



Florida Department of Environmental Protection

Central District
3319 Maguire Boulevard, Suite 232
Orlando, Florida 32803-3767

Charlie Crist
Governor

Jeff Kottkamp
Lt. Governor

Michael W. Sole
Secretary

BY ELECTRONIC MAIL:

In the Matter of an
Application for Permit by:

James P. McKnight
City Manager
City of Rockledge
1600 Huntington Lane
Rockledge, FL 39255
jmcknight@cityofrockledge.org

Brevard County – UIC
FDEP File No. 05-0195980-002-UC
Reclaimed Water ASR Program
Class V ASR Injection Well and Associated
Monitoring Well System

NOTICE OF PERMIT ISSUANCE

Enclosed is Permit Number 05-0195980-002 to construct one Class V, Group Three, Aquifer Storage and Recovery (ASR) injection well system, issued pursuant to Section(s) 403.087, Florida Statutes.

The purpose of the ASR well is to test inject using reclaimed water under the duration of the construction permit. Provided that the testing is successful, an operation permit application will be submitted. An additional construction permit for another ASR well and associated monitoring wells may be applied for at a future date.

Any party to this Order (permit) has the right to seek judicial review of the permit pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000; and by filing a copy of the Notice of appeal accompanied by the applicable filing fees with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date this Notice is filed with the Clerk of the Department.

Executed in Orlando, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Vivian F. Garfein
Director, Central District

CERTIFICATE OF SERVICE

The undersigned duly designated deputy clerk hereby certifies that this PERMIT and all copies were mailed before the close of business on _____ to the listed persons.

Clerk Stamp

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to Section.120.52, Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

Date

VFG/CCF/dw

Enclosures

Copies furnished to:

Technical Advisory Committee
Alan M. LaDuke, City of Rockledge
Allan H. Biddlecomb, P.G., Stuart Norton,
Jones Edmunds & Associates, Inc.



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BY ELECTRONIC MAIL:

PERMIT

PERMITTEE:

James P. McKnight
City of Rockledge
1600 Huntington Lane
Rockledge, Florida 32925
jmcknight@cityofrockledge.org

Brevard County – UIC

Permit File Number: 05-0195980-002-UC
Date of Issue: DRAFT
Expiration Date: DRAFT
County: Brevard
Latitude: 28° 19' 44" N
Longitude: 80° 43' 28" W
Project: City of Rockledge Reclaimed Water
Aquifer Storage and Recovery (ASR) System

This permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.) and Rules 62-4, 62-520, 62-528, 62-550, 62-600, 62-601, and 62-610 of the Florida Administrative Code (F.A.C.). The above named permittee is hereby authorized to perform the work or operate the facility shown on the application and approved drawing(s), plans, and other documents, attached hereto or on file with the Department and made a part hereof and specifically described as follows:

Construct one Class V Group Three Aquifer Storage and Recovery (ASR) injection well system with one ASR well (ASR-1), two storage zone monitoring wells (SZMW), one shallow monitoring well (SMW) and one water table monitoring well (WTMW). The basic ASR well design will consist of a 17.4-inch diameter injection well to a proposed total depth of approximately 510 feet and cased to approximately 400 feet below land surface (bls). The ASR system will have a maximum storage capacity of approximately 120 MG. The overall objective of this ASR well is to store, in the Floridan aquifer, reclaimed water from the City of Rockledge Water Reclamation Facility (WRF) and retrieve the stored reclaimed water for beneficial use. Initially, the ASR well will be tested by injecting reclaimed water under the duration of this construction permit. Provided that the testing is successful, an operation permit application will be submitted. An additional construction permit for another ASR well and associated monitoring wells may be applied for at a future date.

The Application to Construct V Injection well System, DEP Form 62-528.900(1), was received September 6, 2005, with supporting documents and additional information last received January 22, 2007. The location for this project is 1700 Jack Oates Boulevard, Rockledge, Brevard County, Florida.

Subject to Specific Conditions 1-8.

PERMITTEE:

City of Rockledge

Permit/Certification No: 05-0195980-002

Date of Issue: DRAFT

Date of Expiration: DRAFT

1. General Criteria:

- a. This permit approval is based upon evaluation of the data contained in the application, plans and specifications submitted in support of the application. Any changes, except as provided elsewhere in this permit, must be approved by the Department before implementation.
- b. No drilling operations shall begin without an approved disposal site for drill cuttings, fluids or waste. It shall be the Water Well Contractor's responsibility to obtain any necessary Department and local agency approval for disposal prior to the start of construction.
- c. No fluid shall be injected without written authorization from the Department. The issuance of this construction permit does not obligate the Department to permit its operation, unless the well, monitoring system and surface appurtenances qualify for an operation permit.
- d. Those conditions imposed by the St. Johns River Water Management District in this project's Water Use Permit(s) regarding the testing of the ASR system remain in effect.
- e. No underground injection is allowed that causes or allows movement of fluid into an underground source of drinking water if such fluid movement may cause a violation of any primary drinking water standard or may otherwise adversely affect the health of persons.
- f. If historical or archaeological artifacts, such as Indian canoes, are discovered at any time within the project site, the permittee shall notify the FDEP Orlando Central District office and the Bureau of Historic Preservation, Division of Archives, History and Records Management, R. A. Gray Building, Tallahassee, Florida 32301, telephone number (850) 487-2073.
- g. Signatories and Certification Requirements
 - (1) All reports and other submittals required to comply with this permit shall be signed by a person authorized under Rules 62-528.340(1) or (2), F.A.C.
 - (2) In accordance with Rule 62-528.340(4), F.A.C., all reports shall contain the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”
- h. Plugging/abandonment and Alternate use plans – Permittees who are unable to operate the ASR well to meet its intended purpose shall within 180 days of FDEP notification:
 - (1) Submit a plugging and abandonment permit application in accordance with Rules 62-528.625 and 62-528.645, F.A.C., or
 - (2) Submit an alternate use plan for the well. Alternate use may commence after the plan has been approved by the Department, including any necessary permit or permit modifications as required by the Department or any other agency.
- i. Prior to operational testing under this permit, the permittee shall obtain from the Department, a Water Quality Criteria Exemption (pursuant to Rule 62-520.500, F.A.C.) for any secondary standards that may be exceeded, where applicable.

PERMITTEE:

City of Rockledge

Permit/Certification No: 05-0195980-002

Date of Issue: DRAFT

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- j. The permittee shall be aware of and operate under General Conditions F.A.C. Rule 62-528.307(1)(a) through (x). General Conditions are binding upon the permittee and enforceable pursuant to Chapter 403 of the Florida Statutes (see attachment I).
- k. The permittee shall refer to Rule 62-610.466, F.A.C., in its entirety, to ensure compliance with all requirements for ASR wells.

2. Quality Assurance/Quality Control

- a. The permittee shall ensure that the construction of this facility shall be as described in the application and supporting documents. Any proposed modifications to this permit shall be submitted in writing to the Underground Injection Control program manager for review and clearance prior to implementation. Changes of negligible impact to the environment and staff time will be reviewed by the program manager, cleared when appropriate, and incorporated into this permit. Changes or modifications other than those described above will require submission of completed application and appropriate processing fees as per Rule 62-4.050, F.A.C.
- b. A Florida registered professional engineer, pursuant to Chapter 471, Florida Statutes (F.S.), shall be retained throughout the construction period and operational testing to be responsible for the construction operation and to certify the application, specifications and completion report and other related documents, pursuant to Rule 62-528.440(5), F.A.C. A professional engineer or professional geologist shall provide monitoring of the drilling and testing operation. The Department shall be notified immediately of any change of the Engineer of Record.
- c. All water quality samples required in this permit shall be collected and analyzed in accordance with Department Standard Operating Procedures (SOP), pursuant to the FDEP Quality Assurance, Chapter 62-160, F.A.C. The various components of the collection of the FDEP SOPs are found in DEP-SOP-001/01 (Field Procedures) and DEP-SOP-002/-1 (Laboratory Procedures).
- d. The permittee shall calibrate all pressure gauge(s), flow meter(s), chart recorder(s), and other related equipment associated with the injection well system on a semi-annual basis. The permittee shall maintain all monitoring equipment and shall ensure that the monitoring equipment is calibrated and in proper operating condition at all times. Laboratory equipment, methods, and quality control will follow EPA guidelines as expressed in Standard Methods for the Examination of Water and Wastewater. The pressure gauge(s), flow meter(s), and chart recorder(s) shall be calibrated using standard engineering methods.
- e. Continuous on-site supervision by qualified personnel (engineer and/or geologist, as appropriate) is required during all testing and geophysical logging operations.
- f. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures.
- g. Hurricane Preparedness - Upon the issuance of a "Hurricane Watch" by the National Weather Service, the preparations to be made include, but are not necessarily limited to, the following:
 - (1) Secure all on-site salt and other stockpiled additive materials to prevent surface and/or ground water contamination.
 - (2) Properly secure drilling equipment and rig(s) to prevent damage to well(s) and on-site treatment process equipment.
- h. Annually, the permittee shall advise the Department of the status of the local ordinance, specifically, the ordinance that prohibits the construction of water wells within a one-mile radius of the ASR project.

PERMITTEE:

Permit/Certification No: 05-0195980-002

City of Rockledge

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Date of Expiration: DRAFT

3. Source Water Fluid Analysis

a. Reclaimed Water

(1) Prior to injection, the reclaimed water analyses shall include:

- (a) Primary and Secondary drinking water standards established in Chapter 62-550, Part III, F.A.C., (excluding asbestos, acrylamide, epichlorohydrin, and dioxin);
- (b) Giardia lamblia and cryptosporidium (count and viability testing, where applicable), fecal coliform, E. coli, and enterococci; and
- (c) Additional Parameters for Reclaimed Water:

Aldrin	Napthalene
Ammonia	Organic Nitrogen
Anthracene	Soluble Orthophosphate
Butylbenzylphthalate	Dissolved Oxygen
Chloroethane	Total Nitrogen
2-Chlorophenol	Phenanthrene
Dieldrin	Total Phosphorus
Diethylphthalate	2,4,6-Trichlorophenol
Dimethylphthalate	Total Uranium
Total Kjeldahl Nitrogen	

(2) Six bimonthly samples shall be taken from the source water and analyzed for E. coli and enterococci.

(3) Six bi-monthly samples from the reclaimed water shall be taken before initiating cycle testing for all parameters listed in specific condition 3.a. (1) above. Provided that the sampling data shows that there is reasonable assurance that the facility can be operated in compliance with Department rules and this permit, with Department approval via a major permit modification, the sampling schedule will be revised to allow quarterly submittal. The last three bi-monthly samples collected must meet the primary drinking water standards in order to constitute this assurance. The permittee shall submit the results of source water analysis to the Department no later than the last day of the month immediately following the month of record. The results shall be submitted to the Department of Environmental Protection, Orlando Central District Office, 3319 Maguire Boulevard, Suite 232, Orlando, FL 32803-3767. A copy of the reports shall also be sent to the Department of Environmental Protection, Underground Injection Control Program, Mail Station 3530, 2600 Blair Stone Road, Tallahassee, FL 32399-2400.

4. Construction, Testing and Reporting

- a. Prior to the commencement of any work, the name of the Florida-registered driller(s) supervising the drilling operations and the driller's registration number shall be submitted to the Department. The permittee or the engineer of record shall provide the Department with copies of all required federal, state or local permits prior to the commencement of drilling the wells.
- b. If any problem develops that may seriously hinder compliance with this permit, construction progress or good construction practice, the Department shall be notified immediately. The Department may require a detailed written report describing what problems have occurred, the remedial measures applied to assure compliance and the measures taken to prevent recurrence of the problem.

PERMITTEE:

City of Rockledge

Permit/Certification No: 05-0195980-002

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Date of Expiration: DRAFT

- c. During the construction period allowed by this permit, daily progress reports shall be submitted to the Department, and the Technical Advisory Committee each week. The reporting period shall run Friday through Thursday and reports shall be mailed on Friday of each week. The report shall include, but is not limited to, the following:
- (1) A cover letter summarizing each week's activities and a projection of activities for the next reporting period;
 - (2) Description of daily footage drilled by diameter of bit or size of hole opener or reamer being used;
 - (3) Description of work during installation and cementing of casing, including amounts of casing and cement used;
 - (4) Lithologic log with cuttings description, formation, and depth encountered;
 - (5) Collection of drilling cuttings at least every 5 feet and at every formation change;
 - (6) Water quality analyses;
 - (7) Description of work and type of testing accomplished including geophysical logging, video logs, and pumping tests;
 - (8) Description of any construction problems that developed during the reporting period and current status;
 - (9) Copies of the driller's log are to be submitted with the weekly summary;
 - (10) Description of any deviation survey conducted;
 - (11) Details of any packer tests, pump tests and core analyses; and
 - (12) Details of the additions of salt or other materials to suppress well flow (if applicable), and include the date, depth and amount of material used.
- d. Upon completion of construction of the injection well and all monitor wells, detailed in this permit, a complete set of as-built engineering drawings (Florida registered P.E. signed and sealed) shall be submitted to the Department's district office and Tallahassee UIC Program. In the event a 60-day pump test is proposed, complete plans and specifications for this testing shall also be submitted for Department review and approval prior to implementation.
- e. Background ground-water quality samples shall be obtained from the ASR test well and all monitor wells for the specific water quality criteria listed for both potable and reclaimed water in Specific Condition No. 3. "Background" means the condition of waters in the absence of the activity or discharge under consideration, based on the best scientific information available to the Department [Rule 62-520.200(3), F.A.C.]. The samples shall be taken after final completion and clearance of drilling fluids from each well, and prior to the initiation of any pump tests.
- f. Within 30 days of well completion of the ASR test well and monitor wells, the permittee or the authorized representative shall submit to the Department for each well the following information:
- (1) Certification of Class V Well Construction Completion, DEP Form 62-528.900(4);
 - (2) A copy of the St. Johns River Water Management District permit to construct a well;
 - (3) A copy of the Water Management District's Well Completion Report; and

PERMITTEE:

City of Rockledge

Permit/Certification No: 05-0195980-002

Date of Issue: DRAFT

Date of Expiration: DRAFT

- (4) A copy of the Water Management District's Consumptive Use /Water Use Permit.
- g. This project shall be monitored by the Department with the assistance of the U.S. Environmental Protection Agency (EPA) - Region 4 and the Technical Advisory Committee (TAC), which consists of representatives of the following agencies:
- Department of Environmental Protection (DEP) – Orlando
Department of Environmental Protection (DEP) – Tallahassee
St. Johns River Water Management District (SJRWMD) – Palm Bay
- h. The permittee shall provide copies of all correspondence relative to this permit to each member of the TAC and EPA. Such correspondence includes but is not limited to reports, schedules, analyses and geophysical logs required by the Department under the terms of this permit. The permittee is not required to provide specific correspondence to any TAC member who submits to the permittee a written request to be omitted as a recipient of specific correspondence.
- i. After completion of construction and testing, a final engineering report shall be submitted to the Department, the EPA and the TAC. The report shall include, but not be limited to, all information and data collected under Rules 62-528.605, 62-528.615, and 62-528.635, F.A.C., with appropriate interpretations. Mill certificates for the casings shall be included in the report. To the extent possible, the transmissivity and storativity of the injection zone and the maximum capacity within safe pressure limits shall be estimated. This report shall also be signed and sealed by a Florida licensed professional engineer and professional geologist.
- j. After completion of construction and testing, the following items shall be submitted to the State Geologist at the Florida Geological Survey, 903 West Tennessee Street, Tallahassee, Florida 32304-7707:
- (1) Cuttings obtained during well construction;
 - (2) Any cores obtained during well construction when no longer needed by the permittee;
 - (3) Any geophysical logs run during well construction; and
 - (4) A copy of the final report described in Condition 4.i. above.
- k. A written, detailed evaluation of the ASR system performance shall be included with the permit renewal or operation permit application.
- l. The specifications for a temporary containment structure around the borehole during the drilling of the ASR well shall be submitted to and approved by the Department prior to the ASR well construction.
5. Cycle Testing Requirements Using Reclaimed Water
- a. After obtaining a major permit modification from the Department, the permittee shall conduct operational cycle testing of the ASR well system using reclaimed water to demonstrate that the ASR well(s) can maintain water quality standards and assimilate the design daily flows prior to granting approval for full operation.
- b. Prior to Department authorization of operational cycle testing:
- (1) The permittee shall submit at a minimum the following information to each member of the Technical Advisory Committee for review:
 - (a) Draft operation and maintenance manual;

PERMITTEE:

City of Rockledge

Permit/Certification No: 05-0195980-002

Date of Issue: DRAFT

Date of Expiration: DRAFT

- (b) Lithologic and geophysical logs with interpretations;
 - (c) Results of pressure tests on the final casing for the ASR well and the storage zone monitor wells;
 - (d) Surface equipment completion certification or certification of interim completion for the purposes of testing;
 - (e) Signed and sealed as-built engineering drawings of all wellheads and subsurface well components;
 - (f) A consumptive use permit and all other applicable permits; and
 - (g) Submittal of a plugging and abandonment plan.
- (2) Before authorizing operational testing, the Department shall conduct an inspection of the facility to determine if the conditions of this permit have been met.
 - (3) The permittee shall provide an updated well inventory and physically verify all wells that are within a 1.0-mile radius of the ASR test well. Operational status, existing use, depth of final casing, and total depth of the wells shall be determined and submitted with the above-mentioned information.
 - (4) Prior to approval to inject into Class G-II ground water, the permittee shall meet the applicable criteria in Rule 62-610.466, F.A.C. Compliance with public and utility notifications in Rule 62-610.574(4), F.A.C., is also required.
- c. A cycle testing schedule and monitoring parameter list (monitoring plan) are attached hereto as Tables 1 and 2. In the event arsenic concentrations are observed that exceed 10 µg/L in any monitoring well or in the ASR well during recovery, the permittee shall contact the Department with this finding. Cycle testing shall henceforth be conducted under the attached Administrative Order No. AO-07-0002.
 - d. The Facility has not provided reasonable assurance that the water injected will meet all primary drinking water standards prior to injection. The Department agrees that the means to meet all primary drinking water standards are to be implemented during construction of the ASR facility. Furthermore, reasonable assurance will ultimately be provided that the Facility can meet all primary drinking water standards prior to injection. In the event this reasonable assurance is provided, the Facility will apply for a major permit modification that will allow testing of the ASR facility.
 - e. The Florida Geological Survey (FGS) is currently investigating the effects of ASR systems on storage zones. The Department requests that the permittee contact the Hydrogeology Program at the FGS (850-488-9380) at least 30 days prior to operational testing to allow the Survey to coordinate a sampling schedule during the operational testing phase of this project.
6. Operational Testing Conditions Using Reclaimed Water
- a. A qualified representative of the Engineer of Record must be present for the start-up operations and the Department must be notified in writing of the date operational testing began for the subject well(s).
 - b. Within 30 days of FDEP written authorization for cycle testing and within 90 days prior to injection, an analysis of the reclaimed water shall be performed and annually thereafter. The parameters to be analyzed shall include the water quality criteria listed in specific condition 3.

PERMITTEE:

City of Rockledge

Permit/Certification No: 05-0195980-002

Date of Issue: DRAFT

Date of Expiration: DRAFT

c. Proposed Class V ASR Test Well:

Well Name	Casing Diameter [OD] / Depth*	Open Hole Interval	Aquifer
ASR-1	6" Certa-Lok PVC / 400'	400' – 510'	Floridan

* below land surface; approximate depths.

Monitor Well System:

Well Name	Casing Diameter / Casing Depth*	Monitored Interval	Aquifer
WTMW	4" PVC / 15'	15 - 25' screened	Surficial
SMW-1	5" PVC / 250'	250 - 270' open hole	Floridan
SZMW-1	8" PVC / 400'	400 - 510' screened	Floridan
SZMW-2	17.4" PVC / 400'	400 - 510' open hole	Floridan

* below land surface; approximate depths.

- d. Prior to testing using reclaimed water, the authorization referenced in Specific Condition 5.a. above shall have been obtained. Results of the water quality analyses of the reclaimed water and background water quality pursuant to Specific Conditions 3. and 4.e. of this permit shall have been submitted. Aquifer test data, analysis and evaluation shall have been submitted. Construction diagrams, well specifications, well locations, construction specifications and drilling and testing plans shall have been submitted, approved by the Department and the new wells shall have been installed.
- e. The ASR test well shall be monitored in accordance with the approved monitoring plan referenced in Specific Condition 5.c. above (Tables 1 and 2). In the event arsenic concentrations are observed that exceed 10 µg/L in any monitoring well or in the ASR well during recovery, the permittee shall contact the Department with this finding. Operational testing shall resume in conjunction with Administrative Order No. AO-07-0002.
- f. The permittee shall submit monthly results of all injection well and monitoring well data required by this permit, and monthly progress reports which include both the current status of operational testing and a summary of all monthly activities, no later than the 28th day of the month immediately following the month of record. The results and progress reports shall be sent to the Department of Environmental Protection, 3319 Maguire Boulevard, Suite 232, Orlando, FL 32803-3767. A copy of the results and reports shall also be sent to the Department of Environmental Protection, Underground Injection Control Program, Mail Station 3530, 2600 Blair Stone Road, Tallahassee, FL 32399-2400.
- g. A final engineering report shall be submitted to the Department (Central District and Tallahassee UIC Program), the FGS, EPA and each TAC member and shall include the following information:
- (1) A detailed analysis of all cycle testing;
 - (2) An operation and maintenance section;
 - (3) Record drawings sealed by the Engineer of Record;
 - (4) Summary of all water quality and water level data collected, conclusions and recommendations; and

PERMITTEE:

City of Rockledge

Permit/Certification No: 05-0195980-002

Date of Issue: DRAFT

Date of Expiration: DRAFT

(5) Estimated ASR well capacity.

7. Abnormal Events

- a. In the event the permittee is temporarily unable to comply with any conditions of this permit due to breakdown of equipment, power outages, destruction by hazard of fire, wind or by other cause, the permittee shall notify the Department. Notification shall be made in person, by telephone or by electronic mail within 24 hours of breakdown or malfunction to the UIC program staff, Orlando Central District, (407) 894-7555.
- b. A written report of any noncompliance referenced in Condition 7.a. above shall be submitted to the Orlando Central District office within five days after discovery of the occurrence. The report shall describe the nature and cause of the breakdown or malfunction, the steps being taken or planned to be taken to correct the problem and prevent its reoccurrence, emergency procedures in use pending correction of the problem, and the time when the facility will again be operating in accordance with permit conditions.

Issued this ___th day of _____, 2007.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Vivian F. Garfein
Director, Central District

VFG/CCF/AKD/dw