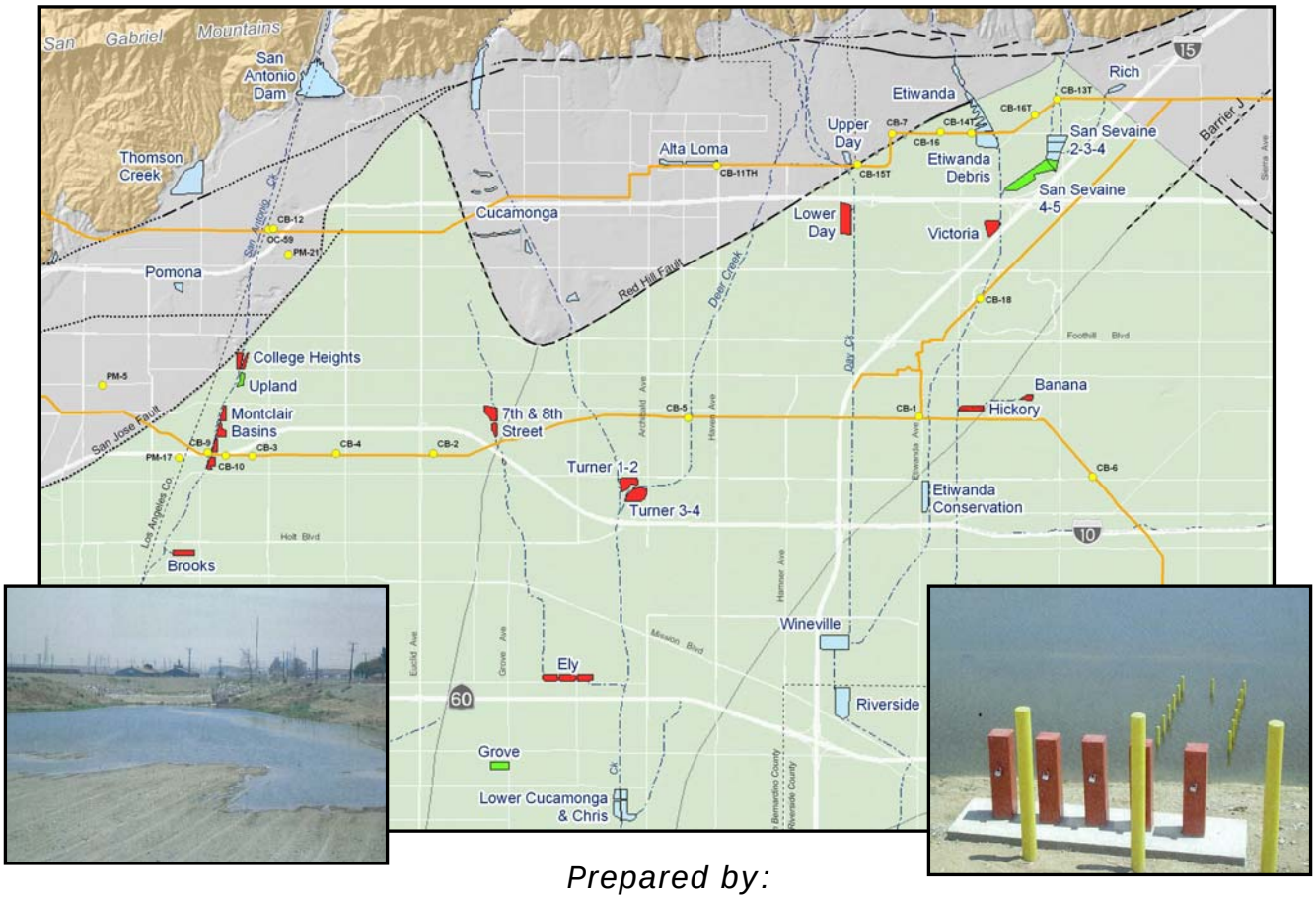
Chino Basin
Recycled Water Groundwater Recharge Program

Start-Up Period Report for Banana Basin



Prepared by:

Inland Empire Utilities Agency

and

Wildermuth Environmental Inc.

September 20, 2006

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Patrick O. Sheilds
Executive Manager of Operations

Kenneth Manning
CEO

September 20, 2006

Regional Water Quality Control Board, Santa Ana Region
Attention: Mr. Gerard Thibeault
3737 Main Street, Suite 500
Riverside, California 92501-3348

Subject: Chino Basin Recycled Water Groundwater Recharge Program
Transmittal of the Start-Up Report for Banana Basin

Dear Mr. Thibeault,

The Inland Empire Utilities Agency (IEUA) and the Chino Basin Watermaster (Watermaster) hereby submit the *Start-Up Report for Banana Basin* for the *Recycled Water Groundwater Recharge Program* being implemented by IEUA and Watermaster. This document is submitted pursuant to requirements in Order No. R8-2005-0033 and Monitoring and Reporting Program No. R8-2005-0033:

- California Regional Water Quality Control Board, Santa Ana Region. Order No. R8-2005-0033. Water Recycling Requirements for Inland Empire Utilities Agency and Chino Basin Watermaster. Phase 1 Chino Basin Recycled Water Groundwater Recharge Project, San Bernardino County. Draft Order: April 2005.
- California Regional Water Quality Control Board, Santa Ana Region. Monitoring and Reporting Program No. R8-2005-0033 for Inland Empire Utilities Agency and Chino Basin Watermaster. Phase 1 Chino Basin Recycled Water Groundwater Recharge Project, San Bernardino County.

The following items highlight the findings of the Banana Start-Up Report:

- The estimated recharge rate of Banana Basin ranges between 0.67 and 0.84 feet per day
- Electrical conductivity (EC) is effective as a tracer or indicator of the source of water in samples collected from the lysimeters.
- The Start-Up Period for Banana Basin was July 29, 2005 through January 25, 2006. The Start-Up Period continued for the full 180-days, due to interruptions by storm flow and because the concentration of total organic carbon (TOC) in all the lysimeters continued to decrease during the Start-Up Period.
- All lysimeters at Banana Basin are representative of recharged water, *i.e.*, there appears to be no geologic features that would cause anomalous results (preferential pathways). The soil aquifer treatment (SAT) at Banana Basin is quite effective and there appears to be some additional reduction of TOC with increasing depth. Therefore, the 25-foot below ground surface (bgs) lysimeter at the bottom of the basin is selected to be the compliance point lysimeter.
- The average percent reduction in TOC during the Start-Up Period for Banana Basin was 77 percent. The average percent reduction in TN during the Start-Up Period for Banana Basin was 49 percent. The SAT treatment was very effective at removing TOC and TN in the upper 25 feet of the unsaturated zone. One might expect some further reduction in TOC and TN concentrations with depth. With regular operation,

the data indicates that Banana Basin can consistently achieve a TOC value at 25 feet bgs of 2 mg/L. Based on the formula in the draft groundwater recharge regulations, a TOC concentration of 1.5 mg/L in the compliance point lysimeter would result in an RWC of 33 percent. As IEUA's permit limits initial RWC to a maximum of 20 percent, IEUA is hereby requesting administrative approval from the Regional Board and DHS for a RWC of 33 percent.

- The Start-Up Period Report includes an example Recycled Water Management Plan that forecasts deliveries of recycled water and recharge of diluent water in the future and demonstrates compliance with a 33 percent RWC at 60 months. The Recycled Water Management Plan will be included in the Recycled Water Recharge Annual Report where it would be updated with current data.

If you have any questions, please do not hesitate to call us.

Best regards,

Patrick O. Sheilds
Executive Manager of Operations

Kenneth Manning
Chief Executive Officer

Chino Basin

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1. Introduction

Inland Empire Utilities Agency (IEUA), Chino Basin Watermaster (Watermaster), Chino Basin Water Conservation District, and San Bernardino County Flood Control District jointly sponsor the Chino Basin Recycled Water Groundwater Recharge Program. This is a comprehensive water supply program to enhance water supply reliability and improve groundwater quality in local drinking water wells in the Chino Groundwater Basin by increasing the recharge of stormwater, imported water and recycled water. This program is an integral part of Watermaster's Optimum Basin Management Plan (OBMP).

This document is the Start-Up Period Report for Banana Basin and documents soil aquifer treatment (SAT) removal of total organic carbon (TOC) for the Start-Up Period and the recycled water contribution (RWC) associated with the reduced TOC concentrations in the compliance point lysimeter.

1.1 Requirements of Order No. R8-2005-0033

This Recycled Water Groundwater Recharge Program being implemented by IEUA and Watermaster is subject to the following requirements:

- California Regional Water Quality Control Board, Santa Ana Region. Order No. R8-2005-0033. Water Recycling Requirements for Inland Empire Utilities Agency and Chino Basin Watermaster. Phase 1 Chino Basin Recycled Water Groundwater Recharge Project, San Bernardino County. April 15, 2005.
- California Regional Water Quality Control Board, Santa Ana Region. Monitoring and Reporting Program (M&RP) No. R8-2005-0033 for Inland Empire Utilities Agency and Chino Basin Watermaster. Phase 1 Chino Basin Recycled Water Groundwater Recharge Project, San Bernardino County. April 15, 2005.

The order written by the Santa Ana Regional Water Quality Control Board (RWQCB, 2005a) describes the requirements for the Start-Up Period Report. Following is an excerpt from Section G.4 of the order:

> A start-up period report shall be prepared at the conclusion of the START-UP PERIOD for each recharge basin. The start-up period report shall include: site specific determinations of percolation rates, soil aquifer treatment efficiency and optimum depths and locations of lysimeters to obtain representative compliance samples of recycled water after soil aquifer treatment. The report shall specify the date that the START-UP PERIOD ended. The report shall make recommendations for final compliance lysimeter placement and monitoring plan to be employed during the initial year of operation, the initial year maximum average RWC and corresponding TOC limit, and generalized method to track recharge water in the vadose zone. The analytical results from weekly lysimeter samples shall be evaluated and reported along with conclusions regarding soil aquifer treatment (SAT) performance. This report is subject to approval by the CDHS and the Regional Board Executive Officer. The report recommendations shall be implemented upon approval.

1.2 Organization of the Start-Up Period Report

Section 2 of this report describes the installation of lysimeters at Banana Basin. Section 3 details the recharge operations during the Start-Up Period. Section 4 and 5 discuss the lysimeter sampling and monitoring results, as well as the soil aquifer treatment efficiency in terms of TOC and TN removal. Section 6 describes the determination of the Start-Up Period and selection of the compliance point lysimeter through the use of electrical conductivity (EC) as a natural tracer for recycled water. Section 7 discusses the determination of RWC and a Recycled Water Management Plan to ensure that the RWC limit is met in the future. Section 8 is a proposed water quality monitoring plan for the first year after the Start-Up Period, and Section 9 includes the references.

2. Borehole Drilling and Lysimeter Installation

The boreholes and lysimeters at Banana Basin were drilled and constructed on June 7, 2005. The location of Banana Basin is shown in Figure 2-1, while the location of the lysimeters at Banana Basin is shown in Figure 2-2. Lysimeter construction occurred in general accordance with the *Project Plans for the Construction of the Hickory and Banana Basins Lysimeter Installation*, dated January 23, 2005, and the *Banana Basin Start-Up Protocol*, dated June 2005. Asbuilts are included in Appendix A.

2.1 Assembly and Pre-Testing

All lysimeter units were assembled and pre-tested, prior to field mobilization to ensure that each unit functioned properly. Each unit was assembled, tested for pressure leaks, and cleaned in accordance with manufacturer recommendations. Each lysimeter consisted of a 2-inch OD dual-chamber stainless steel body equipped with two 1/4-inch OD stainless steel nipples and a stainless steel porous "cup." A 1/4-inch OD x 0.170-inch ID polyethylene tube is attached to the vacuum/pressure nipple and a 1/4-inch OD x 1/8-inch Teflon™ tube is attached to the sampling nipple with stainless steel unions.

The lysimeter valve, tubing unions, and welded joints were tested for leaks by applying approximately 0.5 bars of pressure on the lysimeter while submerged in distilled water. While under pressure, the lysimeter was observed for bubbles emanating from any portion of the lysimeter. If no bubbles were observed, the lysimeter assembly was considered pressure-tight and was then cleaned.

Each assembly was cleaned by flushing internally with 70 percent isopropyl alcohol and rinsing with distilled water. Initially, a minimum vacuum of 0.5 bars was applied to the vacuum/pressure tube while clamping the sampling tube shut and submerging the porous cup within the alcohol. The alcohol was then evacuated from the lysimeter body by applying a minimum pressure of 0.5 bars to the vacuum/pressure tube and opening the sampling tube until the lysimeter body was emptied. The lysimeter body was then rinsed internally four times with distilled water (a total of approximately 1 gallon) following the same procedure described above. After performing a final exterior rinse with distilled water, each lysimeter assembly (lysimeter body, tubes, and unions) was inserted intact within a new plastic 55-gallon plastic bag and sealed pending installation in the field.

2.2 Borehole Drilling and Soil Sample Collection

A CME-75 all-terrain hollow-stem auger drill rig was used to drill the boreholes. The lysimeter cluster consisted of five individual lysimeter assemblies installed in separate boreholes to depths of 5, 10, 15, and two at 25 feet below ground surface at the bottom of the basin (bgs). All drilling was observed by a California Professional Geologist. The boreholes were drilled with 8-inch nominal OD continuous flight augers.

Relatively undisturbed soil samples were collected from one 25-foot boring at approximately 5, 10, 15, 20, and 25 feet bgs. Each soil sample was collected with a 3-inch diameter split-spoon sampler equipped with three (3) 6-inch long brass sample sleeves. The sampler was driven approximately 18 inches below borehole depth using a rig-mounted pneumatic hammer.

After driving the sampler, the split-spoon was retrieved to the ground surface, opened, and the sample sleeves were removed from the sampler. The ends of sleeve of the retrieved samples were lined with Teflon™ sheeting, sealed with tight-fitting plastic end caps, labeled, and stored in an ice-cooled chest pending chemical analysis. One sample from each depth material was sent to the analytical laboratory for a leaching test (e.g., TCLP or WET) to determine background soil conditions prior to initiation of recycled water. These samples were analyzed for TOC, nitrate, nitrite, total Kjeldahl nitrogen, TDS, and trace metals and the results are presented in the matrix below.

Soil Sample Leaching Analytical Results

Sample No.	Total Organic Carbon	Nitrate + Nitrite	Total Kjeldahl Nitrogen	Total Dissolved Solids	Metals
B-25A-5	1.2	0.046	0.30	26	ND
B-25A-10	1.6	0.034	0.30	56	ND
B-25A-15	1.0	0.091	0.30	56	ND
B-25A-20	1.2	0.050	0.30	45	ND
B-25A-25	1.0	0.054	0.30	66	ND

Note:
All units are in milligrams per liter (mg/L)
ND = Metals not detected at or above the method detection limit

Borehole geologic logs were prepared based on cuttings and soil samples collected from the 25-foot deep borehole. Soil sample characteristics are described using the Unified Soil Classification System (USCS). Borehole logs were prepared by a California Professional Geologist and are included in Appendix A.

Based on the borehole geologic logs included in Appendix A, soil types observed below Banana Basin consisted of very fine to fine sand from 0 to 5 feet bgs and fine to coarse sand with gravel from 5 to 25 feet bgs.

2.3 Lysimeter Installation

Lysimeter construction proceeded upon reaching total borehole depth. Each lysimeter was installed within the continuous auger string as a precautionary measure against borehole collapse. Upon reaching total borehole depth, the string was raised approximately one foot from the bottom of the borehole prior to installation of any materials to prevent the lysimeter assembly from becoming wedged within the auger. The lysimeter assembly was then removed from its plastic bag and a 1.9-inch OD Schedule 40 polyvinyl chloride (PVC) flush-threaded extension casing was threaded onto the top of the lysimeter body. The extension casing of each lysimeter extended approximately 2 feet above the surrounding grade. Approximately 22 pounds (10 kilograms) of the native soil slurry was installed within the bottom portion of the borehole to create an approximate 1.5- to 2-foot thick layer at the bottom of the borehole. After letting the slurry settle via dewatering, the lysimeter assembly was lowered into the borehole via the PVC extension casing and gently pressed into the top of the slurry.

A minimum 1-foot layer of No. 60 granular sand and then a minimum 2-foot layer of 3/8-inch bentonite pellets were successively installed on top of the native soil slurry prior to placement of the neat cement seal (note: the 5 foot depth lysimeter was sealed to ground surface with bentonite pellets). The pellets were hydrated in accordance with manufacturer recommendations to allow them to expand and create a tight seal. The neat cement grout was prepared in accordance with ASTM C150 “Standard Specifications for Portland Cement” Type II. The grout was mixed in a 55-gallon barrel at a ratio of 7 gallons of fresh water to each 94-pound bag of dry cement, to which up to 3 percent by weight of bentonite powder was added to reduce shrinkage during grout curing, and vigorously stirred with a motor-driven paddle. The grout seal was then placed from the top of the bentonite pellet seal to approximately 2 feet bgs.

2.4 Trenching and Head Assembly

Following installation of the lysimeter assemblies, the lysimeter tubes were extended toward the lysimeter head assembly locations along the northern basin berm. A trench was dug adjacent to each lysimeter to allow the placement of the lysimeter tubing 1.09-inch diameter PVC conduit which carries the lysimeter tubing to the lysimeter head assembly along the basin berm.

Each trench was excavated to approximately 2.5 feet bgs with a four-wheel drive backhoe to facilitate the burial of the conduits protecting the paired tubes. After trenching was completed, the lysimeter extension casings were cut off approximately 2 feet bgs and fitted with curved 90-degree 1.9-inch OD Schedule 40 PVC elbow connectors. The paired lysimeter tubes were threaded through 1.9-inch OD Schedule 40 PVC conduit extending from the elbow to the lysimeter head assemblies via the trench. An electric heater box was used to bend the conduit to fit the geometry within the trenches prior to threading the paired tubes through to the surface. After the conduits were labeled with the appropriate lysimeter information and secured at the lysimeter head assembly locations, an approximate 4-inch layer of imported sand/gravel was installed within the trench and the conduits were gently lifted on top of this layer prior to installing another 4-inch layer on top of it for protection and identification during potential future excavation.

The trenches were backfilled to grade with the native soils that had been excavated. The backfill located adjacent to the lysimeters within the basin and the lysimeter head assemblies was compacted with a gasoline-powered manually-operated soil compactor to prevent accidental damage. All extra soils generated during borehole drilling and trenching that were not used to backfill trenches were spread over the bottom surface of the basin such that no hummocks (*i.e.*, vehicular, slip, trip, and fall hazards) are produced.

The lysimeter head assemblies were secured in place within a single concrete pad aligned parallel with the edge of the berm with approximately 4 inches protruding above the surrounding grade. A structural concrete was mixed onsite with an electric concrete mixer and poured into the form. The locking metal well protectors were set on approximately 2-foot centers and extend approximately 2 feet above grade.

A Monoflex lysimeter head assembly was installed within each locking steel well protector. Each head assembly consists of a vacuum pressure gauge, two ball valves, and two termination ports for the vacuum/pressure and sampling tubes leading to the corresponding lysimeter assembly. After installation of the head assemblies, each lysimeter was pressure tested by applying both a vacuum and pressure to the system, closing the ball valves and observing the pressure gauge for leaks.

2.5 Crash Post Installation

The lysimeters and lysimeter head assemblies are protected against damage from vehicles and heavy equipment by concrete-filled crash posts. Each lysimeter cluster is encircled by several crash posts installed in a box-like array, with sufficient spacing to reduce hindrance with field activities, yet close enough (approximate 5-foot intervals) to prevent entry of vehicles. The lysimeter head assemblies are encircled by a U-shaped array of crash posts with the open end aligned up slope.

Each crash post consists of an approximate 6-foot length of 4-inch diameter galvanized steel pipe set into concrete such that it extends approximately 4 feet above grade. Each crash post is filled with concrete and painted bright yellow to increase its visibility and reduce accidental impacts with vehicles and heavy equipment.

3. Recharge Operations

3.1 Volume of Historical Diluent Water Recharged

Wildermuth Environmental Inc. has estimated the recharge in Banana Basin over the 5 years (60 months) prior to the start-up period. Keep in mind that this basin was historically operated solely as flood control basins and not as a conservation basin; therefore the historical monthly recharge was lower than can be expected for the future. There are no regular historical measurements of inflow, outflow, or water surface elevation that can be used to directly estimate recharge at Banana Basin. WEI used the rainfall-runoff simulation model, WLAM, which WEI developed for SAWPA. The model generates runoff from historical daily rainfall data, routes the flow through the network of stream and recharge basins, and estimates the volume of recharge at the basins. The estimated recharge of stormwater in Banana Basin from July 2000 to June 2005 is 1496 AF and is summarized by month in Table 3-1.

3.2 Recharge Operations during the Start-Up Period

IEUA's Groundwater Recharge Coordinator recorded the volume of water delivered to Banana Basin before and during the Start-Up Period. The delivered volumes included SWP water from MWD Turnout CB18 (pre-Start-Up Period diluent water), local runoff, stormwater, and recycled water from the Whittram force main. CB18 flows commingle with local runoff in San Sevaine Channel prior to diversion into Hickory Basin. Commingled imported water and local runoff water are delivered to Banana Basin by pumping from Hickory Basin. Recycled water is delivered to Banana Basin directly from the Whittram force main. Stormwater volumes are estimated from change in storage in the basin based on positive changes in water elevation. Outflow of stormwater from the basin is not measured or estimated as these waters do not recharge. Table 3-2 lists the daily water deliveries to Banana Basin.

3.3 Estimated Recharge Rate

In September 2005, IEUA's Groundwater Recharge Coordinator estimated the infiltration rate of Banana Basin to range between 0.67 and 0.84 feet per day, based on the data tabulated below. Note infiltration rates may vary with depth of water and will become lower due to the impacts of storm water.

Parameter	Infiltration Test 1	Infiltration Test 2
Start Date/Time (T_1)	9/20/2005 21:00	9/21/2005 17:00
Start Water Depth (H_1) [feet]	7.32	6.62
End Date/Time (T_2)	9/21/2005 17:00	9/22/2005 11:00
End Water Depth (H_2) [feet]	6.62	6.12
Change in Water Depth: $dH = -(H_2 - H_1)$ [feet]	0.70	0.50
Change in Time: $dT = (T_2 - T_1)$ [days]	0.83	0.75
Infiltration Rate: dH/dT [feet/day]	0.84	0.67
Comment	6 hours after RW turned off	24 hours after RW turned off

4. Lysimeter Sampling and Monitoring Results

The M&RP schedule (RWQCB, 2005b) for basin and lysimeter sampling is the following:

- EC: Grab, Twice per Week
- TOC: Grab, Weekly
- Nitrate-Nitrogen: Grab, Twice per Week
- Nitrite-Nitrogen: Grab, Twice per Week
- Ammonia: Grab, Twice per Week
- Total Kjeldahl Nitrogen (TKN) – Twice per Week
- Total Nitrogen (TN) – by Addition: Grab, Twice per Week

These data are summarized in Tables 4-1 through 4-4. Table 4-1 details EC results for the surface water samples from Banana Basin and from each of the lysimeters. Table 4-2 provides TOC results for the surface water samples from Banana Basin and from each of the lysimeters. Table 4-3 lists results for nitrogen species (ammonia, nitrite, nitrate, total Kjeldahl nitrogen [TKN], and total nitrogen [TN]) for the surface water samples from Banana Basin and from each of the lysimeters. Table 4-4 is a summary of the TN data detailing TN by depth and percent reduction of TN.

Tables 4-1, 4-2, and 4-4 contain cells that are shaded to indicate when samples were collected in both the surface water and in the lysimeters that are representative of a recycled water component of greater than or equal to 75 percent. The reported TOC concentration (11.7 mg/L) on December 23, 2005 for the 25 foot bgs lysimeter is an outlier and may be a laboratory artifact. This value was not used in graphs in Section 5, nor was it used in the computation of TOC reduction. There is a column in both Tables 4-2 and 4-4 that provides the percentage of recycled water in the 25 foot bgs lysimeter. This analysis is based on comparing the EC values of diluent water and recycled water and is discussed in Section 6.

5. Soil Aquifer Treatment Efficiency: TOC and TN Removal

Figure 5-1 depicts average TOC as a function of increasing depth. The "0 feet bgs" sample represents the surface water grab sample, while the other depths correspond to the lysimeter samples collected at those depths. The values plotted are an average of all results for samples greater than or equal to 65 percent RWC from July 6, 2005 to December 6, 2005. Note that SAT reduction in TOC concentration appears to continue to at least 25-feet bgs and may continue at greater depths. Figure 5-2 is a time history of TOC values from the basin and the lysimeters. In the upper part of the graph, the period when various sources of water were diverted into Banana Basin are recorded as bars across given periods. Note that the reduction of TOC with depth is consistent with time. Also depicted in Figure 5-2 is the 20-sample rolling average for TOC from the 25-foot bgs lysimeter, beginning on August 16, 2006 the first date that the 25-foot bgs lysimeter had a RWC greater than or equal to 65 percent. The 20 sample rolling average is 1.8 mg/L. The Recycled Water Quality Specification A.10 (Regional Board, 2005a) states, "At each recharge basin, the monthly average TOC concentration of the recycled water prior to reaching the regional groundwater table, shall not exceed the average TOC value calculated from the following formula:"

$$TOC_{average} = \frac{0.5 mg/L}{RWC_{average}}$$

Using this formula, a 20 percent RWC (the dashed line on Figure 5-2) corresponds to a TOC = 2.5 mg/L, using the rolling average of 1.8 mg/L would allow for a RWC of 28 percent.

Figures 5-3 through 5-4 are similar graphs for TN. There appears to be more variability in the TN results and this may reflect the very low TN concentrations in the recycled water. Note that TN in all lysimeters is typically less than 2 mg/L, which is much less than the compliance metric of 10 mg/L.

Figure 5-5 is a graph of the time history of TOC reduction and local runoff/storm flow. Local runoff /storm flow events are based on onsite field observations of IEUA's Groundwater Recharge Coordinator. In the periods following the introduction of storm water, there was a decrease in TOC reduction, presumably due to the low concentrations of TOC typically observed in local runoff/storm water. Figure 5-6 is a similar graph of the time history of TN reduction and local runoff/storm flow.

Figures 5-7 and 5-8 show the time history for TOC and TN, respectively, for basin surface water, the 25-foot bgs lysimeter, RP-1 effluent, and RP-4 effluent. Based on the data SAT is generally accounted for utilizing the basin surface water and compliance point lysimeter for its calculation. Please refer to the 3rd and 4th Quarter 2005 Monitoring Reports for the RP-1 and RP-4 data used in Figures 5-7 and 5-8.

Figure 5-9 details percent recycled water versus percent of TOC removal. As shown in this figure the TOC removal is consistently greater than 75 percent with a RWC of greater than 65 percent. Therefore, samples indicated as representative of recycled water can be considered greater than 65 percent RWC.

SAT efficiency (TOC and TN reduction) was estimated using the following algorithm:

1. The travel time of recharged water was estimated using EC as a natural tracer. As discussed in Section 6, recycled water reached the 25-foot bgs lysimeter on August 16, 2005, 18 days after recycled water was introduced into Banana Basin on July 29, 2005. Recognizing that travel time can vary over time, 18 days was used as the offset throughout the Start-Up Period.
2. Grab samples of surface water from Banana Basin and lysimeter samples were collected on a frequency of weekly or twice-weekly, hence, there are rarely pairs of samples collected from the surface water on a given day and the lysimeter 18 days later. Therefore, linear interpolation was used to estimate TOC values in both the surface water and in the 25-foot bgs lysimeter for each day of the Start-Up Period (Tables 5-1 and 5-2).

3. TOC reduction was calculated by the following formula:

$$\%TOC\_reduction = \frac{TOC_{SW} - TOC_{lys-offset}}{TOC_{SW}}$$

where the $TOC_{lys\text{-}offset}$ is the value 18 days after the surface water sample was collected. A similar calculation was performed for TN reduction.

During the start-up period the average percent reduction in TOC and TN for Banana Basin was 77 and 49 percent, respectively.

6. Start-Up Period

6.1 Determination of the Start-Up Period

The Order (RWQCB, 2005a) establishes a Start-Up Period for each recharge basin in the Chino Basin Recycled Water Groundwater Recharge Program (Finding 9, page 3):

> At each recharge basin, a START-UP PERIOD not to exceed 180 days will be used at the outset of recycled water recharge operations. The purposes of each START-UP PERIOD are to establish site characteristics, including percolation rates, the physical characteristics of the vadose zone and soil aquifer treatment efficiency, and to establish a sampling regime, based on these characteristics, that is representative of recycled water following soil aquifer treatment. The length of the START-UP PERIOD at each basin will be contingent on site characteristics, including percolation rates and recycled water transit time in the subsurface. The Order requires IEUA to submit for CDHS and Regional Board approval a proposed START-UP PERIOD protocol at least two weeks prior to beginning each START-UP PERIOD. A START-UP PERIOD report will be prepared at the close of each START-UP PERIOD and will include recommendations for the optimum depths and locations for placement of lysimeters that will be used to measure compliance, and for a compliance-monitoring program. The report will also include recommendations for the maximum average RWC and Total Organic Carbon (TOC) limit for the initial year of recharge operations following the START-UP PERIOD. This Order requires that the average TOC limit during the START-UP PERIOD not exceed 0.5 mg/L divided by the maximum average RWC. As stated in Finding 8, above, the maximum average RWC is not to exceed 20 percent.

The Start-Up Period for each basin will be long enough to demonstrate effective TOC removal. As long as TOC concentrations continue to decline over time, the basin is still deemed to be in the Start-Up Period, up to 180 days.

Section H.8 of the Order mandates that lysimeters or an "alternative-monitoring plan" be used to demonstrate soil-aquifer treatment and compliance with the requirements of the order. As discussed in Section 2, four lysimeters were installed at 5, 10, 15, and 25 feet bgs. **EC was used as a tracer or indicator of the source of water.** The following matrix provides information on EC for various water sources that may be recharged:

Statistic	EC (µmhos/cm)			
	SWP[1]	RP-1[1]	RP-4[1]	Stormwater[2]
Minimum	319	700	735	
Maximum	375	710	750	
Mean	343	704	750	130
Standard Deviation	23	5	6	
Mean + 2*SD	297	694	730	
Mean + 2*SD	390	713	755	

[1]WEI and IEUA, 2005; WEI and IEUA, 2006; MWD 2005 and MWD 2006
[2]WEI, 2005a

Table 4-1 provides the results of EC measurements for surface water grab samples collected from Banana Basin as well as samples collected from the lysimeters from July 2005 through January 2006. Figure 6-1 is a time history of EC values for the basin and the lysimeters. In the upper part of the graph, the period when various sources of water were diverted into Banana Basin are represented as bars. EC in the basin and in the lysimeters increases after July 29, 2005 when recycled water was first introduced into Banana Basin. The high values in the 25-foot lysimeter earlier in July 2005 likely represent soil water, held by matric potential to soil particles, and which has undergone some evaporative concentration. Recycled water reached all the lysimeters by August 16, 2005, and the EC values remain fairly stable. A significant storm event occurred on October 17 and 18, 2005, resulting in about 28.8 acre feet (AF) of stormwater entering Banana Basin. One sees an EC concentration decrease in the basin, with delayed responses in the lysimeters in order of greater depth.

Table 4-1 contain cells that are shaded to indicate which samples are greater than or equal to 65 percent RWC. When the diluent water is primarily imported water, the percentage is based on an average SWP EC of 343 µmhos/cm and average recycled water EC of 727 µmhos/cm. A sample with a 65 percent or greater recycled water component would have an EC of 592 µmhos/cm or greater. When the diluent water is primarily stormwater, this is based on an average stormwater EC of 130 µmhos/cm and an average recycled water EC of 727 µmhos/cm. A sample with a 65 percent – or greater – recycled component would have an EC of 518 µmhos/cm or greater.

Based on these results, recycled water reached the 25-foot bgs lysimeter on August 16, 2005, 18 days after recycled water was introduced into Banana Basin on July 29, 2005. According to the Order, the Start-Up Period can be no longer than 180 days (Finding 9, page 3). The Start-Up Period continued for the full 180 days, due to interruptions by storm flow and because the concentrations of TOC in all the lysimeters continued to decrease during the Start-Up Period. T**he Start-Up Period for Banana Basin was July 29, 2005 through January 25, 2006.**

6.2 Compliance Point Lysimeter Selection

As demonstrated in Figure 6-1, all lysimeters at Banana Basin are representative of recharged water, *i.e.*, there appears to be no geologic features that would cause anomalous results: preferential pathways or lenses of fine grained materials. As discussed in Section 5, the SAT is quite effective and there appears to be additional reduction of TOC with increasing depth. **Therefore, the 25-foot bgs lysimeter was selected to be the compliance point lysimeter.**

7. RWC Determination and Recycled Water Management Plan

Finding 8 of the Order (RWQCB, 2005a) states:

> This Order limits the maximum average recycled water contribution (RWC) at each basin, based on a 60-month running average, to 20 percent, unless a higher percentage is approved in advance by CDHS and the Regional Board. Diluents will be stormwater and imported State Project Water from Northern California that is purchased from Metropolitan Water District of Southern California. Stormwater will be local captured runoff originating from the watersheds along the southern extent of the San Gabriel Mountains and from the developed and undeveloped areas below the mountains.

Table 7-1 shows the diluent water history, prior to the Start-Up Period in Banana Basin, as well as the volume of diluent water and recycled water that were recharged during the Start-Up Period. The column with the heading, "RWC" provides a calculation of RWC based on a 60-month moving average. At the end of the Start-Up Period, the RWC was 17.5 percent. Table 7-1 also shows a Recycled Water Management Plan that forecasts deliveries of recycled water and recharge of diluent water for the first 60 months following the initiation of recycled water recharge. A Recycled Water Management Plan was included in the Annual Report and will be updated annually. The Recycled Water Management Plan included in Table 7-1 and Figure 7-1 shows potential excursions above the RWC limit, but that ultimately the limit would be met by 60 months of operations.

As shown in Table 4-2, the average percent reduction in TOC during the Start-Up Period for Banana Basin was 73 percent, while the blend of recycled water was greater than or equal to 75 percent. Note that SAT is more efficient when the basin is recharging recycled water than it is when recharging imported water or stormwater. This is consistent with the TOC in State Water Project water and stormwater being less biodegradable. The average percent reduction in TN during the Start-Up Period for Banana Basin was 48 percent (Table 4-4), while the blend of recycled water was greater than or equal to 75 percent. The SAT treatment was very effective at removing TOC and TN in the upper 25 feet of soil. One might expect further reduction in TOC and TN concentrations with depth. **Based on the results in Table 4.1 and Figures 4-3 and 5-9, Banana Basin can achieve a running average TOC of 1.5 mg/L at 25 feet bgs. Based on the formula in the permit (RWQCB, 2005a):**

$$TOC_{average} = \frac{0.5 mg/L}{RWC_{average}}$$

a TOC of 1.5 mg/L in the compliance point lysimeter would allow an RWC of 33 percent. However, the initial maximum RWC for Banana Basin is 20 percent, without administrative approval from the RWQCB. Based on the observed data IEUA is requesting administrative approval for a RWC of 33 percent.

8. First Year Monitoring Plan

The order (RWQCB, 2005a) Section G.4 allows for recommendations regarding the first year monitoring plan. As shown in the tables and graphs included in this report, lysimeter compliance criteria are consistently met at the 25-foot bgs compliance lysimeter. TOC is reduced by SAT at an average rate of 73 percent and nitrogen species compliance criteria are met at the RP-1 and RP-4 effluent. **In light of the generally beneficial trends seen in the lysimeter data, we recommend the minimum first year lysimeter monitoring plan shown in the matrix below.**

Analytes	Start-Up	Initial Year Monitoring Plan
	sampling events per week	
Total Organic Carbon	1	1
Total Nitrogen	2	0
Total Inorganic Nitrogen	2	0
Nitrate-Nitrogen	2	0
Nitrite, ammonia, organic nitrogen	2	0
Nitrite-Nitrogen	2	0

Sampling would only be conducted when recycled water is shown to be in the basin or in the lysimeters, based on basin operations and EC. Nitrogen sampling will continue to be conducted at RP1 and RP4 and not at the lysimeters as long as TN is less than 10 mg/L from the plant effluent.

9. References

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Metropolitan Water District of Southern California. 2005. Table D. Monthly Analyses of the District Water Supplies – July 2005.

Metropolitan Water District of Southern California. 2005. Table D. Monthly Analyses of the District Water Supplies – August 2005.

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Wildermuth Environmental, Inc. 2005a. Chino Basin Optimum Basin Management Program. State of the Basin Report – 2004. Prepared for the Chino Basin Watermaster. July 2005.

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Wildermuth Environmental, Inc. and the Inland Empire Utilities Agency. 2005. Chino Basin Recycled Water Recharge Program. Quarterly Monitoring Report July through September 2005. November 15, 2006.

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Table 3-1
Estimated Volume of Historical Diluent Water Recharged
(acre-feet)

Banana Basin

Year	July	August	September	October	November	December	January	February	March	April	May	June	Total	Average per Month
2000/01	0	0	0	28	13	0	87	122	79	61	0	0	390	32
2001/02	12	0	0	0	39	17	50	21	31	13	1	0	184	15
2002/03	0	0	0	0	39	59	0	81	39	87	62	0	366	31
2003/04	0	0	0	0	34	37	5	83	28	0	0	0	188	16
2004/05	0	0	0	63	17	25	94	111	25	19	15	0	368	31
Monthly Average	2	0	0	18	28	28	47	84	40	36	15	0		
												Total	**1496**	

Source: WEI (2005) Estimates for Chino Basin Watermaster and IEUA

Table 3-2
Volume of Diluent and Recycled Water Recharged
Banana Basin (AF)

Date	Imported Water (MWD CB 18)	Local Runoff/Storm Flow	Recycled Water
07/01/05	7.3	0	0
07/02/05	10	0	0
07/03/05	10	0	0
07/04/05	10	0	0
07/05/05	10	0	0
07/06/05	10	0	0
07/07/05	10	0	0
07/08/05	10	0	0
07/09/05	10	0	0
07/10/05	10	0	0
07/11/05	10	0	0
07/12/05	10	0	0
07/13/05	10	0	0
07/14/05	10	0	0
07/15/05	10	0	0
07/16/05	10	0	0
07/17/05	10	0	0
07/18/05	10	0	0
07/19/05	10	0	0
07/20/05	5	0	0
07/21/05	0	0	0
07/22/05	0	0	0
07/23/05	0	0	0
07/24/05	0	0	0
07/25/05	0	0	0
07/26/05	0	0	0
07/27/05	0	0	0
07/28/05	0	0	0
07/29/05	0	0	9.9
07/30/05	0	0	6.0
07/31/05	0	0	4.0
08/01/05	0	0	4.0
08/02/05	0	0	6.0
08/03/05	0	0	6.0
08/04/05	0	0	9.9
08/05/05	0	0	9.9
08/06/05	0	0	9.9
08/07/05	0	0	7.9
08/08/05	0	0	9.9
08/09/05	0	0	9.9
08/10/05	0	0	9.9
08/11/05	0	0	7.9
08/12/05	0	0	7.9
08/13/05	0	0	7.9
08/14/05	0	0	6.0
08/15/05	0	0	7.9
08/16/05	0	1	7.9
08/17/05	0	0	7.9
08/18/05	0	0	9.9
08/19/05	0	0	9.9
08/20/05	0	0	7.9
08/21/05	0	0	7.9
08/22/05	0	0	7.9
08/23/05	0	0	9.9
08/24/05	0	0	6.0
08/25/05	0	0	7.9
08/26/05	0	0	6.0

Table 3-2
Volume of Diluent and Recycled Water Recharged
Banana Basin (AF)

Date	Imported Water (MWD CB 18)	Local Runoff/Storm Flow	Recycled Water
08/27/05	0	0	7.9
08/28/05	0	0	7.9
08/29/05	0	0	9.9
08/30/05	0	0	9.9
08/31/05	0	0	7.9
09/01/05	0	0	4.0
09/02/05	0	0	2.0
09/03/05	0	0	4.0
09/04/05	0	0	4.0
09/05/05	0	0	4.0
09/06/05	0	0	3.0
09/07/05	0	0	3.8
09/08/05	0	0	3.8
09/09/05	0	0	6.9
09/10/05	0	0	9.3
09/11/05	0	0	8.9
09/12/05	0	0	9.9
09/13/05	0	0	9.9
09/14/05	0	0	8.9
09/15/05	0	0	6.9
09/16/05	0	0	6.0
09/17/05	0	0	8.9
09/18/05	0	0	9.3
09/19/05	0	0	7.3
09/20/05	0	0	7.9
09/21/05	0	0	0
09/22/05	0	0	0
09/23/05	0	0	0
09/24/05	0	0	0
09/25/05	0	0	0
09/26/05	0	0	0
09/27/05	0	0	0
09/28/05	0	0	0
09/29/05	0	0	0
09/30/05	0	0	0
10/01/05	0	0	0
10/02/05	0	0	0
10/03/05	0	0	0
10/04/05	0	0	0
10/05/05	0	0	0
10/06/05	0	0	0
10/07/05	0	0	0
10/08/05	0	0	0
10/09/05	0	0	0
10/10/05	0	0	4.0
10/11/05	0	0	4.0
10/12/05	0	0	4.0
10/13/05	0	0	4.0
10/14/05	0	0	4.0
10/15/05	0	0	4.0
10/16/05	0	0	1.5
10/17/05	0	10.9	0
10/18/05	0	17.9	0
10/19/05	0	0	0

Table 3-2
Volume of Diluent and Recycled Water Recharged
Banana Basin (AF)

Date	Imported Water (MWD CB 18)	Local Runoff/Storm Flow	Recycled Water
10/20/05	0	0	0
10/21/05	0	0	0
10/22/05	0	0	0
10/23/05	0	0	0
10/24/05	0	0	0
10/25/05	0	0	0
10/26/05	0	0	0
10/27/05	0	0	0
10/28/05	0	0	0
10/29/05	0	0	0
10/30/05	0	0	0
10/31/05	0	0	0
11/01/05	0	0	0
11/02/05	0	0	0
11/03/05	0	0	1.2
11/04/05	0	0	0.4
11/05/05	0	0	0.3
11/06/05	0	0	0.6
11/07/05	0	0	0.1
11/08/05	0	0	0
11/09/05	0	0	0.5
11/10/05	0	0	0
11/11/05	0	0	0.5
11/12/05	0	0	1.0
11/13/05	0	0	0.9
11/14/05	0	0	0.2
11/15/05	0	0	0
11/16/05	0	0	0.3
11/17/05	0	0	0.5
11/18/05	0	0	0.8
11/19/05	0	0	0.3
11/20/05	0	0	0.3
11/21/05	0	0	0.1
11/22/05	0	0	0
11/23/05	0	0	0
11/24/05	0	0	0
11/25/05	0	0	0
11/26/05	0	0	0
11/27/05	0	0	0
11/28/05	0	0	0
11/29/05	0	0	0
11/30/05	0	0	0
12/01/05	0	0	0
12/02/05	0	0	0
12/03/05	0	0	0
12/04/05	0	0	0
12/05/05	0	0	0
12/06/05	0	0	0
12/07/05	0	0	0.4
12/08/05	0	0	0
12/09/05	0	1	0
12/10/05	0	0	0
12/11/05	0	0	0
12/12/05	0	0	0.2

Table 3-2
Volume of Diluent and Recycled Water Recharged
Banana Basin (AF)

Date	Imported Water (MWD CB 18)	Local Runoff/Storm Flow	Recycled Water
12/13/05	0	0	1.1
12/14/05	0	0	1.3
12/15/05	0	0	0.6
12/16/05	0	0	0
12/17/05	0	0	0
12/18/05	0	0	0
12/19/05	0	0	0
12/20/05	0	0	0
12/21/05	0	0	0
12/22/05	0	0	0
12/23/05	0	0	0
12/24/05	0	0	2.8
12/25/05	0	0	2.0
12/26/05	0	0	0
12/27/05	0	0	0
12/28/05	0	0	0
12/29/05	0	0	0
12/30/05	0	0	0.6
12/31/05	0	6.8	1.3
01/01/06	0	5.0	1.7
01/02/06	0	0.0	0.9
01/03/06	0	0.0	0.0
01/04/06	0	0.0	0.0
01/05/06	0	0.0	0.0
01/06/06	0	0.0	0.0
01/07/06	0	0.0	0.0
01/08/06	0	0.0	0.0
01/09/06	0	0.0	0.0
01/10/06	0	0.0	0.0
01/11/06	0	0.0	0.0
01/12/06	0	0.0	0.0
01/13/06	0	0.0	0.0
01/14/06	0	1.0	0.0
01/15/06	0	0.0	0.0
01/16/06	0	0.0	0.6
01/17/06	0	0.0	5.6
01/18/06	0	0.0	0.0
01/19/06	0	0.0	0.8
01/20/06	0	0.0	1.2
01/21/06	0	0.0	6.0
01/22/06	0	0.0	0.0
01/23/06	0	0.0	0.0
01/24/06	0	0.0	2.6
01/25/06	0	0.0	9.9
01/26/06	0	0.0	5.6
01/27/06	0	0.0	5.6
01/28/06	0	0.0	2.0
01/29/06	0	0.0	3.5
01/30/06	0	0.0	1.8
01/31/06	0	0.0	2.6
Totals	**0.0**	**42.6**	**93.8**

Table 3-3

Recycled Water Contribution for Banana Basin

Source of Recharged Water	Units	Banana
Historical Diluent - Previous 54 months	AF	1455
State Water Project Water: 3Q05	AF	192
State Water Project Water: 4Q05	AF	0
Local Runoff: 3Q05	AF	0
Local Runoff: 4Q05	AF	37
Recycled Water: 3Q05	AF	395
Recycled Water: 4Q05	AF	43
Recycled Water Contribution		20.6%

Table 4-1
Basin and Lysimeter Monitoring Results for Banana Basin: Electrical Conductivity

Station ID	Units	Surface Water	Lysimeter Samples (ft bgs)				Percentage RW at 25 ft bgs Lysimeter
			5	10	15	25	
07/12/05 [1]	µmhos/cm	319	NS	NS	NS	1197	Residual Water
07/19/05 [1]	µmhos/cm	300	NS	NS	NS	569	Residual Water
07/26/05 [1]	µmhos/cm	NS-BD	NS	NS	NS	866	Residual Water
07/29/05 [1]	µmhos/cm	644	NS	NS	NS	866	Residual Water
08/02/05	µmhos/cm	730	470	490	460	700	Residual Water
08/09/05	µmhos/cm	750	710	695	685	725	Residual Water
08/16/05	µmhos/cm	715	755	730	750	755	100%
08/23/05	µmhos/cm	720	720	690	690	705	96%
08/24/05	µmhos/cm	776	NA	NA	NA	NA	IDC
08/26/05	µmhos/cm	740	760	740	700	730	100%
08/30/05	µmhos/cm	760	NA	NA	NA	795	100%
09/06/05	µmhos/cm	740	NA	NA	NA	NA	IDC
09/13/05	µmhos/cm	711	760	750	735	820	100%
09/20/05	µmhos/cm	735	770	770	760	790	100%
09/27/05	µmhos/cm	725	750	745	730	790	100%
10/04/05	µmhos/cm	680	NS	765	735	770	100%
10/13/05	µmhos/cm	780	755	790	805	770	100%
10/18/05	µmhos/cm	360	735	780	805	760	100%
10/25/05	µmhos/cm	305	715	760	825	755	100%
11/01/05	µmhos/cm	315	630	735	770	745	100%
11/08/05	µmhos/cm	550	490	670	650	700	95%
11/15/05	µmhos/cm	585	455	600	555	630	84%
11/22/05	µmhos/cm	620	515	595	520	580	75%
11/29/05	µmhos/cm	630	600	620	555	545	70%
12/06/05	µmhos/cm	640	650	645	610	530	67%
12/13/05	µmhos/cm	665	665	675	660	550	70%
12/20/05	µmhos/cm	695	670	700	685	590	77%
12/27/05	µmhos/cm	690	670	720	695	580	75%
01/03/06	µmhos/cm	205	675	740	700	595	78%
01/10/06	µmhos/cm	215	685	785	720	610	80%
01/17/06	µmhos/cm	280	635	795	755	625	83%
01/24/06	µmhos/cm	700	530	785	775	690	94%
01/31/06	µmhos/cm	770	460	775	700	675	91%

[1]EC estimated from TDS value (see text)
ND: Not Detected
NS: Not Sampled
NS-BD: Not Sampled-Basin Dry
NT: Insufficient Sample for Analytical Test
IDC: Insufficient Data for Calculation
Indicates that the sampled water is >65 percent recycled water, based on:

SWP = 343 umhos/cm
RW = 727 umhos/cm
→ 65 percent recycled water would have an EC of 592 umhos/cm or greater.

SWP = 343 umhos/cm
Local Runoff = 130 umhos/cm
→ 65 percent recycled water would have an EC of 518 umhos/cm or greater.

Table 4-2
Basin and Lysimeter Monitoring Results for Banana Basin: Total Organic Carbon (mg/L)

Date	Surface Water	Lysimeter Samples (ft bgs)				25 Rolling Average	Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
		5	10	15	25			
07/06/05	5.1	4.0	5.2	6.7	2.4		Residual Water	53%
07/12/05	5.2	3.1	3.9	5.2	2.3		Residual Water	55%
07/19/05	5.0	3.0	2.8	3.3	2.5		Residual Water	50%
07/26/05	NS-BD	2.9	2.8	3.8	2.4		Residual Water	IDC
08/02/05	6.5	3.3	3.2	3.8	2.8		Residual Water	46%
08/09/05	6.7	3.3	3.1	3.3	2.2		Residual Water	60%
08/16/05	13.1	3.8	3.3	3.5	2.5	2.5	100%	56%
08/23/05	7.0	5.1	4.0	4.0	2.6	2.6	96%	60%
08/24/05	9.5	NA	NA	NA	NA		*98%*	IDC
08/30/05	9.0	4.9	3.7	4.0	2.0	2.4	100%	79%
09/06/05	11.4	4.4	3.7	3.3	2.2	2.3	*100%*	79%
09/13/05	8.8	4.8	3.3	3.0	2.1	2.3	100%	59%
09/20/05	9.7	4.4	3.2	2.9	2.3	2.3	100%	78%
09/27/05	9.1	4.0	3.0	2.6	2.0	2.2	100%	81%
10/04/05	10.6	4.0	3.0	2.8	2.0	2.2	100%	78%
10/13/05	9.3	3.9	2.7	2.6	2.0	2.2	100%	79%
10/18/05	2.1	4.2	2.7	2.3	1.8	2.2	100%	81%
10/25/05	8.3	4.2	2.7	2.4	1.8	2.1	100%	83%
11/01/05	8.6	3.8	2.9	2.7	2.0	2.1	100%	75%
11/08/05	8.2	3.5	2.6	2.2	2.4	2.1	95%	49%
11/15/05	9.1	3.5	2.3	2.1	1.8	2.1	84%	78%
11/22/05	7.4	2.8	1.9	1.5	2.3	2.1	75%	73%
11/25/05	7.5	2.9	2.2	1.6	1.5	2.1	*73%*	82%
11/29/05	7.5	2.8	2.1	1.6	1.6	2.1	70%	82%
12/02/05	7.2	2.7	1.7	1.5	1.2	2.1	*69%*	87%
12/06/05	7.2	2.7	1.7	1.4	1.0	2.0	67%	88%
12/09/05	8.7	2.6	1.6	1.4	1.0	2.0	*69%*	87%
12/13/05	9.8	3.0	1.9	1.6	1.2	1.9	70%	84%
12/16/05	8.9	2.6	1.6	1.3	1.2	1.9	*74%*	84%
12/20/05	8.4	2.7	1.6	1.4	1.1	1.9	77%	84%
12/23/05	8.6	2.7	1.7	1.4	11.7*	1.8	*76%*	
12/27/05	8.6	2.7	1.9	1.3	1.1	1.8	75%	88%
12/29/05	8.8	2.7	1.6	1.3	0.9	1.8	*77%*	90%
01/03/06	8.3	3.0	1.9	1.4	1.2	1.8	78%	87%
01/10/06	6.0	3.2	1.8	1.3	1.2	1.7	80%	86%
01/17/06	6.3	3.0	1.8	1.4	1.2	1.6	83%	86%
01/24/06	7.1	2.7	1.6	1.4	1.0	1.6	94%	87%
01/31/06	6.8	2.6	1.6	1.4	1.2	1.5	91%	81%
Average	**8.7**	**3.6**	**2.6**	**2.3**	**1.7**			**76%**

[1]Sample Number is the number of samples once the compliance point lysimeter is sampling primarily recharged recycled water.

ND: Not Detected

NS-BD: Not Sampled-Basin Dry

NT: Insufficient Sample for Analytical Test

IDC: Insufficient Data for Calculation

* The reported TOC concentration (11.7 mg/L) on December 23, 2005 for the 25 foot bgs lysimeter is an outlier and may be a laboratory artifact. This value was not used in graphs in Section 5, nor was it used in the computation of TOC reduction.

Indicates that the sampled water is >65 percent recycled water

64% Denotes an interpolated value.

Table 4-3
Basin and Lysimeter Monitoring Results for Banana Basin:
Ammonia, Nitrite, Nitrate, TKN, and TN (mg/L)

Station ID	Depth	Date	NH_3-N	NO_2-N	NO_3-N	TKN	TN
Banana Basin-SW	0 ft	07/06/05	0.1	0.03	0.10	0.52	0.65
Banana Basin-5	5 ft	07/06/05	0.1	0.05	0.54	0.32	0.91
Banana Basin-10	10 ft	07/06/05	0.1	0.32	0.32	0.43	1.07
Banana Basin-15	15 ft	07/06/05	0.1	0.08	<0.1	0.52	0.60
Banana Basin-25	25 ft	07/06/05	0.1	0.1	1.15	0.21	1.46
Banana Basin-SW	0 ft	07/12/05	0.1	0.09	0.20	0.76	1.05
Banana Basin-5	5 ft	07/12/05	0.07	0.01	0.20	0.22	0.43
Banana Basin-10	10 ft	07/12/05	0.1	0.21	2.20	0.38	2.79
Banana Basin-15	15 ft	07/12/05	0.1	0.08	0.08	0.36	0.52
Banana Basin-25	25 ft	07/12/05	0.1	0.03	0.50	0.21	0.74
Banana Basin-SW	0 ft	07/15/05	0.3	0.03	0.10	1.10	1.23
Banana Basin-5	5 ft	07/15/05	0.1	<0.01	0.27	0.26	0.53
Banana Basin-10	10 ft	07/15/05	0.09	0.05	0.60	0.35	1.00
Banana Basin-15	15 ft	07/15/05	0.1	0.06	0.19	0.36	0.61
Banana Basin-25	25 ft	07/15/05	0.1	0.03	0.28	0.22	0.53
Banana Basin-SW	0 ft	07/19/05	0.2	0.1	0.10	0.76	0.96
Banana Basin-5	5 ft	07/19/05	0.1	0.02	0.23	0.38	0.63
Banana Basin-10	10 ft	07/19/05	0.1	0.05	0.27	0.30	0.62
Banana Basin-15	15 ft	07/19/05	0.1	0.03	0.10	0.29	0.42
Banana Basin-25	25 ft	07/19/05	0.2	0.03	0.35	0.24	0.62
Banana Basin-SW	0 ft	07/22/05	0.2	0.05	<0.1	0.87	0.92
Banana Basin-5	5 ft	07/22/05	0.1	<0.1	0.18	0.21	0.39
Banana Basin-10	10 ft	07/22/05	0.1	0.04	0.20	0.28	0.52
Banana Basin-15	15 ft	07/22/05	0.1	0.03	0.08	0.26	0.37
Banana Basin-25	25 ft	07/22/05	0.1	0.04	0.24	0.21	0.49
Banana Basin-SW	0 ft	07/26/05	NS-BD	NS-BD	NS-BD	NS-BD	IDC
Banana Basin-5	5 ft	07/26/05	0.1	<0.01	0.17	0.25	0.42
Banana Basin-10	10 ft	07/26/05	0.1	<0.01	0.13	0.26	0.39
Banana Basin-15	15 ft	07/26/05	0.1	<0.01	0.03	0.32	0.35
Banana Basin-25	25 ft	07/26/05	0.1	<0.01	0.39	0.21	0.60
Banana Basin-SW	0 ft	07/29/05	0.1	0.03	3.00	1.8	4.83
Banana Basin-5	5 ft	07/29/05	0.1	<0.01	0.31	0.26	0.57
Banana Basin-10	10 ft	07/29/05	0.1	<0.01	0.16	0.25	0.41
Banana Basin-15	15 ft	07/29/05	0.1	<0.01	0.09	0.26	0.35
Banana Basin-25	25 ft	07/29/05	0.1	<0.01	0.33	0.25	0.58
Banana Basin-SW	0 ft	08/02/05	0.1	0.047	0.64	1.1	1.79
Banana Basin-5	5 ft	08/02/05	0.1	0.03	0.90	0.28	1.21
Banana Basin-10	10 ft	08/02/05	0.1	<0.01	0.61	0.27	0.88
Banana Basin-15	15 ft	08/02/05	0.1	0.069	0.53	0.28	0.88
Banana Basin-25	25 ft	08/02/05	0.1	<0.01	0.90	0.21	1.11
Banana Basin-SW	0 ft	08/05/05	0.1	<0.01	1.40	0.88	2.28
Banana Basin-5	5 ft	08/05/05	0.04	0.022	1.51	0.35	1.88
Banana Basin-10	10 ft	08/05/05	0.1	0.02	0.51	0.38	0.91
Banana Basin-15	15 ft	08/05/05	0.4	0.083	0.35	0.33	0.76
Banana Basin-25	25 ft	08/05/05	0.04	0.019	0.82	0.23	1.07

Table 4-3
Basin and Lysimeter Monitoring Results for Banana Basin:
Ammonia, Nitrite, Nitrate, TKN, and TN (mg/L)

Station ID	Depth	Date	NH_3-N	NO_2-N	NO_3-N	TKN	TN
Banana Basin-SW	0 ft	08/09/05	0.1	<0.01	0.53	0.83	1.36
Banana Basin-5	5 ft	08/09/05	0.04	0.015	1.60	0.32	1.94
Banana Basin-10	10 ft	08/09/05	0.04	0.053	1.30	0.41	1.76
Banana Basin-15	15 ft	08/09/05	0.04	0.138	1.62	0.42	2.17
Banana Basin-25	25 ft	08/09/05	0.04	<0.01	1.30	0.31	1.61
Banana Basin-SW	0 ft	08/12/05	<0.1	<0.01	1.59	1.7	3.29
Banana Basin-5	5 ft	08/12/05	<0.1	0.022	1.25	0.54	1.81
Banana Basin-10	10 ft	08/12/05	<0.1	0.028	1.06	0.33	1.41
Banana Basin-15	15 ft	08/12/05	<0.1	0.055	0.69	0.52	1.27
Banana Basin-25	25 ft	08/12/05	<0.1	<0.01	1.28	0.25	1.53
Banana Basin-SW	0 ft	08/16/05	0.1	0.014	1.42	1.20	2.63
Banana Basin-5	5 ft	08/16/05	<0.1	0.013	0.59	0.35	0.96
Banana Basin-10	10 ft	08/16/05	<0.1	0.024	0.84	0.34	1.20
Banana Basin-15	15 ft	08/16/05	<0.1	0.032	0.86	0.31	1.20
Banana Basin-25	25 ft	08/16/05	<0.1	<0.01	0.91	0.24	1.15
Banana Basin-SW	0 ft	08/19/05	0.1	<0.01	0.28	0.93	1.21
Banana Basin-5	5 ft	08/19/05	0.1	<0.01	0.38	0.38	0.76
Banana Basin-10	10 ft	08/19/05	0.1	0.013	0.45	0.34	0.80
Banana Basin-15	15 ft	08/19/05	0.1	0.021	0.45	0.31	0.78
Banana Basin-25	25 ft	08/19/05	0.1	<0.01	0.66	0.48	1.14
Banana Basin-SW	0 ft	08/23/05	0.1	<0.01	1.47	1.20	2.67
Banana Basin-5	5 ft	08/23/05	<0.1	<0.01	0.05	0.45	0.50
Banana Basin-10	10 ft	08/23/05	<0.1	<0.01	0.18	0.46	0.64
Banana Basin-15	15 ft	08/23/05	<0.1	<0.01	0.13	0.32	0.45
Banana Basin-25	25 ft	08/23/05	0.1	<0.01	0.48	0.23	0.71
Banana Basin-SW	0 ft	08/24/05	0.054	<0.2	0.71	2.00	2.71
Banana Basin-SW	0 ft	08/26/05	0.1	<0.01	1.51	1.50	3.01
Banana Basin-5	5 ft	08/26/05	<0.1	<0.01	0.03	0.48	0.51
Banana Basin-10	10 ft	08/26/05	<0.1	<0.01	0.06	0.43	0.49
Banana Basin-15	15 ft	08/26/05	<0.1	<0.01	0.05	0.46	0.51
Banana Basin-25	25 ft	08/26/05	<0.1	<0.01	0.15	0.24	0.39
Banana Basin-SW	0 ft	08/30/05	<0.1	<0.01	0.46	1.00	1.46
Banana Basin-5	5 ft	08/30/05	<0.1	<0.01	0.12	0.51	0.63
Banana Basin-10	10 ft	08/30/05	0.1	<0.01	0.16	0.25	0.41
Banana Basin-15	15 ft	08/30/05	0.1	<0.01	0.18	<0.2	0.18
Banana Basin-25	25 ft	08/30/05	<0.1	<0.01	0.28	<0.2	0.28
Banana Basin-SW	0 ft	09/02/05	<0.1	<0.01	0.34	1.80	2.14
Banana Basin-5	5 ft	09/02/05	<0.1	<0.01	0.44	0.69	1.13
Banana Basin-10	10 ft	09/02/05	<0.1	<0.01	0.21	0.42	0.63
Banana Basin-15	15 ft	09/02/05	<0.1	<0.01	0.28	0.46	0.74
Banana Basin-25	25 ft	09/02/05	<0.1	<0.01	0.37	0.37	0.74
Banana Basin-SW	0 ft	09/06/05	0.04	0.01	2.00	1.70	3.71
Banana Basin-5	5 ft	09/06/05	<0.1	0.008	0.15	0.59	0.75
Banana Basin-10	10 ft	09/06/05	0.1	0.009	0.13	0.56	0.70
Banana Basin-15	15 ft	09/06/05	0.1	0.009	0.37	0.54	0.92
Banana Basin-25	25 ft	09/06/05	NA	NA	NA	0.35	IDC

Table 4-3
Basin and Lysimeter Monitoring Results for Banana Basin:
Ammonia, Nitrite, Nitrate, TKN, and TN (mg/L)

Station ID	Depth	Date	NH_3-N	NO_2-N	NO_3-N	TKN	TN
Banana Basin-SW	0 ft	09/09/05	0.18	0.014	4.126	1.30	5.44
Banana Basin-5	5 ft	09/09/05	<0.1	<0.01	0.05	0.46	0.51
Banana Basin-10	10 ft	09/09/05	<0.1	<0.01	0.15	0.34	0.49
Banana Basin-15	15 ft	09/09/05	0.1	0.007	0.44	0.39	0.83
Banana Basin-25	25 ft	09/09/05	<0.1	<0.01	0.35	0.44	0.79
Banana Basin-SW	0 ft	09/13/05	<0.1	<0.500	2.50	1.90	4.40
Banana Basin-5	5 ft	09/13/05	<0.1	<0.01	<0.1	0.55	0.55
Banana Basin-10	10 ft	09/13/05	<0.1	<0.01	0.78	0.47	1.25
Banana Basin-15	15 ft	09/13/05	0.1	<0.01	1.4	0.4	1.80
Banana Basin-25	25 ft	09/13/05	0.04	<0.01	0.52	0.23	0.75
Banana Basin-SW	0 ft	09/16/05	0.1	<1.000	1	0.2	1.20
Banana Basin-5	5 ft	09/16/05	0.1	<0.500	<0.50	0.2	0.20
Banana Basin-10	10 ft	09/16/05	0.1	<0.500	0.5	0.2	0.70
Banana Basin-15	15 ft	09/16/05	0.1	<1.000	1	0.2	1.20
Banana Basin-25	25 ft	09/16/05	0.1	<1.000	<1.0	0.2	0.20
Banana Basin-SW	0 ft	09/20/05	0.36	0.019	1.60	2.00	3.62
Banana Basin-5	5 ft	09/20/05	0.1	0.005	0.11	0.49	0.60
Banana Basin-10	10 ft	09/20/05	0.1	0.012	0.99	0.36	1.37
Banana Basin-15	15 ft	09/20/05	0.1	0.011	1.52	0.52	2.05
Banana Basin-25	25 ft	09/20/05	0.1	0.006	0.66	0.24	0.91
Banana Basin-SW	0 ft	09/23/05	0.6	0.037	1.49	0.2	1.72
Banana Basin-5	5 ft	09/23/05	0.1	0.005	<0.1	0.2	0.21
Banana Basin-10	10 ft	09/23/05	0.1	0.013	0.73	0.2	0.95
Banana Basin-15	15 ft	09/23/05	0.1	0.01	1.67	0.2	1.88
Banana Basin-25	25 ft	09/23/05	0.1	0.006	0.62	0.2	0.83
Banana Basin-SW	0 ft	09/27/05	0.1	<0.01	0.39	2.5	2.89
Banana Basin-5	5 ft	09/27/05	0.1	0.006	0.12	0.62	0.75
Banana Basin-10	10 ft	09/27/05	0.1	0.009	0.28	0.37	0.66
Banana Basin-15	15 ft	09/27/05	0.1	0.009	1.15	0.57	1.73
Banana Basin-25	25 ft	09/27/05	<0.1	<0.01	0.69	0.53	1.22
Banana Basin-SW	0 ft	09/30/05	0.1	<0.01	<0.1	2.7	2.70
Banana Basin-5	5 ft	09/30/05	0.1	0.01	0.26	0.68	0.95
Banana Basin-10	10 ft	09/30/05	0.1	0.007	0.19	0.35	0.54
Banana Basin-15	15 ft	09/30/05	0.1	0.01	0.56	0.37	0.94
Banana Basin-25	25 ft	09/30/05	0.1	<0.01	0.53	0.26	0.79
Banana Basin-SW	0 ft	10/04/05	<0.1	<0.01	<0.1	1.4	1.40
Banana Basin-5	5 ft	10/04/05	0.1	<0.01	0.16	4.3	4.46
Banana Basin-10	10 ft	10/04/05	<0.1	<0.01	0.20	0.3	0.50
Banana Basin-15	15 ft	10/04/05	0.1	<0.01	0.36	0.34	0.70
Banana Basin-25	25 ft	10/04/05	<0.1	<0.01	0.59	0.26	0.85
Banana Basin-SW	0 ft	10/07/05	0.1	<0.01	<0.1	1.3	1.30
Banana Basin-5	5 ft	10/07/05	<0.1	<0.01	0.21	0.45	0.66
Banana Basin-10	10 ft	10/07/05	0.1	<0.01	0.28	0.41	0.69
Banana Basin-15	15 ft	10/07/05	0.1	<0.01	0.42	0.36	0.78
Banana Basin-25	25 ft	10/07/05	0.1	<0.01	0.58	0.29	0.87

Table 4-3
Basin and Lysimeter Monitoring Results for Banana Basin:
Ammonia, Nitrite, Nitrate, TKN, and TN (mg/L)

Station ID	Depth	Date	NH_3-N	NO_2-N	NO_3-N	TKN	TN
Banana Basin-SW	0 ft	10/13/05	0.1	<0.01	0.66	1.3	1.96
Banana Basin-5	5 ft	10/13/05	0.1	<0.01	0.20	0.52	0.72
Banana Basin-10	10 ft	10/13/05	0.1	<0.01	0.51	0.33	0.84
Banana Basin-15	15 ft	10/13/05	0.1	<0.01	0.70	0.38	1.08
Banana Basin-25	25 ft	10/13/05	0.1	<0.01	0.62	0.32	0.94
Banana Basin-SW	0 ft	10/14/05	0.1	0.011	1.77	1.1	2.88
Banana Basin-5	5 ft	10/14/05	0.1	<0.01	<0.1	0.54	0.54
Banana Basin-10	10 ft	10/14/05	0.1	<0.01	0.67	0.57	1.24
Banana Basin-15	15 ft	10/14/05	0.1	<0.01	0.88	0.83	1.71
Banana Basin-25	25 ft	10/14/05	0.1	<0.01	0.70	<0.2	0.70
Banana Basin-SW	0 ft	10/18/05	0.2	0.047	0.91	2	2.95
Banana Basin-5	5 ft	10/18/05	0.1	<0.01	<0.1	0.47	0.47
Banana Basin-10	10 ft	10/18/05	0.1	0.01	0.48	0.28	0.77
Banana Basin-15	15 ft	10/18/05	0.1	0.011	0.92	0.23	1.17
Banana Basin-25	25 ft	10/18/05	0.1	<0.01	0.63	<0.2	0.63
Banana Basin-SW	0 ft	10/21/05	0.1	0.048	0.78	1.4	2.22
Banana Basin-5	5 ft	10/21/05	<0.1	<0.01	<0.1	0.52	0.52
Banana Basin-10	10 ft	10/21/05	<0.1	0.01	0.30	0.29	0.60
Banana Basin-15	15 ft	10/21/05	<0.1	0.012	0.95	0.26	1.23
Banana Basin-25	25 ft	10/21/05	<0.1	<0.01	0.68	0.46	1.14
Banana Basin-SW	0 ft	10/25/05	<0.1	0.039	0.31	1.3	1.65
Banana Basin-5	5 ft	10/25/05	1.2	0.01	0.37	0.46	0.84
Banana Basin-10	10 ft	10/25/05	0.2	<0.01	0.25	0.49	0.74
Banana Basin-15	15 ft	10/25/05	0.2	0.011	0.83	0.32	1.16
Banana Basin-25	25 ft	10/25/05	0.1	<0.01	0.56	0.3	0.86
Banana Basin-SW	0 ft	10/28/05	0.1	0.033	0.22	1.1	1.35
Banana Basin-5	5 ft	10/28/05	0.1	<0.01	<0.1	0.97	0.97
Banana Basin-10	10 ft	10/28/05	0.1	0.019	0.32	0.63	0.97
Banana Basin-15	15 ft	10/28/05	0.1	0.01	0.31	<0.2	0.32
Banana Basin-25	25 ft	10/28/05	0.1	<0.01	0.51	1.3	1.81
Banana Basin-SW	0 ft	11/01/05	0.2	0.02	0.10	1.3	1.42
Banana Basin-5	5 ft	11/01/05	0.1	<0.01	<0.1	0.65	0.65
Banana Basin-10	10 ft	11/01/05	0.1	<0.01	0.20	0.73	0.93
Banana Basin-15	15 ft	11/01/05	0.1	<0.01	0.40	0.33	0.73
Banana Basin-25	25 ft	11/01/05	0.1	<0.01	0.40	<0.2	0.40
Banana Basin-SW	0 ft	11/04/05	0.2	0.01	0.10	1.1	1.21
Banana Basin-5	5 ft	11/04/05	<0.1	<0.01	<0.1	<0.2	0.00
Banana Basin-10	10 ft	11/04/05	<0.1	<0.01	0.20	0.33	0.53
Banana Basin-15	15 ft	11/04/05	NT	NT	NT	0.35	IDC
Banana Basin-SW	0 ft	11/08/05	0.1	HM	0.42	1.2	IDC
Banana Basin-5	5 ft	11/08/05	0.1	<0.01	<0.1	<0.2	0.00
Banana Basin-10	10 ft	11/08/05	0.1	<0.01	<0.1	0.39	0.39
Banana Basin-15	15 ft	11/08/05	0.1	0.01	<0.1	0.55	0.56
Banana Basin-25	25 ft	11/08/05	0.1	0.03	<0.1	0.54	0.57

Table 4-3
Basin and Lysimeter Monitoring Results for Banana Basin:
Ammonia, Nitrite, Nitrate, TKN, and TN (mg/L)

Station ID	Depth	Date	NH_3-N	NO_2-N	NO_3-N	TKN	TN
Banana Basin-SW	0 ft	11/11/05	0.1	<0.01	0.54	1.2	1.74
Banana Basin-5	5 ft	11/11/05	0.1	0.01	0.46	0.34	0.81
Banana Basin-10	10 ft	11/11/05	0.1	<0.01	<0.1	0.41	0.41
Banana Basin-15	15 ft	11/11/05	0.1	<0.01	0.43	0.42	0.85
Banana Basin-25	25 ft	11/11/05	0.1	<0.01	0.43	0.45	0.88
Banana Basin-SW	0 ft	11/15/05	<0.1	HM	HM	1.2	IDC
Banana Basin-5	5 ft	11/15/05	<0.1	HM	HM	<0.2	IDC
Banana Basin-10	10 ft	11/15/05	<0.1	HM	HM	0.40	IDC
Banana Basin-15	15 ft	11/15/05	<0.1	HM	HM	0.27	IDC
Banana Basin-25	25 ft	11/15/05	<0.1	HM	0.47	0.23	IDC
Banana Basin-SW	0 ft	11/18/05	0.1	<0.01	<0.1	2.3	2.30
Banana Basin-5	5 ft	11/18/05	0.1	<0.01	0.10	0.43	0.53
Banana Basin-10	10 ft	11/18/05	<0.1	<0.01	0.20	0.22	0.42
Banana Basin-15	15 ft	11/18/05	0.1	<0.01	0.60	0.35	0.95
Banana Basin-25	25 ft	11/18/05	<0.1	<0.01	0.50	1.7	2.20
Banana Basin-SW	0 ft	11/22/05	0.1	<0.01	<0.1	1.1	1.10
Banana Basin-5	5 ft	11/22/05	0.1	0.10	<0.1	0.35	0.45
Banana Basin-10	10 ft	11/22/05	0.1	<0.01	0.16	0.26	0.42
Banana Basin-15	15 ft	11/22/05	0.1	0.01	0.56	0.37	0.94
Banana Basin-25	25 ft	11/22/05	0.1	<0.01	0.52	0.22	0.74
Banana Basin-SW	0 ft	11/25/05	<0.1	<0.01	<0.1	1	1.00
Banana Basin-5	5 ft	11/25/05	<0.1	<0.01	<0.1	0.31	0.31
Banana Basin-10	10 ft	11/25/05	<0.1	<0.01	0.20	0.31	0.51
Banana Basin-15	15 ft	11/25/05	0.1	<0.01	0.52	0.25	0.77
Banana Basin-25	25 ft	11/25/05	<0.1	<0.01	0.57	0.25	0.82
Banana Basin-SW	0 ft	11/29/05	0.1	<0.01	<0.1	0.95	0.95
Banana Basin-5	5 ft	11/29/05	0.2	<0.01	0.10	0.26	0.36
Banana Basin-10	10 ft	11/29/05	0.1	0.02	0.40	<0.2	0.42
Banana Basin-15	15 ft	11/29/05	0.2	<0.01	0.50	<0.2	0.50
Banana Basin-25	25 ft	11/29/05	0.1	<0.01	<0.1	<0.2	0.00
Banana Basin-SW	0 ft	12/02/05	NA	0.001	0.003	1.2	1.20
Banana Basin-5	5 ft	12/02/05	<0.1	<0.01	0.08	0.45	0.53
Banana Basin-10	10 ft	12/02/05	<0.1	<0.01	0.31	0.31	0.62
Banana Basin-15	15 ft	12/02/05	<0.1	<0.01	0.45	0.3	0.75
Banana Basin-25	25 ft	12/02/05	<0.1	<0.01	0.48	0.43	0.91
Banana Basin-SW	0 ft	12/06/05	0.1	0.00	NA	1.3	IDC
Banana Basin-5	5 ft	12/06/05	0.1	<0.01	0.05	0.32	0.37
Banana Basin-10	10 ft	12/06/05	0.1	<0.01	0.35	<0.2	0.35
Banana Basin-15	15 ft	12/06/05	0.1	<0.01	0.50	0.21	0.71
Banana Basin-25	25 ft	12/06/05	0.1	<0.01	0.45	<0.2	0.45
Banana Basin-SW	0 ft	12/09/05	0.1	NA	0.13	1.4	IDC
Banana Basin-5	5 ft	12/09/05	0.1	0.08	0.11	0.88	1.07
Banana Basin-10	10 ft	12/09/05	0.04	0.01	0.45	0.22	0.68
Banana Basin-15	15 ft	12/09/05	0.1	<0.01	0.58	0.37	0.95
Banana Basin-25	25 ft	12/09/05	0.04	<0.01	0.45	0.38	0.83

Table 4-3
Basin and Lysimeter Monitoring Results for Banana Basin:
Ammonia, Nitrite, Nitrate, TKN, and TN (mg/L)

Station ID	Depth	Date	NH_3-N	NO_2-N	NO_3-N	TKN	TN
Banana Basin-SW	0 ft	12/13/05	0.2	NA	0.06	1.4	IDC
Banana Basin-5	5 ft	12/13/05	0.1	0.046	0.17	0.40	0.61
Banana Basin-10	10 ft	12/13/05	0.1	0.032	0.59	0.29	0.91
Banana Basin-15	15 ft	12/13/05	0.1	0.015	0.68	0.23	0.92
Banana Basin-25	25 ft	12/13/05	0.1	0.01	0.46	<0.2	0.47
Banana Basin-SW	0 ft	12/16/05	0.1	0.007	0.34	1.4	1.75
Banana Basin-5	5 ft	12/16/05	0.1	0.001	0.09	<0.2	0.09
Banana Basin-10	10 ft	12/16/05	0.1	0.007	0.69	0.51	1.21
Banana Basin-15	15 ft	12/16/05	0.1	0.004	0.81	0.44	1.25
Banana Basin-25	25 ft	12/16/05	0.1	0.00	0.50	0.25	0.75
Banana Basin-SW	0 ft	12/20/05	0.12	0.04	0.25	1.50	1.79
Banana Basin-5	5 ft	12/20/05	<0.1	<0.01	0.09	0.34	0.44
Banana Basin-10	10 ft	12/20/05	<0.1	0.013	0.82	0.36	1.19
Banana Basin-15	15 ft	12/20/05	<0.1	<0.01	0.92	0.31	1.23
Banana Basin-25	25 ft	12/20/05	<0.1	<0.01	0.57	<0.2	0.57
Banana Basin-SW	0 ft	12/23/05	0.2	0.001	0.067	1.90	1.97
Banana Basin-5	5 ft	12/23/05	0.1	<0.01	0.38	0.31	0.69
Banana Basin-10	10 ft	12/23/05	0.1	<0.01	0.94	0.49	1.43
Banana Basin-15	15 ft	12/23/05	0.1	<0.01	1.06	0.30	1.36
Banana Basin-25	25 ft	12/23/05	0.1	<0.01	0.43	0.42	0.85
Banana Basin-SW	0 ft	12/27/05	0.1	0.02	0.118	1.40	1.54
Banana Basin-5	5 ft	12/27/05	0.1	<0.01	0.27	0.60	0.87
Banana Basin-10	10 ft	12/27/05	0.1	0.019	0.90	0.23	1.15
Banana Basin-15	15 ft	12/27/05	0.1	<0.01	1.14	0.26	1.40
Banana Basin-25	25 ft	12/27/05	0.1	0.001	0.57	0.41	0.98
Banana Basin-SW	0 ft	12/29/05	0.1	0.002	0.02	1.20	1.22
Banana Basin-5	5 ft	12/29/05	0.1	<0.01	0.60	0.50	1.10
Banana Basin-10	10 ft	12/29/05	0.1	<0.01	0.94	0.49	1.43
Banana Basin-15	15 ft	12/29/05	0.1	<0.01	1.24	0.41	1.65
Banana Basin-25	25 ft	12/29/05	0.1	0.001	0.68	0.30	0.98
Banana Basin-SW	0 ft	01/03/06	0.6	0.03	0.49	2.20	2.73
Banana Basin-5	5 ft	01/03/06	0.8	<0.01	0.07	0.27	0.34
Banana Basin-10	10 ft	01/03/06	0.5	0.02	0.93	<0.2	0.95
Banana Basin-15	15 ft	01/03/06	0.4	<0.01	1.33	<0.2	1.33
Banana Basin-25	25 ft	01/03/06	0.1	<0.01	0.70	<0.2	0.70
Banana Basin-SW	0 ft	01/04/06	NT	<0.1	0.18	NT	IDC
Banana Basin-SW	0 ft	01/06/06	0.3	0.03	0.43	0.92	1.38
Banana Basin-5	5 ft	01/06/06	<0.1	<0.01	<0.1	0.46	0.46
Banana Basin-10	10 ft	01/06/06	<0.1	0.02	0.88	0.28	1.18
Banana Basin-15	15 ft	01/06/06	<0.1	<0.01	1.34	<0.2	1.34
Banana Basin-25	25 ft	01/06/06	<0.1	<0.01	0.75	0.34	1.09
Banana Basin-SW	0 ft	01/10/06	0.3	0.04	0.45	1.00	1.49
Banana Basin-5	5 ft	01/10/06	0.1	<0.01	0.01	0.31	0.33
Banana Basin-10	10 ft	01/10/06	0.05	0.013	0.82	0.59	1.42
Banana Basin-15	15 ft	01/10/06	0.05	<0.01	1.25	<0.2	1.25
Banana Basin-25	25 ft	01/10/06	0.05	<0.01	0.80	0.36	1.16

Table 4-3
Basin and Lysimeter Monitoring Results for Banana Basin:
Ammonia, Nitrite, Nitrate, TKN, and TN (mg/L)

Station ID	Depth	Date	NH_3-N	NO_2-N	NO_3-N	TKN	TN
Banana Basin-SW	0 ft	01/13/06	0.2	0.03	0.33	0.91	1.27
Banana Basin-5	5 ft	01/13/06	<0.1	<0.01	0.07	0.33	0.40
Banana Basin-10	10 ft	01/13/06	<0.1	0.13	0.59	0.46	1.18
Banana Basin-15	15 ft	01/13/06	<0.1	<0.01	1.24	0.24	1.48
Banana Basin-25	25 ft	01/13/06	<0.1	<0.01	0.87	0.26	1.13
Banana Basin-SW	0 ft	01/17/06	<0.1	0.06	<0.1	1.1	1.16
Banana Basin-5	5 ft	01/17/06	0.04	<0.01	0.70	0.27	0.97
Banana Basin-10	10 ft	01/17/06	0.04	<0.01	0.67	0.22	0.89
Banana Basin-15	15 ft	01/17/06	0.04	<0.01	1.16	<0.20	1.16
Banana Basin-25	25 ft	01/17/06	0.03	<0.01	0.88	0.26	1.14
Banana Basin-SW	0 ft	01/20/06	<0.1	<0.01	0.27	0.98	1.25
Banana Basin-5	5 ft	01/20/06	<0.1	0.10	0.25	0.33	0.68
Banana Basin-10	10 ft	01/20/06	<0.1	0.05	0.61	0.22	0.89
Banana Basin-15	15 ft	01/20/06	<0.1	<0.01	0.92	0.23	1.15
Banana Basin-25	25 ft	01/20/06	<0.1	<0.01	0.91	<0.20	0.91
Banana Basin-SW	0 ft	01/24/06	0.1	<0.01	0.81	1.2	2.01
Banana Basin-5	5 ft	01/24/06	<0.1	<0.01	0.90	0.29	1.19
Banana Basin-10	10 ft	01/24/06	<0.1	<0.01	0.75	<0.20	0.75
Banana Basin-15	15 ft	01/24/06	<0.1	<0.01	1.04	<0.20	1.04
Banana Basin-25	25 ft	01/24/06	<0.1	<0.01	0.90	<0.20	0.90
Banana Basin-SW	0 ft	01/27/06	0.1	<0.01	0.87	1.2	2.07
Banana Basin-5	5 ft	01/27/06	<0.1	<0.01	<0.1	0.27	0.27
Banana Basin-10	10 ft	01/27/06	<0.1	<0.01	0.67	0.23	0.90
Banana Basin-15	15 ft	01/27/06	<0.1	<0.01	0.58	<0.20	0.58
Banana Basin-25	25 ft	01/27/06	<0.1	<0.01	1.11	<0.20	1.11
Banana Basin-SW	0 ft	01/31/06	0.1	<0.01	0.75	1.2	1.95
Banana Basin-5	5 ft	01/31/06	0.1	<0.01	<0.01	0.25	0.25
Banana Basin-10	10 ft	01/31/06	0.1	<0.01	0.67	0.3	0.97
Banana Basin-15	15 ft	01/31/06	<0.1	<0.01	0.62	0.43	1.05
Banana Basin-25	25 ft	01/31/06	<0.1	<0.01	0.67	0.24	0.91

NA: Result not available from laboratory
HM: Hold-time missed due to laboratory QA/QC problems
ND: Not Detected
NS-BD: Not Sampled-Basin Dry
NT: Insufficient Sample for Analytical Test
IDC: Insufficient Data for Calculation

Table 4-4
Basin and Lysimeter Monitoring Results for Banana Basin: Sumary for Total Nitrogen (mg/L)

Station ID	Units	Surface Water	Lysimeter Samples (ft bgs)				Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
			5	10	15	25		
07/06/05	mg/L	0.7	0.9	1.1	0.6	1.4	Residual Water	-117%
07/12/05	mg/L	1.1	0.4	2.8	0.4	0.7	Residual Water	30%
07/15/05	mg/L	1.2	0.6	1.0	0.6	0.6	Residual Water	55%
07/19/05	mg/L	1.0	0.6	0.7	0.4	0.6	Residual Water	41%
07/22/05	mg/L	0.9	0.4	0.5	0.3	0.5	Residual Water	51%
07/26/05	mg/L	NS-BD	0.5	0.4	0.3	0.6	Residual Water	IDC
07/29/05	mg/L	4.8	0.6	0.5	0.3	0.6	Residual Water	44%
08/02/05	mg/L	1.8	1.2	0.9	0.9	1.1	Residual Water	10%
08/05/05	mg/L	2.3	1.9	0.9	0.7	1.1	Residual Water	-2%
08/09/05	mg/L	1.4	1.9	1.8	2.2	1.6	Residual Water	-75%
08/12/05	mg/L	3.3	1.9	1.5	1.3	1.6	Residual Water	-68%
08/16/05	mg/L	2.6	1.0	1.2	1.2	1.1	100%	76%
08/19/05	mg/L	1.2	0.8	0.8	0.7	1.2	*98%*	54%
08/23/05	mg/L	2.7	0.5	0.7	0.4	0.7	96%	68%
08/24/05	mg/L	2.7	IDC	IDC	IDC	IDC	*98%*	IDC
08/26/05	mg/L	3.0	0.5	0.4	0.5	0.4	100%	72%
08/30/05	mg/L	1.5	0.6	0.4	0.2	0.3	100%	92%
09/02/05	mg/L	2.1	1.1	0.6	0.7	0.7	*100%*	74%
09/06/05	mg/L	3.7	0.7	0.7	0.9	IDC	*100%*	IDC
09/09/05	mg/L	IDC	0.5	0.5	0.8	0.8	*100%*	66%
09/13/05	mg/L	4.4	0.6	1.3	1.8	0.8	100%	75%
09/16/05	mg/L	1.2	0.2	0.7	1.2	0.2	*100%*	89%
09/20/05	mg/L	3.6	0.6	1.4	2.1	0.9	100%	58%
09/23/05	mg/L	1.7	0.2	0.9	1.9	0.8	*100%*	75%
09/27/05	mg/L	2.9	0.7	0.7	1.7	1.2	100%	IDC
09/30/05	mg/L	2.7	1.0	0.5	0.9	0.8	*100%*	81%
10/04/05	mg/L	1.4	4.5	0.5	0.7	0.8	100%	30%
10/07/05	mg/L	1.3	0.7	0.7	0.8	0.9	*100%*	71%
10/13/05	mg/L	2.0	0.7	0.8	1.1	0.9	100%	59%
10/14/05	mg/L	2.9	0.5	1.2	1.7	0.7	*100%*	73%
10/18/05	mg/L	3.0	0.5	0.8	1.2	0.6	100%	77%
10/21/05	mg/L	2.2	0.5	0.6	1.2	1.1	*100%*	34%
10/25/05	mg/L	1.6	0.8	0.7	1.2	0.9	100%	34%
10/28/05	mg/L	1.4	1.0	1.0	0.3	1.8	*100%*	-112%
11/01/05	mg/L	1.4	0.7	0.9	0.7	0.4	100%	86%
11/04/05	mg/L	1.2	0.0	0.5	IDC	NT	*98%*	IDC
11/08/05	mg/L	IDC	0.0	0.4	0.6	0.6	95%	74%
11/11/05	mg/L	1.7	0.8	0.4	0.9	0.9	*90%*	51%
11/15/05	mg/L	IDC	IDC	IDC	IDC	IDC	84%	IDC
11/18/05	mg/L	2.3	0.5	0.4	1.0	2.2	*80%*	-57%
11/22/05	mg/L	1.1	0.5	0.4	0.9	0.7	75%	39%
11/25/05	mg/L	1.0	0.3	0.5	0.8	0.8	*73%*	49%
11/29/05	mg/L	1.0	0.4	0.4	0.5	0.0	70%	100%
12/02/05	mg/L	1.2	0.5	0.6	0.8	0.9	*69%*	58%
12/06/05	mg/L	IDC	0.4	0.4	0.7	0.5	67%	80%
12/09/05	mg/L	IDC	1.1	0.7	1.0	0.8	*69%*	41%
12/13/05	mg/L	IDC	0.6	0.9	0.9	0.5	70%	53%
12/16/05	mg/L	1.8	0.1	1.2	1.3	0.8	*74%*	22%
12/20/05	mg/L	1.8	0.4	1.2	1.2	0.6	77%	IDC
12/23/05	mg/L	2.0	0.7	1.4	1.4	0.9	*76%*	31%
12/27/05	mg/L	1.5	0.9	1.2	1.4	1.0	75%	IDC
12/29/05	mg/L	1.2	1.1	1.4	1.7	1.0	*77%*	35%

Table 4-4
Basin and Lysimeter Monitoring Results for Banana Basin: Sumary for Total Nitrogen (mg/L)

Station ID	Units	Surface Water	Lysimeter Samples (ft bgs)				Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
			5	10	15	25		
01/03/06	mg/L	2.7	0.3	1.0	1.3	0.7	78%	60%
01/04/06	mg/L	IDC	NS	NS	NS	NS	*79%*	IDC
01/06/06	mg/L	1.4	0.5	1.2	1.3	1.1	*79%*	39%
01/10/06	mg/L	1.5	0.3	1.4	1.3	1.2	80%	41%
01/13/06	mg/L	1.3	0.4	1.2	1.5	1.1	*82%*	31%
01/17/06	mg/L	1.2	1.0	0.9	1.2	1.1	83%	25%
01/20/06	mg/L	1.3	0.7	0.9	1.2	0.9	*89%*	63%
01/24/06	mg/L	2.0	1.2	0.8	1.0	0.9	94%	35%
01/27/06	mg/L	2.1	0.3	0.9	0.6	1.1	*93%*	24%
01/31/06	mg/L	2.0	0.3	1.0	1.1	0.9	91%	28%
Average	**mg/L**	**2.1**	**0.8**	**0.9**	**1.0**	**0.8**		**48%**

ND: Not Detected
NS: Not Sampled
NS-BD: Not Sampled-Basin Dry
NT: Insufficient Sample for Analytical Test
IDC: Insufficient Data for Calculation
Indicates that the sampled water is >65 percent recycled water
64% Denotes an interpolated value.

Table 5-1
Basin and Lysimeter Monitoring Results for Banana Basin: Total Organic Carbon (mg/L) Interpolated

Date	Surface Water	Lysimeter Samples (ft bgs)					Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
		5	10	15	25	25 - Running Average		
07/06/05	5.1	4.0	5.2	6.7	2.4		Residual Water	53%
07/07/05	5.1	3.8	5.0	6.4	2.4		Residual Water	53%
07/08/05	5.1	3.7	4.8	6.2	2.4		Residual Water	54%
07/09/05	5.2	3.6	4.5	5.9	2.4		Residual Water	54%
07/10/05	5.2	3.4	4.3	5.7	2.3		Residual Water	55%
07/11/05	5.2	3.3	4.1	5.4	2.3		Residual Water	55%
07/12/05	5.2	3.1	3.9	5.2	2.3		Residual Water	55%
07/13/05	5.2	3.1	3.8	4.9	2.3		Residual Water	55%
07/14/05	5.1	3.1	3.6	4.6	2.4		Residual Water	54%
07/15/05	5.1	3.1	3.4	4.3	2.4		Residual Water	53%
07/16/05	5.1	3.1	3.3	4.1	2.4		Residual Water	52%
07/17/05	5.0	3.0	3.1	3.8	2.4		Residual Water	52%
07/18/05	5.0	3.0	2.9	3.5	2.5		Residual Water	51%
07/19/05	5.0	3.0	2.8	3.3	2.5		Residual Water	50%
07/20/05	5.1	3.0	2.8	3.3	2.5		Residual Water	51%
07/21/05	5.2	3.0	2.8	3.3	2.5		Residual Water	52%
07/22/05	5.3	3.0	2.8	3.4	2.5		Residual Water	53%
07/23/05	5.4	3.0	2.8	3.4	2.5		Residual Water	54%
07/24/05	5.5	3.0	2.8	3.5	2.5		Residual Water	55%
07/25/05	5.6	3.0	2.8	3.5	2.4		Residual Water	56%
07/26/05	NS-BD	2.9	2.8	3.8	2.4		Residual Water	IDC
07/27/05	5.8	3.1	3.0	3.8	2.6		Residual Water	49%
07/28/05	5.9	3.1	3.0	3.8	2.6		Residual Water	49%
07/29/05	6.1	3.2	3.1	3.8	2.7		Residual Water	49%
07/30/05	6.2	3.2	3.1	3.8	2.7		Residual Water	48%
07/31/05	6.3	3.2	3.1	3.8	2.7		Residual Water	47%
08/01/05	6.4	3.2	3.1	3.8	2.8		Residual Water	46%
08/02/05	6.5	3.3	3.2	3.8	2.8		Residual Water	46%
08/03/05	6.5	3.3	3.2	3.7	2.7		Residual Water	47%
08/04/05	6.5	3.3	3.1	3.7	2.6		Residual Water	48%
08/05/05	6.6	3.3	3.1	3.6	2.5		Residual Water	49%
08/06/05	6.6	3.3	3.1	3.5	2.5		Residual Water	50%
08/07/05	6.6	3.3	3.1	3.4	2.4		Residual Water	53%
08/08/05	6.6	3.3	3.1	3.4	2.3		Residual Water	55%
08/09/05	6.7	3.3	3.1	3.3	2.2		Residual Water	58%
08/10/05	7.6	3.3	3.1	3.3	2.3		Residual Water	58%
08/11/05	8.5	3.4	3.1	3.3	2.3		Residual Water	58%
08/12/05	9.4	3.5	3.2	3.4	2.4		Residual Water	58%
08/13/05	10.3	3.5	3.2	3.4	2.4		Residual Water	IDC
08/14/05	11.3	3.6	3.3	3.4	2.4		Residual Water	58%
08/15/05	12.2	3.7	3.3	3.5	2.5		Residual Water	59%
08/16/05	13.1	3.8	3.3	3.5	2.5	2.5	100%	59%
08/17/05	12.2	3.9	3.4	3.6	2.5	2.5	99%	59%
08/18/05	11.4	4.1	3.5	3.6	2.5	2.5	99%	60%
08/19/05	10.5	4.3	3.6	3.7	2.5	2.5	98%	60%
08/20/05	9.6	4.5	3.7	3.8	2.6	2.5	98%	61%
08/21/05	8.7	4.7	3.8	3.9	2.6	2.5	97%	60%
08/22/05	7.9	4.9	3.9	3.9	2.6	2.5	97%	60%
08/23/05	7.0	5.1	4.0	4.0	2.6	2.6	96%	60%
08/24/05	9.5	NA	NA	NA	NA	IDC	98%	IDC
08/25/05	9.4	5.0	3.9	4.0	2.5	2.5	98%	62%
08/26/05	9.3	5.0	3.9	4.0	2.4	2.5	99%	64%
08/27/05	9.3	5.0	3.8	4.0	2.3	2.5	99%	65%
08/28/05	9.2	4.9	3.8	4.0	2.2	2.5	99%	71%
08/29/05	9.1	4.9	3.7	4.0	2.1	2.5	100%	75%
08/30/05	9.0	4.9	3.7	4.0	2.0	2.4	100%	79%
08/31/05	9.3	4.8	3.7	3.9	2.0	2.4	100%	80%

Table 5-1
Basin and Lysimeter Monitoring Results for Banana Basin: Total Organic Carbon (mg/L) Interpolated

Date	Surface Water	Lysimeter Samples (ft bgs)					Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
		5	10	15	25	25 - Running Average		
09/01/05	9.7	4.7	3.7	3.8	2.1	2.4	100%	82%
09/02/05	10.0	4.7	3.7	3.7	2.1	2.4	100%	83%
09/03/05	10.4	4.6	3.7	3.6	2.1	2.3	100%	84%
09/04/05	10.7	4.6	3.7	3.5	2.1	2.3	100%	82%
09/05/05	11.1	4.5	3.7	3.4	2.2	2.3	100%	81%
09/06/05	11.4	4.4	3.7	3.3	2.2	2.3	100%	79%
09/07/05	11.0	4.5	3.7	3.2	2.2	2.3	100%	77%
09/08/05	10.7	4.6	3.6	3.2	2.2	2.3	100%	75%
09/09/05	10.3	4.6	3.6	3.2	2.2	2.3	100%	72%
09/10/05	9.9	4.7	3.5	3.1	2.2	2.3	100%	69%
09/11/05	9.6	4.7	3.4	3.1	2.1	2.3	100%	77%
09/12/05	9.2	4.8	3.4	3.1	2.1	2.3	100%	77%
09/13/05	8.8	4.8	3.3	3.0	2.1	2.3	100%	77%
09/14/05	9.0	4.8	3.3	3.0	2.1	2.3	100%	77%
09/15/05	9.1	4.7	3.3	3.0	2.2	2.3	100%	76%
09/16/05	9.2	4.6	3.3	3.0	2.2	2.3	100%	76%
09/17/05	9.3	4.6	3.3	3.0	2.2	2.3	100%	76%
09/18/05	9.4	4.5	3.2	2.9	2.2	2.3	100%	76%
09/19/05	9.6	4.4	3.2	2.9	2.2	2.3	100%	77%
09/20/05	9.7	4.4	3.2	2.9	2.3	2.3	100%	78%
09/21/05	9.6	4.3	3.2	2.9	2.2	2.3	100%	79%
09/22/05	9.5	4.3	3.2	2.8	2.2	2.3	100%	80%
09/23/05	9.5	4.2	3.1	2.8	2.1	2.3	100%	81%
09/24/05	9.4	4.2	3.1	2.8	2.1	2.3	100%	82%
09/25/05	9.3	4.1	3.1	2.7	2.1	2.2	100%	81%
09/26/05	9.2	4.1	3.1	2.7	2.0	2.2	100%	81%
09/27/05	9.1	4.0	3.0	2.6	2.0	2.2	100%	81%
09/28/05	9.4	4.0	3.0	2.7	2.0	2.2	100%	80%
09/29/05	9.6	4.0	3.0	2.7	2.0	2.2	100%	79%
09/30/05	9.8	4.0	3.0	2.7	2.0	2.2	100%	78%
10/01/05	10.0	4.0	3.0	2.7	2.0	2.2	100%	77%
10/02/05	10.2	4.0	3.0	2.8	2.0	2.2	100%	77%
10/03/05	10.4	4.0	3.0	2.8	2.0	2.2	100%	78%
10/04/05	10.6	4.0	3.0	2.8	2.0	2.2	100%	78%
10/05/05	10.5	4.0	3.0	2.8	2.0	2.2	100%	78%
10/06/05	10.3	4.0	2.9	2.8	2.0	2.2	100%	79%
10/07/05	10.2	4.0	2.9	2.7	2.0	2.2	100%	79%
10/08/05	10.0	4.0	2.8	2.7	2.0	2.2	100%	79%
10/09/05	9.9	4.0	2.8	2.7	2.0	2.2	100%	79%
10/10/05	9.7	4.0	2.8	2.7	2.0	2.2	100%	79%
10/11/05	9.6	3.9	2.7	2.7	2.0	2.2	100%	79%
10/12/05	9.4	3.9	2.7	2.6	2.0	2.2	100%	79%
10/13/05	9.3	3.9	2.7	2.6	2.0	2.2	100%	79%
10/14/05	7.8	4.0	2.7	2.6	2.0	2.2	100%	79%
10/15/05	6.4	4.0	2.7	2.5	1.9	2.2	100%	79%
10/16/05	4.9	4.1	2.7	2.4	1.9	2.2	100%	80%
10/17/05	3.5	4.2	2.7	2.4	1.9	2.2	100%	81%
10/18/05	2.1	4.2	2.7	2.3	1.8	2.2	100%	81%
10/19/05	3.0	4.2	2.7	2.3	1.8	2.1	100%	82%
10/20/05	3.9	4.2	2.7	2.3	1.8	2.1	100%	82%
10/21/05	4.7	4.2	2.7	2.3	1.8	2.1	100%	83%
10/22/05	5.6	4.2	2.7	2.4	1.8	2.1	100%	83%
10/23/05	6.5	4.2	2.7	2.4	1.8	2.1	100%	83%
10/24/05	7.4	4.2	2.7	2.4	1.8	2.1	100%	83%
10/25/05	8.3	4.2	2.7	2.4	1.8	2.1	100%	83%
10/26/05	8.3	4.1	2.8	2.4	1.8	2.1	100%	82%
10/27/05	8.4	4.1	2.8	2.5	1.8	2.1	100%	82%
10/28/05	8.4	4.0	2.8	2.5	1.9	2.1	100%	81%
10/29/05	8.4	4.0	2.8	2.6	1.9	2.1	100%	80%
10/30/05	8.5	3.9	2.9	2.6	1.9	2.1	100%	80%
10/31/05	8.5	3.8	2.9	2.6	1.9	2.1	100%	79%

Table 5-1
Basin and Lysimeter Monitoring Results for Banana Basin: Total Organic Carbon (mg/L) Interpolated

Date	Surface Water	Lysimeter Samples (ft bgs)					Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
		5	10	15	25	25 - Running Average		
11/01/05	8.6	3.8	2.9	2.7	2.0	2.1	100%	75%
11/02/05	8.5	3.7	2.9	2.6	2.0	2.1	99%	68%
11/03/05	8.4	3.7	2.9	2.6	2.1	2.1	99%	57%
11/04/05	8.4	3.7	2.8	2.5	2.2	2.1	98%	38%
11/05/05	8.3	3.6	2.8	2.4	2.2	2.1	97%	-8%
11/06/05	8.3	3.6	2.7	2.4	2.3	2.1	96%	22%
11/07/05	8.2	3.5	2.7	2.3	2.4	2.1	96%	38%
11/08/05	8.2	3.5	2.6	2.2	2.4	2.1	95%	49%
11/09/05	8.3	3.5	2.6	2.2	2.4	2.1	93%	58%
11/10/05	8.5	3.5	2.6	2.2	2.3	2.1	92%	65%
11/11/05	8.6	3.5	2.5	2.2	2.2	2.1	90%	71%
11/12/05	8.7	3.5	2.5	2.2	2.1	2.1	89%	75%
11/13/05	8.9	3.5	2.4	2.1	2.0	2.1	87%	76%
11/14/05	9.0	3.5	2.4	2.1	1.9	2.1	86%	77%
11/15/05	9.1	3.5	2.3	2.1	1.8	2.1	84%	78%
11/16/05	8.9	3.4	2.3	2.0	1.9	2.1	83%	78%
11/17/05	8.7	3.3	2.2	1.9	2.0	2.1	81%	77%
11/18/05	8.4	3.2	2.2	1.9	2.0	2.1	80%	76%
11/19/05	8.2	3.1	2.1	1.8	2.1	2.1	79%	76%
11/20/05	7.9	3.0	2.0	1.7	2.1	2.1	78%	75%
11/21/05	7.7	2.9	2.0	1.6	2.2	2.1	76%	74%
11/22/05	7.4	2.8	1.9	1.5	2.3	2.1	75%	73%
11/23/05	7.4	2.9	2.0	1.6	2.0	2.1	74%	76%
11/24/05	7.5	2.9	2.1	1.6	1.7	2.1	73%	79%
11/25/05	7.5	2.9	2.2	1.6	1.5	2.1	73%	82%
11/26/05	7.5	2.9	2.1	1.6	1.5	2.1	72%	82%
11/27/05	7.5	2.9	2.1	1.6	1.5	2.1	71%	82%
11/28/05	7.5	2.9	2.1	1.6	1.6	2.1	71%	82%
11/29/05	7.5	2.8	2.1	1.6	1.6	2.1	70%	82%
11/30/05	7.4	2.8	2.0	1.6	1.5	2.1	70%	83%
12/01/05	7.3	2.7	1.9	1.5	1.3	2.1	69%	85%
12/02/05	7.2	2.7	1.7	1.5	1.2	2.1	69%	87%
12/03/05	7.2	2.7	1.7	1.5	1.2	2.0	68%	87%
12/04/05	7.2	2.7	1.7	1.4	1.1	2.0	68%	87%
12/05/05	7.2	2.7	1.7	1.4	1.1	2.0	67%	87%
12/06/05	7.2	2.7	1.7	1.4	1.0	2.0	67%	88%
12/07/05	7.7	2.6	1.7	1.4	1.0	2.0	68%	87%
12/08/05	8.2	2.6	1.6	1.4	1.0	2.0	68%	87%
12/09/05	8.7	2.6	1.6	1.4	1.0	2.0	69%	87%
12/10/05	8.9	2.7	1.7	1.4	1.1	2.0	69%	86%
12/11/05	9.2	2.8	1.7	1.5	1.1	2.0	69%	85%
12/12/05	9.5	2.9	1.8	1.6	1.2	1.9	70%	84%
12/13/05	9.8	3.0	1.9	1.6	1.2	1.9	70%	84%
12/14/05	9.5	2.9	1.8	1.5	1.2	1.9	71%	84%
12/15/05	9.2	2.7	1.7	1.4	1.2	1.9	72%	84%
12/16/05	8.9	2.6	1.6	1.3	1.2	1.9	74%	84%
12/17/05	8.8	2.6	1.6	1.3	1.2	1.9	74%	85%
12/18/05	8.7	2.6	1.6	1.3	1.1	1.9	75%	85%
12/19/05	8.5	2.6	1.6	1.4	1.1	1.9	76%	85%
12/20/05	8.4	2.7	1.6	1.4	1.1	1.9	77%	84%
12/21/05	8.5	2.7	1.7	1.4	1.1	1.8	77%	85%
12/22/05	8.5	2.7	1.7	1.4	1.1	1.8	76%	85%
12/23/05	8.6	2.7	1.7	1.4	11.7*	1.8	76%	
12/24/05	8.6	2.7	1.8	1.4	1.1	1.8	76%	85%
12/25/05	8.6	2.7	1.8	1.4	1.1	1.8	76%	86%
12/26/05	8.6	2.7	1.9	1.4	1.1	1.8	75%	87%
12/27/05	8.6	2.7	1.9	1.3	1.1	1.8	75%	88%
12/28/05	8.7	2.7	1.7	1.3	1.0	1.8	76%	89%
12/29/05	8.8	2.7	1.6	1.3	0.9	1.8	77%	90%
12/30/05	8.7	2.8	1.7	1.3	1.0	1.8	77%	90%
12/31/05	8.6	2.8	1.7	1.3	1.0	1.8	77%	89%

Table 5-1
Basin and Lysimeter Monitoring Results for Banana Basin: Total Organic Carbon (mg/L) Interpolated

Date	Surface Water	Lysimeter Samples (ft bgs)					Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
		5	10	15	25	25 - Running Average		
01/01/06	8.5	2.9	1.8	1.4	1.1	1.7	77%	89%
01/02/06	8.4	2.9	1.8	1.4	1.1	1.7	78%	88%
01/03/06	8.3	3.0	1.9	1.4	1.2	1.7	78%	87%
01/04/06	8.0	3.0	1.9	1.4	1.2	1.7	78%	87%
01/05/06	7.6	3.0	1.9	1.4	1.2	1.7	79%	86%
01/06/06	7.3	3.1	1.8	1.3	1.2	1.7	79%	86%
01/07/06	7.0	3.1	1.8	1.3	1.2	1.7	79%	86%
01/08/06	6.6	3.1	1.8	1.3	1.2	1.7	79%	86%
01/09/06	6.3	3.2	1.8	1.3	1.2	1.7	80%	86%
01/10/06	6.0	3.2	1.8	1.3	1.2	1.7	80%	86%
01/11/06	6.0	3.2	1.8	1.3	1.2	1.7	80%	86%
01/12/06	6.1	3.2	1.8	1.3	1.2	1.6	81%	86%
01/13/06	6.1	3.1	1.8	1.3	1.2	1.6	81%	86%
01/14/06	6.1	3.1	1.8	1.3	1.2	1.6	82%	86%
01/15/06	6.2	3.1	1.8	1.4	1.2	1.6	82%	86%
01/16/06	6.2	3.1	1.8	1.4	1.2	1.6	83%	86%
01/17/06	6.3	3.0	1.8	1.4	1.2	1.6	83%	86%
01/18/06	6.4	3.0	1.8	1.4	1.2	1.6	85%	86%
01/19/06	6.5	2.9	1.7	1.4	1.2	1.6	86%	86%
01/20/06	6.6	2.9	1.7	1.4	1.1	1.6	88%	87%
01/21/06	6.7	2.8	1.7	1.4	1.1	1.6	89%	87%
01/22/06	6.8	2.8	1.6	1.4	1.0	1.6	91%	87%
01/23/06	7.0	2.7	1.6	1.4	1.0	1.6	92%	87%
01/24/06	7.1	2.7	1.6	1.4	1.0	1.5	94%	87%
01/25/06	7.0	2.6	1.6	1.4	1.0	1.5	94%	86%
01/26/06	7.0	2.6	1.6	1.4	1.0	1.5	93%	84%
01/27/06	7.0	2.6	1.6	1.4	1.1	1.5	93%	83%
01/28/06	6.9	2.6	1.6	1.4	1.1	1.5	92%	82%
01/29/06	6.9	2.6	1.6	1.4	1.1	1.5	92%	82%
01/30/06	6.9	2.6	1.6	1.4	1.1	1.5	91%	81%
01/31/06	6.8	2.6	1.6	1.4	1.2	1.5	91%	81%
Average	**8.8**	**3.7**	**2.5**	**2.3**	**1.7**			**77%**

[1]Sample Number is the number of samples once the compliance point lysimeter is sampling primarily recharged recycled water.

ND: Not Detected

NS-BD: Not Sampled-Basin Dry

NT: Insufficient Sample for Analytical Test

IDC: Insufficient Data for Calculation

* The reported TOC concentration (11.7 mg/L) on December 23, 2005 for the 25 foot bgs lysimeter is an outlier and may be a laboratory artifact. This value was not used in graphs in Section 5, nor was it used in the computation of TOC reduction.

Indicates that the sampled water is >65 percent recycled water

2.6 Denotes an interpolated value.

Table 5-2
Basin and Lysimeter Monitoring Results for Banana Basin: Sumary for Total Nitrogen (mg/L) Interpolated

Station ID	Units	Surface Water	Lysimeter Samples (ft bgs)				Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
			5	10	15	25		
07/06/05	mg/L	0.7	0.9	1.1	0.6	1.4	Residual Water	-117%
07/07/05		0.7	0.8	1.3	0.6	1.3	Residual Water	-81%
07/08/05		0.8	0.7	1.6	0.5	1.2	Residual Water	-51%
07/09/05		0.9	0.7	1.9	0.5	1.1	Residual Water	-26%
07/10/05		0.9	0.6	2.2	0.5	1.0	Residual Water	-5%
07/11/05		1.0	0.5	2.5	0.5	0.9	Residual Water	13%
07/12/05	mg/L	1.1	0.4	2.8	0.4	0.7	Residual Water	30%
07/13/05		1.1	0.5	2.2	0.5	0.7	Residual Water	39%
07/14/05		1.2	0.5	1.6	0.6	0.6	Residual Water	48%
07/15/05	mg/L	1.2	0.6	1.0	0.6	0.6	Residual Water	55%
07/16/05		1.2	0.6	0.9	0.6	0.6	Residual Water	52%
07/17/05		1.1	0.6	0.8	0.5	0.6	Residual Water	49%
07/18/05		1.0	0.6	0.7	0.5	0.6	Residual Water	45%
07/19/05	mg/L	1.0	0.6	0.7	0.4	0.6	Residual Water	41%
07/20/05		0.9	0.5	0.6	0.4	0.5	Residual Water	44%
07/21/05		0.9	0.5	0.6	0.3	0.5	Residual Water	48%
07/22/05	mg/L	0.9	0.4	0.5	0.3	0.5	Residual Water	51%
07/23/05		0.9	0.4	0.5	0.3	0.5	Residual Water	47%
07/24/05		0.9	0.4	0.4	0.3	0.5	Residual Water	42%
07/25/05		0.9	0.4	0.4	0.3	0.6	Residual Water	38%
07/26/05	mg/L	NS-BD	0.5	0.4	0.3	0.6	Residual Water	IDC
07/27/05		2.2	0.5	0.4	0.3	0.6	Residual Water	31%
07/28/05		3.0	0.5	0.4	0.3	0.6	Residual Water	38%
07/29/05	mg/L	4.8	0.6	0.5	0.3	0.6	Residual Water	44%
07/30/05		4.1	0.7	0.6	0.4	0.7	Residual Water	34%
07/31/05		3.3	0.9	0.7	0.6	0.8	Residual Water	25%
08/01/05		2.5	1.0	0.8	0.7	1.0	Residual Water	17%
08/02/05	mg/L	1.8	1.2	0.9	0.9	1.1	Residual Water	10%
08/03/05		1.9	1.4	0.9	0.8	1.1	Residual Water	6%
08/04/05		2.1	1.7	0.9	0.8	1.1	Residual Water	2%
08/05/05	mg/L	2.3	1.9	0.9	0.7	1.1	Residual Water	-2%
08/06/05		2.0	1.9	1.1	1.1	1.2	Residual Water	-24%
08/07/05		1.8	1.9	1.3	1.4	1.3	Residual Water	-40%
08/08/05		1.6	1.9	1.5	1.8	1.5	Residual Water	-58%
08/09/05	mg/L	1.4	1.9	1.8	2.2	1.6	Residual Water	-75%
08/10/05		2.0	1.9	1.7	1.9	1.6	Residual Water	-73%
08/11/05		2.6	1.9	1.6	1.6	1.6	Residual Water	-71%
08/12/05	mg/L	3.3	1.9	1.5	1.3	1.6	Residual Water	-68%
08/13/05		3.1	1.6	1.4	1.3	1.4	Residual Water	IDC
08/14/05		3.0	1.4	1.3	1.3	1.3	Residual Water	40%
08/15/05		2.8	1.2	1.2	1.3	1.2	Residual Water	59%
08/16/05	mg/L	2.6	1.0	1.2	1.2	1.1	100%	76%
08/17/05		2.2	0.9	1.0	1.1	1.2	99%	72%
08/18/05		1.7	0.8	0.9	0.9	1.2	99%	65%
08/19/05	mg/L	1.2	0.8	0.8	0.7	1.2	98%	54%
08/20/05		1.6	0.7	0.7	0.7	1.1	98%	40%
08/21/05		1.9	0.6	0.7	0.6	1.0	97%	51%
08/22/05		2.3	0.5	0.7	0.5	0.8	97%	60%
08/23/05	mg/L	2.7	0.5	0.7	0.4	0.7	96%	68%
08/24/05	mg/L	2.7	IDC	IDC	IDC	IDC	98%	IDC
08/25/05		2.9	0.5	0.5	0.4	0.6	99%	68%
08/26/05	mg/L	3.0	0.5	0.4	0.5	0.4	100%	72%
08/27/05		2.6	0.5	0.4	0.4	0.4	100%	71%
08/28/05		2.2	0.6	0.4	0.3	0.4	100%	82%
08/29/05		1.8	0.6	0.4	0.2	0.3	100%	88%
08/30/05	mg/L	1.5	0.6	0.4	0.2	0.3	100%	92%
08/31/05		1.7	0.8	0.5	0.4	0.4	100%	86%

Table 5-2
Basin and Lysimeter Monitoring Results for Banana Basin: Sumary for Total Nitrogen (mg/L) Interpolated

Station ID	Units	Surface Water	Lysimeter Samples (ft bgs)				Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
			5	10	15	25		
09/01/05		1.9	1.0	0.6	0.5	0.6	100%	80%
09/02/05	mg/L	2.1	1.1	0.6	0.7	0.7	100%	74%
09/03/05		2.5	1.0	0.6	0.8	0.7	100%	72%
09/04/05		2.9	0.9	0.7	0.8	0.8	100%	65%
09/05/05		3.3	0.8	0.7	0.9	0.8	100%	54%
09/06/05	mg/L	3.7	0.7	0.7	0.9	IDC	100%	IDC
09/07/05		3.9	0.7	0.6	0.9	0.8	100%	52%
09/08/05		4.2	0.6	0.6	0.9	0.8	100%	60%
09/09/05	mg/L	IDC	0.5	0.5	0.8	0.8	100%	66%
09/10/05		3.9	0.5	0.7	1.1	0.8	100%	71%
09/11/05		4.1	0.5	0.9	1.3	0.8	100%	72%
09/12/05		4.2	0.5	1.1	1.6	0.8	100%	73%
09/13/05	mg/L	4.4	0.6	1.3	1.8	0.8	100%	75%
09/14/05		3.3	0.4	1.1	1.6	0.6	100%	78%
09/15/05		2.3	0.3	0.9	1.4	0.4	100%	83%
09/16/05	mg/L	1.2	0.2	0.7	1.2	0.2	100%	89%
09/17/05		1.8	0.3	0.9	1.4	0.4	100%	74%
09/18/05		2.4	0.4	1.0	1.6	0.6	100%	67%
09/19/05		3.0	0.5	1.2	1.8	0.7	100%	62%
09/20/05	mg/L	3.6	0.6	1.4	2.1	0.9	100%	58%
09/21/05		3.0	0.5	1.2	2.0	0.9	100%	65%
09/22/05		2.4	0.3	1.1	1.9	0.9	100%	71%
09/23/05	mg/L	1.7	0.2	0.9	1.9	0.8	100%	75%
09/24/05		2.0	0.3	0.9	1.8	0.9	100%	75%
09/25/05		2.3	0.5	0.8	1.8	1.0	100%	74%
09/26/05		2.6	0.6	0.7	1.8	1.1	100%	73%
09/27/05	mg/L	2.9	0.7	0.7	1.7	1.2	100%	IDC
09/28/05		2.8	0.8	0.6	1.5	1.1	100%	72%
09/29/05		2.8	0.9	0.6	1.2	0.9	100%	77%
09/30/05	mg/L	2.7	1.0	0.5	0.9	0.8	100%	81%
10/01/05		2.4	1.8	0.5	0.9	0.8	100%	82%
10/02/05		2.1	2.7	0.5	0.8	0.8	100%	75%
10/03/05		1.7	3.6	0.5	0.8	0.8	100%	63%
10/04/05	mg/L	1.4	4.5	0.5	0.7	0.8	100%	30%
10/05/05		1.4	3.2	0.6	0.7	0.9	100%	53%
10/06/05		1.3	1.9	0.6	0.8	0.9	100%	64%
10/07/05	mg/L	1.3	0.7	0.7	0.8	0.9	100%	71%
10/08/05		0.7	0.8	1.3	0.6	1.3	100%	64%
10/09/05		0.8	0.7	1.6	0.5	1.2	100%	60%
10/10/05		0.9	0.7	1.9	0.5	1.1	100%	54%
10/11/05		0.9	0.6	2.2	0.5	1.0	100%	44%
10/12/05		1.0	0.5	2.5	0.5	0.9	100%	58%
10/13/05	mg/L	2.0	0.7	0.8	1.1	0.9	100%	59%
10/14/05	mg/L	2.9	0.5	1.2	1.7	0.7	100%	73%
10/15/05		2.9	0.5	1.1	1.6	0.7	100%	76%
10/16/05		2.9	0.5	1.0	1.4	0.7	100%	76%
10/17/05		2.9	0.5	0.9	1.3	0.6	100%	77%
10/18/05	mg/L	3.0	0.5	0.8	1.2	0.6	100%	77%
10/19/05		2.7	0.5	0.7	1.2	0.8	100%	66%
10/20/05		2.5	0.5	0.7	1.2	1.0	100%	53%
10/21/05	mg/L	2.2	0.5	0.6	1.2	1.1	100%	34%
10/22/05		2.1	0.6	0.6	1.2	1.1	100%	24%
10/23/05		1.9	0.7	0.7	1.2	1.0	100%	27%
10/24/05		1.8	0.8	0.7	1.2	0.9	100%	30%
10/25/05	mg/L	1.6	0.8	0.7	1.2	0.9	100%	34%
10/26/05		1.5	0.9	0.8	0.9	1.2	100%	-64%
10/27/05		1.5	0.9	0.9	0.6	1.5	100%	-90%
10/28/05	mg/L	1.4	1.0	1.0	0.3	1.8	100%	-112%
10/29/05		1.4	0.9	1.0	0.4	1.5	100%	-59%
10/30/05		1.4	0.8	0.9	0.5	1.1	100%	-12%
10/31/05		1.4	0.7	0.9	0.6	0.8	100%	62%

Table 5-2
Basin and Lysimeter Monitoring Results for Banana Basin: Sumary for Total Nitrogen (mg/L) Interpolated

Station ID	Units	Surface Water	Lysimeter Samples (ft bgs)				Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
			5	10	15	25		
11/01/05	mg/L	1.4	0.7	0.9	0.7	0.4	100%	86%
11/02/05		1.4	0.4	0.8	0.7	0.4	98%	85%
11/03/05		1.3	0.2	0.7	0.7	0.4	96%	85%
11/04/05	mg/L	1.2	0.0	0.5	IDC	NT	98%	IDC
11/05/05		1.3	0.0	0.5	0.6	0.5	97%	83%
11/06/05		1.4	0.0	0.5	0.6	0.5	95%	81%
11/07/05		1.4	0.0	0.4	0.6	0.5	92%	78%
11/08/05	mg/L	IDC	0.0	0.4	0.6	0.6	95%	74%
11/09/05		1.6	0.3	0.4	0.7	0.7	93%	68%
11/10/05		1.7	0.5	0.4	0.8	0.8	91%	60%
11/11/05	mg/L	1.7	0.8	0.4	0.9	0.9	90%	51%
11/12/05		1.8	0.8	0.4	0.9	1.1	87%	35%
11/13/05		1.9	0.7	0.4	0.9	1.3	85%	17%
11/14/05		1.8	0.6	0.4	0.9	1.4	82%	6%
11/15/05	mg/L	IDC	IDC	IDC	IDC	IDC	84%	IDC
11/16/05		2.1	0.6	0.4	0.9	1.8	86%	-33%
11/17/05		2.2	0.6	0.4	0.9	2.0	83%	-45%
11/18/05	mg/L	2.3	0.5	0.4	1.0	2.2	80%	-57%
11/19/05		2.0	0.5	0.4	0.9	1.8	78%	-29%
11/20/05		1.7	0.5	0.4	0.9	1.5	77%	-9%
11/21/05		1.4	0.5	0.4	0.9	1.1	76%	14%
11/22/05	mg/L	1.1	0.5	0.4	0.9	0.7	75%	39%
11/23/05		1.1	0.4	0.5	0.9	0.8	74%	41%
11/24/05		1.0	0.4	0.5	0.8	0.8	73%	42%
11/25/05	mg/L	1.0	0.3	0.5	0.8	0.8	73%	43%
11/26/05		1.0	0.3	0.5	0.7	0.6	72%	IDC
11/27/05		1.0	0.3	0.5	0.6	0.4	71%	74%
11/28/05		1.0	0.3	0.4	0.6	0.2	71%	88%
11/29/05	mg/L	1.0	0.4	0.4	0.5	0.0	70%	100%
11/30/05		1.0	0.4	0.4	0.5	0.1	70%	97%
12/01/05		1.0	0.4	0.4	0.5	0.1	70%	94%
12/02/05	mg/L	IDC	0.5	0.6	0.8	0.9	69%	49%
12/03/05		1.1	0.5	0.6	0.7	0.8	68%	
12/04/05		1.2	0.5	0.5	0.7	0.8	68%	64%
12/05/05		1.2	0.5	0.5	0.7	0.7	68%	66%
12/06/05	mg/L	IDC	0.4	0.4	0.7	0.5	67%	80%
12/07/05		1.3	0.7	0.5	0.8	0.6	68%	69%
12/08/05		1.4	0.7	0.5	0.8	0.7	68%	62%
12/09/05	mg/L	IDC	1.1	0.7	1.0	0.8	69%	41%
12/10/05		1.5	0.8	0.8	0.9	0.6	69%	46%
12/11/05		1.5	0.7	0.8	0.9	0.6	70%	46%
12/12/05		1.6	0.7	0.9	0.9	0.6	70%	46%
12/13/05	mg/L	IDC	0.6	0.9	0.9	0.5	70%	53%
12/14/05		1.7	0.2	1.2	1.2	0.7	73%	27%
12/15/05		1.7	0.1	1.2	1.2	0.7	73%	25%
12/16/05	mg/L	1.8	0.1	1.2	1.3	0.8	74%	22%
12/17/05		1.8	0.2	1.2	1.2	0.7	74%	26%
12/18/05		1.8	0.3	1.2	1.2	0.7	75%	34%
12/19/05		1.8	0.4	1.2	1.2	0.6	76%	41%
12/20/05	mg/L	1.8	0.4	1.2	1.2	0.6	77%	IDC
12/21/05		1.9	0.5	1.3	1.3	0.7	77%	42%
12/22/05		1.9	0.6	1.4	1.3	0.8	76%	36%
12/23/05	mg/L	2.0	0.7	1.4	1.4	0.9	76%	31%
12/24/05		1.9	0.7	1.4	1.4	0.9	76%	IDC
12/25/05		1.8	0.8	1.3	1.4	0.9	76%	31%
12/26/05		1.6	0.8	1.2	1.4	0.9	75%	31%
12/27/05	mg/L	1.5	0.9	1.2	1.4	1.0	75%	IDC
12/28/05		1.4	1.0	1.3	1.5	1.0	76%	33%
12/29/05	mg/L	1.2	1.1	1.4	1.7	1.0	77%	35%
12/30/05		1.5	0.9	1.3	1.6	0.9	77%	41%
12/31/05		1.8	0.8	1.2	1.5	0.9	77%	IDC

See Section 5-1 of the text for further explanation of this table
Records with blue text indicate interpolated vaules

Table 5-2
Basin and Lysimeter Monitoring Results for Banana Basin: Sumary for Total Nitrogen (mg/L) Interpolated

Station ID	Units	Surface Water	Lysimeter Samples (ft bgs)				Percentage RW at 25 ft bgs Lysimeter	Percent Reduction
			5	10	15	25		
01/01/06		2.1	0.6	1.1	1.5	0.8	77%	51%
01/02/06		2.4	0.3	1.0	1.4	0.8	78%	56%
01/03/06	mg/L	2.7	0.3	1.0	1.3	0.7	78%	60%
01/04/06	mg/L	IDC	NS	NS	NS	NS	79%	IDC
01/05/06		2.1	0.4	1.1	1.3	0.9	79%	49%
01/06/06	mg/L	1.4	0.5	1.2	1.3	1.1	79%	39%
01/07/06		1.4	0.4	1.2	1.3	1.1	79%	38%
01/08/06		1.4	0.4	1.3	1.3	1.1	80%	39%
01/09/06		1.5	0.4	1.4	1.3	1.1	80%	40%
01/10/06	mg/L	1.5	0.3	1.4	1.3	1.2	80%	41%
01/11/06		1.4	0.4	1.3	1.3	1.2	81%	38%
01/12/06		1.3	0.4	1.3	1.4	1.1	81%	35%
01/13/06	mg/L	1.3	0.4	1.2	1.5	1.1	82%	31%
01/14/06		1.2	0.5	1.1	1.4	1.1	82%	26%
01/15/06		1.2	0.7	1.0	1.3	1.1	82%	18%
01/16/06		1.2	0.8	1.0	1.2	1.1	83%	7%
01/17/06	mg/L	1.2	1.0	0.9	1.2	1.1	83%	25%
01/18/06		1.2	0.9	0.9	1.2	1.1	85%	42%
01/19/06		1.2	0.8	0.9	1.2	1.0	87%	54%
01/20/06	mg/L	1.3	0.7	0.9	1.2	0.9	89%	63%
01/21/06		1.4	0.8	0.9	1.1	0.9	90%	67%
01/22/06		1.6	0.9	0.8	1.1	0.9	91%	IDC
01/23/06		1.8	1.1	0.8	1.1	0.9	93%	56%
01/24/06	mg/L	2.0	1.2	0.8	1.0	0.9	94%	35%
01/25/06		2.0	0.9	0.8	0.9	1.0	94%	31%
01/26/06		2.1	0.6	0.9	0.7	1.0	93%	28%
01/27/06	mg/L	2.1	0.3	0.9	0.6	1.1	93%	24%
01/28/06		2.0	0.3	0.9	0.7	1.1	92%	29%
01/29/06		2.0	0.3	0.9	0.8	1.0	92%	29%
01/30/06		2.0	0.3	1.0	0.9	1.0	91%	29%
01/31/06	mg/L	2.0	0.3	1.0	1.1	0.9	91%	28%
Average	**mg/L**	**2.1**	**0.8**	**0.9**	**1.0**	**0.9**		**49%**

ND: Not Detected
NS: Not Sampled
NS-BD: Not Sampled-Basin Dry
NT: Insufficient Sample for Analytical Test
IDC: Insufficient Data for Calculation
Indicates that the sampled water is >75 percent recycled water
1.1 Denotes an interpolated value.

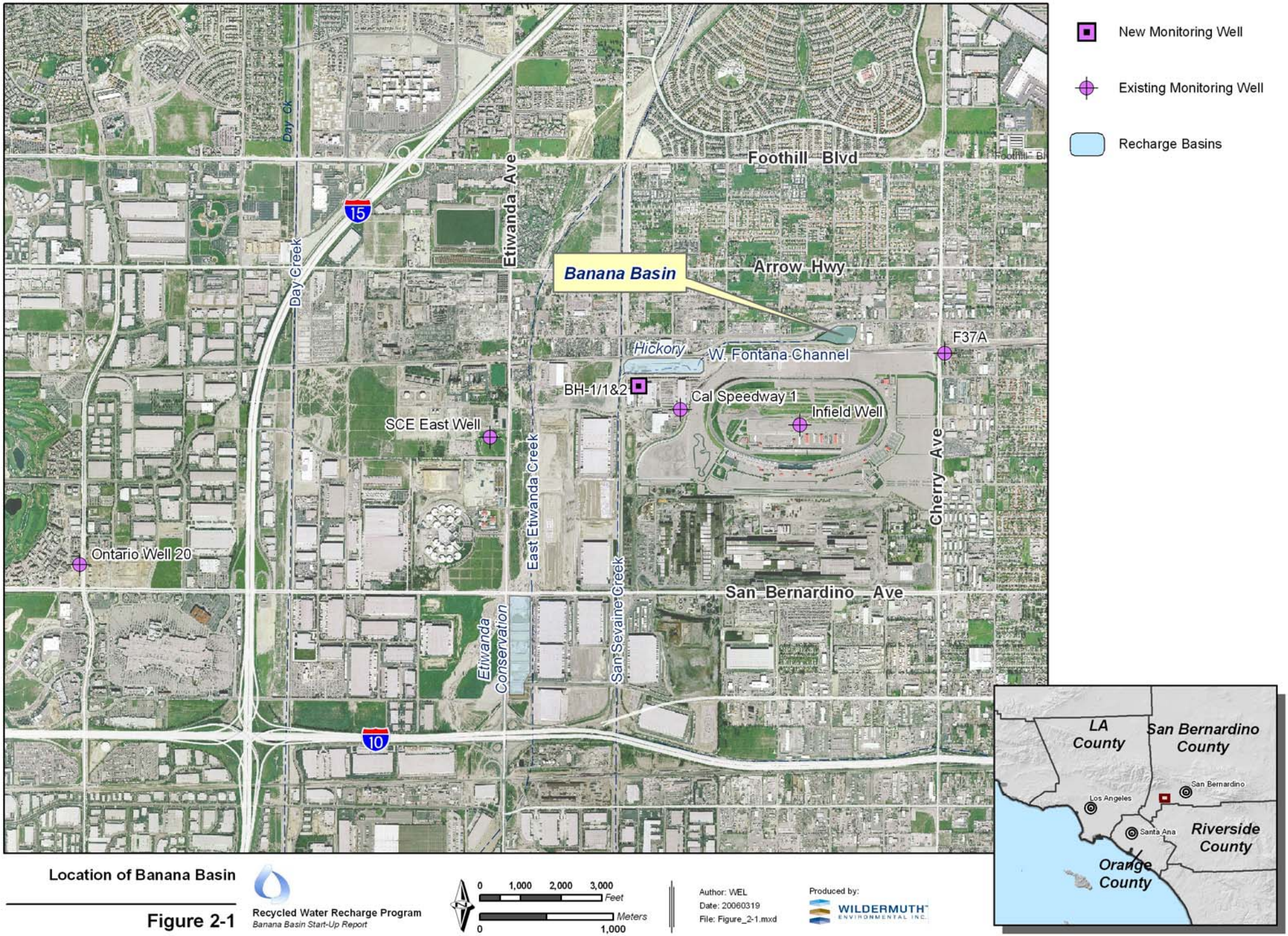
Table 7-1
Recycled Water Management Plan for Banana Basin
Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries

Date		No. Mos. Since Initial RW Delivery	DW (AF)	DW 60-Month Total (AF)	RW (AF)	RW 60-Month Total (AF)	DW + RW 60-Month Total (AF)	RWC	Source
2000/01	Jul-00	-60	0		0.				HISTORICAL DILUENT MODEL
	Aug-00	-59	0		0.				
	Sep-00	-58	0		0.				
	Oct-00	-57	28.3		0.				
	Nov-00	-56	12.7		0.				
	Dec-00	-55	0		0.				
	Jan-01	-54	86.9		0.				
	Feb-01	-53	122.2		0.				
	Mar-01	-52	78.5		0.				
	Apr-01	-51	61.1		0.				
	May-01	-50	0		0.				
	Jun-01	-49	0		0.				
2001/02	Jul-01	-48	12.2		0.				
	Aug-01	-47	0		0.				
	Sep-01	-46	0		0.				
	Oct-01	-45	0		0.				
	Nov-01	-44	39.3		0.				
	Dec-01	-43	16.7		0.				
	Jan-02	-42	50.1		0.				
	Feb-02	-41	20.9		0.				
	Mar-02	-40	31		0.				
	Apr-02	-39	13.1		0.				
	May-02	-38	0.8		0.				
	Jun-02	-37	0		0.				
2002/03	Jul-02	-36	0		0.				
	Aug-02	-35	0		0.				
	Sep-02	-34	0		0.				
	Oct-02	-33	0		0.				
	Nov-02	-32	38.9		0.				
	Dec-02	-31	59.3		0.				
	Jan-03	-30	0		0.				
	Feb-03	-29	80.5		0.				
	Mar-03	-28	38.9		0.				
	Apr-03	-27	86.9		0.				
	May-03	-26	61.7		0.				
	Jun-03	-25	0		0.				
2003/04	Jul-03	-24	0		0.				
	Aug-03	-23	0		0.				
	Sep-03	-22	0		0.				
	Oct-03	-21	0		0.				
	Nov-03	-20	34.2		0.				
	Dec-03	-19	37.1		0.				
	Jan-04	-18	4.5		0.				
	Feb-04	-17	83.5		0.				
	Mar-04	-16	28.2		0.				
	Apr-04	-15	0.3		0.				
	May-04	-14	0		0.				
	Jun-04	-13	0		0.				
2004/05	Jul-04	-12	0		0.				
	Aug-04	-11	0		0.				
	Sep-04	-10	0		0.				
	Oct-04	-9	62.8		0.				
	Nov-04	-8	17		0.				
	Dec-04	-7	25.3		0.				
	Jan-05	-6	93.6		0.				
	Feb-05	-5	110.8		0.				
	Mar-05	-4	24.9		0.				
	Apr-05	-3	19.3		0.				
	May-05	-2	14.6		0.				
	Jun-05	-1	0	1496	0.	0.	1496	0.0%	

Table 7-1
Recycled Water Management Plan for Banana Basin
Calculation of Recycled Water Contribution (RWC) from Historical Diluent Water (DW) and Recycled Water (RW) Deliveries

Date		No. Mos. Since Initial RW Delivery	DW (AF)	DW 60-Month Total (AF)	RW (AF)	RW 60-Month Total (AF)	DW + RW 60-Month Total (AF)	RWC	Source
2005/06	Jul-05	1	192.3	1688	19.8	19.8	1708	1.2%	ACTUAL
	Aug-05	2	0	1688	253.9	273.7	1962	14.0%	
	Sep-05	3	0	1688	60.4	334.1	2023	16.5%	
	Oct-05	4	29	1689	25.3	359.4	2049	17.5%	
	Nov-05	5	0	1676	8.	367.4	2044	18.0%	
	Dec-05	6	19	1695	10.	377.4	2073	18.2%	
	Jan-06	7	6	1615	50.3	427.7	2042	20.9%	
	Feb-06	8	22.3	1515	55.2	482.9	1998	24.2%	
	Mar-06	9	132	1568	0.	482.9	2051	23.5%	PROJECTED
	Apr-06	10	111	1618	0.	482.9	2101	23.0%	
	May-06	11	0	1618	0.	482.9	2101	23.0%	
	Jun-06	12	0	1618	0.	482.9	2101	23.0%	
2006/07	Jul-06	13	50	1656	250.	732.9	2389	30.7%	
	Aug-06	14	29	1685	250.	982.9	2668	36.8%	
	Sep-06	15	258	1943	0.	982.9	2926	33.6%	
	Oct-06	16	237	2180	0.	982.9	3163	31.1%	
	Nov-06	17	216	2357	0.	982.9	3339	29.4%	
	Dec-06	18	195	2535	0.	982.9	3518	27.9%	
	Jan-07	19	174	2659	0.	982.9	3642	27.0%	
	Feb-07	20	153	2791	0.	982.9	3774	26.0%	
	Mar-07	21	132	2892	0.	982.9	3875	25.4%	
	Apr-07	22	111	2990	0.	982.9	3973	24.7%	
	May-07	23	0	2989	0.	982.9	3972	24.7%	
	Jun-07	24	0	2989	0.	982.9	3972	24.7%	
2007/08	Jul-07	25	75	3064	225.	1207.9	4272	28.3%	
	Aug-07	26	54	3118	225.	1432.9	4551	31.5%	
	Sep-07	27	33	3151	225.	1657.9	4809	34.5%	
	Oct-07	28	237	3388	0.	1657.9	5046	32.9%	
	Nov-07	29	216	3565	0.	1657.9	5223	31.7%	
	Dec-07	30	195	3701	0.	1657.9	5359	30.9%	
	Jan-08	31	174	3875	0.	1657.9	5533	30.0%	
	Feb-08	32	153	3947	0.	1657.9	5605	29.6%	
	Mar-08	33	132	4040	0.	1657.9	5698	29.1%	
	Apr-08	34	111	4064	0.	1657.9	5722	29.0%	
	May-08	35	0	4003	0.	1657.9	5661	29.3%	
	Jun-08	36	0	4003	0.	1657.9	5661	29.3%	
2008/09	Jul-08	37	75	4078	225.	1882.9	5961	31.6%	
	Aug-08	38	54	4132	225.	2107.9	6240	33.8%	
	Sep-08	39	33	4165	225.	2332.9	6498	35.9%	
	Oct-08	40	237	4402	0.	2332.9	6735	34.6%	
	Nov-08	41	216	4584	0.	2332.9	6916	33.7%	
	Dec-08	42	195	4741	0.	2332.9	7074	33.0%	
	Jan-09	43	174	4911	0.	2332.9	7244	32.2%	
	Feb-09	44	153	4980	0.	2332.9	7313	31.9%	
	Mar-09	45	132	5084	0.	2332.9	7417	31.5%	
	Apr-09	46	111	5195	0.	2332.9	7528	31.0%	
	May-09	47	0	5195	0.	2332.9	7528	31.0%	
	Jun-09	48	0	5195	0.	2332.9	7528	31.0%	
2009/10	Jul-09	49	75	5270	225.	2557.9	7828	32.7%	
	Aug-09	50	54	5324	225.	2782.9	8107	34.3%	
	Sep-09	51	33	5357	225.	3007.9	8365	36.0%	
	Oct-09	52	237	5531	0.	3007.9	8539	35.2%	
	Nov-09	53	216	5730	0.	3007.9	8738	34.4%	
	Dec-09	54	195	5900	0.	3007.9	8908	33.8%	
	Jan-10	55	174	5980	0.	3007.9	8988	33.5%	
	Feb-10	56	153	6022	0.	3007.9	9030	33.3%	
	Mar-10	57	132	6130	0.	3007.9	9137	32.9%	
	Apr-10	58	111	6221	0.	3007.9	9229	32.6%	
	May-10	59	0	6207	0.	3007.9	9215	32.6%	
	Jun-10	60	0	6207	0.	3007.9	9215	32.6%	

RWC = 60-month running total of recycled water / 60-month running total of all recharged water.
All recharged water includes recycled water and diluent water (imported and storm water)
RWC Limit = 0.5 mg/L / the Running Average of Total Organic Carbon (TOC)



Location of Banana Basin

Figure 2-1

Recycled Water Recharge Program
Banana Basin Start-Up Report

Location of Lysimeters in Banana Basin

Figure 2-2

Recycled Water Recharge Program
Banana Basin Start-Up Report

Figure 5-1
Banana Basin: Average Total Organic Carbon versus Depth
Start-Up Period: 07/29/05 through 01/25/06
Values are Average of Samples Where the Recycled Water Component was Greater than 75 Percent

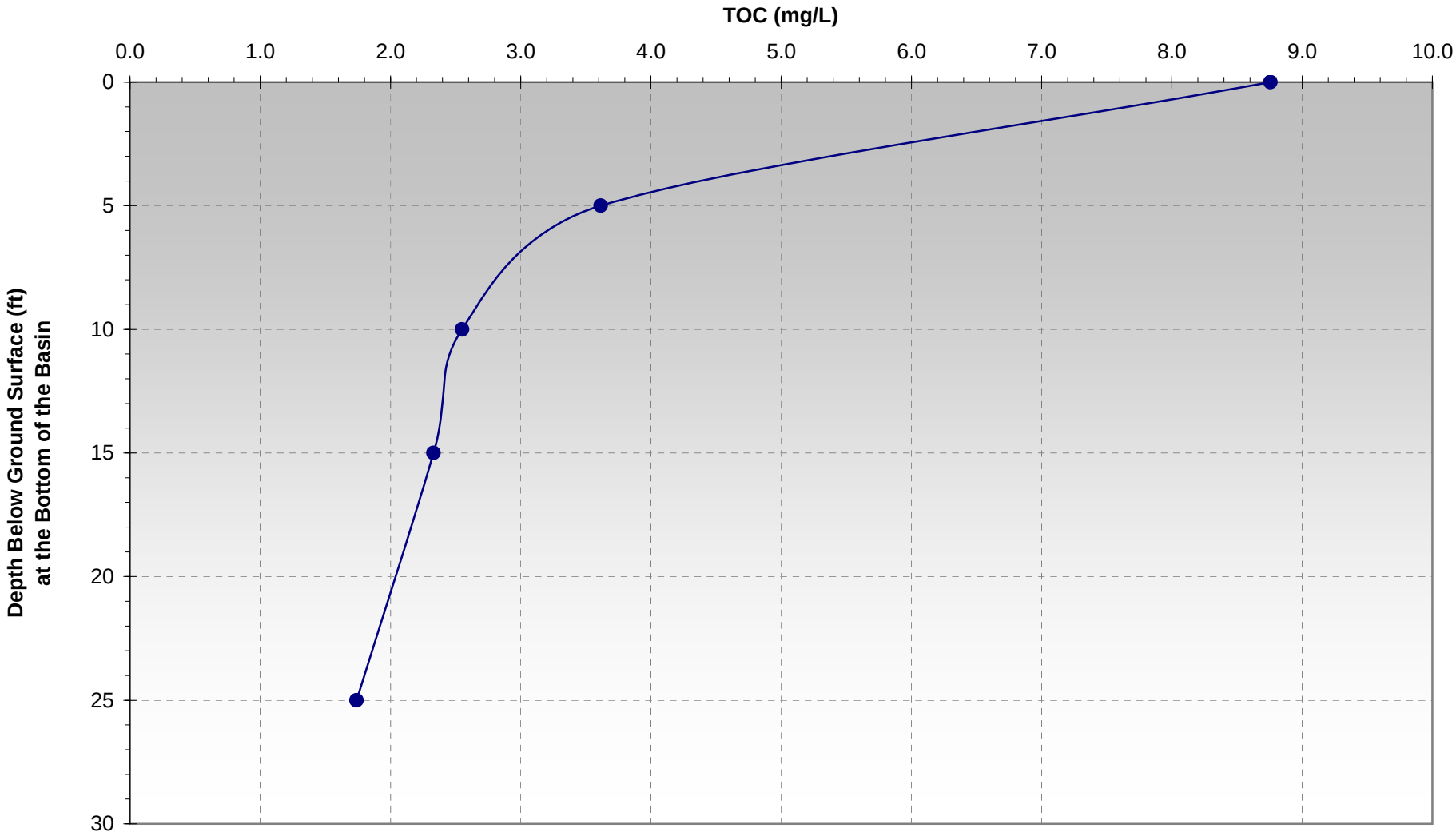
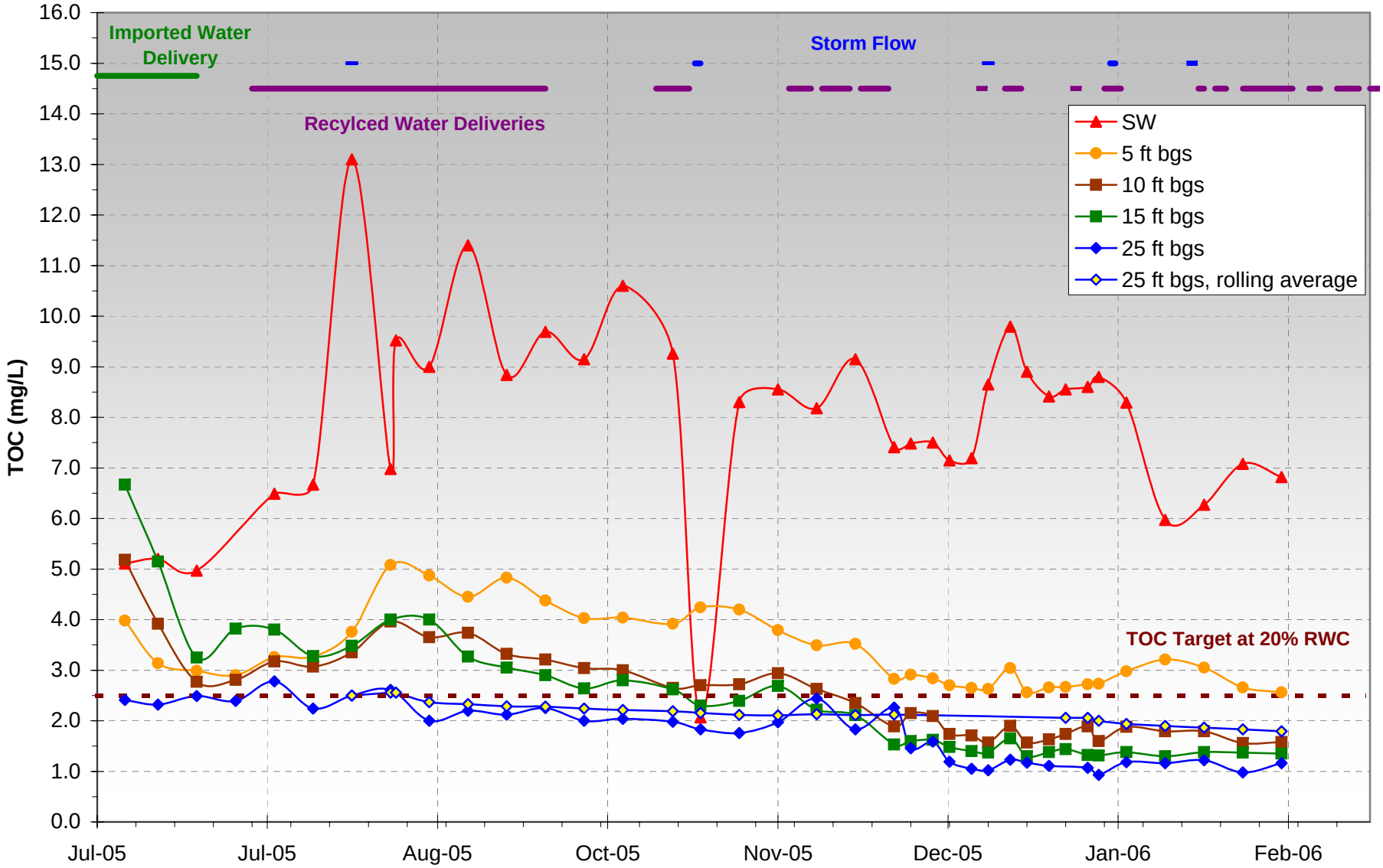


Figure 5-2
Banana Basin: Total Organic Carbon Time History



Note: On December 23, 2005 11.7 mg/L of TOC was detected at the 25 foot bgs lysimeter.
This data is an outlier and may be a laboratory artifact, therefore was not used for this graph.

Figure 5-3
Banana Basin: Average Total Nitrogen versus Depth

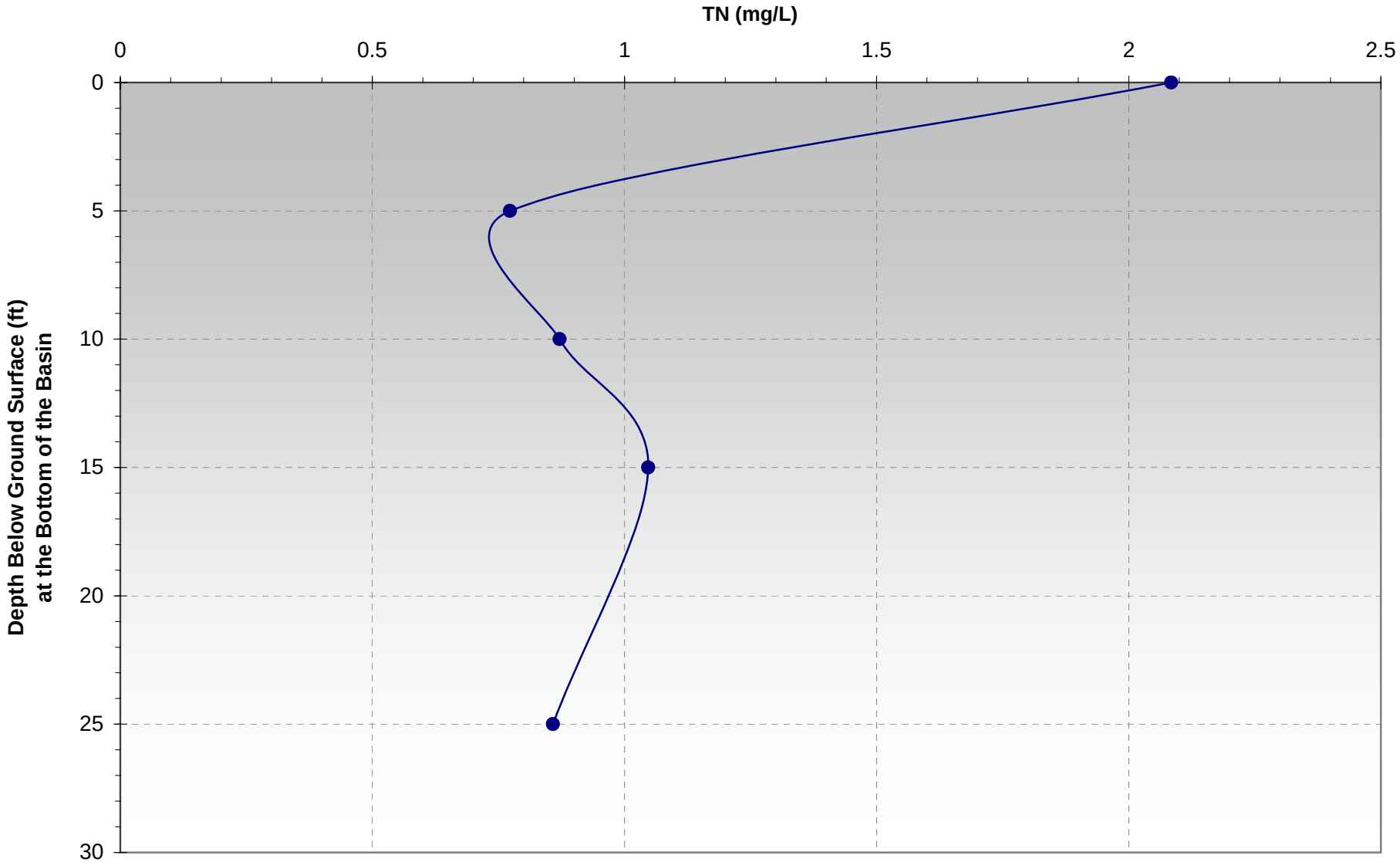


Figure 5-4
Banana Basin: Total Nitrogen Time History

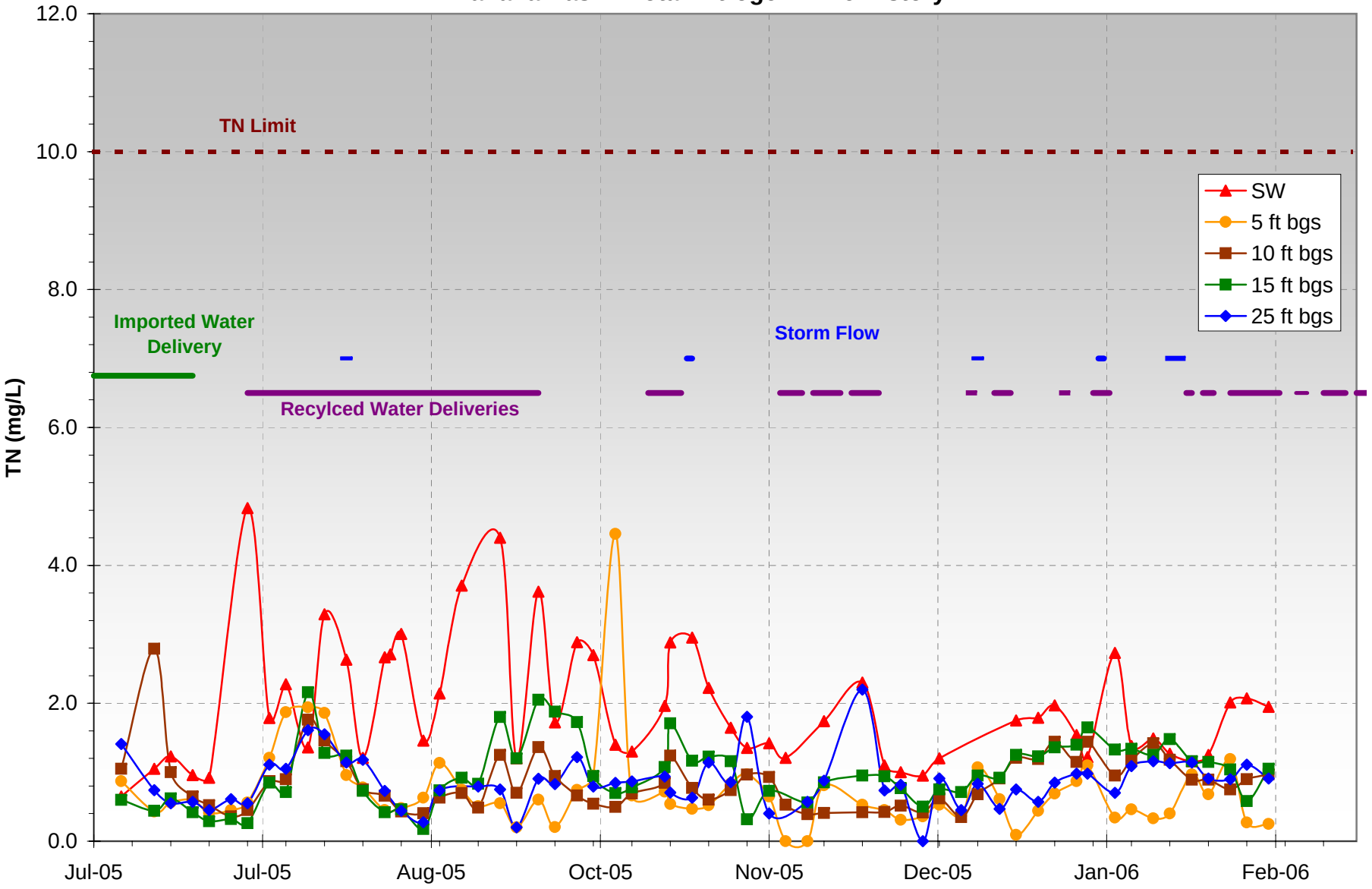


Figure 5-5
Banana Basin: Total Organic Carbon Reduction and Local Runoff/Storm Flow Time History

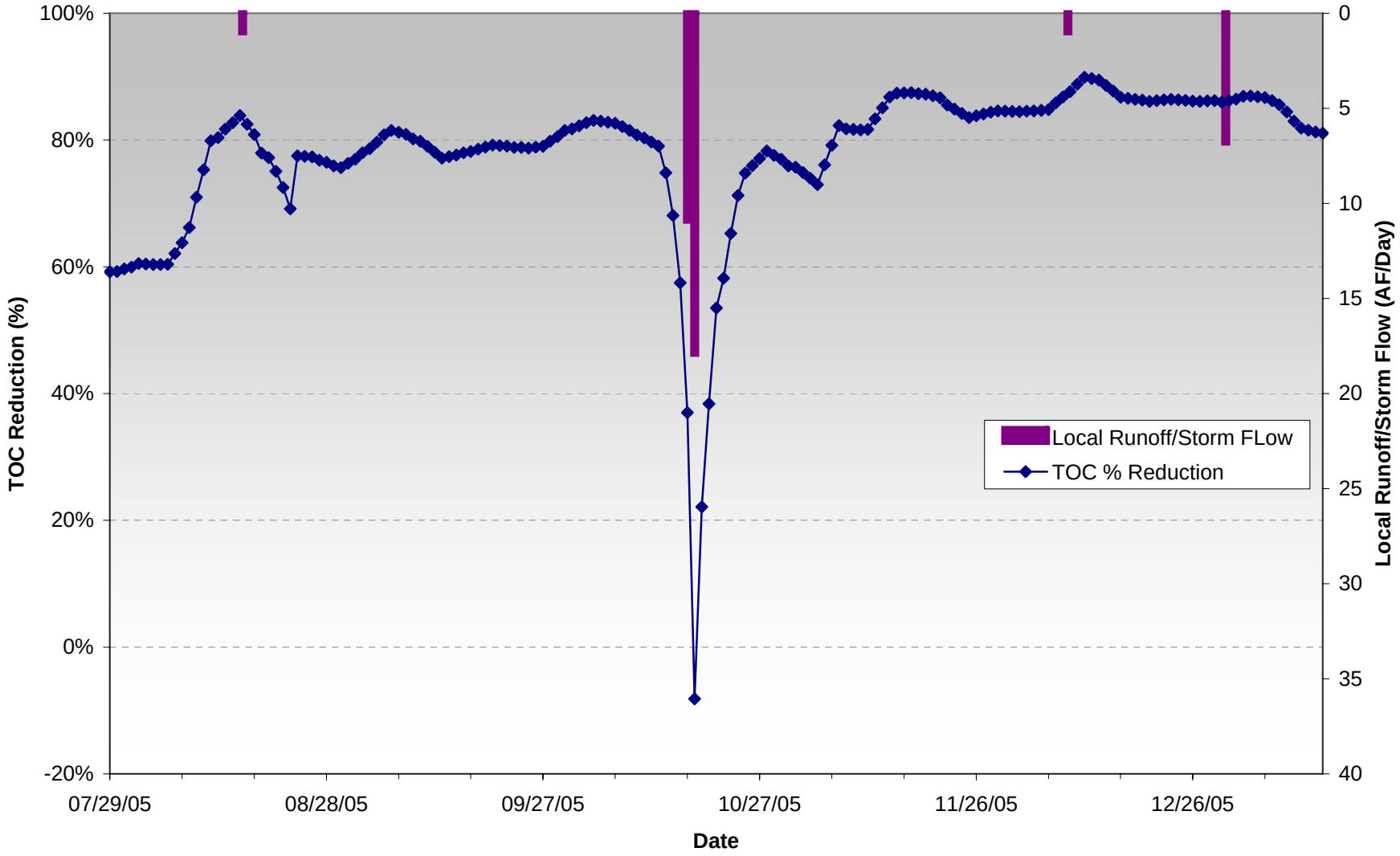


Figure 5-6
Banana Basin: Total Nitrogen Reduction and Local Runoff/Storm Flow Time History

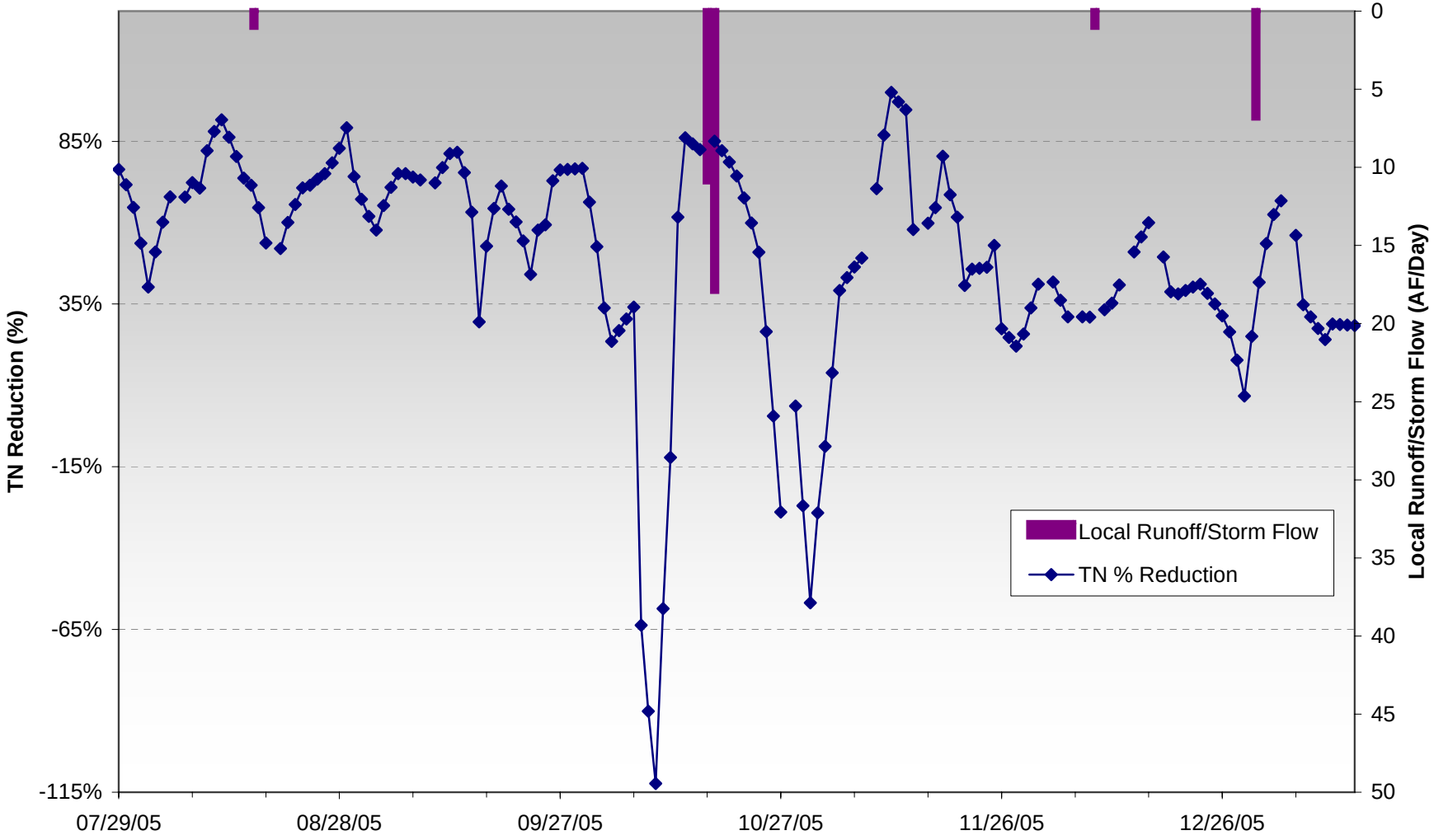
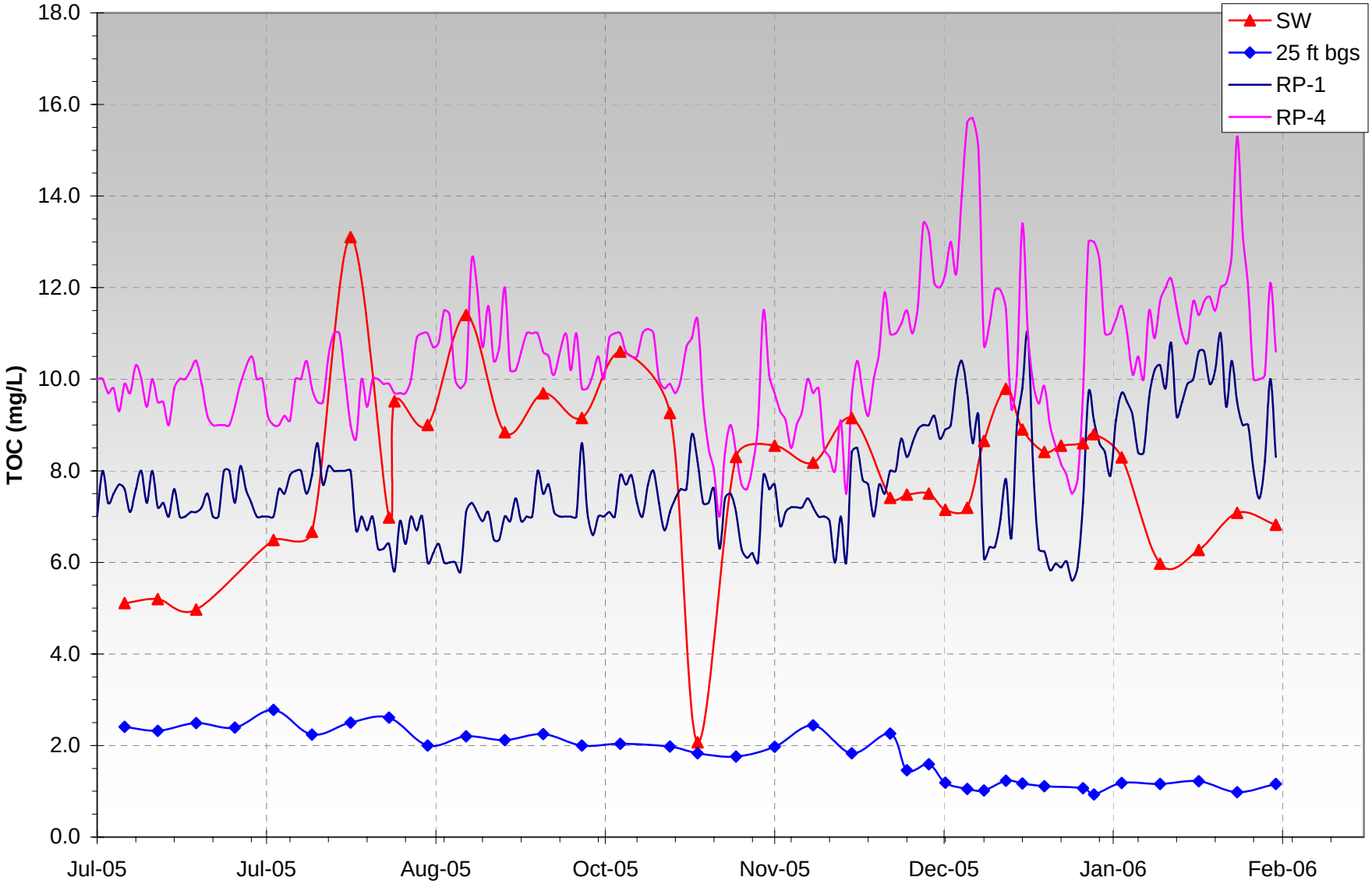


Figure 5-7
Banana Basin, RP-1, and RP-4: Total Organic Carbon Time History



Note: On December 23, 2005 11.7 mg/L of TOC was detected at the 25 foot bgs lysimeter.
This data is an outlier and may be a laboratory artifact, therefore was not used for this graph.

Figure 5-8
Banana Basin, RP-1, and RP-4: Total Nitrogen Time History

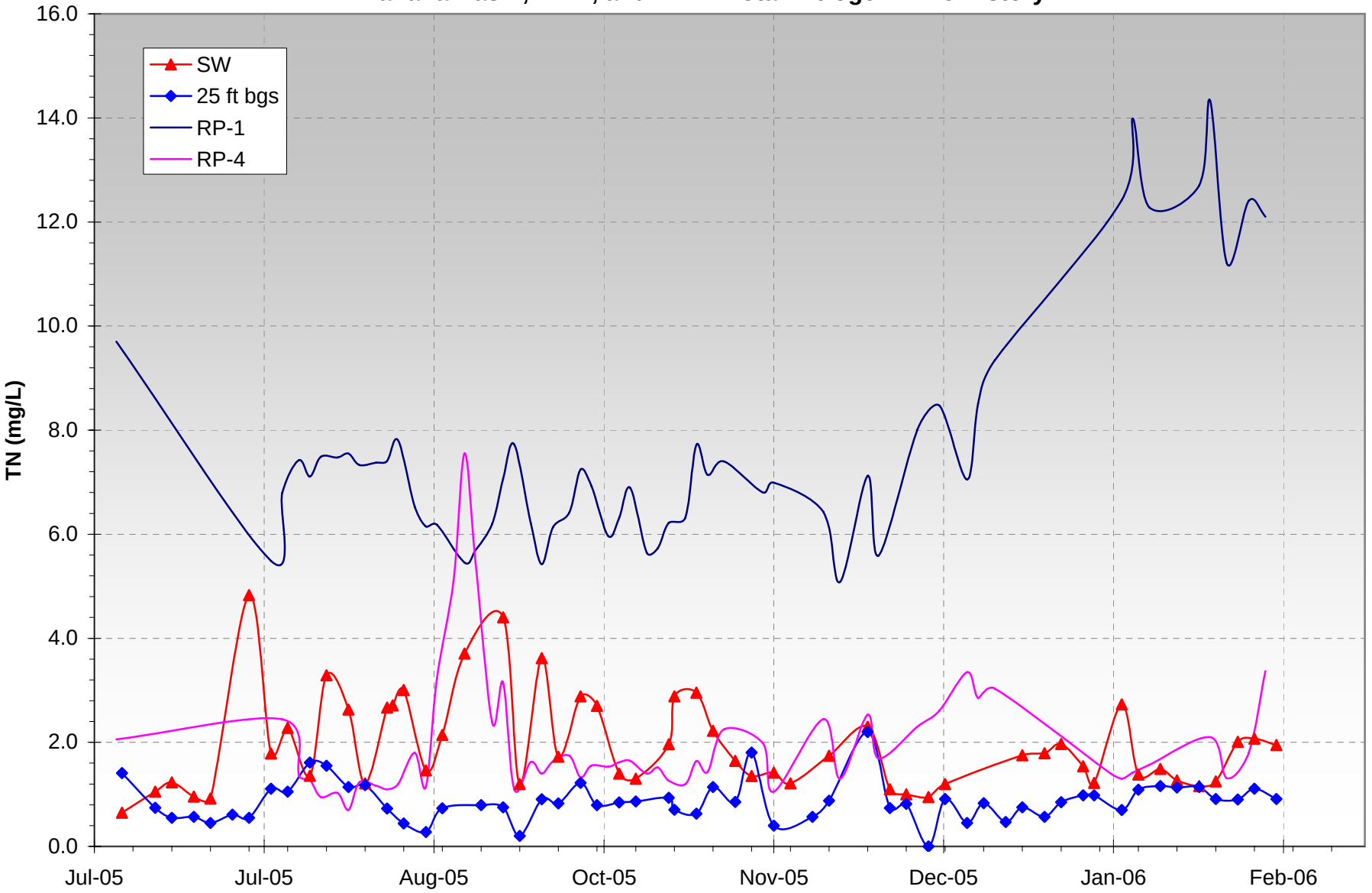


Figure 5-9
Banana Basin: Percent Recycled Water vs SAT Efficiency (TOC Removal)

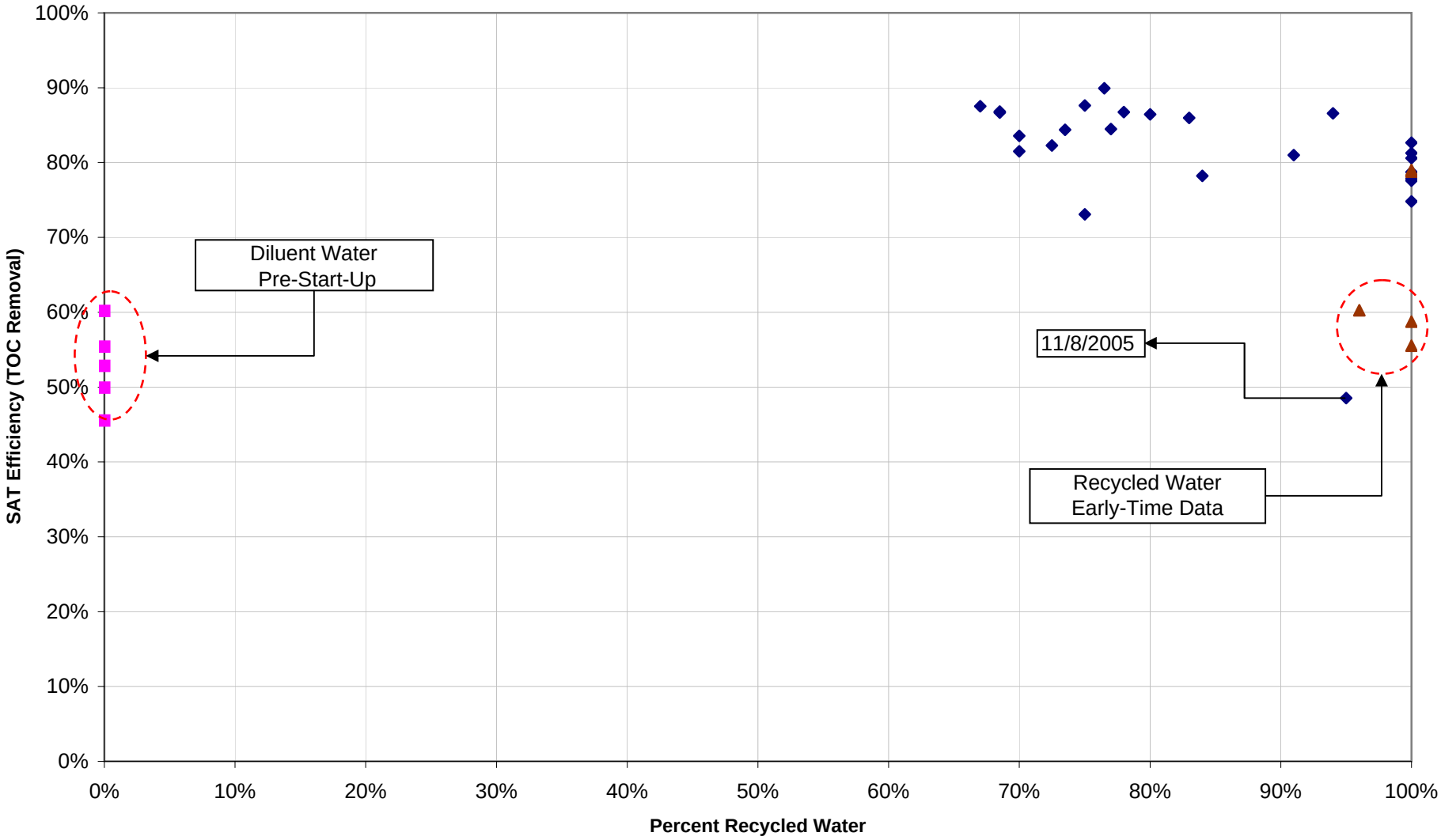


Figure 5-9_Banana.xls--%RW_vs_SAT(TOC)

Figure 6-1
Banana Basin: Electrical Conductivity Time History

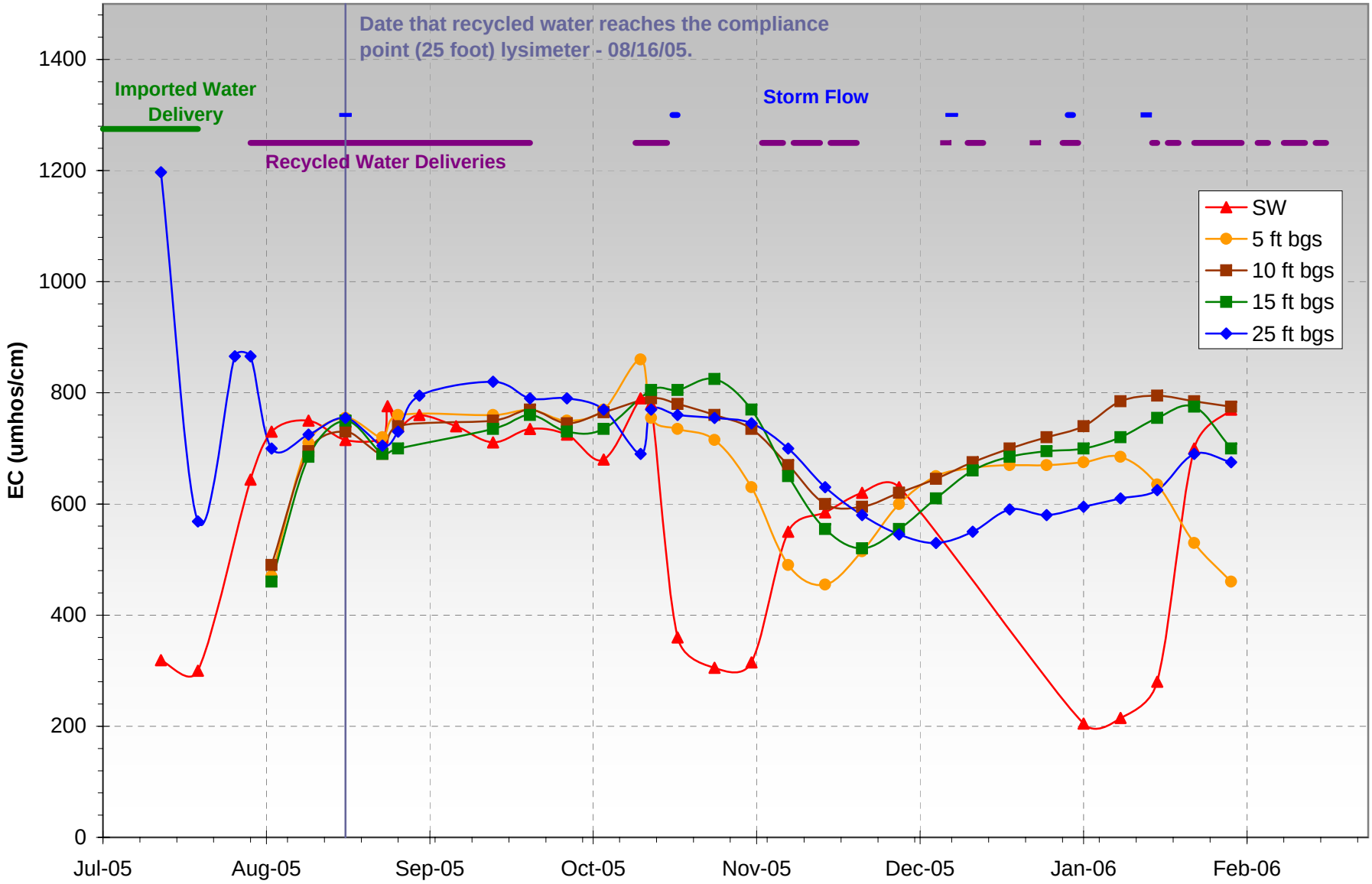
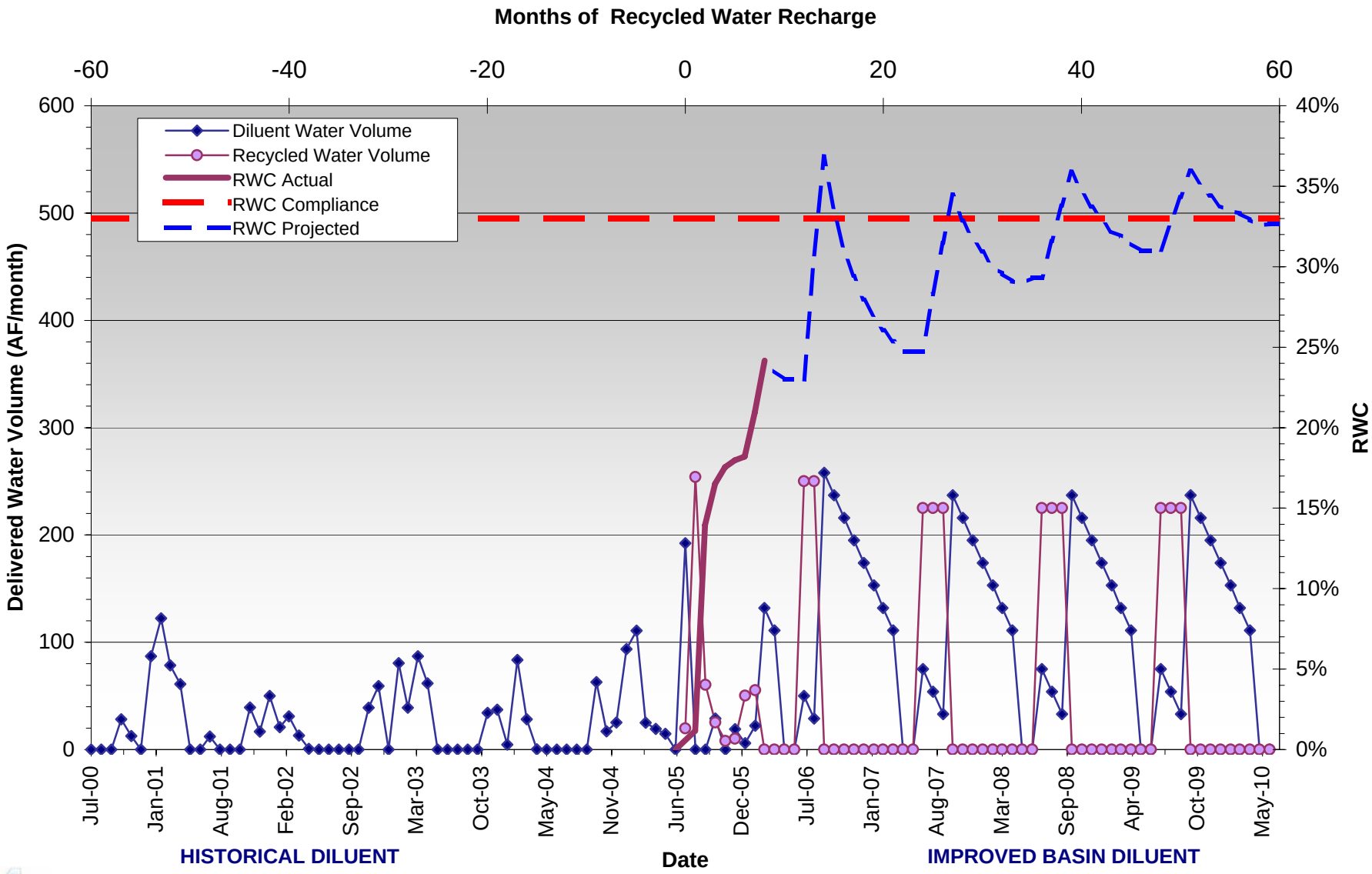


Figure 7-1
Recycled Water Management Plan
for Banana Basin



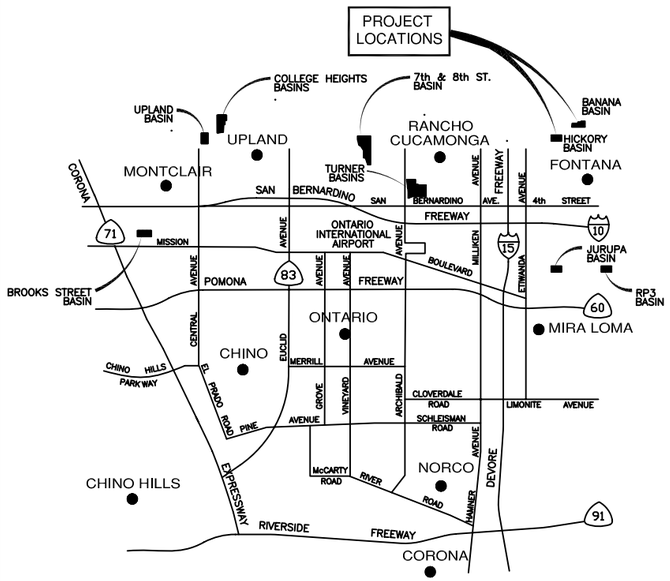
Appendix A.
Soil Boring Logs and
Lysimeter Construction As-Builts

AS-BUILTS OF THE

HICKORY AND BANANA BASIN LYSIMETER INSTALLATION

PROJECT NO.: 007-002-062

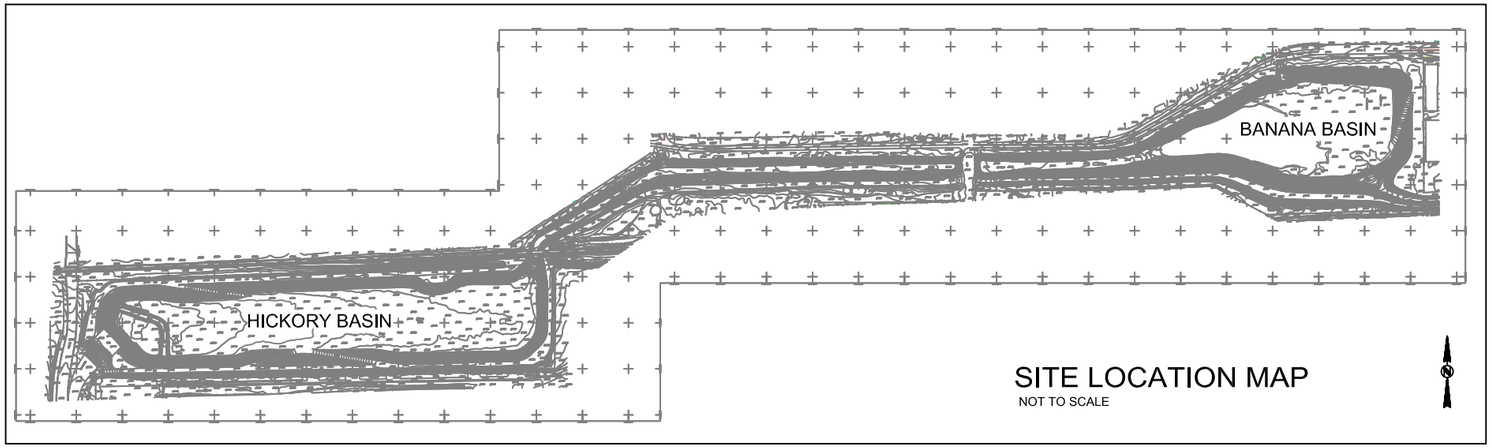
PREPARED FOR THE INLAND EMPIRE UTILITIES AGENCY
BY WILDERMUTH ENVIRONMENTAL, INC.



VICINITY MAP
NOT TO SCALE

LIST OF DRAWINGS		
DRAWING NO.	SHEET TITLE	SHEET NO.
	GENERAL	
A - 1	COVER SHEET	1 OF 5
A - 2	BANANA BASIN	2 OF 5
A - 3	HICKORY BASIN	3 OF 5
A - 4	AS-BUILT DETAILS 1 AND 2	4 OF 5
A - 5	AS-BUILT DETAILS 3 AND 4	5 OF 5

CONTACT PERSONNEL		
NAME	ADDRESS	PHONE NO.
ANDY CAMPBELL, PG, CHG	INLAND EMPIRE UTILITIES AGENCY 6075 KIMBALL AVENUE CHINO, CALIFORNIA 91710	(909) 993-1600
MARK WILDERMUTH, PE	WILDERMUTH ENVIRONMENTAL, INC. 23692 BIRTCHER DRIVE LAKE FOREST, CALIFORNIA 92630	(949) 420-3030
BILL LEEVER, PG, CHG	WILDERMUTH ENVIRONMENTAL, INC. 23692 BIRTCHER DRIVE LAKE FOREST, CALIFORNIA 92630	(949) 420-3030



SITE LOCATION MAP
NOT TO SCALE

Underground Service Alert
Call: TOLL FREE 1-800 227-2600
TWO WORKING DAYS BEFORE YOU DIG

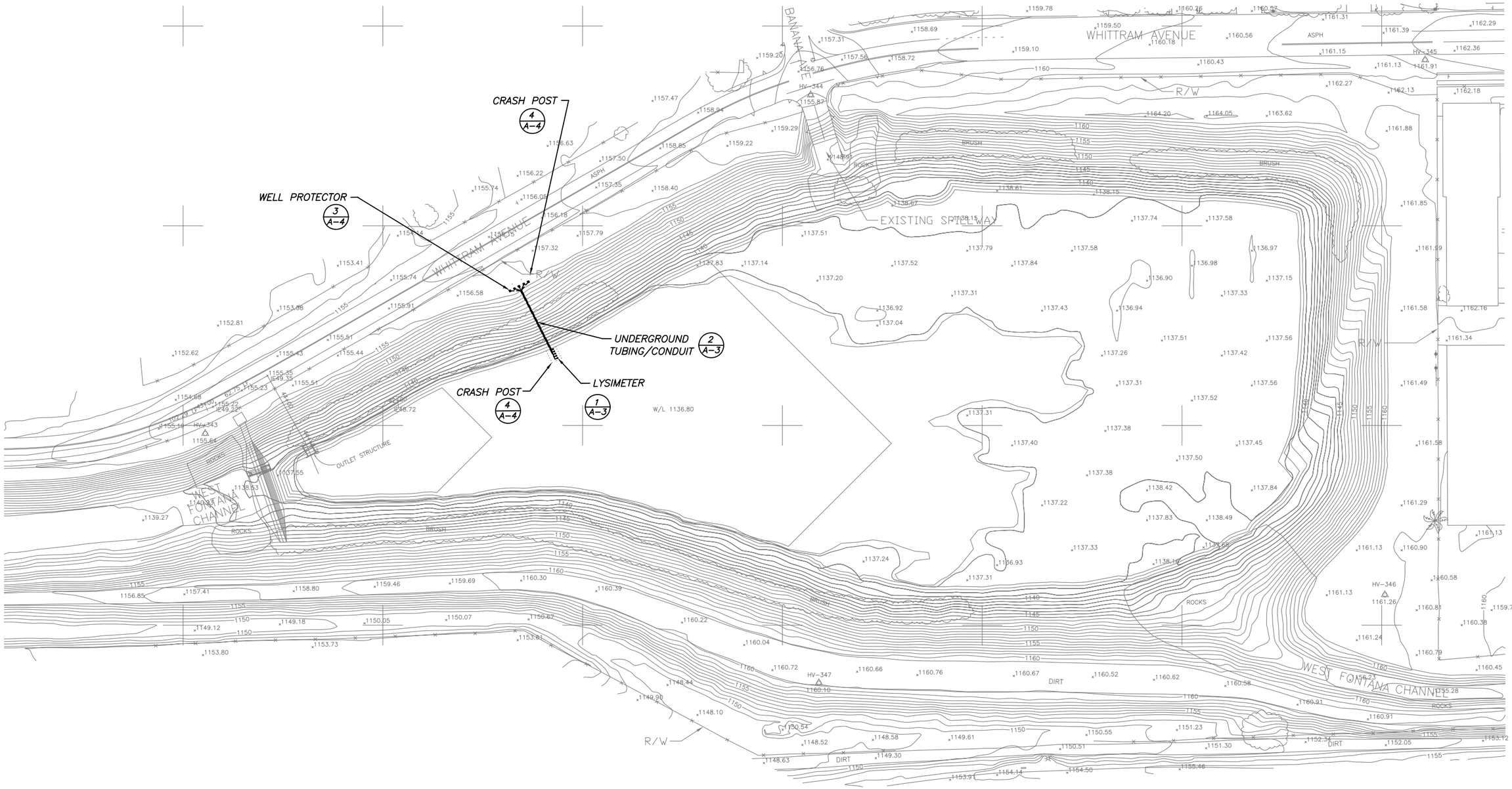
REVISIONS				
NO.	DATE	INITIAL	DESCRIPTION:	APPROVED/DATE
DESIGNED:		DRAWN:	CHECKED:	

WILDERMUTH ENVIRONMENTAL INC.
Inland Empire UTILITIES AGENCY

REVIEWED BY:	DRAWN BY:	START DATE:	DRAWING NO.
AEM	WEL	03/28/06	A-1

COVER SHEET

SHEET NO. 1 OF 5



0 100' 200'

Scale: 1" = 100 FEET

North

Underground Service Alert

Call: TOLL FREE 1-800 227-2600

TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

NO.	DATE	INITIAL	DESCRIPTION:	APPROVED/DATE

DESIGNED: DRAWN: CHECKED:

WILDERMUTH ENVIRONMENTAL INC.

Inland Empire UTILITIES AGENCY

REVIEWED BY:	DRAWN BY:	START DATE:
AEM	WEL	03/28/06

BANANA BASIN

DRAWING NO. A-2

SHEET NO. 2 OF 5

WEST CELL

EAST CELL

LYSIMETER 1 A-3

CRASH POST 4 A-4

UNDERGROUND TUBING/CONDUIT 2 A-3

WELL PROTECTOR 3 A-4

E 6,709,200 E 6,709,400 E 6,709,600 E 6,709,800 E 6,710,000 E 6,710,200 E 6,710,400 E 6,710,600

0 100' 200'

Scale: 1" = 100 FEET

North

Underground Service Alert

Call: TOLL FREE 1-800 227-2600

TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

NO.	DATE	INITIAL	DESCRIPTION:	APPROVED/DATE

DESIGNED: DRAWN: CHECKED:

WILDERMUTH ENVIRONMENTAL INC.

Inland Empire UTILITIES AGENCY

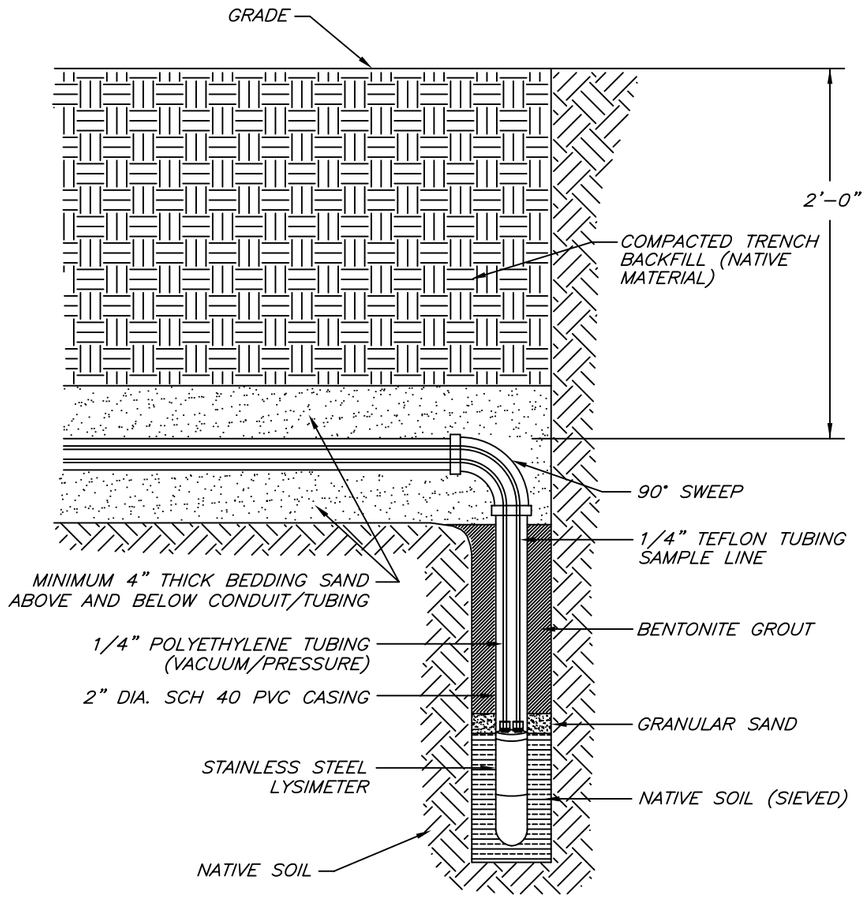
REVIEWED BY:	DRAWN BY:	START DATE:
AEM	WEL	03/28/06

HICKORY BASIN

DRAWING NO. A-3

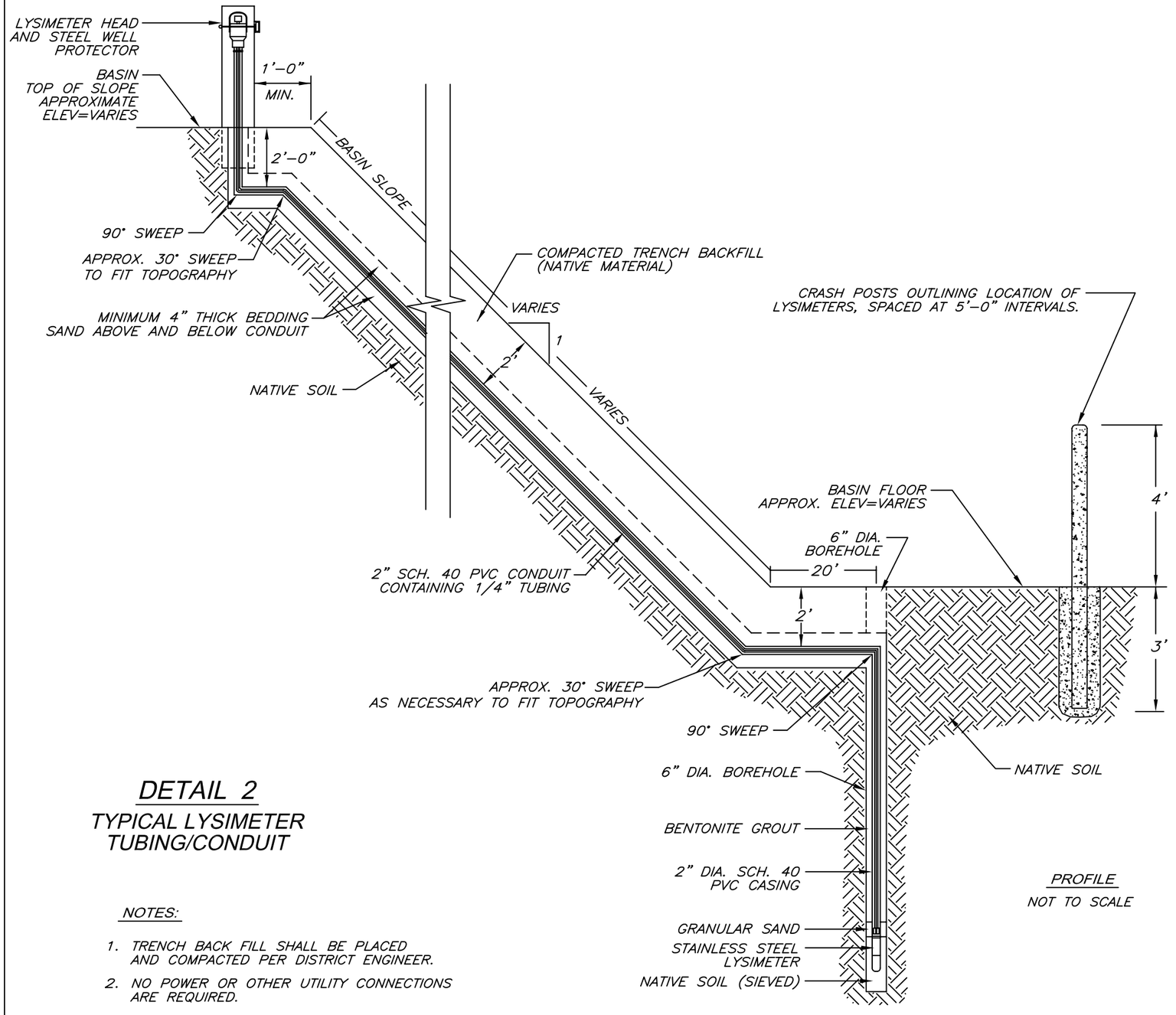
SHEET NO. 3 OF 5

A-3 HICKORY BASIN v02.dwg 5/5/2005 4:40 PM Bill Leever, Wildermuth Environmental, Inc.



DETAIL 1
TYPICAL LYSIMETER

PROFILE
NOT TO SCALE



DETAIL 2
TYPICAL LYSIMETER TUBING/CONDUIT

PROFILE
NOT TO SCALE

NOTES:

1. TRENCH BACK FILL SHALL BE PLACED AND COMPACTED PER DISTRICT ENGINEER.
2. NO POWER OR OTHER UTILITY CONNECTIONS ARE REQUIRED.

Underground Service Alert
Call: TOLL FREE 1–800 227–2600
TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

NO.	DATE	INITIAL	DESCRIPTION:	APPROVED/DATE

DESIGNED: | DRAWN: | CHECKED:

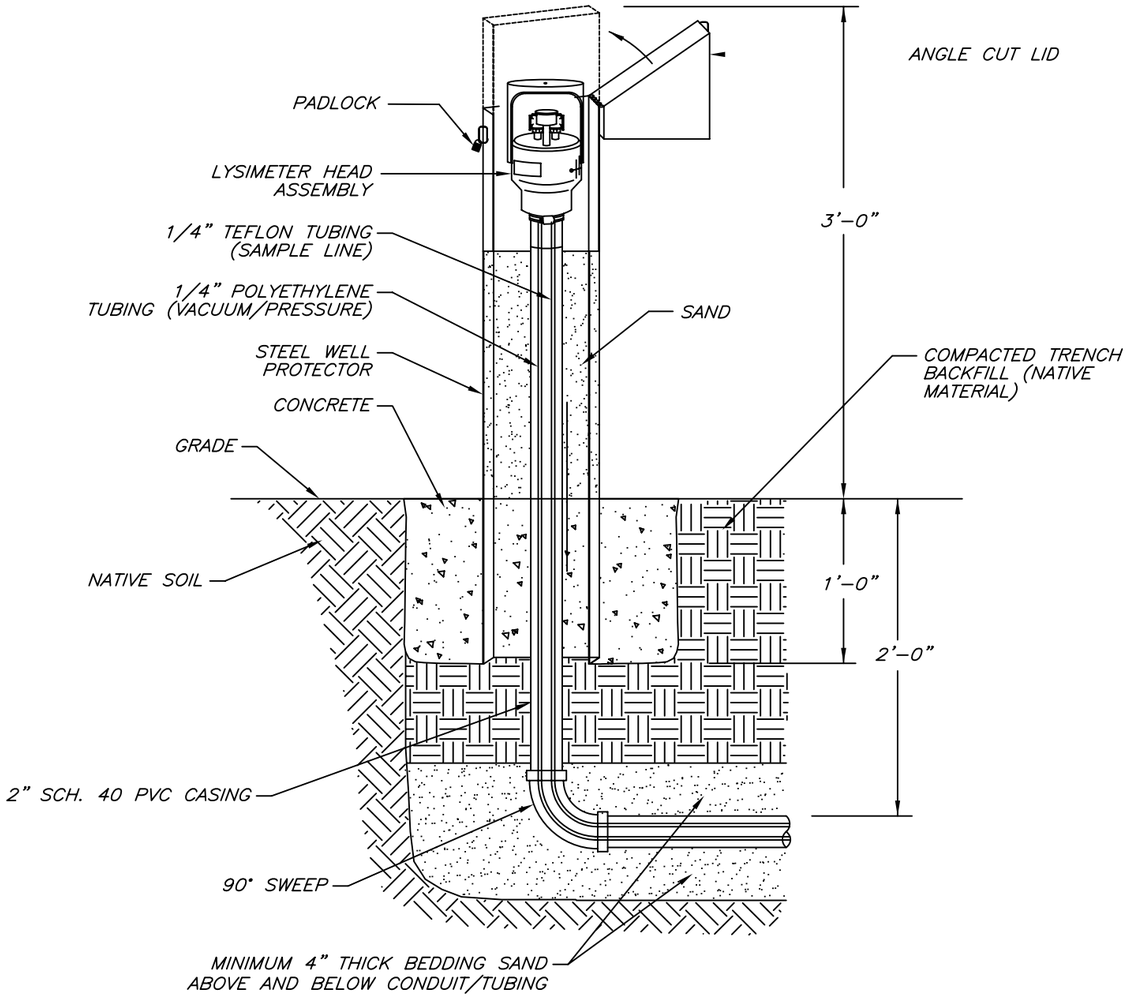
WILDERMUTH ENVIRONMENTAL INC.
Inland Empire UTILITIES AGENCY

REVIEWED BY:	DRAWN BY:	START DATE:
AEM	WEL	03/28/06

AS-BUILT DETAILS 1 AND 2 BANANA AND HICKORY BASINS

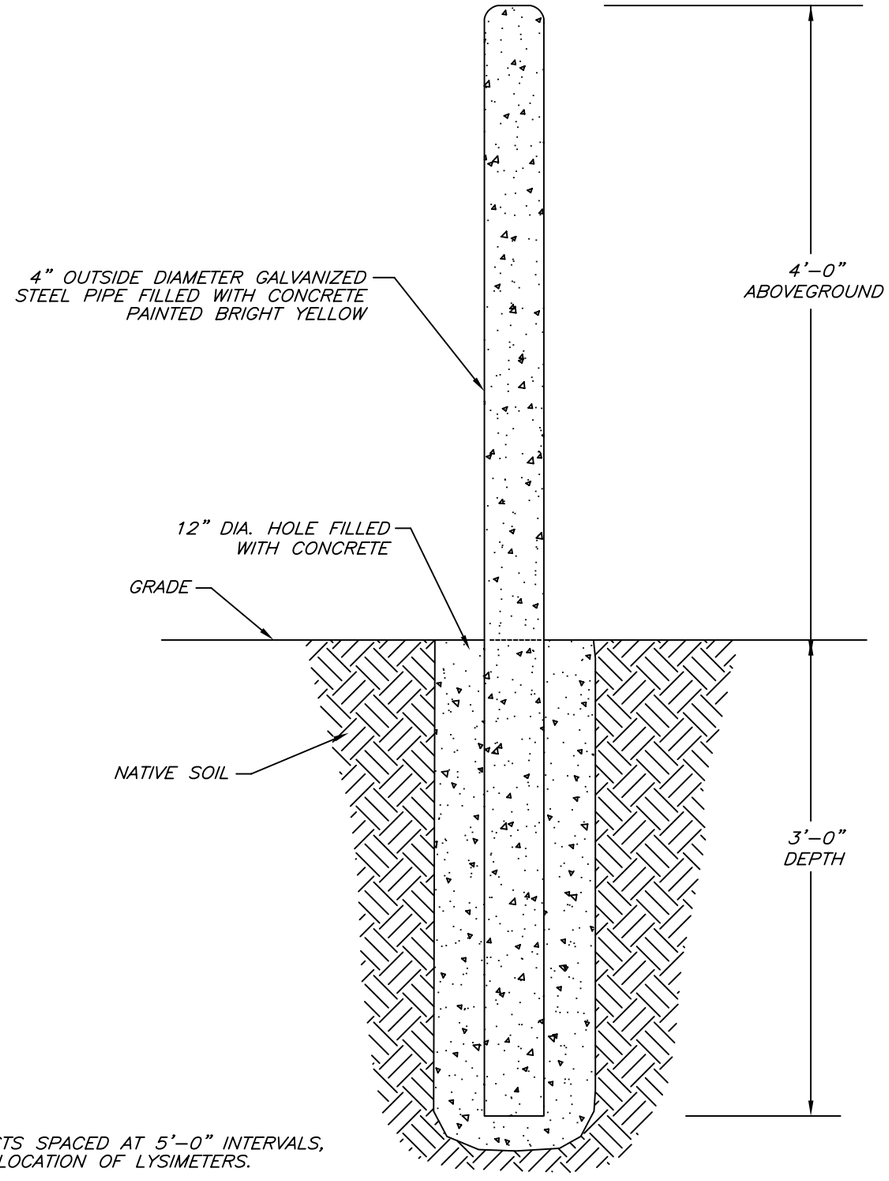
DRAWING NO. A–4

SHEET NO. 4 OF 5



PROFILE
NOT TO SCALE

DETAIL 3
TYPICAL STEEL WELL PROTECTOR AND LYSIMETER HEAD ASSEMBLY



NOTES:
CRASH POSTS SPACED AT 5'-0" INTERVALS, OUTLINING LOCATION OF LYSIMETERS.

PROFILE
NOT TO SCALE

DETAIL 4
TYPICAL CRASH POST

Underground Service Alert
Call: TOLL FREE 1-800 227-2600
TWO WORKING DAYS BEFORE YOU DIG

REVISIONS

NO.	DATE	INITIAL	DESCRIPTION:	APPROVED/DATE

DESIGNED: | DRAWN: | CHECKED:

WILDERMUTH ENVIRONMENTAL INC.
Inland Empire UTILITIES AGENCY

REVIEWED BY:	DRAWN BY:	START DATE:
AEM	WEL	03/28/06

AS-BUILT DETAILS 3 AND 4
BANANA AND HICKORY BASINS

DRAWING NO. A-5

SHEET NO. 5 OF 5

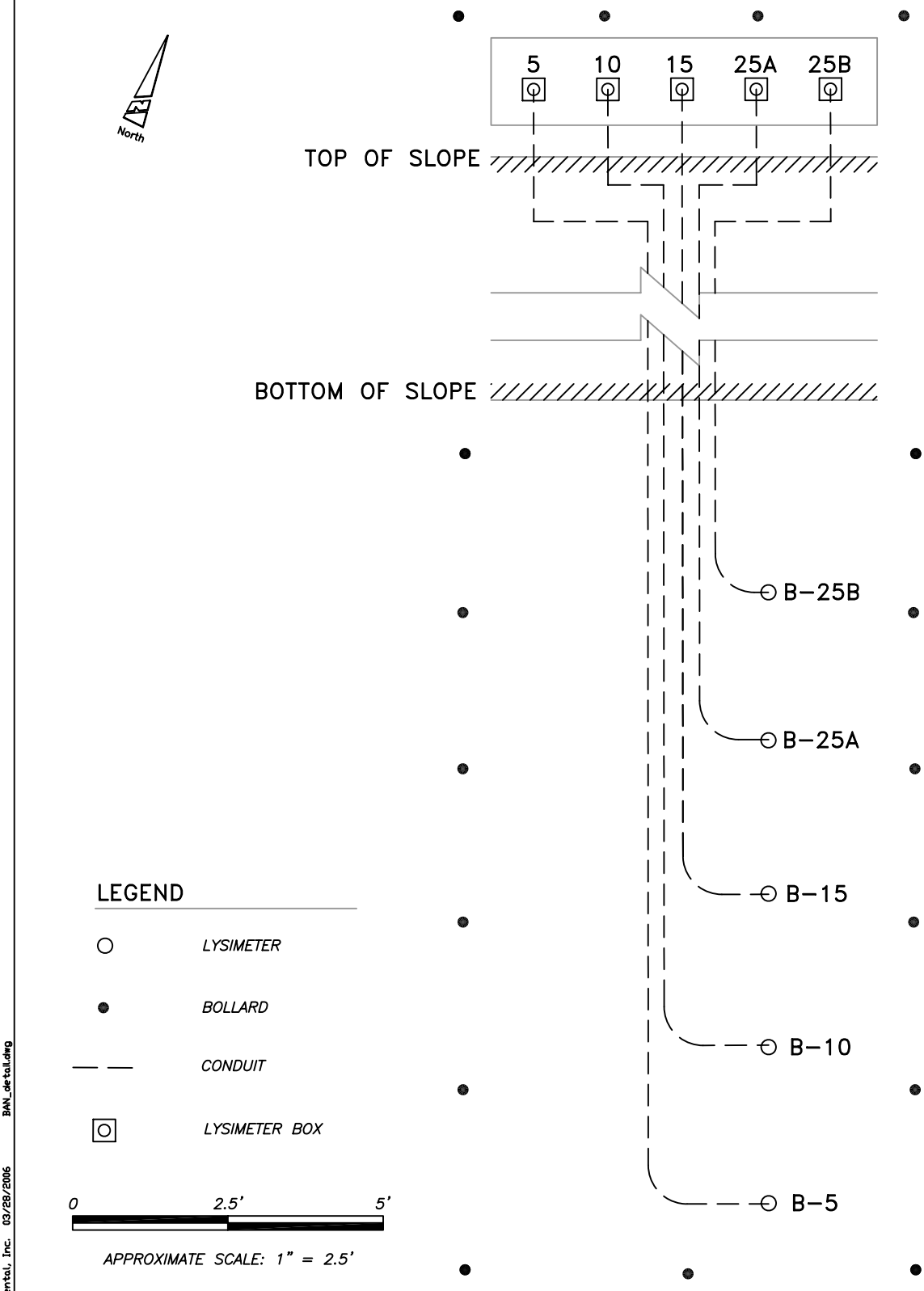


FIGURE A-6
BANANA BASIN LYSIMETER AS-BUILT

WILDERMUTH ENVIRONMENTAL INC.

Bill Leever, Wildermuth Environmental, Inc. 03/28/2006 BAN_detail.dwg

Project Name:	**Recycled Water Groundwater Recharge Project**	**LYSIMETER: B-5**	
Project Location:	**Chino Basin, California**		
Project Number:	**007-003**	Sheet 1 of 1	
Client:	**Inland Empire Utilties Agency/Chino Basin Watermaster**		

Date Started	**6/7/05**	Date Finished	**6/7/05**	Borehole Depth	**5.5 feet**	Drilling Contractor	**Layne-Christensen Drilling**
Lat.	**34° 5' 42.23"**	Long.	**117° 29' 53.57"**	Drill Bit Size/Type	**8.25" Dia./Hollow Stem Bit**	Driller	**Armando Zimora**
Ground Surface Elevation	**1135.0 feet**			Porous Interval	**4.6-5 ft_bgs**	Drill Rig Type	**CME-75**
Top of Casing Elevation	**NA**			Depth to Groundwater	**Not Encountered**	Drilling Method	**Hollow Stem Auger**
Logged By	**B. Leever, PG, CHG**			Reviewed By	**A. Malone**	Sampling Method	**Split Spoon**

Elev., feet-msl	Depth, feet-bgs	Sample	Graphic	MATERIAL DESCRIPTION	LYSIMETER SCHEMATIC AND CONSTRUCTION DETAILS	FIELD NOTES
1135	0			SAND (SP): brown, moist, very fine to fine sand with some silt	Sch. 40 PVC Conduit (1.9") Bentonite Chips No. 60 Transition Sand Lysimeter Body (500 mL) 10-mesh Native Sand Lysimeter Porous Tip	Sampled at 10:22 am. Blow Counts: 16/42/43
1130	5			Bottom of boring at 5.5 feet below grade.		
1125	10					
1120	15					
1115	20					
1110	25					

Report: LYSIMETER LOG; File: IEUA_GRRP.GPJ; 3/28/2006

WILDERMUTH™
ENVIRONMENTAL INC.

Project Name:	**Recycled Water Groundwater Recharge Project**
Project Location:	**Chino Basin, California**
Project Number:	**007-003**
Client:	**Inland Empire Utilties Agency/Chino Basin Watermaster**

LYSIMETER: B-10

Sheet 1 of 1

Date Started	**6/7/05**	Date Finished	**6/7/05**	Borehole Depth	**10.5 feet**	Drilling Contractor	**Layne-Christensen Drilling**
Lat.	**34° 5' 42.23"**	Long.	**117° 29' 53.57"**	Drill Bit Size/Type	**8.25" Dia./Hollow Stem Bit**	Driller	**Armando Zimora**
Ground Surface Elevation	**1135.0 feet**			Porous Interval	**9.6-10 ft_bgs**	Drill Rig Type	**CME-75**
Top of Casing Elevation	**NA**			Depth to Groundwater	**Not Encountered**	Drilling Method	**Hollow Stem Auger**
Logged By	**B. Leever, PG, CHG**			Reviewed By	**A. Malone**	Sampling Method	**Split Spoon**

Elev., feet-msl	Depth, feet-bgs	Sample	Graphic	MATERIAL DESCRIPTION	LYSIMETER SCHEMATIC AND CONSTRUCTION DETAILS	FIELD NOTES
1135	0			SAND (SP): brown, moist, very fine to fine sand with some silt	Bentonite Chips Sch. 40 PVC Conduit (1.9")	Sampled at 10:22 am. Blow Counts: 16/42/43
1130	5			SAND and GRAVEL (SP-GW): brown, moist, fine to coarse sand with gravel to 3 inches diameter	No. 60 Transition Sand Lysimeter Body (500 mL) 10-mesh Native Sand Lysimeter Porous Tip	Sampled at 10:33 am. Blow Counts: 19/47/50
1125	10			Bottom of boring at 10.5 feet below grade.		
1120	15					
1115	20					
1110	25					

Report: LYSIMETER LOG; File: IEUA_GRRP.GPJ; 3/28/2006

WILDERMUTH™
ENVIRONMENTAL INC.

Project Name: Recycled Water Groundwater Recharge Project
Project Location: Chino Basin, California
Project Number: 007-003
Client: Inland Empire Utilties Agency/Chino Basin Watermaster

LYSIMETER: B-15

Date Started	6/7/05	Date Finished	6/7/05	Borehole Depth	15.5 feet	Drilling Contractor	Layne-Christensen Drilling
Lat.	34° 5' 42.23"	Long.	117° 29' 53.57"	Drill Bit Size/Type	8.25" Dia./Hollow Stem Bit	Driller	Armando Zimora
Ground Surface Elevation	1135.0 feet			Porous Interval	14.6-15 ft_bgs	Drill Rig Type	CME-75
Top of Casing Elevation	NA			Depth to Groundwater	Not Encountered	Drilling Method	Hollow Stem Auger
Logged By	B. Leever, PG, CHG			Reviewed By	A. Malone	Sampling Method	Split Spoon

Elev., feet-msl	Depth, feet-bgs	Sample	Graphic	MATERIAL DESCRIPTION	LYSIMETER SCHEMATIC AND CONSTRUCTION DETAILS	FIELD NOTES
1135	0			SAND (SP): brown, moist, very fine to fine sand with some silt		
1130	5			SAND and GRAVEL (SP-GW): brown, moist, fine to coarse sand with gravel to 3 inches diameter	Bentonite Chips; Sch. 40 PVC Conduit (1.9")	Sampled at 10:22 am. Blow Counts: 16/42/43
1125	10			same as above with little gravel to 2 inches diameter	No. 60 Transition Sand; Lysimeter Body (500 mL); 10-mesh Native Sand; Lysimeter Porous Tip	Sampled at 10:33 am. Blow Counts: 19/47/50
1120	15			Bottom of boring at 15.5 feet below grade.		Sampled at 10:44 am. Blow Counts: 12/16/19
1115	20					
1110	25					

Report: LYSIMETER LOG; File: IEUA_GRRP.GPJ; 3/28/2006

WILDERMUTH™ ENVIRONMENTAL INC.

Project Name: Recycled Water Groundwater Recharge Project
Project Location: Chino Basin, California
Project Number: 007-003
Client: Inland Empire Utilties Agency/Chino Basin Watermaster

LYSIMETER: B-25A

Sheet 1 of 1

Date Started	6/7/05	Date Finished	6/7/05	Borehole Depth	25.5 feet	Drilling Contractor	Layne-Christensen Drilling
Lat.	34° 5' 42.23"	Long.	117° 29' 53.57"	Drill Bit Size/Type	8.25" Dia./Hollow Stem Bit	Driller	Armando Zimora
Ground Surface Elevation	1135.0 feet			Porous Interval	24.6-25 ft_bgs	Drill Rig Type	CME-75
Top of Casing Elevation	NA			Depth to Groundwater	Not Encountered	Drilling Method	Hollow Stem Auger
Logged By	B. Leever, PG, CHG			Reviewed By	A. Malone	Sampling Method	Split Spoon

Elev., feet-msl	Depth, feet-bgs	Sample	Graphic	MATERIAL DESCRIPTION	LYSIMETER SCHEMATIC AND CONSTRUCTION DETAILS	FIELD NOTES
1135	0			SAND (SP): brown, moist, very fine to fine sand with some silt	Bentonite Chips Sch. 40 PVC Conduit (1.9")	
1130	5			SAND and GRAVEL (SP-GW): brown, moist, fine to coarse sand with gravel to 3 inches diameter		Sampled at 10:22 am. Blow Counts: 16/42/43
1125	10			same as above with little gravel to 2 inches diameter		Sampled at 10:33 am. Blow Counts: 19/47/50
1120	15			same as above with little gravel to 2 inches diameter		Sampled at 10:44 am. Blow Counts: 12/16/19
1115	20			same as above with little gravel to 0.5 inches diameter	No. 60 Transition Sand Lysimeter Body (1000 mL) 10-mesh Native Sand Lysimeter Porous Tip	Sampled at 10:53 am. Blow Counts: 30/43/43
1110	25			Bottom of boring at 25.5 feet below grade.		Sampled at 11:08 am. Blow Counts: 21/27/33

Report: LYSIMETER LOG; File: IEUA_GRRP.GPJ; 3/28/2006

WILDERMUTH™
ENVIRONMENTAL INC.

Project Name: Recycled Water Groundwater Recharge Project
Project Location: Chino Basin, California
Project Number: 007-003
Client: Inland Empire Utilties Agency/Chino Basin Watermaster

LYSIMETER: B-25B

Date Started	6/7/05	Date Finished	6/7/05	Borehole Depth	25.5 feet	Drilling Contractor	Layne-Christensen Drilling
Lat.	34° 5' 42.23"	Long.	117° 29' 53.57"	Drill Bit Size/Type	8.25" Dia./Hollow Stem Bit	Driller	Armando Zimora
Ground Surface Elevation	1135.0 feet			Porous Interval	24.6-25 ft_bgs	Drill Rig Type	CME-75
Top of Casing Elevation	NA			Depth to Groundwater	Not Encountered	Drilling Method	Hollow Stem Auger
Logged By	B. Leever, PG, CHG			Reviewed By	A. Malone	Sampling Method	Split Spoon

Elev., feet-msl	Depth, feet-bgs	Sample	Graphic	MATERIAL DESCRIPTION	LYSIMETER SCHEMATIC AND CONSTRUCTION DETAILS	FIELD NOTES
1135	0			SAND (SP): brown, moist, very fine to fine sand with some silt	Bentonite Chips; Sch. 40 PVC Conduit (1.9")	
1130	5			SAND and GRAVEL (SP-GW): brown, moist, fine to coarse sand with gravel to 3 inches diameter		Sampled at 10:22 am. Blow Counts: 16/42/43
1125	10			same as above with little gravel to 2 inches diameter		Sampled at 10:33 am. Blow Counts: 19/47/50
1120	15			same as above with little gravel to 2 inches diameter		Sampled at 10:44 am. Blow Counts: 12/16/19
1115	20			same as above with little gravel to 0.5 inches diameter	No. 60 Transition Sand; Lysimeter Body (1000 mL); 10-mesh Native Sand; Lysimeter Porous Tip	Sampled at 10:53 am. Blow Counts: 30/43/43
1110	25			Bottom of boring at 25.5 feet below grade.		Sampled at 11:08 am. Blow Counts: 21/27/33

Report: LYSIMETER LOG; File: IEUA_GRRP.GPJ; 3/28/2006

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