	10		1			03/14/07	ESC		
Alkalinity-Bicarbonate	150	mg/L	10		1			03/14/07	ESC		
Analysis Desc: Hydrogen Sulfide by EPA SM4500SH [REF](W)			Analytical Method: EPA SM4500SH								
Hydrogen Sulfide	1.4	mg/L	0.0020		1			03/15/07	FL		
Analysis Desc: EPA 200.8 Metals (W)			Analytical Method: EPA 200.8 (Total)								
Sodium	1200	mg/L	0.0070	0.0035	1	03/12/07	ZS	03/12/07	ZS		7440-23-5
Magnesium	180	mg/L	0.00082	0.00041	1	03/12/07	ZS	03/12/07	ZS		7439-95-4
Potassium	35	mg/L	0.0068	0.0034	1	03/12/07	ZS	03/12/07	ZS		7440-09-7
Calcium	150	mg/L	0.048	0.024	1	03/12/07	ZS	03/12/07	ZS		7440-70-2
Iron	0.58	mg/L	0.020	0.010	1	03/12/07	ZS	03/12/07	ZS		7439-89-6
Arsenic	0.0039	mg/L	0.00032	0.00016	1	03/12/07	ZS	03/12/07	ZS		7440-38-2

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS QUALIFIERS

LOG# 718074
Project ID: SVA TW-1

PARAMETER QUALIFIERS

J4	MS/MSD recovery exceeded control limits due to matrix interference. LCS/LCSD recovery was within acceptable range.

PROJECT COMMENTS

718074	Report Limit = PQL

SUBCONTRACTOR NELAC CERTIFICATION

718074	ESC = E87487
718074	FL = E83018

FDOH# E86546

CERTIFICATE OF ANALYSIS

ACCREDITED IN ACCORDANCE WITH nelac

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118
www.jupiterlabs.com
clientservices@jupiterlabs.com

April 10, 2007

David Webb, Jr.
All Webb's Enterprises, Inc.
309 Commerce Way
Jupiter, FL 33458

RE: LOG# 718082
Project ID: SVA TW-1
COC# 29465

Dear David Webb, Jr.:

Enclosed are the analytical results for sample(s) received by the laboratory on Monday, March 12, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report.

The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted.

Samples are disposed of after 30 days of their receipt by the laboratory unless archiving is requested in writing. The laboratory maintains the right to charge storage fees for archived samples.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Footnotes section of this report for NELAC certification numbers of laboratories used.

A Statement of Qualifiers is available upon request.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Erin Beauregard for
Kacia Baldwin
kbaldwin@jupiterlabs.com

Enclosures

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE ANALYTE COUNT

LOG# 718082
Project ID: SVA TW-1

Lab ID	Sample ID	Method	Analytes Reported
718082001	P.T. #2 (1625FT)	EPA 120.1	1
		EPA 160.1	1
		EPA 200.8 (Total)	6
		EPA 310.2	2
		EPA 325.2	1
		EPA 350.1	1
		EPA 375.4	1
		EPA 376.1	1

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE SUMMARY

LOG# 718082
Project ID: SVA TW-1

Lab ID	Sample ID	Matrix	Date Collected	Date Received
718082001	P.T. #2 (1625FT)	Aqueous Liquid	3/10/2007 11:25	3/12/2007 14:35

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 718082
Project ID: SVA TW-1

Lab ID: **718082001** Date Received: 3/12/2007 Matrix: Aqueous Liquid
Sample ID: **P.T. #2 (1625FT)** Date Collected: 3/10/2007 11:25

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: Specific Conductance [REF] (W)			Analytical Method: EPA 120.1								
Specific Conductance	7000	umhos/cm			1			03/20/07	BFM		
Analysis Desc: TDS by EPA 160.1 [REF] (W)			Analytical Method: EPA 160.1								
Total Dissolved Solids	4200	mg/L	1.0		1			03/16/07	ESC		
Analysis Desc: Ammonia by EPA 350.1 (W)			Analytical Method: EPA 350.1								
Ammonia	1.2	mg/L	0.20		10			03/19/07	SS	J4	7664-41-7
Analysis Desc: Chloride by EPA 325.2 (W)			Analytical Method: EPA 325.2								
Chloride	1900	mg/L	50		100			03/15/07	SS	J4	16887-00-6
Analysis Desc: Sulfate by 375.4 (W)			Analytical Method: EPA 375.4								
Sulfate	410	mg/L	100		100			03/15/07	SS		14808-79-8
Analysis Desc: Alkalinity-Bicarbonate, EPA 310.2[REF](W			Analytical Method: EPA 310.2								
Alkalinity-Bicarbonate	150	mg/L	10		1			03/15/07	ESC		
Alkalinity-Carbonate	U	mg/L	10		1			03/15/07	ESC		
Analysis Desc: Hydrogen Sulfide by EPA 376.1 [REF](W)			Analytical Method: EPA 376.1								
Hydrogen Sulfide	1.7	mg/L	0.0020		1			03/15/07	FL		
Analysis Desc: EPA 200.8 Metals (W)			Analytical Method: EPA 200.8 (Total)								
Magnesium	130	mg/L	0.00082	0.00041	1	03/13/07	ZS	03/13/07	ZS		7439-95-4
Potassium	41	mg/L	0.0068	0.0034	1	03/13/07	ZS	03/13/07	ZS		7440-09-7
Calcium	110	mg/L	0.048	0.024	1	03/13/07	ZS	03/13/07	ZS		7440-70-2
Iron	U	mg/L	0.020	0.010	1	03/13/07	ZS	03/13/07	ZS		7439-89-6
Arsenic	0.0039	mg/L	0.00032	0.00016	1	03/13/07	ZS	03/13/07	ZS		7440-38-2
Sodium	1100	mg/L	0.0070	0.0035	1	03/13/07	ZS	03/13/07	ZS		7440-23-5

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS QUALIFIERS

LOG# 718082
Project ID: SVA TW-1

PARAMETER QUALIFIERS

J4	MS/MSD recovery exceeded control limits due to matrix interference. LCS/LCSD recovery was within acceptable range.

PROJECT COMMENTS

718082	Report Limit = PQL

SUBCONTRACTOR NELAC CERTIFICATION

718082	ESC = E87487
718082	FL = E83018

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
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150 S. Old Dixie Highway
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www.jupiterlabs.com
clientservices@jupiterlabs.com

March 21, 2007

David Webb, Jr.
All Webb's Enterprises, Inc.
309 Commerce Way
Jupiter, FL 33458

RE: LOG# 718083
Project ID: SVA TW-1
COC# 29733

Dear David Webb, Jr.:

Enclosed are the analytical results for sample(s) received by the laboratory on Monday, March 12, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report.

The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted.

Samples are disposed of after 30 days of their receipt by the laboratory unless archiving is requested in writing. The laboratory maintains the right to charge storage fees for archived samples.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Footnotes section of this report for NELAC certification numbers of laboratories used.

A Statement of Qualifiers is available upon request.
If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Erin Beauregard for
Kacia Baldwin
kbaldwin@jupiterlabs.com

Enclosures

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE ANALYTE COUNT

LOG# 718083
Project ID: SVA TW-1

Lab ID	Sample ID	Method	Analytes Reported
718083001	P.T. #3 (1500FT)	EPA 120.1	1
718083001	P.T. #3 (1500FT)	EPA 150.1	1
718083001	P.T. #3 (1500FT)	EPA 160.1	1
718083001	P.T. #3 (1500FT)	EPA 200.8 (Total)	6
718083001	P.T. #3 (1500FT)	EPA 310.2	2
718083001	P.T. #3 (1500FT)	EPA 325.2	1
718083001	P.T. #3 (1500FT)	EPA 350.1	1
718083001	P.T. #3 (1500FT)	EPA 375.4	1
718083001	P.T. #3 (1500FT)	EPA SM4500SH	1

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE SUMMARY

LOG# 718083
Project ID: SVA TW-1

Lab ID	Sample ID	Matrix	Date Collected	Date Received
718083001	P.T. #3 (1500FT)	Aqueous Liquid	3/12/2007 12:15	3/12/2007 14:35

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 718083
Project ID: SVA TW-1

Lab ID: **718083001** Date Received: 3/12/2007 Matrix: Aqueous Liquid
Sample ID: **P.T. #3 (1500FT)** Date Collected: 3/12/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: Specific Conductance [REF] (W)			Analytical Method: EPA 120.1								
Specific Conductance	6400	umhos/cm			1			03/20/07	BFM		
Analysis Desc: TDS by EPA 160.1 [REF] (W)			Analytical Method: EPA 160.1								
Total Dissolved Solids	3800	mg/L	1.0		1			03/19/07	ESC		
Analysis Desc: Ammonia by EPA 350.1 (W)			Analytical Method: EPA 350.1								
Ammonia	0.89	mg/L	0.020		1			03/19/07	SS	J4	7664-41-7
Analysis Desc: pH by EPA 150.1			Analytical Method: EPA 150.1								
pH	7.92	su			1			03/16/07	BFM		
Analysis Desc: Chloride by EPA 325.2 (W)			Analytical Method: EPA 325.2								
Chloride	1700	mg/L	50		100			03/15/07	SS	J4	16887-00-6
Analysis Desc: Sulfate by 375.4 (W)			Analytical Method: EPA 375.4								
Sulfate	390	mg/L	100		100			03/15/07	SS		14808-79-8
Analysis Desc: Alkalinity-Bicarbonate, EPA 310.2[REF](W			Analytical Method: EPA 310.2								
Alkalinity-Bicarbonate	140	mg/L	10		1			03/15/07	ESC		
Alkalinity-Carbonate	U	mg/L	10		1			03/15/07	ESC		
Analysis Desc: Hydrogen Sulfide by EPA SM4500SH [REF](W)			Analytical Method: EPA SM4500SH								
Hydrogen Sulfide	1.2	mg/L	0.0020		1			03/15/07	FL		
Analysis Desc: EPA 200.8 Metals (W)			Analytical Method: EPA 200.8 (Total)								
Sodium	850	mg/L	0.0070	0.0035	1	03/13/07	ZS	03/13/07	ZS		7440-23-5
Magnesium	130	mg/L	0.00082	0.00041	1	03/13/07	ZS	03/13/07	ZS		7439-95-4
Potassium	39	mg/L	0.0068	0.0034	1	03/13/07	ZS	03/13/07	ZS		7440-09-7
Calcium	110	mg/L	0.048	0.024	1	03/13/07	ZS	03/13/07	ZS		7440-70-2
Iron	0.071	mg/L	0.020	0.010	1	03/13/07	ZS	03/13/07	ZS		7439-89-6
Arsenic	0.0029	mg/L	0.00032	0.00016	1	03/13/07	ZS	03/13/07	ZS		7440-38-2

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS QUALIFIERS

LOG# 718083
Project ID: SVA TW-1

PARAMETER QUALIFIERS

J4	MS/MSD recovery exceeded control limits due to matrix interference. LCS/LCSD recovery was within acceptable range.

PROJECT COMMENTS

718083	Report Limit = PQL

SUBCONTRACTOR NELAC CERTIFICATION

718083	ESC = E87487
718083	FL = E83018

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
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www.jupiterlabs.com
clientservices@jupiterlabs.com

April 10, 2007

David Webb, Jr.
All Webb's Enterprises, Inc.
309 Commerce Way
Jupiter, FL 33458

RE: LOG# 718160
Project ID: SVA TW-1
COC# 30115

Dear David Webb, Jr.:

Enclosed are the analytical results for sample(s) received by the laboratory on Wednesday, March 21, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report.

The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted.

Samples are disposed of after 30 days of their receipt by the laboratory unless archiving is requested in writing. The laboratory maintains the right to charge storage fees for archived samples.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Footnotes section of this report for NELAC certification numbers of laboratories used.

A Statement of Qualifiers is available upon request.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Erin Beauregard for
Kacia Baldwin
kbaldwin@jupiterlabs.com

Enclosures

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE ANALYTE COUNT

LOG# 718160
Project ID: SVA TW-1

Lab ID	Sample ID	Method	Analytes Reported
718160001	PT #4 (1114 FT)	EPA 120.1	1
		EPA 150.1	1
		EPA 160.1	1
		EPA 200.8 (Total)	6
		EPA 310.2	2
		EPA 325.2	1
		EPA 350.1	1
		EPA 375.4	1
		EPA 376.1	1

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE SUMMARY

LOG# 718160
Project ID: SVA TW-1

Lab ID	Sample ID	Matrix	Date Collected	Date Received
718160001	PT #4 (1114 FT)	Aqueous Liquid	3/20/2007 13:10	3/21/2007 16:35

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 718160
Project ID: SVA TW-1

Lab ID: **718160001** Date Received: 3/21/2007 Matrix: Aqueous Liquid
Sample ID: **PT #4 (1114 FT)** Date Collected: 3/20/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: Specific Conductance [REF] (W)		Analytical Method: EPA 120.1									
Specific Conductance	5600	umhos/cm			1			03/29/07	BFM		
Analysis Desc: TDS by EPA 160.1 [REF] (W)		Analytical Method: EPA 160.1									
Total Dissolved Solids	3400	mg/L	1.0		1			03/27/07	ESC		
Analysis Desc: Ammonia by EPA 350.1 (W)		Analytical Method: EPA 350.1									
Ammonia	0.78	mg/L	0.020		1			03/28/07	SS	J4	7664-41-7
Analysis Desc: pH by EPA 150.1		Analytical Method: EPA 150.1									
pH	7.71	su			1			03/29/07	BFM		
Analysis Desc: Chloride by EPA 325.2 (W)		Analytical Method: EPA 325.2									
Chloride	1400	mg/L	50		100			03/28/07	SS		16887-00-6
Analysis Desc: Sulfate by 375.4 (W)		Analytical Method: EPA 375.4									
Sulfate	340	mg/L	100		100			03/28/07	SS		14808-79-8
Analysis Desc: Alkalinity-Bicarbonate, EPA 310.2[REF](W		Analytical Method: EPA 310.2									
Alkalinity-Bicarbonate	150	mg/L	10		1			03/26/07	ESC		
Alkalinity-Carbonate	U	mg/L	10		1			03/26/07	ESC		
Analysis Desc: Hydrogen Sulfide by EPA 376.1 [REF](W)		Analytical Method: EPA 376.1									
Hydrogen Sulfide	1.3	mg/L	0.0020		1			03/27/07	FL		
Analysis Desc: EPA 200.8 Metals (W)		Analytical Method: EPA 200.8 (Total)									
Sodium	790	mg/L	0.0070	0.0035	1	03/23/07	ZS	03/23/07	ZS		7440-23-5
Magnesium	120	mg/L	0.00082	0.00041	1	03/23/07	ZS	03/23/07	ZS		7439-95-4
Potassium	30	mg/L	0.0068	0.0034	1	03/23/07	ZS	03/23/07	ZS		7440-09-7
Calcium	120	mg/L	0.048	0.024	1	03/23/07	ZS	03/23/07	ZS		7440-70-2
Iron	0.29	mg/L	0.020	0.010	1	03/23/07	ZS	03/23/07	ZS		7439-89-6
Arsenic	U	mg/L	0.00032	0.00016	1	03/23/07	ZS	03/23/07	ZS		7440-38-2

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS QUALIFIERS

LOG# 718160
Project ID: SVA TW-1

PARAMETER QUALIFIERS

J4	MS/MSD recovery exceeded control limits due to matrix interference. LCS/LCSD recovery was within acceptable range.

PROJECT COMMENTS

718160	Report Limit = PQL

SUBCONTRACTOR NELAC CERTIFICATION

718160	ESC = E87487
718160	FL = E83018

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118
www.jupiterlabs.com
clientservices@jupiterlabs.com

March 7, 2007

Dave Smith
Arcadis
2081 Vista Pkwy.
West Palm Beach, FL 33411

RE: LOG# 717895
Project ID: TW-1
COC# 29463

Dear Dave Smith:

Enclosed are the analytical results for sample(s) received by the laboratory on Tuesday, February 13, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report.

The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted.

Samples are disposed of after 30 days of their receipt by the laboratory unless archiving is requested in writing. The laboratory maintains the right to charge storage fees for archived samples.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Footnotes section of this report for NELAC certification numbers of laboratories used.

A Statement of Qualifiers is available upon request.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Erin Beauregard for
Kacia Baldwin
kbaldwin@jupiterlabs.com

Enclosures

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE ANALYTE COUNT

LOG# 717895
Project ID: TW-1

Lab ID	Sample ID	Method	Analytes Reported
717895001	TW-1/1048	2580	1
		EPA 00-02	1
		EPA 160.1	1
		EPA 180.1	1
		EPA 200.8 (Dissolved)	2
		EPA 200.8 (Total)	7
		EPA 310.2	1
		EPA 325.2	1
		EPA 350.1	1
		EPA 353.1	1
		EPA 375.4	1
		SM 2340B	3

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

SAMPLE SUMMARY

LOG# 717895
Project ID: TW-1

Lab ID	Sample ID	Matrix	Date Collected	Date Received
717895001	TW-1/1048	Aqueous Liquid	2/13/2007 15:40	2/13/2007 17:00

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS QUALIFIERS

LOG# 717895
Project ID: TW-1

PARAMETER QUALIFIERS

J4	MS/MSD recovery exceeded control limits due to matrix interference. LCS/LCSD recovery was within acceptable range.
Q	Sample held beyond the accepted holding time.
T8	Additional method/sample information: Sample(s) received past/too close to holding time expiration.

PROJECT COMMENTS

717895	Report Limit = PQL

SUBCONTRACTOR NELAC CERTIFICATION

717895	ESC = E87487
717895	KNL = E84025

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 717895
Project ID: TW-1

Lab ID: **717895001** Date Received: 2/13/2007 Matrix: Aqueous Liquid
Sample ID: **TW-1/1048** Date Collected: 2/13/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: TDS by EPA 160.1 [REF] (W)			Analytical Method: EPA 160.1								
Total Dissolved Solids	4800	mg/L	1.0		1			02/21/07	ESC	Q	
Analysis Desc: Ammonia by EPA 350.1 (W)			Analytical Method: EPA 350.1								
Ammonia	1.9	mg/L	0.20		10			02/20/07	SS		7664-41-7
Analysis Desc: Nitrate by EPA 353.1 (W)			Analytical Method: EPA 353.1								
Nitrate	U	mg/L	0.10		1			02/16/07	ESC	T8	
Analysis Desc: Chloride by EPA 325.2 (W)			Analytical Method: EPA 325.2								
Chloride	2300	mg/L	50		100			02/15/07	SS		16887-00-6
Analysis Desc: Sulfate by 375.4 (W)			Analytical Method: EPA 375.4								
Sulfate	410	mg/L	100		100			02/16/07	SS		14808-79-8
Analysis Desc: Alkalinity, EPA 310.2 (W)			Analytical Method: EPA 310.2								
Alkalinity	97	mg/L	50		10			02/16/07	SS	J4	
Analysis Desc: Ox-Red Potential by 2580			Analytical Method: 2580								
ORP*	200	mV	1.0		1			02/16/07	KB		
Analysis Desc: Gross Alpha by EPA 00-02 [REF]			Analytical Method: EPA 00-02								
Gross Alpha	10.1 +/- 0.8	pCi/L	0.50		1			02/27/07	KNL		
Analysis Desc: Ca Hardness by Calc. SM 2340B (W)			Analytical Method: SM 2340B								
Calcium Hardness	380	mg/L			1			02/15/07	ZS		
Magnesium Hardness	120	mg/L			1			02/15/07	ZS		
Total Hardness as CaCO3	510	mg/L			1			02/15/07	ZS		
Analysis Desc: Turbidity by EPA 180.1 [REF] (W)			Analytical Method: EPA 180.1								
Turbidity	73	NTU	0.10		1			02/15/07	ESC		
Analysis Desc: EPA 200.8 Metals (W)			Analytical Method: EPA 200.8 (Total)								
Manganese	0.017	mg/L	0.00017	0.000085	1	02/15/07	ZS	02/15/07	ZS		7439-96-5
Arsenic	0.0024	mg/L	0.00032	0.00016	1	02/15/07	ZS	02/15/07	ZS		7440-38-2

FDOH# E86546

CERTIFICATE OF ANALYSIS

Jupiter
Environmental Laboratories, Inc.

Jupiter Environmental Laboratories, Inc.
150 S. Old Dixie Highway
Jupiter, FL 33458
Phone: (561)575-0030
Fax: (561)575-4118

ANALYTICAL RESULTS

LOG# 717895
Project ID: TW-1

Lab ID: **717895001** Date Received: 2/13/2007 Matrix: Aqueous Liquid
Sample ID: **TW-1/1048** Date Collected: 2/13/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Sodium	230	mg/L	0.0070	0.0035	1	02/15/07	ZS	02/15/07	ZS		7440-23-5
Magnesium	30	mg/L	0.00082	0.00041	1	02/15/07	ZS	02/15/07	ZS		7439-95-4
Potassium	5.5	mg/L	0.0068	0.0034	1	02/15/07	ZS	02/15/07	ZS		7440-09-7
Calcium	150	mg/L	0.048	0.024	1	02/15/07	ZS	02/15/07	ZS		7440-70-2
Iron	1.3	mg/L	0.020	0.010	1	02/15/07	ZS	02/15/07	ZS		7439-89-6
Analysis Desc: EPA 200.8 Dissolved Metals (W)			Analytical Method: EPA 200.8 (Dissolved)								
Arsenic	0.0036	mg/L	0.00032	0.00016	1	02/15/07	ZS	02/15/07	ZS		7440-38-2
Iron	0.54	mg/L	0.020	0.010	1	02/15/07	ZS	02/15/07	ZS		7439-89-6

FDOH# E86546

CERTIFICATE OF ANALYSIS

BAR CODE

Chain of Custody Record

LAB USE ONLY

J.E.L. Log # 717843
P.O. #
Quote#

Jupiter Environmental Laboratories

Company Name: ARCADIS
Address: 2081 VISTA PKWY
City: WPB State: FL Zip: 33411
Sampling Site Address: SEACOAST, PALM BCH. G.
Attn: D. SMITH Fax/Email:
Project Name: TW-1 Project #: WF005600.0000
Sampler Name/Signature: L. KUTAMINSKI

LAB ANALYSIS

Pres Codes	B	A	B	A		A						Field Filtered (Y/N)	Integrity OK (Y/N)	
Parameters	METALS (TOTAL)	METALS (DISS.)	GROSS ALPHA	TDS, TURBIDITY	REDOX, ALKALINITY, CHLORIDES, SULFATE	AMMONIA NO3								

#	Sample Label (Client ID)	Collected Date	Collected Time	Matrix Code*	# of Cont												Field Filtered (Y/N)	Integrity OK (Y/N)	Comments
1	TW-1/1058	2/13/07	15:40	GW	9	✓	✓	✓	✓	✓	✓						N		Diss. Metals sample to be filtered @ the Lab.
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
0																			

ORIGINAL

Matrix Codes*
- S Soil/Solid Sediment
- GW Ground Water
- WW Waste Water
- DW Drinking Water
- SW Surface Water
- SL Sludge
- O Other (Please Specify)

Pres Codes**
- A- none
- B- HNO_3
- C- H_2SO_4
- D- NaOH
- E- HCl
- I- Ice
- O- Other
- M- MeOH

Relinquished by	Date	Time	Received by	Date	Time
L. Kutaminski (ARCADIS)	2/13/07	1700	[signature]	2/13/07	1700

QA/QC level with report
(None) ___1___2___3___ See price guide for applicable fees

T.A.T. Request
✓ Standard
___ Rush
FDEP___
SFWMD___
Date Required______

Temp Control: 4 °C

Jupiter Environmental Laboratories, Inc.
150 Old Dixie Highway, Jupiter, FL 33458
(561) 575-0030 • Fax (561) 575-4118 • clientservices@jupiterlabs.com

C.O.C.# 29463

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March 13, 2007

Dave Smith
Arcadis
2081 Vista Pkwy.
West Palm Beach, FL 33411

RE: LOG# 717938
Project ID: wf005600.0001 TW-1
COC# 29508

Dear Dave Smith:

Enclosed are the analytical results for sample(s) received by the laboratory on Monday, February 19, 2007. Results reported herein conform to the most current NELAC standards, where applicable, unless indicated by * in the body of the report.

The enclosed Chain of Custody is a component of this package and should be retained with the package and incorporated therein.

Results for all solid matrices are reported in dry weight unless otherwise noted. Results for all liquid matrices are reported as received in the laboratory unless otherwise noted.

Samples are disposed of after 30 days of their receipt by the laboratory unless archiving is requested in writing. The laboratory maintains the right to charge storage fees for archived samples.

Certain analyses are subcontracted to outside NELAC certified laboratories, please see the Footnotes section of this report for NELAC certification numbers of laboratories used.

A Statement of Qualifiers is available upon request.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Erin Beauregard for
Kacia Baldwin
kbaldwin@jupiterlabs.com

Enclosures

FDOH# E86546

CERTIFICATE OF ANALYSIS

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SAMPLE ANALYTE COUNT

LOG# 717938
Project ID: wf005600.0001 TW-1

Lab ID	Sample ID	Method	Analytes Reported
717938001	TW-1/1135	2580	1
		EPA 00-02	1
		EPA 160.1	1
		EPA 200.8 (Dissolved)	2
		EPA 200.8 (Total)	7
		EPA 310.2	1
		EPA 325.2	1
		EPA 350.1	1
		EPA 353.2	1
		EPA 375.4	1
		SM 2340B	2

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SAMPLE SUMMARY

LOG# 717938
Project ID: wf005600.0001 TW-1

Lab ID	Sample ID	Matrix	Date Collected	Date Received
717938001	TW-1/1135	Aqueous Liquid	2/16/2007 18:50	2/19/2007 15:50

FDOH# E86546

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ANALYTICAL RESULTS

LOG# 717938
Project ID: wf005600.0001 TW-1

Lab ID: **717938001** Date Received: 2/19/2007 Matrix: Aqueous Liquid
Sample ID: **TW-1/1135** Date Collected: 2/16/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Analysis Desc: TDS by EPA 160.1 [REF] (W)			Analytical Method: EPA 160.1								
Total Dissolved Solids	5000	mg/L	1.0		1			02/24/07	ESC		
Analysis Desc: Ammonia by EPA 350.1 (W)			Analytical Method: EPA 350.1								
Ammonia	1.8	mg/L	0.20		10			02/20/07	SS		7664-41-7
Analysis Desc: Chloride by EPA 325.2 (W)			Analytical Method: EPA 325.2								
Chloride	2600	mg/L	50		100			02/23/07	ESC		16887-00-6
Analysis Desc: Sulfate by 375.4 (W)			Analytical Method: EPA 375.4								
Sulfate	470	mg/L	100		100			02/23/07	SS		14808-79-8
Analysis Desc: Alkalinity, EPA 310.2 (W)			Analytical Method: EPA 310.2								
Alkalinity	120	mg/L	50		10			02/23/07	SS		
Analysis Desc: Ox-Red Potential by 2580			Analytical Method: 2580								
ORP*	490	mV	1.0		1			02/19/07	AS		
Analysis Desc: Gross Alpha by EPA 00-02 [REF]			Analytical Method: EPA 00-02								
Gross Alpha	6.8 +/- 0.8	pCi/L	0.40		1			03/09/07	KNL		
Analysis Desc: Nitrite-Nitrate by EPA 353.2 (W)			Analytical Method: EPA 353.2								
Nitrite-Nitrate	U	mg/L	0.10		1			02/23/07	ESC		
Analysis Desc: Hardness by Calc. SM 2340B (W)			Analytical Method: SM 2340B								
Total Hardness as CaCO3	460	mg/L			1			02/21/07	ZS		
Calcium Hardness	320	mg/L			1			02/21/07	ZS		
Analysis Desc: EPA 200.8 Metals (W)			Analytical Method: EPA 200.8 (Total)								
Manganese	0.0041	mg/L	0.00017	0.000085	1	02/21/07	ZS	02/21/07	ZS		7439-96-5
Arsenic	0.011	mg/L	0.00032	0.00016	1	02/21/07	ZS	02/21/07	ZS		7440-38-2
Sodium	270	mg/L	0.0070	0.0035	1	02/21/07	ZS	02/21/07	ZS		7440-23-5
Magnesium	36	mg/L	0.00082	0.00041	1	02/21/07	ZS	02/21/07	ZS		7439-95-4
Potassium	7.7	mg/L	0.0068	0.0034	1	02/21/07	ZS	02/21/07	ZS		7440-09-7
Calcium	130	mg/L	0.048	0.024	1	02/21/07	ZS	02/21/07	ZS		7440-70-2

FDOH# E86546

CERTIFICATE OF ANALYSIS

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ANALYTICAL RESULTS

LOG# 717938
Project ID: wf005600.0001 TW-1

Lab ID: **717938001** Date Received: 2/19/2007 Matrix: Aqueous Liquid
Sample ID: **TW-1/1135** Date Collected: 2/16/2007

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	By	Analyzed	By	Qual	CAS
Iron	U	mg/L	0.020	0.010	1	02/21/07	ZS	02/21/07	ZS		7439-89-6
Analysis Desc: EPA 200.8 Dissolved Metals (W)			Analytical Method: EPA 200.8 (Dissolved)								
Arsenic	0.0099	mg/L	0.00032	0.00016	1	02/21/07	ZS	02/21/07	ZS		7440-38-2
Iron	U	mg/L	0.020	0.010	1	02/21/07	ZS	02/21/07	ZS		7439-89-6

FDOH# E86546

CERTIFICATE OF ANALYSIS

nelac

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ANALYTICAL RESULTS QUALIFIERS

LOG# 717938
Project ID: wf005600.0001 TW-1

PARAMETER QUALIFIERS

PROJECT COMMENTS

717938	Report Limit = PQL

SUBCONTRACTOR NELAC CERTIFICATION

717938	ESC = E87487
717938	KNL = E84025

FDOH# E86546

CERTIFICATE OF ANALYSIS

BAR CODE

Chain of Custody Record

LAB USE ONLY

J.E.L. Log # 717938
P.O. #
Quote#

Jupiter Environmental Laboratories

Company Name: ARCADIS
Address: 2081 Vista Pkwy
City: WPB State: FL Zip: 33411
Sampling Site Address: PBG, FL
Attn: D Smith Fax/Email:
Project Name: Seacoast TW-1 Project #: WF005600.0001
Sampler Name/Signature:

LAB ANALYSIS — Parameters: Metals (see list); As, Fe (Diss) to be filtered; Tot. hard.; Ca hard.; Gross Alpha; Redox Pot.; Alk, Cl, SO4; NH3; TDS; NO2+NO3; Field Filtered (Y/N); Integrity OK (Y/N)

#	Sample Label (Client ID)	Collected Date	Collected Time	Matrix Code*	# of Cont	Pres Codes	Metals (see list)	As, Fe (Diss) to be filtered	Tot. hard.; Ca hard.	Gross Alpha	Redox Pot.	Alk, Cl, SO4	NH3	TDS	NO2+NO3			Field Filtered (Y/N)	Integrity OK (Y/N)	Comments
1	TW-1/1135	2/16/07	18:50	GW	9		✓	✓	✓	✓	✓	✓	✓	✓	✓					
2																				Field Parameters:
3																				Temp. (°C): 20.9
4																				Turbid.: 0.42 NTU
5																				pH: 7.09
6																				Cond.: 8600 µS/cm
7																				ORP = 485
8																				
9																				
0																				

ORIGINAL

Matrix Codes*

S	Soil/Solid Sediment	SW	Surface Water
GW	Ground Water	SL	Sludge
WW	Waste Water	O	Other (Please Specify)
DW	Drinking Water		

Pres Codes**

A- none	I- Ice
B- HNO_3	O- Other
C- H_2SO_4	M- MeOH
D- NaOH	
E- HCl	

Relinquished by	Date	Time	Received by	Date	Time
L. Kwapinski	2/19/07	10:17	[signature]	2/19/07	10:17
[signature]	2/19/07	1550	[signature]	2/19/07	1550

QA/QC level with report (None) ___1___2___3___ See price guide for applicable fees

T.A.T. Request ✓ Standard ___ Rush

FDEP___ SFWMD___ Date Required___

Temp Control: 5 °C

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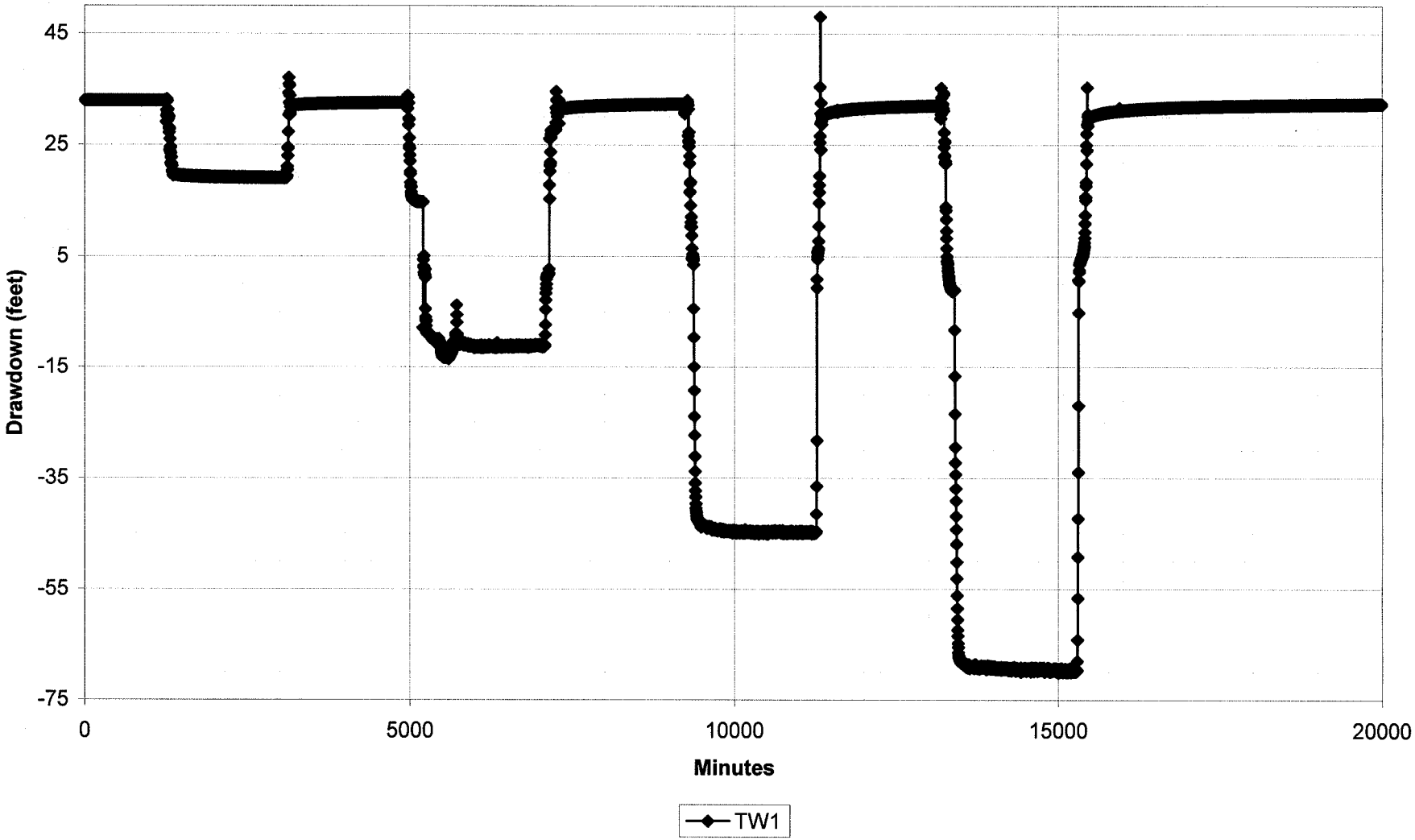
C.O.C.# 29508

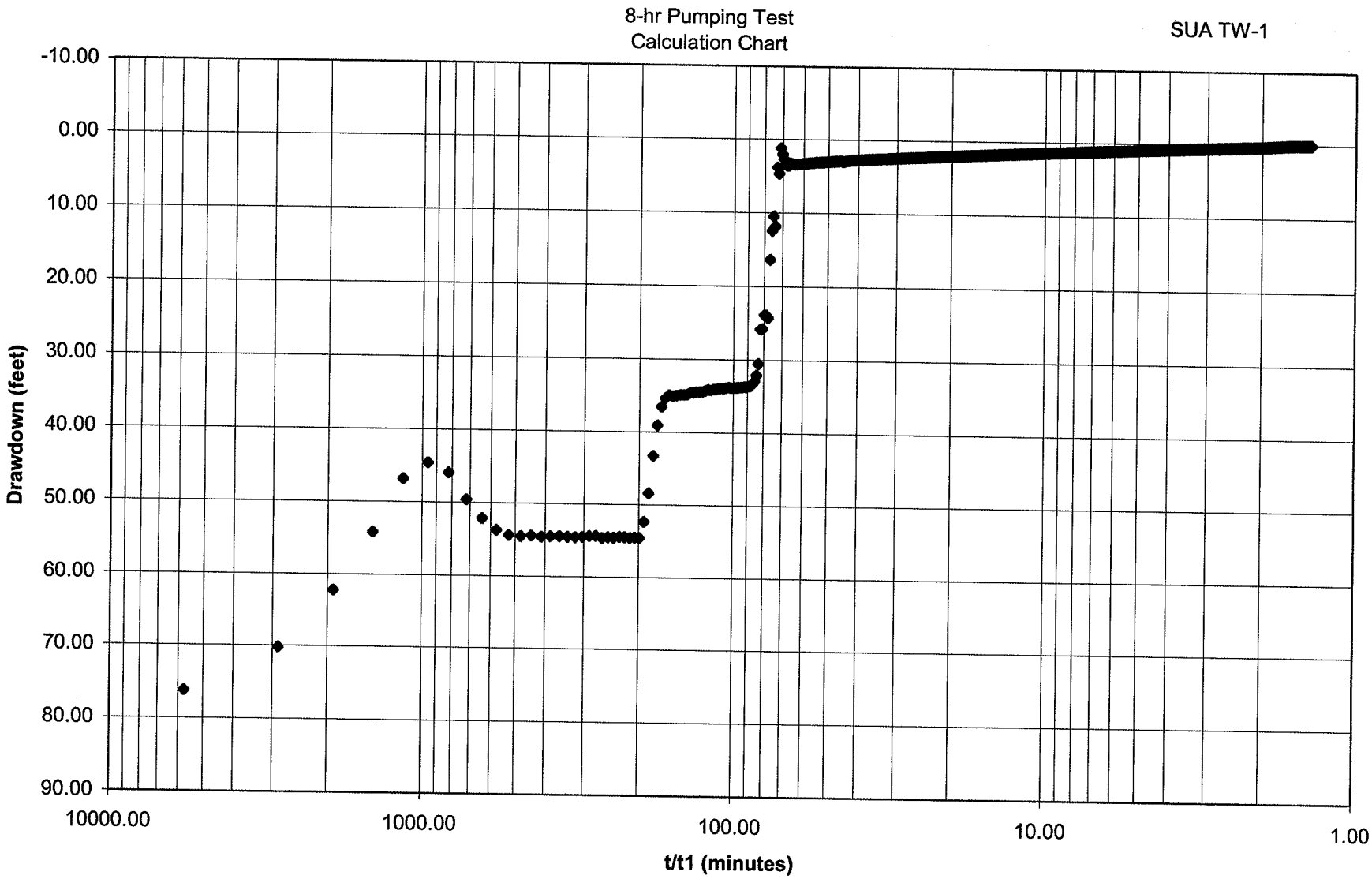
ARCADIS

Appendix E

Pumping Test Data

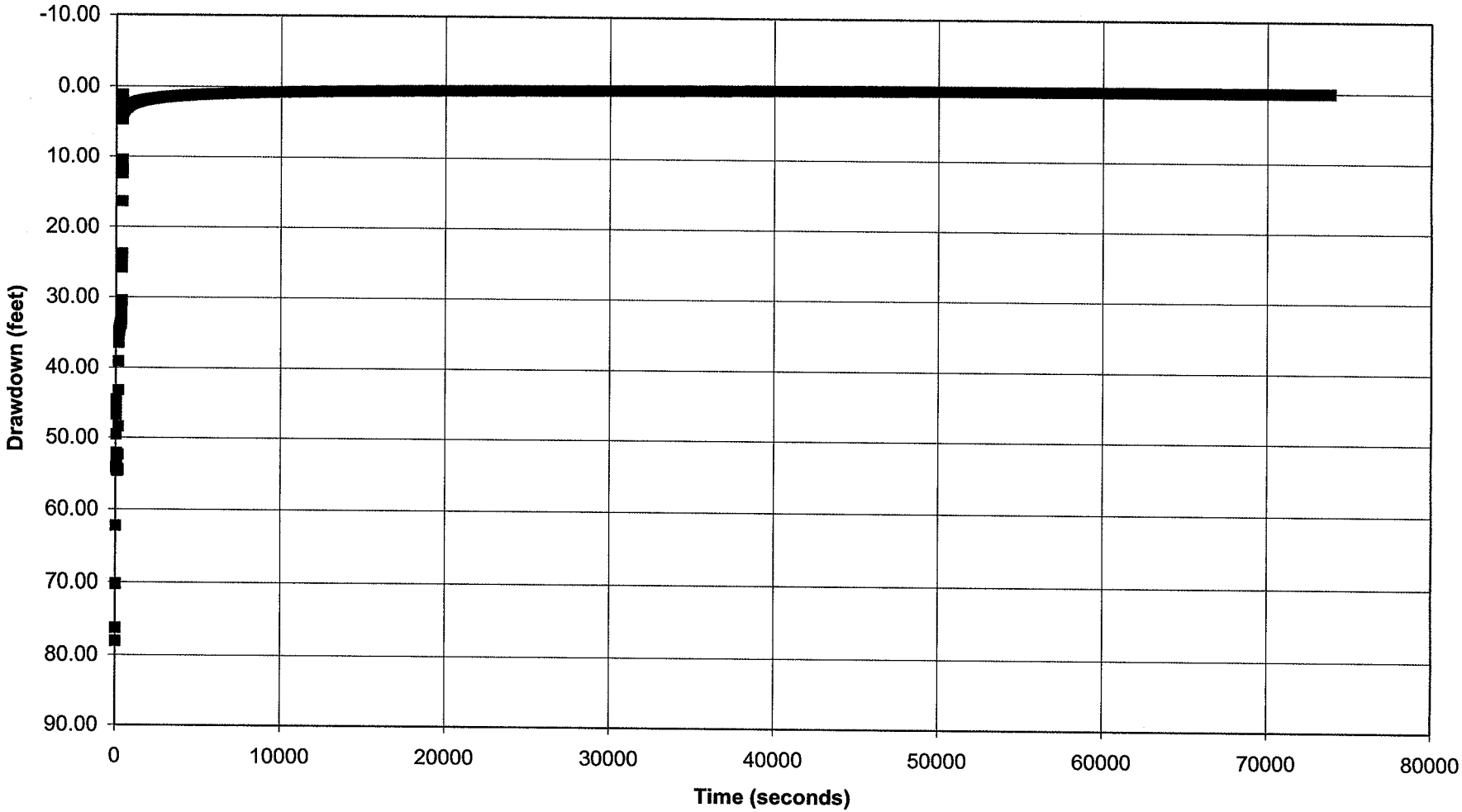
Seacoast F-1
Step-Rate Pumping Test

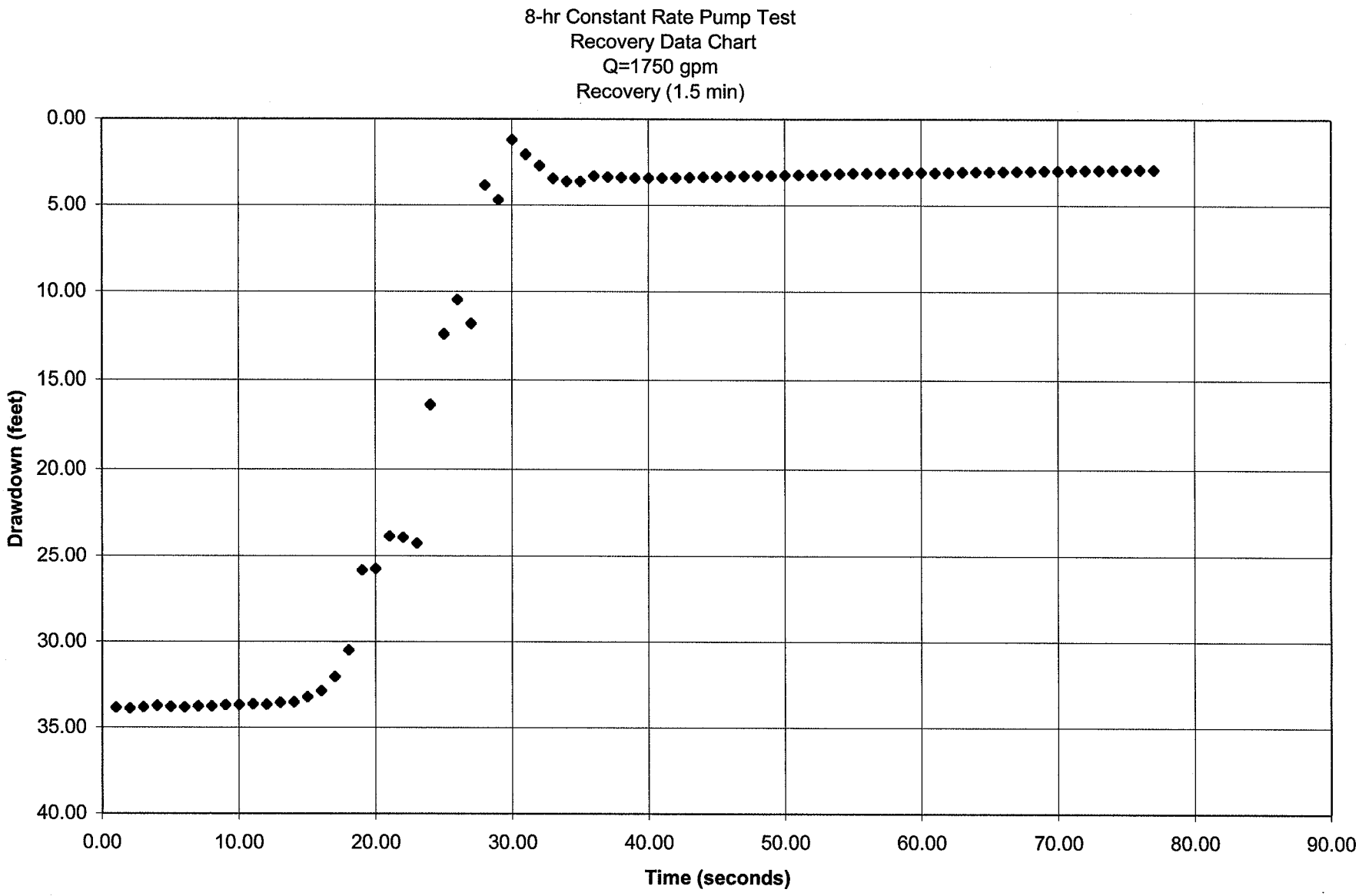



8-hr Pumping Test
Calculation Chart
SUA TW-1
-10.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
Drawdown (feet)
10000.00
1000.00
100.00
10.00
1.00
t/t1 (minutes)

8-hr Constant Rate Pump Test
Recovery Data Chart
Q=1750 gpm

SUA TW-1




8-hr Constant Rate Pump Test
Recovery Data Chart
Q=1750 gpm
Recovery (1.5 min)
Drawdown (feet)
0.00
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
0.00
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
Time (seconds)

WELL ID: F-1

Local ID: SUA F-1
Date: 6/27/2007
Time: 0:00

INPUT

Construction:	
Casing dia. (d_c)	12 Inch
Annulus dia. (d_w)	20 Inch
Screen Length (L)	300 Feet
Depths to:	
water level (DTW)	33 Feet
Top of Aquifer	1300 Feet
Base of Aquifer	1600 Feet
Annular Fill:	
across screen --	Open Hole
above screen --	Cement
Aquifer Material --	Karst
FLOW RATE	1750 GPM

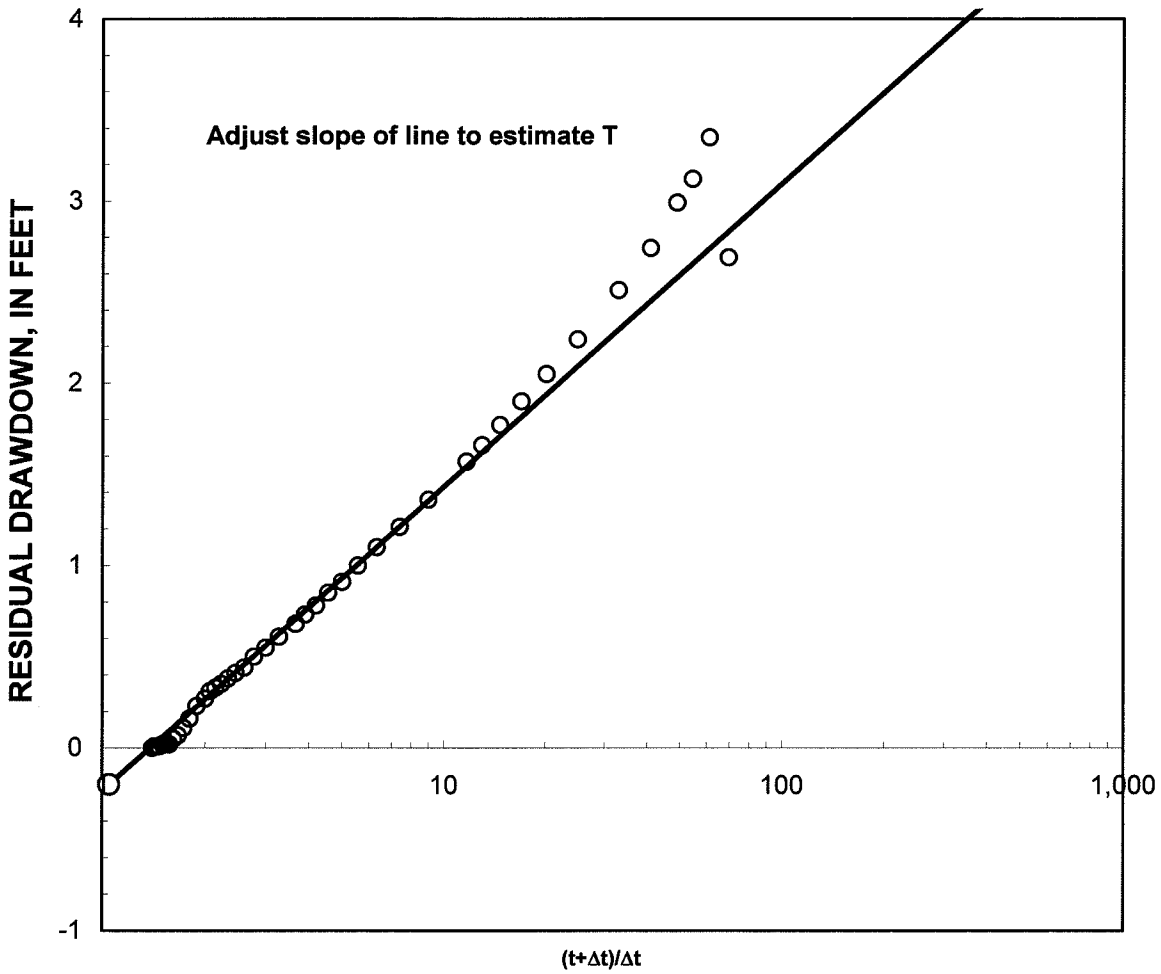
COMPUTED

Aquifer thickness = 300 Feet

Slope = 1.664399 Feet/log10

Input is consistent.

K =	120 Feet/Day
T =	37000 Feet²/Day



REMARKS: Cooper-Jacob recovery analysis of single-well aquifer test

Constant rate test recovery data

Entry	Reduced Data Time, Date Hr:Min:Sec	Water Level Feet
1	1/0/00 0:00:00	0.00
2	1/0/00 8:00:00	78.04
3	1/0/00 8:01:00	54.53
4	1/0/00 8:02:00	54.61
5	1/0/00 8:03:00	34.88
6	1/0/00 8:04:00	34.05
7	1/0/00 8:05:00	33.76
8	1/0/00 8:06:00	25.75
9	1/0/00 8:07:00	2.69
10	1/0/00 8:08:00	3.35
11	1/0/00 8:09:00	3.12
12	1/0/00 8:10:00	2.99
13	1/0/00 8:12:00	2.74
14	1/0/00 8:15:00	2.51
15	1/0/00 8:20:00	2.24
16	1/0/00 8:25:00	2.05
17	1/0/00 8:30:00	1.90
18	1/0/00 8:35:00	1.77
19	1/0/00 8:40:00	1.66
20	1/0/00 8:45:00	1.57
21	1/0/00 9:00:00	1.36
22	1/0/00 9:15:00	1.21
23	1/0/00 9:30:00	1.10
24	1/0/00 9:45:00	1.00
25	1/0/00 10:00:00	0.91
26	1/0/00 10:15:00	0.85
27	1/0/00 10:30:00	0.78
28	1/0/00 10:45:00	0.73
29	1/0/00 11:00:00	0.68
30	1/0/00 11:30:00	0.61
31	1/0/00 12:00:00	0.55
32	1/0/00 12:30:00	0.50
33	1/0/00 13:00:00	0.44
34	1/0/00 13:30:00	0.41
35	1/0/00 14:00:00	0.38
36	1/0/00 14:30:00	0.35
37	1/0/00 15:00:00	0.33
38	1/0/00 15:30:00	0.31
39	1/0/00 16:00:00	0.27
40	1/0/00 17:00:00	0.23
41	1/0/00 18:00:00	0.16
42	1/0/00 19:00:00	0.11
43	1/0/00 20:00:00	0.07
44	1/0/00 21:00:00	0.05
45	1/0/00 22:00:00	0.02
46	1/0/00 23:00:00	0.02
47	1/1/00 0:00:00	0.02
48	1/1/00 1:00:00	0.01
49	1/1/00 2:00:00	0.01
50	1/1/00 3:00:00	0.01

ARCADIS

Appendix F

Final Well Video Survey

TELEVISION SURVEY LOG
Floridan Aquifer Test Well F-1
Seacoast Utility Authority
Hood Road Water Treatment Plant
Palm Beach Gardens, Florida

Date: 7/11/07 Final Well Video Survey (from surface to 1600 ft below land surface).

Depth (feet below l.s.)		Description of Features and Comments
2.9 above l.s		Top of 16-inch I.D.PVC Final Casing.
15	356	Final Casing connection in approximately 20-foot intervals.
	356	Reducer/ 16-inch casing connection.
	358	Reducer/ 12-inch casing connection.
358	1300.6	12-inch I.D. PVC final casing with connections between sections in 20- ft intervals.
	1300.6	Bottom of 12-inch casing, top of an open 20-inch open hole.
		Complete cement seal around base of casing not observed.
1300.6	1300.9	Cement and cement/ gravel mix. Centralizer inbedded in cement.
1300.9	1310	Minor cement/gravel "residual" on one side of open hole
1310	1600	Nominal 20- inch open hole. Borehole mostly tight, with few small fractures. Uniform lithology:
		very light to white, vuggy limestone with cylindrical or spiral thin black bands of minerals
		(most likely phosphate). Black grains covering botton of the borehole. Cement backplug visible.
		No accumulated debris on bottom except two centralizer fragments.