



# JOSHUA BASIN WATER DISTRICT

P.O. BOX 675 • 61750 CHOLLITA ROAD • JOSHUA TREE • CALIFORNIA 92252  
TELEPHONE (760) 366-8438 FAX (760) 366-9528 E-MAIL [jbwd@jbwd.com](mailto:jbwd@jbwd.com)

JOSHUA BASIN WATER DISTRICT  
SPECIAL MEETING OF THE BOARD OF DIRECTORS  
WEDNESDAY MARCH 24, 2010, 4:00 PM  
61750 CHOLLITA ROAD, JOSHUA TREE, CA 92252

## AGENDA

1. CALL TO ORDER
2. PLEDGE OF ALLEGIANCE
3. DETERMINATION OF QUORUM
4. APPROVAL OF AGENDA
5. PUBLIC COMMENT
6. CONSENT CALENDAR
  - A. Approve Minutes of the Regular Meeting of March 3 2010
  - B. Approve payment to Ficara for paving in the amount of \$35,020.45
  - C. Approve Project Priority List change.
7. UNITED STATES GEOLOGICAL SURVEY PRESENTATION
8. UNITED STATES GEOLOGICAL SURVEY (USGS) STUDY CONTINUATION  
Recommend that the Board Approve agreement to continue study of the groundwater recharge project in the amount of \$524,450 for federal fiscal year 2009/2010; appropriate \$174,450 from the unappropriated reserves.
9. NAMING OF LANDSCAPE DEMONSTRATION GARDEN  
Recommend that the Board determine the official name of the Landscape Demonstration Garden.
10. DESIGNATE MONTH OF APRIL AS EARTHQUAKE PREPAREDNESS MONTH  
Recommend that the Board recognize the April as earthquake preparedness month.
11. CONSIDER APPROVAL OF BUDGET AMENDMENT FOR PROMOTIONAL CONSERVATION ITEMS  
Recommend that the Board approve budget amendment of \$5,000.

Pages 1-2  
Page 3  
Pages 4-5

Pages 6-33

Pages 34-35

Page 36

12. PROJECT PRIORITY LIST  
An update on staff's progress with assigned projects.
13. PUBLIC COMMENT
14. GENERAL MANAGER REPORT
15. DIRECTOR COMMENTS/REPORTS
16. ADJOURNMENT

The Board of Directors reserves the right to take action on items reserved for discussion only.

INFORMATION

During either "Public Comment" Item, please use the podium microphone. State your name and have your information prepared and be ready to provide your comments to the Board. The District is interested and appreciates your comments. A 3-minute time limit may be imposed. Thank you.

Any person with a disability who requires accommodation in order to participate in this meeting should telephone Joshua Basin Water District at (760) 366-8438, at least 48 hours prior to the meeting in order to make a request for a disability-related modification or accommodation.

Materials related to an item on this Agenda submitted to the Board of Directors after distribution of the agenda packet are available for public inspection in the District's office located at 61750 Chollita Road, Joshua Tree, California 92252 during normal business hours.

**JOSHUA BASIN WATER DISTRICT**  
**Minutes of the**  
**REGULAR MEETING OF THE BOARD OF DIRECTORS**  
**March 3, 2010**

**1. CALL TO ORDER 7:00 PM**

**2. PLEDGE OF ALLEGIANCE**

**3. DETERMINATION OF QUORUM:** By roll-call:  
Gary Given Present  
Bill Long Present  
Mickey Luckman Present  
Mike Reynolds Present  
Gary Wilson Present

**STAFF PRESENT:** Joe Guzzetta, General Manager  
Susan Greer Assistant GM/Controller  
Terry Spurrier, HR/Administrative Services Supervisor

**CONSULTANTS:** Kathleen Radnich, Public Information and Outreach

**GUESTS: 6**

**4. APPROVAL OF AGENDA**

MSC Long/Reynolds 5/0 to approve the agenda for the March 3, 2010 Regular Meeting of the Board of Directors.

**5. PUBLIC COMMENT**

None.

**6. CONSENT CALENDAR**

Director Wilson requested clarification of item D; after discussion the Board took the following action: MSC Luckman/Long 5/0 to approve the minutes of the Special and Regular Meeting of February 17, 2010; to Approve the minutes of the Water and Land Use Forum February 18-19 2010; to approve the financial report for January 2010, and to waive current and future late fees for Copper Mountain College.

**7. REPORT ON 2009 WORK-RELATED INJURIES AND ILLNESSES - NONE**

Assistant GM/Controller Susan Greer gave the staff report noting that the District had no reportable work-related injuries in 2009. This is the second year of no injuries. She emphasized the safety programs underway. Board Members commended and congratulated all district staff on its conscientiousness for safety.

**8. LETTER TO 3<sup>RD</sup> DISTRICT SUPERVISOR NEIL DERRY**

Vice President Luckman requested that the Board send a letter to 3<sup>rd</sup> District County Supervisor Neil Derry advising him that the zoning of Section 33 is of considerable concern to the community, an issue that was raised at the recent Forum on Land Use and Water Policy sponsored by JBWD and the County of San Bernardino. She emphasized that the District is not suggesting an appropriate density since land use and density are within the authority of the County.

Director Reynolds expressed concern that just the fact of formally writing a letter could be understood as supporting a down-zoning.

Steve Whitman noted that the Joshua Tree Municipal Advisory Committee will consider Section 33 at a special meeting on Thursday, March 4 and that Supervisor Derry will attend; that ownership will likely be retained by the lender of Section 33 after foreclosure sale; and that the Board should

avoid giving the appearance of support of down-zoning of Section 33. Al Marquez spoke in opposition to sending the letter. Following discussion no action was taken.

**9. USGS WELL DRILLING**

General Manager Joe Guzzetta gave the staff report advising that the Board had previously approved a budget containing \$360,000 for a well at the proposed site of the ground water recharge project, and had also approved a contract with USGS providing for drilling of the well.

MSC Long/Luckman 4/1 to reaffirm authorization to spend \$350,000 for the United States Geological Survey to drill the monitoring well at the Ground Water Recharge Pond Site.

Given	Aye
Long	Aye
Luckman	Aye
Reynolds	Aye
Wilson	No

**10. PUBLIC COMMENT**

Al Marquez of Joshua Tree referred to a newspaper article reporting that a homeowner in Orange, California, was prosecuted for having less than 40% of his front yard covered with landscaping although he stated he was attempting to save water.

**11. GENERAL MANAGER REPORT**

General Manager Guzzetta advised the Board that the Local Agency Formation Commission (LAFCO) has conducted a Municipal Service Review of Hi Desert Water District and identified 640 acres in the Homestead Valley area that are in no water district sphere of influence. They have proposed placing 75% of the area in the Hi Desert Water District Sphere of Influence and 25% in the Joshua Basin Water District Sphere of Influence. The 25% should be addressed formally when LAFCO conducts the Joshua Basin Water District Municipal Service Review

He reported that he, Director Luckman, and other staff were at the Mojave Water Agency (MWA) Technical Advisory Committee today where the 2010 Urban Water Management Plan was discussed extensively. GM Guzzetta has asked Kennedy-Jenks, consultant for MWA, to submit a proposal to Joshua Basin Water District to prepare an Urban Water Management Plan “piggy-backing” on MWA’s plan.

**12. DIRECTOR COMMENTS/REPORTS**

Director Long reported that he attended the MWA Board meeting last Thursday where there was extensive discussion about the amount of State Water Project water that will be available this year, and the cost for the water. Director Luckman reported that she attended the MWA Technical Advisory Committee meeting earlier today as reported by the General Manager. Director Reynolds noted that water usage in Joshua Basin Water District was 9% lower than last year for the month of January.

**13. ADJOURNMENT 7:40 PM**

MSC Long/Luckman 5/0 to adjourn the March 3, 2010 Regular Meeting of the Board of Directors.

Respectfully submitted;

---

Joe Guzzetta, General Manager

The next Regular Meeting of the Board of Directors is scheduled for March 3, 2010.

JOSHUA BASIN WATER DISTRICT  
SUPPLEMENTAL DATA SHEET

Special Meeting of the Board of Directors

March 24, 2010

Report to: President and Members of the Board  
From: Joe Guzzetta, General Manager



TOPIC: FICARA PAVEMENT PAYMENT

RECOMMENDATION: That the Board authorize payment of \$35,020.45 to Ficara Paving Company for pavement repairs throughout the District.

ANALYSIS: The District recently requested \$20,604 of street paving from Ficara Paving for pavement repairs due to water line repairs and replacement throughout the District.

At the same time that Ficara Paving was doing site inspection for the anticipated street repairs, they reviewed with our staff the next list of paving locations in order to give an estimated cost. However, when the contractor set up crews to make the repairs they mistakenly repaired some of the streets from the second unauthorized list, until they realized the error.

Since the work was completed and was necessary, even though unauthorized, staff recommends that the Board authorize payment of the full \$35,020.45 amount.

Joshua Basin Water District has used Ficara by "piggy-backing" on the Hi Desert Water District bid which is valid through April 2010. Hi Desert Water District will not be bidding again because they have purchased equipment to perform pavement repairs in-house. JBWD is preparing our own package to go to bid in the next few months.

Approval of this report will authorize payment of work that was necessary and that was performed.

JOSHUA BASIN WATER DISTRICT  
SUPPLEMENTAL DATA SHEET

Special Meeting of the Board of Directors

March 24, 2010

Report to: President and Members of the Board  
From: Joe Guzzetta, General Manager



TOPIC: PROJECT PRIORITY LIST CHANGE

RECOMMENDATION: That the Board delete the "Landscape Ordinance, Public Outreach Program, and Equipment Carport at Shop from the Project Priority List.

ANALYSIS: Staff proposes that the three items on the Project Priority List be deleted from the list for the following reasons:

Landscape Ordinance

JBWD was very involved with the Alliance for Water Awareness and Conservation (AWAC) in developing a model landscape ordinance that required low water-usage landscape for new development. The ordinance was adopted by several High Desert Cities including Barstow, Victorville, and Apple Valley. However, JBWD did not adopt the ordinance since JBWD is not the land use agency, making it difficult to enforce an ordinance on new development.

Coincidentally, the State of California enacted legislation that will require the County to have a landscape ordinance. JBWD intends to work with the County and AWAC to assure that the ordinance adopted by the County is appropriate for the High Desert. In the meanwhile there is little for the District to do other than monitor the state legislation.

Public Outreach Program

This is well underway and will be considered for further funding with the new budget in June. The purpose of placing this on the priority list seems to have been accomplished.

Equipment Carport at Shop

A carport at the shop was proposed several years ago to cover the trucks and backhoes. Since then the shop has been reorganized so that the backhoes can be stored inside at night or when not being used during the day.

Most of the trucks are used during the day, so they would be in the most intense heat Monday through Friday and would not seem to benefit from a carport. Staff proposes at sometime in the future to construct a new building that would contain the trucks for security purposes at night and weekends.

It is recommended that the Board accept these changes to the Project Priority List or provide alternative direction.

JOSHUA BASIN WATER DISTRICT  
SUPPLEMENTAL DATA SHEET

Special Meeting of the Board of Directors

March 24, 2010

Report to: President and Members of the Board  
From: Joe Guzzetta, General Manager



TOPIC: UNITED STATES GEOLOGICAL SURVEY (USGS) STUDY  
CONTINUATION

RECOMMENDATION: That the Board take the following action:

- 1) Approve an agreement with USGS to continue the study of the ground water recharge project in the amount of \$524,450 for federal fiscal year 2009/2010; and
- 2) Appropriate \$174,450 from the unappropriated reserves (the balance has already been approved).

ANALYSIS: In October, 2006, the Board approved a four-year cooperative study with USGS at a total cost of \$1,200,000 with a first year budget of \$400,000. Although the agreement is for four years the federal budget process requires USGS to have a new contract each year in order to assure that federal funding for the USGS share. The purpose of the study is to determine the residential density that can be supported by a standard septic system, and to study geological characteristics that would be important to know for a water recharge program.

The 4-year projection for the District's share of the studies is expected to be about \$1,200,000. The District spent \$385,000 in year one, and \$164,000 in year two. The District budgeted \$514,000 for year three. However, most of that was for drilling of the well at the groundwater recharge project and only \$126,000 was spent. The District expects to spend about \$524,450 in year four, with an extension to a fifth year for the balance of the project which will occur after recharge begins.

The budget for the current year includes drilling a well at the site of the recharge project as a final confirmation of the surface studies that the site is suitable for recharge.

Approval of this agreement will provide the best possible data to assure that the recharge site is appropriate for recharge, and will give information pertaining to the effects of septage the groundwater.





IN REPLY REFER TO:

## United States Department of the Interior

### U. S. GEOLOGICAL SURVEY

California Water Science Center  
6000 J Street, Placer Hall  
California State University  
Sacramento, California 95819-6129  
Phone: (916) 278-3026 Fax: (916) 278-3045  
<http://water.wr.usgs.gov>

March 5, 2010

Mr. Joseph Guzzetta, General Manager  
Joshua Basin Water District  
Post Office Box 675  
61750 Chollita Road  
Joshua Tree, California 92252

Dear Mr. Guzzetta:

This letter confirms discussions between our respective staffs, concerning the continuation of the cooperative water-resources program between the Joshua Basin Water District (JBWD) and the U.S. Geological Survey (USGS) to study the effects of artificial recharge on ground water in the Joshua Tree Subbasin during the period November 1, 2006 to October 31, 2010.

This is the fourth and final year of a scheduled four-year study. The study consists of six principal tasks: (1) characterize the hydraulic, chemical, and microbiological properties of the unsaturated zone; (2) evaluate potential artificial-recharge sites; (3) monitor changes in water levels and water quality in response to the artificial-recharge program; (4) develop ground-water flow and transport models of the Joshua Tree subbasin; (5) evaluate water-management strategies (artificial recharge, pumping, etc.) identified by JBWD; and (6) publish the results of the study. Work began on tasks 1 and 3 in Federal Fiscal Year 2007 (FFY07) and task 2 was completed in FFY07. A detailed description of progress on these tasks in FFY09 and plans and costs for these tasks in FFY10 is included as an attachment to this letter. Note that due to delays in constructing the artificial-recharge site, proposed work related to monitoring water levels and water quality in response to the artificial-recharge program (Task 3) will not be completed as part of the current cooperatively funded water-resources program. The USGS will submit an amended proposal to complete the artificial-recharge-related work, when imported water is available for recharge.

The total cost of the proposed cooperative water-resources program in FFY10 is estimated to be \$599,450. Of this total, \$259,000 are fixed-price costs associated with the completion of Tasks 3-5. JBWD will contribute \$184,000 to the completion of these tasks, and subject to the availability of Federal Matching Funds (FMF), the USGS will contribute \$75,000. A total of \$340,450 is reimbursable costs associated with the drilling and installation of an unsaturated-zone monitoring site near the proposed artificial recharge site (Task 1).

**Mr. Joseph Guzzetta, General Manager, Joshua Basin Water District**

Note that it is the policy of the USGS that drilling costs are “reimbursable costs” because these are variable depending on environmental conditions, equipment, etc.; therefore, the costs may be greater or less than estimated. If the costs are greater, JBWD has the option of stopping work, modifying work objectives, or agreeing to pay any additional costs. If the costs are less, JBWD will be billed appropriately. USGS California Water Science Center policy does not allow FMF to be used for laboratory, drilling, and supply expenses; therefore, the total costs for the installation of the monitoring site will be the responsibility of JBWD. A breakdown of the costs associated with each task in FFY10 is provided in table 1.

Table 1: FFY10 Budget

Task	USGS	JBWD	Total
1: Drilling (reimb)	\$0	\$340,450	\$340,450
1: Drilling (fixed)	\$	\$	\$0
2: Evaluate AR sites	\$0	\$0	\$0
3: Monitoring		0	0
Lab:	\$0	\$3,500	\$3,500
Labor	\$8,000	\$14,400	\$22,400
4: UZ Modeling	\$7,000	\$32,100	\$39,100
5: Evaluate Regional Effects	\$20,000	\$52,000	\$72,000
6: Report	\$40,000	\$82,000	\$122,000
Total	\$75,000	\$524,450	\$599,450

Enclosed, you will find two sets (4 each) of original Joint Funding Agreements (JFA). Both sets of JFAs are for the period November 1, 2006 to October 31, 2010.

Work performed with funds from the JFA 07W4CAD28100, Amendment 5 (for work associated with Tasks 1 through 5) that will be conducted on a fixed-price basis. Total cost of the proposed program associated with JFA 07W4CAD28100, Amendment 5 during this agreement period is \$259,000. Cost to JBWD is \$184,000 and, subject to the availability of Federal Matching Funds, the USGS will provide \$75,000.

Work performed with funds from the JFA 07W4CAD28110, Amendment 5 (for work associated with the drilling component of Task 1) will be conducted on a reimbursable cost basis. The total estimated cost of Task 1 for FFY10 is \$340,450. JBWD already has signed agreements totaling \$519,150.00 for the completion of this work. JFA 07W4CAD28110, Amendment 5 is a no cost extension that extends the date of this agreement to October 31, 2010. Because this is a reimbursable agreement, only the actual costs will be billed towards this agreement. Federal Matching Funds are not available for this work.

If you are in agreement with these proposed programs, please return three fully signed originals of each set of JFAs to our office for further processing. The fourth JFA for each agreement is for your files. After signature by the USGS, a fully executed original of each agreement will be forwarded to JBWD for your records.

**Mr. Joseph Guzzetta, General Manager, Joshua Basin Water District**

The USGS is required to have agreements in place prior to any work being performed on a project. We request that an agreement be signed prior to March 19, 2010. If an agreement is not received by March 1, we will be required to suspend operations until an agreement is received.

If you have any questions concerning this program, please contact Peter Martin, in our San Diego Project Office at (619) 225-6127. If you have any administrative questions, please contact Irene Rios, in our San Diego Office, at (619) 225-6156.

Sincerely,



Eric Reichard  
Director  
USGS California Water Science Center

Enclosures:

cc: Peter Martin, CA WSC

Mr. Joseph Guzzetta, General Manager, Joshua Basin Water District

## **Joshua Basin Water District Cooperative Program: Progress, Plans, and Costs**

### ***Task 1 - Characterize the Unsaturated Zone***

#### **Progress**

Two monitoring sites were installed in June 2007 adjacent to a residential area presently receiving septic discharges (JTUZ-1 and 2). JTUZ-1 is 532 ft deep and JTUZ-2 is 78 ft deep. A new monitoring site is scheduled to be installed by the USGS adjacent to the planned artificial-recharge site located on the east side of the Joshua Tree basin (JTUZ-4) in Federal fiscal year 2010 (FFY10). JBWD was concerned that the proposed artificial-recharge site may have hydrogeologic features (e.g. caliche or clay layers) that may inhibit the downward flow of artificial recharge. The USGS installed a shallow (about 100 ft deep) borehole (JTUZ-3) in December 2009 using an auger rig downgradient of the proposed site for JTUZ-4. Drill cuttings were collected and inspected for strata that may inhibit artificial recharge. This borehole has a lysimeter and two heat-dissipation probes installed. The cost for installing and instrumenting this shallow borehole was \$25,000. This cost was not included in the FY09 budget and, therefore, this cost is included with the FFY10 budget.

#### **Proposed Work**

In FFY10, a new monitoring site will be installed by the USGS adjacent to a planned artificial recharge site (JTUZ-4). The estimated depth of JTUZ-4 is 500 ft. JTUZ-4 will have the following instrumentation installed: one two-inch piezometer perforated at the water table, up to four advanced tensiometers, up to eight heat-dissipation probes, as many as six suction-cup lysimeters, and five air samplers. At least six cores will be collected at selected depths; these cores will be analyzed for physical, saturated, and unsaturated properties. The drilling is currently scheduled for March 2010 at a site to be determined by JBWD. As stated in the FFY08 program letter, the total cost for installing JTUZ-4, including instrumentation purchase, calibration, and installation (downhole and surface), water-chemistry analysis, and soil sample analysis, is estimated to be \$315,450. Recall that drilling costs are reimbursable; therefore, the costs maybe higher depending on the cost of materials, labor, and drilling conditions encountered.

***Total FFY 2010 cost for Task 1 -***

***\$340,450***

**Mr. Joseph Guzzetta, General Manager, Joshua Basin Water District**

***Task 2 – Evaluate Potential Artificial Recharge Sites***

**Progress**

A paper describing the results of Time-Domain Electromagnetic data collected on the west side of the Joshua Tree groundwater basin, north of 29 Palms Highway was submitted for publication in Geophysics. The data indicated that the Pinto Mountain Fault is a barrier to groundwater flow and if imported water is spread north of the fault, new wells would be needed on that side of the fault to extract any recharged water.

**Proposed Work**

No work is proposed for FFY10.

***Total FFY 2010 cost for Task 2 -***

***\$0***

**Mr. Joseph Guzzetta, General Manager, Joshua Basin Water District**

### ***Task 3 – Data Collection***

#### **Progress**

In FFY09, water-quality samples were collected from the lysimeters at JTUZ-1 and 2, volume permitting. The nitrate concentrations were very high (well above the MCL of 10 mg/L as N) in samples from JTUZ-1 lysimeters at 91 and 346 ft below land surface (bls) (fig. 1b). The nitrate concentrations in samples from the lysimeter at 91 ft bls were as high as 1,000 mg/L as N. These nitrate concentrations greatly exceed the nitrogen concentration commonly associated with septic-tank effluent. A possible source for these high concentrations is the mineralization and subsequent leaching of naturally occurring nitrogen in the unsaturated zone. Because of the desert climate, nitrogen from buried plant material has not been mineralized and leached by the percolation of rainfall for many thousands of years. The nitrate concentrations in samples from the lysimeter at 346 ft bls are about 100 mg/L as N (fig. 1a). These nitrate concentrations are on the high end of reported nitrate concentrations in septic-tank effluent. The nitrate concentrations were low (< 6 mg/L as N) in samples collected from JTUZ-1 lysimeter at 516 ft bls (fig. 1a). The low nitrate concentrations may indicate that the wastewater front has not yet reached the depth of the lysimeter or that denitrification is occurring in the unsaturated zone. Nitrate concentrations in samples from JTUZ-2 lysimeter at 61 ft bls ranged from about 20-45 mg/L as N (fig. 2). These nitrate concentrations are in the range of reported nitrate concentrations in septic-tank effluent.

The dissolved-organic carbon (DOC) concentrations exceeded 350 mg/L in samples from JTUZ-1 lysimeters at 346 and 516.5 ft bls; however, the DOC concentrations were low in samples from the well at JTUZ-1 (fig. 4). The DOC concentrations in samples from JTUZ-1 lysimeters at 346 and 516.5 ft bls are significantly higher than reported DOC concentrations in septic-tank effluent. Additional data need to be collected to determine the source of the high DOC concentrations. The tri-halomethane formation potential (THMFP) concentrations are very high in samples from JTUZ-1 lysimeters at 91 and 516.5 ft bls; THMFP concentrations were not analyzed in samples collected from the lysimeter at 346 ft bls because of low sample volume.

In addition to water-quality data, the water-level, matric-potential, and temperature data were collected from the unsaturated-zone instrumentation at JTUZ-1 and 2 (figs 5-8). Recent data are relatively constant with a slight decline in the JTUZ-1 water-level data (fig. 5). The data indicate that the wetting front monitored at JTUZ-1 has not reached the water table. The matric-potential data indicate that the front is between 343 and 461 ft bls (fig. 6A) while the suction-cup lysimeter data indicate that the wetting front is at least at 346 ft bls (fig. 1A).

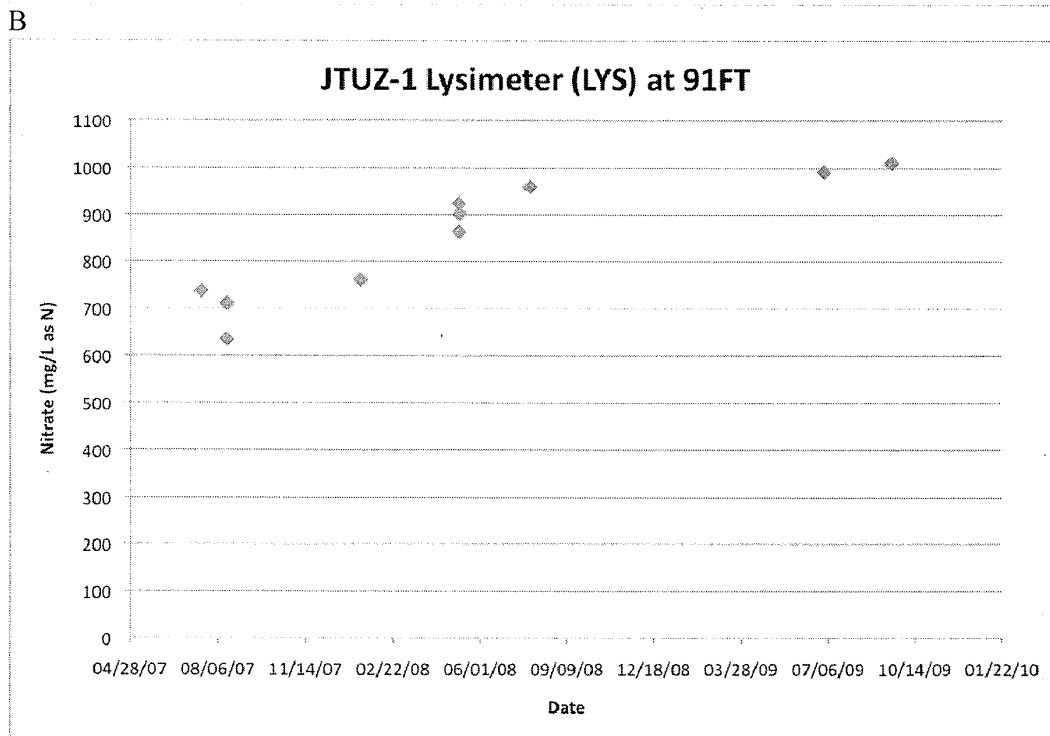
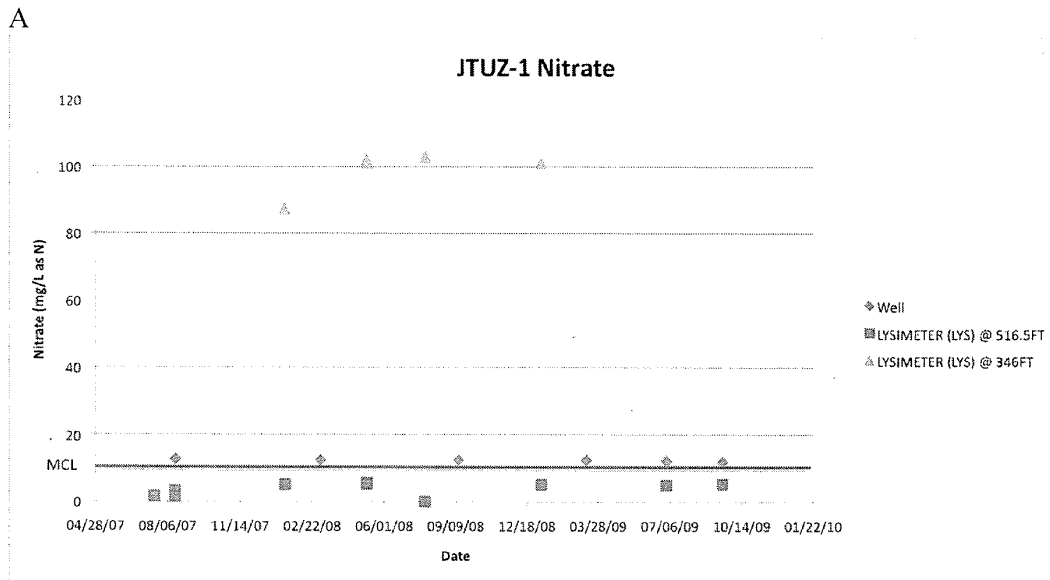


Figure 1: Time-varying nitrate concentrations collected from lysimeters at site YVUZ-1: A) Well, lysimeter at 516.5 ft and lysimeter at 346 ft; and B) lysimeter at 91 ft.

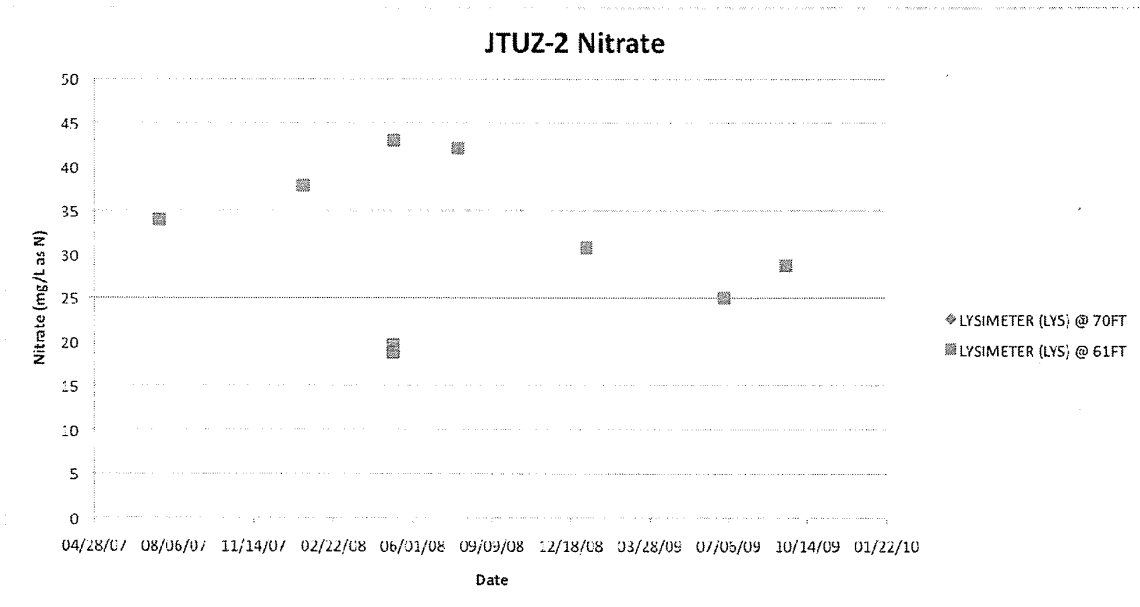


Figure 2: Time-varying nitrate concentrations collected from a lysimeter at site JTUZ-2

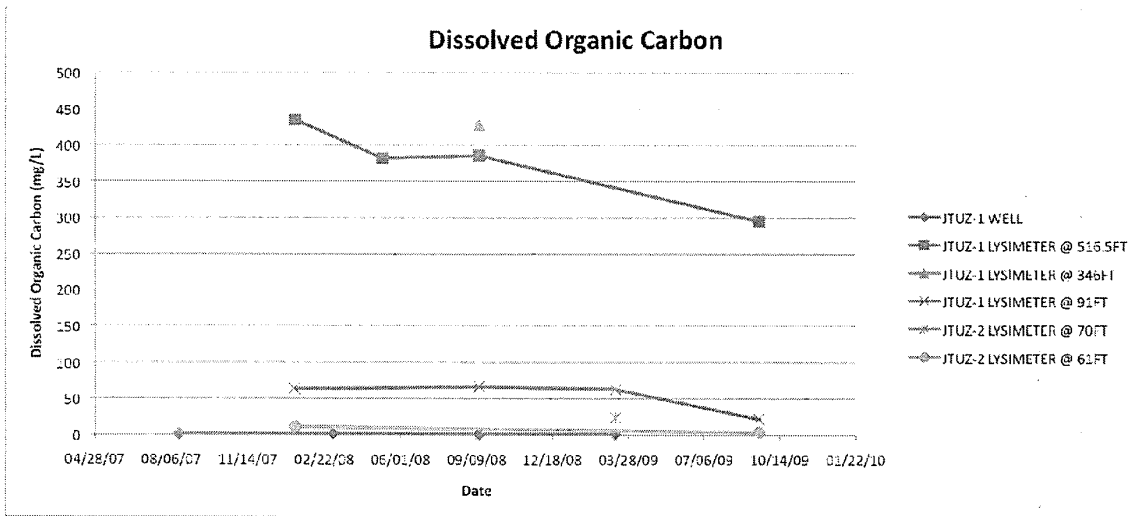


Figure 3: Time-varying dissolved-organic carbon concentrations from lysimeters at JTUZ-1 and 2 and the piezometer at JTUZ-1.



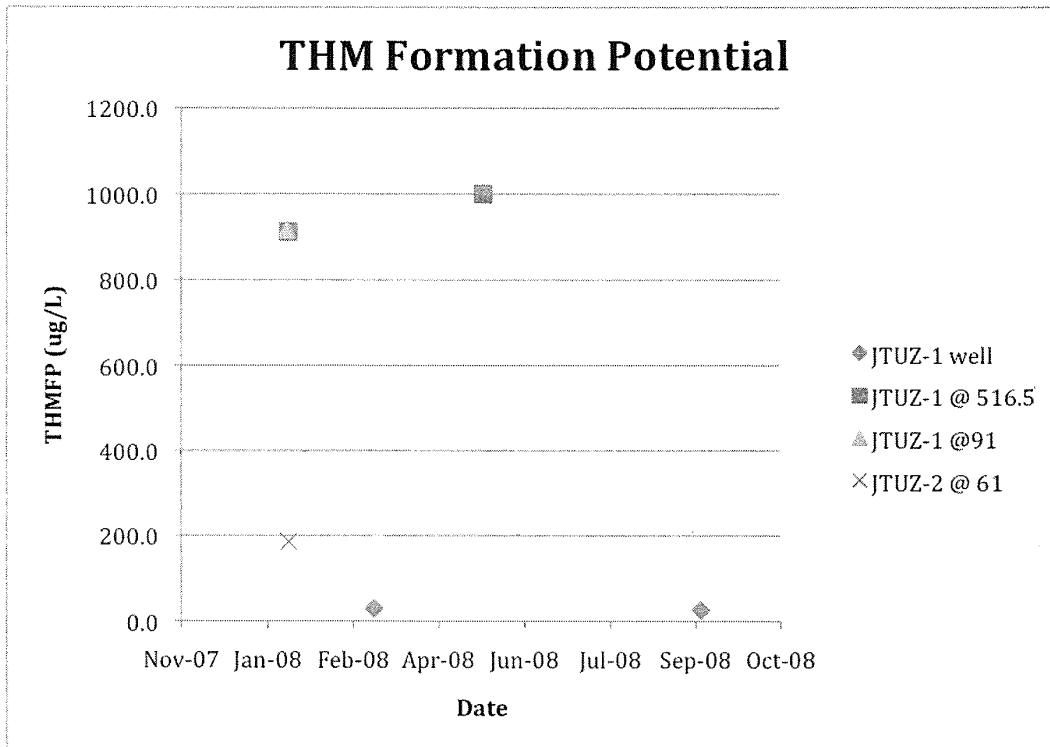


Figure 4: Time-varying tri-halomethane formation potential concentrations from lysimeters at JTUZ-1 and 2 and the piezometer at JTUZ-1.

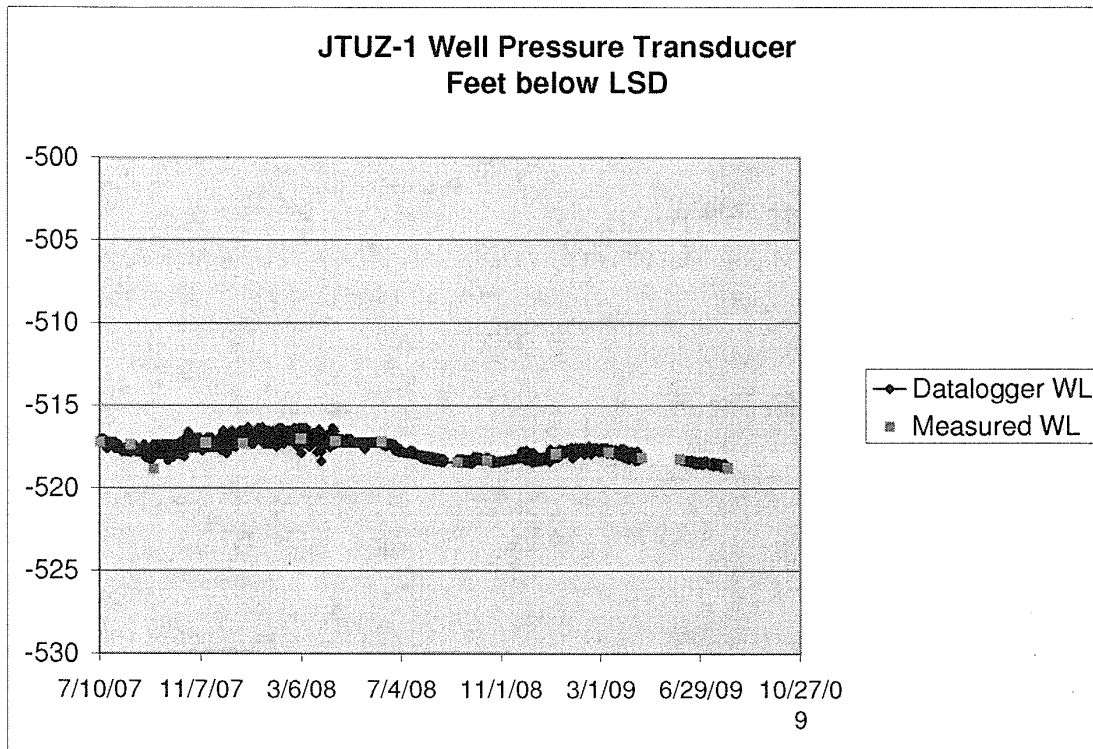
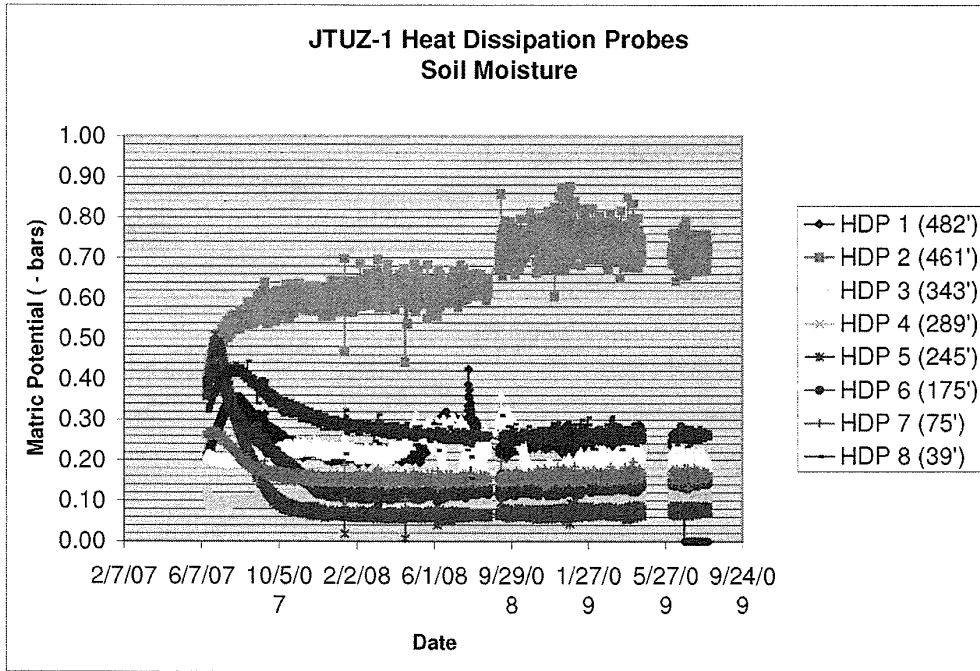


Figure 5: Time-varying water-level data from the piezometer at JTUZ-1.

A



B

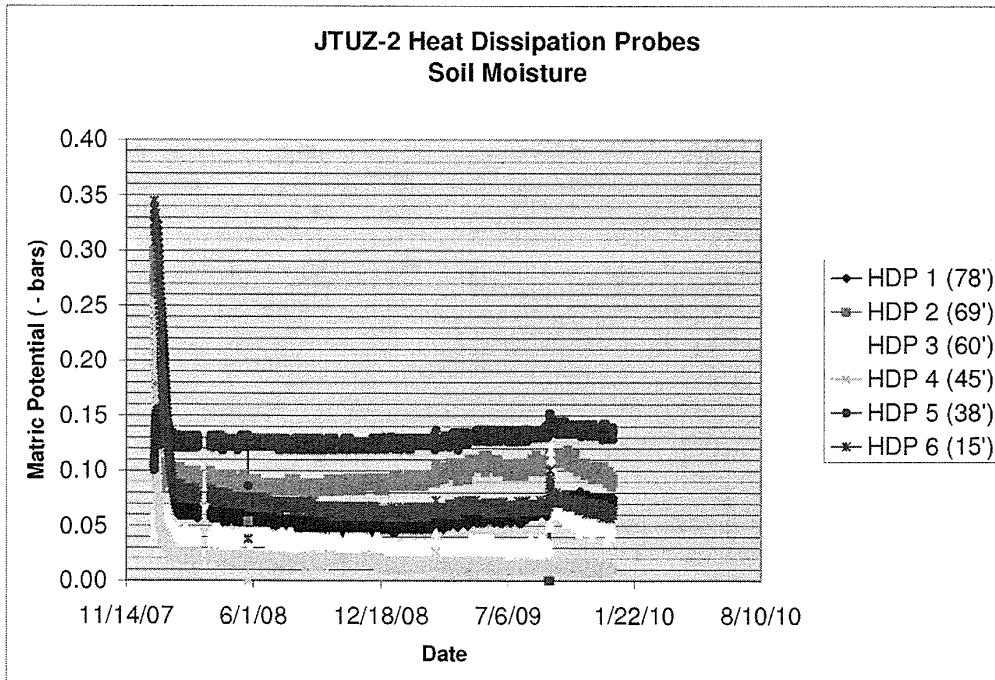
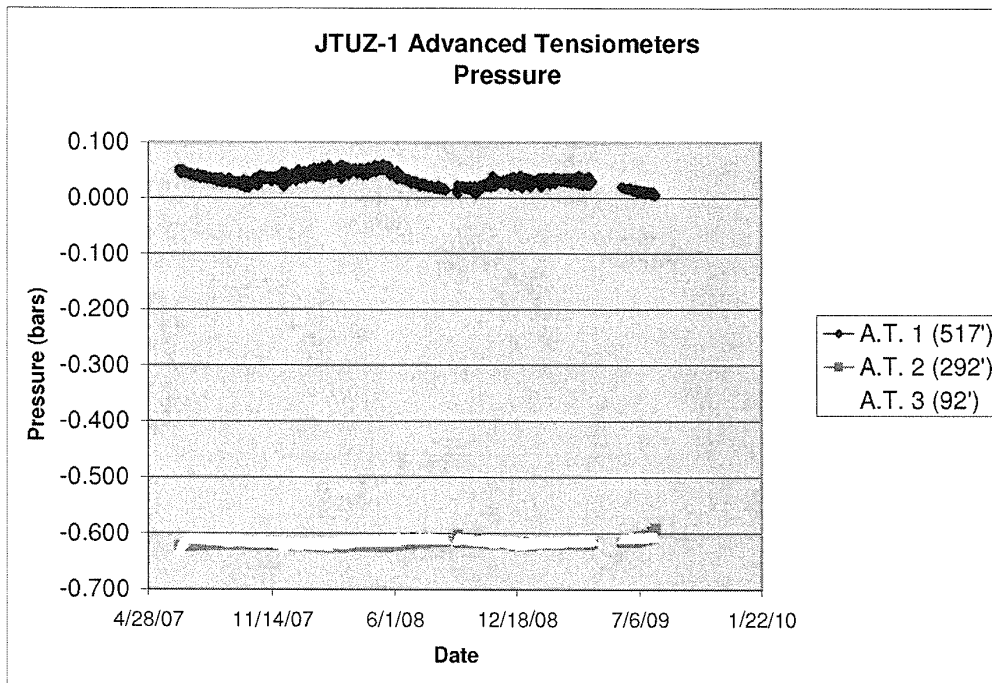


Figure 6: Time-varying matric-potential data from heat-dissipation probes at A) JTUZ-1 and B) JTUZ-2.

A



B

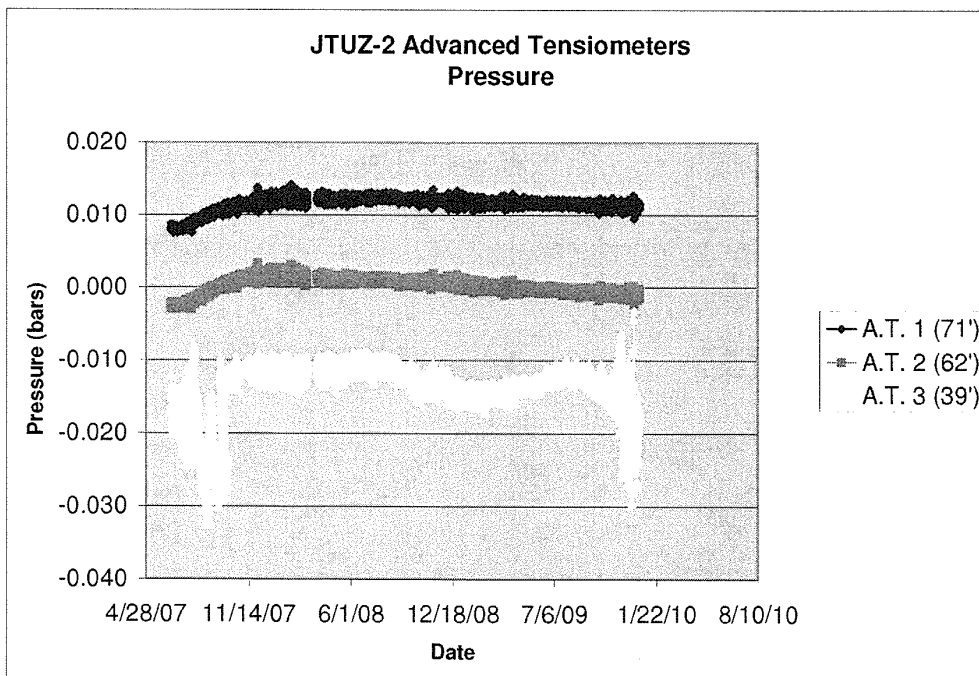
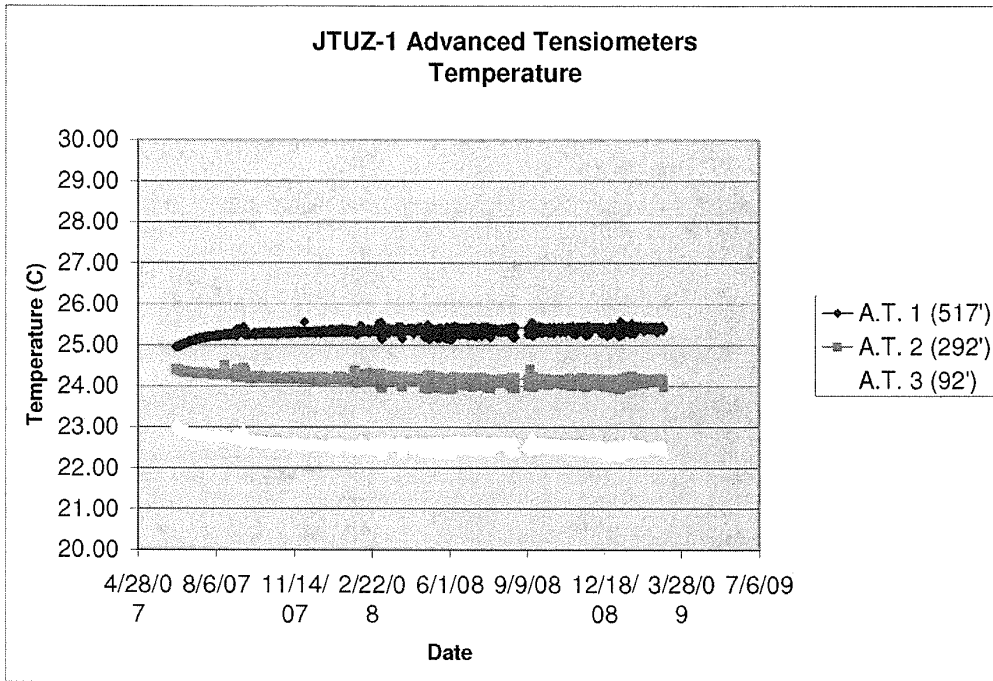


Figure 7: Time-varying matric-potential data from advanced tensiometers at A) JTUZ-1 and B) JTUZ-2.

A



B

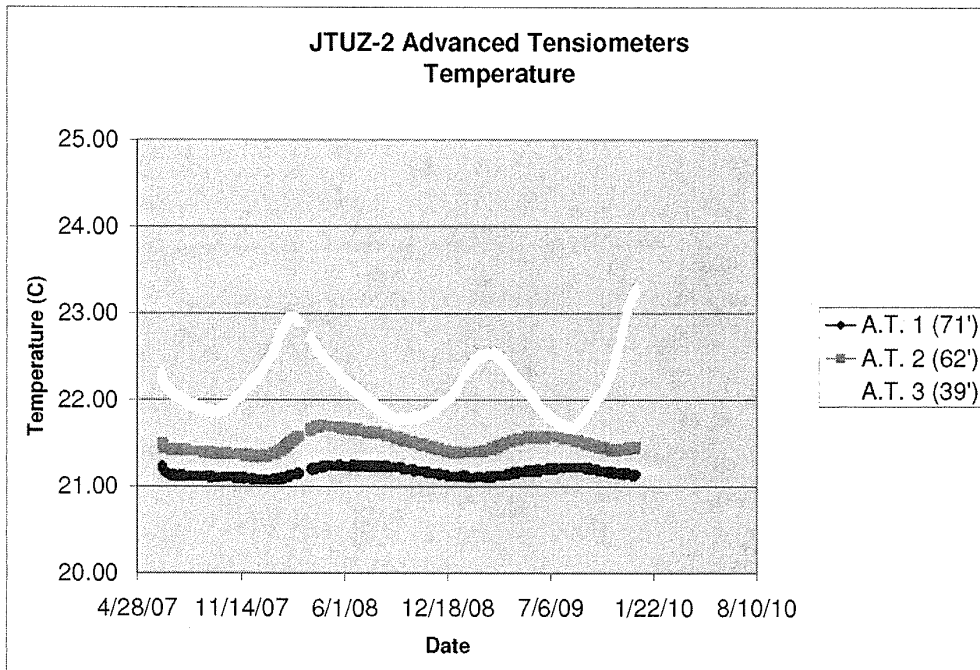


Figure 8: Time-varying temperature data from advanced tensiometers at A) JTUZ-1 and B) JTUZ-2.

## **Proposed Work**

Water-level, matric-potential, and temperature data will be collected from the unsaturated-zone monitoring sites JTUZ1-3 at 4-hour intervals and downloaded bi-monthly. The water-quality data collected from JTUZ-1 lysimeters at 91 and 291 ft bls and the JTUZ-2 lysimeters are not changing with time; therefore, samples will not be collected from these sites in FFY10. Samples will be collected from the JTUZ-1 lysimeters at 346, 464, and 517 ft bls on a bi-monthly basis to monitor the downward movement of septic-tank effluent at the site. An electro-magnetic (EM) log will be collected at JTUZ-1 in FFY10 to determine the location of the wetting front. The cost of maintaining the instruments and data analysis is \$20,800. The total cost of the lab analyses is \$3,500. The cost of collecting the EM log and analyzing the results is \$1,600.

*Total FFY 2010 cost for Task 3 -*

**\$25,900**

## **Task 4 –Unsaturated-Zone Flow and Nitrate Transport**

### **Progress**

The purpose of this task is to develop an unsaturated-zone flow and transport model that will allow a detailed, local-scale investigation of the effects of land use, and subsequent septic load, on groundwater quality in the Joshua Tree groundwater subbasin. A preliminary numerical model of the unsaturated zone in the Joshua Tree area was developed using the new simulator TOUGHREACT (Xu et al., 2004), which is TOUGH2 (Pruess et al., 1999) with the addition of reactive transport. TOUGHREACT is a numerical simulation program for chemically reactive non-isothermal flows of multiphase fluids in porous media. Basically, TOUGHREACT adds multi-component reactive solute transport to TOUGH2 and will better deal with the reactive chemistry of nitrates and other constituents in the unsaturated zone. At this time, the released version of TOUGHREACT does not contain biogeochemistry for biological decomposition of nitrate; however, the biogeochemistry has been successfully added to the research version and will be released within 3 months. The model being developed with the current version will be easily converted when the new code is released.

The initial modeling domain was approximately 1,476 ft (450 m) by 1,476 ft (450 m) (approximately 50 acres) (fig. 9). The model domain is 540 ft (165 m) deep with 13 alluvial layers based on review of the geophysical logs and laboratory analysis of borehole samples. The model contained approximately 67,500 grid elements with the surface area containing 16 model elements per acre. The preliminary results (discussed later) suggest that small lateral flow (fig. 10 and fig. 11); therefore, the modeling domain can be reduced by 70 percent and still provide similar results. This will greatly reduce the run time of the model to allow additional scenario development. One surface model element is approximately 2,400 ft<sup>2</sup> (the approximate area of a typical leach field). This configuration allows for quarter acre parcel to contain four grid cells to test various locations for a septic leach field in the simulation and allows for development of as small as a quarter acre and maintains the flexibility to locate septic leach fields within four locations in each quarter acre parcel (larger parcels also will be tested). The lateral boundaries of the model are no-flow boundaries. The bottom boundary is the water table and the upper boundary is a standard atmospheric with specified flux of septic tank effluent. By assuming symmetry the modeling domain can be used to represent one quarter of the housing development

by putting the housing in the corner of the domain such that coalescent leach fields can only migrate outward from the center of the housing development. This also allows for faster simulation time but would get the same results as long as the leach field migration does not reach the edge of the modeling domain.

The initial housing density of four housing units per acre in a 25-acre development centered in a 200 acre open space was used test TOUGHREACT (fig. 10). We assume that each housing unit contributes 220 gallons per day as septic-tank effluent. Under these conditions the septic-tank effluent reaches the water table in 25 years and reaches steady state in about 100 years (fig. 11). The effluent plume extends approximately 200 feet (60 m) beyond the edge of the housing development into the open space in the unsaturated zone by the time it reaches the water table. The vertical distribution of calibrated saturated vertical hydraulic conductivity values is shown in figure 12.

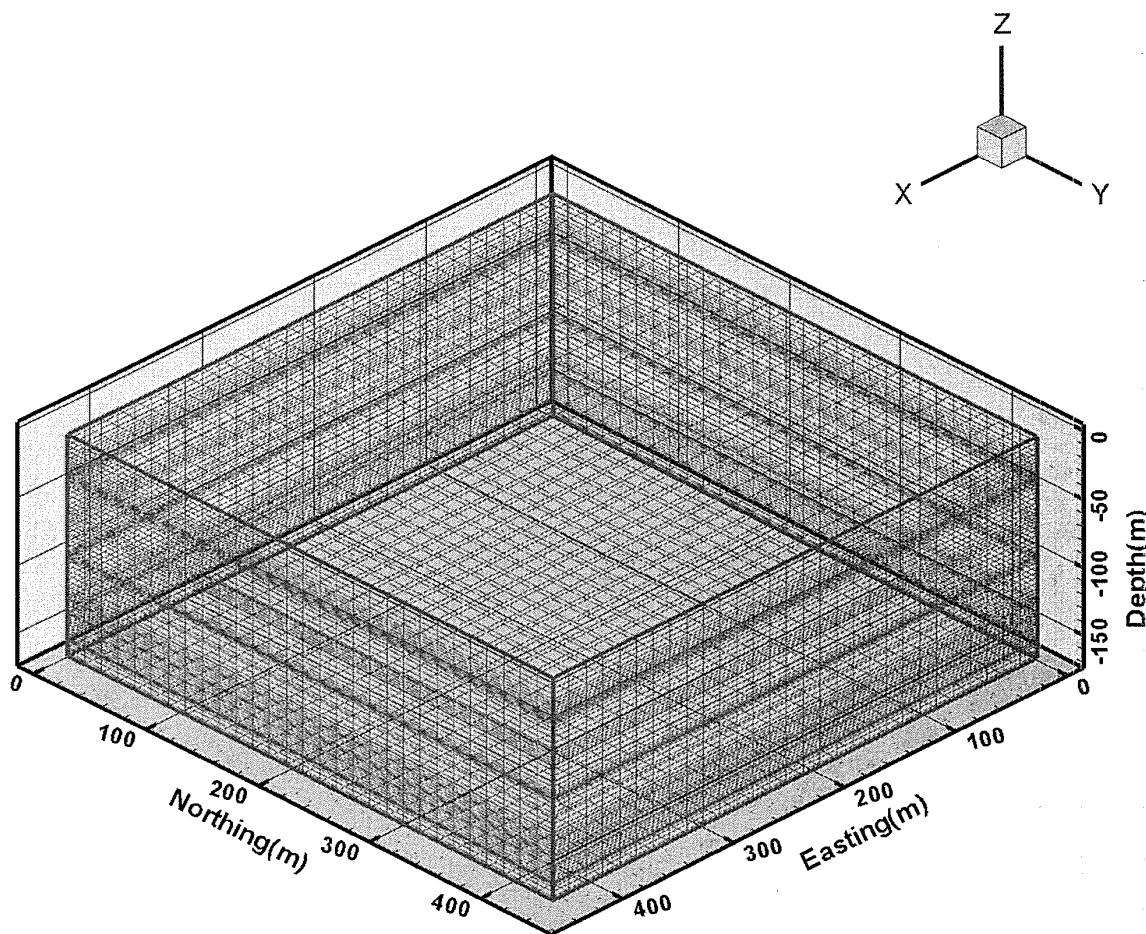


Figure 9: TOUGHREACT finite-element model grid

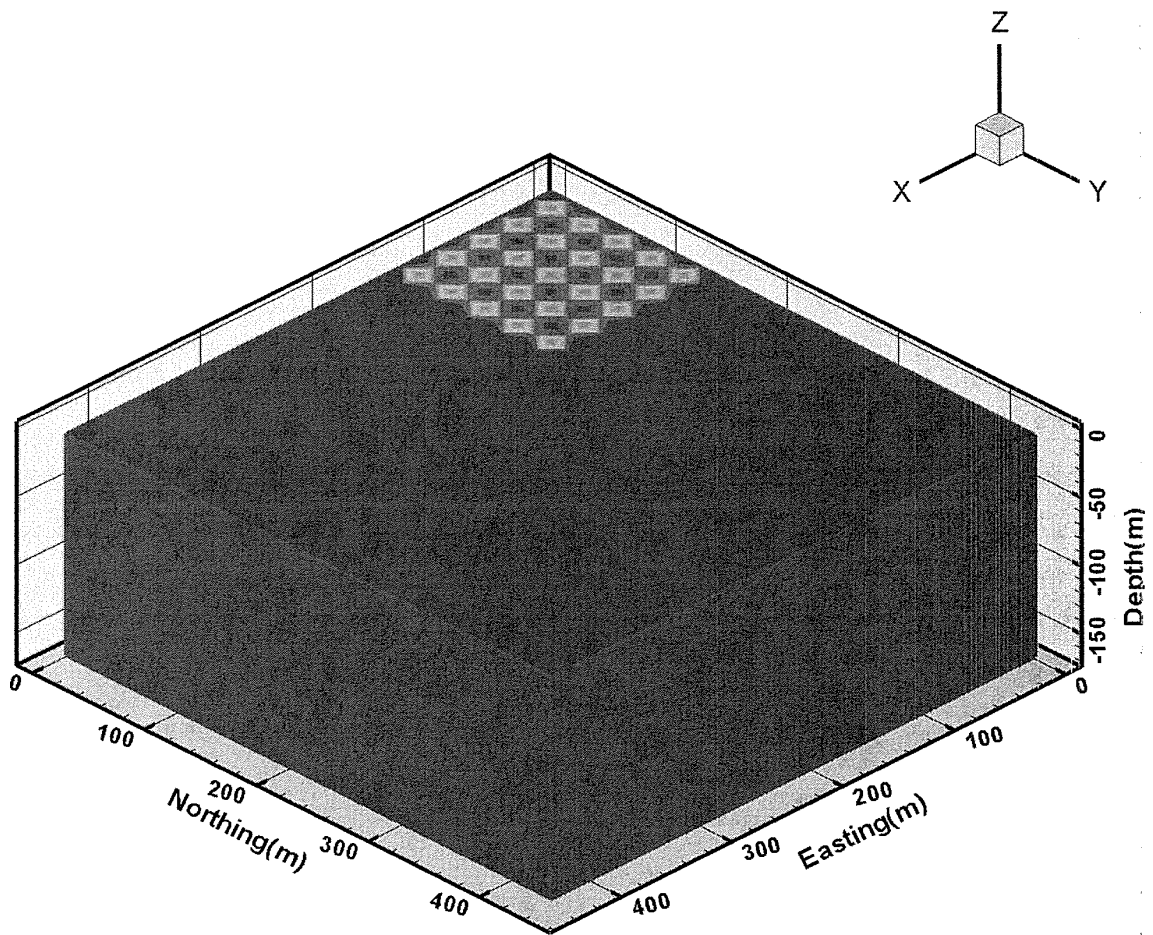


Figure 10: Locations of septic tanks for quarter-acre development TOUGHREACT simulations.



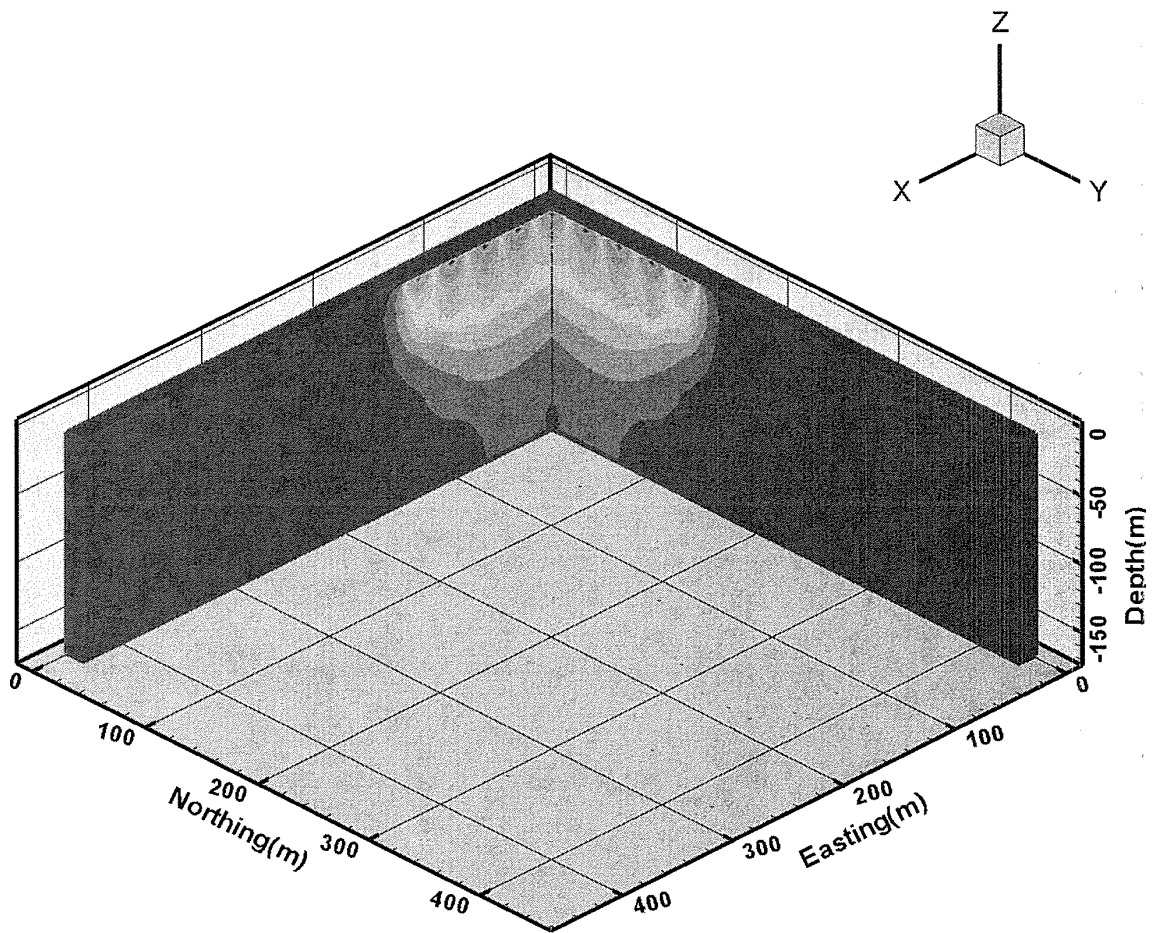


Figure 11A

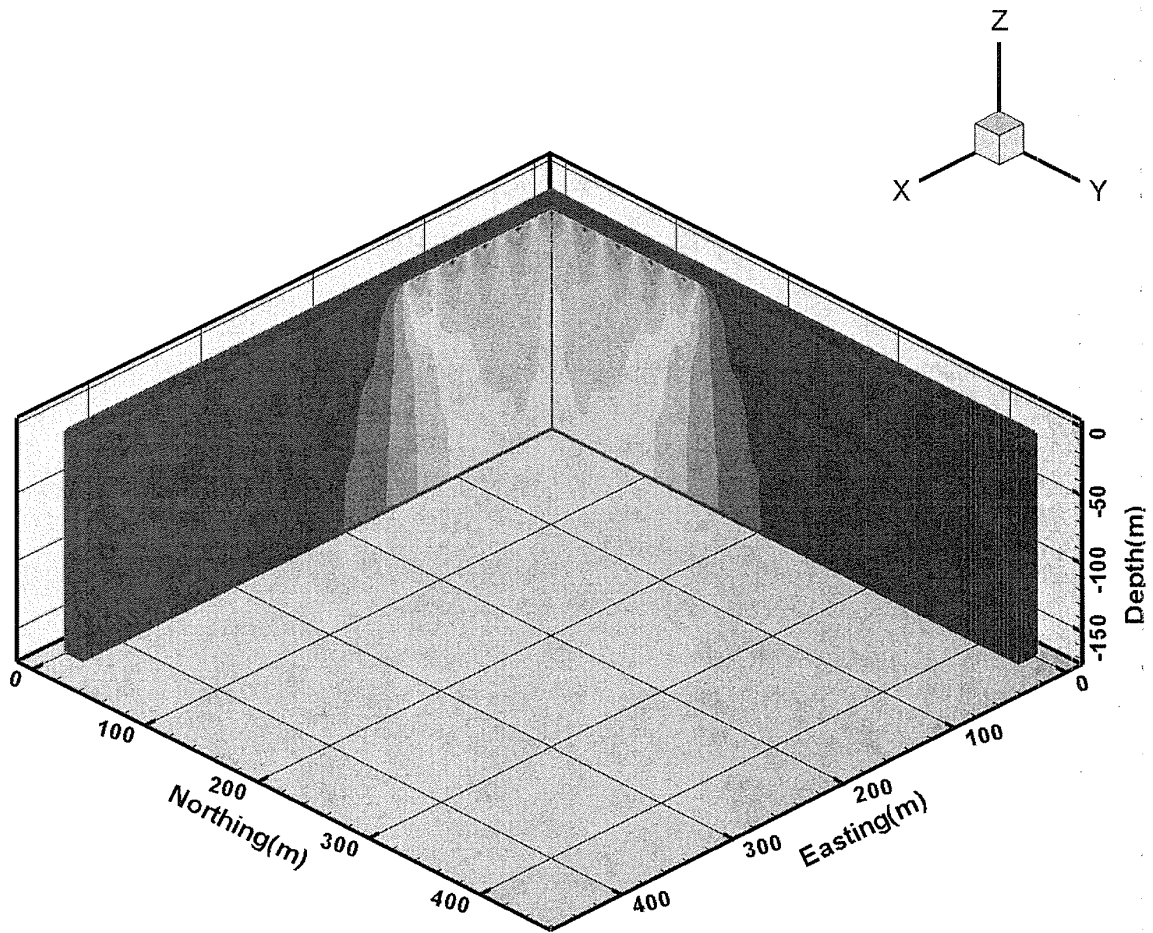


Figure 11B

Figure 11: Simulated water content for: A) 25 years and B) 100 years; the cooler colors indicate higher fluxes.

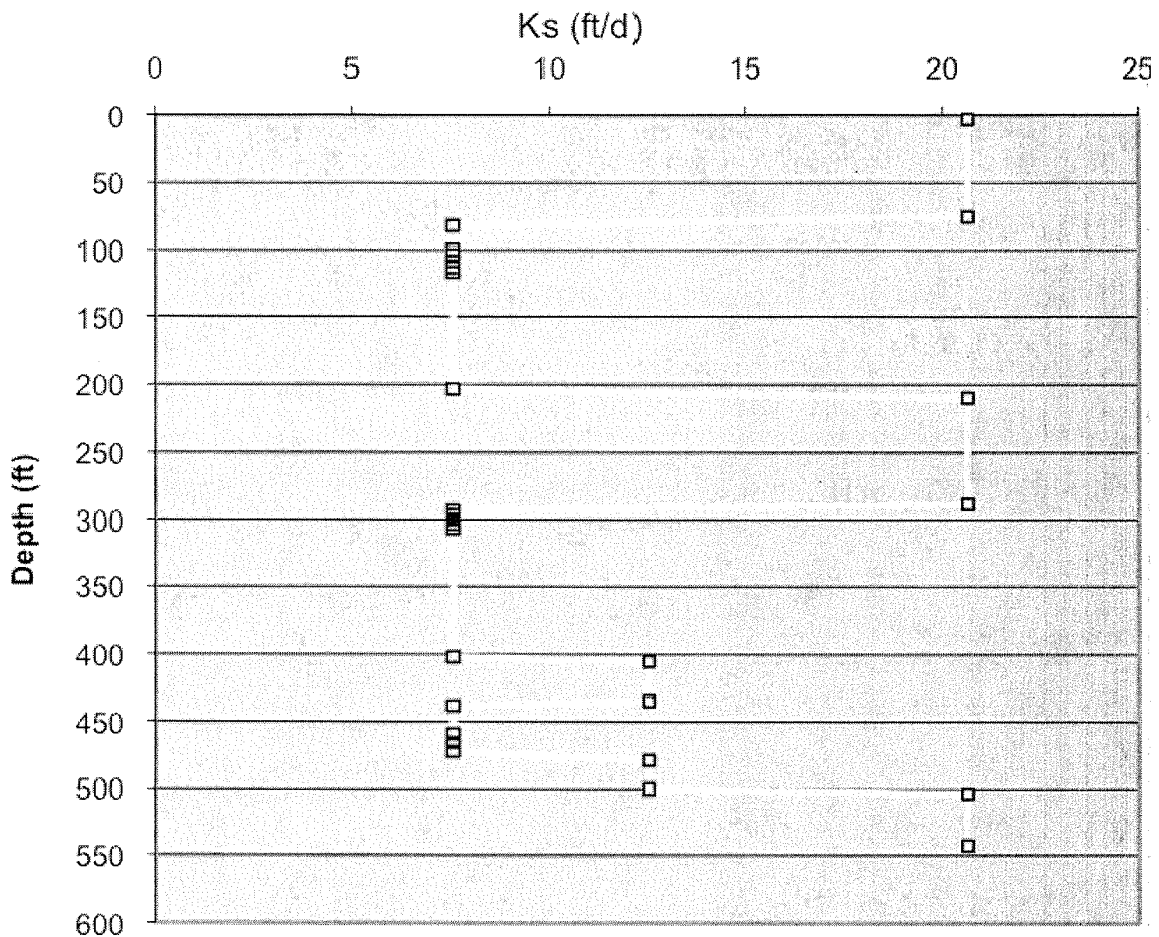


Figure 12: Vertical distribution of calibrated saturated vertical hydraulic conductivity values used in the TOUGHREACT model.

**Proposed Work**

The TOUGHREACT model will be run to steady state using multiple housing density configurations to determine the time require for equilibrium, the concentration of nitrate in the unsaturated at the water table, and the total amount of recharge. These simulations will allow for the evaluation of the potential for interaction between leach fields, the interaction with natural unsaturated (and saturated) zone water with a different chemistry (to evaluate chemical interaction), the potential for perched water developing and the travel time from the leach field to the saturated zone.

A radial, axi-symetric TOUGHREACT model will be used to determine the dimensions of a septage wetting front from a typical domestic septage leach field where it intersects the water table. As the septage migrates downward from the leach field to the water table it spreads out laterally as it encounters changes in grain size and permeability in the unsaturated zone. The area

of the footprint will be used as a minimum size of the solute transport grid described in Task 5. The solute transport model will be used to estimate the maximum housing density that could be maintained in the Joshua Tree area without creating water-quality problems.

The radial, axi-symmetric TOUGHREACT model also will be used to determine if the lateral migration of septage and the subsequent leaching of natural soil nitrogen, could be the source of the high nitrate concentrations measured in samples from JTUZ-1. Naturally occurring nitrates are present in desert soils (Walvoord et al., 2003) and may be the source of the observed high nitrate concentrations in JTUZ-1. Naturally occurring high nitrate concentration will be simulated in the surficial soils under predevelopment conditions to investigate the fate of naturally occurring nitrates when mixed with water from septic-tank leach fields. A fixed flux of septic-tank effluent with known concentrations of nitrate and DOC will be simulated at near-surface model nodes representing a typical septic-tank leach field. Initial soil and water-quality characteristics, estimated from data collected from JTUZ-1 and other test holes in the study area, will be input into the model domain. The model will simulate the moisture content and solute concentration for each model cell in the model domain after 50 years of septic-tank operation.

The housing units upgradient of JTUZ-1 were established between the mid 1950's - mid 1980's based on available on-line data (fig. 13). These dates will be used as a constraint in the evaluation of vertical infiltration rates from septic-tank effluent at JTUZ-1. As stated previously, soil-moisture data indicate that the septic-tank wetting front has reached a depth of at least 343 ft but not 461 ft (fig. 6A). In addition, the temperature data observed at JTUZ-2 (fig. 8) will be used to refine the model calibration by incorporating heat flow in the TOUGHREACT model.

***Total FFY 2010 cost for Task 4 -***

***\$39,100***

Joshua Tree, CA; Year of structure construction per zillow.com; compiled 1/15/10



Figure 13: Approximate construction dates of houses upgradient of JTUZ-1 and 2.

**Mr. Joseph Guzzetta, General Manager, Joshua Basin Water District**

### ***Task 5 – Evaluate Regional Effects***

The purpose of this task is to test the regional effects of land-use plans and associated septic-discharge fluxes on groundwater quality. The effect of different pumping and artificial-recharge schedules on regional water quality will be investigated. These results will help guide groundwater development by JBWD.

#### **Progress**

In FFY08, the existing groundwater-flow model was converted to MODFLOW-2005 (MF2005) (Harbaugh, 2005) and updated to June 2008 conditions. To better define the mixing of septic-tank effluent with the underlying groundwater, layer 1 of the original model was divided into two layers. There are now four layers in the regional groundwater-flow model. The top of layer 1 is the water table and the top of layer 2 is 2,150 ft. The horizontal discretization was refined from 820-ft grids to 105-ft grids; therefore, each model cell represents about one-quarter acre.

Geophysical and well data collected since the original groundwater-flow model was developed were used to update the spatial distribution of hydraulic parameters to better reflect the hydrogeology of the Joshua Tree groundwater basin. The unknown hydraulic parameters of layers 1 and 2 were estimated using PEST (Doherty, 2004), a parameter-estimation software package.

Water-use, aerial photos, assumed water-demand, and year-2000 census data were used to estimate the historic septic load on the groundwater system. Projected wastewater loads on a per parcel basis assuming that every parcel is developed were used to estimate the maximum septic load on the groundwater system. JBWD supplied 2004-07 water-use data by parcel. It was assumed that the average winter (November-March) water demand was representative of domestic water use (i.e., minimal irrigation). The build-out (i.e., every parcel within the JBWD service area is developed) wastewater loads assuming 220 gal/day/EDU were provided by Dudek and Associates (Michael Metts, Dudek and Assoc., personal commun., 2009), a JBWD consultant.

It is assumed that the average septic-tank effluent flux at an individual parcel is equal to 80 percent of the average volume of water supplied during the winter months at that parcel. The septic-tank effluent is routed to the water table using the recharge (RCH) package. The RCH simulates recharge as instantaneously reaching the water table; this is not realistic because it may take decades for recharge to flow through the unsaturated zone. Therefore, the estimated effluent was delayed by 25 years per the TOUGHREACT results. For example, the 1951 effluent was assumed to reach the water table in 1976. Prior to 1976, only natural recharge reached the water table. The total estimated septic-tank effluent by aerial-photo timeframes are shown in table 1.

Years	Natural Recharge (AFY)	Septic-Tank Effluent (AFY)	Total Recharge (AFY)
1951-1955	122.57	51.89	174.45
1956-1960	122.57	76.69	199.26
1961-1965	122.57	96.30	218.87
1966-1971	122.57	110.94	233.51
1972-1979	122.57	140.15	262.72
1980-1986	122.57	170.23	292.79
1987-1991	122.57	223.12	345.68
1992-1995	122.57	225.69	348.26
1996-2001	122.57	234.47	357.03
2002-2008	122.57	240.86	363.43
Build-out	122.57	3,621.87	3,744.44
2 Houses per acre	122.57	4,531.48	4,654.04

Table 1: Simulated and projected flowrates for natural recharge, septic-tank effluent, and total in acre-ft/yr (AFY).

The solute-transport model was developed using MT3DMS (Zheng and Wang, 1999). MT3DMS simulates the three-dimensional advective-dispersive transport of multiple species. MT3DMS requires groundwater-flux data simulated by MF2005. The primary unknown parameters affecting solute transport are longitudinal and transverse (horizontal and vertical) dispersivity. The solute-transport model was not calibrated due to a lack of measured nitrate data; therefore, representative values of longitudinal and transverse dispersivities used by Nishikawa et al. (2003) to model the neighboring Warren subbasin were used (750 ft, 250 ft and 2.5 ft for longitudinal, horizontal transverse, and vertical transverse dispersivities, respectively). Currently, the UZF package is not compatible with MT3DMS; this is being addressed by the author of MT3DMS and the USGS.

The nitrate concentration of the natural recharge was assumed to equal 10 mg/L as nitrate (Nishikawa et al., 2003). Nishikawa et al. (2003) showed that the nitrate concentration of the septic-tank effluent in the neighboring Warren subbasin ranged between 220 and 350 mg/L as nitrate. For this work, a nitrate concentration of 300 mg/L as nitrate was assumed for the septic-tank effluent.

Three 50-year scenarios were tested: (1) the build-out occurs instantaneously in July 2008 and septic-tank effluent from the build-out reaches the water table in 2033; (2) scenario 1 with 4,000 acre-ft/year of artificial recharge starting in July 2008; and (3) uniform housing density of two houses per acre starting in 1958 with the septic-tank effluent reaching the water table in 1983. The simulation period for scenarios 1 and 2 was July 2008 to June 2058. Note that reported pumping for July 2007 to June 2008 were used for the scenarios and were assumed to be constant over the simulation period. This assumption implies that any additional water-supply is provided by imported water. The total septic-tank effluent for build-out conditions is shown in table 1.

The simulated results for Scenario 1 indicate year-50 nitrate concentrations greater than 180 mg/L as N in the Joshua Tree subbasin and greater than 180 mg/L as N in the Copper Mountain subbasin. If 4,000 acre-ft/yr of imported water is recharged (Scenario 2) the simulated year-50 nitrate concentrations are between 20 mg/L (near the artificial-recharge site) and 160 mg/L as N in the Joshua Tree subbasin and as high as 180 mg/L in the Copper Mountain subbasin. Assuming a housing density of 2 houses per acre (Scenario 3) results in year-50 nitrate concentrations of about 100 mg/L as N throughout the Joshua Tree subbasin and are as high as 220 mg/L as N in the Copper Mountain subbasin.

### **Proposed Work**

In FFY10, the MT3DMS model will be calibrated to measured nitrate data using PEST. Uncertainty and sensitivity analyses will be completed for the MODFLOW and MT3DMS models using PEST. The link between MODFLOW-2005 and MT3DMS using the UZF package has been developed by USGS and the authors of MT3DMS. The UZF parameters will be refined to better reflect the 25-year travel time for septic-tank effluent to reach the water table; this will be completed via trial and error. The calibrated models will be used to test the regional effects of land-use plans and associated septic-discharge fluxes on groundwater quality.

*Total FFY 2010 cost for Task 5 -*

*\$72,000*

### **Task 6: Report Results**

At least three publications will result from this project. An Open File Report describing the construction of monitoring site JTUZ-3 and the data collected from this site will be published by September 30, 2010. A journal paper describing the geochemistry of the high nitrate and DOC in the unsaturated zone will be submitted for publication by September 30, 2010. A Scientific Investigations Report describing the results of the groundwater-flow and solute-transport modeling and the TOUGHREACT modeling will be completed for review by September 30, 2010.

*Total FFY 2010 cost for Task 6 -*

*\$122,000*



## References

- Doherty, J., 2004, PEST: Model-independent parameter estimation user manual: 5th edition: Watermark Numerical Computing, Brisbane, Australia.
- Harbaugh, A.W., 2005, MODFLOW-2005, The U.S. Geological Survey modular ground-water model—the Ground-Water Flow Process: U.S. Geological Survey Techniques and Methods 6-A16, variously p.
- Nishikawa, T., Izbicki, J.A., Hevesi, J.A., Stamos, C.L., and Martin, P., 2004, Evaluation of geohydrologic framework, recharge rates, and ground-water flow of the Joshua Tree area, San Bernardino County, California: U.S. Geological Survey Scientific Investigations Report 2004-5267, 115 p.
- Pruess, K., Oldenburg, C., and Moridis, G., 1999, TOUGH2 users guide, version 2.0: Lawrence Berkeley National Laboratory Report LBNL-43134.
- Walvoord, M.A., Phillips, F.M., Stonestrom, D.A., Evans, R.D, Hartsough, P.C., Newman, B.D., Striegl, R.G., 2003, A reservoir of nitrate beneath desert soils: *Science*, 302, p. 1021–1024.
- Xu, T., Sonnenthal, E., Spycher, N., and Pruess, K., 2004, TOUGHREACT user's guide: a simulation program for non-isothermal multiphase reactive geochemical transport in variably saturated geologic media: Earth Sciences Division, Lawrence Berkeley National Laboratory Report 55460.
- Zheng, C., and Wang, P.P., 1999, MT3DMS: A modular three-dimensional multi-species transport model for simulation of advection, dispersion, and chemical reactions of contaminants in groundwater system; documentation and user's guide, Report SERDP-99-1, 202 p.

Form 9-1366  
(Oct. 2005)

**U.S. Department of the Interior  
U.S. Geological Survey  
Joint Funding Agreement**

Page 1 of 2  
Customer #: CA281  
Agreement #: 07W4CAD28100, Amd  
5  
Project #:  
TIN #: 95-2387111  
Fixed Cost Agreement  Yes  No

**FOR  
WATER RESOURCES INVESTIGATIONS**

THIS AGREEMENT is entered into as of the 1st day of November, 2006, by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the JOSHUA BASIN WATER DISTRICT, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation for the Joshua Basin Nitrate study, herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.
2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) includes In-Kind Services in the amount of \$0.

(a) \$75,000.00 by the party of the first part during the period  
November 1, 2006 to October 31, 2010

(b) \$184,000.00 by the party of the second part during the period  
November 1, 2006 to October 31, 2010

USGS DUNS IS 1761-38857. The amounts in 2(a) and 2(b) are for the FY10 portion of this agreement only. Total funding for the JBWD portion of this agreement, including this amendment is \$855,900. Total funding for the USGS portion of this agreement, including this amendment is \$497,000

- (c) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.
- (d) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.
3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.
4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.
5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.
6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.
7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

Form 9-1366  
continued

U.S. Department of the Interior  
U.S. Geological Survey  
Joint Funding Agreement

Customer #: CA281  
Agreement #: 07W4CAD28100, Amd  
5  
Project #:  
TIN #: 95-2387111

- 8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.
- 9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered **quarterly**. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

U.S. Geological Survey  
United States  
Department of the Interior

JOSHUA BASIN WATER DISTRICT

USGS Point of Contact

Customer Point of Contact

Name: Irene A. Rios  
Address: 6000 J. Street, Placer Hall  
  
Sacramento, California 95819-6129  
Telephone: 619-225-6156  
Email:

Name: Joseph Guzzetta, General Manager  
Address: Post Office Box 675  
61750 Chollita Road  
Joshua tree, California 92252  
Telephone: 760-366-8438  
Email:

Signatures

Signatures

By \_\_\_\_\_ Date \_\_\_\_\_  
Name:  
Title:

By \_\_\_\_\_ Date \_\_\_\_\_  
Name:  
Title:

By \_\_\_\_\_ Date \_\_\_\_\_  
Name:  
Title:

By \_\_\_\_\_ Date \_\_\_\_\_  
Name:  
Title:

By \_\_\_\_\_ Date \_\_\_\_\_  
Name:  
Title:

By \_\_\_\_\_ Date \_\_\_\_\_  
Name:  
Title:

JOSHUA BASIN WATER DISTRICT  
SUPPLEMENTAL DATA SHEET

Special Meeting of the Board of Directors

March 24, 2010

Report to: President and Members of the Board  
From: Joe Guzzetta, General Manager



TOPIC: NAMING OF LANDSCAPE DEMONSTRATION GARDEN

RECOMMENDATION: That the Board determine the official name of the Landscape Demonstration Garden from the suggestions made by the Citizens Advisory Committee, (CAC) or other name.

ANALYSIS: The grand opening for the Landscape Demonstration Garden will be on April 17, and it is hoped that a name can be selected before then.

To expedite the naming, the Board Public Information Committee asked the CAC to suggest a name, and provided a list of possible names, while leaving the option open for any others that the Committee might like.

The Committee made the following recommendations in no order of preference:

- Joshua Tree Landscape Exhibit
- Joshua Tree Smart Landscape Lifestyle Exhibit
- Joshua Tree Water-Smart Landscape Exhibit

The committee liked the term "exhibit" suggesting a place of learning. They agreed that the name should not include the words "garden" which might imply vegetables, "native" since not all plants are native, or "memorial," and should not include the name of any person. The CAC also recommended specifically not using any of the names on the list that accompanied the CAC staff report.

Due to time constraints a sign was ordered for the grand opening using the name, "Joshua Tree Water-Smart Landscape Exhibit," and the same name was used in the April newsletter.

Suggestions for the JBWD Demonstration Garden

**The following names are all preceded with**

**“Joshua Basin”...**

Desert Preservation Gardens  
Minerva Hoyt Memorial Gardens  
Minerva Hoyt Botanical Gardens  
Minerva Hoyt Desert Demonstration Gardens  
Lifestyle Landscape Gardens  
Desert Demonstration Gardens  
Gardens for Tomorrow  
Desert-Wise Demonstration Gardens  
Native Choices Gardens  
Landscape Solutions Demonstration Gardens  
Desert Garden Designs  
Smart and Local Landscape Gardens  
Desert Beautiful Landscape Gardens  
Water Smart Gardens  
Going Native Landscape Gardens  
Desert Living Landscape Gardens  
Desert Gardens for Water Guardians  
Smart Landscaping Gardens

Any of the above can also be moved around to be preceded with  
“at Joshua Basin Water District”

JOSHUA BASIN WATER DISTRICT  
SUPPLEMENTAL DATA SHEET

Special Meeting of the Board of Directors

March 24, 2010

To: President and Board of Directors  
From: Susan Greer



---

TOPIC: Consider Approval of \$5,000 Budget Amendment for Promotional Conservation Items

RECOMMENDATION: Approve \$5,000 budget amendment for purchase of promotional conservation items.

ANALYSIS: The Public Information Committee has been meeting regularly and this request comes from that Committee.

The District has an obligation to educate customers about conservation and we are contracting with Bollinger Consulting to provide such services and assistance. In addition, we are also contracting with Kathleen Radnich for public information services, in order to spread the word about District issues and events which are of interest to the public.

Such conservation and public information work involves significant outreach in the community at schools, meetings and events in order to deliver our message. Promotional items, such as pens, flashlights and cups engraved with conservation messages are an effective tool for public outreach. Messages like "every drop counts" or "reduce your water use, no excuse" printed on items is a visual reminder, helping to reinforce the message. The promotional items would be distributed at events such as Landscape Workshops, school education days, Tortoise Festivus (formerly Turtle Days), the recent Forum and the upcoming Demonstration Garden groundbreaking and ABC's of Water Tour. These items are also useful for customer service.

We suggest that a larger quantity of items be purchased for a few reasons. The best pricing comes with quantity. Lead time on these items which are custom printed is typically weeks. Sometimes, an opportunity to use these items comes up on short notice and there is no ability to order something quickly, without rush costs. We would like to have a quantity of various items on hand. We prefer usable items, such as a pen, which is more likely to be saved and looked at over and over.

FISCAL IMPACT: \$5,000

## ***Project Priority List***

### ***PROJECTS NEARING COMPLETION***

**Miscellaneous Pipeline Replacement Project: Juniper north of Hwy 62, Veterans Way and Center St. between Chollita Rd. and Commercial St., easement behind Hwy 62 (south side) between El Reposo Circle and Sunset Rd., easement behind Hwy 62 (south side) Conejo Ave. and Outpost Rd; Torres Ave., Division St., San Angelo Way; Sunflower Rd., Sun Mesa Rd. between Sunever Ave. and Sun Kist Rd.**

Project is ready to go to bid, awaiting possible grant funds.

**Conservation Landscape Demonstration Garden & Residential Landscape Designs**

Construction is substantially complete with remaining plant material not available until Spring.

**Review of Community Service District (CSD)**

The Board referred to the Citizens Advisory Committee consideration of the impacts of a CSD on Joshua Basin Water District. Committee recommendations were presented at the July 18<sup>th</sup> 2007 Board meeting and continued to a later date.

**Conduct Fee Study** (Susan)

Water rates, capacity and inter-agency fee studies have been completed. Miscellaneous fees are being developed, based upon resources used – staff, vehicle, equipment, etc.

**Well #16** (Joe Bocanegra)

Equipment has been installed. Awaiting “green tag” for electrical panel inspection and certification by Department of Health Services.

**Personnel Policy Manual** (Joe Guzzetta)

This will be considered during labor negotiations this year.

**Landscape Ordinance** (Joe Guzzetta)

AWAC will draft a new model ordinance to comply with new state legislation AB 8118

### ***PROJECTS UNDERWAY***

- **Emergency Preparedness/Response Exercises**

Staff will meet on March 31 to begin planning the emergency exercise.

**Final Phase of 4” Pipe Replacement** (Joe Guzzetta, Joe Bocanegra, Keith Faul)

Priorities have been established. Engineering RFP will be issued by the first of 2010.

Construction is pending a financial strategy to be considered by the Board.

**Develop Public Outreach Program**

The Ad Hoc committee meets regularly. Public information for the Groundwater Recharge Project, Demonstration Garden dedication and docent program, and the Water and Land Use Forum are underway.

**Record Archival System** (Susan)

Staff had second presentation.

**Recharge Site Evaluation/USGS Study**

Property has been purchased. Monitoring well will be installed by April 2010. Contract for final engineering should be awarded by June pending EPA approval. Construction is contingent on Proposition 84 and other funding.

**C-2 Tank Relocation** (Joe Bocanegra)

Ready to go to bid pending funding. A USDA Grant Pre-Application has been submitted for this project.

## ***PROJECTS NOT BEGUN***

***Develop/Update Board Policies and Procedures*** (Susan Greer)

***Update 3030 Plan*** (Joe Guzzetta)

Staff intends to solicit proposals for this project.

***Equipment Carport at Shop*** (Joe Bocanegra)

Needs are being evaluated.

***Election to Charge Private Wells for Replacement Water***

Attorney is reviewing election options.

## ***PROJECTS COMPLETED***

- ***Land Use/Water Policy Forum*** (Joe Guzzetta)  
Completed February 18 & 19 2010.

***Implement “Best Management Practices” of the California Urban Water Conservation Council*** (Terry Spurrier)

Completed.

***Complete Wastewater Treatment Strategy and Implementation Mechanisms*** (Joe Guzzetta, Susan Greer, Joe Bocanegra)

The Board adopted the Wastewater Strategy at the July 15<sup>th</sup>, 2009 meeting.

***Package Treatment Plant Policy Regarding Construction and Maintenance***

Complete with Board’s adoption of the Wastewater Treatment Strategy

***Site Security and Telemetry System Upgrades:***

Enhancements to security including motion sensors and intrusion alarms: complete.

***Tank Recoating*** (Joe Bocanegra)

Completed and has been put into routine maintenance program.

***Replace Accounting Mainframe*** (Susan)

First water bills using new system were mailed.

***Emergency Generator*** (Joe Bocanegra)

Generators have been delivered.

***Remote Meter Policy*** (Susan)

Board has adopted revised policy.

***Website Development /Establish District Public Information Program*** (Joe Guzzetta)

The website is up and running.

***Property Acquisition for Future Water Facilities***

Property acquisition consultant was selected at the September 9<sup>th</sup> Board meeting.

***Construction of H Zone Phase II Pipeline Replacement Project***

Completed. Notice of Completion filed.

***Replace Line Printer*** (Susan)

Replaced with smaller printers.

***Develop Cross-Connection Control Program***

Program is being implemented.

***Replace JD310 Tractor***

Complete.

***Replace Septic Tank at Shop***

Complete.

***Sewer Management Authority***

LAFCO designated JBWD as the wastewater authority on August 15<sup>th</sup>.



**Construction of H Zone Phase I Pipeline Replacement Project**

Construction of Phase I is complete.

**Well 17 Wellhead Construction**

Well became operational in July.

**Organization Study**

Completed. Staff is implementing the study.

**Closed Circuit Security System**

Video monitoring system is in place.

**Safety Consultant; Program**

Initial safety plans are complete.