MEMORANDUM OF UNDERSTANDING BETWEEN THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT AND CITY OF DELAND, FLORIDA FOR AQUIFER STORAGE AND RECOVERY CONSTRUCTION AND TESTING

THIS MEMORANDUM OF UNDERSTANDING ("MOU") is made and entered into by and between the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT (the "District"), whose mailing address is 4049 Reid Street, Palatka, Florida 32177, and CITY OF DELAND, (the "City"), whose address is 336 West Michigan Avenue, DeLand, Florida 32720.

WITNESSETH:

WHEREAS, the parties to this MOU desire to design, permit, and construct an Aquifer Storage and Recovery ("ASR") system ("Project");

WHEREAS, the District and the City each have programmatic authority and established funding sources to cost-share this project;

WHEREAS, a goal of the Project is to demonstrate that ASR is a feasible technology for utilities in the east-Central Florida region; and

WHEREAS, the District and the City agree the District shall serve as the lead agency for the design, permitting, construction, and testing of the ASR project.

NOW THEREFORE, in consideration of the foregoing premises, which are made a part of this Memorandum of Understanding, the District and the City hereby agree to the following:

I. AUTHORITY:

This Memorandum of Understanding is entered into by the parties under the following authority:

A. The District enters into this Memorandum of Understanding under the authority of Section 373.083, Florida Statutes, which authorizes the Governing Board to enter into agreements with other public agencies to accomplish the directives and goals of Chapter 373.

B. The City enters into this Memorandum of Understanding under the authority of Sections 125.01(1)(k)1, and 125.01(1)(p), Florida Statutes, which authorize the City to enter into agreements with other public agencies to accomplish goals for providing water to its customers.

II. STATEMENT OF WORK:

All work shall be performed in accordance with Exhibit "A", Statement of Work. All work shall be performed by the District's Contractor under District Contract #SF408RA.

III. EFFECTIVE DATE, TERM, AMENDMENTS, TERMINATION:

A. This MOU shall commence on the date of full execution as evidenced by the last date this MOU is signed, and shall remain in effect for four (4) years, in accordance with this MOU.

B. This MOU shall be reviewed annually by the parties and may be amended upon mutual agreement of the parties. Amendments shall be in writing and approved by all parties.

C. Termination for convenience. This MOU may be terminated for convenience by the District upon 30 days prior written notice to the City.

D. Termination for Default. This MOU may be terminated for default in writing by either party in the event of substantial failure by the other party to fulfill its obligations under this MOU through no fault of the terminating party, provided that no termination may be effected unless the other party is given: (1) not less than ten (10) calendar days written notice, delivered by certified mail, return receipt requested, and (2) an opportunity to consult with the other party prior to termination and remedy the default.

E. Upon termination by either party pursuant to Paragraph "D" above, the party terminating this MOU may complete the work without the assistance of the other party. The party completing the Work may fully utilize existing work product in pursuing the completion of the Work. The District shall be afforded a right-of-entry by the City for the purpose of completing the Work.

IV. FUNDING OF THE AQUIFER STORAGE AND RECOVERY COST-SHARE PROGRAM:

A. The District agrees to fund the ASR Project as set forth in Exhibit "A," Statement of Work. The District's contribution is contingent upon approval of Florida Forever funding and subject to annual budget approval by the District's Governing Board.

B. The City agrees to contribute to the Aquifer Storage and Recovery project in the manner and the amount described in Exhibit "A," Statement of Work. The City's contribution is contingent upon and subject to annual appropriation by the City Commission and approval of the City's annual budget.

V. LIABILITY AND INSURANCE:

Both the District and the City:

A. Are responsible for all personal injury and property damage attributable to the negligent acts or omissions of that party and the officers and employees acting within the scope of their employment. In addition, each party is subject to the provisions of Section 768.28, Florida Statutes. Neither this provision nor any other in this MOU shall be construed as a waiver of sovereign immunity by either party.

B. Both the District and the City shall acquire and maintain throughout the term of this MOU such general liability insurance, automobile insurance, and workers' compensation insurance as required by their current rules and regulations.

C. District agrees that all contracts and subcontracts for any construction work described in the Statement of Work shall include hold harmless and indemnification provisions to protect the City and the District in a form acceptable to the City and the District. The District contractor or subcontractor shall provide the City with evidence of said hold harmless and indemnity prior to commencement of work and access to City property.

VI. PROJECT MANAGEMENT:

A. Project Managers - Each party hereby designates the employee set forth below as its respective Project Manager. Project Managers shall assist with project coordination and shall be the party's primary contact person. Notices or reports shall be sent to the attention of the parties' Project Manager by U.S. Mail, postage prepaid, to the parties' addresses as follows:

For the District:
Douglas Munch, P.G.
4049 Reid Street
Palatka, FL 32177
Tel: (386) 329-4173

For the City:
Keith Riger, P.E., Public Services Director
336 West Michigan Avenue
DeLand, FL 32720
Tel: (386) 740-5813

B. Either party may designate a new Project Manager at its discretion. Written notification of the new Project Manager and effective date shall be provided to the other party.

C. At a minimum, the District's Project Manager shall consult with the City's Project Manager prior to initiating each task. The District's Project Manager shall provide City's Project Manager a report as to the status of each task on a monthly basis. The District's Project Manager shall notify City's Project Manager of the completion of each task within 30 calendar days of the completion of each task.

VII. OWNERSHIP OF DOCUMENTS:

A. Ownership and copyright to all reports and all accompanying data (in all formats) produced pursuant to work done under this MOU shall be vested in both parties to this MOU. Any source documents or any other documents or materials developed, secured or used in the performance of this MOU shall be considered property of the District and the City.

B. All permits shall be in the name of the District. The District shall provide a copy of all permits, as well as design and construction plans, to the City's Project Manager. At the expiration or termination of the project, at the request of the City, the District shall transfer to the City all permits.

IN WITNESS WHEREOF, the following authorized representative of the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT and the CITY OF DELAND have executed this Memorandum of Understanding on the date signed by each party.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

By: _____
Kirby B. Green III, Executive Director

Date: 5/26/04

CITY OF DELAND

By: _____
ROBERT F. APGAR, MAYOR-COMMISSIONER
Typed Name and Title

Date: May 17, 2004

APPROVED BY THE OFFICE OF GENERAL COUNSEL

_____
for Stanley J. Niego, Sr. Assistant General Counsel

Attest: Julie A. Hennessy
JULIE A. HENNESSY, CITY CLERK-AUDITOR
Typed Name and Title

EXHIBIT A

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
AND THE CITY OF DELAND
AQUIFER STORAGE AND RECOVERY
CONSTRUCTION AND TESTING DEMONSTRATION PROGRAM

STATEMENT OF WORK

INTRODUCTION/BACKGROUND

Project Definition - The St. Johns River Water Management District ("District") and the City of DeLand ("City") shall jointly endeavor to design, permit, and construct a Floridan Aquifer Storage and Recovery (ASR) system, consisting of an exploratory well, monitoring wells, ASR test well, site work, and related pipelines and appurtenances, all defined to be part of the Project. References to District herein shall refer to St. Johns River Water Management District and its employees and agents.

Project Need – Determine the feasibility of aquifer storage and recovery (ASR) for storing seasonally available large volumes of alternative water supplies to offset the use of potable groundwater in east Central Florida.

Contract's Goals – Demonstrate the feasibility of ASR technology for utilities in the east Central Florida region. Disstrict seeks to complete this cooperative project with the City and shall require its Contractor, under District Contract SF408RA, to prepare the design of the Project in accordance with the requirements of regulatory agencies, the City, and District and to permit and construct the system in accordance with such design.

Consistency With District's Mission And Goals – This project is included in the Water Resource Development Work Program, dated September 2003, as required by Section 373.536(6)(a) 4, Florida Statutes. The design shall be consistent with District report entitled "Desktop Assessment of Aquifer Storage and Recovery for the City of DeLand", prepared by Water Resource Solutions, Inc. and dated September 2003.

Location Of The Work – The project will be located on City property adjacent to the DeLand Municipal Airport, or a different site if mutually agreed upon by both parties.

OBJECTIVES

Statements Of The Results To Be Achieved – The project will be implemented with design features approved by District and City, in sequential order to provide for maximum benefit of expended funds. Sequential progress will be based on exploration, permitting, and construction. The ASR Test Well will be drilled in accordance with Florida Department of Environmental Protection (FDEP) Underground Injection Control (UIC) requirements, and successfully cycle-tested with potable water, to demonstrate feasibility for water storage and recovery.

SCOPE OF WORK

Outline Of Extent Of Work

Note: Tasks 1 and 2 are included herein as reference only, as these tasks have been completed prior to the issuance of this Agreement. Task 3 will be completed with execution of this Memorandum of Understanding.

Task 1 - Report titled "St. Johns River Water Management District Aquifer Storage and Recovery Construction and Testing Program Plan - FY2002", dated April, 2002, prepared by Barnes Ferland & Associates.

Task 2 - Report titled "Desktop Assessment of Aquifer Storage and Recovery for the City of DeLand", dated September 2003 prepared by Water Resource Solutions, Inc.

Task 3 - Preparation and approval of a City Memorandum of Understanding (MOU) and Statement of Work (SOW)

The following Tasks 4 through 10 are an outline of the extent of work to be performed under this MOU between the District and the City:

Task 4 — Site-Specific Data Collection and Preliminary System Design

Task 5 — ASR Pilot Project Design

Task 6 — Regulatory Permitting

Task 7 — ASR Facilities Construction, Monitoring, and Testing

Task 8 — Startup and Training

Task 9 — Large Cycle Operational Monitoring and Evaluations

Task 10 — Peer Review

Overview Of The Steps Of Project

The District will prepare a preliminary design plan for the ASR system, including an exploratory well. Based on the results of the exploratory well, final design of the ASR system will be conducted and coordinated with FDEP UIC permitting requirements. Once the design and permit are approved, the District will begin construction of the ASR Test Well and related appurtenances. After completion of drilling and verification of project requirements, cycle testing will be performed by the District to measure storage and recovery. If at any time the project is deemed infeasible, the District will coordinate with the City the salvage of any constructed wells for monitoring or other purposes, or the District will provide abandonment and decommissioning services, as required. Upon successful demonstration of feasibility, as mutually agreed on by the District and the City, the completed project will be transferred to the City for operation and ownership, including any transfer of the existing UIC permit that may be required, at no cost to the City.

Description Of The Methodology To Be Used

The District will utilize methodologies accepted in the professional practices of engineering and geology. Methodologies shall incorporate FDEP UIC permitting requirements and provide sufficient milestones for review, comment, and approval by the District and the City. Construction methods shall be in accordance with the General Conditions provided for in the District's Contract #SF408RA, incorporated herein by reference, including conformance with the City's local codes and requirements.

Description Of Location Of Work - The project will be located on the City's property adjacent to the DeLand Municipal Airport. The exact site of the facilities will be determined based on preliminary design and coordinated with the location of the potable source water and discharge facilities. The proposed water supply is from the potable water main line adjacent to the property. The proposed recovered water discharge is expected to be either to an appropriate surface water body nearby or to the wastewater collection system. This issue will be determined as part of the preliminary design.

TASK IDENTIFICATION

The following Tasks 4 through 10 are summarized from District Contract #SF408RA. These tasks will be performed on a work-order basis as each individual task is successfully completed or be grouped together where appropriate.

Task 4 — Site-Specific Data Collection and Preliminary System Design

Prepare a data collection plan for the project site based on a review of existing information and coordination with FDEP. In particular, the plan shall address the need for initial exploratory testing as the basis of development of ASR well design.

To the extent possible based on FDEP guidelines, the District proposes to gather hydrogeologic information from the construction and testing of an initial exploratory well at the project site, which would then be converted to an observation well for the ASR construction and testing program. The data collection plan will be implemented, the data will be evaluated, and a preliminary system design will be developed. The City will provide the District access to project site for exploration well drilling and data collection. If the site is deemed to be infeasible for any reason, District and the City shall endeavor to locate an alternative site for the ASR construction and testing program, through mutual agreement by both parties.

Task 5 — ASR Pilot Project Design

This task includes the design of well and wellhead facilities at the selected site, including supporting infrastructure such as pipelines, electrical service, and incidental site work. The design shall also specify the proposed data collection and monitoring programs. The City will be provided with design documents for review, comments and approval.

Task 6 — Regulatory Permitting

The District, the City, and the District's Contractor will adhere to the necessary regulatory permitting requirements, including preparation of permit applications, and responses to requests for information from regulatory agencies. The primary permitting effort will be through the FDEP Underground Injection Control (UIC) program, although other ancillary permits may be required from local government. The District will provide services to support the cost of preparation of a) Well Construction permit applications, b) local government permit applications, as required, c) Florida Department of Environmental Protection (FDEP) Underground Injection Control (UIC) permit application, d) District Consumptive Use Permit (CUP) application for testing water, e) FDEP Drinking Water System extension permit application, f) NPDES storm water discharge permit application if required, g) other FDEP water system permits, if required, and h) project reports.

The District shall be responsible for site improvements when required for the project, which shall be mutually agreed upon by the parties. The City will be responsible for processing and resolving any zoning or land use issues that may arise with regard to the Project. The City will be the Owner for well construction, FDEP UIC, FDEP water main extension construction and any other project related permit applications. The District will act as applicant and pay application fees.

Task 7 — ASR Facilities Construction, Monitoring, and Testing

Construct ASR well and monitor wells, and associated pipelines, electrical service, incidental site work, and wellhead facilities. Conduct initial hydraulic and water quality testing, in addition to geophysical logging, geo-chemical modeling, and evaluation of any additional pretreatment requirements. A series of ASR "small cycle" test cycles will be conducted to evaluate the project site.

The District will stake and define the boundaries of construction within the designated site, based on property documents furnished by the City. The District shall be responsible for construction, inspection, testing, and progress reporting for the Project. The City shall allow the District full site access to conduct and inspect construction of the project. The City shall alert the District of any problems it knows of and the District, when appropriate, shall require its Contractor to correct any problems or non-conforming work discovered by the District's inspection or the City's observation.

Task 8 — Startup and Training

The District's Contractor will provide operational training of the City's staff to ensure a smooth transition from the test program into full operations. The final training plan will be developed subsequent to analysis of the small cycle testing program results.

Task 9 — Large Cycle Operational Monitoring and Evaluations

Conduct operational monitoring and evaluation of ASR system performance during the first two to three years of operations, making any needed adjustments to improve system performance. The City will operate the system during this period. The District will conduct periodic site visits and evaluate collected data to monitor large cycle performance and provide technical assistance to the City, as necessary. A preliminary plan outline of the City's responsibilities for conducting Large Cycle operation and monitoring is provided in Attachment 1. This plan outline will be developed further when permit conditions are known and the City and District are implementing Task 9, for review and approval by the City and the District.

Task 10 — Peer Review of the District's Contractor's Work

This task includes the review of work products, produced for this project by the District's Contractors and the City.

TIMEFRAMES AND DELIVERABLES

Timeframe For Completion Of Entire Project

Successive task completion without major disruption will require a minimum of three (3) years, and up to four (4) years for final completion, in accordance with the Memorandum of Understanding. Specific timeframes will be established after the District and the City have signed a Memorandum of Understanding (MOU).

District Deliverables and Responsibilities

Contractor deliverables defined in the work orders shall be governed by the District's Contract #SF408RA and shall include both hard copy and electronic versions. All deliverables shall be provided to the District and the City's Project Manager and shall generally include the following items, by task. Other elements of the project may be added as mutually agreed upon by both parties.

Task 4, Site-Specific Data Collection and Preliminary System Design: As defined in the work order, to include the following.

- Data Collection Plan
- Preliminary Design Report
    - Exploratory Well Construction Plan
    - Exploratory Well Construction Specifications
    - Exploratory Well Contractor's Safety Plan
    - Exploratory Well Construction Schedule
    - Exploratory Well Sampling and Testing Plan
- Exploratory Well Construction Permit Application
- Well Salvage for Monitoring, or Abandonment if Site is Infeasible
- Completed Exploratory Well
- Water Quality Sampling and Testing
- Exploratory Well Project Report
- Construction security plan, including access provisions, work hours and construction site security facilities. Plan must be approved by the City prior to any construction activities commencing.
- Project Schedule

Task 5, ASR Pilot Project Design: As defined in the work order, to include the following.

- ASR System Construction Plans
- ASR System Construction Specifications
- ASR System Construction Cost Estimate
- ASR System Construction Phase Services Plan
- ASR System Contractor's Safety Plan
- ASR System Construction Schedule
- ASR System Final Project Report

Task 6, Regulatory Permitting: The District to pay for all permit application fees. One or more of the following deliverables will apply to the project, as required:

- Well Construction Permit Application(s)
- Local Government Permit Application(s)
- FDEP Underground Injection Control (UIC) Permit Application
- Consumptive Use Permit (CUP) Application For Testing Water
- FDEP Drinking Water System Extension Permit Application
- Other FDEP Water System Permit(s)
- NPDES Storm Water Discharge Permit(s)
- Permitting Condition Progress Report(s)
- Permitting Condition Sampling And Testing Report(s)

Task 7, ASR Facilities Construction, Monitoring, and Testing: As defined in the work order, to include the following:

- Payment and Performance Bond
- Construction Survey Layout and Control
- Shop Drawings
- Updated ASR System Contractor's Safety Plan
- Updated ASR System Construction Schedule
- Monthly ASR System Project Progress Reports
- Laboratory Reports
- Well Testing Discharge Plan
- Initial (start-up) cycle testing
- Construction Inspection and Testing Records
- Completed ASR System
- Site Restoration
- Construction Record Drawings
- Certifications of Completion
- Releases for Final Payment
- Final Construction Report
- Startup and Training Plan

Task 8, Startup and Training: As defined in the work order, to include the following.

- Operation and Maintenance Manuals
- Training Instruction
- Operating Guidelines
- Large Cycle Operation and Monitoring Plan
  (Preliminary plan provided as Attachment 1)

Task 9, Large Cycle Operational Monitoring and Evaluations: Large Cycle Evaluation Reports as defined in the work order. The District shall provide technical oversight and assistance as required during this task.

Task 10, Peer Review: As defined in the work order.

City Deliverables and Responsibilities

The City shall deliver the following items and "like kind services" through staff and ongoing operations, according to the time they are needed as jointly determined by the City and the District during the course of the work:

1. City to provide project site and associated access for the project. The City shall provide evidence of ownership or easements providing access and control of facilities expected to be installed on the property.
2. Timely review comments on Contractor submittals.
3. Execution of permit applications, as project owner.
4. Relevant records pertaining to, or affecting, the project which may consist of, but not be limited to, survey data and legal descriptions, easement documents, soils data, water facilities record drawings, site plans, right of way use requirements, and other technical information pertaining to the planning, design, and construction of the ASR facility at the proposed site.
5. Unique construction requirements not covered under local permits or codes, such as site lighting requirements, site access constraints, other, and any limitations on construction activities.
6. Electrical power service to the site, as required during Task 7 described above, including offsite extensions, material purchases, new equipment, lighting, metering, and individual well service connections, in accordance with local power company requirements. The estimated capital cost to the City is $50,000 for the furnishing of labor, equipment, and materials to install the electrical service.
7. Water quality sampling and testing during large cycle operation phase of project, as required during Task 9 described above, after the City assumes ownership of project. The estimated cost to the City is $45,000 for this water quality sampling and testing per large cycle or approximately $90,000 in total for two cycles. This analytical work shall be consistent with regulatory agency permitting and monitoring requirements. Water quality sampling and testing costs, which exceed $90,000 for two cycles, shall be equally borne by the District and the City, with a maximum City responsibility of $100,000. For estimated testing parameters, see Table 1 ASR Large Cycle Water Quality Testing Plan in Attachment 1.
8. Information regarding features and items that are required to comply with zoning and land development codes.

9. Necessary testing water, permission to use or discharge recovered water, and appurtenant operational requirements for the Project, including necessary coordination and related services from the City's staff. The City does not have an adequate allocation of water under existing consumptive use permits for the entire period of cycle testing. The District's Contractor will be responsible for preparing the permit application necessary for the District's review and approval of a separate (or additional) allocation of water sufficient for the purpose of ASR cycle testing.
10. City will accept responsibility for operation and maintenance of completed project. The City agrees to assume total responsibility of ownership for continued operation, maintenance, and data collection for the ASR facilities following completion of the project, in perpetuity, but reserves the right to re-permit, modify, abandon, or decommission the project in accordance with applicable rules and regulations.

Comment And Review Time

Major milestone submittals defined in the work orders shall generally include four (4) weeks for review and comment by the District and the City. Review and comment for lesser submittals may be reduced to three (3) weeks, as mutually agreed.

Construction-phase data that must be reviewed and approved in a shorter timeframe to facilitate Contractor's activities shall be specified in the work order or determined by the District's Project Manager, and agreed to by the City.

The District will compile review comments from the District's staff and the City's project representatives into one document for transmittal to the District's Contractor. The City shall be available for explanation, discussion, and resolution of review comments.

CONTRACT BUDGET

The District will be responsible for all costs of the project with the exception of capital costs listed below and in-kind services as described in this Statement of Work. The estimated cost for the District to implement the project is within the cost range estimated in the District's report entitled "Desktop Assessment of Aquifer Storage and Recovery for the City of DeLand", prepared by Water Resource Solutions, Inc. and dated September 2003. The City will be responsible for certain other costs for the project, as defined in the CITY Deliverables and Responsibilities section of this Statement of Work.

District and City estimated project capital costs are as follows:

District Work by Contractor	
Using Current Florida Forever Funding	$ 1,647,940
City Capital-related Cost Items:	
Task 7, Electrical Service	$ 50,000
Task 9, Water Quality Sampling and Analysis[1]	$ 90,000
Sub Total City	$ 140,000
TOTAL	$ 1,787,940

[1]Laboratory and sampling costs assume two cycles.

ATTACHMENT 1

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
AND THE CITY OF DELAND
AQUIFER STORAGE AND RECOVERY
CONSTRUCTION AND TESTING DEMONSTRATION PROGRAM

PRELIMINARY OUTLINE FOR LARGE CYCLE TESTING PLAN

BASIS OF PLAN:

ASR Well:	Approximately 1 MGD Capacity
Monitoring Wells:	1 well in storage zone, 1 well in upper interval
ASR Cycle Testing:	90 to 120 Days recharge 90 Days dormant 50 to 80 Days recovery depending on cycle 2 Cycles to be tested (230 to 290 Days/ Cycle)

OPERATIONAL REQUIREMENTS:

1. During well operation (Storage & Recovery Phases):

    a. Daily inspections and routine maintenance of mechanical equipment and instrumentation.

    b. Daily Recording of:

    - Well Head Pressure *
    - Water Level at ASR and Monitoring Wells *
    - Flow (Storage or Recovery)*
    - Operation of Valves and Well Pump as necessary for storage or recovery

    *These functions may be performed with continuous read instrumentation.

2. Flow meter annual calibration

3. Instrument calibration, as required (i.e. water level monitors, pressure monitors, etc)

4. Collection and analysis of water quality samples, See Table 1.

CYCLE OPERATIONAL PLAN:

1. Recharge

   a. Open ASR well inlet valve to allow approximately 1 MG volume into aquifer over 16-24 hour period.

   b. Shut/ throttle inlet valve as required during distribution system peak demand periods.

   c. Record flow, pressure and water levels on daily basis (or continuously, if equipped with instrumentation) for ASR and monitoring wells.

   d. Adjust system as necessary to maintain desired flow rate. This period might require limited treatment to address potential plugging issues that may occur.

   e. Collect water quality samples from storage source water, ASR well, and monitoring wells in accordance with frequency and chemical parameters shown in Table 1.

   f. Back flush ASR well to waste, as necessary, based on storage rate and well head pressure.

2. Dormant Phase

   a. Collect water quality samples and water levels from ASR well and monitoring wells – See Tables 1 for frequency and chemical Parameters.

   b. Periodic inspection of well equipment.

3. Recovery

   a. Open ASR discharge valve; Operate pump to discharge 1- 5MGD on daily basis.

   b. Record flow, Pressure and water levels from ASR and monitoring wells.

   c. Collect water quality samples from ASR well and monitoring wells– See Table 1.

   d. Shut in ASR well as appropriate depending on recovered water quality or when target recovery volumes achieved.

TABLE 1. ANTICIPATED ASR SYSTEM MONITORING PLAN DURING POTABLE WATER INJECTION

Class V ASR Test Well

The ASR test well is anticipated to be monitored in accordance with the parameters and frequency listed below during each recharge and recovery cycle. The monitoring report is expected to include the following data:

Parameters	Recording Frequency	Reporting Frequency
Injection Pressure (p.s.i.)	Continuously	
Maximum Injection Pressure		Daily/Monthly
Minimum Injection Pressure		Daily/Monthly
Average Injection Pressure		Monthly
Flow Rate (m.g.d.)	Continuously	
Maximum Flow Rate		Daily/Monthly
Minimum Flow Rate		Daily/Monthly
Average Flow Rate		Monthly
Total Volume recharged (Gals.)	Daily	Daily/Monthly
Total Volume recovered (Gals.)	Daily	Daily/Monthly
Water Quality		
*Gross Alpha (pCi/L)	Monthly	Monthly
Total Coliform (cts/100ml)	Monthly+	Monthly+
Fecal Coliform (cts/100ml)	Monthly+	Monthly+
Arsenic (µg/L)	Weekly	Weekly
Chloride (mg/L)	Weekly	Weekly
Color (color units)	Weekly	Weekly
Dissolved Oxygen (mg/L)	Weekly	Weekly
pH (std. units)	Weekly	Weekly
Specific Conductivity (umhos/cm)	Weekly	Weekly
Sulfate (mg/L)	Weekly	Weekly

Temperature (°C)	Weekly	Weekly
Total Alkalinity (mg/L)	Weekly	Weekly
Total Dissolved Solids (mg/L)	Weekly	Weekly
Total Iron (mg/L)	Weekly	Weekly
Total Trihalomethanes (mg/L)	Weekly	Weekly
Primary and Secondary DWS	++	++

* Beginning of recharge cycle; beginning and end of each recovery cycle.

+ Only conducted during recovery.

++ Once during Cycle 2 recovery and once during Cycle 3 recovery.

Monitoring Well System

During all recharge, storage and recovery cycles of the injection/production well, and report is expected to include the following data:

Parameters	Recording Frequency	Reporting Frequency
Water Level (N.G.V.D. / psi)	Continuously	
Maximum Water Level/Pressure		Daily/Monthly
Minimum Water Level/Pressure		Daily/Monthly
Average Water Level/Pressure		Monthly
Water Quality		
Gross Alpha (pCi/L)	Monthly	Monthly
Arsenic (µg/L)	Weekly	Weekly
Chloride (mg/L)	Weekly	Weekly
Color (color units)	Weekly	Weekly
Dissolved Oxygen (mg/L)	Weekly	Weekly
pH (std. units)	Weekly	Weekly
Specific Conductivity (umhos/cm)	Weekly	Weekly
Sulfate (mg/L)	Weekly	Weekly
Temperature (°C)	Weekly	Weekly
Total Alkalinity (mg/L)	Weekly	Weekly

Total Dissolved Solids (mg/L)	Weekly	Weekly
Total Iron (mg/L)	Weekly	Weekly
Total Trihalomethanes (mg/L)	Weekly	Weekly
Turbidity (NTU)	Weekly	Weekly

NOTE: During extended storage periods (greater than 30 days), the water quality parameters listed above may be sampled and analyzed monthly; water level readings to remain weekly.