Florida Water SERVICES

Water For Florida's Future

Marco Lakes ASR Expansion Project
Well Completion Report

April, 2000
Volume II

Prepared by:

Water Resource Solutions, Inc.

428 Pine Island Rd., S.W.

Cape Coral, Florida 33991

APPENDIX 1.1

FDEP WELL CONSTRUCTION PERMIT

Department of Environmental Protection

COPY

Jeb Bush
Governor

South District
P.O. Box 2549
Fort Myers, Florida 33902-2549

David B. Struhs
Secretary

CERTIFIED MAIL NO.: Z 252 620 872
RETURN RECEIPT REQUESTED

In the Matter of an
application for Permit by:

Mr. Rafael Terrero, P.E.
Florida Water Services Corporation
1000 Color Place
Apopka, Florida 32703
____________/

FDEP File No. 141218-001 thru 008-UC
Collier County - UIC
Marco Lakes Aquifer Storage and Recovery
(ASR) Class V Injection Wells

NOTICE OF PERMIT ISSUANCE

Enclosed are Permit Numbers 141218-001 thru 008-UC to construct a Class V injection well, issued pursuant to Section(s) 403.087, Florida Statutes.

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 Fort Myers, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Margaret F. Highsmith
Director of
District Management

Continue...

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 april 23 **, 1999 to the listed persons.**

Clerk Stamp

FILING AND ACKNOWLEDGMENT

FILED, on this date, pursuant to S.120.52(11), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Karen L. Misly 4-23-99
Clerk Date

MFH/JBM/dj

cc: Lloyd Horvath P. E.
TAC

Department of Environmental Protection

Jeb Bush
Governor

South District
P.O. Box 2549
Fort Myers, Florida 33902-2549

David B. Struhs
Secretary

PERMIT

PERMITTEE

Florida Water Services
1000 Color Place
Apopka, Florida 32703

Permit/Certification
I. D. No: 5211P04979
Number: 141218-001 thru 008
Date of Issue: April 22, 1999
Expiration Date: April 21, 2004
County: Collier
Latitude: 26 04' 01" N
Longitude: 81 41' 34" W
Section/Town/Range: 34/50S 26E
Project: Marco Lakes Aquifer Storage and Recovery (ASR) Class V Injection Wells

This permit is issued under the provisions of Chapter 403 of the Florida Statutes (F.S.) and rules 62-4, 62-520, 62-550 and 62-528 of the Florida Administrative Code. 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 eight (8) Class V Group Seven Aquifer Storage and Recovery (ASR) injection wells and two (2) monitoring wells as an expansion to an existing ASR system. The purpose is to store surplus partially treated water from the Marco Lakes in the lower Hawthorn and Suwanee aquifers for later recovery to meet peak seasonal water demands. The basic well design for the eight wells will consist of 16-inch diameter injection wells to a proposed total depth of approximately 790 feet and cased to 745 feet below land surface (bls) and two 6-inch monitoring wells that will monitor the storage zone and the mid-Hawthorn Zone II. This project is depicted on the ViroGroup, Inc. application and associated documents submitted in support of this project. The location for this project is approximately one-half mile SE of C.R. 951, Collier County, Florida.

Subject to General Conditions 1-16 and Specific Conditions 1-22.

PERMITTEE

Florida Water Services

I. D No.: 5211P04979
Permit certification No.: 141218-C01 thru 008 UC
Date of Issue: April 22, 1999
Date of Expiration: April 21, 2004

GENERAL CONDITIONS:

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are "permit conditions" and are binding and enforceable pursuant to Sections 403.141, 403.727, or 403.859 through 403.861, F.S. The permittee is placed on notice that the Department will review this permit periodically and may initiate enforcement action for any violation of these conditions.

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviation from the approved drawings, exhibits, specifications, or conditions of this permit may constitute grounds for revocation and enforcement action by the Department.

3. As provided in Subsections 403.087(6) and 403.722(5) F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations. This permit is not a waiver of or approval of any other Department permit that may be required for other aspects of the total project which are not addressed in the permit.

4. This permit conveys no title to land or water, does not constitute State recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title.

5. This permit does not relieve the permittee from liability for harm or injury to human health or welfare, animal, or plant life, or property caused by the construction or operation of this permitted source, or from penalties therefore; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by any order from the Department.

6. The permittee shall properly operate and maintain the facility and systems of treatment and control (and related appurtenances) that are installed and used by the permittee to achieve compliance with the conditions of this permit, as required by Department rules. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to achieve compliance with the conditions of the permit and when required by Department rules.

7. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, upon presentation of credential or other documents as may be required by law, and at reasonable times, access to the premises where the permitted activity is located or conducted to:

(a) Have access to and copy any records that must be kept under the conditions of the permit;
(b) Inspect the facility, equipment, practices, or operations regulated or required under this permit; and
(c) Sample or monitor any substances or parameters at any location reasonably necessary to assure compliance with this permit or Department rules. Reasonable time may depend on the nature of the concern being investigated.

8. If, for any reason, the permittee does not comply with or will be unable to comply with any condition or limitation specified in this permit, the permittee shall immediately provide the Department with the following information:

(a) A description of and cause of non-compliance; and
(b) The period of non-compliance, including dates and times; or, if not corrected, the anticipated time the non-compliance is expected to continue, and steps being taken to reduce, eliminate, and prevent

GENERAL CONDITIONS:

recurrence of the non-compliance. The permittee shall be responsible for any and all damages which may result and may be subject to enforcement action by the Department for penalties or revocation of this permit.

9. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data and other information relating to the construction or operation of this permitted source, which are submitted to the Department, may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except where such use is prescribed by Section 403.111 and 403.73, F.S. Such evidence shall only be used to the extent it is consistent with the Florida Rules of Civil Procedure and appropriate evidentiary rules.

10. The permittee agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance, provided however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-3.051, shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard.

11. This permit is transferable only upon Department approval in accordance with F.A.C. Rules 62-4.120 and 62-30.300, F.A.C. as applicable. The permittee shall be liable for any non-compliance of the permitted activity until the transfer is approved by the Department.

12. This permit or a copy thereof shall be kept at the work site of the permitted activity.

13. This permit also constitutes:

(a) Determination of Best Available Control Technology (BACT)
(b) Determination of Prevention of Significant Deterioration (PSD)
(c) Certification of compliance with State Water Quality Standards (Section 401, PL 92-500)
(d) Compliance with New Source Performance Standards

14. The permittee shall comply with the following:

(a) Upon request, the permittee shall furnish all records and plans required under Department rules. During enforcement actions, the retention period for all records will be extended automatically, unless otherwise stipulated by the Department.

(b) The permittee shall hold at the facility or other location designated by this permit records of all monitoring information (including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation), required by the permit, copies of all reports required by this permit, and records of all data used to complete the application for this permit. These materials shall be retained at least three years from the date of the sample, measurement, report or application unless otherwise specified by Department rule.

(c) Records of monitoring information shall include:

1. the date, exact place, and time of sampling or measurements;
2. the person responsible for performing the sampling or measurements;

GENERAL CONDITIONS:

3. the dates analyses were performed;
4. the person responsible for performing the analyses;
5. the analytical techniques or methods used;
6. the results of such analyses.

15. When requested by the Department, the permittee shall within a reasonable time furnish any information required by law which is needed to determine compliance with the permit. If the permittee becomes aware the relevant facts were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be corrected promptly.

16. In the case of an underground injection control permit, the following permit conditions also shall apply:

(a) All reports or information required by the Department shall be certified as being true, accurate and complete.

(b) Reports of compliance or noncompliance with, or any progress reports on, requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.

(c) Notification of any noncompliance which may endanger health or the environment shall be reported verbally to the Department within 24 hours and again within 72 hours, and a final written report provided within two weeks.

1. The verbal reports shall contain any monitoring or other information which indicate that any contaminant may endanger an underground source of drinking water and any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

2. The written submission shall contain a description of and a discussion of the cause of the noncompliance and, if it has not been corrected, the anticipated time the noncompliance is expected to continue, the steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance and all information required by Rule 62-528.415(4)(b), F.A.C.

(d) The Department shall be notified at least 180 days before conversion or abandonment of an injection well, unless abandonment within a lesser period of time is necessary to protect waters of the State.

SPECIFIC CONDITIONS:

1. General Criteria

a. Any permit noncompliance constitutes a violation of the Safe Drinking Water Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification or for denial of a permit renewal application.

b. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

1. General Criteria

c. The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

d. 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.

e. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation or reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

f. When requested by the Department, the permittee shall furnish, within the time specified, any information needed to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit.

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. The permittee shall notify the Department and obtain approval or to any physical alterations or additions to the injection or monitor well, including removal of the well head.

I. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or injection activity which may result in noncompliance with permit requirements.

j. The permittee shall report any noncompliance which may endanger health or the environment, including:

1. Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water; or
2. Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between underground sources of drinking water.

Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause, the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected the anticipated time it is expected to continue; and the steps taken or planned to reduce , eliminate, and prevent reoccurrence of the noncompliance.

k. 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.

l. If injection is to continue beyond the expiration date of this permit the permittee shall apply for, and obtain an operation permit. If necessary to complete the operational testing period, the permittee shall apply for renewal of the construction permit at least 60 days prior to the expiration date of this permit.

m. The permittee shall retain all records concerning the nature and composition of injected fluid until five years after completion of any plugging and abandonment. The permittee shall deliver the records to the Department office that issued the permit at the conclusion of the retention period unless the permittee elects to continue retention of the records.

2. Drawings, plans, documents or specifications submitted by the Permittee, not attached hereto, but retained on file at the South Florida District Office, are made a part hereof.

3. The injection and monitor wells at the site shall be abandoned when posing a potential threat to the quality of the waters of the State. In the event a well must be plugged or abandoned, the permittee shall obtain a permit from the Department as required by Chapter 62-528, F.A.C. The permittee shall notify the Department and obtain approval prior to any well work or modification.

4. The permittee shall notify the Department in the event that any of the conditions of the permit cannot be met, including an emergency discharge, due to breakdown of equipment, power outages or damages by hazard of fires, wind or other causes in accordance with the following:

a. Notification shall be made in person or by telephone within 24 hours of the event.

b. A written report shall be submitted within 5 days which describes the nature and cause of the breakdown or malfunction, the steps being taken to correct the problem and prevent its recurrence, emergency procedures in use pending correction of the problem and the time when the facility will again be operating in compliance with permit conditions.

5. 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 spudding the wells.

6. The permittee shall retain the engineer of record or obtain the services of any professional engineer registered in the State of Florida for the inspection of the construction of this project. Upon completion the engineer shall inspect for conformity to construction permit applications and associated documents. The Department shall be notified immediately of any change of engineer.

7. The pumping of any fluids other than the Marco Lakes' treated water into the ASR injection well constitutes a violation of this permit and shall be cause for revocation.

8. Prior to commencement of operational testing of the injection well, the permittee shall obtain from the Department a Water Quality Exemption for Color pursuant to Rule 62-520.500, F.A.C.

9. Prior to injection, the source water shall be treated with a minimum of 3ppm of sodium hypochlorite to reduce total coliform to 4 per 100 ml or less.

10. The Water Treatment and Transmission Facilities - Phase I shall be implemented as depicted by the drawings, plans, and specifications submitted by the permittee on December 2, 1998. These facilities will provide filtration, pH adjustment and disinfection of surface water prior to injection for storage.

11. Injection into any aquifer shallower than the Lower Hawthorn will require a major modification to this permit pursuant to Rules 62-4.050 (4)(1)15. and 62-528.355, F.A.C., and public notice.

12. The first two ASR wells (001, 002) may be operationally (cycle) tested upon written authorization by the Department and the cycle test data submitted to the Department prior to the remaining ASR wells undergoing cycle testing. Prior to requesting operational testing approval from the Department for ASR wells 003 thru 008, the permittee shall submit to the Department all cycle test data for ASR wells 001 and 002.

13. **Operational Testing**

Prior to operational testing:

(a). The permittee shall submit the following information to each member of the TAC:
1). A draft well completion report
2). Geophysical logs
3). Injection test data
4). Confining zone data
5). Background water quality data for the injection and monitor zones
6). Injection fluid analysis
7). As-built well construction specifications
8). Other data obtained during well construction

(b). Written authorization shall be obtained from the Department. The authorization shall specify the conditions under which operational testing is approved. The authorization shall include:
1). Injection pressure limitation
2). Injection flow rate limitation
3). Injection well monitoring requirements
4) Effluent monitoring requirements
5). Ground water sampling of monitor wells
6). Reporting requirements
7). An expiration date for the operational testing period

(c). Before authorizing operational testing the Department shall conduct an inspection of the facility to determine if the conditions of the permit have been met.

The injection system shall be monitored in accordance with Rule 62-528.615, F.A.C. The injection well performance and monitor zone data shall be recorded and reported in the Monthly Operating Report as indicated below. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

The permittee shall submit monthly to the Department the results of all injection well and monitor well data required by this permit no later than the fifteenth (15) day of the month immediately following the month of record. The results shall be sent to the Department of Environmental Protection, P.O. Box 2549, Fort Myers, Florida 33902-2549. A copy of this report shall also be sent to the Department of Environmental Protection, Underground Injection Control Program, MS 3530, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

14. This permit does not authorize the introduction of the water recovered from the ASR well into the public water system. A permit is required from this Department's Drinking Water Section prior to connection of an ASR system into a public water system.

15. This project will be monitored by the Department with the assistance of the U.S. Environmental Protection Agency (USEPA), Region 4, and the Technical Advisory Committee (TAC) which consists of representatives of the following agencies:

Department of Environmental Protection - Fort Myers
Department of Environmental Protection - Tallahassee
U.S. Geological Survey - Miami
South Florida Water Management District - West Palm Beach

16. The permittee shall provide copies of all correspondence relative to this permit to each member of the TAC and the USEPA. 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.

17. During the construction period allowed by this permit, daily progress reports shall be submitted to the Department, the USEPA, 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:

a. Description of daily footage drilled by diameter of bit or size of hole opener or reamer being used;

b. Description of work during installation and cementing of casing, including amounts of casing and cement used;

c. Description of formation and depth encountered;

d. Lithological description of drill cuttings collected every ten feet or at every formation change;

e. Description of work and type of testing accomplished including geophysical logging and pumping tests;

f. Description of any construction problems that develop and their status;

g. Copies of the driller's logs; and

h. Accurate records of the amount and type of any material used during construction to kill the flow of the wells.

18. No drilling operations shall begin without an approved disposal site for drill cuttings, fluids or waste. It shall be the Drilling Contractor's responsibility to obtain any necessary Department and local agency approval for disposal prior to the start of construction.

19. After completion of construction and testing, a final report shall be submitted to the Department and the TAC. The report shall include, but not be limited to, all information and data collected under Sections 62-528.605, 62-528.610, 62-528.615 and 62-528.620, F.A.C., with appropriate interpretations. Mill certificates for the casing(s) shall be included in this report.

20. The permittee is reminded of the necessity to comply with the pertinent regulations of any other regulatory agency, as well as any county, municipal, and federal regulations applicable to the project. These regulations may include, but are not limited to, those of the Federal Emergency Management Agency in implementing flood control measures. This permit should not be construed to imply compliance with the rules and regulations of other regulatory agencies.

21. The existing dual-zone monitoring well may be converted to an ASR zone monitor well under this permit. A plugging and abandonment plan for the Hawthorn zone I well shall be submitted and approved by the Department prior to this work.

22. A new mid-Hawthorn II monitor well shall be constructed and a minimum of three months of water quality data shall be submitted to the Department prior to plugging and abandonment of the Hawthorn zone well.

Note: In the event of an emergency the permittee shall contact the Department by calling (850)413-9911. During normal business hours, the permittee shall call (941)332-6975.

Issued this 22ND day of April 1999.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Margaret F. Highsmith
Director of
District Management

MFH/JBM/dj

APPENDIX 2.2

LITHOLOGIC LOGS

ASR#2
ASR#3
ASRZMW
MHZ2MW

GEOLOGIST'S LOG - ASR #2
WELL CCO6189M

Depth (ft bpl)	Lithology
0-10	Limestone, Yellowish gray (5Y 7/2), fine to medium grained, moderately sorted, subangular, abundant fossil fragments and shell, poorly indurated, moderate porosity (moldic), moderate permeability
10-20	Limestone, Yellowish gray to Yellowish gray (5Y 7/2 to 5Y 8/1), fine to medium grained, moderately sorted, subangular, some fossil fragments and shell, poorly indurated, moderate porosity (moldic), moderate permeability
20-30	Limestone, Yellowish gray to Very pale orange (5Y 7/2 to 10YR 8/2), medium grained, well-sorted, subangular, some fossil fragments, abundant shell, poorly indurated, moderate porosity (moldic), moderate permeability
30-40	Limemud, Light olive gray (5Y 5/2) with well indurated chunks of limestone, and medium grained shell and fossil fragments, moderately sorted, poor porosity, poor permeability
40-50	Limemud, Light olive gray (5Y 6/1) with medium to coarse grained shell and fossil fragments, poorly sorted, poor porosity, poor permeability
50-60	Limestone, Yellowish gray to Very pale orange (5Y 7/2 to 10YR 8/2), fossil fragments, moderately indurated, well sorted (no fines), moderate porosity (moldic), moderate permeability
60-70	Limestone, Yellowish gray to Yellowish gray (5Y 7/2 to 5Y 8/1), medium to coarse grained, moderately sorted, subangular, some fossil fragments, moderately indurated, moderate porosity (highly moldic), low to moderate permeability
70-80	Limestone, Yellowish gray to Medium light gray (5Y 7/2 to N6) fine to coarse grained, poorly-sorted, subangular, fossil fragments, moderately to well indurated, low porosity, low permeability
80-90	Limestone, Yellowish gray (5Y 7/2), medium to coarse grained, moderately sorted, fossil fragments, shell, poorly to well indurated, low porosity, low permeability
90-100	Limestone, Yellowish gray (5Y 8/1), poorly-sorted, fossil fragments,

moderately indurated, moderate porosity, moderate permeability

100-110	Limestone, Yellowish gray (5Y 7/2), fine to medium sand size grains, well-sorted, some fossil fragments, poorly indurated, moderate porosity, moderate permeability
110-120	Limestone, Yellowish gray (5Y 7/2), fine to medium sand size grains, well-sorted, shell fragments, poorly indurated, moderate porosity, moderate permeability
120-130	Clay, Grayish olive green (5GY 3/2), small fragments of limestone, very low porosity, very low permeability
130-140	Limestone, Very pale orange to Dark yellowish brown (10YR 8/2 to 10YR 4/2), moderate induration, low to moderate porosity, low to moderate permeability
140-150	Quartz sand, opaque – Yellowish gray to light olive gray (5Y 8/1 to 5Y 6/1) medium sand grained, moderately to well sorted, limestone fragments, poorly consolidated, moderate porosity, moderate permeability
150-160	Quartz sand, opaque – Yellowish gray to light olive gray (5Y 8/1 to 5Y 6/1) medium sand grained, well sorted, small limestone fragments, poorly consolidated, moderate porosity, moderate permeability
160-170	Quartz sand, opaque – Yellowish gray to light olive gray (5Y 8/1 to 5Y 6/1) fine to medium sand grained, moderately to well sorted, fine limestone and shell fragments, poorly consolidated, moderate porosity, moderate permeability
170-180	Sandy clay, Greenish gray (5GY 6/1) fine grained quartz with clay (30%), moderately to well sorted, poorly consolidated, low porosity, low permeability
180-190	Sandy clay, Greenish gray (5GY 6/1) fine grained quartz with clay (40%), moderately to well sorted, poorly consolidated, low porosity, low permeability
190-200	Sandy clay, Greenish gray (5GY 6/1) fine grained quartz with clay (50%), moderately to well sorted, poorly consolidated, low porosity, low permeability
220-230	Clay, Dusky yellow green (5GY 5/2) well sorted, poorly consolidated, fine grained phosphate (3%) very low porosity, very low permeability

230-240	Clay, Greenish gray (5GY 6/1) well sorted, poorly consolidated, fine grained phosphate (5%) very low porosity, very low permeability
240-250	Clay, Dark greenish gray (5GY 4/1) well sorted, poorly consolidated, fine grained phosphate (15%) very low porosity, very low permeability
250-260	Clay, Dark greenish gray (5GY 4/1) well sorted, poorly consolidated, fine grained phosphate (10%) very low porosity, very low permeability
260-270	Clay, Dark greenish gray (5GY 4/1) well sorted, poorly consolidated, fine grained phosphate (15%) very low porosity, very low permeability
270-280	Clay, Dusky yellow green (5GY 5/2) well sorted, poorly consolidated, fine grained phosphate (5%) very low porosity, very low permeability
280-290	Limestone, biomicritic, Very light gray to Yellowish gray (N8 to 5Y 8/1), medium to coarse sand size, moderately to well indurated, minor fine grained phosphate, minor limemud, moderate porosity (moldic), moderate permeability
290-300	Limestone, biomicritic, Yellowish gray (5Y 8/1), medium to coarse sand size, poorly to moderately indurated, minor fine grained phosphate (2%), moderate to high porosity (moldic to interstitial), moderate to high permeability
300-310	Limestone, biomicritic, Yellowish gray (5Y 8/1), coarse sand to pebble size, moderately indurated, fine grained phosphate (10-15%), large shell fragments, moderate to high porosity (moldic), moderate to high permeability
310-320	Limestone, biomicritic, Yellowish gray (5Y 8/1), coarse sand to pebble size, poorly to moderately indurated, shell fragments, fine grained phosphate (5-10%), moderate to high porosity (moldic to interstitial), moderate to high permeability
320-330	Limestone, biomicritic, Yellowish gray to Medium gray (5Y 8/1 to N5), medium sand to cobble size, moderately indurated, minor fine grained phosphate (5%), moderate apparent porosity (moldic), moderate apparent permeability
330-340	Limestone, calcirudite, Medium light gray to Yellowish gray (N6 to 5Y 8/1), pebble to cobble size, moderately indurated, fine grained phosphate (10%), moderate porosity (moldic), moderate permeability
340-350	Limestone, calcirudite as above, Medium light gray to Yellowish gray

(N6 to 5Y 8/1), pebble to cobble size, moderately indurated, fine grained phosphate (10-20%), moderate porosity (moldic), moderate permeability

350-360	Limestone, calcirudite as above, Medium gray to Yellowish gray (N5 to 5Y 8/1), pebble to cobble size, moderately indurated, fine grained phosphate (up to 25%), large shell fragments, large fossil molds moderate to high apparent porosity (moldic), moderate to high apparent permeability
360-370	Limestone, calcirudite as above, Medium light gray to Yellowish gray (N6 to 5Y 8/1), pebble to cobble size, moderately indurated, fine grained phosphate (15%), moderate to high apparent porosity (moldic), moderate to high apparent permeability
370-380	Limestone, coquina, Yellowish gray to Very pale orange (5Y 7/2 to 10YR 8/2), Poorly indurated, entirely composed of shell fragments, very high apparent porosity, very high apparent permeability
380-390	Limestone, coquina as above, Yellowish gray to Very pale orange (5Y 7/2 to 10YR 8/2), Poorly indurated, composed of shell fragments with minor biomicrite (10%), very high apparent porosity, very high apparent permeability
390-400	Limestone, coquina as above, Yellowish gray to Very pale orange (5Y 7/2 to 10YR 8/2), Poorly indurated, composed of shell fragments with phosphatic biomicrite (20%), very high apparent porosity, very high apparent permeability
400-410	Limestone, coquina as above, Yellowish gray to Very pale orange (5Y 7/2 to 10YR 8/2), Poorly indurated, entirely composed of shell fragments, very high apparent porosity, very high apparent permeability
410-420	Limemud, Light olive gray (5Y 6/1), poorly indurated, mud with coarse grain sand size limestone fragments, well sorted, poor apparent porosity, poor apparent permeability
420-430	Limemud, Yellowish gray to Pale olive (5Y 8/1 to 10Y 6/2), poorly indurated, mud with coarse sand to cobble size limestone fragments with phosphate (10%), poorly sorted, poor apparent porosity, poor apparent permeability
430-440	Limemud, Light olive gray (5Y 6/1), poorly indurated, mud with coarse grain sand to pebble size limestone fragments, moderately sorted, poor apparent porosity. poor apparent permeability

440-450	Limestone, coquina, Light olive gray to Very pale orange (5Y 6/1 to 10YR 8/2), Poorly indurated, primarily composed of shell fragments with micritic limestone fragments (10%) and limemud (5%), moderate apparent porosity, moderate apparent permeability
450-460	Limestone, coquina as above with less mud, Yellowish gray to Very pale orange (5Y 7/2 to 10YR 8/2), Poorly indurated, primarily composed of shell fragments with micritic limestone fragments (10%) and limemud (2-3%), moderate to high apparent porosity, moderate to high apparent permeability
460-470	Limestone, coquina as above with no mud, Yellowish gray to Very pale orange (5Y 7/2 to 10YR 8/2), Poorly indurated, primarily composed of shell with fossil mold fragments (10%) and biomicritic limestone (10%), high apparent porosity, high apparent permeability
470-480	Limestone, biomicritic, Yellowish gray (5Y 7/2), moderately indurated, secondary limemud (15-20%), fossil casts, low to moderate apparent porosity, low to moderate apparent permeability
480-490	Limestone, biomicritic as above, Yellowish gray (5Y 7/2), moderately indurated, secondary limemud (15-20%), fossil casts, low to moderate apparent porosity, low to moderate apparent permeability
490-500	Limestone, biomicritic as above, Yellowish gray (5Y 7/2), moderately indurated, secondary limemud (15-20%), low to moderate apparent porosity, low to moderate apparent permeability
500-510	Limestone, biomicritic as above, Yellowish gray to light gray (5Y 7/2 to N7), poorly to moderately indurated, secondary limemud (20-30%), low to moderate apparent porosity, low to moderate apparent permeability
510-520	Limestone, biomicritic as above, Yellowish gray to light gray (5Y 7/2 to N7), poorly to moderately indurated, secondary limemud (20%), low to moderate apparent porosity, low to moderate apparent permeability
520-530	Limestone, biomicritic as above, Yellowish gray to light gray (5Y 7/2 to N7), poorly to moderately indurated, secondary limemud (30%), low to moderate apparent porosity, low to moderate apparent permeability
530-540	Limemud, Yellowish gray (5Y 8/1), poorly indurated, pebble size

fragments of micrite (10-15%), minor phosphate (<5%), very low apparent porosity, very low apparent permeability

540-550	Limemud, Pale olive as above (10Y 6/2), poorly indurated, pebble size fragments of micrite (10%), minor phosphate (5%), very low apparent porosity, very low apparent permeability
550-560	Limemud, Yellowish gray as above (5Y 8/1), poorly indurated, pebble size fragments of phosphatic micrite (10-15%), minor phosphate (5-10%), very low apparent porosity, very low apparent permeability
560-570	Limemud, Yellowish gray as above (5Y 7/2), poorly indurated, coarse sand to pebble size fragments of phosphatic micrite (10-15%), coarse sand size phosphate (10-15%), very low apparent porosity, very low apparent permeability
570-580	Limemud, Yellowish gray as above (5Y 7/2), poorly indurated, pebble size fragments of phosphatic micrite (15-20%), minor phosphate (5-10%), very low apparent porosity, very low apparent permeability
580-590	Limemud, Yellowish gray as above (5Y 8/1), poorly indurated, pebble size fragments of phosphatic micrite (20-25%), minor phosphate (5-10%), minor dolomite ? (< 5%), very low apparent porosity, very low apparent permeability
590-600	Limestone, biomicrite, Yellowish gray (5Y 7/2), moderately indurated, fossil molds, minor shell, minor phosphate (< 5%), minor limemud, low to moderate apparent porosity, low to moderate apparent permeability
600-610	Limestone, coquina, Yellowish gray to Light gray (5Y 7/2 to N7), poorly to moderately indurated, composed primarily of shell fragments with minor limemud and minor phosphate (3%), moderate to good apparent porosity, moderate to good apparent permeability
610-620	Limestone, biomicrite, Yellowish gray to Pale greenish yellow (5Y 7/2 to 10Y 8/2), moderately to well indurated, limemud (20%), minor phosphate (3%), moderate apparent porosity, moderate apparent permeability
620-630	Clay, Pale olive (10Y 6/2), poorly indurated, shell fragments (10%), minor micrite (5-10%), minor phosphate (3%), very poor apparent porosity, very poor apparent permeability
630-640	Clay as above, Light olive gray (5Y 6/1), poorly indurated, shell fragments (15-20%), minor micrite (5-10%), minor phosphate (3%), very poor apparent porosity, very poor apparent permeability
640-650	Limemud, Pale olive (10Y 6/2), poorly indurated, phosphatic biomicrite (10%), shell fragments (10%), minor phosphate (5%), very low apparent porosity, very low apparent permeability

650-660	Clay, Dusky yellow green (5GY 5/2), poorly indurated, minor phosphatic micrite (5%), minor shell (5%), very poor apparent porosity, very poor apparent permeability
660-670	Clay, Olive gray (5Y 4/1), poorly indurated, phosphatic micrite (25%), small shell fragments (10%), very poor apparent porosity, very poor apparent permeability
670-680	Limestone, coquina, Yellowish gray to Light olive gray (5Y 8/1 to 5Y 6/1), poorly indurated, primarily composed of small shell fragments with minor phosphate (7%) and minor limemud (5%), good apparent porosity, good apparent permeability
680-690	Limestone, Yellowish gray to Light olive gray (5Y 8/1 to 5Y 6/1), poorly indurated, primarily composed of small shell fragments with friable limestone, phosphatic micrite (15%) minor phosphate (5%), minor limemud (3%), good to very good apparent porosity, good to very good apparent permeability
690-700	Limestone as above, Light olive gray (5Y 6/1), poorly indurated, primarily composed of small shell fragments with friable limestone, limemud (10%), phosphatic micrite (10%) minor phosphate (5%), moderate to good apparent porosity, moderate to good apparent permeability
700-710	Limestone, micrite, Yellowish gray (5Y 8/1), moderately to well indurated, small shell fragments (40%), good to very good apparent porosity, good to very good apparent permeability
710-720	Limestone, biomicrite, Yellowish gray to Medium dark gray (5Y 8/1 to N4), moderately to well indurated, small shell fragments (20%), limemud (15%), minor dolomite (8%), moderate apparent porosity, moderate apparent permeability
720-730	Limestone, micrite, Yellowish gray to Pale yellowish brown (5Y 8/1 to 10YR 6/2), gummy to well indurated, limemud (35%), dolomitic limestone (15%), minor phosphate (3%), poor apparent porosity, poor apparent permeability
730-740	Limestone, micrite, Very pale orange (10YR 8/2), well indurated, minor limemud (8%), good apparent porosity, good apparent permeability
740-750	Limestone, micrite as above, Very pale orange (10YR 8/2), well

indurated, good to very good apparent porosity, good to very good apparent permeability

750-760	Limestone, calcarenite, Very pale orange (10YR 8/2), moderately indurated, biomicrite (10%), Medium gray (N5), good to excellent moldic and intergranular porosity, good to excellent apparent permeability
760-770	Limestone, calcarenite as above, Very pale orange (10YR 8/2), moderately indurated, good to excellent moldic and intergranular porosity, good to excellent apparent permeability
770-780	Limestone, calcarenite, Yellowish gray (5Y 8/1), poor to moderately indurated, very fine quarts sand, minor limemud, moderate to good intergranular porosity, moderate to good apparent permeability

GEOLOGIST'S LOG - ASR #3
WELL CCO6189N

Depth (ft bpl)	Lithology
0-10	Shell (70%), Yellowish gray (5Y 7/2) to Medium light gray (N6); Limestone, Biosparite (25%), Yellowish gray (5Y 8/1), poorly to moderately indurated, high to very high moldic and interstitial porosity, organics (5%); overall high to very high porosity, high to very high apparent permeability
10-20	Shell as above (70%), Yellowish gray (5Y 7/2) to Medium light gray (N6); Limestone, Biosparite as above (25%), Yellowish gray (5Y 8/1), poorly to moderately indurated, high to very high moldic and interstitial porosity, organics (5%); overall high to very high porosity, high to very high apparent permeability
20-30	Shell as above (65%), Yellowish gray (5Y 8/1) to Medium light gray (N6); Limestone, Biomicrite (35%), Yellowish gray (5Y 8/1), moderately to well indurated, translucent, high moldic porosity; overall high to very high porosity, high to very high apparent permeability
30-40	Limestone, Biosparite to biomicrite, Yellowish gray (5Y 8/1), moderately to well indurated, moderate to good moldic and interstitial porosity; shell (20%); mudstone (10%), Medium gray (N5), poorly to moderately indurated, low porosity; overall moderate to high interstitial porosity, moderate to high apparent permeability
40-50	Shell (55%), Yellowish gray (5Y 7/2); Limestone, Biomicrite (35%), Yellowish gray (5Y 8/1), moderately to well indurated, translucent, high moldic porosity; overall high to very high porosity, high to very high apparent permeability
50-60	Limestone, Biosparite to biomicrite, Yellowish gray (5Y 8/1) to Medium gray (N5), moderately to well indurated, high to very high moldic and interstitial porosity; shell (10%); overall high to very high moldic and interstitial porosity, high to very high apparent permeability
60-70	Limestone as above, Biosparite to biomicrite, Yellowish gray (5Y 8/1) to Medium gray (N5), moderately to well indurated, high to very high moldic and interstitial porosity; shell (10%); overall high to very high moldic and interstitial porosity, high to very high apparent permeability

70-80	Sandy Limestone, calcarenite with fine quarts sand, Yellowish gray (5Y 7/2), poorly to moderately indurated, minor molds, minor phosphate (5%), very high intergranular and moldic porosity; shell (15%), Yellowish gray (5Y 7/2); biomicrite (10%), Yellowish gray (5Y 8/1) to Yellowish gray (5Y 7/2), well indurated, moderate moldic porosity; overall high to very high moldic porosity, high to very high apparent permeability
80-90	Sandy Limestone as above, calcarenite with fine quarts sand, Yellowish gray (5Y 7/2), poorly to moderately indurated, minor molds, minor phosphate (5%), very high intergranular and moldic porosity; shell (25%), Yellowish gray (5Y 7/2); minor limemud (3%); overall moderate to high moldic porosity, moderate to high apparent permeability
90-100	Sandy Limestone as above, calcarenite with fine quarts sand, Yellowish gray (5Y 7/2), poorly to moderately indurated, minor molds, minor phosphate (5%), high intergranular and moldic porosity; shell (35%), Yellowish gray (5Y 7/2); overall high intergranular and moldic porosity, high apparent permeability
100-110	Sandy limestone as above, calcarenite with quarts sand (40%), Yellowish gray (5Y 7/2), poorly to moderately indurated, high to very high intergranular porosity; Shell as above (40%), Yellowish gray (5Y 7/2), quartz sand (15%), fine fossil fragments (10%); overall high to very high intergranular porosity, high to very high apparent permeability
110-120	Shell (75%), Yellowish gray (5Y 7/2); Phosphate (15%), Dark gray (N3), Sandy limestone as above (10%), calcarenite with quarts sand (40%), Yellowish gray (5Y 7/2), poorly to moderately indurated, high to very high intergranular porosity ; overall high to very high porosity, high to very high apparent permeability
120-130	No sample collected
130-140	No sample collected
140-150	Quartz sand (90%), opaque, Yellowish gray (5Y 8/1) to light gray (N7), medium sand grained, well sorted, poorly consolidated, minor phosphate (3%), very high intergranular porosity; Limestone, sandy micrite (10%), Light olive gray (5Y 6/1), well indurated, moderate porosity; overall very high intergranular porosity, very high apparent permeability

150-160 Quartz sand (90%), opaque, Yellowish gray (5Y 8/1) to light gray (N7), medium sand grained, well sorted, poorly consolidated, minor phosphate (3%), very high intergranular porosity; Limestone, sandy micrite (10%), Light olive gray (5Y 6/1), well indurated, low porosity; overall very high intergranular porosity, very high apparent permeability

160-170 Quartz sand as above (60%), opaque, Yellowish gray (5Y 8/1) to light gray (N7), medium sand grained, well sorted, poorly consolidated, minor phosphate (3%), Limestone (40%), sandy calcarenite, Pale olive (10Y 6/2), poorly to moderately indurated, moderate to high intergranular porosity; overall moderate to very high intergranular porosity, moderate to very high apparent permeability

170-180 Clayey sand (85%), Light olive gray (5Y 6/1), medium grained quartz sand (60%) with clay (40%), moderately to well sorted, poorly consolidated, minor phosphate (3%), low porosity; Limestone, sandy calcarenite (15%), Dusky yellow green (5GY 5/2), poorly to moderately indurated, minor phosphate (5%), moderate intergranular porosity, overall low porosity, low apparent permeability

180-190 Sandy clay, Greenish gray (5GY 6/1), clay (60%) with fine grained quartz sand (40%), gummy, well sorted, poorly consolidated, minor phosphate (5%), very low porosity, very low apparent permeability

190-200 Clay, Dusky yellow green (5GY 5/2), gummy to stiff, well sorted, poorly consolidated, fine grained quartz sand (8%), minor phosphate (5%), very low porosity, very low apparent permeability

200-210 Clay as above, Dusky yellow green (5GY 5/2), gummy to stiff, well sorted, poorly consolidated, minor phosphate (5%), minor fine grained quartz sand (3%), very low porosity, very low apparent permeability

210-220 Clay as above, Dusky yellow green (5GY 5/2), gummy, well sorted, poorly consolidated, minor phosphate (5%), minor fine grained quartz sand (3%), very low porosity, very low apparent permeability

220-230 Clay as above, Dusky yellow green (5GY 5/2), gummy, well sorted, poorly consolidated, minor phosphate (5%), minor fine grained quartz sand (3%), very low porosity, very low apparent permeability

230-240 Clay (85%), phosphatic (25-30%), Greenish gray (5GY 6/1) to Yellowish gray (5Y 8/1), gummy, poorly consolidated, phosphate (10-15%), very low porosity; Mudstone (15%), Greenish gray (5GY 6/1), moderately indurated, phosphate (10%), low to moderate intergranular porosity; overall very low porosity, very low apparent permeability

240-250 Clay, Greenish gray (5GY 6/1) to Dark greenish gray (5GY 4/1), gummy to stiff, poorly consolidated, minor phosphate (3-5%); very low porosity, very low apparent permeability

250-260 Clay, phosphatic (20-25%), Dark greenish gray (5GY 4/1), gummy to stiff, well sorted, poorly consolidated, minor fine grained quarts sand (3%), very low porosity, very low permeability

260-270 Clay as above, phosphatic (15-20%), Dark greenish gray (5GY 4/1), gummy to crumbly, well sorted, poorly consolidated, fine grained quarts sand (7%), very low porosity, very low permeability

270-280 Clay, phosphatic, fine-grained (15%), Greenish gray (5GY 6/1) to Dark greenish gray (5GY 4/1), silky, very well sorted, very fine grained, poorly consolidated, minor fine grained quarts sand (5%), very low porosity, very low apparent permeability

280-290 Limestone with marl, biosparite to biomicrite, Light bluish gray (5B 7/1) to Yellowish gray (5Y 8/1), moderately to well indurated, minor fine grained phosphate (5%), moderate to high moldic porosity; shell (8%); limemud (8%); overall low to high moldic porosity, low to high apparent permeability

290-300 Limestone with marl (80%), biosparite to biomicrite, Medium light gray (N6) to Yellowish gray (5Y 8/1), moderately to well indurated, fine grained phosphate (0-20%), moderate to high moldic porosity; shell (15%), limemud (5%), overall low to high moldic porosity, low to high apparent permeability

300-310 Limestone as above (70%), biosparite to biomicrite, Light bluish gray (5B 7/1) to Yellowish gray (5Y 8/1), moderately to well indurated, fine grained phosphate (0-10%), moderate to high moldic porosity; shell (29%), very minor limemud (1%), overall moderate to high moldic and interstitial porosity, moderate to high apparent permeability

310-320 Limestone (85%), sandy biosparite to biomicrite, Medium bluish gray (5B 5/1) to Yellowish gray (5Y 8/1), moderately to well indurated, fine grained phosphate (up to 35%) mostly in sparite, moderate to high intergranular and moldic porosity; shell (13%), minor limemud (2%), overall moderate to high intergranular moldic porosity, moderate to high apparent permeability

320-330 Limestone (65%), sandy biosparite to biomicrite as above, Medium bluish gray (5B 5/1) to Yellowish gray (5Y 8/1), moderately to well indurated, fine grained phosphate (0-20%) mostly in sparite, moderate to high intergranular and moldic porosity; shell (33%), minor limemud (2%), overall moderate to high intergranular and moldic porosity, moderate to high apparent permeability

330-340 Limestone (80%), biosparite to biomicrite with quartz sand, Medium bluish gray (5B 5/1) to Yellowish gray (5Y 8/1), well indurated, moderate to high intergranular and moldic porosity; shell (18%), minor limemud (2%), overall moderate to high intergranular moldic porosity, moderate to high apparent permeability

340-350 Limestone (85%), sandy biosparite to biomicrite, Medium light gray (N6) to Yellowish gray (5Y 8/1), well indurated, fine grained phosphate (up to 15%) mostly in sparite, moderate to high intergranular and moldic porosity; shell (12%), minor limemud (3%), overall moderate to high intergranular and moldic porosity, moderate to high apparent permeability

350-360 Limestone with minor marl (70%), biosparite, Yellowish gray (5Y 7/2), moderately to well indurated, fine grained phosphate (8%), moderate to high intergranular and moldic porosity; shell (25%), limemud (5%), overall low to high intergranular and moldic porosity, low to high apparent permeability

360-370 Limestone (85%), sandy biosparite, Yellowish gray (5Y 7/2), moderately to well indurated, fine grained phosphate (5%) moderate to high intergranular and moldic porosity; shell (11%), limemud (4%), overall moderate to high intergranular and moldic porosity, moderate to high apparent permeability

370-380 Limestone (80%), sandy biosparite to biomicrite with coarse quartz sand, Yellowish gray (5Y 7/2), moderately to well indurated, fine grained phosphate (up to 35%) mostly in sparite, moderate to high intergranular and moldic porosity; shell (16%), limemud (4%), overall moderate to high intergranular and moldic porosity, moderate to high apparent permeability

380-390 Limestone (70%), sandy biosparite to biomicrite, Yellowish gray (5Y 7/2) to medium light gray (N6), moderately to well indurated, fine grained phosphate (up to 15%), moderate to high intergranular and moldic porosity; shell (29%), minor limemud (1%), overall moderate to high intergranular and moldic porosity, moderate to high apparent permeability

390-400 Limestone (85%) with marl, sandy biosparite, Yellowish gray (5Y 7/2) to medium light gray (N6), moderately indurated, fine grained phosphate (up to 15%), moderate to high intergranular and moldic porosity; limemud (8%), shell (7%), overall low to high intergranular and moldic porosity, low to high apparent permeability

400-410 Limestone (75%) with marl as above, sandy biosparite, Yellowish gray (5Y 7/2) to medium light gray (N6), moderately to well indurated, fine grained phosphate (up to 20%), moderate to high intergranular and moldic porosity; shell (15%); limemud (10%), overall low to high intergranular and moldic porosity, low to high apparent permeability

410-420 Marly Limestone (65%), sandy biosparite to biomicrite with coarse quartz sand, Yellowish gray (5Y 7/2) to Yellowish gray (5Y 8/1) moderately to well indurated, fine grained phosphate (up to 10%), moderate to high intergranular and moldic porosity; limemud (20%); shell (15%); overall very low to moderate intergranular and moldic porosity, very low to moderate apparent permeability

420-430 Marl (60%) with Limestone fragments, Pale olive (10Y 6/2), poorly to moderately indurated, moderate to high intergranular porosity; Shell (15%); dolomitic micrite (10%), Light olive gray (5Y 6/1); biosparite to biomicrite (8%), Medium gray (N5) to Yellowish gray (5Y 8/1); fine grained phosphate (7%); overall very low porosity, very low apparent permeability

430-440 Marly limestone, dolomitic micrite (45%), Light olive gray (5Y 5/2), well sorted, well indurated; Clay (35%), Light olive gray (5Y 5/2); Limestone (10%), calcarenite to micrite, Yellowish gray (5Y 7/2) to Medium light gray (N6), moderately to well indurated; Shell (9%); fine grained phosphate (8%); overall very low porosity, very low apparent permeability

440-450 Marly limestone, calcarenite to micrite (45%), Yellowish gray (5Y 7/2) to Medium light gray (N6), moderately to well indurated; Clay and limemud (35%), White (N9) to Light olive gray (5Y 5/2); dolomitic micrite (10%), Light olive gray (5Y 5/2), well sorted, well indurated, Shell (9%); fine grained phosphate (8%); minor fine grained quartz sand (3%); overall very low porosity, very low apparent permeability

450-460 Limestone (85%) with marl, biosparite to dolomitic micrite, Yellowish gray (5Y 8/1) to Light bluish gray (5B 7/1), moderately to well indurated, common molds and castes, phosphate (up to 15%) mostly in sparite, moderate to high interstitial and moldic porosity; Limemud (10%); Shell (6%); overall low to high interstitial and moldic porosity, low to high apparent permeability

460-470 Limestone (90%) with minor marl, biomicrite, Yellowish gray (5Y 8/1) to Light bluish gray (5B 7/1), moderately to well indurated, common molds and castes, high to very high moldic porosity; Shell (5%); Minor Limemud (5%); overall moderate to very high moldic and interstitial porosity, moderate to very high apparent permeability

470-480 Limestone (90%) with minor marl, biosparite to biomicrite, Yellowish gray (5Y 8/1) to Yellowish gray (5Y 7/2), moderately to well indurated, common molds and castes, high to very high moldic porosity; Shell (6%); Minor Limemud (4%); overall moderate to very high moldic and interstitial porosity, moderate to very high apparent permeability

480-490 Limestone as above (90%) with minor marl, biosparite to biomicrite, Yellowish gray (5Y 8/1) to Yellowish gray (5Y 7/2), moderately to well indurated, common molds and castes, high to very high moldic porosity; Shell (6%); Minor Limemud (4%); overall moderate to very high moldic and interstitial porosity, moderate to very high apparent permeability

490-500 Limestone (87%), with marl, biosparite, Yellowish gray (5Y 8/1) to Medium gray (N5), moderately to well indurated, limey to sandy, common molds and castes, shell fragments, phosphate (5-15%), high moldic and interstitial porosity; Limemud (7%); Shell (6%); overall low to high moldic and interstitial porosity, low to high apparent permeability

500-510 Marly Limestone (80%), biosparite, Yellowish gray (5Y 7/2) to Dark gray (N3), moderately to well indurated, common molds and castes, phosphate (10-20%), fine grained quartz sand, moderate to high intergranular and moldic porosity; Limemud (20%); overall low porosity, low permeability

510-520 Marly Limestone (80%), biosparite as above, Yellowish gray (5Y 7/2) to Dark gray (N3), poorly to well indurated, common molds and castes, phosphate (10-20%), fine grained quartz sand, high intergranular and moldic porosity; Limemud (20%) with fine grained phosphate; overall low porosity, low apparent permeability

520-530 Marl with Limestone fragments, Limemud (55%), Yellowish gray (5Y 8/1); Limestone (45%), biosparite as above to micrite, Pale greenish yellowish (10Y 8/2) to Medium dark gray (N4), moderately to well indurated, common molds and castes, phosphate (10-20%), fine grained quartz sand, high to very high intergranular and moldic porosity; overall very low porosity, very low apparent permeability

530-540	Limemud (90%), Yellowish gray (5Y 8/1) to Medium dark gray (N4), poorly consolidated, fine grained phosphate (10-20%), very low porosity; Limestone (10%), biosparite to micrite as above, Pale greenish yellowish (10Y 8/2) to Medium gray (N5), poorly to moderately indurated, common molds and castes, phosphate (10-15%), fine grained quartz sand, high to very high intergranular and moldic porosity; overall very low porosity, very low permeability
540-550	Limemud to clay (85%), Pale olive (5Y 8/1) to Medium dark gray (N4), poorly consolidated, phosphate (15-20%), very low porosity; Limestone (15%), biosparite as above with increasing phosphate, Yellowish gray (5Y 8/1) to Medium dark gray (N4), poorly to moderately indurated, phosphate (15-35%), fine grained quartz sand, high intergranular porosity; overall very low porosity, very low permeability
550-560	Marl (70%) with Limestone fragments, Yellowish gray (5Y 8/1) to Medium dark gray (N4), poorly consolidated, coarse grained phosphate (10-20%), very low porosity; Limestone (30%), biosparite as above to micrite, Pale greenish yellowish (10Y 8/2) to Medium gray (N5), poorly to moderately indurated, common molds and castes, phosphate (10-15%), fine grained quartz sand, high to very high intergranular and moldic porosity; overall very low porosity, very low permeability
560-570	Marl with Limestone, Limemud (70%) with phosphate (15-20%), Yellowish gray (5Y 8/1) to Light gray (N7), poorly consolidated, very low porosity; Limestone (30%), biosparite to biomicrite, Yellowish gray (5Y 8/1), Light gray (N7), moderately to well indurated, phosphate (5-20%), dolomitic lenses, minor fine grained quartz sand, molds and castes, moderate to high intergranular and moldic porosity; overall very low porosity, very low apparent permeability
570-580	Limestone (80%) with marl, calcarenite, Yellowish gray (5Y 8/1) to Light gray (N7), moderately indurated, phosphate (5%), minor fine grained quartz sand, minor molds and castes, moderate to high intergranular and moldic porosity; Shell (14%); Limemud (6%), Yellowish gray (5Y 8/1) to Light gray (N7); overall low to high intergranular and moldic porosity, low to high apparent permeability
580-590	Marl with Limestone, Limemud (55%) with minor phosphate (5%), Yellowish gray (5Y 7/2) to Very light gray (N6); Limestone (45%), fine

grained calcarenite to micrite, Yellowish gray (5Y 7/2) to Light gray (N7), moderately to well indurated, phosphate (10-15%), minor fine grained quartz sand, molds and castes, high to very high intergranular and moldic porosity; overall low porosity, low apparent permeability

590-600	Marl with Limestone as above, Limemud (55%) with phosphate (5-10%), Yellowish gray (5Y 7/2) to Very light gray (N6); Limestone (45%), fine grained calcarenite to micrite, Yellowish gray (5Y 7/2) to Light gray (N7), moderately to well indurated, phosphate (10-15%), minor fine grained quartz sand, molds and castes, high to very high intergranular and moldic porosity; overall low porosity, low apparent permeability
600-610	Marly Limestone, calcarenite (70%), Yellowish gray (5Y 7/2), Light gray (N7), moderately indurated, phosphate (6%), minor fine grained quartz sand, minor molds and castes, high to very high intergranular and moldic porosity; Limemud (15%) with minor phosphate (5%), Yellowish gray (5Y 7/2) to Very light gray (N6); Shell (15%); overall low to high intergranular and moldic porosity, low to high apparent permeability
610-620	Clay (85%), Pale olive (10Y 6/2), gummy, poorly consolidated, very low porosity; Limestone (15%), calcarenite to micrite, Yellowish gray (5Y 7/2) to Light gray (N7), moderately to well indurated, minor phosphate (4%), molds and castes, trace fine grained quartz sand, high intergranular and moldic porosity; overall very low porosity, very low apparent permeability
620-630	Clay (94%), Pale greenish yellow (10Y 8/2) to Pale olive (10Y 6/2), gummy, poorly consolidated, minor shell fragments, minor limestone fragments, very low porosity, very low permeability
630-640	Clay (94%), Light greenish gray (5GY 8/2) to Greenish gray (5GY 6/1), gummy, poorly to moderately consolidated, limestone fragments (6%), minor shell fragments, very low porosity, very low permeability
640-650	Clay (96%), Greenish gray (5GY 6/1) to Dark greenish gray (5GY 4/1), gummy to stiff, moderately consolidated, minor shell fragments, very low porosity, very low permeability
650-660	Marly Limestone, calcarenite (70%), Yellowish gray (5Y 7/2), Light gray (N7), moderately indurated, phosphate (6%), minor fine grained quartz sand, minor molds and castes, high to very high intergranular and moldic porosity; Limemud (20%) with minor phosphate (5%),

Yellowish gray (5Y 7/2) to Very light gray (N6); Shell (10%); overall low to high intergranular and moldic porosity, low to high apparent permeability

660-670	Marly Limestone, calcarenite (70%), Yellowish gray (5Y 8/1) to Greenish gray (5GY 6/1), moderately indurated, moderate intergranular porosity; Limemud (30%), Pale olive (10Y 6/2); overall very low porosity, very low apparent permeability
670-680	Marly Limestone, calcarenite, as above (60%), Yellowish gray (5Y 7/2) to Light gray (N7), moderately indurated, minor fine grained quartz sand, minor molds and castes, high intergranular and moldic porosity; Limemud (40%), Pale olive (10Y 6/2) to Very light gray (N6),; overall low to high intergranular and moldic porosity, low to high apparent permeability
680-690	Limestone with marl, fine grained calcarenite to biomicrite (85%), Yellowish gray (5Y 8/1) to Medium light gray (N7), moderately to well indurated, common molds and castes, high moldic porosity; Limemud (15%); Yellowish gray (5Y 8/1) to Very light gray (N8); overall low to high moldic porosity, low to high apparent permeability
690-700	Limestone with marl, biomicrite (90%), Yellowish gray (5Y 8/1) to Medium light gray (N7), moderately indurated, molds and castes, high moldic porosity; Limemud (10%); Yellowish gray (5Y 8/1) to Very light gray (N8); overall low to high moldic porosity, low to high apparent permeability
700-710	Limestone (90%), biomicrite, Yellowish gray (5Y 8/1) to Light olive gray (5Y 6/1), well indurated, common molds and castes, high to very high moldic porosity; Shell (10%); overall high to very high moldic and interstitial porosity, high to very high apparent permeability
710-720	Limestone, dolomitic micrite to biomicrite, Yellowish gray (5Y 7/2) to Light gray (N6), moderately to very well indurated, minor molds and castes, low to moderate moldic porosity; Limemud (4%); White (N9) to Yellowish gray (5Y 8/1); overall low to moderate moldic porosity, low to moderate apparent permeability
720-730	Limestone with minor marl, calcarenite (70%), Yellowish gray (5Y 8/1), moderately indurated, molds and castes, high moldic and intergranular porosity; Shell (27%); Limemud (3%), Yellowish gray (5Y 8/1); overall moderate to high moldic and intergranular porosity, moderate to high apparent permeability

730-740	Limestone with marl, calcarenite to biomicrite (85%), Yellowish gray (5Y 8/1) to Very pale orange (10YR 8/2), moderately to well indurated, molds and castes, high moldic and intergranular porosity; Limemud (15%), Yellowish gray (5Y 8/1); overall low to high moldic and intergranular porosity, low to high apparent permeability
740-750	Limestone with minor marl, calcarenite (85%), Yellowish gray (5Y 8/1) to Light gray (N7), moderately indurated, molds and castes, high moldic and intergranular porosity; Shell (10%); Limemud (5%), Yellowish gray (5Y 8/1); overall moderate to high moldic and intergranular porosity, moderate to high apparent permeability
750-760	Limestone, calcarenite to biosparite, Very pale orange (10YR 8/2), moderately to well indurated, high to very high moldic and intergranular porosity, high to very high apparent permeability
760-770	Limestone, calcarenite to biosparite as above, Very pale orange (10YR 8/2), moderately to well indurated, high to very high moldic and intergranular porosity, high to very high apparent permeability
770-780	Limestone, calcarenite, Very pale orange (10YR 8/2) to Yellowish gray (5Y 8/1), poorly to well indurated, very fine quarts sand, limemud, White (N1), toward bottom of sampling section, high intergranular porosity, high apparent permeability

GEOLOGIST'S LOG – ASRZMW
WELL CCO6189L

Depth (ft bpl)	Lithology
0-10	Clay, Light brown (5YR 5/6) to Light olive gray (5Y 6/1); coarse sand size shell (25%), Whole bivalve shell; Limestone, fine grained sparite (10%), Yellowish gray (5Y 8/1) to Medium gray (N5), well indurated, high interstitial porosity; overall low porosity and apparent permeability
10-20	Shell, Yellowish gray (5Y 8/1) to Medium light gray (N6); Limestone, Biosparite (15%), Yellowish gray (5Y 8/1), poorly to moderately indurated, high to very high moldic and interstitial porosity; overall high to very high porosity, high to very high apparent permeability
20-30	Shell as above, Yellowish gray (5Y 8/1) to Medium light gray (N6); Limestone, Biosparite (10%), Yellowish gray (5Y 8/1), poorly to moderately indurated, high to very high moldic and interstitial porosity; dolomitic limestone (8%), micrite, Light olive gray (5Y 5/2), well indurated, low to moderate porosity; overall high to very high interstitial porosity, high to very high apparent permeability
30-40	Shell as above, Yellowish gray (5Y 8/1) to Medium light gray (N6); Limestone as above, Biosparite (15%), Yellowish gray (5Y 8/1), poorly to moderately indurated, high to very high moldic and interstitial porosity; overall high to very high interstitial porosity, high to very high apparent permeability
40-50	Limestone, Micrite to sparite, White (N9) to Yellowish gray (5Y 7/2), moderately to well indurated, low to moderate moldic and interstitial porosity; shell (20%); mudstone (10%), Medium gray (N5), poorly to moderately indurated, low porosity; minor limemud (2%); overall moderate to high interstitial porosity, moderate to high apparent permeability
50-60	Limestone, biosparite to phosphatic (15-20%) biomicrite, Yellowish gray (5Y 8/1) to Medium gray (N5), well indurated, common molds and castes, high to very high moldic porosity, minor shell (5%), overall high to very high moldic porosity, high to very high apparent permeability
60-70	Limestone, biosparite to biomicrite, Yellowish gray (5Y 8/1) moderately to well indurated, minor phosphate (2%), common molds

and castes, high to very high moldic porosity; trace shell (1%); overall high to very high moldic porosity, high to very high apparent permeability

70-80 Sandy Limestone, calcarenite with fine quarts sand, Yellowish gray (5Y 7/2), poorly to moderately indurated, minor molds, minor phosphate (5%), very high intergranular and moldic porosity; sandy shell (20%), Yellowish gray (5Y 7/2); biomicrite (10%), Yellowish gray (5Y 8/1) to Yellowish gray (5Y 7/2), well indurated, moderate moldic porosity; overall high to very high moldic porosity, high to very high apparent permeability

80-90 Shelly sand, Yellowish gray (5Y 7/2), poorly indurated, quartz sand (60%), shell and fine fossil fragments (40%); overall high to very high intergranular porosity, high to very high apparent permeability

90-100 Shelly sand as above (70%), Yellowish gray (5Y 7/2), poorly indurated, quartz sand (60%), shell and fine fossil fragments (40%), high to very high intergranular porosity; sandy limestone, calcarenite with quarts sand (30%), Yellowish gray (5Y 7/2), poorly to moderately indurated, high to very high intergranular porosity; overall high to very high intergranular porosity, high to very high apparent permeability

100-110 Sandy limestone as above, calcarenite with quarts sand (60%), Yellowish gray (5Y 7/2), poorly to moderately indurated, high to very high intergranular porosity; Shelly sand as above (40%), Yellowish gray (5Y 7/2), poorly indurated, quartz sand (60%), shell and fine fossil fragments (40%), high to very high intergranular porosity; overall high to very high intergranular porosity, high to very high apparent permeability

110-120 Limestone, biosparite to biomicrite (50%), vuggy, Yellowish gray (5Y 8/1), moderately to well indurated, abundant molds and castes; Sandy limestone as above, calcarenite with quarts sand (50%), Yellowish gray (5Y 7/2), poorly to moderately indurated, large shell molds, high to very high intergranular and moldic porosity; overall high to very high intergranular and moldic porosity, high to very high apparent permeability

120-130 Sandy limestone as above, calcarenite with quarts sand (50%), Yellowish gray (5Y 7/2), poorly to moderately indurated, shell molds, minor phosphate (3%), high to very high intergranular and moldic porosity; shell (20%); limemud (4%); overall low to high intergranular and moldic porosity, low to high apparent permeability

130-140	Limestone, biomicrite (40%), Yellowish gray (5Y 7/2) to Medium bluish gray (5B 5/1), well indurated, moderate moldic porosity; Sandy limestone as above, calcarenite with quarts sand (30%), Yellowish gray (5Y 7/2), to Pale olive (10Y 6/2), varying amounts of phosphate (0-30%), moderately to well indurated, high intergranular porosity; Limestone, biosparite (15%), Yellowish gray (5Y 8/1), well indurated high to very high moldic porosity; Phosphate (15%), Black (N1), well indurated, cobble size, possible moldic porosity; overall moderate to very high intergranular and moldic porosity, moderate to very high apparent permeability
140-150	Marly limestone, Medium bluish gray (5B 5/1) to Pale yellowish brown (10YR 6/2), moderately to well indurated, moderate interstitial and moldic porosity; shell (7%), limemud (3%), overall moderate interstitial and moldic porosity, moderate apparent permeability
150-160	Quartz sand (90%), opaque, Yellowish gray (5Y 8/1) to light gray (N7), medium sand grained, well sorted, poorly consolidated, minor phosphate (3%), very high intergranular porosity; Limestone, sandy micrite (10%), Light olive gray (5Y 6/1), well indurated, low porosity; overall very high intergranular porosity, very high apparent permeability
160-170	Quartz sand as above, opaque, Yellowish gray (5Y 8/1) to light gray (N7), medium sand grained, well sorted, poorly consolidated, minor phosphate (3%), very high intergranular porosity, very high apparent permeability
170-180	Clayey sand (90%), Light olive gray (5Y 6/1), medium grained quartz sand (65%) with clay (35%), moderately to well sorted, poorly consolidated, minor phosphate (3%), low porosity; Limestone, sandy calcarenite (10%) Greenish gray (5GY 6/1), poorly to moderately indurated, minor phosphate (5%), moderate intergranular porosity, overall low porosity, low apparent permeability
180-190	Sandy clay, Greenish gray (5GY 6/1), clay (80%) with fine grained quartz sand (20%), gummy, well sorted, poorly consolidated, minor phosphate (5%), very low porosity, very low apparent permeability
190-200	Clay, Greenish gray (5GY 6/1), gummy, well sorted, poorly consolidated, fine grained quartz sand (8%), minor phosphate (5%), very low porosity, very low apparent permeability
200-210	Clay as above, Greenish gray (5GY 6/1), gummy, well sorted, poorly consolidated, minor phosphate (5%), minor fine grained quartz sand

(3%), very low porosity, very low apparent permeability

210-220 Clay as above, Greenish gray (5GY 6/1), gummy, well sorted, poorly consolidated, minor phosphate (5%), minor fine grained quartz sand (3%), very low porosity, very low apparent permeability

220-230 Limemud (50%), phosphatic (20-25%), Yellowish gray (5Y 8/1) to Black (N1), moderately sorted, poorly consolidated, very low porosity; Clay (40%), phosphatic (20-25%), Greenish gray (5GY 6/1) to Black (N1), gummy, well sorted, poorly consolidated, very low porosity; minor limestone fragments (5%), minor fine grained quartz sand (5%); overall very low porosity, very low apparent permeability

230-240 Clay (50%), Greenish gray (5GY 6/1), gummy, well sorted, poorly consolidated, phosphate (10-15%), very low porosity; Mudstone (35%), Greenish gray (5GY 6/1), moderately indurated, phosphate (10-15%), low to moderate intergranular porosity; Limemud (15%), Yellowish gray (5Y 8/1), very low porosity; overall very low porosity, very low apparent permeability

240-250 Clay, Dark greenish gray (5GY 4/1), silky, very well sorted, very fine grained, poorly consolidated, very low porosity, very low apparent permeability

250-260 Clay, phosphatic, Dark greenish gray (5GY 4/1), well sorted, poorly consolidated, fine-grained phosphate (20-25%), fine grained quarts sand (7%), very low porosity, very low permeability

260-270 Clay as above, phosphatic, Dark greenish gray (5GY 4/1), well sorted, poorly consolidated, fine-grained phosphate (20%), fine grained quarts sand (10%), very low porosity, very low permeability

270-280 Clay, phosphatic, Dark greenish gray (5GY 6/1), silky, very well sorted, very fine grained, poorly consolidated, fine-grained phosphate (15%), minor fine grained quarts sand (3%), very low porosity, very low apparent permeability

280-290 Limestone with marl, biosparite to biomicrite, Light bluish gray (5B 7/1) to Yellowish gray (5Y 8/1), moderately to well indurated, minor fine grained phosphate (5%), moderate to high moldic porosity; shell (8%); limemud (8%); overall low to moderate moldic porosity, low to moderate apparent permeability

290-300 Limestone as above with minor marl, biosparite to biomicrite, Light bluish gray (5B 7/1) to Yellowish gray (5Y 8/1), moderately to well indurated, fine grained phosphate (0-10%), moderate to high moldic porosity; shell (12%), limemud (3%), overall low to high moldic porosity, low to high apparent permeability

300-310 Limestone as above (60%), biosparite to biomicrite, Light bluish gray (5B 7/1) to Yellowish gray (5Y 8/1), moderately to well indurated, fine grained phosphate (0-10%), moderate to high moldic porosity; shell (39%), very minor limemud (1%), overall moderate to high moldic porosity, moderate to high apparent permeability

310-320 Limestone as above with marl (75%), biosparite to biomicrite, Light bluish gray (5B 7/1) to Yellowish gray (5Y 8/1), moderately to well indurated, fine grained phosphate (0-20%), moderate to high intergranular and moldic porosity; shell (22%), limemud (3%), overall low to high moldic porosity, low to high apparent permeability

320-330 Limestone with marl, fine grained calcarenite with shell (35%), Yellowish gray (5Y 8/1) to Medium light gray (N6), moderately to well indurated, phosphate (7%), moderate to high moldic porosity; Shell (30%); Limestone (20%), quartz sandy calcarenite with shell, Greenish gray (5GY 6/1), moderately indurated, phosphate (10-15%), moderate intergranular porosity; Limemud (8%); Clay (7%); overall low porosity, low apparent permeability

330-340 Limestone with marl, phosphatic (20%) calcarenite (80%), Yellowish gray (5Y 8/1) to Medium gray (N5), poorly to moderately, moderate to high intergranular and moldic porosity; Shell (17%); Limemud (3%); overall low to high intergranular and moldic porosity, low to high apparent permeability

340-350 Limestone with minor marl (90%), biosparite to biomicrite, Yellowish gray (5Y 8/1) to Medium light gray (N6), moderately to well indurated, fine grained phosphate (2-15%), moderate to high intergranular and moldic porosity; shell (8%), limemud (2%), overall moderate to high intergranular and moldic porosity, moderate to high apparent permeability

350-360 Limestone with minor marl (80%), biosparite, Yellowish gray (5Y 8/1), moderately to well indurated, fine grained phosphate (8%), moderate to high intergranular and moldic porosity; Limestone (10%), calcarenite with quartz sand, Yellowish gray (5Y 7/2), moderately indurated, minor phosphate (5%), moderate intergranular porosity; shell (7%), limemud (3%), overall low to high intergranular and moldic porosity, low to high apparent permeability

360-370 Marly Limestone (50%), biosparite to biomicrite, Yellowish gray (5Y

8/1) to Dark greenish gray (5GY 4/1), moderately to well indurated, minor phosphate (5%), low to moderate intergranular and moldic porosity; Shell (35%); Limemud (8%); Clay (7%); overall low porosity, low apparent permeability

370-380	Limestone with marl (50%), calcarenite, Yellowish gray (5Y 7/2), to Medium light gray (N6), moderately indurated, fine grained phosphate (8%), quartz sand (7%), moderate to high intergranular porosity; Shell (40%); limemud (3%); overall low to moderate intergranular porosity, low to moderate apparent permeability
380-390	Limestone as above with marl (80%), calcarenite, Yellowish gray (5Y 7/2), to Medium light gray (N6), moderately indurated, quartz sand (8%), fine grained phosphate (8%), moderate to high intergranular porosity; Shell (17%); limemud (3%); overall low to moderate intergranular porosity, low to moderate apparent permeability
390-400	Limestone as above with marl (60%), calcarenite, Yellowish gray (5Y 7/2), to Medium light gray (N6), poorly to well indurated, molds and castes, quartz sand (8%), fine grained phosphate (8%), moderate to high intergranular and moldic porosity; Shell (37%); limemud (3%); overall low to high intergranular and moldic porosity, low to high apparent permeability
400-410	Limestone as above with marl (70%), calcarenite, Yellowish gray (5Y 7/2), to Medium light gray (N6), poorly to moderately indurated, molds and castes, fine grained phosphate (10%), quartz sand (7%), moderate to high intergranular and moldic porosity; Shell (27%); limemud (3%); overall low to high intergranular and moldic porosity, low to high apparent permeability
410-420	Limestone with marl (85%), fine grained calcarenite, Pale greenish yellow 10Y 8/2) to Moderate greenish yellow (10Y 7/4), very well sorted, poorly to moderately indurated, fine grained quartz sand (10%), minor fine grained phosphate (3%), moderate to high intergranular porosity; Shell (12%); limemud (3%); overall low to moderate intergranular porosity, low to moderate apparent permeability
420-430	Marly Limestone (80%), calcarenite, Pale greenish yellow 10Y 8/2) to Moderate greenish yellow (10Y 7/4), well sorted, poorly to moderately indurated, fine to medium grained quartz sand (10%), fine grained phosphate (7%), moderate to high intergranular porosity; Shell (15%); Limemud (5%); overall low to moderate intergranular porosity, low to moderate apparent permeability

430-440 Marly Dolomitic limestone (60%), fine grained calcarenite to micrite, Light olive gray (5Y 5/2), well sorted, well indurated, fine grained quartz sand (5-10%), low intergranular porosity; Limestone (25%), calcarenite to micrite, Yellowish gray (5Y 7/2), to Medium light gray (N6), moderately sorted, moderately to well indurated, large shell fragments, phosphate (10%), moderate intergranular and moldic porosity; Shell (9%); Limemud (6%); overall low porosity, low apparent permeability

440-450 Limestone with marl (90%), biomicrite, Yellowish gray (5Y 8/1) moderately to well indurated, common molds and castes, minor phosphate (5%), high to very high moldic porosity; Shell (6%); Limemud (4%); overall low to very high moldic porosity, low to very high apparent permeability

450-460 Limestone with marl (90%), biosparite, Yellowish gray (5Y 8/1) poorly to moderately indurated, common molds and castes, phosphate (5-10%), moderate to high interstitial and moldic porosity; Shell (6%); Limemud (4%); overall low to high interstitial and moldic porosity, low to high apparent permeability

460-470 Limestone with minor marl (90%), biomicrite, Yellowish gray (5Y 8/1) moderately to well indurated, common molds and castes, high to very high moldic porosity; Shell (8%); Minor Limemud (2%); overall high to very high moldic and interstitial porosity, high to very high apparent permeability

470-480 Limestone with minor marl (90%), biosparite to biomicrite, Yellowish gray (5Y 8/1) to Yellowish gray (5Y 7/2), moderately to well indurated, common molds and castes, high to very high moldic porosity; Shell (8%); Minor Limemud (2%); overall high to very high moldic and interstitial porosity, high to very high apparent permeability

480-490 Limestone with minor marl (90%), biomicrite, Yellowish gray (5Y 8/1) to Light gray (N7), well indurated, common molds and castes, shell fragments, minor phosphate (3%), high moldic porosity; Shell (8%); Minor Limemud (2%); overall high to very high moldic porosity, high to very high apparent permeability

490-500 Limestone with marl (90%), biosparite, Yellowish gray (5Y 8/1) to Medium gray (N5), moderately to well indurated, limey to sandy, common molds and castes, shell fragments, phosphate (5-15%), high moldic and interstitial porosity; Shell (6%); Minor Limemud (4%); overall high moldic and interstitial porosity, high apparent permeability

500-510 Marly Limestone (94%), biosparite, Yellowish gray (5Y 7/2) to Dark gray (N3), poorly to moderately indurated, common molds and castes, phosphate (10-20%), fine grained quartz sand, high intergranular and moldic porosity; Limemud (6%); overall low to high intergranular and moldic porosity, low to high apparent permeability

510-520 Marly Limestone (80%), biosparite as above, Yellowish gray (5Y 7/2) to Dark gray (N3), poorly to moderately indurated, common molds and castes, phosphate (10-20%), fine grained quartz sand, high intergranular and moldic porosity; Limemud with phosphate (20%); overall low porosity, low apparent permeability

520-530 Marly Limestone (96%), biosparite as above to micrite, Pale greenish yellowish (10Y 8/2) to Medium dark gray (N4), moderately to well indurated, common molds and castes, phosphate (10-20%), fine grained quartz sand, high to very high intergranular and moldic porosity; Limemud (4%); overall low to very high intergranular and moldic porosity, low to very high apparent permeability

530-540 Limemud (90%), Yellowish gray (5Y 8/1) to light gray (N7), poorly consolidated, phosphate (10-15%), very low porosity; Limestone (10%), biosparite to micrite as above, Pale greenish yellowish (10Y 8/2) to Medium gray (N5), moderately to well indurated, common molds and castes, phosphate (10-15%), fine grained quartz sand, high to very high intergranular and moldic porosity; overall very low porosity, very low permeability

540-550 Limemud as above (85%), Yellowish gray (5Y 8/1) to Medium dark gray (N4), poorly consolidated, phosphate (15-20%), very low porosity; Limestone (15%), biosparite as above with increasing phosphate, Yellowish gray (5Y 8/1) to Medium dark gray (N4), poorly to moderately indurated, phosphate (15-35%), fine grained quartz sand, high to intergranular porosity; overall very low porosity, very low permeability

550-560 Marly Limestone (60%), Fine grained calcarenite to micrite, Yellowish gray (5Y 8/1), Light gray (N7), well indurated, phosphate (7%), minor fine grained quartz sand, minor molds and castes, moderate to high intergranular and moldic porosity; Limemud with phosphate (40%), Yellowish gray (5Y 8/1) to Light gray (N7), poorly consolidated, phosphate (15-20%), very low porosity; overall very low porosity, very low apparent permeability

560-570 Marly Limestone (70%), calcarenite, Yellowish gray (5Y 8/1), Light gray (N7), poorly to moderately indurated, phosphate (5-20%), minor fine grained quartz sand, minor molds and castes, moderate to high intergranular and moldic porosity; Limemud (30%) with phosphate (15-20%), Yellowish gray (5Y 8/1) to Light gray (N7), poorly consolidated, very low porosity; overall very low porosity, very low apparent permeability

570-580	Marly Limestone (80%), Fine grained calcarenite to micrite, Yellowish gray (5Y 8/1), Light gray (N7), moderately to well indurated, phosphate (5%), minor fine grained quartz sand, minor molds and castes, moderate to high intergranular and moldic porosity; Limemud (20%) with phosphate (10-15%), Yellowish gray (5Y 8/1) to Light gray (N7), poorly consolidated, very low porosity; overall very low porosity, very low apparent permeability
580-590	Marly Limestone (90%), Fine grained calcarenite to micrite, Yellowish gray (5Y 7/2), Light gray (N7), moderately to well indurated, phosphate (5-10%), minor fine grained quartz sand, molds and castes, high to very high intergranular and moldic porosity; Limemud (10%) with minor phosphate (5%), Yellowish gray (5Y 7/2) to Very light gray (N6), poorly consolidated, very low porosity; overall low to very high intergranular and moldic porosity, low to very high apparent permeability
590-600	Marly Limestone (92%), calcarenite, Yellowish gray (5Y 7/2), Light bluish gray (5B 7/1), poorly to moderately indurated, minor phosphate (3%), minor fine grained quartz sand, minor molds and castes, moderate to high intergranular porosity; Limemud (8%) with minor phosphate (3%), Yellowish gray (5Y 7/2) to Very light gray (N6), poorly consolidated, very low porosity; overall low to high intergranular porosity, low to high apparent permeability
600-610	Marly Limestone, as above (92%), calcarenite, Yellowish gray (5Y 7/2), Light gray (N7), moderately indurated, phosphate (6%), minor fine grained quartz sand, minor molds and castes, high to very high intergranular and moldic porosity; Limemud (8%) with minor phosphate (5%), Yellowish gray (5Y 7/2) to Very light gray (N6), poorly consolidated, very low porosity; overall low to very high intergranular and moldic porosity, low to very high apparent permeability
610-620	Clay (85%), Pale olive (10Y 6/2), gummy, poorly consolidated, very low porosity; Limestone (15%), calcarenite to micrite, Yellowish gray (5Y 7/2) to Light gray (N7), moderately to well indurated, minor phosphate (4%), molds and castes, trace fine grained quartz sand,

high intergranular and moldic porosity; overall very low porosity, very low apparent permeability

620-630	Clay (94%), Pale greenish yellow (10Y 8/2) to Pale olive (10Y 6/2), gummy, poorly consolidated, minor shell fragments, minor limestone fragments, very low porosity, very low permeability
630-640	Clay (92%), Light greenish gray (5GY 8/2) to Greenish gray (5GY 6/1), gummy, poorly to moderately consolidated, limestone fragments (6%), minor shell fragments, very low porosity, very low permeability
640-650	Clay (96%), Greenish gray (5GY 6/1) to Dark greenish gray (5GY 4/1), gummy to stiff, moderately consolidated, minor shell fragments, very low porosity, very low permeability
650-660	Clay (75%), Yellowish gray (5Y 8/1) to Greenish gray (5GY 6/1), gummy, poorly consolidated, Limestone (20%), calcarenite to micrite, Yellowish gray (5Y 7/2) to Dark greenish gray (5GY 4/1), moderately to well indurated, minor molds and castes, trace fine grained quartz sand, low to high intergranular and moldic porosity; Chert (5%), Medium dark gray (N4) to Black (N1), very well indurated; overall very low porosity, very low apparent permeability
660-670	Marly sandy Limestone (60%), calcarenite, Yellowish gray (5Y 8/1) to Greenish gray (5GY 6/1), moderately indurated, moderate intergranular porosity; Limemud (40%), Pale olive (10Y 6/2), very low porosity; overall very low porosity, very low apparent permeability
670-680	Marly Limestone, as above (85%), calcarenite, Yellowish gray (5Y 7/2) to Light gray (N7), moderately indurated, phosphate (6%), minor fine grained quartz sand, minor molds and castes, high intergranular and moldic porosity; Limemud (15%), Very light gray (N6), poorly consolidated, very low porosity; overall low to high intergranular and moldic porosity, low to high apparent permeability
680-690	Limestone with marl (90%), fine grained calcarenite to biomicrite, Yellowish gray (5Y 8/1) to Medium light gray (N7), moderately to well indurated, common molds and castes, high moldic porosity; Limemud (10%); Yellowish gray (5Y 8/1) to Very light gray (N8); overall low to high moldic porosity, low to high apparent permeability
690-700	Limestone with marl (94%), biomicrite, Yellowish gray (5Y 8/1) to Medium light gray (N7), moderately indurated, molds and castes, high moldic porosity; Limemud (6%); Yellowish gray (5Y 8/1) to Very light gray (N8); overall low to high moldic porosity, low to high

apparent permeability

700-710	Limestone (85%), biomicrite, Yellowish gray (5Y 8/1) to Light olive gray (5Y 6/1), well indurated, common molds and castes, high to very high moldic porosity; Shell (15%); overall high to very high moldic and interstitial porosity, high to very high apparent permeability
710-720	Limestone with minor marl (96%), fine grained calcarenite to biomicrite, Yellowish gray (5Y 8/1) to Light gray (N6), moderately to well indurated, common molds and castes, high moldic porosity; Limemud (4%); White (N9) to Yellowish gray (5Y 8/1); overall moderate to high moldic porosity, moderate to high apparent permeability
720-730	Limestone with minor marl (97%), calcarenite, Yellowish gray (5Y 8/1), moderately indurated, molds and castes, high moldic and intergranular porosity; Limemud (3%), Yellowish gray (5Y 8/1); overall moderate to high moldic and intergranular porosity, moderate to high apparent permeability
730-740	Limestone with marl (94%), calcarenite to biomicrite, Yellowish gray (5Y 8/1) to Very pale orange (10YR 8/2), moderately to well indurated, molds and castes, high moldic and intergranular porosity; Limemud (6%), Yellowish gray (5Y 8/1); overall low to high moldic and intergranular porosity, low to high apparent permeability
740-750	Limestone with marl (96%), calcarenite, Yellowish gray (5Y 8/1) to Light gray (N7), moderately indurated, molds and castes, high moldic and intergranular porosity; Limemud (4%), Yellowish gray (5Y 8/1); overall moderate to high moldic and intergranular porosity, moderate to high apparent permeability
750-760	Limestone with marl (96%), calcarenite with biomicrite, Yellowish gray (5Y 8/1) to Very pale orange (10YR 8/2), moderately to well indurated, molds and castes, high moldic and intergranular porosity; Limemud (4%), Yellowish gray (5Y 8/1); overall moderate to high moldic and intergranular porosity, moderate to high apparent permeability
760-770	Limestone with minor marl as above (96%), calcarenite with biomicrite, Yellowish gray (5Y 8/1) to Yellowish gray (5Y 7/2), moderately to well indurated, molds and castes, high moldic and intergranular porosity; Limemud (4%), Yellowish gray (5Y 8/1); overall moderate to high moldic and intergranular porosity, moderate to high apparent permeability
770-774	As above becoming increasingly muddy/marly

GEOLOGIST'S LOG – MHZ2MW
WELL CCO6189K

Depth (ft bpl)	Lithology
0-10	Limestone, calcarenite, Yellowish gray (5Y 7/2), poorly indurated/cemented, fine shell fragments, minor biomicrite (5%), Yellowish gray (5Y 7/2), good to excellent moldic and intergranular porosity, good to excellent apparent permeability
10-20	Limestone, calcarenite, Yellowish gray (5Y 7/2), poorly to moderately indurated/cemented, biomicrite (20%), Yellowish gray (5Y 7/2), limemud (10%), coarse shell fragments, poor to moderate porosity, poor to moderate apparent permeability
20-30	Limestone, calcarenite, Yellowish gray (5Y 8/1) to Medium gray (N5), poorly to well indurated, biomicrite (25%), Yellowish gray (5Y 7/2), fine shell fragments, fossil casts, minor limemud (2%), moderate to good porosity, moderate to good apparent permeability
30-40	Limestone, calcarenite, Yellowish gray (5Y 8/1), moderately to well indurated/cemented, bivalve fossil castes, shell common, biomicrite (5%), Medium gray (N5), good moldic and intergranular porosity, good apparent permeability
40-50	Limestone, calcarenite, Yellowish gray (5Y 7/2), to Medium light gray (N6), moderately to well indurated/cemented, biomicrite (7%), Yellowish gray (5Y 7/2), quartz sand (7%), coral and sponge fossils, minor phosphate (5%), minor shell (3%), good moldic and intergranular porosity, good apparent permeability
50-60	Limestone, calcarenite, Yellowish gray (5Y 8/1) to Medium gray (N5), poorly to moderately indurated, common shell fragments, biomicrite as bivalve castes (10%), Yellowish gray (5Y 7/2) to light gray (N7), minor phosphate (2%), good moldic and intergranular porosity, good apparent permeability
60-70	Limestone, calcarenite to micrite, Yellowish gray (5Y 8/1) to Medium light gray (N6), moderately to well indurated, common bivalve castes/molds, shell fragments, minor phosphate (2%), minor limemud (1%), good moldic porosity, good apparent permeability
70-80	Limestone, calcarenite, Yellowish gray (5Y 7/2) poorly indurated, quartz sand (10%), shell fragments, minor phosphate (5%), good intergranular porosity, good apparent permeability

80-90	Limestone, calcarenite as above, Yellowish gray (5Y 7/2) poorly indurated, common shell fragments, quartz sand (7%), good intergranular porosity, good apparent permeability
90-100	Limestone, calcarenite, Yellowish gray (5Y 7/2) to Pale olive, poorly indurated, common shell fragments, quartz sand (7%), limemud (7%), minor phosphate (3%), poor intergranular porosity, poor apparent permeability
100-110	Limestone, calcarenite as above, Yellowish gray (5Y 7/2) to Pale olive, poorly indurated, common shell fragments, quartz sand (5%), minor limemud (4%), minor phosphate (2%), poor to moderate intergranular porosity, poor to moderate apparent permeability
110-120	Limestone, calcarenite as above, Yellowish gray (5Y 7/2) to Pale olive, poorly indurated, common large shell fragments, quartz sand (7%), limemud (7%), minor phosphate (5%), poor intergranular porosity, poor apparent permeability
120-130	Clay, Phosphatic, Dark greenish gray (5GY 4/1), poorly indurated, pebble size phosphate nodules (10-15%), minor limestone (5%), very poor porosity, very poor apparent permeability
130-140	Limestone, biomicrite, Yellowish gray (5Y 7/2) to medium dark gray (N4), limemud (15%), shell fragments, minor phosphate (2%), poor porosity, poor apparent permeability
140-150	Quartz sand, Light olive gray (5Y 6/1), poorly indurated, minor phosphate (2%), high porosity, high apparent permeability
150-160	Marly quartz sand, Pale olive (10Y 6/2) to Dark gray (N3), poorly indurated, limemud (15%), micrite (10%), Pale yellowish brown (10YR 6/2), bone, Dark Gray (N3), poor porosity, poor apparent permeability
160-170	Quartz sand, Light olive gray (5Y 6/1), poorly to moderately indurated, quarts calcarenite (10%), Yellowish gray (5Y 8/1) to Medium light gray (N7), minor phosphate (5%), high porosity, high apparent permeability
170-180	Clay, Greenish gray (5GY 6/1) to Grayish olive (10Y 4/2), poorly indurated, fine sand size quarts (15-20%), minor phosphate (2%), poor porosity, poor apparent permeability
180-190	Clay as above, Greenish gray (5GY 6/1) to Grayish olive (10Y 4/2), poorly indurated, minor fine sand size quarts (5%), minor phosphate

(3%), poor porosity, poor apparent permeability

190-200	Clay as above, Greenish gray (5GY 6/1) to Grayish olive (10Y 4/2), poorly indurated, minor fine sand size quarts (5%), poor porosity, poor apparent permeability
200-210	Clay as above, Greenish gray (5GY 6/1) to Grayish olive (10Y 4/2), poorly indurated, phosphate (7%), poor porosity, poor apparent permeability
210-220	Clay as above, Dark greenish gray 5G 4/1), poorly indurated, phosphate (12%), poor porosity, poor apparent permeability
220-230	Clay as above, Greenish gray (5GY 6/1) to Grayish olive (10Y 4/2), poorly indurated, minor calcarenite fragments (5%), Yellowish gray (5Y 7/2), minor phosphate (5%), poor porosity, poor apparent permeability
230-240	Clay as above, Greenish gray (5GY 6/1) to Dark greenish gray (5GY 4/1), poorly indurated, calcarenite fragments (7%), Yellowish gray (5Y 7/2), minor phosphate (5%), poor porosity, poor apparent permeability
240-250	Clay as above, Greenish gray (5GY 6/1), poorly indurated, minor phosphate (2%), poor porosity, poor apparent permeability
250-260	Clay as above, phosphatic, Dark greenish gray (5GY 4/1), poorly indurated, fine grained phosphate (20-25%), poor porosity, poor apparent permeability
260-270	Clay as above, Greenish gray (5GY 6/1), poorly indurated, fine grained phosphate (10%), poor porosity, poor apparent permeability
270-280	Clay as above, Greenish gray (5GY 6/1) to Grayish olive (10Y 4/2), poorly indurated, fine grained phosphate (7%), minor micrite (5%), pale olive (10Y 6/2), poor porosity, poor apparent permeability
280-290	Limestone, calcarenite, phosphatic, Yellowish gray (5Y 8/1) to Light olive gray (5Y 6/1), moderately indurated, fine grained phosphate (10-15%), limemud (7%), fossil molds, poor to moderate moldic and intergranular porosity, poor to moderate apparent permeability
290-300	Limestone, micrite, Yellowish gray (5Y 8/1) to Medium light gray (N6), moderately indurated, common shell (30%), limemud (7%), fossil molds, minor fine grained phosphate (2%), poor to moderate moldic

and intergranular porosity, poor to moderate apparent permeability

300-310 Limestone, micrite, Yellowish gray (5Y 7/2) to Medium light gray (N6), moderately to well indurated, common shell (60%), fine grained phosphate (10%), limemud (7%), fossil molds, poor to moderate moldic and intergranular porosity, poor to moderate apparent permeability

310-320 Limestone, micrite as above, Yellowish gray (5Y 7/2) to Light gray (N7), moderately indurated, common shell (60%), fine grained phosphate (7%), limemud (5%), fossil molds, poor to moderate moldic and intergranular porosity, poor to moderate apparent permeability

320-330 Limestone, micrite as above, Yellowish gray (5Y 8/1) to Light gray (N7), poorly to well indurated, common shell (50%), bivalve castes, minor limemud (2%), moderate to good moldic and intergranular porosity, moderate to good apparent permeability

330-340 Limestone, calcarenite, Yellowish gray (5Y 7/2), poorly indurated, common shell (60%), limemud (7%), minor micrite (4%), Yellowish gray (5Y 8/1), poor porosity, poor apparent permeability

340-350 Limestone, biomicrite, Yellowish gray (5Y 8/1) to Light gray (N7), moderately to well indurated, common shell (20%), bivalve castes, minor limemud (4%), poor to moderate moldic and intergranular porosity, poor to moderate apparent permeability

350-360 Limestone, calcarenite, Pale greenish yellow (10Y 8/2) to Light gray (N7), moderately to well indurated, common shell (30%), bivalve castes, limemud (7%), minor phosphate (5%), poor to moderate moldic and intergranular porosity, poor to moderate apparent permeability

360-370 Limestone, calcarenite as above, Pale greenish yellow (10Y 8/2), moderately to well indurated, common shell (35%), bivalve castes, limemud (7%), minor phosphate (2%), poor to moderate moldic and intergranular porosity, poor to moderate apparent permeability

370-380 Limestone, calcarenite as above, Yellowish gray (5Y 7/2), poorly to moderately indurated, common shell (35%), large shell fragments (15%), limemud (7%), minor phosphate (5%), poor to moderate moldic and intergranular porosity, poor to moderate apparent permeability

380-390 Limestone, coquina, Yellowish gray (5Y 7/2), poorly indurated, primarily composed of common shell (85%), limemud (6%), minor phosphatic calcarenite (5%), Yellowish gray (5Y 7/2) to Medium gray (N5), poor to good intergranular porosity, poor to good apparent permeability

390-400	Limestone, coquina as above, Yellowish gray (5Y 7/2), poorly indurated, primarily composed of common shell (60%), phosphatic calcarenite (20%), Yellowish gray (5Y 7/2) to Medium gray (N5), limemud (6%), poor to good intergranular porosity, poor to good apparent permeability
400-410	Limestone, coquina as above, Yellowish gray (5Y 7/2), poorly indurated, primarily composed of common shell (75%), micrite (15%), Pale greenish yellow (10Y 8/2), limemud (4%), poor to good intergranular porosity, poor to good apparent permeability
410-420	Limestone, fine grained calcarenite, Yellowish gray (5Y 8/1) to Medium dark gray (N4), poorly to moderately indurated, phosphate (10-15%) in calcarenite, limemud (15%), common shell (10%), poor porosity, poor permeability
420-430	Limestone, fine grained calcarenite, Yellowish gray (5Y 7/2) to Medium dark gray (N4), poorly to moderately indurated, phosphate (15-20%) in calcarenite, limemud (20%), dolomite (15%), Light olive gray (5Y 5/2), common shell (7%), poor porosity, poor permeability
430-440	Limestone, biomicrite, Yellowish gray (5Y 7/2) well indurated, limemud (15%), common shell (7%), minor calcarenite (5%), poor to moderate moldic porosity, poor to moderate permeability
440-450	Limestone, phosphatic (15%) micrite, Yellowish gray (5Y 8/1) to Medium gray (N5), well indurated, common shell (10%), limemud (6%), poor to moderate moldic porosity, poor to moderate permeability
450-460	Limestone, micrite, Yellowish gray (5Y 8/1) to Medium gray (N5), poorly to well indurated, common shell (25%), limemud (6%), minor phosphate (5%), poor to good intergranular porosity, poor to good permeability
460-470	Limestone, biomicrite, Yellowish gray (5Y 8/1), moderately to well indurated, common bivalve castes and molds, good to excellent moldic porosity, good to excellent permeability
470-474	No sample

APPENDIX 2.3

ANALYSIS OF NATVE FORMATION WATER BASED ON DRINKING WATER STANDARDS

ASR#2
ASR#3
ASRZMW
MHZ2MW

INTAKE #: 528817

Sanders Laboratories
Environmental Testing Services

Project Name:	Marco-ASR
Project Location:	ASR #2
Sample Supply:	Ground Water
Collector:	Noah Olenych
Sample Received Date/Time:	9/20/99 12:30

Date *26-Oct-99*

Youngquist Brothers, Inc.
15465 Pine Ridge Road

Fort Myers, FL 33908-

Parameter ID	Analysis		Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst

Inorganic Analysis

62-550.310(1)

PWS030

Parameter ID	Analysis		Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
1005	Arsenic	(0.05)	N9910651	<0.0022	mg/L	EPA 206.2	9/28/99	0.0022	84352	ua
1010	Barium	(2)	N9910651	<0.2	mg/L	EPA 208.2	9/29/99	0.200	84352	ua
1015	Cadmium	(0.005)	N9910651	<0.003	mg/L	EPA 213.1	9/29/99	0.003	84352	ua
1020	Chromium	(0.1)	N9910651	<0.02	mg/L	EPA 218.1	9/30/99	0.020	84352	ua
1024	Cyanide	(0.2)	N9910651	0.011	mg/L	EPA 335.2	9/27/99	0.005	83331	ua
25	Fluoride	(4.0)	N9910651	0.94	mg/L	EPA 340.2	9/24/99	0.1	84352	ua
1030	Lead	(0.015)	N9910651	<0.001	mg/L	EPA 239.2	9/21/99	0.001	84352	ua
1035	Mercury	(0.002)	N9910651	<0.001	mg/L	EPA 245.1	10/4/99	0.001	84352	ua
1036	Nickel	(0.1)	N9910651	<0.01	mg/L	EPA 249.1	9/30/99	0.01	84352	ua
1040	Nitrate	(10)	N9910651	<0.01	mg/L	EPA 353.2	9/30/99	0.01	84352	ua
1041	Nitrite	(1)	N9910651	<0.01	mg/L	EPA 354.1	9/30/99	0.01	84352	ua
1045	Selenium	(0.05)	N9910651	<0.020	mg/L	EPA 270.2	10/4/99	0.020	84352	ua
1052	Sodium	(160)	N9910651	1,258	mg/L	EPA 273.1	10/4/99	0.003	84352	ua
1074	Antimony	(0.006)	N9910651	<0.002	mg/L	EPA 200.9	9/30/99	0.002	83331	ua
1075	Beryllium	(0.004)	N9910651	<0.0001	mg/L	EPA 200.7	9/27/99	0.0001	83331	ua
1085	Thallium	(0.002)	N9910651	0.0077	mg/L	EPA 200.9	9/30/99	0.0006	83331	ua

Secondary Chemical Analysis

62-550.320

PWS031

Parameter ID	Analysis		Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
1002	Aluminum	(0.2)	N9910651	<0.2	mg/L	EPA 202.1	9/29/99	0.2	84352	ua
1017	Chloride	(250)	N9910651	2,449	mg/L	SM4500Cl-B	9/29/99	1	84352	ua
1022	Copper	(1.0)	N9910651	<0.01	mg/L	EPA 220.1	9/22/99	0.01	84352	ua
1025	Fluoride	(2.0)	N9910651	0.94	mg/L	EPA 340.2	9/24/99	0.1	84352	ua
1028	Iron	(0.3)	N9910651	3.78	mg/L	EPA 236.1	9/22/99	0.015	84352	ua
1032	Manganese	(0.05)	N9910651	0.092	mg/L	EPA 243.1	9/30/99	0.005	84352	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Rpt form #5; Rev 1/1/96

1050 Endeavor Ct. • Nokomis, FL 34275 • Phone: (941) 488-8103 • (800) 255-3108 • Fax: (941) 484-6774

Parameter ID	Analysis		Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
1050	Silver	(0.1)	N9910651	<0.010	mg/L	EPA 272.1	9/21/99	0.010	84352	ua
1055	Sulfate	(250)	N9910651	663	mg/L	EPA 375.4	9/28/99	1	84352	ua
[illegible]95	Zinc	(5.0)	N9910651	0.011	mg/L	EPA 289.1	9/27/99	0.005	84352	ua
1905	Color	(15.0)	N9910651	218	PtCo units	EPA 110.3	9/20/99	1	84352	ua
1920	Odor	(3.0)	N9910651	<1	TON	EPA 140.1	9/20/99	1	84352	ua
1925	pH	(6.5-8.5)	N9910651	7.26	std units	EPA 150.1	9/20/99	n/a	84352	ua
1930	Total Dissolved Solids	(500)	N9910651	4,280	mg/L	EPA 160.1	9/27/99	7	84352	ua
2905	Foaming Agents	(1.5)	N9910651	<0.05	mg/L	EPA 425.1	9/21/99	0.05	83331	ua

Volatile Organic Analysis

62-550.310(2)(b)

PWS028

2378	1,2,4-Trichlorobenzene (70)	N9910651	<0.22	ug/L	EPA 524.2	9/21/99	0.22	83331	ua
2380	Cis-1,2-Dichloroethylene (70)	N9910651	<0.03	ug/L	EPA 524.2	9/21/99	0.03	83331	ua
2955	Xylenes (Total) (10,000)	N9910651	<0.24	ug/L	EPA 524.2	9/21/99	0.24	83331	ua
2964	Dichloromethane (5)	N9910651	<0.31	ug/L	EPA 524.2	9/21/99	0.31	83331	ua
2968	O-Dichlorobenzene (600)	N9910651	<0.05	ug/L	EPA 524.2	9/21/99	0.05	83331	ua
2969	Para-Dichlorobenzene (75)	N9910651	<0.02	ug/L	EPA 524.2	9/21/99	0.02	83331	ua
2976	Vinyl Chloride (1)	N9910651	<0.29	ug/L	EPA 524.2	9/21/99	0.29	83331	ua
2977	1,1-Dichloroethylene (7)	N9910651	<0.02	ug/L	EPA 524.2	9/21/99	0.02	83331	ua
2979	Trans-1,2-Dichloroethylene(100)	N9910651	<0.12	ug/L	EPA 524.2	9/21/99	0.12	83331	ua
2980	1,2-Dichloroethane (3)	N9910651	<0.02	ug/L	EPA 524.2	9/21/99	0.02	83331	ua
2981	1,1,1-Trichloroethane (200)	N9910651	<0.21	ug/L	EPA 524.2	9/21/99	0.21	83331	ua
[illegible]2	Carbon Tetrachloride (3)	N9910651	<0.29	ug/L	EPA 524.2	9/21/99	0.29	83331	ua
2983	1,2-Dichloropropane (5)	N9910651	<0.33	ug/L	EPA 524.2	9/21/99	0.33	83331	ua
2984	Trichloroethylene (3)	N9910651	<0.02	ug/L	EPA 524.2	9/21/99	0.02	83331	ua
2985	1,1,2-Trichloroethane (5)	N9910651	<0.23	ug/L	EPA 524.2	9/21/99	0.23	83331	ua
2987	Tetrachloroethylene (3)	N9910651	<0.21	ug/L	EPA 524.2	9/21/99	0.21	83331	ua
2989	Monochlorobenzene (100)	N9910651	<0.23	ug/L	EPA 524.2	9/21/99	0.23	83331	ua
2990	Benzene (1)	N9910651	<0.05	ug/L	EPA 524.2	9/21/99	0.05	83331	ua
2991	Toluene (1000)	N9910651	<0.41	ug/L	EPA 524.2	9/21/99	0.41	83331	ua
2992	Ethylbenzene (700)	N9910651	<0.47	ug/L	EPA 524.2	9/21/99	0.47	83331	ua
2996	Styrene (100)	N9910651	<0.20	ug/L	EPA 524.2	9/21/99	0.20	83331	ua

Pesticide/PCB Chemical Analysis

62-550.310(2)(c)

PWS029

2005	Endrin (2)	N9910651	<0.002	ug/L	EPA 508	9/30/99	0.002	83331	ua
2010	Lindane (0.2)	N9910651	<0.002	ug/L	EPA 508	9/30/99	0.002	83331	ua
2015	Methoxychlor (40)	N9910651	<0.052	ug/L	EPA 508	9/30/99	0.052	83331	ua
2020	Toxaphene (3)	N9910651	<0.309	ug/L	EPA 508	9/30/99	0.309	83331	ua
2031	Dalapon (200)	N9910651	<0.036	ug/L	EPA 515.1	9/28/99	0.036	83331	ua
2032	Diquat (20)	N9910651	<0.40	ug/L	EPA 549.1	10/1/99	0.40	83331	ua
2033	Endothall (100)	N9910651	<15.4	ug/L	EPA 548	9/27/99	15.4	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2034	Glyphosate (700)	[illegible]	<9.44	ug/L	EPA 547	9/24/99	9.44	83331	ua
2035	Di(2-ethylhexyl) adipate (400)	N9910651	<0.71	ug/L	EPA 525.2	9/22/99	0.71	83331	ua
36	Oxamyl (Vydate) (200)	N9910651	<2.57	ug/L	EPA 531.1	10/12/99	2.57	83331	ua
2037	Simazine (4)	N9910651	<0.078	ug/L	EPA 507	9/30/99	0.078	83331	ua
2039	Di(2-ethylhexyl) phthalate (6)	N9910651	<1.15	ug/L	EPA 525.2	9/22/99	1.15	83331	ua
2040	Picloram (500)	N9910651	<0.029	ug/L	EPA 515.1	9/28/99	0.029	83331	ua
2041	Dinoseb (7)	N9910651	<0.055	ug/L	EPA 515.1	9/28/99	0.055	83331	ua
2042	Hexachlorocyclopentadiene(50)	N9910651	<0.010	ug/L	EPA 505	9/30/99	0.010	83331	ua
2046	Carbofuran (40)	N9910651	<7.04	ug/L	EPA 531.1	10/12/99	7.04	83331	ua
2050	Atrazine (3)	N9910651	<0.035	ug/L	EPA 507	9/30/99	0.035	83331	ua
2051	Alachlor (2)	N9910651	<0.012	ug/L	EPA 507	9/30/99	0.012	83331	ua
2065	Heptachlor (0.4)	N9910651	<0.004	ug/L	EPA 508	9/30/99	0.004	83331	ua
2067	Heptachlor Epoxide (0.2)	N9910651	<0.002	ug/L	EPA 508	9/30/99	0.002	83331	ua
2105	2,4-D (70)	N9910651	<0.026	ug/L	EPA 515.1	9/28/99	0.026	83331	ua
2110	2,4,5-TP (Silvex) (50)	N9910651	<0.017	ug/L	EPA 515.1	9/28/99	0.017	83331	ua
2274	Hexachlorobenzene (1)	N9910651	<0.008	ug/L	EPA 508	9/30/99	0.008	83331	ua
2306	Benzo(a)pyrene (.2)	N9910651	<0.09	ug/L	EPA 525.2	9/22/99	0.09	83331	ua
2326	Pentachlorophenol (1)	N9910651	<0.012	ug/L	EPA 515.1	9/28/99	0.012	83331	ua
2383	PCB (0.5)	N9910651	<0.1	ug/L	EPA 508	9/30/99	0.1	83331	ua
2931	Dibromochloropropane (.2)	N9910651	<0.004	ug/L	EPA 504	9/24/99	0.004	83331	ua
2946	Ethylene Dibromide (0.02)	N9910651	<0.006	ug/L	EPA 504	9/24/99	0.006	83331	ua
2959	Chlordane (2)	N9910651	<0.446	ug/L	EPA 508	9/30/99	0.446	83331	ua

Pesticide/PCB Chemical Analysis

62-550.310(2)(c)

PWS029

2005	Endrin (2)	N9910651	<0.002	ug/L	EPA 508	9/30/99	0.002	83331	ua
2010	Lindane (0.2)	N9910651	<0.002	ug/L	EPA 508	9/30/99	0.002	83331	ua
2015	Methoxychlor (40)	N9910651	<0.052	ug/L	EPA 508	9/30/99	0.052	83331	ua
2020	Toxaphene (3)	N9910651	<0.309	ug/L	EPA 508	9/30/99	0.309	83331	ua
2031	Dalapon (200)	N9910651	<0.036	ug/L	EPA 515.1	9/28/99	0.036	83331	ua
2032	Diquat (20)	N9910651	<0.40	ug/L	EPA 549.1	10/1/99	0.40	83331	ua
2033	Endothall (100)	N9910651	<15.4	ug/L	EPA 548	9/27/99	15.4	83331	ua
2034	Glyphosate (700)	N9910651	<9.44	ug/L	EPA 547	9/24/99	9.44	83331	ua
2035	Di(2-ethylhexyl) adipate (400)	N9910651	<0.71	ug/L	EPA 525.1	9/22/99	0.71	83331	ua
2036	Oxamyl (Vydate) (200)	N9910651	<2.57	ug/L	EPA 531.1	10/12/99	2.57	83331	ua
2037	Simazine (4)	N9910651	<0.078	ug/L	EPA 507	9/30/99	0.078	83331	ua
2039	Di(2-ethylhexyl) phthalate (6)	N9910651	<1.15	ug/L	EPA 525.1	9/22/99	1.15	83331	ua
2040	Picloram (500)	N9910651	<0.029	ug/L	EPA 515.1	9/28/99	0.029	83331	ua
2041	Dinoseb (7)	N9910651	<0.055	ug/L	EPA 515.1	9/28/99	0.055	83331	ua
2042	Hexachlorocyclopentadiene(50)	N9910651	<0.010	ug/L	EPA 505	9/30/99	0.010	83331	ua
2046	Carbofuran (40)	N9910651	<7.04	ug/L	EPA 531.1	10/12/99	7.04	83331	ua
2050	Atrazine (3)	N9910651	<0.035	ug/L	0.035	9/30/99	0.035	83331	ua
2051	Alachlor (2)	N9910651	<0.012	ug/L	EPA 507	9/30/99	0.012	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2065	Heptachlor (0.4)	N9910651	<0.004	ug/L	EPA 508	9/30/99	0.004	83331	ua
2067	Heptachlor Epoxide (0.2)	N9910651	<0.002	ug/L	EPA 508	9/30/99	0.002	83331	ua
105	2,4-D (70)	N9910651	<0.026	ug/L	EPA 515.1	9/28/99	0.026	83331	ua
2110	2,4,5-TP (Silvex) (50)	N9910651	<0.017	ug/L	EPA 515.1	9/28/99	0.017	83331	ua
2274	Hexachlorobenzene (1)	N9910651	<0.008	ug/L	EPA 508	9/30/99	0.008	83331	ua
2306	Benzo(a)pyrene (.2)	N9910651	<0.09	ug/L	EPA 550	9/22/99	0.09	83331	ua
2326	Pentachlorophenol (1)	N9910651	<0.012	ug/L	EPA 515.1	9/28/99	0.012	83331	ua
2383	PCB (0.5)	N9910651	<0.1	ug/L	EPA 508	9/30/99	0.1	83331	ua
2931	Dibromochloropropane (.2)	N9910651	<0.004	ug/L	EPA 504	9/24/99	0.004	83331	ua
2946	Ethylene Dibromide (0.02)	N9910651	<0.006	ug/L	EPA 504	9/24/99	0.006	83331	ua
2959	Chlordane (2)	N9910651	<0.446	ug/L	EPA 508	9/30/99	0.446	83331	ua

Trihalomethane Analysis

62-550.310(2)(a)

PWS027

2950	Total THM's (0.10)	N9910651	<0.00036	mg/L	EPA 502.2	9/23/99	0.00036	83331	ua

Radiochemical Analysis

62-550.310(5)

PWS033

4000	Gross Alpha	N9910651	<17.2	pCi/L	EPA 900.0	9/28/99	+/-11.0	83141	ua
4020	Radium 226	N9910651	7.4	pCi/L	EPA 903.1	9/27/99	+/-0.5	83141	ua
4030	Radium 228	N9910651	<0.8	pCi/L	Brks/Blnchrd	9/27/99	+/-0.5	83141	ua
	Uranium	N9910651		pCi/L	EPA 908.0		+/-	E84380	ua

Unregulated Group I Analysis

62-550.405

PWS035

2021	Carbaryl	N9910651	<3.89	ug/L	EPA 531.1	10/12/99	3.89	83331	ua
2022	Methomyl	N9910651	<3.20	ug/L	EPA 531.1	10/12/99	3.20	83331	ua
2043	Aldicarb Sulfoxide	N9910651	<1.88	ug/L	EPA 531.1	10/12/99	1.88	83331	ua
2044	Aldicarb Sulfone	N9910651	<5.57	ug/L	EPA 531.1	10/12/99	5.57	83331	ua
2045	Metolachlor	N9910651	<0.108	ug/L	EPA 507	9/30/99	0.108	83331	ua
2047	Aldicarb	N9910651	<5.95	ug/L	EPA 531.1	10/12/99	5.95	83331	ua
2066	3-Hydroxycarbofuran	N9910651	<3.35	ug/L	EPA 531.1	10/12/99	3.35	83331	ua
2077	Propachlor	N9910651	<5	ug/L	EPA 508	9/30/99	5	83331	ua
2356	Aldrin	N9910651	<0.005	ug/L	EPA 508	9/30/99	0.005	83331	ua
2364	Dieldrin	N9910651	<0.020	ug/L	EPA 508	9/30/99	0.020	83331	ua
2440	Dicamba	N9910651	<0.005	ug/L	EPA 515.1	9/28/99	0.005	83331	ua
2595	Metribuzin	N9910651	<0.024	ug/L	EPA 507	9/30/99	0.024	83331	ua
2076	Butachlor	N9910651	<0.021	ug/L	EPA 508	9/30/99	0.021	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst

Unregulated Group II Analysis

62-550.410

PWS034

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2210	Chloromethane	N9910651	<0.35	ug/L	EPA 524.2	9/23/99	0.35	83331	ua
2212	Dichlorodiflouromethane	N9910651	<0.26	ug/L	EPA 524.2	9/23/99	0.26	83331	ua
2214	Bromomethane	N9910651	<0.29	ug/L	EPA 524.2	9/23/99	0.29	83331	ua
2216	Chloroethane	N9910651	<0.29	ug/L	EPA 524.2	9/23/99	0.29	83331	ua
2218	Trichlorofluoromethane	N9910651	<0.28	ug/L	EPA 524.2	9/23/99	0.28	83331	ua
2251	Methyl-Tert-Butyl-Ether	N9910651	<0.27	ug/L	EPA 524.2	9/23/99	0.27	83331	ua
2408	Dibromomethane	N9910651	<0.03	ug/L	EPA 524.2	9/23/99	0.03	83331	ua
2410	1,1-Dichloropropylene	N9910651	<0.08	ug/L	EPA 524.2	9/23/99	0.08	83331	ua
2412	1,3-Dichloropropane	N9910651	<0.05	ug/L	EPA 524.2	9/23/99	0.05	83331	ua
2413	1,3-Dichloropropene	N9910651	<0.21	ug/L	EPA 524.2	9/23/99	0.21	83331	ua
2414	1,2,3-Trichloropropane	N9910651	<0.39	ug/L	EPA 524.2	9/23/99	0.39	83331	ua
2416	2,2-Dichloropropane	N9910651	<0.38	ug/L	EPA 524.2	9/23/99	0.38	83331	ua
2941	Chloroform	N9910651	<0.16	ug/L	EPA 524.2	9/23/99	0.16	83331	ua
2942	Bromoform	N9910651	<0.31	ug/L	EPA 524.2	9/23/99	0.31	83331	ua
2943	Bromodichloromethane	N9910651	<0.36	ug/L	EPA 524.2	9/23/99	0.36	83331	ua
2944	Dibromochloromethane	N9910651	<0.27	ug/L	EPA 524.2	9/23/99	0.27	83331	ua
2965	O-Chlorotoluene	N9910651	<0.33	ug/L	EPA 524.2	9/23/99	0.33	83331	ua
2966	P-Chlorotoluene	N9910651	<0.29	ug/L	EPA 524.2	9/23/99	0.29	83331	ua
2967	M-Dichlorobenzene	N9910651	<0.20	ug/L	EPA 524.2	9/23/99	0.20	83331	ua
`78	1,1-Dichloroethane	N9910651	<0.10	ug/L	EPA 524.2	9/23/99	0.10	83331	ua
2986	1,1,1,2-Tetrachloroethane	N9910651	<0.13	ug/L	EPA 524.2	9/23/99	0.13	83331	ua
2988	1,1,2,2-Tetrachloroethane	N9910651	<0.33	ug/L	EPA 524.2	9/23/99	0.33	83331	ua
2993	Bromobenzene	N9910651	<0.05	ug/L	EPA 524.2	9/23/99	0.05	83331	ua

Unregulated Group III Analysis

62-550.415

PWS036 & 037

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2262	Isophorone	N9910651	<7.26	ug/L	EPA 625	9/24/99	7.26	83331	ua
2270	2,4-Dinitrotoluene	N9910651	<4.78	ug/L	EPA 625	9/24/99	4.78	83331	ua
2282	Dimethylphthalate	N9910651	<9.47	ug/L	EPA 625	9/24/99	9.47	83331	ua
2284	Diethylphthalate	N9910651	<4.30	ug/L	EPA 625	9/24/99	4.30	83331	ua
2290	Di-n-Butylphthalate	N9910651	<4.01	ug/L	EPA 625	9/24/99	4.01	83331	ua
2294	Butyl benzyl phthalate	N9910651	<2.55	ug/L	EPA 625	9/24/99	2.55	83331	ua
9089	Di-n-octylphthalate	N9910651	<2.43	ug/L	EPA 625	9/24/99	2.43	83331	ua
9108	2-Chlorophenol	N9910651	<4.10	ug/L	EPA 625	9/24/99	4.10	83331	ua
9112	2-Methyl-4,6-dinitophenol	N9910651	<4.00	ug/L	EPA 625	9/24/99	4.00	83331	ua
9115	Phenol	N9910651	<2.60	ug/L	EPA 625	9/24/99	2.60	83331	ua
9116	2,4,6-Trichlorophenol	N9910651	<4.66	ug/L	EPA 625	9/24/99	4.66	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Rpt form #5; Rev 1/1/96

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
	Dioxin - 2,3,7,8-TCDD	N9910651	<1.1	ug/L	EPA 1613	10/6/99	1.1	87424	ua
	Total Coliform	N9910651	>80	col/100ml	SM9222B	9/20/99	13:30 1	84352	ua
	Fecal Coliform	N9910651	>60	col/100ml	SM9222D	9/20/99	13:30 1	84352	ua

Field Data

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
	pH, Field	N9910651	7.97	std unit	EPA 150.1	9/20/99	n/a	E84380	ua
	Conductivity	N9910651	6,860	umhos/cm	EPA 120.1	9/20/99	1.0	E84380	ua
	Water Temperature	N9910651	25.1	°C	EPA 170.1	9/20/99	0.1	E84380	ua
	Weather, Condition	N9910651	heavy rain			9/20/99		E84380	ua
	Dissolved Oxygen, Field	N9910651	1.6	mg/L	EPA 360.1	9/20/99	0.10	E84380	ua
	Hydrogen Sulfide Field	N9910651	2.0	mg/L	Hach	9/20/99		E84380	ua

Approved by:

Debra A. Sanders

Debra Sanders
Laboratory Director

Comments:

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Sanders Laboratories
Environmental Testing Services

CHAIN-OF-CUSTODY RECORD

PROJECT # 528816, 528817

Page ____ of ____

Client: Youngquist Bros

Address:

Report To:

Bill To:

P.O. #:

Project Name: Marco ~~R.O.~~ ASR

Project Location:

Sample Supply: GW

Customer Type:

Field Report #:

Kit #:

REQUESTED DUE DATE: 10-4-99

Sampled By (PRINT): Mark Ochs / Noah Olenych

Sampler Signature: Mark Ochs / Noah Olenych

Bottle #	SAMPLE DESCRIPTION	Sample DATE	Sample TIME	Sample TYPE	4°C	UNPRESERVED	~~H_2SO_4~~ NaOH	HNO_3	HCL	$Na_2S_2O_3$	(Field) pH, cond, temp, DO, bs		Prim. Sec. Organics	VOC, TTHMS	Gross Alpha, Radium 226/228	Pest, PCB's	Total Fec. Col	Dioxin	Unreg. I, II, III	VOC, TTHM		Sample ID #
	Hawthorne MW Zone 2	9-20-99	0845	g	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		N9910650
	ASR 2 Well	9-20-99	0915	g	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X		N9910651

Bottle Lot #	OUT / DATE	SHIPMENT METHOD RETURNED DATE	VIA	RELINQUISHED BY AFFILIATION	DATE	TIME	ACCEPTED BY AFFILIATION	DATE	TIME
				Mark Ochs	9-20-99	1230	Noah Olenych	9-20-99	1230

COMMENTS:

COOLER #

COOLER SEAL INTACT Yes No

1050 Endeavor Ct., Nokomis, FL 34275 ...3 • (941)488-8103 • FAX 484-6774
16880 Gator Road, Fort Myers, FL 33912 • (941) 590-0337 • FAX (941) 590-0536

INTAKE #: 37317

Sanders Laboratories
Environmental Testing Services

Date 22-Dec-99

Project Name: Marco Lakes ASR # 3
Project Location:
Sample Supply: Water
Collector: Noah Olenych
Sample Received Date/Time: 11/24/99 9:30

Youngquist Brothers, Inc.
15465 Pine Ridge Road

Fort Myers, FL 33908-

RECEIVED DEC 29 1999

Inorganic Analysis
62-550.310(1)
PWS030

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
1005	Arsenic (0.05)	F9911381	<0.0022	mg/L	EPA 206.2	12/3/99	0.0022	84352	ua
1010	Barium (2)	F9911381	<0.2	mg/L	EPA 208.2	12/2/99	0.2	84352	ua
1015	Cadmium (0.005)	F9911381	<0.003	mg/L	EPA 213.1	12/6/99	0.003	84352	ua
1020	Chromium (0.1)	F9911381	<0.02	mg/L	EPA 218.1	12/6/99	0.02	84352	ua
1024	Cyanide (0.2)	F9911381	<0.006	mg/L	EPA 335.2	12/3/99	0.006	83331	ua
025	Fluoride (4.0)	F9911381	1.08	mg/L	EPA 340.2	12/1/99	0.1	84352	ua
1030	Lead (0.015)	F9911381	<0.001	mg/L	EPA 239.2	12/9/99	0.001	84352	ua
1035	Mercury (0.002)	F9911381	<0.001	mg/L	EPA 245.1	12/1/99	0.001	84352	ua
1036	Nickel (0.1)	F9911381	<0.01	mg/L	EPA 249.1	12/21/99	0.01	84352	ua
1040	Nitrate (10)	F9911381	<0.01	mg/L	EPA 353.2	11/26/99	0.01	84352	ua
1041	Nitrite (1)	F9911381	<0.01	mg/L	EPA 354.1	11/24/99	0.01	84352	ua
1045	Selenium (0.05)	F9911381	<0.004	mg/L	EPA 270.2	11/30/99	0.004	84352	ua
1052	Sodium (160)	F9911381	1,501	mg/L	EPA 273.1	12/3/99	0.003	84352	ua
1074	Antimony (0.006)	F9911381	<0.002	mg/L	EPA 204.2	12/3/99	0.002	83331	ua
1075	Beryllium (0.004)	F9911381	<0.0002	mg/L	EPA 210.2	12/14/99	0.0002	83331	ua
1085	Thallium (0.002)	F9911381	0.066	mg/L	EPA 279.2	12/3/99	0.0009	83331	ua

Secondary Chemical Analysis
62-550.320
PWS031

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
1002	Aluminum (0.2)	F9911381	<0.2	mg/L	EPA 202.1	12/2/99	0.2	84352	ua
1017	Chloride (250)	F9911381	2,774	mg/L	SM4500Cl-B	12/2/99	1	84352	ua
1022	Copper (1.0)	F9911381	<0.01	mg/L	EPA 220.1	12/21/99	0.01	84352	ua
1025	Fluoride (2.0)	F9911381	1.08	mg/L	EPA 340.2	12/1/99	0.1	84352	ua
1028	Iron (0.3)	F9911381	0.111	mg/L	EPA 236.1	12/1/99	0.015	84352	ua
32	Manganese (0.05)	F9911381	0.060	mg/L	EPA 243.1	12/1/99	0.005	84352	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Rpt form #5; Rev 1/1/96

1050 Endeavor Ct. • Nokomis, FL 34275 • Phone: (941) 488-8103 • (800) 255-3108 • Fax: (941) 484-6774

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
1050	Silver (0.1)	F9911381	<0.01	mg/L	EPA 272.1	11/30/99	0.01	84352	ua
1055	Sulfate (250)	F9911381	686	mg/L	EPA 375.4	12/3/99	1	84352	ua
1095	Zinc (5.0)	F9911381	<0.005	mg/L	EPA 289.1	11/30/99	0.005	84352	ua
1905	Color (15.0)	F9911381	5	PtCo units	EPA 110.3	12/2/99	1	84352	ua
1920	Odor (3.0)	F9911381	200	TON	EPA 140.1	11/24/99	1	84352	ua
1925	pH (6.5-8.5)	F9911381	7.26	std units	EPA 150.1	11/29/99	n/a	84352	ua
1930	Total Dissolved Solids (500)	F9911381	3,920	mg/L	EPA 160.1	11/29/99	7	84352	ua
2905	Foaming Agents (1.5)	F9911381	<0.02	mg/L	SM 5540C	11/24/99	0.02	83331	ua

Pesticide/PCB Chemical Analysis

62-550.310(2)(c)

PWS029

2005	Endrin (2)	F9911381	<0.002	ug/L	EPA 508	12/22/99	0.002	83331	ua
2010	Lindane (0.2)	F9911381	<0.002	ug/L	EPA 508	12/22/99	0.002	83331	ua
2015	Methoxychlor (40)	F9911381	<0.052	ug/L	EPA 508	12/22/99	0.052	83331	ua
2020	Toxaphene (3)	F9911381	<0.309	ug/L	EPA 508	12/22/99	0.309	83331	ua
2031	Dalapon (200)	F9911381	<0.036	ug/L	EPA 515.1	12/17/99	0.036	83331	ua
2032	Diquat (20)	F9911381	<0.26	ug/L	EPA 549.1	11/30/99	0.26	83331	ua
2033	Endothall (100)	F9911381	<15.4	ug/L	EPA 548	12/7/99	15.4	83331	ua
2034	Glyphosate (700)	F9911381	<9.44	ug/L	EPA 547	12/8/99	9.44	83331	ua
2035	Di(2-ethylhexyl) adipate (400)	F9911381	<0.71	ug/L	EPA 525.2	12/7/99	0.71	83331	ua
2036	Oxamyl (Vydate) (200)	F9911381	<2.57	ug/L	EPA 531.1	12/8/99	2.57	83331	ua
2037	Simazine (4)	F9911381	<0.078	ug/L	EPA 507	12/22/99	0.078	83331	ua
2039	Di(2-ethylhexyl) phthalate (6)	F9911381	<1.15	ug/L	EPA 525.2	12/7/99	1.15	83331	ua
2040	Picloram (500)	F9911381	<0.029	ug/L	EPA 515.1	12/17/99	0.029	83331	ua
2041	Dinoseb (7)	F9911381	<0.055	ug/L	EPA 515.1	12/17/99	0.055	83331	ua
2042	Hexachlorocyclopentadiene(50)	F9911381	<0.010	ug/L	EPA 508	12/22/99	0.010	83331	ua
2046	Carbofuran (40)	F9911381	<7.04	ug/L	EPA 531.1	12/8/99	7.04	83331	ua
2050	Atrazine (3)	F9911381	<0.035	ug/L	EPA 507	12/22/99	0.035	83331	ua
2051	Alachlor (2)	F9911381	<0.012	ug/L	EPA 507	12/22/99	0.012	83331	ua
2065	Heptachlor (0.4)	F9911381	<0.004	ug/L	EPA 508	12/22/99	0.004	83331	ua
2067	Heptachlor Epoxide (0.2)	F9911381	<0.002	ug/L	EPA 508	12/22/99	0.002	83331	ua
2105	2,4-D (70)	F9911381	<0.026	ug/L	EPA 515.1	12/17/99	0.026	83331	ua
2110	2,4,5-TP (Silvex) (50)	F9911381	<0.017	ug/L	EPA 515.1	12/17/99	0.017	83331	ua
2274	Hexachlorobenzene (1)	F9911381	<0.008	ug/L	EPA 508	12/22/99	0.008	83331	ua
2306	Benzo(a)pyrene (.2)	F9911381	<0.09	ug/L	EPA 525.2	12/7/99	0.09	83331	ua
2326	Pentachlorophenol (1)	F9911381	<0.012	ug/L	EPA 515.1	12/17/99	0.012	83331	ua
2383	PCB (0.5)	F9911381	<0.1	ug/L	EPA 508	12/22/99	0.1	83331	ua
2931	Dibromochloropropane (.2)	F9911381	<0.004	ug/L	EPA 508	12/6/99	0.004	83331	ua
2946	Ethylene Dibromide (0.02)	F9911381	<0.006	ug/L	EPA 508	12/6/99	0.006	83331	ua
2959	Chlordane (2)	F9911381	<0.445	ug/L	EPA 508	12/22/99	0.445	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst

Volatile Organic Analysis

62-550.310(2)(b)

PWS028

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2378	1,2,4-Trichlorobenzene (70)	F9911381	<0.22	ug/L	EPA 524.2	11/30/99	0.22	83331	ua
2380	Cis-1,2-Dichloroethylene (70)	F9911381	<0.03	ug/L	EPA 524.2	11/30/99	0.03	83331	ua
2955	Xylenes (Total) (10,000)	F9911381	<0.24	ug/L	EPA 524.2	11/30/99	0.24	83331	ua
2964	Dichloromethane (5)	F9911381	<0.31	ug/L	EPA 524.2	11/30/99	0.31	83331	ua
2968	O-Dichlorobenzene (600)	F9911381	<0.05	ug/L	EPA 524.2	11/30/99	0.05	83331	ua
2969	Para-Dichlorobenzene (75)	F9911381	<0.02	ug/L	EPA 524.2	11/30/99	0.02	83331	ua
2976	Vinyl Chloride (1)	F9911381	<0.29	ug/L	EPA 524.2	11/30/99	0.29	83331	ua
2977	1,1-Dichloroethylene (7)	F9911381	<0.02	ug/L	EPA 524.2	11/30/99	0.02	83331	ua
2979	Trans-1,2-Dichloroethylene(100)	F9911381	<0.12	ug/L	EPA 524.2	11/30/99	0.12	83331	ua
2980	1,2-Dichloroethane (3)	F9911381	<0.02	ug/L	EPA 524.2	11/30/99	0.02	83331	ua
2981	1,1,1-Trichloroethane (200)	F9911381	<0.21	ug/L	EPA 524.2	11/30/99	0.21	83331	ua
2982	Carbon Tetrachloride (3)	F9911381	<0.29	ug/L	EPA 524.2	11/30/99	0.29	83331	ua
2983	1,2-Dichloropropane (5)	F9911381	<0.33	ug/L	EPA 524.2	11/30/99	0.33	83331	ua
2984	Trichloroethylene (3)	F9911381	<0.02	ug/L	EPA 524.2	11/30/99	0.02	83331	ua
2985	1,1,2-Trichloroethane (5)	F9911381	<0.23	ug/L	EPA 524.2	11/30/99	0.23	83331	ua
2987	Tetrachloroethylene (3)	F9911381	<0.21	ug/L	EPA 524.2	11/30/99	0.21	83331	ua
2989	Monochlorobenzene (100)	F9911381	<0.23	ug/L	EPA 524.2	11/30/99	0.23	83331	ua
2990	Benzene (1)	F9911381	<0.05	ug/L	EPA 524.2	11/30/99	0.05	83331	ua
2991	Toluene (1000)	F9911381	<0.41	ug/L	EPA 524.2	11/30/99	0.41	83331	ua
[illegible]2	Ethylbenzene (700)	F9911381	<0.47	ug/L	EPA 524.2	11/30/99	0.47	83331	ua
2996	Styrene (100)	F9911381	<0.20	ug/L	EPA 524.2	11/30/99	0.20	83331	ua

Trihalomethane Analysis

62-550.310(2)(a)

PWS027

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
	Chloroform	F9911381	<0.00016	mg/L	EPA 524.2	11/30/99	0.00016	83331	ua
	Bromodichloromethane	F9911381	<0.00036	mg/L	EPA 524.2	11/30/99	0.00036	83331	ua
	Dibromochloromethane	F9911381	<0.00027	mg/L	EPA 524.2	11/30/99	0.00027	83331	ua
	Bromoform	F9911381	<0.00031	mg/L	EPA 524.2	11/30/99	0.00031	83331	ua
	Total TTHMs	F9911381	<0.00036	mg/L	EPA 524.2	11/30/99	0.00036	83331	ua

Unregulated Group I Analysis

62-550.405

PWS035

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2021	Carbaryl	F9911381	<3.89	ug/L	EPA 531.1	12/8/99	3.89	83331	ua
2022	Methomyl	F9911381	<3.20	ug/L	EPA 531.1	12/8/99	3.20	83331	ua
2043	Aldicarb Sulfoxide	F9911381	<1.88	ug/L	EPA 531.1	12/8/99	1.88	83331	ua
2044	Aldicarb Sulfone	F9911381	<5.57	ug/L	EPA 531.1	12/8/99	5.57	83331	ua
2045	Metolachlor	F9911381	<0.108	ug/L	EPA 508	12/22/99	0.108	83331	ua
[illegible]47	Aldicarb	F9911381	<5.35	ug/L	EPA 531.1	12/8/99	5.35	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2060	3-Hydroxycarbofuran	F9911381	<3.35	ug/L	EPA 531.1	12/8/99	3.35	83331	ua
2077	Propachlor	F9911381	<5	ug/L	EPA 508	12/22/99	5	83331	ua
356	Aldrin	F9911381	<0.005	ug/L	EPA 508	12/22/99	0.005	83331	ua
2364	Dieldrin	F9911381	<0.020	ug/L	EPA 508	12/22/99	0.020	83331	ua
2440	Dicamba	F9911381	<0.005	ug/L	EPA 515.1	12/22/99	0.005	83331	ua
2595	Metribuzin	F9911381	<0.024	ug/L	EPA 507	12/22/99	0.024	83331	ua
2076	Butachlor	F9911381	<0.021	ug/L	EPA 507	12/22/99	0.021	83331	ua

Unregulated Group II Analysis

62-550.410

PWS034

2210	Chloromethane	F9911381	<0.35	ug/L	EPA 524.2	11/30/99	0.35	83331	ua
2212	Dichlorodiflouromethane	F9911381	<0.26	ug/L	EPA 524.2	11/30/99	0.26	83331	ua
2214	Bromomethane	F9911381	<0.29	ug/L	EPA 524.2	11/30/99	0.29	83331	ua
2216	Chloroethane	F9911381	<0.29	ug/L	EPA 524.2	11/30/99	0.29	83331	ua
2218	Trichlorofluoromethane	F9911381	<0.28	ug/L	EPA 524.2	11/30/99	0.28	83331	ua
2251	Methyl-Tert-Butyl-Ether	F9911381	<0.27	ug/L	EPA 524.2	11/30/99	0.27	83331	ua
2408	Dibromomethane	F9911381	<0.03	ug/L	EPA 524.2	11/30/99	0.03	33331	ua
2410	1,1-Dichloropropylene	F9911381	<0.06	ug/L	EPA 524.2	11/30/99	0.06	83331	ua
2412	1,3-Dichloropropane	F9911381	<0.05	ug/L	EPA 524.2	11/30/99	0.05	83331	ua
2413	1,3-Dichloropropene	F9911381	<0.21	ug/L	EPA 524.2	11/30/99	0.21	83331	ua
2414	1,2,3-Trichloropropane	F9911381	<0.39	ug/L	EPA 524.2	11/30/99	0.39	83331	ua
2416	2,2-Dichloropropane	F9911381	<0.38	ug/L	EPA 524.2	11/30/99	0.38	83331	ua
2941	Chloroform	F9911381	<0.16	ug/L	EPA 524.2	11/30/99	0.16	83331	ua
2942	Bromoform	F9911381	<0.31	ug/L	EPA 524.2	11/30/99	0.31	83331	ua
2943	Bromodichloromethane	F9911381	<0.36	ug/L	EPA 524.2	11/30/99	0.36	83331	ua
2944	Dibromochloromethane	F9911381	<0.27	ug/L	EPA 524.2	11/30/99	0.27	83331	ua
2965	O-Chlorotoluene	F9911381	<0.33	ug/L	EPA 524.2	11/30/99	0.33	83331	ua
2966	P-Chlorotoluene	F9911381	<0.29	ug/L	EPA 524.2	11/30/99	0.29	83331	ua
2967	M-Dichlorobenzene	F9911381	<0.20	ug/L	EPA 524.2	11/30/99	0.20	83331	ua
2978	1,1-Dichloroethane	F9911381	<0.10	ug/L	EPA 524.2	11/30/99	0.10	83331	ua
2986	1,1,1,2-Tetrachloroethane	F9911381	<0.13	ug/L	EPA 524.2	11/30/99	0.13	83331	ua
2988	1,1,2,2-Tetrachloroethane	F9911381	<0.33	ug/L	EPA 524.2	11/30/99	0.33	83331	ua
2993	Bromobenzene	F9911381	<0.05	ug/L	EPA 524.2	11/30/99	0.05	83331	ua

Unregulated Group III Analysis

62-550.415

PWS036 & 037

2262	Isophorone	F9911381	<7.26	ug/L	EPA 625	12/21/99	7.26	83331	ua
2270	2,4-Dinitrotoluene	F9911381	<4.78	ug/L	EPA 625	12/21/99	4.78	83331	ua
2282	Dimethylphthalate	F9911381	<9.47	ug/L	EPA 625	12/21/99	9.47	83331	ua
2284	Diethylphthalate	F9911381	<4.30	ug/L	EPA 625	12/21/99	4.30	83331	ua
2290	Di-n-Butylphthalate	F9911381	<4.01	ug/L	EPA 625	12/21/99	4.01	83331	ua
4	Butyl benzyl phthalate	F9911381	<2.55	ug/L	EPA 625	12/21/99	2.55	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
9089	Di-n-octylphthalate	F9911381	<2.43	ug/L	EPA 625	12/21/99	2.43	83331	ua
9108	2-Chlorophenol	F9911381	<4.10	ug/L	EPA 625	12/21/99	4.10	83331	ua
112	2-Methyl-4,6-dinitophenol	F9911381	<4.00	ug/L	EPA 625	12/21/99	4.00	83331	ua
9115	Phenol	F9911381	<2.60	ug/L	EPA 625	12/21/99	2.60	83331	ua
9116	2,4,6-Trichlorophenol	F9911381	<4.66	ug/L	EPA 625	12/21/99	4.66	83331	ua

Radiochemical Analysis

62-550.310(5)

PWS033

4000	Gross Alpha	F9911381	33.2	pCi/L	EPA 900.0	12/4/99	+/-7.9	83141	ua
4020	Radium 226	F9911381	6.0	pCi/L	EPA 903.1	12/9/99	+/-0.5	83141	ua
4030	Radium 228	F9911381	<0.9	pCi/L	Brks/Blnchrd	12/9/99	+/-0.6	83141	ua

	Dioxin Screen	F9911381	<10	ug/L	EPA 625	12/15/99	10	83331	ua

	Total Coliform	F9911381	<10	col/100ml	SM9222B	11/24/99	11:00 1	85449	ua

	Fecal Coliform	F9911381	<4	col/100ml	SM9222D	11/24/99	11:00 1	85449	ua

Field Data

	pH, Field	F9911381	7.14	std unit	EPA 150.1	11/24/99	n/a	84352	ua
	Conductivity, Field	F9911381	8,860	umhos/cm	EPA 120.1	11/24/99	1.0	84352	ua
	Water Temperature	F9911381	26.3	°C	EPA 170.1	11/24/99	0.1	84352	ua
	Dissolved Oxygen, Field	F9911381	1.16	mg/L	EPA 360.1	11/24/99	0.10	84352	ua
	Hydrogen Sulfide, Field	F9911381	0.0	mg/L	HACH	11/24/99	0.0	84352	ua

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst

Approved by:

Debra A. Sanders

Debra Sanders
Laboratory Director

Comments:

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Sanders Laboratories
Environmental Testing Services

CHAIN-OF-CUSTODY RECORD

PROJECT # 37317

Page ____ of ____

Client: Youngquist
Address:

Phone: ____ Fax: ____

Report To:
Bill To:
P.O. #:
Project Name: Marco Lakes ASR 3
Project Location:

Sample Supply: GW
Customer Type: Drinking Water
Field Report #:
Kit #:
REQUESTED DUE DATE:

Sampled By (PRINT): NOAH OLENYCH
Sampler Signature: Noah Olenych

Bottle #	SAMPLE DESCRIPTION	Sample DATE	Sample TIME	Sample TYPE	PRESERVATIVES: 4°C	UNPRESERVED	H_2SO_4	HNO_3	HCL	ANALYSES REQUESTED: Dioxin (screen)	Pest/PCB	VOC	THM	Wars Exp I II III	1° Inorg	2° Inorg	Rad 226 228	Gross Alpha	Total Fecal	(Field)	pH/cond/Temp/DO H_2S, Cl_2	Sample ID #
1	ASR 3	11-24-99	0900	G						X	X	X	X	X	X	X	X	X	X		X	F99 11381

Bottle Lot #	OUT / DATE	SHIPMENT METHOD RETURNED · DATE	VIA	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
				Noah Olenych	11-24-99	0930	Tom [illegible]	11-24-99	0930

COMMENTS:

COOLER #

COOLER SEAL INTACT Yes No

INTAKE #: 910001

Sanders Laboratories
Environmental Testing Services

Date *20-Oct-99*

Project Name:	Marco ASR MW
Project Location:	Marco Lakes
Sample Supply:	Ground Water
Collector:	Noah Olenych
Sample Received Date/Time:	10/1/99 9:00

Youngquist Brothers, Inc.
15465 Pine Ridge Road

Fort Myers, FL 33908-

Inorganic Analysis

62-550.310(1)

PWS030

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
1005	Arsenic (0.05)	91000101A	<0.0022	mg/L	EPA 206.2	10/6/99	0.0022	84352	ua
1010	Barium (2)	91000101A	<0.2	mg/L	EPA 208.2	10/7/99	0.200	84352	ua
1015	Cadmium (0.005)	91000101A	<0.003	mg/L	EPA 213.1	10/8/99	0.003	84352	ua
1020	Chromium (0.1)	91000101A	<0.02	mg/L	EPA 218.1	10/14/99	0.020	84352	ua
1024	Cyanide (0.2)	91000101A	<0.005	mg/L	EPA 335.2	10/1/99	0.005	84269	ua
1025	Fluoride (4.0)	91000101A	1.09	mg/L	EPA 340.2	10/6/99	0.1	84352	ua
1030	Lead (0.015)	91000101A	<0.001	mg/L	EPA 239.2	10/7/99	0.001	84352	ua
1035	Mercury (0.002)	91000101A	<0.001	mg/L	EPA 245.1	10/4/99	0.001	84352	ua
1036	Nickel (0.1)	91000101A	<0.010	mg/L	EPA 249.1	10/18/99	0.010	84352	ua
1040	Nitrate (10)	91000101A	<0.01	mg/L	EPA 353.2	10/13/99	0.01	84352	ua
1041	Nitrite (1)	91000101A	<0.01	mg/L	EPA 354.1	10/1/99	0.01	84352	ua
1045	Selenium (0.05)	91000101A	<0.004	mg/L	EPA 270.2	10/4/99	0.004	84352	ua
1052	Sodium (160)	91000101A	1,878	mg/L	EPA 200.7	10/1/99	0.271	84352	ua
1074	Antimony (0.006)	91000101A	<0.002	mg/L	EPA 204.2	10/13/99	0.002	83331	ua
1075	Beryllium (0.004)	91000101A	<0.004	mg/L	EPA 200.7	10/8/99	0.004	83331	ua
1085	Thallium (0.002)	91000101A	<0.002	mg/L	EPA 279.2	10/11/99	0.002	83331	ua

Secondary Chemical Analysis

62-550.320

PWS031

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
1002	Aluminum (0.2)	91000101A	<0.2	mg/L	EPA 202.1	10/7/99	0.2	84352	ua
1017	Chloride (250)	91000101A	2,958	mg/L	EPA 300.0	10/9/99	0.064	84352	ua
1022	Copper (1.0)	91000101A	<0.00079	mg/L	EPA 200.7	10/1/99	0.00079	84352	ua
1025	Fluoride (2.0)	91000101A	1.09	mg/L	EPA 340.2	10/6/99	0.1	84352	ua
1028	Iron (0.3)	91000101A	0.099	mg/L	EPA 236.1	10/1/99	0.015	84352	ua
;2	Manganese (0.05)	91000101A	0.005	mg/L	EPA 243.1	10/18/99	0.005	84352	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

1050 Endeavor Ct. • Nokomis, FL 34275 • Phone: (941) 488-8103 • (800) 255-3108 • Fax: (941) 484-6774

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
1050	Silver (0.1)	91000101A	<0.010	mg/L	EPA 272.1	10/18/99	0.010	84352	ua
1055	Sulfate (250)	[illegible]000101A	699	mg/L	EPA 300.0	10/9/99	0.12	84352	ua
095	Zinc (5.0)	91000101A	<0.005	mg/L	EPA 289.1	10/7/99	0.005	84352	ua
1905	Color (15.0)	91000101A	25	PtCo units	EPA 110.3	10/1/99	1	84352	ua
1920	Odor (3.0)	91000101A	2	TON	EPA 140.1	10/1/99	1	84352	ua
1925	pH (6.5-8.5)	91000101A	7.86	std units	EPA 150.1	10/1/99	n/a	84352	ua
1930	Total Dissolved Solids (500)	91000101A	5,816	mg/L	EPA 160.1	10/8/99	7	84352	ua
2905	Foaming Agents (1.5)	91000101A	<0.05	mg/L	EPA 425.1	10/1/99	0.05	84269	ua

Trihalomethane Analysis

62-550.310(2)(a)

PWS027

Chloroform	91000101A	<0.00016	mg/L	EPA 524.2	10/5/99	0.00016	83331	ua
Bromodichloromethane	91000101A	<0.00036	mg/L	EPA 524.2	10/5/99	0.00036	83331	ua
Dibromochloromethane	91000101A	<0.00027	mg/L	EPA 524.2	10/5/99	0.00027	83331	ua
Bromoform	91000101A	<0.00033	mg/L	EPA 524.2	10/5/99	0.00033	83331	ua
Total TTHMs	91000101A	<0.00036	mg/L	EPA 524.2	10/5/99	0.00036	83331	ua

Volatile Organic Analysis

62-550.310(2)(b)

PWS028

2378	1,2,4-Trichlorobenzene (70)	91000101A	<0.22	ug/L	EPA 524.2	10/5/99	0.22	83331	ua
380	Cis-1,2-Dichloroethylene (70)	91000101A	<0.03	ug/L	EPA 524.2	10/5/99	0.03	83331	ua
55	Xylenes (Total) (10,000)	91000101A	<0.24	ug/L	EPA 524.2	10/5/99	0.24	83331	ua
2964	Dichloromethane (5)	91000101A	<0.31	ug/L	EPA 524.2	10/5/99	0.31	83331	ua
2968	O-Dichlorobenzene (600)	91000101A	<0.05	ug/L	EPA 524.2	10/5/99	0.05	83331	ua
2969	Para-Dichlorobenzene (75)	91000101A	<0.02	ug/L	EPA 524.2	10/5/99	0.02	83331	ua
2976	Vinyl Chloride (1)	91000101A	<0.29	ug/L	EPA 524.2	10/5/99	0.29	83331	ua
2977	1,1-Dichloroethylene (7)	91000101A	<0.02	ug/L	EPA 524.2	10/5/99	0.02	83331	ua
2979	Trans-1,2-Dichloroethylene(100)	91000101A	<0.12	ug/L	EPA 524.2	10/5/99	0.12	83331	ua
2980	1,2-Dichloroethane (3)	91000101A	<0.02	ug/L	EPA 524.2	10/5/99	0.02	83331	ua
2981	1,1,1-Trichloroethane (200)	91000101A	<0.21	ug/L	EPA 524.2	10/5/99	0.21	83331	ua
2982	Carbon Tetrachloride (3)	91000101A	<0.29	ug/L	EPA 524.2	10/5/99	0.29	83331	ua
2983	1,2-Dichloropropane (5)	91000101A	<0.33	ug/L	EPA 524.2	10/5/99	0.33	83331	ua
2984	Trichloroethylene (3)	91000101A	<0.02	ug/L	EPA 524.2	10/5/99	0.02	83331	ua
2985	1,1,2-Trichloroethane (5)	91000101A	<0.23	ug/L	EPA 524.2	10/5/99	0.23	83331	ua
2987	Tetrachloroethylene (3)	91000101A	<0.21	ug/L	EPA 524.2	10/5/99	0.21	83331	ua
2989	Monochlorobenzene (100)	91000101A	<0.23	ug/L	EPA 524.2	10/5/99	0.23	83331	ua
2990	Benzene (1)	91000101A	<0.05	ug/L	EPA 524.2	10/5/99	0.05	83331	ua
2991	Toluene (1000)	91000101A	<0.41	ug/L	EPA 524.2	10/5/99	0.41	83331	ua
2992	Ethylbenzene (700)	91000101A	<0.47	ug/L	EPA 524.2	10/5/99	0.47	83331	ua
2996	Styrene (100)	91000101A	<0.20	ug/L	EPA 524.2	10/5/99	0.20	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst

Pesticide/PCB Chemical Analysis

62-550.310(2)(c)

PWS029

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2005	Endrin (2)	1000101A	<0.002	ug/L	EPA 508	10/5/99	0.002	83331	ua
2010	Lindane (0.2)	91000101A	<0.002	ug/L	EPA 508	10/5/99	0.002	83331	ua
2015	Methoxychlor (40)	91000101A	<0.052	ug/L	EPA 508	10/5/99	0.052	83331	ua
2020	Toxaphene (3)	91000101A	<0.309	ug/L	EPA 508	10/5/99	0.309	83331	ua
2031	Dalapon (200)	91000101A	<0.036	ug/L	EPA 515.1	10/7/99	0.036	83331	ua
2032	Diquat (20)	91000101A	<0.26	ug/L	EPA 549.1	10/6/99	0.26	83331	ua
2033	Endothall (100)	91000101A	<15.4	ug/L	EPA 548	10/7/99	15.4	83331	ua
2034	Glyphosate (700)	91000101A	<9.44	ug/L	EPA 547	10/7/99	9.44	83331	ua
2035	Di(2-ethylhexyl) adipate (400)	91000101A	<0.71	ug/L	EPA 525.2	10/12/99	0.71	83331	ua
2036	Oxamyl (Vydate) (200)	91000101A	<2.57	ug/L	EPA 531.1	10/12/99	2.57	83331	ua
2037	Simazine (4)	91000101A	<0.078	ug/L	EPA 508	10/5/99	0.078	83331	ua
2039	Di(2-ethylhexyl) phthalate (6)	91000101A	<1.15	ug/L	EPA 525.2	10/12/99	1.15	83331	ua
2040	Picloram (500)	91000101A	<0.029	ug/L	EPA 515.1	10/7/99	0.029	83331	ua
2041	Dinoseb (7)	91000101A	<0.055	ug/L	EPA 515.1	10/7/99	0.055	83331	ua
2042	Hexachlorocyclopentadiene(50)	91000101A	<0.010	ug/L	EPA 508	10/5/99	0.010	83331	ua
2046	Carbofuran (40)	91000101A	<7.04	ug/L	EPA 531.1	10/12/99	7.04	83331	ua
2050	Atrazine (3)	91000101A	<0.035	ug/L	EPA 508	10/5/99	0.035	83331	ua
2051	Alachlor (2)	91000101A	<0.012	ug/L	EPA 508	10/5/99	0.012	83331	ua
2065	Heptachlor (0.4)	91000101A	<0.004	ug/L	EPA 508	10/5/99	0.004	83331	ua
67	Heptachlor Epoxide (0.2)	91000101A	<0.002	ug/L	EPA 508	10/5/99	0.002	83331	ua
2105	2,4-D (70)	91000101A	<0.026	ug/L	EPA 515.1	10/7/99	0.026	83331	ua
2110	2,4,5-TP (Silvex) (50)	91000101A	<0.017	ug/L	EPA 515.1	10/7/99	0.017	83331	ua
2274	Hexachlorobenzene (1)	91000101A	<0.008	ug/L	EPA 508	10/5/99	0.008	83331	ua
2306	Benzo(a)pyrene (.2)	91000101A	<0.09	ug/L	EPA 525.2	10/12/99	0.09	83331	ua
2326	Pentachlorophenol (1)	91000101A	<0.012	ug/L	EPA 515.1	10/7/99	0.012	83331	ua
2383	PCB (0.5)	91000101A	<0.1	ug/L	EPA 508	10/5/99	0.1	83331	ua
2931	Dibromochloropropane (.2)	91000101A	<0.004	ug/L	EPA 504	10/11/99	0.004	83331	ua
2946	Ethylene Dibromide (0.02)	91000101A	<0.006	ug/L	EPA 504	10/11/99	0.006	83331	ua
2959	Chlordane (2)	91000101A	<0.446	ug/L	EPA 508	10/5/99	0.446	83331	ua

Radiochemical Analysis

62-550.310(5)

PWS033

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
4000	Gross Alpha	91000101A	44.8	pCi/L	EPA 900.0	10/8/99	+/-9.6	83141	ua
4020	Radium 226	91000101A	9.9	pCi/L	EPA 903.1	10/12/99	+/-0.5	83141	ua
4030	Radium 228	91000101A	<0.8	pCi/L	Brks/Blnchrd	10/12/99	+/-0.5	83141	ua

Unregulated Group I Analysis

62-550.405

PWS035

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2021	Carbaryl	:1000101A	<3.89	ug/L	EPA 531.1	10/12/99	3.89	83331	ua
2022	Methomyl	91000101A	<3.20	ug/L	EPA 531.1	10/12/99	3.20	83331	ua
?043	Aldicarb Sulfoxide	91000101A	<1.88	ug/L	EPA 531.1	10/12/99	1.88	83331	ua
2044	Aldicarb Sulfone	91000101A	<5.57	ug/L	EPA 531.1	10/12/99	5.57	83331	ua
2045	Metolachlor	91000101A	<0.308	ug/L	EPA 508	10/5/99	0.308	83331	ua
2047	Aldicarb	91000101A	<5.95	ug/L	EPA 531.1	10/12/99	5.95	83331	ua
2066	3-Hydroxycarbofuran	91000101A	<3.35	ug/L	EPA 531.1	10/12/99	3.35	83331	ua
2077	Propachlor	91000101A	<5	ug/L	EPA 508	10/5/99	5	83331	ua
2356	Aldrin	91000101A	<0.005	ug/L	EPA 508	10/5/99	0.005	83331	ua
2364	Dieldrin	91000101A	<0.020	ug/L	EPA 508	10/5/99	0.020	83331	ua
2440	Dicamba	91000101A	<0.005	ug/L	EPA 515.1	10/7/99	0.005	83331	ua
2595	Metribuzin	91000101A	<0.024	ug/L	EPA 508	10/5/99	0.024	83331	ua
2076	Butachlor	91000101A	<0.021	ug/L	EPA 508	10/5/99	0.021	83331	ua

Unregulated Group II Analysis

62-550.410

PWS034

2210	Chloromethane	91000101A	<0.35	ug/L	EPA 524.2	10/5/99	0.35	83331	ua
2212	Dichlorodiflouromethane	91000101A	<0.26	ug/L	EPA 524.2	10/5/99	0.26	83331	ua
2214	Bromomethane	91000101A	<0.29	ug/L	EPA 524.2	10/5/99	0.29	83331	ua
2216	Chloroethane	91000101A	<0.29	ug/L	EPA 524.2	10/5/99	0.29	83331	ua
2218	Trichlorofluoromethane	91000101A	<0.28	ug/L	EPA 524.2	10/5/99	0.28	83331	ua
??51	Methyl-Tert-Butyl-Ether	91000101A	<0.27	ug/L	EPA 524.2	10/5/99	0.27	83331	ua
.08	Dibromomethane	91000101A	<0.03	ug/L	EPA 524.2	10/5/99	0.03	83331	ua
2410	1,1-Dichloropropylene	91000101A	<0.06	ug/L	EPA 524.2	10/5/99	0.06	83331	ua
2412	1,3-Dichloropropane	91000101A	<0.05	ug/L	EPA 524.2	10/5/99	0.05	83331	ua
2413	1,3-Dichloropropene	91000101A	<0.21	ug/L	EPA 524.2	10/5/99	0.21	83331	ua
2414	1,2,3-Trichloropropane	91000101A	<0.39	ug/L	EPA 524.2	10/5/99	0.39	83331	ua
2416	2,2-Dichloropropane	91000101A	<0.38	ug/L	EPA 524.2	10/5/99	0.38	83331	ua
2941	Chloroform	91000101A	<0.16	ug/L	EPA 524.2	10/5/99	0.16	83331	ua
2942	Bromoform	91000101A	<0.31	ug/L	EPA 524.2	10/5/99	0.31	83331	ua
2943	Bromodichloromethane	91000101A	<0.36	ug/L	EPA 524.2	10/5/99	0.36	83331	ua
2944	Dibromochloromethane	91000101A	<0.27	ug/L	EPA 524.2	10/5/99	0.27	83331	ua
2965	O-Chlorotoluene	91000101A	<0.33	ug/L	EPA 524.2	10/5/99	0.33	83331	ua
2966	P-Chlorotoluene	91000101A	<0.29	ug/L	EPA 524.2	10/5/99	0.29	83331	ua
2967	M-Dichlorobenzene	91000101A	<0.20	ug/L	EPA 524.2	10/5/99	0.20	83331	ua
2978	1,1-Dichloroethane	91000101A	<0.10	ug/L	EPA 524.2	10/5/99	0.10	83331	ua
2986	1,1,1,2-Tetrachloroethane	91000101A	<0.13	ug/L	EPA 524.2	10/5/99	0.13	83331	ua
2988	1,1,2,2-Tetrachloroethane	91000101A	<0.33	ug/L	EPA 524.2	10/5/99	0.33	83331	ua
2993	Bromobenzene	91000101A	<0.05	ug/L	EPA 524.2	10/5/99	0.05	83331	ua

Unregulated Group III Analysis

62-550.415

PWS036 & 037

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2262	Isophorone	91000101A	<7.26	ug/L	EPA 625	10/11/99	7.26	83331	ua
2270	2,4-Dinitrotoluene	91000101A	<4.78	ug/L	EPA 625	10/11/99	4.78	83331	ua
2282	Dimethylphthalate	91000101A	<9.47	ug/L	EPA 625	10/11/99	9.47	83331	ua
2284	Diethylphthalate	91000101A	<4.30	ug/L	EPA 625	10/11/99	4.30	83331	ua
2290	Di-n-Butylphthalate	91000101A	<4.01	ug/L	EPA 625	10/11/99	4.01	83331	ua
2294	Butyl benzyl phthalate	91000101A	<2.55	ug/L	EPA 625	10/11/99	2.55	83331	ua
9089	Di-n-octylphthalate	91000101A	<2.43	ug/L	EPA 625	10/11/99	2.43	83331	ua
9108	2-Chlorophenol	91000101A	<4.10	ug/L	EPA 625	10/11/99	4.10	83331	ua
9112	2-Methyl-4,6-dinitophenol	91000101A	<4.00	ug/L	EPA 625	10/11/99	4.00	83331	ua
9115	Phenol	91000101A	<2.60	ug/L	EPA 625	10/11/99	2.60	83331	ua
9116	2,4,6-Trichlorophenol	91000101A	<4.66	ug/L	EPA 625	10/11/99	4.66	83331	ua
	Dioxin - 2,3,7,8-TCDD	91000101A	<2.7	pg/L	EPA 1613	10/11/99	2.7	86457	ua
	Total Coliform	91000101A	<1	col/100ml	SM9222B	10/1/99 12:40	1	84352	ua
	Fecal Coliform	91000101A	<1	col/100ml	SM9222D	10/1/99 12:40	1	84352	ua

Field Data

Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
pH, Field	91000101A	7.37	std unit	EPA 150.1	10/1/99	n/a	E84380	ua
Conductivity	91000101A	9,120	umhos/cm	EPA 120.1	10/1/99	1.0	E84380	ua
Water Temperature	91000101A	29.8	°C	EPA 170.1	10/1/99	0.1	E84380	ua
Air Temperature	91000101A	24.5	°C	EPA170.1	10/1/99	0.1	E84380	ua
Weather, Condition	91000101A	Clear			10/1/99		E84380	ua
Dissolved Oxygen, Field	91000101A	1.66	mg/L	EPA 360.1	10/1/99	0.10	E84380	ua
Salinity	91000101A	5.0	%	SM2520B	10/1/99	1.0	E84380	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst

Approved by:

Debra A. Sanders

Debra Sanders
Laboratory Director

Comments:

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Sanders Laboratories
Environmental Testing Services

CHAIN-OF-CUSTODY RECORD

PROJECT # N9910001

Page 1 of 1

Client: YOUNGQUIST

Address:

Report To: Jay

Bill To:

P.O. #:

Project Name: Marco ASR MW

Project Location:

Sample Supply: GW

Customer Type:

Field Report #:

Kit #:

REQUESTED DUE DATE: 10-15-99

Sampled By (PRINT): NOAH OLENYCH

Sampler Signature: Noah Olenych

Bottle #	SAMPLE DESCRIPTION	Sample DATE	Sample TIME	Sample TYPE	Preservatives: 4°C	UNPRESERVED	H_2SO_4	HNO_3	HCL	Pest/PCB	1° Inorganic	2° Inorganic	Gross Alpha	Ra226/228 + Dieldrin	Total Fecal Coli	TTHMS + VOC	Group II III		Field	pH/Cond/Temp	Sample ID #
1	Marco Lakes ASR MW	10-1-99	0700	G						X	X	X	X	X	X	X	X			X	N9910001-01

Bottle Lot #	OUT / DATE	SHIPMENT METHOD RETURNED DATE	VIA	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
4222				Noah Olenych	10-1-99	0900	Jason [illegible]	10-1-99	0900
1015									

COMMENTS:

COOLER #

COOLER SEAL INTACT Yes No

INTAKE #: 528816

Project Name:	Marco-ASR
Project Location:	Hawthorne MW, Zone #2
Sample Supply:	Ground Water
Collector:	Noah Olenych
Sample Received Date/Time:	9/20/99 12:30

Sanders Laboratories
Environmental Testing Services

Date *28-Oct-99*

Youngquist Brothers, Inc.
15465 Pine Ridge Road

Fort Myers, FL 33908-

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
	Inorganic Analysis 62-550.310(1) PWS030								
1005	Arsenic (0.05)	N9910650	<0.0022	mg/L	EPA 206.2	9/28/99	0.0022	84352	ua
1010	Barium (2)	N9910650	<0.2	mg/L	EPA 208.2	9/29/99	0.2	84352	ua
1015	Cadmium (0.005)	N9910650	<0.003	mg/L	EPA 213.1	9/29/99	0.003	84352	ua
1020	Chromium (0.1)	N9910650	<0.02	mg/L	EPA 218.1	9/30/99	0.02	84352	ua
?4	Cyanide (0.2)	N9910650	<0.005	mg/L	EPA 335.2	9/27/99	0	83331	ua
1025	Fluoride (4.0)	N9910650	0.91	mg/L	EPA 340.2	9/24/99	0.1	84352	ua
1030	Lead (0.015)	N9910650	0.001	mg/L	EPA 239.2	9/21/99	0.001	84352	ua
1035	Mercury (0.002)	N9910650	<0.001	mg/L	EPA 245.1	10/4/99	0.001	84352	ua
1036	Nickel (0.1)	N9910650	<0.01	mg/L	EPA 249.1	9/30/99	0.01	84352	ua
1040	Nitrate (10)	N9910650	<0.01	mg/L	EPA 353.2	10/4/99	0.01	84352	ua
1041	Nitrite (1)	N9910650	<0.01	mg/L	EPA 354.1	9/22/99	0.01	84352	ua
1045	Selenium (0.05)	N9910650	<0.020	mg/L	EPA 270.2	10/4/99	0.020	84352	ua
1052	Sodium (160)	N9910650	1,567	mg/L	EPA 273.1	10/4/99	0.003	84352	ua
1074	Antimony (0.006)	N9910650	<0.002	mg/L	EPA 204.2	9/30/99	0.002	83331	ua
1075	Beryllium (0.004)	N9910650	<0.0001	mg/L	EPA 210.2	9/27/99	0.0001	83331	ua
1085	Thallium (0.002)	N9910650	0.0129	mg/L	EPA 279.2	9/30/99	0.0006	83331	ua
	Secondary Chemical Analysis 62-550.320 PWS031								
1002	Aluminum (0.2)	N9910650	<0.2	mg/L	EPA 202.1	9/29/99	0.2	84352	ua
1017	Chloride (250)	N9910650	2,999	mg/L	SM4500Cl-B	9/29/99	1	84352	ua
1022	Copper (1.0)	N9910650	0.012	mg/L	EPA 220.1	9/22/99	0.01	84352	ua
1025	Fluoride (2.0)	N9910650	0.91	mg/L	EPA 340.2	9/24/99	0.1	84352	ua
1028	Iron (0.3)	N9910650	5.38	mg/L	EPA 236.1	9/22/99	0.015	84352	ua
˜32	Manganese (0.05)	N9910650	0.125	mg/L	EPA 243.1	9/30/99	0.005	84352	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Rpt form #5; Rev 1/1/96

1050 Endeavor Ct. • Nokomis, FL 34275 • Phone: (941) 488-8103 • (800) 255-3108 • Fax: (941) 484-6774

Parameter ID	Analysis		Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
1050	Silver	(0.1)	N9910650	<0.010	mg/L	EPA 272.1	9/21/99	0.010	84352	ua
1055	Sulfate	(250)	N9910650	758	mg/L	EPA 375.4	9/28/99	1	84352	ua
35	Zinc	(5.0)	N9910650	1.60	mg/L	EPA 289.1	9/27/99	0.005	84352	ua
1905	Color	(15.0)	N9910650	404	PtCo units	EPA 110.3	9/20/99	1	84352	ua
1920	Odor	(3.0)	N9910650	1	TON	EPA 140.1	9/20/99	1	84352	ua
1925	pH	(6.5-8.5)	N9910650	6.99	std units	EPA 150.1	9/20/99	n/a	84352	ua
1930	Total Dissolved Solids	(500)	N9910650	5,665	mg/L	EPA 160.1	9/27/99	7	84352	ua
2905	Foaming Agents	(1.5)	N9910650	0.62	mg/L	EPA 425.1	9/21/99	0.05	83331	ua

Volatile Organic Analysis

62-550.310(2)(b)

PWS028

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2378	1,2,4-Trichlorobenzene (70)	N9910650	<0.22	ug/L	EPA 524.2	9/23/99	0.22	83331	ua
2380	Cis-1,2-Dichloroethylene (70)	N9910650	<0.03	ug/L	EPA 524.2	9/23/99	0.03	83331	ua
2955	Xylenes (Total) (10,000)	N9910650	<0.24	ug/L	EPA 524.2	9/23/99	0.24	83331	ua
2964	Dichloromethane (5)	N9910650	<0.31	ug/L	EPA 524.2	9/23/99	0.31	83331	ua
2968	O-Dichlorobenzene (600)	N9910650	<0.05	ug/L	EPA 524.2	9/23/99	0.05	83331	ua
2969	Para-Dichlorobenzene (75)	N9910650	<0.02	ug/L	EPA 524.2	9/23/99	0.02	83331	ua
2976	Vinyl Chloride (1)	N9910650	<0.29	ug/L	EPA 524.2	9/23/99	0.29	83331	ua
2977	1,1-Dichloroethylene (7)	N9910650	<0.02	ug/L	EPA 524.2	9/23/99	0.02	83331	ua
2979	Trans-1,2-Dichloroethylene(100)	N9910650	<0.12	ug/L	EPA 524.2	9/23/99	0.12	83331	ua
2980	1,2-Dichloroethane (3)	N9910650	<0.02	ug/L	EPA 524.2	9/23/99	0.02	83331	ua
2981	1,1,1-Trichloroethane (200)	N9910650	<0.21	ug/L	EPA 524.2	9/23/99	0.21	83331	ua
[illegible]	Carbon Tetrachloride (3)	N9910650	<0.29	ug/L	EPA 524.2	9/23/99	0.29	83331	ua
2983	1,2-Dichloropropane (5)	N9910650	<0.33	ug/L	EPA 524.2	9/23/99	0.33	83331	ua
2984	Trichloroethylene (3)	N9910650	<0.02	ug/L	EPA 524.2	9/23/99	0.02	83331	ua
2985	1,1,2-Trichloroethane (5)	N9910650	<0.23	ug/L	EPA 524.2	9/23/99	0.23	83331	ua
2987	Tetrachloroethylene (3)	N9910650	<0.21	ug/L	EPA 524.2	9/23/99	0.21	83331	ua
2989	Monochlorobenzene (100)	N9910650	<0.23	ug/L	EPA 524.2	9/23/99	0.23	83331	ua
2990	Benzene (1)	N9910650	<0.05	ug/L	EPA 524.2	9/23/99	0.05	83331	ua
2991	Toluene (1000)	N9910650	<0.41	ug/L	EPA 524.2	9/23/99	0.41	83331	ua
2992	Ethylbenzene (700)	N9910650	<0.47	ug/L	EPA 524.2	9/23/99	0.47	83331	ua
2996	Styrene (100)	N9910650	<0.20	ug/L	EPA 524.2	9/23/99	0.20	83331	ua

Pesticide/PCB Chemical Analysis

62-550.310(2)(c)

PWS029

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2005	Endrin (2)	N9910650	<0.002	ug/L	EPA 508	9/23/99	0.002	83331	ua
2010	Lindane (0.2)	N9910650	<0.002	ug/L	EPA 508	9/23/99	0.002	83331	ua
2015	Methoxychlor (40)	N9910650	<0.052	ug/L	EPA 508	9/23/99	0.052	83331	ua
2020	Toxaphene (3)	N9910650	<0.309	ug/L	EPA 508	9/23/99	0.309	83331	ua
2031	Dalapon (200)	N9910650	<0.036	ug/L	EPA 515.1	9/23/99	0.036	83331	ua
2032	Diquat (20)	N9910650	<0.40	ug/L	EPA 549.1	9/23/99	0.40	83331	ua
2033	Endothall (100)	N9910650	<15.4	ug/L	EPA 548	9/23/99	15.4	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2034	Glyphosate (700)	N9910650	<9.44	ug/L	EPA 547	9/23/99	9.44	83331	ua
2035	Di(2-ethylhexyl) adipate (400)	N9910650	<0.71	ug/L	EPA 525.2	9/23/99	0.71	83331	ua
'6	Oxamyl (Vydate) (200)	N9910650	<2.57	ug/L	EPA 531.1	9/23/99	2.57	83331	ua
2037	Simazine (4)	N9910650	<0.078	ug/L	EPA 507	9/23/99	0.078	83331	ua
2039	Di(2-ethylhexyl) phthalate (6)	N9910650	<1.15	ug/L	EPA 525.2	9/22/99	1.15	83331	ua
2040	Picloram (500)	N9910650	<0.029	ug/L	EPA 515.1	9/28/99	0.029	83331	ua
2041	Dinoseb (7)	N9910650	<0.055	ug/L	EPA 515.1	9/28/99	0.055	83331	ua
2042	Hexachlorocyclopentadiene(50)	N9910650	<0.010	ug/L	EPA 505	9/30/99	0.010	83331	ua
2046	Carbofuran (40)	N9910650	<7.04	ug/L	EPA 531.1	10/12/99	7.04	83331	ua
2050	Atrazine (3)	N9910650	<0.035	ug/L	EPA 507	9/30/99	0.035	83331	ua
2051	Alachlor (2)	N9910650	<0.012	ug/L	EPA 507	9/30/99	0.012	83331	ua
2065	Heptachlor (0.4)	N9910650	<0.004	ug/L	EPA 508	9/30/99	0.004	83331	ua
2067	Heptachlor Epoxide (0.2)	N9910650	<0.002	ug/L	EPA 508	9/30/99	0.002	83331	ua
2105	2,4-D (70)	N9910650	<0.026	ug/L	EPA 515.1	9/28/99	0.026	83331	ua
2110	2,4,5-TP (Silvex) (50)	N9910650	<0.017	ug/L	EPA 515.1	9/28/99	0.017	83331	ua
2274	Hexachlorobenzene (1)	N9910650	<0.008	ug/L	EPA 508	9/30/99	0.008	83331	ua
2306	Benzo(a)pyrene (.2)	N9910650	<0.09	ug/L	EPA 525.2	9/22/99	0.09	83331	ua
2326	Pentachlorophenol (1)	N9910650	<0.012	ug/L	EPA 515.1	9/28/99	0.012	83331	ua
2383	PCB (0.5)	N9910650	<0.1	ug/L	EPA 508	9/30/99	0.1	83331	ua
2931	Dibromochloropropane (.2)	N9910650	<0.004	ug/L	EPA 504	9/24/99	0.004	83331	ua
2946	Ethylene Dibromide (0.02)	N9910650	<0.006	ug/L	EPA 504	9/24/99	0.006	83331	ua
2959	Chlordane (2)	N9910650	<0.446	ug/L	EPA 508	9/30/99	0.004	83331	ua

Trihalomethane Analysis

62-550.310(2)(a)

PWS027

2950	Total THM's (0.10)	N9910650	<0.00036	mg/L	EPA 524.2	9/23/99	0.00036	83331	ua

Unregulated Group I Analysis

62-550.405

PWS035

2021	Carbaryl	N9910650	<3.89	ug/L	EPA 531.1	10/12/99	3.89	83331	ua
2022	Methomyl	N9910650	<3.20	ug/L	EPA 531.1	10/12/99	3.20	83331	ua
2043	Aldicarb Sulfoxide	N9910650	<1.88	ug/L	EPA 531.1	10/12/99	1.88	83331	ua
2044	Aldicarb Sulfone	N9910650	<5.57	ug/L	EPA 531.1	10/12/99	5.57	83331	ua
2045	Metolachlor	N9910650	<0.108	ug/L	EPA 507	9/30/99	0.108	83331	ua
2047	Aldicarb	N9910650	<5.95	ug/L	EPA 531.1	10/12/99	5.95	83331	ua
2066	3-Hydroxycarbofuran	N9910650	<3.35	ug/L	EPA 531.1	10/12/99	3.35	83331	ua
2077	Propachlor	N9910650	<5	ug/L	EPA 508	9/30/99	5	83331	ua
2356	Aldrin	N9910650	<0.005	ug/L	EPA 508	9/30/99	0.005	83331	ua
2364	Dieldrin	N9910650	<0.020	ug/L	EPA 508	9/30/99	0.020	83331	ua
2440	Dicamba	N9910650	<0.005	ug/L	EPA 515.1	9/28/99	0.005	83331	ua
2595	Metribuzin	N9910650	<0.024	ug/L	EPA 507	9/30/99	0.024	83331	ua
2076	Butachlor	N9910650	<0.021	ug/L	EPA 508	9/30/99	0.021	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst

Unregulated Group II Analysis

62-550.410

PWS034

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2210	Chloromethane	N9910650	<0.35	ug/L	EPA 524.2	9/30/99	0.35	83331	ua
2212	Dichlorodifluoromethane	N9910650	<0.26	ug/L	EPA 524.2	9/30/99	0.26	83331	ua
2214	Bromomethane	N9910650	<0.29	ug/L	EPA 524.2	9/30/99	0.29	83331	ua
2216	Chloroethane	N9910650	<0.29	ug/L	EPA 524.2	9/30/99	0.29	83331	ua
2218	Trichlorofluoromethane	N9910650	<0.28	ug/L	EPA 524.2	9/30/99	0.28	83331	ua
2251	Methyl-Tert-Butyl-Ether	N9910650	<0.27	ug/L	EPA 524.2	9/30/99	0.27	83331	ua
2408	Dibromomethane	N9910650	<0.03	ug/L	EPA 524.2	9/30/99	0.03	83331	ua
2410	1,1-Dichloropropylene	N9910650	<0.21	ug/L	EPA 524.2	9/30/99	0.21	83331	ua
2412	1,3-Dichloropropane	N9910650	<0.05	ug/L	EPA 524.2	9/30/99	0.05	83331	ua
2413	1,3-Dichloropropene	N9910650	<0.21	ug/L	EPA 524.2	9/30/99	0.21	83331	ua
2414	1,2,3-Trichloropropane	N9910650	<0.39	ug/L	EPA 524.2	9/30/99	0.39	83331	ua
2416	2,2-Dichloropropane	N9910650	<0.38	ug/L	EPA 524.2	9/30/99	0.38	83331	ua
2941	Chloroform	N9910650	<0.16	ug/L	EPA 524.2	9/30/99	0.16	83331	ua
2942	Bromoform	N9910650	<0.31	ug/L	EPA 524.2	9/30/99	0.31	83331	ua
2943	Bromodichloromethane	N9910650	<0.36	ug/L	EPA 524.2	9/30/99	0.36	83331	ua
2944	Dibromochloromethane	N9910650	<0.27	ug/L	EPA 524.2	9/30/99	0.27	83331	ua
2965	O-Chlorotoluene	N9910650	<0.33	ug/L	EPA 524.2	9/30/99	0.33	83331	ua
2966	P-Chlorotoluene	N9910650	<0.29	ug/L	EPA 524.2	9/30/99	0.29	83331	ua
2967	M-Dichlorobenzene	N9910650	<0.20	ug/L	EPA 524.2	9/30/99	0.20	83331	ua
8	1,1-Dichloroethane	N9910650	<0.10	ug/L	EPA 524.2	9/30/99	0.10	83331	ua
2986	1,1,1,2-Tetrachloroethane	N9910650	<0.13	ug/L	EPA 524.2	9/30/99	0.13	83331	ua
2988	1,1,2,2-Tetrachloroethane	N9910650	<0.33	ug/L	EPA 524.2	9/30/99	0.33	83331	ua
2993	Bromobenzene	N9910650	<0.05	ug/L	EPA 524.2	9/30/99	0.05	83331	ua

Unregulated Group III Analysis

62-550.415

PWS036 & 037

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
2262	Isophorone	N9910650	<7.26	ug/L	EPA 625	9/24/99	7.26	83331	ua
2270	2,4-Dinitrotoluene	N9910650	<4.78	ug/L	EPA 625	9/24/99	4.78	83331	ua
2282	Dimethylphthalate	N9910650	<9.47	ug/L	EPA 625	9/24/99	9.47	83331	ua
2284	Diethylphthalate	N9910650	<4.30	ug/L	EPA 625	9/24/99	4.30	83331	ua
2290	Di-n-Butylphthalate	N9910650	6.22	ug/L	EPA 625	9/24/99	4.01	83331	ua
2294	Butyl benzyl phthalate	N9910650	<2.55	ug/L	EPA 625	9/24/99	2.55	83331	ua
9089	Di-n-octylphthalate	N9910650	<2.43	ug/L	EPA 625	9/24/99	2.43	83331	ua
9108	2-Chlorophenol	N9910650	<4.10	ug/L	EPA 625	9/24/99	4.10	83331	ua
9112	2-Methyl-4,6-dinitophenol	N9910650	<4.00	ug/L	EPA 625	9/24/99	4.00	83331	ua
9115	Phenol	N9910650	<2.60	ug/L	EPA 625	9/24/99	2.60	83331	ua
9116	2,4,6-Trichlorophenol	N9910650	<4.66	ug/L	EPA 625	9/24/99	4.66	83331	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst

Radiochemical Analysis

62-550.310(5)

PWS033

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst
4000	Gross Alpha	N9910650	<17.2	pCi/L	EPA 900.0	9/28/99	+/-11.0	83141	ua
4020	Radium 226	N9910650	7.4	pCi/L	EPA 903.1	9/27/99	+/-0.5	83141	ua
4030	Radium 228	N9910650	<0.8	pCi/L	Brks/Blnchrd	9/27/99	+/-0.5	83141	ua
	Uranium	N9910650		pCi/L	EPA 908.0		+/-	E84380	ua

Dioxin - 2,3,7,8-TCDD	N9910650	<5.2	pg/L	EPA 1613	10/2/99	5.2	87424	ua

Total Coliform	N9910650	23	col/100ml	SM9222B	9/20/99 13:30	1	84352	ua

Fecal Coliform	N9910650	13	col/100ml	SM9222D	9/20/99 13:30	1	84352	ua

Field Data

pH, Field	N9910650	7.76	std unit	EPA 150.1	9/20/99	n/a	E84380	ua
Conductivity	N9910650	8,700	umhos/cm	EPA 120.1	9/20/99	1.0	E84380	ua
Water Temperature	N9910650	25.8	°C	EPA 170.1	9/20/99	0.1	E84380	ua
Weather, Condition	N9910650	heay rain			9/20/99		E84380	ua
Dissolved Oxygen, Field	N9910650	2.7	mg/L	EPA 360.1	9/20/99	0.10	E84380	ua

Hydrogen Sulfide Field	N9910650	2.0	mg/L	Hach	9/20/99		E84380	ua

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Parameter ID	Analysis	Sample ID	Result	Unit	Method	Analysis Date/Time	D. L.	LabID	Analyst

Approved by:

Debra Sanders
Laboratory Director

Comments:

HRS Certification#'s 84352 and E84380(Nokomis) 85449 and E85457(Ft. Myers)

Rpt form #5; Rev 1/1/96

APPENDIX 3.1

WEEKLY CONSTRUCTION SUMMARY REPORTS

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

August 13, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
Wellfield Expansion Week 1
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed is the required weekly report for the period from Friday, August 6 through Thursday, August 12, 1999. Also enclosed is the preliminary geologist's log for ASR well No. 2. Drilling commenced on Wednesday, August 11, 1999.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc: Joe Haberfeld, FDEP Tallahassee

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC   Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler   Date: 8/13/99   Week # 1

Date	Description of Activities
Friday 8/6/99	Drillers on-site. Setting up rig at ASR Well location (ASR-2).
Saturday 8/7/99	No site activity
Sunday 8/8/99	No site activity
Monday 8/9/99	Setting up rig at ASR Well location (ASR-2). Sampled pad monitor wells prior to beginning drilling operations PMW-1: WL = 5.49' btoc, Cond. = 412 umhos/cm, T = 24.5^0 C, pH = 7.5, Chloride = 26 mg/l PMW-2: WL = 4.80' btoc, Cond. = 425 umhos/cm, T = 24.5^0 C, pH = 7.4, Chloride = 28 mg/l
Tuesday 8/10/99	Setting up rig at ASR Well location (ASR-2).
Wednesday 8/11/99	Drill borehole w/ 28.5-inch bit to 30' below pad level. Install 26-inch steel pit casing to 27' and pressure grout annulus
Thursday 8/12/99	AM – rain. Drill crew rigging up 1st stand of two 30' joints w/ 12 ¼-inch bit. PM – begin drilling out cement plug at the bottom of the pit casing. Continue drilling pilot hole to 280' bpl. Inclination surveys conducted at 90' (0.1^0 deviation) and 180' (0.25^0 – 0.5^0 deviation) Sampled pad monitor wells:

WATER RESOURCE SOLUTIONS, INC.	
WEEKLY REPORT **Florida Water Services, Inc.** **Marco Lakes ASR Wellfield Expansion** **Project No. 01-03733.H0** **Permit Nos. 141218-001 thru 008-UC** **Contractor: Youngquist Bros. Well Drilling** **Prepared by:** N. Kugler **Date:** 8/13/99 **Week # 1**	
Thursday 8/12/99 (cont.)	PMW-1: WL = 5.26' btoc, Cond. = 405 umhos/cm, T = 24^0 C, pH = 6.8, Chloride = 26 mg/l PMW-2: WL = 4.64' btoc, Cond. = 420 umhos/cm, T = 24^0 C, pH = 7.0, Chloride = 28 mg/l

Daily Operations Report Form

Job Number: ______ Well Number: RWASR #3 Superintendent: JAY Lead Driller: ______ FRIDAY Rig Number: 248 Date: 8-13-99 Shift: DAYS

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0730	1/2	SERVICE RIG - TIH
0730	0830	1	DRILL F/280' KD @ 293' - CIR HOLE CLEAN - DEV SURVEY - CONN #5
0830	~~0800~~	1 1/2	DRILL F/293' TO 300' - LOST MUD BUILD MUD VOLUME
1000	1030	1/2	DRILL F/300' KD @ 353' CONN #6
1030	1200	1 1/2	DRILL F/353' KD @ 413' - CIR HOLE CLEAN - DEV. SURVEY - CONN #7
1200	1300	1	DRILL F/413' KD @ 473' - CIR CONN #8
1300	1400	1	DRILL F/473' KD @ 533' - CIR HOLE CLEAN - DEV. SURVEY CONN #9
1400	1530	1 1/2	DRILL F/533' KD @ 593' - CIR HOLE CLEAN - DEV. SURVEY - CONN #10
1530	1630	1	DRILL F/593' KD @ 653' - CIR HOLE CLEAN - DEV. SURVEY - CONN #11
1630	1800	1 1/2	DRILL F/653' KD @ 713' - CIR HOLE CLEAN - DEV. SURVEY - CONN #12
1800	1930	1 1/2	DRILL F/713' to 75[illegible]

Production Recap

Beginning Borehole Footage: 280 Ending Borehole Footage: ______ Reamed Size: 12 1/4 Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
592	12 1/4	HIT													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1930	12 1/2	RONNIE THAMES						
0700	1930	12 1/2	DONALD WILLIAMS						
0700	1930	12 1/2	SCOTT JOHNSON						
0700	1930	12 1/2	ALLAN CRAFT						
0700	1930	12 1/2	FERNANDO MEJIRA						
0700	1930	12 1/2	PHILLIP SHANN						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Daily Operations Report Form

Job Number: ______ Well Number: RWASR #3 Superintendent: JAY Lead Driller: ______

Rig Number: 248 THUR Date: 8-12-79 Shift: DAYS

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TAG CMT 25' - LD CMT TBG - CHG OUT HEADER PLATE
			WORK ON STEEL PAD - PICK UP DP
			DRILL F/25' TO 54' - CIR PU DC - CONN #1
			DRILL F/54 TO 113' - CIR - DEV SURVEY - CONN #2
			DRLG F/113' KD@ 173' - CONN #3
			DRLG F/173' KD@ 233 - CIR HOLE CLEAN - DEV SURVEY - CONN #4
			DRLG F/233 TO 280 - CIR HOLE CLEAN

Production Recap

Beginning Borehole Footage: 25' Ending Borehole Footage: 280 Reamed Size: 12¼" Footage: 255 Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
392	12¼	MT													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	RONNIE THAMES						
0700	1900	12	DONALD WILLIAMS						
0700	1900	12	SCOTT JOHNSON						
0700	1900	12	ALLAN CRAFT						
0700	1900	12	FERNANDO NETERA						
0700	1900	12	PHILLIP SHAND						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Daily Operations Report Form

Job Number: ______ Well Number: RWASR #3 Superintendent: Jay Lead Driller: ______ Rig Number: 248 WED Date: 8-11-99 Shift: Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0800	1	SERVICE RIG - PREPARED TO DRILL
0800	1100	3	DRILL F/O KD @ 31' · CIR HOLE CLEAN
1100	1300	2	CIR - LD STAB - PU 24" CSG · CIR THROUGH CSG
1300	1430	1½	MIX CMT - CMT CSG
1430	1700	2½	WOC

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: 0 Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
5285	30"														

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1700	10	RONNIE THAMES						
0700	1700	10	DONALD WILLIAMS						
0700	1700	10	SCOTT JOHNSON						
0700	1700	10	ALLAN CRAFT						
0700	1700	10	FERNANDO NEJERA						
0700	1700	10	PHILLIP SHAND						

Daily Operations Report Form

Job Number: ________ Well Number: ________ Superintendent: [illegible] Lead Driller: ________ Rig Number: [illegible] Date: [illegible] Shift: ________

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			[illegible]
			[illegible]
			[illegible]
			[illegible]

Cement Stage Reports

Stage Number: ________ Tag: ____ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ________ Tag: ____ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ________ Ending Borehole Footage: ________ Reamed Size: ________ Footage: ________ Casing Size: ________ Footage: ________

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	[illegible]	12	[illegible]						
[illegible]	[illegible]	12	[illegible]						
[illegible]	[illegible]	12	[illegible]						
[illegible]		12	[illegible]						
[illegible]	[illegible]	12	[illegible]						
[illegible]	1400	12	[illegible]						

Daily Operations Report Form

Job Number: ______ Well Number: 15R

Superintendent: [illegible]

Lead Driller: ______

Rig Number: [illegible]

Date: [illegible]

Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			[illegible]
			[illegible]
			[illegible] load [illegible]

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	[illegible]	11	[illegible]						
[illegible]	[illegible]		[illegible]						
	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

August 20, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 2
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed are copies of the Week 2 weekly report, geologist's log, and driller's daily logs. The pilot hole drilling and subsequent logging indicated that the casing setting depth should be revised from 745 ft bpl to 736 ft bpl. Casing setting and initial pressure grouting will be conducted today.

Attachments to this letter include the weekly report, a preliminary geologist's log, and the driller's log.

Additionally, The wellhead modification of the existing ASR well (the replacement of the lower tee with a new stainless steel tee) has been completed. Cycle 5 injection was initiated yesterday.

If your have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler Date: 8/20/99 Week # 2

Date	Description of Activities
Friday 8/13/99	Drilled ASR #2 pilot hole with 12¼" bit from 280' bpl to 750' bpl. Inclination surveys conducted at 270' (0.2^0 deviation), 360' (0.3^0 deviation), 450' (0.6^0 deviation), 540' (0.4^0 deviation), 630' (1.5^0 deviation), and 713' (0.4^0 deviation)
Saturday 8/14/99	No site activity
Sunday 8/15/99	No site activity
Monday 8/16/99	AM: Perform geophysical logging on pilot hole to 750' (gamma, caliper, dual induction, sonic/VDL). PM: Reamed pilot hole with 22" bit from 27' bpl (bottom of pit casing) to 120' bpl
Tuesday 8/17/99	Reamed pilot hole with 22" bit from 120' bpl to 240' bpl
Wednesday 8/18/99	Reamed pilot hole with 22" bit from 240' bpl to 580' bpl
Thursday 8/19/99	Reamed pilot hole with 22" bit from 580' bpl to 742' bpl which is casing set depth (736) + 6 feet for cement. Inclination surveys conducted at 89' (0.25^0 deviation), 179' (0.15^0 deviation), 269' (0.2^0 deviation), 359' (0.2^0 deviation), 449' (0.15^0 deviation), 539' (0.7^0 deviation), and 629' (0.4^0 deviation) Sampled pad monitor wells: PMW-1: WL = 4.6' btoc, Cond. = 678 umhos/cm, T = 26^0 C, pH = 7.0, Chloride = 12 mg/l

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC   Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler   Date: 8/20/99   Week # 2

Date	Description of Activities
Thursday 8/19/99 (cont.)	PMW-2: WL = 3.98' btoc, Cond. = 687 umhos/cm, T = 26^0 C, pH = 7.0, Chloride = 22 mg/l 28 bags of barite were added to drilling mud to control well flow over the course of the week.

Daily Operations Report Form

Job Number: ______ Well Number: RWASR #2 Superintendent: Jay Lead Driller: ______

Rig Number: 248 WED Date: 8-18-99 Shift: Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0730	½	SERVICE RIG - TIH
0730	0900	1½	REAM F/310' KD @ 329' - CIR - CONN #5
0900	1000	1	REAM F/329 KD @ 389' - CIR - CONN #6
1000	1200	2	REAM F/389 KD @ 449 - CIR - CONN #7
1200	1400	2	REAM F/449 KD @ 509 - CIR - CONN #8
1400	1530	1½	REAM F/509 KD @ 569 - CIR - DEV. SURVEY - CONN #9
1530	1730	2	REAM F/569 KD@ ~~[illegible]~~ 629 ~~[illegible]~~ - CONN #10
1730	1900	1½	Ream F/629 KD@ 640 - Cir - POOH

Production Recap

Beginning Borehole Footage: 310 Ending Borehole Footage: 640 Reamed Size: 22" Footage: 330 Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
447	22"	MT													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	RONNIE THAMES	RT	0700	1900	12	BRENT MORVANT	BM
0700	1900	12	DONALD WILLIAMS	DW	0700	1900	12	AARON SCHMIDT	A
0700	1900	12	SCOTT JOHNSON	SJ					
0700	1900	12	ALLAN CROFT	AC					
0700	1900	12	FERNANDO NEJERA	[illegible]					
0700	1900	12	PHILLIP SHAND	PS					
0700	1900	12	JOSE CASTILLO	JC					

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Daily Operations Report Form

Job Number: ______ Well Number: RWASR #2 Superintendent: Jay Lead Driller: ______

Rig Number: 24B
TUE Date: 8-17-19
Shift: DAYS

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	1000	3	MU BIT ON STAB - REAM TO 120'
1000	1130	1½	STOOD BACK 2 STDS DP - MU DC TO STAB - REAM F/120' KD@149' - CIR CONN #2
1130	1330	2	REAM F/149' KD@209' - CIR - CONN #3
1330	1630	3	REAM F/209' KD@269' - CIR - CONN #4
1630	1900	2½	REAM F/269' TO 310' - POOH

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	RONNIE THAMES		0700	1900	12	BRENT MORVANT	
0700	1900	12	DONALD WILLIAMS		0700	1900	12	AARON SCHMIDT	
0700	1900	12	SCOTT JOHNSON						
0700	1900	12	ALLAN CRAFT						
0700	1900	12	FERNANDO NEJERA						
0700	1900	12	PHILLIP SHAND						
0700	1900	12	JOSE CASTILLO						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Daily Operations Report Form

Rig Number: 248
Date: 8-16-97
Shift:

Job Number:
Well Number: RWASP #2
Superintendent:
Lead Driller:

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0730	1/2	SERVICE RIG
0730	0830	1	TIH - TAG BOTTOM NO FILL - CIR HOLE CLEAN - POOH TO DC
0830	0930	1	KILL WELL PULL DC OUT OF HOLE -
0930	13:00	3 1/2	RU LOGGERS - RUN CALIPER, DUAL INDUCTION AND SONIC LOG - RD LOGGER
13:00	15:00	2	REMOVE BIT FROM STAB - MU BIT ON DP - CHG OUT WIPERS RUBBERS
15:00	17:30	2 1/2	REAM F/25' KD @ 55' CIR -
1730	19:00	1 1/2	REAM F/55' KD @ 115' CIR - POOH 1 STD

Production Recap

Beginning Borehole Footage: 25' Ending Borehole Footage: 115 Reamed Size: 22" Footage: 90 Casing Size: Footage:

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
[illegible]	[illegible]	MT													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	RONNIE THAMES		0700	1900	12	AARON SCHMIDT	
0700	1900	12	DONALD WILLIAMS		0700	1900	12	JOSE CASTILLO	
0700	1900	12	ALLAN CRAFT						
0700	1900	12	FERNANDO NEJERA						
0700	1900	12	PHILLIP SHAND						
0700	1900	12	BRENT MORVANT						
0700	1900	12	SCOTT JOHNSON						

Cement Stage Reports

Stage Number: Tag: Feet

Barrels Pre-Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: Tag: Feet

Barrels Pre-Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

August 27, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 3
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed are copies of the Week 3 weekly report, geologist's log, and driller's daily logs. Final casing setting depth was 736.5 ft bpl. Total depth of the well is 780 ft bpl and was completed Thursday. Geophysical logging of the open hole and a video survey will be preformed today.

Attachments to this letter include the weekly report, a preliminary geologist's log, and the driller's log.

If your have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion **Project No. 01-03733.H0**

Permit Nos. 141218-001 thru 008-UC **Contractor: Youngquist Bros. Well Drilling**

Prepared by: N. Kugler **Date:** 8/27/99 **Week # 3**

Date	Description of Activities
Friday 8/20/99	AM: Ran 735' of 16" Certa Lok SDR 17 casing from 1.5' below pad level (bpl) to 736.5' bpl PM: Pressure grout 1st stage of cement (neat) from 742' bpl. Pumped 33 barrels of cement.
Saturday 8/21/99	Temperature log ran in casing to pick top of cement.
Sunday 8/22/99	No site activity
Monday 8/23/99	AM: 1st stage cement tagged at 629' bpl in annulus. 1st stage plug tagged at 730' inside casing Tremmie line grout 2nd stage of cement (6% bentonite). Pumped 54 barrels of cement.
Tuesday 8/24/99	AM: 2nd stage cement tagged at 338' bpl in annulus. Tremmie line grout 3rd stage of cement (6% bentonite) to surface. Pumped 122 barrels of cement.
Wednesday 8/25/99	AM: Cleaned hole and circulate water by straight air. PM: Drilled cement plug and backfill out to 750' bpl with 12" bit by straight air. Took clean formation water sample (750'): Electrical Conductance: 8,120 µS/cm Chlorides: 2,250 ppm Switched to reverse air, drilled to 760' feet, Took clean formation water sample (760') Electrical Conductance: 8,300 µS/cm Chlorides: 2,350 ppm

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 8/27/99 — Week # 3

Date	Description of Activities
Thursday 8/26/99	AM: Drilled to 770' bpl with 12" bit by reverse air. Took clean formation water sample (770') Electrical Conductance: 8,290 µS/cm Chlorides: 2,420 ppm Problem with drainage line to Henderson Creek halted drilling. Sampled pad monitor wells: PMW-1: WL = 4.55' btoc, Cond. = 662 umhos/cm, T = 27.5^0 C, pH = 7.5, Chloride = 14 mg/l PMW-2: WL = 3.85' btoc, Cond. = 715 umhos/cm, T = 27.5^0 C, pH = 7.4, Chloride = 20 mg/l Fixed problem with drainage line to Henderson Creek - continued drilling. Drilled to TD of 780' Took clean formation water sample (780') Electrical Conductance: 8,530 µS/cm Chlorides: 2,480 ppm

Daily Operations Report Form

Job Number: ________ Well Number: RWASR #2 Superintendent: Jay Lead Driller: ________

Rig Number: 248 WED Date: 8-25-99 Shift: Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	1300	6	[illegible]
1300	1600	3	TIH w/ 12¼ bit [illegible]
1600	1700	1	TAG CMT @ 728' · DRLG F/728' TO 750' · CIR HOLE · SHUT AIR OFF CHECK STATIC
1700	1900	2	DRLG F/750' TO 760' · CIR HOLE SHUT AIR OFF · CHECK STATIC

Production Recap

Beginning Borehole Footage: 728 Ending Borehole Footage: 760 Reamed Size: 12¼ Footage: ________ Casing Size: 16" Footage: ________

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
[illegible]	[illegible]	[illegible]													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Ronnie Thames		0700	1900	12	Brent Morvant	
0700	1900	12	Donald William						
0700	1900	12	Scott Johnson						
0700	1900	12	Allan Craft						
0700	1900	12	Fernando Nejera						
0700	1900	12	Phillip Swand						
0700	1900	12	Jose Castillo						

Cement Stage Reports

Stage Number: ________ Tag: ________ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

450 [illegible] 17 [illegible]

[illegible]

Stage Number: ________ Tag: ________ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Daily Operations Report Form

Job Number: ______ Well Number: RWASR #2

Superintendent: Jay

Lead Driller: ______

Rig Number: 248

Date: 8-24-99

Shift: Day

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0630	0730	1	THG CMT. RU TO CMT 3RD STAGE
0730	0830	1	CMT 3RD STAGE
0830	1100	2½	WOC HELD 75 PSI ON 16" CSG
11:00	1830	7½	CIRC HOLE W/ FRESH WATER

Cement Stage Reports

Stage Number: 3 Tag: 338 Feet

[illegible]	[illegible]
5	

Type	Barrels Lead	CuFt	[illegible]
[illegible]	102		

Type	Barrels Tail	CuFt	[illegible]

Notes

Cement returns to Surface

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	[illegible]

Type	Barrels Tail	CuFt	[illegible]

Notes

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	1830	12	Ronnie Tisner		0630	1530	9	Phil [illegible]	
[illegible]	1530	9	[illegible]						
[illegible]	1530	9	[illegible]						
0630	1530	9	Fernando Mejeca						
0630	1530	9	Jose Castillo						
0630	1530	9	Brent [illegible]						
0630	1530	9	Scott Johnson						

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

Mon. Date: 8-23-99

Job Number:

Well Number: RWASR #2

Lead Driller:

Shift: Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0830	1½	MIX KILL MUD AND KILL WELL
0830	1030	2	PU 1½" CMT TBG
1030	1100	½	CEMENT 2ND STAGE
11:00	1430	3½	WOC [illegible]
1430	1630	2	Circulate [illegible] water
1630			R.U. loggers [illegible]

Production Recap

Beginning Borehole Footage: Ending Borehole Footage: Reamed Size: Footage: Casing Size: Footage:

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1430	[illegible]	RONNIE THAMES						
0700	[illegible]	[illegible]	DONALD WILLIAMS						
0700	1600	[illegible]	ALLAN CRAFT						
0700	1430	[illegible]	JOSE CASTILLO						
0700	1430	[illegible]	BRENT MORVANT						
0700	1600	[illegible]	PHILLIP SHANNO						
0700	1600	1	FERNANDO NEJERA						

Cement Stage Reports

Stage Number: Tag: Feet

Type	Barrels Lead	CuFt	
Type	Barrels Tail	CuFt	

Notes

Stage Number: Tag: Feet

Type	Barrels Lead	CuFt	
Type	Barrels Tail	CuFt	

Notes

Daily Operations Report Form

Job Number: ______ Well Number: ASR#2 Superintendent: Jax Lead Driller: ______ Rig Number: 248 Sat Date: 8-21-99 Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			R.U. Logger [illegible] temp log [illegible] R.S. Logger

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	[illegible]

Type	Barrels Tail	CuFt	[illegible]

Notes

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	[illegible]

Type	Barrels Tail	CuFt	[illegible]

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1200	5	Ronnie Thames						
[illegible]	1200	5	Phillip Sheard						
[illegible]	1200	5	Fernando Mejora						

Daily Operations Report Form

Job Number: ______ Well Number: ______ Superintendent: Jay Lead Driller: ______

Rig Number: 248 FRIDAY Date: 8-20-99 Shift: Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0730	½	TIH
0730	0930	2	CIR HOLE CLEAN - POOH - RU TO RUN CSG
0930	1530	6	RUN 16" CSG - WELD HEADER PLATE - RUN CMT TBG - CMT CSG -
1530	1700		CLEAN MUD PIT
			WOC
			[illegible] hole w/ fresh water

Cement Stage Reports

Stage Number: 1 Tag: ______ Feet

[illegible]	[illegible]
5	1/4

Type	[illegible] Lead	CuFt	[illegible]
N	95		
Type	[illegible] Tail	CuFt	[illegible]

Notes

Stage Number: ______ Tag: ______ Feet

[illegible]	[illegible]

Type	[illegible] Lead	CuFt	[illegible]
Type	[illegible] Tail	CuFt	[illegible]

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	2100	14	RONNIE THAMES		0200	1800	10	PHILLIP SHAND	
0700	[illegible]	[illegible]	DONALD WILLIAMS						
0700			SCOTT JOHNSON						
0700	1700	10	ALLAN CRAFT						
0700	1900	12	FERNANDO NEJERA						
0700	1700	10	JOSE CASTILLO						
0700	1700	10	BRENT MORVANT						

Daily Operations Report Form

Job Number: ____ Well Number: RWASR #2 Superintendent: JAY Lead Driller: ____ Rig Number: 248 THUR Date: 8-17-99 Shift: Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	[illegible]	[illegible]	TIH
[illegible]	0930	[illegible]	[illegible] 652 - CIR - CONN #11
0930	1230	3	~~POOH~~ REAM F/639 TO 746 - CIR HOLE CLEAN - POOH
1230	1330	1	TIH / CIRC
1330	1800	4½	POOH, LD-S[illegible] - MU BIT ON DP - PU 1½ CMT TBG

Cement Stage Report

Stage Number: ____ Tag: ____ Feet

Type	Barrels Lead	CuFt	[illegible]
Type	Barrels Tail	CuFt	[illegible]

Notes

Stage Number: ____ Tag: ____ Feet

Type	Barrels Lead	CuFt	[illegible]
Type	Barrels Tail	CuFt	[illegible]

Notes

Production Recap

Beginning Borehole Footage: 640 Ending Borehole Footage: 742 Reamed Size: 22" Footage: ____ Casing Size: ____ Footage: ____

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
447	22"	MT													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1800	11	RONNIE THAMES		0700	1800	11	FERNANDO NEJERA	
0700	1800	11	DONALD WILLIAMS						
0700	1800	11	SCOTT JOHNSON						
0700	1800	11	ALLAN CRAFT						
0700	1800	11	PHILLIP SHAND						
0700	1800	11	JOSE CASTILLO						
0700	1800	11	BRENT MORVANT						

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

September 3, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 4
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed are copies of the Week 4 weekly report, geologist's log, and driller's daily logs. Drilling and casing of ASR #2 has been completed and final geophysical logs were run last Friday. Step-drawdown testing for ASR #2 is scheduled for next week.

This week was primarily spent mobilizing/demobilizing the drill rig from ASR #2 drill site to the Mid Hawthorn Zone 2 Monitor Well drill site. Pit casing was set and cemented Thursday to 31' below pad level. The pad monitor wells are scheduled to be installed on Saturday September 4, 1999. Drilling will continue on Monday once the pad monitor wells are sampled for this site.

If your have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 9/3/99 — Week # 4

Date	Description of Activities
Friday 8/27/99	Between 8/26 and 8/27/99 approximately 5,000 lbs. of NaCl was used to kill ASR #2. Correction: Chloride concentrations for the two pad monitor wells at ASR #2 were determined incorrectly during the first three weeks of operation. During titration calculations a multiplication factor of 20 was applied using low concentration titrant and 10-milliliter water samples. The correct multiplication factor for a 10-milliliter sample, using low concentration titrant, is 50. Therefore previously reported values should be multiplied by a factor of 2.5 to gain the correct field determined chloride values. A summary of the corrections is given below. PMW-1: Date recorded / Chloride (mg/l) / Revised Chloride (mg/l) 8/12/99 / 26 / 65 8/19/99 / 12 / 30 8/26/99 / 14 / 35 PMW-2: Date recorded / Chloride (mg/l) / Revised Chloride (mg/l) 8/12/99 / 28 / 70 8/19/99 / 22 / 55 8/26/99 / 20 / 50 Performed geophysical logging at ASR# 2 on open hole from 750' to 780' (natural gamma, caliper, flow meter, sonic/VDL, fluid resistivity and video survey).
Saturday 8/28/99	No site activity

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC

Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler

Date: 9/3/99

Week # 4

Date	Description of Activities
Sunday 8/29/99	No site activity
Monday 8/30/99	Mobilize/demobilize drill rig from ASR #2 site to Mid-Hawthorn Zone 2 Monitor Well (MHZ2MW) site.
Tuesday 8/31/99	Mobilize/demobilize drill rig from ASR #2 site to Mid-Hawthorn Zone 2 Monitor Well (MHZ2MW) site.
Wednesday 9/1/99	Mobilize/demobilize drill rig from ASR #2 site to Mid-Hawthorn Zone 2 Monitor Well (MHZ2MW) site. Prepare rig to drill pit casing hole.
Thursday 9/2/99	Drilled pit casing hole to 35' with 18" bit. Set pit casing from 0' bpl to 31' bpl Cemented pit casing. Sampled pad monitor wells for ASR #2: ASR #2 PMW-1: WL = 4.83' btoc, Cond. = 642 umhos/cm, T = 27.6^0 C, pH = 7.5, Chloride = 30 mg/l ASR #2 PMW-2: WL = 4.14' btoc, Cond. = 690 umhos/cm, T = 26.7^0 C, pH = 7.1, Chloride = 35 mg/l

Daily Operations Report Form

Job Number: ____ Well Number: ____ Superintendent: Jay Lead Driller: ____ Rig Number: 248 Date: 9/1/99 Shift: Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	1900	12	Rig Up

Cement Stage Reports

Stage Number: ____ Tag: ____ Feet

Notes

Stage Number: ____ Tag: ____ Feet

Type | Sacks Lead | C.F. | Sacks

Type | Sacks Tail | C.F. | Sacks

Notes

Production Recap

Beginning Borehole Footage: ____ Ending Borehole Footage: ____ Reamed Size: ____ Footage: ____ Casing Size: ____ Footage: ____

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Scott Johnson	SJ	0700	1900	12	Ronnie Thomas	
0700	1900	12	Donald Williams	DW					
0700	1900	12	Alan Craft						
0700	1900	12	Fernando Najera						
0700	1900	12	Jose Castillo						
0700	1900	12	Phillip Sheard						
0700	1900	12	Brent Mervard						

Daily Operations Report Form

Job Number: ______ Well Number: ______ Superintendent: [illegible] Lead Driller: ______ Rig Number: [illegible] Date: [illegible] Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			[illegible]
			[illegible]
			[illegible]

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	[illegible]	12	Scott Johnson						
0700	[illegible]	11	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
0700	1900	12	[illegible]						
700	1900	12	[illegible]						
[illegible]	[illegible]	12	[illegible]						
[illegible]	[illegible]	12	[illegible]						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Barrels Pre-Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Barrels Pre-Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Daily Operations Report Form

Job Number: ______ Well Number: ______ Superintendent: ______ Lead Driller: ______ Rig Number: [illegible] Date: [illegible] Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			[illegible]

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

[illegible]	CuFt	[illegible]	[illegible]

Notes

Stage Number: ______ Tag: ______ Feet

[illegible]	CuFt	[illegible]	[illegible]

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	[illegible]	[illegible]	Scott [illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	12	Phillip [illegible]						
[illegible]	1800	12	[illegible]						
[illegible]	[illegible]	12	[illegible]						
[illegible]	[illegible]	12	[illegible]						

Daily Operations Report Form

Job Number: ______ **Well Number:** RWASR #2 **Superintendent:** Jay **Lead Driller:** ______ **Rig Number:** 248 **Date:** Friday 8-27-99 **Shift:** Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0800	1	Circ Hole
0800	0830	1/2	LD Air Line - Kill Well
0830	1000	1 1/2	POOH
1000	[illegible]	3	RU Logger [illegible]
[illegible]	1530	2 1/2	Flow Well
1530	1700	1 1/2	Run Flow Meter Log - Flowed 450 GPM
1700	1830	1 1/2	[illegible]
1830	1900	1/2	[illegible]

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

	CuFt	Sacks	

Notes

Stage Number: ______ Tag: ______ Feet

	CuFt	Sacks	
	CuFt	Sacks	

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Ronnie Thames		[redacted]	1900	7 1/2	Scott Johnson	
0700	1630	9 1/2	Donald Williams		11 1/2				
0700	1900	12	Allan Orcet						
0700	1900	12	Fernando Nejera						
0700	1900	12	Jose Castillo						
0700	1900	12	Brent Morvant						
0700	1800		Phillip [illegible]						

Daily Operations Report Form

Job Number: ______ Well Number: RIJASK #2

Superintendent: Jay THUR Lead Driller: ______

Rig Number: 248 Date: 5-26-[illegible] Shift: Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0800	1	Circ. Hole
0800	1100	3	DRLG F/760 TO 770' - CIR HOLE
1100	1300	2	[illegible] Water [illegible]
1300	1400	1	[illegible] 770 - 780' [illegible]
1400	1800	4	[illegible]

Production Recap

Beginning Borehole Footage: 7[illegible] Ending Borehole Footage: 750 Reamed Size: 12[illegible] Footage: 10 Casing Size: [illegible] Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
150	12¼	[illegible]													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1800	11	RONNIE THAMES		0700	1800	11	BRENT MORVANT	
0700	1800	11	DONALD WILLIAMS						
0700	1800	11	SCOTT JOHNSON						
0700	1800	11	ALLAN CRAFT						
0700	1800	11	FERNANDO NEJERA						
0700	1800	11	PHILLIP [illegible]						
0700	1800	11	JOSE CASTILLO						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Bbls. Pre Flush	Bbls. Flush

Type	Bbls Lead	Cu.Ft.	Sacks

Notes

Static head 3[illegible]

7[illegible]

Stage Number: ______ Tag: ______ Feet

Bbls. Pre Flush	Bbls. Flush

Type	Bbls Lead	Cu.Ft.	Sacks

Type	Bbls Tail	Cu.Ft.	Sacks

Notes

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

September 10, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 5
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed are copies of the Week 5 weekly report, geologist's log, and driller's daily logs. Drilling of the Mid Hawthorn Zone 2 Monitor Well (MHZ2MW) has been completed to 474' bpl. Casing was set at 440' bpl and cementing may be completed today. Geophysical logs were run on Wednesday.

Step-drawdown testing for ASR #2 has been rescheduled for next week, pending completion of the MHZ2MW for pressure monitoring purposes.

If your have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion **Project No. 01-03733.H0**

Permit Nos. 141218-001 thru 008-UC **Contractor: Youngquist Bros. Well Drilling**

Prepared by: N. Kugler **Date:** 9/10/99 **Week # 5**

Date	Description of Activities
Friday 9/3/99	Tag cement in pit casing at 30'. Pit casing is 16" OD steel, 0.5" thick. Drilling halted pending installation of pad monitor wells for the Mid-Hawthorn Zone 2 Monitor Well (MHZ2MW) drill site. P.M. Install 1st pad monitor well (18' bpl with 10' of 0.040 slotted PVC screen) on northwest corner of pad at MHZ2MW.
Saturday 9/4/99	No site activity
Sunday 9/5/99	No site activity
Monday 9/6/99	A.M. Install 2nd pad monitor well (18' bpl with 10' of 0.040 slotted PVC screen) on southeast corner of pad at MHZ2MW. Set pump in ASR #2 for step-drawdown pump testing. Sampled pad monitor wells - MHZ2MW for native chemistry: MHZ2MW PMW-1: TD = 20.1' btoc, toc = 2.2' above pad level (apl), WL = 4.65' btoc, Cond. = 665 umhos/cm, T = 25.4^{0} C, pH = 7.3, Chloride = 30 mg/l MHZ2MW PMW-2: TD = 20.1' btoc, toc = 1.9' apl, WL = 4.74' btoc, Cond. = 680 umhos/cm, T = 26.5^{0} C, pH = 8.0, Chloride = 20 mg/l P.M. Drilled MHZ2MW from 30' bpl to 354' bpl with 12¼" bit. Inclination surveys conducted at 90' (0.1^{0} deviation), 180' (0.1^{0} deviation), 270' (0.3^{0} deviation)

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion **Project No. 01-03733.H0**

Permit Nos. 141218-001 thru 008-UC **Contractor: Youngquist Bros. Well Drilling**

Prepared by: N. Kugler **Date:** 9/10/99 **Week # 5**

Date	Description of Activities
Tuesday 9/7/99	A.M. Drill bit clogged upon start of drilling, must trip out of hole and replace. P.M. Drilled MHZ2MW from 354' bpl to 474' bpl with 12¼" bit. Inclination surveys conducted at 360' (0.4^0 deviation), 474' (0.5^0 deviation)
Wednesday 9/8/99	A.M. Perform geophysical logging on hole from 30' bpl to 470' bpl (natural gamma, caliper, sonic/VDL,). Set casing (6.9" OD Certa-Lok SDR 17) at 440' bpl with cement basket. Sampled pad monitor wells – ASR #2: ASR #2 PMW-1: WL = 5.29' btoc, Cond. = 668 umhos/cm, T = 25.3^0 C, pH = 7.1, Chloride = 24 mg/l ASR #2 PMW-2: WL = 4.6' btoc, Cond. = 692 umhos/cm, T = 25.4^0 C, pH = 7.1, Chloride = 32 mg/l P.M. Pump 1st stage of Portland Type II neat cement (55 gallons) to secure cement basket.
Thursday 9/9/99	A.M. Drillers having problems controlling well flow. Adjusting mud weight. Well kicked three times. No fluid spilled outside of containment area. 1st stage of cement tagged at 420' in annulus.

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion **Project No. 01-03733.H0**

Permit Nos. 141218-001 thru 008-UC **Contractor: Youngquist Bros. Well Drilling**

Prepared by: N. Kugler **Date:** 9/10/99 **Week # 5**

Date	Description of Activities
	P.M. Pump 2nd stage of Portland Type II neat cement (630 gallons). Theoretic height of cement column in annulus is 151.2' above 1st stage tag. Sampled pad monitor wells MHZ2MW: MHZ2MW PMW-1: WL = 5.43' btoc, Cond. = 641 umhos/cm, T = 24.7° C, pH = 7.2, Chloride = 18 mg/l MHZ2MW PMW-2: WL = 4.72' btoc, Cond. = 690 umhos/cm, T = 24.6.° C, pH = 7.1, Chloride = 20 mg/l

Daily Operations Report Form

Job Number: ______ Well Number: ZONE 2 MW Superintendent: JAY Lead Driller: ______

Rig Number: 248 WED Date: 9-8-99 Shift: DAY

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0800	1	TIH - CIR HOLE CLEAN
0800	1030	2½	POOH - RIG UP LOGGER - RUN CALIPER + SONIC LOG - RD LOGGER
1030	1430	4	RU TO RUN 6¼" CSG - RUN CSG - WELD CMT HEADER PLATE
1430	1600	1½	RUN CMT TBG - RU TO PUMP 1bbl CMT - PUMP 1bbl CMT
1600	1900	3	CLEAN MUD PITS

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	RONNIE THAMES						
0700	1900	12	DONALD WILLIAMS						
0700	1900	12	SCOTT JOHNSON						
0700	1900.	12	ALLAN CRAFT						
0700	1900	12	PHILLIP SHAND						
0700	1900	12	BRENT MORVANT						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

	C.F.		

Notes

Stage Number: ______ Tag: ______ Feet

	C.F.		
	C.F.		

Notes

Daily Operations Report Form

Job Number: ______ Well Number: Zone 3 [illegible] Superintendent: JAY Lead Driller: ______ Rig Number: 248 TUE Date: 9-7-99 Shift: Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0800	1	TIH - WELL FLOWING - MIX KILL MUD AND KILL WELL
0800	0900	1	POOH - CLEAN BIT
0900	1030	1½	WASH AND REAM TO BOTTOM - CONN #6
1030	1100	1	DRLG F/354' KD @ 414' CIR - DEV SURVEY @ 360 - CONN #7
1100	1200	1	DRLG F/414 KD @ 474' CIR - DEV SURVEY @ 450 - CONN #8
1200	1400	2	CIR HOLE CLEAN - TD @ 474'
1400	1430	½	POOH TO DC - TIH TO BOTTOM
1430	1700	2½	CIR HOLE CLEAN - [illegible]

Production Recap

Beginning Borehole Footage: 354' Ending Borehole Footage: 474' Reamed Size: 12¼" Footage: 120' Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
392	12¼	MT													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1700	10	RONNIE THAMES	RT	0700	1700	10	BRENT MORVANT	
0700	1700	10	DONALD WILLIAMS	DW					
0700	1700	10	SCOTT JOHNSON	SJ					
0700	1700	10	ALLAN CRAFT	AC					
0700	1700	10	FERNANDO NEJERA	FN					
0700	1700	10	PHILLIP SHAND	PS					
0700	1700	10	JOSE CASTILLO	JC					

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Bbls Pre Flush	Bbls Flush

Bbls	Bbls Lead	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Bbls Pre Flush	Bbls Flush

Bbls	Bbls Lead	CuFt	Sacks

Notes

Daily Operations Report Form

Job Number: ______ Well Number: Zone 2 [illegible]

Superintendent: Jay

Lead Driller: /

Rig Number: 248

Date: 9-6-99

Shift: Days

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	1100	4	Rig Up Column Pump / Put collars + Centralizers on Csg
1100	1230	1½	Drlg F/22' to 54'
1230	1300	½	Drlg F/54 TO 86 - Cir
1300	1400	1	POOH Run 1 STDS DC W Bit + 1 STD DP
1400	1430	½	DRLG F/86' KD @ 114' CIR - SURVEY @ 124 - CONN #2
1430	1500	½	DRLG F/114' KD @ 174' CIR CONN #3
1500	1600	1	DRLG F/174' KD @ 234' CIR - DEV. SURVEY @ 180' CONN #4
1600	1730	1½	DRLG F/234' KD @ 294' CIR Conn #5 - DEV. SURVEY @ 270
1730	1900	1½	DRLG F/294' KD @ 354 CIR HOLE CLEAN - POOH

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

CuFt

Notes

Stage Number: ______ Tag: ______ Feet

CuFt

Notes

Production Recap

Beginning Borehole Footage: 22' Ending Borehole Footage: 354' Reamed Size: 12 1/4 Footage: 332 Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
392	12 1/4	[illegible]													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Ronnie Thames						
0700	1900	12	Scott Johnson						
0700	1900	12	Donald Williams						
0700	1900	12	Fernando Mirena						
0700	1900	12	Phillip Shaddal						
0700	1900	12	Jose Castillo						
0700	1900	12	Brent Harvant						

Daily Operations Report Form

Job Number: ______ Well Number: ______ Superintendent: JAY Lead Driller: ______

Rig Number: 248 FRIDAY Date: 9-3-99 Shift: DAYS

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TAG CMT - CHG OUT HEADER PLATE - MU 12¼ BIT
			WORK ON DOWN HOLE PUMP
			RUN COLUM PUMP IN ASR #2

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Notes

Stage Number: ______ Tag: ______ Feet

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	RONNIE THAMES		0700	1900	12	BRENT MORVANT	
0700	1900	12	DONALD WILLIAMS						
0700	1900	12	SCOTT JOHNSON						
0700	1900	12	ALLAN CRAFT						
0700	1900	12	FERNANDO NEJERA						
0700	1900	12	PHILLIP SHAND						
0700	1900	12	JOSE CASTILLO						

Daily Operations Report Form

Rig Number: 218

Superintendent: Jay?   THUR Date: 3-2-99

Job Number: ______ Well Number: ______ Lead Driller: ______ Shift: [illegible]

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0930	2½	Drl 35' surface
930	1230	3	Rig Up CMT Truck / Circ Hole / Organize Location
1230	1800	5½	POOH w/ 18" Bit / Run csg / CMT

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Bbls of Pre Flush	Bbls of Flush

[illegible]	Bbls of Lead	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Bbls of Pre Flush	Bbls of Flush

[illegible]	Bbls of Lead	CuFt	Sacks
	Bbls of Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1800	11	Scott Johnson	SJ	0700	1800	11	Ronnie Thomas	
0700	1800	11	Donald Williams	DW					
0700	1800	11	Allen Craft						
0700	1800	11	Fernando [illegible]						
0700	1800	11	Jose Castillo						
0700	1800	11	Phillip Shane?						
0700	1800	11	Brent Morvant						

Water Resource Solutions
128 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

September 17, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 6
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed is a copy of the Week 6 weekly report. Since the completion of the Mid Hawthorn Zone 2 Monitor Well (MHZ2MW), no new cuttings have been taken by the geologist and no geologist's log is included this week. The driller's daily logs will be included in next week's submission.

Last Friday, September 10, geophysical logging was completed and the final stage of cement was pumped at the MHZ2MW. Monday through Thursday was spent rigging down from the MHZ2MW site, mobilizing, and rigging up at the ASR Zone Monitor Well site (ASRZMW). Late Thursday drilling proceeded on the pit hole for the ASRZMW.

Step-drawdown and aquifer performance testing for ASR#2 was completed on Wednesday and Thursday. Pressure changes were recorded at ASR#1 and the MHZ2MW during testing, as well as ASR#2.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 9/17/99 — Week # 6

Date	Description of Activities
Friday 9/10/99	Tagged 2nd stage of cement at 278' bpl in the Mid Hawthorn Zone 2 Monitor well (MHZ2MW). Pumped final stage of cement (27 barrels of 6% bentonite) to surface.
Saturday 9/11/99	No site activity
Sunday 9/12/99	No site activity
Monday 9/13/99	Rig-down and mobilize MHZ2MW to ASR Zone Monitor Well (ASRZMW)
Tuesday 9/14/99	Mobilize rig from MHZ2MW to ASRZMW
Wednesday 9/15/99	A.M. Mobilize and rig-up from MHZ2MW to ASRZMW Set Hermit recording devices with transducers at ASR#1, ASR#2 and MHZ2MW for step-drawdown test. Record background. P.M. Shut-in injection at ASR#1. Step test.
Thursday 9/16/99	A.M. Rig-up at ASRZMW. Begin pumping at ASR#2 for step-drawdown pump test. Step test. Sampled pad monitor wells – ASRZMW for native chemistry: ASRZMW – PMW1: TD = 20.5' btoc, toc = 1.83' above pad level (apl), WL = 6.92' btoc, Cond. = 679 umhos/cm, T = 27.9^0 C, pH = 7.4, Chloride = 16 mg/l ASRZMW – PMW2: TD = 17.83' btoc, toc = 2.06' apl, WL = 7.92' btoc, Cond. = 980

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC   Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler   Date: 9/17/99   Week # 6

Date	Description of Activities
	umhos/cm, T = 29.8^0 C, pH = 7.3, Chloride = 18 mg/l P.M. Shut-in pump at ASR#2. Step test. Sampled pad monitor wells – ASR#2: ASR#2 – PMW1: WL = 5.07' btoc, Cond. = 652 umhos/cm, T = 30.2^0 C, pH = 7.1, Chloride = 20 mg/l ASR#2 – PMW2: WL = 4.46' btoc, Cond. = 694 umhos/cm, T = 30.4^0 C, pH = 7.2, Chloride = 28 mg/l Sampled pad monitor wells MHZ2MW: MHZ2MW – PMW1: WL = 5.29' btoc, Cond. = 645 umhos/cm, T = 30.0^0 C, pH = 7.2, Chloride = 16 mg/l MHZ2MW – PMW2: WL = 4.56' btoc, Cond. = 670 umhos/cm, T = 30.2^0 C, pH = 7.2, Chloride = 20 mg/l Begin drilling pit hole at ASRZMW site with 18" bit.

Daily Operations Report Form

Rig Number: 248

Superintendent: JAY THUR Date: 9-16-99

Job Number: ______ Well Number: ______ Lead Driller: ______ Shift: DAYS

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700			RIG UP
			Mix [illegible]
			Drill surface to 44' [illegible] hole

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1800	11	RONNIE THAMES						
[illegible]	[illegible]	[illegible]	DONALD WILLIAMS						
0700	1800	11	ALLAN CRAFT						
0700	1800	11	PHILLIP SHAND						
0700	1800	11	JOSE CASTILLO						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Daily Operations Report Form

Rig Number: 248
Superintendent: JAY   WED Date: 9-15-99
Job Number: ______ Well Number: ______ Lead Driller: ______ Shift: DAY

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	1700	10	MOVE RIG AND RIG UP

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1700	10	RONNIE THAMES						
0700	1700	10	DONALD WILLIAMS						
0700	1700	10	ALLAN CRAFT						
0700	1700	10	PHILLIP SHAND						
0700	1700	10	JOSE CASTILLO						

Stage Number: ______ Tag: ______ Feet

Notes

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay TUE Date: 9-14-99

Job Number: ______ Well Number: ______ Lead Driller: ______ Shift: Day

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0400	9	Rig Down

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1600	9	Ronnie Thames						
0700	1600	9	Donald Williams						
0700	1600	9	Allan Craft						
0700	1600	9	Phillip Shand						
0700	1600	9	Jose Castillo						

Daily Operations Report Form

Rig Number: 248

Superintendent: JAY

Job Number: ______ Well Number: ZONE 2 MW Lead Driller: ______ MON Date: 9-13-97

Shift: DAYS

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	1900	12	KILL WELL - RIG DOWN

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	RONNIE THAMES						
0700	1900	12	DONALD WILLIAMS						
0700	1900	12	ALLAN CRAFT						
0700	1900	12	FERNANDO NEJERA						
0700	1900	12	PHILLIP SHAND						
0700	1900	12	JOSE CASTILLO						

Daily Operations Report Form

Job Number: ______ Well Number: ZONE 2 MW

Superintendent: JAY

Lead Driller: ______

Rig Number: 248

FRIDAY Date: 9-10-99

Shift: DAYS

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0730	½	SERVICE RIG
0730	0900	1½	RU LOGGER - RUN TEMP LOG - ATTEMPT TO KILL WELL
0900	1000	1	RUN CALIPER LOG - RD LOGGER - RU TO CMT CSG
1000	1100	1	CMT CSG - LD CMT TBG - RIG DOWN CMT TRUCK
1100	1900	8	FLOW WELL - WOC - RIG DOWN
			[illegible]

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	RONNIE THAMES						
0700	1900	12	DONALD WILLIAMS						
0700	1900	12	SCOTT JOHNSON						
0700	1900	12	ALLAN CRAFT						
0700	1900	12	PHILLIP SHAND						
0700	1900	12	BRENT MORVANT						

Cement Stage Reports

Stage Number: 3 Tag: 278 Feet

Type	Barrels Lead	Cu.Ft	Sacks

Type	Barrels Tail	Cu.Ft	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	Cu.Ft	Sacks

Type	Barrels Tail	Cu.Ft	Sacks

Notes

Daily Operations Report Form

Job Number: ______ Well Number: ZONE 2 MW

Superintendent: JAY

Lead Driller: ______

Rig Number: 248

THUR. Date: 9-9-99

Shift: DAYS

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
0700	0830	1½	MIX AND PUMP KILL MUD
0830	0930	1	RU CMT TRUCK - WELL FLOWING
0930	1230	3	MIX KILL MUD AND PUMP SAME
1230	1300	½	CMT 100' CSG
1300	1430	1½	PULL CMT TBG FROM BS AND RUN IN CSG - RIG UP TO DISPLACE H2O
1430	1530	1	DISPLACED H2O IN CSG - CIR
1530	1700	1½	PULL TBG OUT OF HOLE - FLOW WELL
1700	1730	½	RUN CMT TBG DOWN BS - TAG CMT @ 278
1730	1900	1½	FLOW WELL

Cement Stage Reports

Stage Number: 2 Tag: 420 Feet

2

Type	Barrels Lead	CuFt	Sacks
N	15		

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: 3 Tag: 278 Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	[illegible]	12	RONNIE THAMES						
0700	1800	11	DONALD WILLIAMS						
0700	1800	11	SCOTT JOHNSON						
0700	1800	11	ALLAN CRAFT						
0700	1900	12	PHILLIP SHAND						
0700	1800	11	BRENT MORVANT						

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

September 24, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 7
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed are copies of the Week 7 weekly report, geologist's log, and driller's daily logs for Week 6 and Week 7. Pit casing for the ASR Zone Monitor Well (ASRZMW) was set at 38' bpl and cemented last Friday. Drilling of the main borehole commenced on Monday and was completed to 774' bpl on Thursday with a 12¼" bit. Geophysical logs are to be run today (Friday).

Samples taken from Pad Monitor Well 1 at the Mid Hawthorn Zone 2 Monitor Well site on Thursday and Friday of this week, reveal chloride values in the range of 450 mg/l. All other pad monitor wells have background values in the range of 20 to 30 mg/l chlorides. A discussion with the head drillers revealed that on Wednesday, September 15th, salt water used to kill well flow in the Mid Hawthorn Zone 2 Monitor Well was spilled on the ground while bringing the well back to life. It is estimated that 500 to 1,000 gallons of high chloride water was discharged. The drillers are pumping the pad monitor well for a number of hours today and disposing of the produced water. We will sample the pad monitor well early next week to ensure that the chloride contamination has been eradicated

If your have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC

Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler

Date: 9/24/99

Week # 7

Date	Description of Activities
Friday 9/3/99	Drilled pit casing hole to 42' with 18" bit at the ASR Zone Monitor Well (ASRZMW). Set 16" steel pit casing at 38' and cemented to surface.
Saturday 9/4/99	No site activity
Sunday 9/5/99	No site activity
Monday 9/6/99	Drilled ASRZMW from 42' bpl to 174' bpl with 12¼" bit. Inclination survey conducted at 90' (0.2^0 deviation).
Tuesday 9/7/99	Drilling operation suspended due to Tropical Storm Harvey.
Wednesday 9/8/99	Drilled ASRZMW from 174' bpl to 500' bpl with 12¼" bit. Inclination surveys conducted at 180' (0.2^0 deviation), 270' (0.2^0 deviation), 350 (0.4^0 deviation), 440' (0.3^0 deviation)
Thursday 9/9/99	A.M. Drilled ASRZMW from 500' bpl to TD of 774' bpl with 12¼" bit. Inclination surveys conducted at 530' (0.5^0 deviation), 620' (0.25^0 deviation), 710 (0.5^0 deviation) Sampled pad monitor wells – ASR#2: ASR#2 – PMW1: WL = 3.25' btoc, Cond. = 640 umhos/cm, T = 25.1^0 C, pH = 7.2, Chloride = 25 mg/l ASR#2 – PMW2: WL = 2.52' btoc, Cond. = 673 umhos/cm, T = 24.5^0 C, pH = 7.2, Chloride = 30 mg/l

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 9/24/99 — Week # 7

Date	Description of Activities
	Sampled pad monitor wells – MHZ2MW: MHZ2MW – PMW1: WL = 2.76' btoc, Cond. = 1936 umhos/cm, T = 24.7^0 C, pH = 7.2, Chloride = 450 mg/l MHZ2MW – PMW2: WL = 2.82' btoc, Cond. = 653 umhos/cm, T = 24.8^0 C, pH = 7.3, Chloride = 20 mg/l Sampled pad monitor wells – ASRZMW: ASRZMW – PMW1: WL = 4.72' btoc, Cond. = 574 umhos/cm, T = 24.8^0 C, pH = 7.3, Chloride = 20 mg/l MHZ2MW – PMW2: WL = 5.79' btoc, Cond. = 761 umhos/cm, T = 25.3^0 C, pH = 7.1, Chloride = 25 mg/l P.M. Circulate mud to clean out hole

Daily Operations Report Form

Job Number: ______ Well Number: ______ Superintendent: [illegible] Lead Driller: ______

Rig Number: 242 Date: 9-23-97 Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Service [illegible]
			TIH [illegible]
			Cont. drilling f/550' KD[illegible] circulate make [illegible] cont. drilling [illegible]
			[illegible] drilling [illegible]
			[illegible]
			[illegible]

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: 500 Ending Borehole Footage: ______ Reamed Size: 12 1/4 Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
	12 1/4	MT													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	1200	11	Ronnie Thomas						
[illegible]	[illegible]		[illegible] Croft						
[illegible]	[illegible]		Fernando [illegible]						
[illegible]	[illegible]	11	Jose Castillo						

Daily Operations Report Form

Rig Number: 249

Superintendent: Jay

Wed Date: 9-22-99

Job Number: ______ Well Number: ______ Lead Driller: ______

Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			T[illegible] DP
			[illegible] drilling f/174' to [illegible] KD circ hole [illegible] drilling
			to 2[illegible] KD [illegible] hole make conn #5 cont. drilling to 354' circ hole clean make conn #6
			cont. drilling KD [illegible] circ hole [illegible] #7 drill to 474 KD make conn #8 drill
			to 500' circ. hole clean
			Tooh w/ DP

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

[illegible]	[illegible]

Type	Barrels Lead	CuFt	Sacks
Type	**Barrels Tail**	**CuFt**	**Sacks**

Notes

Stage Number: ______ Tag: ______ Feet

[illegible]	[illegible]

Type	Barrels Lead	CuFt	Sacks
Type	**Barrels Tail**	**CuFt**	**Sacks**

Notes

Production Recap

Beginning Borehole Footage: 174' Ending Borehole Footage: 500' Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	[illegible]	12	Ronnie Tha[illegible]						
[illegible]	[illegible]	12	[illegible]						
[illegible]	[illegible]	12	[illegible]						
0700	1900	12	Fernando Major[illegible]						

Daily Operations Report Form

Rig Number: 243

Superintendent: [illegible] Tue Date: 9-21-94

Job Number: ______ Well Number: ______ Lead Driller: ______ Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			[illegible]

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

[illegible]	[illegible]

Type	Barrels Lead	CuFt	Sacks
Type	**Barrels Tail**	**CuFt**	**Sacks**

Notes

Stage Number: ______ Tag: ______ Feet

[illegible]	[illegible]

Type	Barrels Lead	CuFt	Sacks
Type	**Barrels Tail**	**CuFt**	**Sacks**

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	[illegible]	[illegible]	[illegible]						
	[illegible]	[illegible]	[illegible]						
			[illegible]						
[illegible]	11 [illegible]	4	Fernando Nejera						

Daily Operations Report Form

Rig Number: 248

Superintendent: Joy

mon Date: 9-20-[illegible]

Job Number: ______ Well Number: ______ Lead Driller: ______ Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			[illegible]
			[illegible]
			Picked up [illegible] DP
			Picked up 12¼ bit start drilling [illegible]
			[illegible]
			[illegible]
			[illegible] Drill [illegible] to 120

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: 120 Reamed Size: 12¼ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	1330	11 ½	Ronnie [illegible]						
	[illegible]	[illegible]	[illegible]						
[illegible]	[illegible]	[illegible]	[illegible]						
1200	1330	11 ½	Jose Castillo						
[illegible]	1335	[illegible]	Fernando Mejia						

Daily Operations Report Form

Rig Number: 248

Superintendent: Jo[illegible]

Fri Date: 7-17-99

Job Number: ________ Well Number: ________ Lead Driller: ________

Shift: ________

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TIH [illegible]
			[illegible] hole
			P[illegible]
			[illegible] 16 csg [illegible] to surface

Cement Stage Reports

Stage Number: ________ Tag: ________ Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ________ Tag: ________ Feet

	Barrels Tail	CuFt	

Notes

Production Recap

Beginning Borehole Footage: ________ Ending Borehole Footage: ________ Reamed Size: ________ Footage: ________ Casing Size: ________ Footage: ________

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	[illegible]	1	[illegible]						
[illegible]	[illegible]	1	[illegible]						
[illegible]	[illegible]	1	[illegible]						
[illegible]	1200	9	[illegible]						

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

October 1, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 8
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed are copies of the Week 8 weekly report and driller's daily logs. Nothing further has been drilled since last week, therefore no geologists log is included. Geophysical logs for the ASR Zone Monitor Well (ASRZMW) were run last Friday. Casing (6.9" OD) for the ASRZMW was set at 725' bpl and a small first stage of cement was completed Monday (to secure the cement basket). Cementing of the rest of the hole was completed in four stages from Tuesday to Thursday. Geophysical logs will be run in the open hole this Friday.

Chloride values for the Mid Hawthorn Zone 2 Monitor Well - Pad Monitor Well 1 (MHZ2MW-PMW1) remain above background levels (500 mg/l). The well was pumped Last Friday for four hours. The Drill crew is in the process of mobilizing their rig and water/mud tub to the ASR#3 drill pad, which is in close proximity to the MHZ2MW-PMW1. Once the rig and tubs are set up, pumping of the MHZ2MW-PMW1 will resume until chlorides fall to an acceptable level.

If your have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion **Project No. 01-03733.H0**

Permit Nos. 141218-001 thru 008-UC **Contractor: Youngquist Bros. Well Drilling**

Prepared by: **N. Kugler** **Date:** **10/1/99** **Week # 8**

Date	Description of Activities
Friday 9/24/99	Ran Geophysical logs (Natural gamma, caliper, sonic porosity/VDL) in ASR Zone Monitor Well (ASRZMW).
Saturday 9/25/99	No site activity
Sunday 9/26/99	No site activity
Monday 9/27/99	Set casing (Certa-lok 6.9" OD SDR 17) from pad level to 725' bpl with cement basket in ASRZMW. Pumped 55 gallons of neat cement to secure basket. (1st stage)
Tuesday 9/28/99	Tagged 1st stage at 705' bpl. Pumped 9 barrels of neat cement. (2nd stage)
Wednesday 9/29/99	A.M. Tagged 2nd stage at 612' bpl. Pumped 20 barrels of 6% bentonite cement. (3rd stage) P.M. Sampled pad monitor wells – ASR#2: ASR#2 – PMW1: WL = 3.42' btoc, Cond. = 650 umhos/cm, T = 28.7^0 C, pH = 7.2, Chloride = 22 mg/l ASR#2 – PMW2: WL = 2.90' btoc, Cond. = 668 umhos/cm, T = 27.3^0 C, pH = 7.2, Chloride = 26 mg/l Tagged 3rd stage at 312' bpl. Pumped 20 barrels of 6% bentonite cement. (4th stage)

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 10/1/99 — Week # 8

Date	Description of Activities
Thursday 9/30/99	A.M. Tagged 4th stage at 33' bpl. Pumped 6% bentonite cement to surface. (5th stage). P.M. Sampled pad monitor wells – ASRZMW: ASRZMW – PMW1: WL = 4.89' btoc, Cond. = 560 umhos/cm, T = 28.6° C, pH = 7.4, Chloride = 20 mg/l ASRZMW – PMW2: WL = 5.93' btoc, Cond. = 780 umhos/cm, T = 28.6° C, pH = 7.2, Chloride = 28 mg/l Sampled pad monitor wells MHZ2MW: MHZ2MW – PMW1: WL = 2.67' btoc, Cond. = 2,080 umhos/cm, T = 25.5° C, pH = 7.2, Chloride = 505 mg/l MHZ2MW – PMW2: WL = 2.87' btoc, Cond. = 640 umhos/cm, T = 25.6° C, pH = 7.2, Chloride = 20 mg/l

Daily Operations Report Form

Rig Number: 248

Job Number: ______ Well Number: ______ Superintendent: Jay

Lead Driller: ______ Fri. Date: 9-24-99 Shift: ______

Stage Number: ______ Tag: ______ Feet

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TIH w/ 12¼ bit tagged @ 774' no fill
			Circ. hole cond. mud
			TOOH w/ 12¼ bit Laid down DC's
			R.U. Loggers ran calip., gamma & sonic logs
			R.D. Loggers

Notes

Stage Number: ______ Tag: ______ Feet

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Ronnie Thames						
0700	1900	12	Allen Craft						
0700	1900	12	Fernando Nejera						
0700	1900	12	Jose Castillo						

Notes

Daily Operations Report Form

Job Number: ______ Well Number: ______ Superintendent: Jay Lead Driller: ______ Rig Number: 248 Date: 9-25-99 Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TIH w/ 12¼ bit & DP tagged no fill
			Circ. hole cond. mud
			POOH w/ 12¼ bit laid down same
			Picked up 6" PVC csg 725'
			TIH w/ 1½ cmt tbg could not pump down tbg
			POOH w/ tbg found plugged it
			TIH w/ tbg could not circ.
			POOH w/ tbg laid down same pumped through each stand
			TIH w/ tbg
			Pumped 1bbl cmt.

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	2000	13	Ronnie Thomas						
[illegible]	2000	13	Mike [illegible]						
0700	2000	13	Jose Castillo						
0700	2000	13	Phillip Shaw						

Current Stage Rec

Stage Number: ______ Tag: ______ Feet

Stage Number: ______ Tag: ______ Feet

Notes

Daily Operations Report Form

Rig Number: 248
Superintendent: Jay
The Date: 9-28-99
Job Number:
Well Number:
Lead Driller:
Shift:

Stage Number: 2 Tag: 285 Feet

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TIH w/ 1½ cmt tbg tagged @ 705
			Rig up & pump cmt
			TOH w/ 1½
			RIH w/ 1½ tbg down 6" csg circulate hole w/ Fresh water
			Flow 6"
			Kill backside

Notes

Stage Number: Tag: Feet

Production Recap

Beginning Borehole Footage: Ending Borehole Footage: Reamed Size: Footage: Casing Size: Footage:

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Ronnie Thomas						
0700	1900	12	Allen Craft						
700	1900	12	Jose Castillo						
0700	1100	4	Phillip Shead						
0700	1900	12	Fernando Mejeu						

Notes

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

Wed Date: 9-29-99

Job Number: ______ Well Number: ______ Lead Driller: ______ Shift: ______

Stage Number: 3 Tag: 723 Feet

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TOOH w/ 1½ " tbg
			R.U. Loggers ran temp log R.D. Loggers
			TIH w/ 1½ tbg tagged in 723'
			Pumped cmt Laid down tbg
			Pumped kill in ASR #2
			Flow well to cool csg
			TIH w/ 1½ cmt. tbg tagged @
			R.U. Loggers ran temp. log R.D. Loggers
			Pump cmt
			TOOH w/ 1½ cmt. tbg

6%	20	C.F.	
		C.F.	

Stage Number: 7 Tag: 296 Feet

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Ronnie Thomas						
700	1900	12	Allen Craft						
700	1900	12	Jose Castillo						
0700	1900	12	Phillip Shield						
0700	1900	12	Fernando Najera						

Notes

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

Date: 9-30-99

Job Number: ______ Well Number: ______ Lead Driller: ______ Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Service rig
			TIH w/ 1½ tbg tagged @
			R.U. Loggers ran temp log R.D. Loggers
			Pumped cmt. to surface
			Pulled Pump on ASR#2
			Laid down DP
1200	1900	7	Flow well to ~~[illegible]~~ 500' csg

Cement Stage Report

Stage Number: ______ Tag: ______ Feet

Notes

Stage Number: ______ Tag: ______ Feet

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Ronnie Thomas						
[illegible]	1600	9	Allen [illegible]						
[illegible]	1600	[illegible]	Sue Cardillo						
0700	1330	6½	Phillip Shead						
0700	1600	9	Fernando Nejera						
0700	1600	9	Brett Marvant						

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

October 8, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 9
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed are copies of the Week 9 weekly report and driller's daily logs through Wednesday. Nothing further has been drilled since two weeks ago; therefore no geologists log is included. Geophysical logs were run in the open hole of the ASR Zone Monitor Well (ASRZMW) last Friday (10/1). This week was primarily spent rigging-down from the ASRZMW, mobilizing, and rigging-up at the ASR#3 well site. The pit hole will be drilled and pit casing set today (10/8) for the ASR#3 well. Background samples have been taken from the pad monitor wells at ASR#3.

Chloride values for the Mid Hawthorn Zone 2 Monitor Well - Pad Monitor Well 1 (MHZ2MW-PMW1) remain near 500 mg/l. The Drill crew has mobilized their rig and water/mud tub to the ASR#3 well site, proximal to the MHZ2MW. Significant pumping of the MHZ2MW-PMW1 will be conducted this coming week to reduce the level of chlorides in this well. Water from the MHZ2MW-PMW1 will be pumped to a discharge line downstream of the weir on Henderson Creek.

Pad monitor wells at ASR#2 and the ASRZMW are consistently analyzed with chloride levels between 16 and 30 mg/l, and there is no reason to suspect these levels will change. Therefore, we request that further monitoring of these wells be discontinued.

If your have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC

Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler

Date: 10/8/99

Week # 9

Date	Description of Activities
Friday 10/1/99	A.M. Ran Geophysical logs (Natural gamma, caliper) in open hole of ASR Zone Monitor Well (ASRZMW). P.M. Rig-down from ASRZMW
Saturday 10/2/99	No site activity
Sunday 10/3/99	No site activity
Monday 10/4/99	Rig-down from ASRZMW
Tuesday 10/5/99	Mobilize rig from ASRZMW to ASR#3
Wednesday 10/6/99	Mobilize rig from ASRZMW to ASR#3. Rig-up ASR#3. P.M. Sampled pad monitor wells – ASR#2: ASR#2 – PMW1: WL = 3.75' btoc, Cond. = 655 umhos/cm, T = 27.2^0 C, pH = 7.3, Chloride = 18 mg/l ASR#2 – PMW2: WL = 3.12' btoc, Cond. = 695 umhos/cm, T = 27.5^0 C, pH = 7.4, Chloride = 26 mg/l Sampled pad monitor wells MHZ2MW: MHZ2MW – PMW1: WL = 3.25' btoc, Cond. = 2,060 umhos/cm, T = 25.6^0 C, pH = 7.3, Chloride = 510 mg/l

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 10/8/99 — Week # 9

Date	Description of Activities
	MHZ2MW – PMW2: WL = 2.35' btoc, Cond. = 650 umhos/cm, T = 25.8^0 C, pH = 7.4, Chloride = 18 mg/l Sampled pad monitor wells – ASR#3 for background: ASR#3 – PMW1: TD = 19.2' btoc, TOC = 2.15' als, WL = 2.32' btoc, Cond. = 725 umhos/cm, T = 26.6^0 C, pH = 7.5, Chloride = 16 mg/l ASR#2 – PMW2: TD = 18.43' btoc, TOC = 2.08' als, WL = 2.56' btoc, Cond. = 760 umhos/cm, T = 26.5^0 C, pH = 7.2, Chloride = 26 mg/l
Thursday 10/7/99	Rig-up ASR#3. Sampled pad monitor wells – ASRZMW: ASRZMW – PMW1: WL = 5.33' btoc, Cond. = 575 umhos/cm, T = 27.4^0 C, pH = 7.4, Chloride = 16 mg/l ASRZMW – PMW2: WL = 6.43' btoc, Cond. = 850 umhos/cm, T = 27.8^0 C, pH = 7.2, Chloride = 26 mg/l

Daily Operations Report Form

Job Number: ______ Well Number: ______ Superintendent: Jay Lead Driller: ______ Rig Number: 248 Fri Date: 10-1-99 Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Caught water samples
			Pumped Kill
			R.U. Loggers ran Caliper + Gamma log's R.D. Loggers Tagged @ 774' No fill
			Cut off 16" csg
			R.D.

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Stage Number: ______ Tag: ______ Feet

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1500	8	Ronnie Thomas						
0700	1500	8	Allen Craft						
0700	1500	8	Jose Castillo						
0700	1500	8	Phillip Shand						
0700	1500	8	Fernando Nejera						
0700	1500	8	Brent Morvant						

Daily Operations Report Form

Job Number: ____ Well Number: ____ Superintendent: Jay Lead Driller: ____ Rig Number: 248 Date: 10-4-99 Shift: ____

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Cleaned out slurry pit
			washed rig

Cement Stage Reports

Stage Number: ____ Tag: ____ Feet

Stage Number: ____ Tag: ____ Feet

Production Recap

Beginning Borehole Footage: ____ Ending Borehole Footage: ____ Reamed Size: ____ Footage: ____ Casing Size: ____ Footage: ____

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1600	9	Ronnie Thomas						
0700	1600	9	Allen Craft						
0700	1600	9	Phillip Shead						
0700	1600	9	Brent Morvant						

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

Tue Date: 10-5-99

Job Number: ______ Well Number: ______ Lead Driller: ______

Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Move rig to new location
			Spot same

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Stage Number: ______ Tag: ______ Feet

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1800	11	Ronnie Thames						
0700	1800	11	Allen Craft						
0700	1800	11	Phillip Shand						
0700	1800	11	Brent Morwest						

Daily Operations Report Form

Job Number: ______ Well Number: ______ Superintendent: Jax Lead Driller: ______ Rig Number: 248 Date: 10-6-99 Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Rig up
			Spot pits + Dog house

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Notes

Stage Number: ______ Tag: ______ Feet

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1500	8	Ronnie Thomas						
0700	1500	8	Allen Croft						
0700	1500	8	Phillip Shard						
0700	1500	8	Brent Morvant						

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

October 18, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 10
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Weekly reports, geologist's logs, and driller's daily logs for weeks 1 through 9 were not sent to the following members of the TAC: Nancy Marsh (USEPA), Steve Anderson (SFWMD), and Ron Reese (USGS). All past reports, including this week's, have been mailed to the above TAC members.

Enclosed are copies of the Week 10 weekly report, geologist's log, and driller's daily logs. Pit casing for ASR#3 was set and cemented last Friday. Operations were suspended Monday due to equipment and parts problems. Drilling of the ASR#3 borehole commenced Tuesday and was completed Wednesday to 750' bpl. Geophysical logs were run on the borehole Wednesday evening. Reaming of the borehole to 22" began Thursday and should take about three days to complete.

The drillers will switch to reverse air shortly to drill the open hole portion of ASR#3. Thereafter, they will commence purging MHZ2MW-PMW1.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee
Steve Anderson, SFWMD West Palm Beach
Ron Reese, USGS Miami
Nancy Marsh, USEPA Atlanta

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 10/15/99 — Week # 10

Date	Description of Activities
Friday 10/8/99	Pit hole drilled to 33' bpl and pit casing set to 30' bpl and cemented in place. In the previous week (#9), ASR#2 was killed using 5,000 lbs. NaCl.
Saturday 10/9/99	No site activity
Sunday 10/10/99	No site activity
Monday 10/11/99	Drilling suspended due to needed parts and equipment maintenance.
Tuesday 10/12/99	Drilled ASR#3 from 30' bpl to 440' bpl with 12¼" bit. Inclination surveys conducted at 90' (0.75^0 deviation), 180' (0.6^0 deviation), 270' (0.25^0 deviation), 360' (0.5^0 deviation)
Wednesday 10/13/99	A.M. Drilled ASR#3 from 440' bpl to 750' bpl with 12¼" bit. Inclination surveys conducted at 450' (0.3^0 deviation), 540' (0.4^0 deviation), 630' (0.25^0 deviation) P.M. Perform geophysical logging on entire hole from 30' bpl to 750' bpl (natural gamma, caliper, dual inductance, sonic/VDL,). Sampled pad monitor wells - MHZ2MW: MHZ2MW PMW-1: WL = 4.08' btoc, Cond. = 1,890 umhos/cm, T = 25.9^0 C, pH = 7.2, Chloride = 445 mg/l MHZ2MW PMW-2:

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 10/15/99 — Week # 10

Date	Description of Activities
	WL = 4.08' btoc, Cond. = 640 umhos/cm, T = 24.7^0 C, pH = 7.3, Chloride = 18 mg/l Sampled pad monitor wells – ASR#2: ASR#2 PMW-1: WL = 4.57' btoc, Cond. = 655 umhos/cm, T = 26.0^0 C, pH = 7.2, Chloride = 20 mg/l ASR#2 PMW-2: WL = 3.91' btoc, Cond. = 675 umhos/cm, T = 25.6^0 C, pH = 7.3, Chloride = 30 mg/l Sampled pad monitor wells – ASR#3: ASR#3 PMW-1: WL = 3.28' btoc, Cond. = 753 umhos/cm, T = 25.0^0 C, pH = 7.2, Chloride = 24 mg/l ASR#3 PMW-2: WL = 3.10' btoc, Cond. = 747 umhos/cm, T = 25.4^0 C, pH = 7.1, Chloride = 16 mg/l
Thursday 10/14/99	A.M. Drillers maintenanced rig and prepared to ream ASR#3 P.M. Reamed ASR#3 to with 22" bit. Sampled pad monitor wells – ASRZMW:

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 10/15/99 — Week # 10

Date	Description of Activities
	ASRZMW PMW-1: WL = 6.05' btoc, Cond. = 567 umhos/cm, T = 27.0^0 C, pH = 7.3, Chloride = 18 mg/l ASRZMW PMW-2: WL = 4.6' btoc, Cond. = 759 umhos/cm, T = 27.2^0 C, pH = 7.1, Chloride = 24 mg/l

Daily Operations Report Form

Job Number: ______ Well Number: ASR#3 Superintendent: Jay Lead Driller: ______ Rig Number: 248 Thur Date: 10-13-99 Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TIH w/ 4 stds. DP Kill well
			POOH w/DP
			Pickup 22½ bit Start reaming @ 28' KD @ 65' make conn#2 reamed to 90' circ.
			hole clean POOH w/bit made bit up on D.C. TIH w/same cont. reaming to 145'
			Circ. hole clean
			Pulled 1 std. DP

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Ronnie Thomas						
0700	1900	12	Allen Craft						
0700	1900	12	Phillip Shed						
0700	1900	12	Brent Morrant						

Stage Number: ______ Tag: ______ Feet

Stage Number: ______ Tag: ______ Feet

Notes

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

Date: 10-13-99

Job Number:

Well Number: ASR #3

Lead Driller:

Shift:

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TIH w/ 12¼ bit cont. drilling KD 471' @ 5:15 am ran Dev. Survey make conn # 8
			KD 531' @ 10:00 am circ. hole make conn # 9 KD @ 591' @ 11:26 ran Survey make conn # 10 KD 651'
			@ 1:09 pm circ. hole ran Dev. Survey make conn # 11 KD @ 711' @ 2:50 pm circ. hole clean
			make conn # 12 drill to 750' @ 3:47 pm circ. hole clean
			POOH w/ 12¼ bit
			Ran 1 joint w/ Bell nipple
			R.U. Loggers Run Calip. Gamaray, Duel Induction + Sonic
			R.D. Loggers

Cement Stage Reports

Stage Number: Tag: Feet

Notes

Stage Number: Tag: Feet

Notes

Production Recap

Beginning Borehole Footage: 150 Ending Borehole Footage: 750' Reamed Size: 12¼ Footage: Casing Size: 26 Footage: 33

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
392	12¼	MT													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	2000	13	Ronnie Thames						
0700	2000	13	Allen Craft						
0700	2000	13	Phillip Shand						
0700	2000	13	Brent Morvant						

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

Tue Date: 10-12-99

Job Number: ______ Well Number: ______ Lead Driller: ______ Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Drill F 28' to 54' KD 8:10 circ. hole make conn #2 drill to 85' circ. hole clean
			POOH w/ 12 1/4 bit
			Picked up 2 Drill collars & 12 1/4 bit
			Cont. drilling F/85' KD @ 10:30 Am 111' circ. hole ran Dev. survey make conn #2
			Drill F/111' KD @ 1:21 pm 171' circ. hole make conn #3 drill to 231' KD @ 2:00 pm circ. hole
			Ran Dev. survey make conn #4 KD @ 291' 3:17 pm circ. hole ran Dev. survey make conn #5
			KD 351' @ 4:30 pm circ. hole make conn #6 KD 411' @ 5:16 pm circ. hole Ran Dev. Survey
			Make conn #6 Drill to 450' circ. hole clean
			POOH w/ 5 stds. DP.

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Notes

Stage Number: ______ Tag: ______ Feet

Notes

Production Recap

Beginning Borehole Footage: 28' Ending Borehole Footage: 450' Reamed Size: 12 1/4 Footage: 422' Casing Size: 26 Footage: 33

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
392	12 1/4	mT													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Ronnie Thames						
0700	1900	12	Allen Cult						
0700	1700	10	Phillip Shant						
0700	1900	12	Brent Morrant						

Daily Operations Report Form

Job Number: ______ Well Number: ______ Superintendent: Jay Lead Driller: ______ Rig Number: 248 Date: 10-11-99 Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			unkilled 6" + 3" valves in 26" csg
			Put on header plates
			Picked up 12¼ bit

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
392	12¼	MT													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
2300		8	Ronnie Thomas						
2300		8	Allen Craft						
2300		8	Phillip Sheard						
		8							

Stage Number: ______ Tag: ______ Feet

Notes

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

Fr. Date: 10-8-99

Job Number:

Well Number: ASR#3

Lead Driller:

Shift:

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Drill F/surface to 35' circ. hole
			L.D. Stab. + Bit
			Set 26" csg
			P.U. 1½ cmt. lk.
			Pump cmt to surface

Stage Reports

Stage Number: Tag: Feet

Notes

Stage Number: Tag: Feet

Notes

Production Recap

Beginning Borehole Footage: Surface Ending Borehole Footage: 35' Reamed Size: 28½ Footage: 35' Casing Size: Footage:

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
	28½	FB													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1500	8	Ronnie Thames						
0700	1500	8	Allen Craft						
0700	1500	8	Phillip Shead						
0700	1500	8	Brent Morvant						

Daily Operations Report Form

Job Number:
Well Number: ASR #3
Superintendent: Jay
Lead Driller:
Rig Number: 248
Th. Date: 10-7-99
Shift:

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Rig up
			Pick up D.P.
			Pickup Bit + stab.
			Mix mud

Cement Stage Reports

Stage Number: Tag: Feet

Notes

Stage Number: Tag: Feet

Notes

Production Recap

Beginning Borehole Footage: Ending Borehole Footage: Reamed Size: Footage: Casing Size: Footage:

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1800	11	Ronnie Thomas						
0700	1800	11	Allen Craft						
0700	1800	11	Phillip Shand						
0700	1800	11	Brent Morvant						

Water Resource Solutions

128 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

October 22, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
- ASR Wellfield Expansion, Week 11
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed are copies of the Week 11 weekly report and driller's daily logs. Nothing further has been drilled at ASR#3, therefore no geologist's log is included. Operations were suspended last Friday due to Hurricane Irene. Reaming of the ASR#3 borehole with 22" bit commenced on Monday and concluded on Wednesday to 739' bpl. Geophysical logs were completed in the ASR#3 reamed hole on Thursday. Casing should be set in ASR#3 to 736' bpl and 1st stage of cement completed today (Friday).

The drillers will switch to reverse air shortly to drill the open hole portion of ASR#3. Thereafter, they will commence purging MHZ2MW-PMW1.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee
Steve Anderson, SFWMD West Palm Beach
Ron Reese, USGS Miami
Nancy Marsh, USEPA Atlanta

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion **Project No. 01-03733.H0**

Permit Nos. 141218-001 thru 008-UC **Contractor: Youngquist Bros. Well Drilling**

Prepared by: N. Kugler **Date:** 10/22/99 **Week # 11**

Date	Description of Activities
Friday 10/15/99	Operations suspended due to Hurricane Irene During the past week, ASRZMW and MHZ2MW were killed using 3,000 lbs. NaCl in each well.
Saturday 10/16/99	No site activity
Sunday 10/17/99	No site activity
Monday 10/18/99	Reamed ASR#3 borehole to 145' with 22" bit. Inclination survey conducted at 90' (0.25° deviation),
Tuesday 10/19/99	Reamed ASR#3 borehole to 400' with 22" bit. Inclination surveys conducted at 180' (0.2° deviation), 270' (0.1° deviation), 360' (0.25° deviation)
Wednesday 10/20/99	Reamed ASR#3 borehole to 739' with 22" bit. Inclination surveys conducted at 450' (0.4° deviation), 540' (0.2° deviation), 630' (0.2° deviation), 720' (0.2° deviation) Sampled pad monitor wells – ASRZMW: ASRZMW PMW-1: WL = 6.43' btoc, Cond. = 550 umhos/cm, T = 27.3^0 C, pH = 7.4, Chloride = 20 mg/l ASRZMW PMW-2: WL = 7.42' btoc, Cond. = 756 umhos/cm, T = 27.3^0 C, pH = 7.2, Chloride = 24 mg/l

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion **Project No. 01-03733.H0**

Permit Nos. 141218-001 thru 008-UC **Contractor: Youngquist Bros. Well Drilling**

Prepared by: N. Kugler **Date: 10/22/99** **Week # 11**

Date	Description of Activities
	Sampled pad monitor wells – ASR#2: ASR#2 PMW-1: WL = 4.89' btoc, Cond. = 668 umhos/cm, T = 26.0^0 C, pH = 7.2, Chloride = 22 mg/l ASR#2 PMW-2: WL = 4.16' btoc, Cond. = 676 umhos/cm, T = 25.9^0 C, pH = 7.2, Chloride = 28 mg/l
Thursday 10/21/99	A.M. Geophysical logs (caliper, gamma) ran in ASR#3 reamed hole. Sampled pad monitor wells – ASR#3: ASR#3 PMW-1: WL = 3.67' btoc, Cond. = 754 umhos/cm, T = 25.2^0 C, pH = 7.3, Chloride = 22 mg/l ASR#3 PMW-2: WL = 3.5' btoc, Cond. = 755 umhos/cm, T = 25.2^0 C, pH = 7.3, Chloride = 18 mg/l Sampled pad monitor wells – MHZ2MW: MHZ2MW PMW-1: WL = 4.5' btoc, Cond. = 1,840 umhos/cm, T = 25.9^0 C, pH = 7.3, Chloride = 415 mg/l

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC

Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler

Date: 10/22/99

Week # 11

Date	Description of Activities
	MHZ2MW PMW-2: WL = 4.52' btoc, Cond. = 656 umhos/cm, T = 25.0^0 C, pH = 7.2, Chloride = 20 mg/l P.M. Swabbed reamed hole, circulate mud.

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

Fri Date: 10-19-70

Job Number: ______ Well Number: ______ Lead Driller: ______ Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Lay down DP
			Rig down

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1200	5	Ronnie Thomas						
0700	1200	5	Alan Craft						
0700	1200	5	Phillip Shaw						
0700	1200	5	Brent Pleasant						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	
Type	Barrels Tail	CuFt	

Notes

Stage Number: ______ Tag: ______ Feet

Notes

Daily Operations Report Form

Rig Number: 248

Superintendent: [illegible] **Date:** 10-18-10

Job Number: **Well Number:** 4R #3 **Lead Driller:** **Shift:**

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
[illegible]	[illegible]		Rig [illegible]
[illegible]			Circ. hole [illegible]
			[illegible] bit
			[illegible] bit [illegible] hole [illegible]

Cement Stage Reports

Stage Number: Tag: Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: Tag: Feet

Notes

Production Recap

Beginning Borehole Footage: Ending Borehole Footage: Reamed Size: Footage: Casing Size: Footage:

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Ronnie T[illegible]						
0700	1900	12	Allen Craft						
0700	1900	12	Phillip Shand						
0700	1900	12	Brent Morsust						

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

Tur Date: 10-19-94

Job Number:

Well Number: ASR #3

Lead Driller:

Shift:

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Cont. reaming F/ [illegible] to 210' circulate hole [illegible]
			TOH [illegible] DP [illegible] D.C.
			TIH [illegible] reaming [illegible] 210' to 217 KD make conn #3 ream F/217 [illegible] 277'
			circ. hole make conn #4 cont. reaming F/277' to 387' KD circulate hole make conn #5 cont. reaming
			F/387' to 387' KD circ. hole make conn #6 ream F/387 to 447' circ. hole make
			conn #7 ream F/447 KD @ 507 circulate hole clean Pulled 6 std DP

Cement Stage Reports

Stage Number: Tag: Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: Tag: Feet

Notes

Production Recap

Beginning Borehole Footage: 145 Ending Borehole Footage: 507 Reamed Size: 22 Footage: 362 Casing Size: 24 Footage: 33

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
447	22	RB													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1900	12	Konnie Thames						
[illegible]	[illegible]	12	Allen [illegible]						
700	1900	12	Phillip Shead						
700	1900	12	Brent Marquardt						

Daily Operations Report Form

Rig Number: 248

Superintendent: [illegible]

Date: 10-20-99

Job Number:

Well Number: ASR#3

Lead Driller:

Shift:

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TIH w/ DP cont. reaming F/507 to 567 ... cont. reaming F/567 to 627' ...
			circ. hole ... Ream F/627 to 697 ... circ. hole ...
			Ream to 739' TD circulate hole clean
			TOOH w/ DP

Cement Stage Reports

Stage Number: Tag: Feet

Barrels Lead | CuFt | Barrels Tail | CuFt

Notes

Stage Number: Tag: Feet

Notes

Production Recap

Beginning Borehole Footage: 507 Ending Borehole Footage: 739 Reamed Size: 22 Footage: 232 Casing Size: 26 Footage: 33

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours
447	22	33													

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1800	11	Ronnie Thomas						
0700	1800	11	Allen Craft						
0700	1800	11	Phillip Shand						
0700	1800	11	Brent Marquest						

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

Thur Date: 10-21-99

Job Number:

Well Number: ASR#3

Lead Driller:

Shift:

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TIH / DP no fill circ. hole cond. mud
			TOH / 22" bit + stab. laid down same
			Bill Loggers [illegible] caliper log R.D. Loggers
			Pickup stab. + bit
			[illegible] in 16" csg
			Picked up 1½ cont. tbg

Current Stage Report

Stage Number: Tag: Feet

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: Tag: Feet

Notes

Production Recap

Beginning Borehole Footage: Ending Borehole Footage: Reamed Size: Footage: Casing Size: Footage:

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700		10½	Ronnie Thomas						
0700		10½	Allen Craft						
0700		10½	Phillip Shadd						
0700		10½	Brent Moruzit						
0700		10½	Matt Lockingbill						

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

October 29, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 12
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed are copies of the Week 12 weekly report, geologist's log, and driller's daily logs. Casing was set in ASR#3 at 736' bpl and 1st stage of cement pumped last Friday (10/22). Cementing was completed in two additional stages on Monday and Tuesday. ASR#3 was drilled to 780' bpl with reverse air on Wednesday. Geophysical logs were run in the open hole on Thursday. Video survey and flow meter are to be run Friday morning. The drill crew will commence purging MHZ2MW-PMW1 this coming week.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee
Steve Anderson, SFWMD West Palm Beach
Ron Reese, USGS Miami
Nancy Marsh, USEPA Atlanta

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC   Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler   Date: 10/29/99   Week # 12

Date	Description of Activities
Friday 10/22/99	Casing set at 736' bpl in ASR#3 (Certa-Lok 16" OD SDR 17) 1st stage of cement pumped at final pressure of 22 psi (29.5 barrels neat).
Saturday 10/23/99	No site activity
Sunday 10/24/99	No site activity
Monday 10/25/99	1st stage of cement tagged at 602' bpl. Pumped 2nd stage of cement using tremmie (67 barrels 6% bentonite) Temperature log run in ASR#3. Top of cement picked at approximately 250' bpl based on Temperature log. Wellheads installed on ASRZMW, MHZ2MW
Tuesday 10/26/99	2nd stage of cement tagged at 250' bpl. Pumped 3rd stage of cement using tremmie to surface (76 barrels 6% bentonite) Wellhead installed on ASR#2
Wednesday 10/27/99	Drilled ASR#3 with 12¼" bit to 760' bpl using circulated water until formation water was sufficient for reverse air. Drilled ASR#3 with 12¼" bit to 780' bpl using reverse air. Formation water is being discharged to Henderson creek. Formation water sample taken at 770' : Chloride = 2,640 mg/l Cond. = 8,950 umhos/cm. Formation water sample taken at 780' : Chloride = 2,680 mg/l Cond. = 9,120 umhos/cm.

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 10/29/99 — Week # 12

Date	Description of Activities
Thursday 10/28/99	A.M. ASR#3 has been developed for five hours. 5,000 lbs of barite were used to kill ASR#3 for static geophysical logging. Geophysical logs (caliper, gamma, fluid resistivity, sonic/VDL) ran in ASR#3 open hole. P.M. Kill fluid (barite) was removed from ASR#3 in preparation for flow and video logging. Sampled pad monitor wells – ASRZMW: ASRZMW PMW-1: WL = 7.03' btoc, Cond. = 581 umhos/cm, T = 27.4^0 C, pH = 7.3, Chloride = 18 mg/l ASRZMW PMW-2: WL = 8.07' btoc, Cond. = 770 umhos/cm, T = 27.3^0 C, pH = 7.1, Chloride = 24 mg/l Sampled pad monitor wells – ASR#2: ASR#2 PMW-1: WL = 5.54' btoc, Cond. = 656 umhos/cm, T = 26.2^0 C, pH = 7.3, Chloride = 18 mg/l

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 10/29/99 — Week # 12

Date	Description of Activities
	ASR#2 PMW-2:
	WL = 4.88' btoc, Cond. = 681 umhos/cm, T = 26.1^0 C, pH = 7.3, Chloride = 26 mg/l
	Sampled pad monitor wells – ASR#3:
	ASR#3 PMW-1:
	WL = 4.43' btoc, Cond. = 758 umhos/cm, T = 25.4^0 C, pH = 7.2, Chloride = 24 mg/l
	ASR#3 PMW-2:
	WL = 4.25' btoc, Cond. = 758 umhos/cm, T = 25.4^0 C, pH = 7.1, Chloride = 18 mg/l
	Sampled pad monitor wells – MHZ2MW:
	MHZ2MW PMW-1:
	WL = 5.20' btoc, Cond. = 1,669 umhos/cm, T = 26.0^0 C, pH = 7.3, Chloride = 340 mg/l
	MHZ2MW PMW-2:
	WL = 5.25' btoc, Cond. = 645 umhos/cm, T = 25.2^0 C, pH = 7.2, Chloride = 18 mg/l

Daily Operations Report Form

Rig Number: [illegible]
Superintendent: [illegible]
Date: [illegible]
Job Number: ______ Well Number: [illegible] Lead Driller: ______
Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
[illegible]	[illegible]	3	Air develope
			Mix Kill [illegible]
			TOOH [illegible] bit
			R[illegible] [illegible]
			R.D. [illegible]
			Flow [illegible]

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]		11½	Ronnie Thom[illegible]						
[illegible]		[illegible]	Allen [illegible]						
[illegible]		[illegible]	[illegible]						
[illegible]		[illegible]	[illegible]						
[illegible]		[illegible]	[illegible]						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Barrel Pre Flush	Barrel Flush

Type	Barrels Lead	CuFt	Sacks
Type	**Barrels Tail**	**CuFt**	**Sacks**

Notes

Static [illegible] 33 [illegible]
[illegible]

Stage Number: ______ Tag: ______ Feet

Barrel Pre Flush	Barrel Flush

Type	Barrels Lead	CuFt	Sacks
Type	**Barrels Tail**	**CuFt**	**Sacks**

Notes

Daily Operations Report Form

Rig Number: 24[illegible]

Superintendent: [illegible]

Date: [illegible]

Job Number: ______ Well Number: [illegible] Lead Driller: ______ Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Cut off 16" csg
			Nippled up header
			TIH 7 1/2 ¼ bit [illegible] 724' [illegible] 2½ air [illegible]
			drill from 721 to 771 KB [illegible] #13 [illegible] from 771 to 780'
16:15	[illegible]	2¼	Air develope

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Barrel Pre Flush	Barrel Flush

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

740' [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Stage Number: ______ Tag: ______ Feet

Barrel Pre Flush	Barrel Flush

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1830	11½	Ronnie Thames						
0700	1830	11½	Allen Croft						
0700	1830	11½	Phillip [illegible]						
0700	1830	11½	Brent [illegible]						
0700	1830	11½	Matt Larkins [illegible]						

Daily Operations Report Form

Job Number: ______ Well Number: [illegible]

Superintendent: [illegible] Lead Driller: ______

Rig Number: 24? Date: [illegible] Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TIH [illegible] tagged @ 255
			Pump cmt to surface
			R.U. for [illegible]
			TIH [illegible] hole

Cement Stage Reports

Stage Number: 2 Tag: 255 Feet

Barrel Pre Flush	Barrel Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Barrel Pre Flush	Barrel Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1930	12½	Ronnie Th[illegible]						
0700	1830	11½	[illegible]						
0700	1330	11½	Brent [illegible]						
0700	1830	11½	Phil[illegible]						
0700	1830	11½	[illegible]						

Daily Operations Report Form

Rig Number: 212

Superintendent: [illegible]

Date: [illegible]

Job Number:

Well Number: AS#3

Lead Driller:

Shift:

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Kill well
			TOOH [illegible]
			TIH [illegible] tagged @ [illegible]
			[illegible]
			TOOH [illegible]
			R/U [illegible]
			~~[illegible]~~

Cement Stage Reports

Stage Number: 2 Tag: [illegible] Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks
Type	**Barrels Tail**	**CuFt**	**Sacks**

Notes

Stage Number: Tag: Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks
Type	**Barrels Tail**	**CuFt**	**Sacks**

Notes

Production Recap

Beginning Borehole Footage: Ending Borehole Footage: Reamed Size: Footage: Casing Size: Footage:

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1530	8½	Ronnie Thomas						
0700	1530	8½	[illegible]						
0700	1530	8½	[illegible]						
0700	1530	8½	[illegible]						
0700	1530	8½	[illegible]						

Daily Operations Report Form

Job Number: ______ Well Number: [illegible] #3 Superintendent: Jay Lead Driller: ______

Rig Number: 242 Date: [illegible] Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Moved [illegible] to location Filled with water
			Put Hyd pump under floor

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Bbls Rig Flush	Bbls Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0800	1230	4½	Ronnie Thomas						
0800	1230	4½	[illegible]						
0800	1230	4½	[illegible]						
0800	1230	4½	[illegible]						

Stage Number: ______ Tag: ______ Feet

Bbls Rig Flush	Bbls Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Daily Operations Report Form

Job Number: ______ Well Number: [illegible] Superintendent: [illegible] Lead Driller: ______ Rig Number: [illegible] Date: [illegible] Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			TIH w/ [illegible] bit + stab. no fill tagged 739'
			circ. hole [illegible]
			TOOH w/ bit + stab. lay down same
			Pick up [illegible] set [illegible] 73[illegible]
			TIH w/ [illegible]
			R[illegible] [illegible]

Cement Stage Reports

Stage Number: [illegible] Tag: [illegible] Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	~~[illegible]~~ 1800	11	Ronnie Thomas						
0700	1800	11	[illegible]						
0700	1800		[illegible]						
0700	1800	11	Brent [illegible]						
0700	1800		Matt [illegible]						

Water Resource Solutions

428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

November 5, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 13
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed is the Week 13 weekly report. Drilling was completed at ASR#3 during week 12, therefore, no geologist's log is included. Driller's daily logs will be forwarded with next week's report. A video survey ran in ASR#3 last Friday (10/22) revealed that cement had fallen-in, blocking the open hole. The drill string was tripped-in to remove the cement. A 2nd video survey was completed on Monday (11/1) in ASR#3, and showed the open hole to be clear. ASR#3 will be air-developed today (11/5) or Monday (11/8) and thereafter should be complete, excluding final pad and wellhead.

Chloride levels in MHZ2MW-PMW1 (currently 230 mg/l) have fallen below the Primary Drinking Standard. It is expected that the drill crew will further purge MHZ2MW-PMW1 today (11/5) or Monday (11/8). Since drilling activities at this site will be completed next week, we are requesting permission to discontinue sampling the pad monitor wells.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee
Steve Anderson, SFWMD West Palm Beach
Ron Reese, USGS Miami
Nancy Marsh, USEPA Atlanta

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC

Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler

Date: 11/5/99

Week # 13

Date	Description of Activities
Friday 10/29/99	Video survey ran in ASR#3 revealed fallen cement blocking the open hole. ASR#3 killed with 2,000 lbs. of barite Drillers tripped-in and rotated 12¼" bit to remove cement blockage. Kill fluid removed from ASR#3
Saturday 10/30/99	No site activity
Sunday 10/31/99	No site activity
Monday 11/1/99	A.M. 2nd video survey ran in ASR#3 revealed blockage has been cleared. Flowing fluid resistivity log was also completed. P.M. ASR#3 shut-in. Drillers leave site for several days. No drilling activity will occur until they return.
Tuesday 11/2/99	No site activity
Wednesday 11/3/99	No site activity
Thursday 11/4/99	No drilling activity Sampled pad monitor wells – ASRZMW: ASRZMW PMW-1: WL = 5.67' btoc, Cond. = 513 umhos/cm, T = 27.3^0 C, pH = 7.3, Chloride = 16 mg/l

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 11/5/99 — Week # 13

Date	Description of Activities
	ASRZMW PMW-2: WL = 6.83' btoc, Cond. = 710 umhos/cm, T = 27.3^0 C, pH = 7.2, Chloride = 22 mg/l Sampled pad monitor wells – ASR#2: ASR#2 PMW-1: WL = 4.35' btoc, Cond. = 632 umhos/cm, T = 26.4^0 C, pH = 7.2, Chloride = 18 mg/l ASR#2 PMW-2: WL = 3.82' btoc, Cond. = 656 umhos/cm, T = 26.3^0 C, pH = 7.3, Chloride = 22 mg/l Sampled pad monitor wells – ASR#3: ASR#3 PMW-1: WL = 3.00' btoc, Cond. = 722 umhos/cm, T = 25.7^0 C, pH = 7.2, Chloride = 22 mg/l ASR#3 PMW-2: WL = 2.86' btoc, Cond. = 728 umhos/cm, T = 25.8^0 C, pH = 7.2, Chloride = 18 mg/l

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC

Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler

Date: 11/5/99

Week # 13

Date	Description of Activities
	Sampled pad monitor wells – MHZ2MW: MHZ2MW PMW-1: WL = 3.75' btoc, Cond. = 1,290 umhos/cm, T = 26.3^0 C, pH = 7.4, Chloride = 230 mg/l MHZ2MW PMW-2: WL = 3.91' btoc, Cond. = 630 umhos/cm, T = 25.2^0 C, pH = 7.3, Chloride = 18 mg/l

Water Resource Solutions
428 Pine Island Road SW • Cape Coral. Florida 33991 941 574-1919 Fax: 941 574-8106

November 12, 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR
ASR Wellfield Expansion, Week 14
Permit Nos. 141218-001 thru 008-UC

Dear Jack:

Enclosed are the Week 14 weekly report and driller's daily logs for Weeks 13 and 14. (Note that driller's daily logs are included only for days that the drill crew was on-site, they spent several days off-site on a different job.) Drilling has been completed, therefore, no geologist's log is included. Final air-development was preformed on ASR#3 on Monday (11/8). The drill crew has primarily spent this week rigging down and preparing to mobilize off-site. Step-drawdown pump testing of ASR#3 is tentatively set for Monday or Tuesday (11/22 or 11/23)

MHZ2MW-PMW1 was purged on Monday (11/8). Chloride levels in MHZ2MW-PMW1 (currently 215 mg/l) continue to decline. Since drilling activities at this site have been completed, we will discontinue sampling the pad monitor wells, unless further sampling is requested by The FDEP.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Noah Kugler For Mark Pearce

Mark S. Pearce
Senior Scientist

pc Joe Haberfeld, FDEP Tallahassee
Steve Anderson, SFWMD West Palm Beach
Ron Reese, USGS Miami
Nancy Marsh, USEPA Atlanta

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion

Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC   Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler   Date: 11/12/99   Week # 14

Date	Description of Activities
Friday 11/5/99	No site activity
Saturday 11/6/99	No site activity
Sunday 11/7/99	No site activity
Monday 11/8/99	A.M. Air Developed ASR#3 for 2 hours. Purged MHZ2MW-PMW1. P.M. Killed ASR#3 with 5,000 lbs. NaCl. Drillers begin to rig-down.
Tuesday 11/9/99	Drillers rigging Down.
Wednesday 11/10/99	Drillers breaking-down equipment and mobilizing off site.
Thursday 11/11/99	Drillers breaking-down equipment and mobilizing off site. Sampled pad monitor wells – ASRZMW: ASRZMW PMW-1: WL = 6.01' btoc, Cond. = 525 umhos/cm, T = 27.6^0 C, pH = 7.3, Chloride = 18 mg/l ASRZMW PMW-2: WL = 7.10' btoc, Cond. = 744 umhos/cm, T = 27.5^0 C, pH = 7.2, Chloride = 22 mg/l Sampled pad monitor wells – ASR#2: ASR#2 PMW-1: WL = 4.66' btoc, Cond. = 653 umhos/cm, T = 26.5^0 C, pH = 7.2, Chloride = 20 mg/l

WATER RESOURCE SOLUTIONS, INC.

WEEKLY REPORT

Florida Water Services, Inc.
Marco Lakes ASR Wellfield Expansion — Project No. 01-03733.H0

Permit Nos. 141218-001 thru 008-UC — Contractor: Youngquist Bros. Well Drilling

Prepared by: N. Kugler — Date: 11/12/99 — Week # 14

Date	Description of Activities
	ASR#2 PMW-2: WL = 3.95' btoc, Cond. = 671 umhos/cm, T = 26.1^0 C, pH = 7.2, Chloride = 22 mg/l Sampled pad monitor wells – ASR#3: ASR#3 PMW-1: WL = 3.23' btoc, Cond. = 778 umhos/cm, T = 26.2^0 C, pH = 7.3, Chloride = 24 mg/l ASR#3 PMW-2: WL = 3.18' btoc, Cond. = 762 umhos/cm, T = 26.3^0 C, pH = 7.2, Chloride = 18 mg/l Sampled pad monitor wells – MHZ2MW: MHZ2MW PMW-1: WL = 4.06' btoc, Cond. = 1,212 umhos/cm, T = 26.2^0 C, pH = 7.4, Chloride = 215 mg/l MHZ2MW PMW-2: WL = 4.13' btoc, Cond. = 635 umhos/cm, T = 25.7^0 C, pH = 7.3, Chloride = 18 mg/l

Daily Operations Report Form

Job Number: ______ Well Number: A57 #3 Superintendent: Jay Lead Driller: ______

Rig Number: 248 Fri Date: 10-29-97 Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Pull out of hole [illegible]
			[illegible] Rig, Rig Down

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	Cu.Ft	Sacks

Type	Barrels Tail	Cu.Ft	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Notes

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
[illegible]	1800	11	[illegible]						
[illegible]	1500	5	[illegible]						
[illegible]	1500	8	[illegible]						
[illegible]	1630	4 1/2	Brent [illegible]						
[illegible]	1630	4 1/2	[illegible]						

Daily Operations Report Form

Job Number: ______ Well Number: ASR#3

Superintendent: Jay
Lead Driller: ______

Rig Number: 248
Date: 11-1-94
Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			R.U. Loggers Run Video
			RR Lowers

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
		12	Ronnie Thomas						
		12	Allen Craft						
		[illegible]	Phillip Shived						
		12	Brent Morrow						
		12	Matt Lockingbill						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Barrels Lead | Cu.Ft | Barrels Tail | Cu.Ft

Notes

Stage Number: ______ Tag: ______ Feet

Notes

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

mo-Date: 11-8-99

Job Number: ______ Well Number: ASR#3 Lead Driller: ______ Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Pumped Kill
			Picked up 13¾ bit
			TIH w/ DC. + DP tagged @ 779
			Picked up 2 3/8 air line
		2	Cleaned out fill and air develope
			Laid down air line
			Pumped Kill down DP
			Laid down D.P. + DC.

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1800	11	Ronnie Thomas						
[illegible]	[illegible]	11	Allen Pratt						
[illegible]	1800	11	Phillip Shand						
[illegible]	1800	11	Brent Morvant						
0700	1800	11	Matt Lockinghill						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

[illegible]	[illegible]

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]

[illegible]	[illegible]	[illegible]	[illegible]

Notes

Daily Operations Report Form

Job Number: ______ Well Number: ASR#3

Superintendent: Jay

Lead Driller: ______

Rig Number: 248

Tue Date: 11-9-99

Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			Rig down
			Cut off header 4 16 csg
			Load out hot shot

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1800	11	Ronnie [illegible]						
[illegible]	1800	11	[illegible]						
0700	1800	11	Phillip Sh[illegible]						
0700	1800	11	Brent [illegible]						
0700	1800	11	Matt Lockingbill						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

Type	Barrels Lead	CuFt	Sacks
Type	Barrels Tail	CuFt	Sacks

Notes

Daily Operations Report Form

Rig Number: 248

Superintendent: Jay

W[illegible] Date: 11-10-99

Job Number: ______ Well Number: ASR#3 Lead Driller: ______ Shift: ______

Time From	Time To	Total Hours	Details of Operations in Sequence and Remarks
			[illegible]
			Cleaned [illegible]

Production Recap

Beginning Borehole Footage: ______ Ending Borehole Footage: ______ Reamed Size: ______ Footage: ______ Casing Size: ______ Footage: ______

Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours	Bit #	Size	Type	Serial Number	In	Out	Footage	Cum. Hours

Time From	Time To	Total Hours	Employee Name	Empl Initials	Time From	Time To	Total Hours	Employee Name	Empl Initials
0700	1700	10	Ronnie Thomas						
[illegible]	[illegible]	[illegible]	Allen [illegible]						
[illegible]	[illegible]	10	Phillip Shord						
[illegible]	1700	10	Brent [illegible]						
0700	1700	10	Matt Lochinghill						

Cement Stage Reports

Stage Number: ______ Tag: ______ Feet

Barrels Pre Flush	Barrels Flush

Type	Barrels Lead	CuFt	Sacks

Type	Barrels Tail	CuFt	Sacks

Notes

Stage Number: ______ Tag: ______ Feet

[illegible]	[illegible]

[illegible]	[illegible]	CuFt	[illegible]

[illegible]	[illegible]	CuFt	[illegible]

Notes

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

December, 14 1999

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Mid-Hawthorn Well Pad Monitor Well-1 Chlorides
Marco Lakes ASR Wellfield Expansion
Permit Nos. 141218-001 thru 008-UC

Dear Mr. Myers:

As requested, Noah Kugler of our office has sampled the Mid-Hawthorn Well Pad Monitor Well-1 (MHZ2MW-PMW1) on Wednesday, December 8, 1999, and analyzed the water for chlorides and conductivity.

Chlorides: 160 mg/l
Conductivity: 1065 μS/cm

We will sample the well again in one month.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce
Senior Scientist

pc: Joe Haberfeld, FDEP Tallahassee; Steve Anderson, SFWMD West Palm Beach; Ron Reese, USGS Miami; Nancy Marsh, USEPA Atlanta

Water Resource Solutions

428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

January, 7 2000

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Mid-Hawthorn Well Pad Monitor Well-1 Chlorides
Marco Lakes ASR Wellfield Expansion
Permit Nos. 141218-001 thru 008-UC

Dear Mr. Myers:

Noah Kugler of our office has sampled the Mid-Hawthorn Well Pad Monitor Well-1 (MHZ2MW-PMW1) on Thursday, January 6, 2000, and analyzed the water for chlorides and conductivity.

Chlorides: 88 mg/l
Conductivity: 725 μS/cm

We will sample the well again in one month if you desire. However, we believe that the chloride levels are sufficiently low at this time to discontinue the monitoring.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce
Senior Scientist

pc: Joe Haberfeld, FDEP Tallahassee
Steve Anderson, SFWMD West Palm Beach
Ron Reese, USGS Miami
Nancy Marsh, USEPA Atlanta

Water Resource Solutions

128 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

January, 12 2000

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Pad Monitor Well Chlorides
Marco Lakes ASR Wellfield Expansion
Permit Nos. 141218-001 thru 008-UC

Dear Mr. Myers:

As requested, the chloride concentration levels in the pad monitor wells have been plotted through the period of drilling at Marco Lakes and are included as figures 1 to 4.

The plot of chloride concentration levels for the MHZ2MW-PMW1 (figure 2) includes two months of data beyond the completion of drilling activities. The trend of chloride concentration in this well is toward background levels and is currently less than the 100 to 140 mg/l concentration levels found in the water from Marco Lakes.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc: Joe Haberfeld, FDEP Tallahassee
Steve Anderson, SFWMD West Palm Beach
Ron Reese, USGS Miami
Nancy Marsh, USEPA Atlanta

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

January, 12 2000

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Pad Monitor Well Chlorides
Marco Lakes ASR Wellfield Expansion
Permit Nos. 141218-001 thru 008-UC

Dear Mr. Myers:

As requested, the chloride concentration levels in the pad monitor wells have been plotted through the period of drilling at Marco Lakes and are included as figures 1 to 4.

The plot of chloride concentration levels for the MHZ2MW-PMW1 (figure 2) includes two months of data beyond the completion of drilling activities. The trend of chloride concentration in this well is toward background levels and is currently less than the 100 to 140 mg/l concentration levels found in the water from Marco Lakes.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc: Joe Haberfeld, FDEP Tallahassee
Steve Anderson, SFWMD West Palm Beach
Ron Reese, USGS Miami
Nancy Marsh, USEPA Atlanta

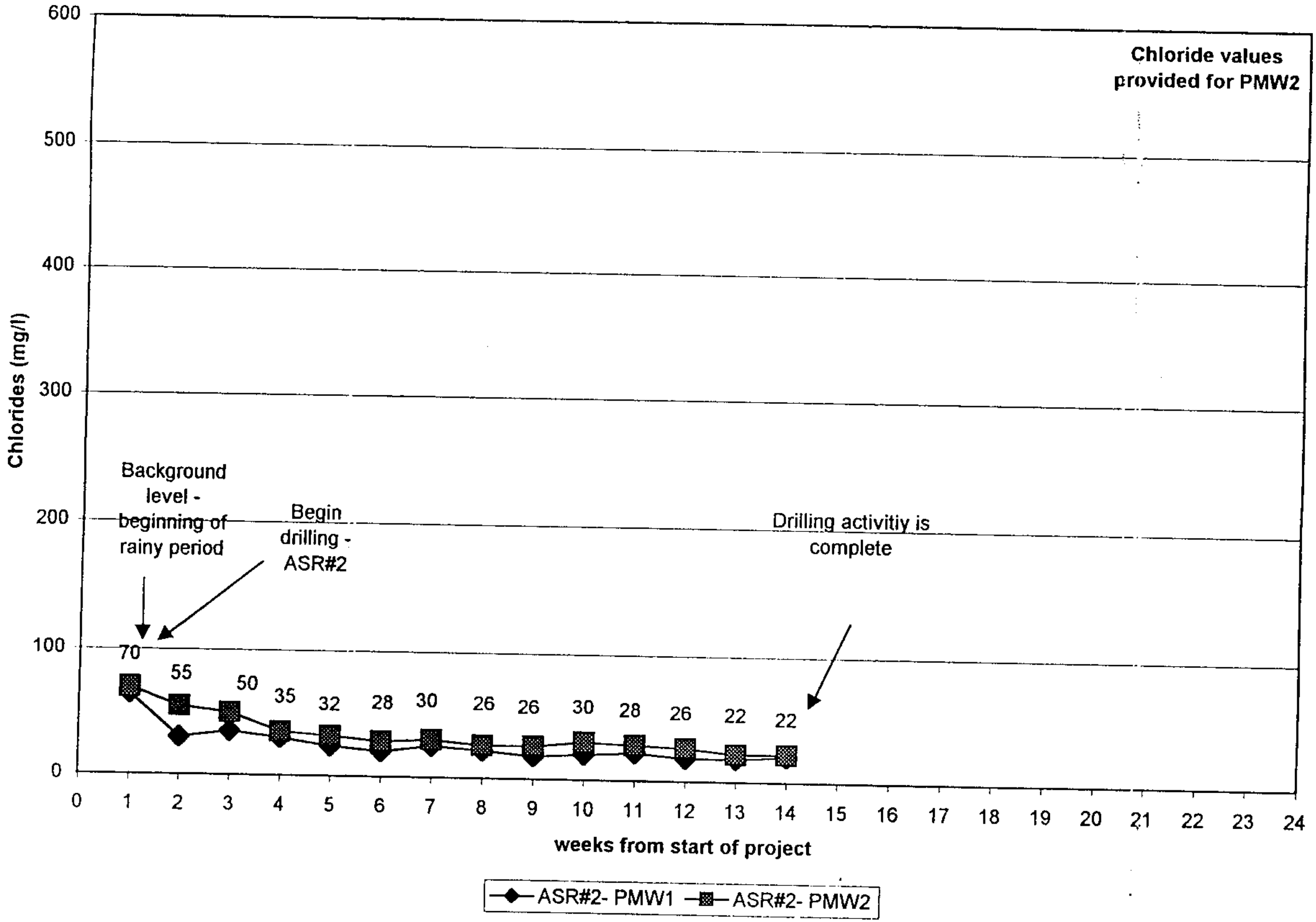


Figure 1. Chloride Levels in ASR#2-PMW's throughout Drilling Period.

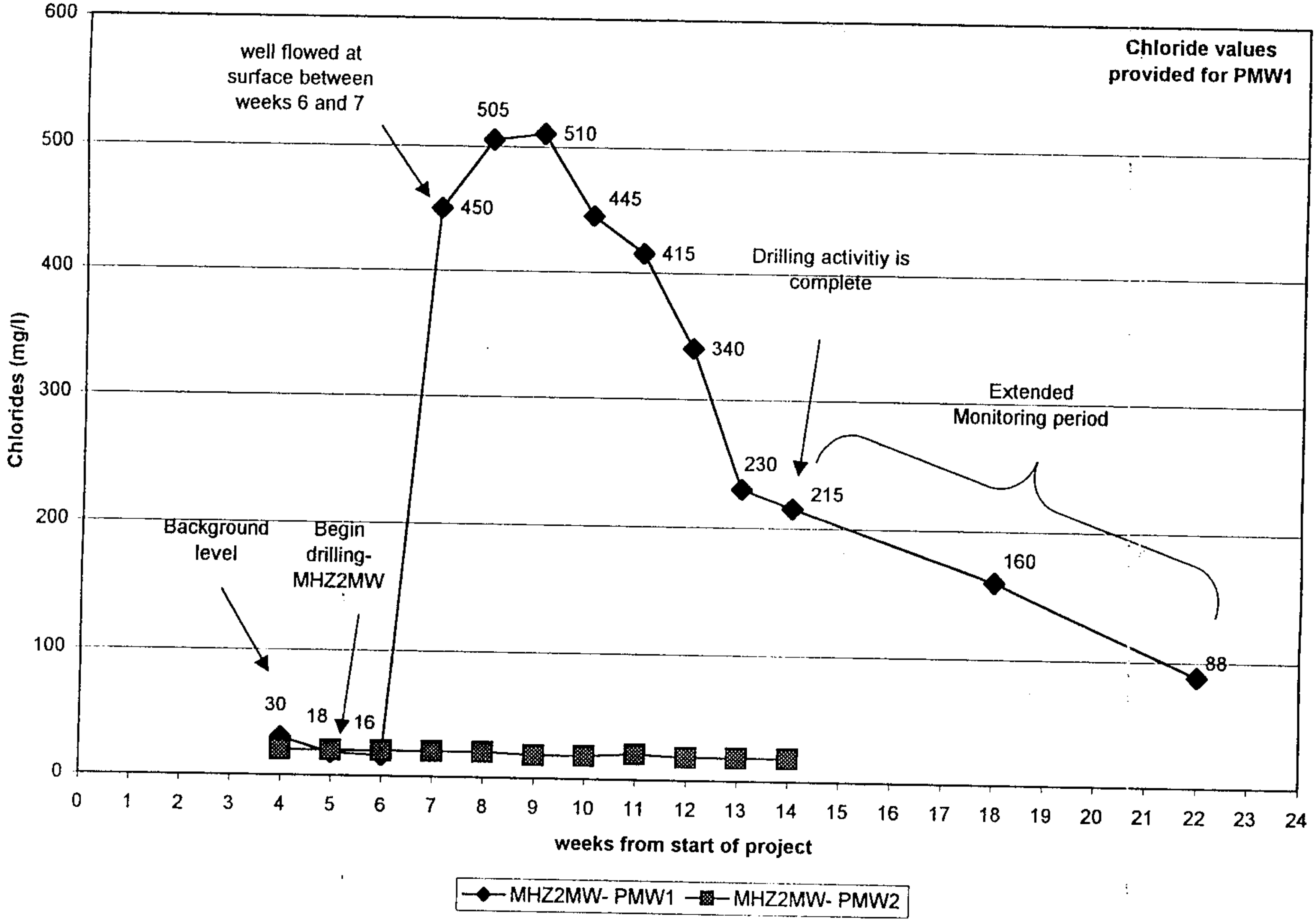


Figure 2. **Chloride levels in MHZ2MW-PMW's throughout Drilling and Extended Monitoring Periods.**

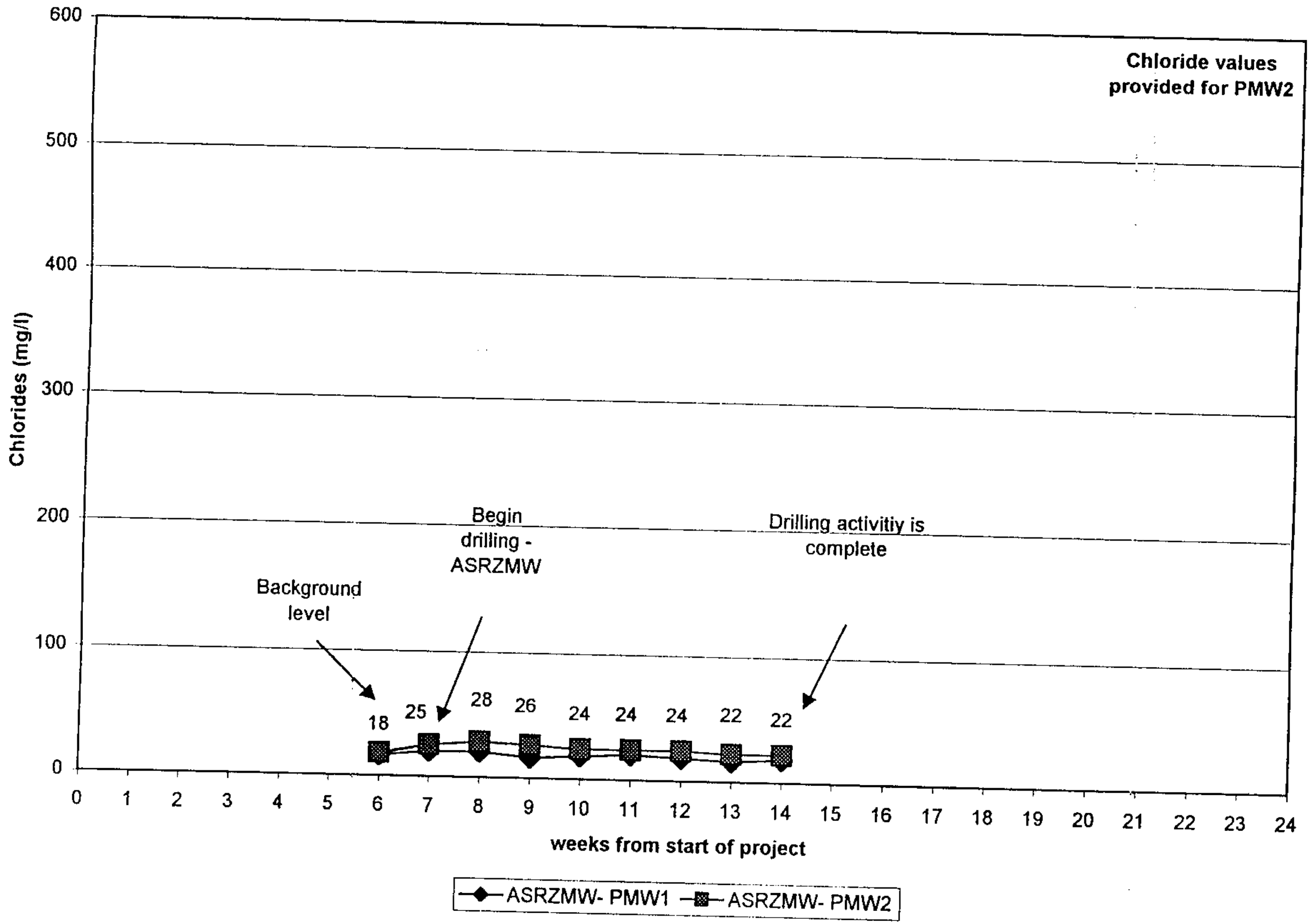


Figure 3. **Chloride levels in ASRZMW-PMW's throughout Drilling Period.**

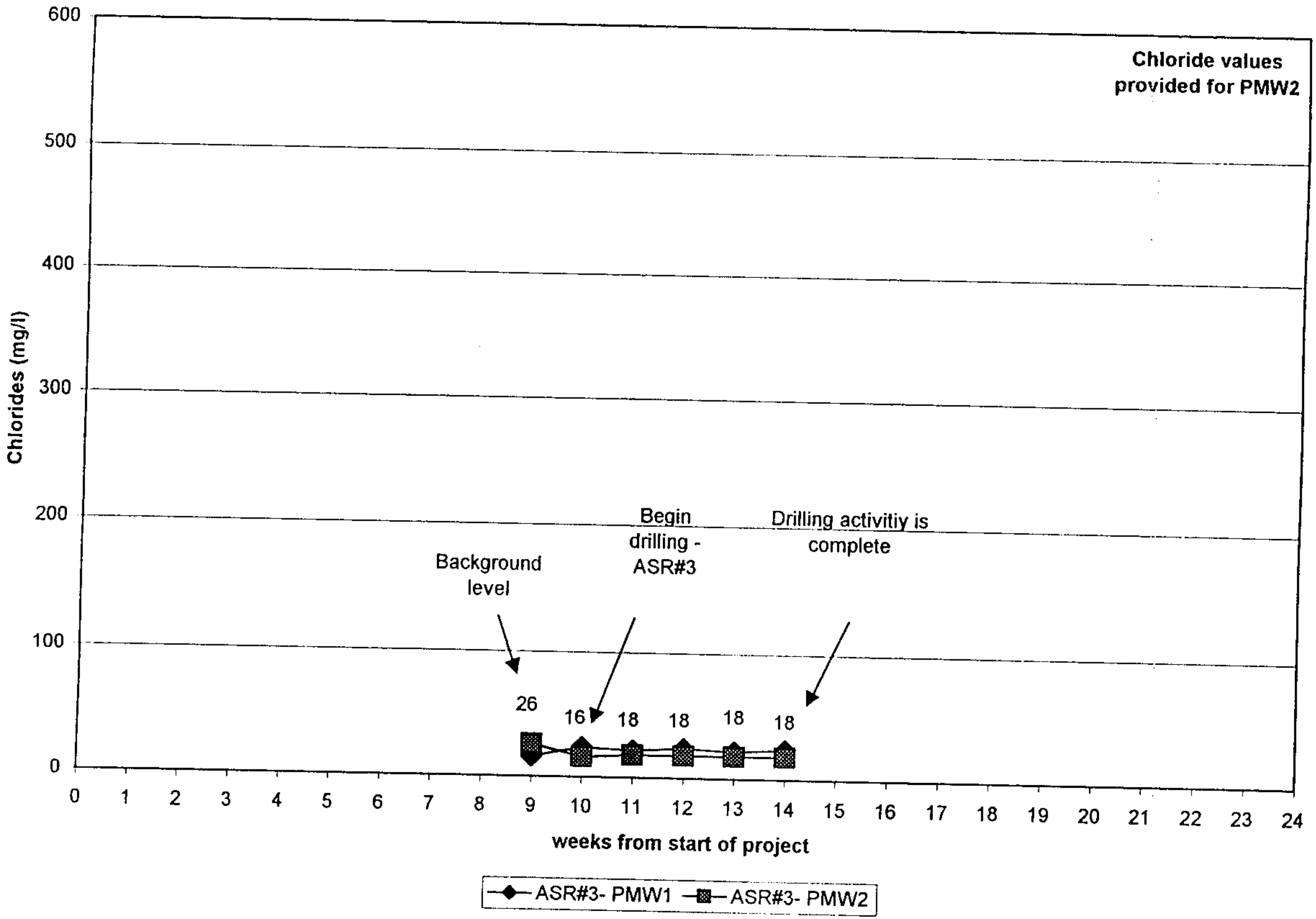


Figure 4. Chloride Levels in ASR#3-PMW's throughout Drilling Period.

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

February, 8 2000

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Mid-Hawthorn Well Pad Monitor Well-1 Chlorides
Marco Lakes ASR Wellfield Expansion
Permit Nos. 141218-001 thru 008-UC

Dear Mr. Myers:

Noah Kugler of our office has sampled the Mid-Hawthorn Well Pad Monitor Well-1 (MHZ2MW-PMW1) on Friday, February 4, 2000, and analyzed the water for chlorides and conductivity.

Chlorides: 60 mg/l
Conductivity: 710 μS/cm

This months sampling and analysis of the MHZ2MW-PMW1 was performed in response to the FDEP request that three additional months of sampling be performed after the end of the drilling project. Please advise us of the future sampling for MHZ2MW-PMW1 based on these data and the previous data sent to you on January 12, 2000.

If you have any questions, or require any further information, please contact me at (941) 574-1919, ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce
Senior Scientist

pc: Joe Haberfeld, FDEP Tallahassee
Steve Anderson, SFWMD West Palm Beach
Ron Reese, USGS Miami
Nancy Marsh, USEPA Atlanta

Water Resource Solutions
428 Pine Island Road SW • Cape Coral, Florida 33991 941 574-1919 Fax: 941 574-8106

March 23, 2000

Mr. Jack Myers, P.G.
Florida Department of Environmental Protection
2295 Victoria Avenue, Suite 364
Fort Myers, Florida 33901

Re: Marco Lakes ASR – Monitoring of MHZ2MW-PMW1

Dear Jack:

As per your conversation with Mr. Mike Weinberg of this office, the chloride levels in the referenced monitoring well have fallen to background levels and therefore, no further monitoring is required. As with all the other pad monitoring wells at this site, the wells will remain available for future testing.

If your have any questions, or require any further information, please contact me at (941) 574-1919 ext. 103.

Sincerely,

Mark S. Pearce

Mark S. Pearce. Ph.D.
Senior Scientist

c. Joe Haberfeld, FDEP Tallahassee

APPENDIX 3.2

CERTAINTEED ASR WELL CASING SPECIFICATIONS

ENGINEERING SPECIFICATION
RESTRAINED JOINT PVC WELL CASING

1.0 SCOPE

This specification covers Poly-Vinyl Chloride (PVC) Well Casing pipe and couplings which are assembled and installed as a completely non-metallic restrained joint system. Pipe is produced in nominal sizes 4"–16", and is available in both solid and slotted configurations.

2.0 REFERENCE DOCUMENTS

American Society for Testing and Materials (ASTM):

ASTM D1784 – Standard Specification for Rigid PVC Compounds and Chlorinated PVC Compounds.

ASTM D2837 – Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.

ASTM F480 – Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80.

National Sanitation Foundation (NSF):

NSF14 – Plastic Piping System Components and Related Materials

NSF61 – Drinking Water System Components – Health Effects

3.0 REQUIREMENTS

3.1 Materials: Pipe and couplings shall be made from unplasticized PVC compounds having a minimum cell classification of 12454-B, as defined in ASTM D1784. The compound shall qualify for a Hydrostatic Design Basis (HDB) of 4000psi for water at 73.4° F, in accordance with the requirements of ASTM D2837. White pipe shall be supplied, unless otherwise agreed upon at time of purchase.

3.2 Approvals: Products intended for contact with potable water shall be evaluated, tested, and certified for conformance with NSF61, or the health effects portion of NSF14, by an acceptable certifying organization, when required by the regulatory authority having jurisdiction.

3.3 Physical Requirements: Product dimensions, weights, and performance data are summarized in the table on the reverse side of this page. Standard pipe length is 20'. Nominal casing size should be selected by the Design Engineer based on required flow performance, pump diameter, and local installation conditions under which the well will be constructed.

3.4 Performance: All pipe supplied to this specification shall meet the stiffness (crush resistance), flattening, impact, and puncture test requirements of ASTM F480.

3.5 Joints: Pipe shall be joined using non-metallic couplings which, together, have been designed as an integral system for maximum reliability and interchangeability. High-strength flexible thermoplastic splines shall be inserted into mating precision-machined grooves in the pipe and coupling to provide full 360° restraint with evenly distributed loading. No external pipe-to-pipe restraining devices which clamp onto or otherwise damage the pipe surface as a result of point-loading shall be permitted. Couplings shall incorporate twin elastomeric sealing gaskets. Consult the manufacturer for availability of joint accessories and fittings. Note that this specification does not cover integral bell pipe with solvent-cement joints.

3.6 Marking: Well Casing pipe shall be legibly and permanently marked in ink with the following information:

- Manufacturer and Trade Name
- Nominal Size & SDR or SCH Rating
- Manufacturing Date Code
- Cell Classification
- ASTM F480-94 SE
- (NSF-61)

3.7 Workmanship: Pipe and couplings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions, blisters and dents, interior roughness, and other injurious defects that may affect wall integrity. The pipe and couplings shall be as uniform as commercially practicable in color, opacity, density, and other physical characteristics.

4.0 SLOTTING

Pipe can be supplied with multiple rows of machined circumferential slots, to allow for water entry into the casing. Slot patterns should be specified to provide the required open areas and flow rates (taking into account the surrounding embedment material), while maintaining structural integrity of the installed system. Consult the manufacturer for design data and product availability. The following slotting parameters must be specified:

- Slot Width
- Slot Spacing
- Number of Rows
- Row Length
- Slot O.D. Length

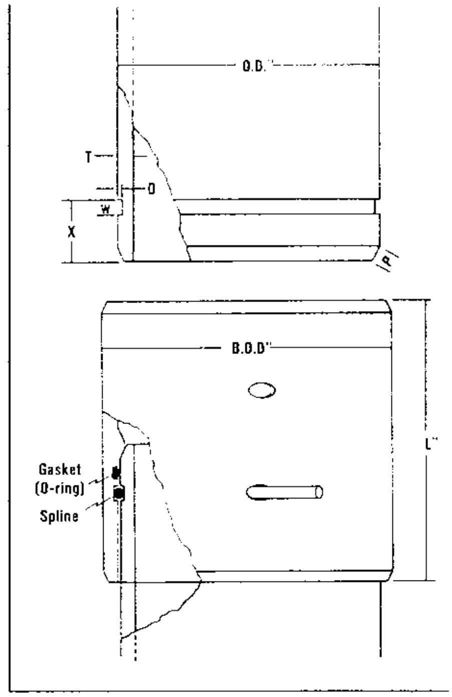
5.0 SUGGESTED SOURCE OF SUPPLY

Certa-Lok PVC Well Casing as supplied by:
CertainTeed Corporation
Pipe & Plastics Group
P.O. Box 860
Valley Forge, PA 19482

CERTA-LOK™ PVC WELL CASING

DIMENSIONS, WEIGHTS AND PERFORMANCE DATA

O.D. SIZE	SDR	X"	W"	D" MIN.	D" MAX.	P"	L"
4.500"	19	1.313	.375	.125	.130	.25	6.00
4.950"	20	1.313	.375	.125	.130	.25	6.00
	17	1.313	.375	.125	.130	.25	6.00
5.563"	21	1.313	.375	.125	.130	.25	6.00
	17	1.313	.375	.125	.130	.25	6.00
6.625"	21	1.313	.375	.125	.130	.25	6.00
	17	1.313	.375	.125	.130	.25	6.00
6.900"	17	3.000	.375	.125	.130	.25	8.25
8.625"	21	3.163	.500	.135	.140	.68	10.00
9.050"	17	3.163	.500	.205	.215	.68	10.00
10.750"	17	3.500	.500	.205	.215	.68	12.00
12.750"	17	3.500	.500	.205	.215	.68	12.00
14.000"	17	3.500	.500	.205	.215	.68	12.00
16.000"	26	3.500	.500	.205	.215	.68	12.00
	21	3.500	.500	.205	.215	.68	12.00
	17	3.500	.500	.205	.215	.68	12.00
17.400"	17	3.500	.500	.205	.215	.68	12.00



O.D.[1] SIZE (INCHES)	SDR	T MIN. WALL (INCHES)	I.D.[2] (INCHES) MIN.	MAX.	R.H.C.P.[3] PSI	FEET[4]	MAX.[5] TENSILE PULL (LBS.)	MAX.[6] INTERNAL PRESSURE (LBS.)	COUPLING B.O.D. (INCHES)	APPROX. WEIGHT PER FOOT (LBS.)	PART NO.
4.500	19[7]	.237	3.968	4.026	158	365	2,937	65	4.950	2.05	65015
4.950	20[7]	.248	4.364	4.454	134	310	7,392	160	5.563	2.39	65115
	17	.291	4.273	4.368	224	517	7,392	160	5.563	2.77	65655
5.563	21	.265	4.941	5.033	115	265	7,656	150	6.180	2.86	65425
	17	.327	4.810	4.909	224	517	7,722	150	6.180	3.46	65665
6.625	21	.316	5.885	5.993	115	265	12,705	200	7.600	4.33	65435
	17	.390	5.728	5.845	224	517	13,431	280	7.600	5.22	65675
6.900	17	.405	5.970	6.090	224	517	14,850	210	7.840	5.48	65685
8.625	21	.410	7.707	7.805	115	265	22,440	210	9.854	7.17	65745
9.050	17	.532	7.848	7.986	224	517	22,440	185	10.190	9.61	65695
10.750	17	.632	9.334	9.486	224	517	26,000	300	12.438	13.70	65405
12.750	17	.750	11.070	11.250	224	517	30,789	150	14.000	18.84	65705
14.000	17	.823	12.156	12.354	224	517	36,440	150	15.300	22.57	65715
16.000	26	.616	14.568	14.768	59	136	40,610	150	17.400	20.51	65285
	21	.762	14.252	14.476	115	265	41,400	150	17.400	24.66	65485
	17	.941	13.894	14.118	224	517	41,400	150	17.400	31.66	65475
17.400	17	1.024	15.106	15.352	224	517	37,092	125	18.701	34.50	65725

Note: All dimensions and weights are subject to manufacturing tolerances.

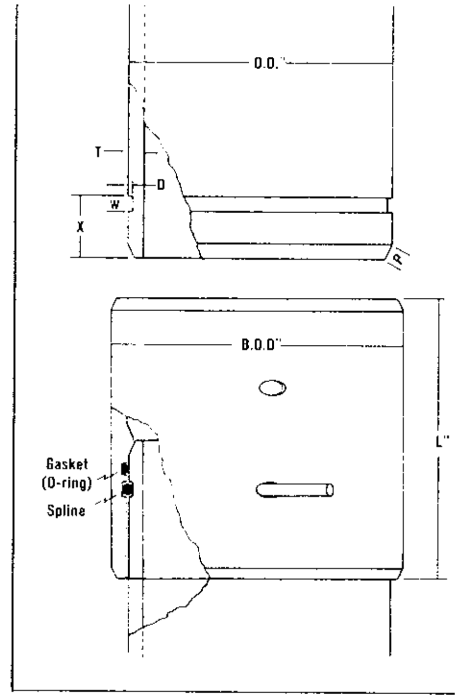
[1] O.D. - Outside Diameter
[2] I.D. - Inside Diameter
[3] RHCP - Resistance to Hydrostatic Collapse Pressure
[4] FEET - Feet of Water Head
[5] 66% of Ultimate Tensile Strength
[6] 66% of Ultimate Pressure
[7] Schedule 40

CertainTeed

CERTA-LOK™ PVC WELL CASING

DIMENSIONS, WEIGHTS AND PERFORMANCE DATA

O.D. SIZE	SDR	X	W	D MIN.	D MAX.	P	L	COUPLING B.O.D.
4.500"	19	1.313	.375	.125	.130	.25	6.00	4.950
4.950"	20	1.313	.375	.125	.130	.25	6.00	5.563
	17	1.313	.375	.125	.130	.25	6.00	5.563
5.563"	21	1.313	.375	.125	.130	.25	6.00	6.180
	17	1.313	.375	.125	.130	.25	6.00	6.180
6.625"	24	1.313	.375	.125	.130	.25	6.00	7.600
	21	1.313	.375	.125	.130	.25	6.00	7.600
	17	1.313	.375	.125	.130	.25	6.00	7.600
6.900"	17	3.000	.375	.125	.130	.25	8.25	7.840
8.625"	21	3.163	.500	.135	.140	.68	10.00	9.854
9.050"	17	3.163	.500	.205	.215	.68	10.00	10.190
10.750"	17	3.500	.500	.205	.215	.68	12.00	12.438
12.750"	17	3.500	.500	.205	.215	.68	12.00	14.000
14.000"	17	3.500	.500	.205	.215	.68	12.00	15.300
16.000"	26	3.500	.500	.205	.215	.68	12.00	17.400
	21	3.500	.500	.205	.215	.68	12.00	17.400
	17	3.500	.500	.205	.215	.68	12.00	17.400
17.400"	17	3.500	.500	.205	.215	.68	12.00	18.701



Note: All dimensions are in inches.

NOMINAL SIZE DESIGNATION	O.D.[1] SIZE (INCHES)	SDR	T MIN. WALL (INCHES)	I.D.[2] (INCHES) MIN.	I.D.[2] (INCHES) MAX.	R.H.C.P.[3] (PSI)	MAX.[4] TENSILE PULL (LBS.)	MAX.[5] INTERNAL PRESSURE (LBS.)	APPROX. WEIGHT PER FOOT (LBS.)	PART NO.
4"	4.500	19[6]	.237	3.968	4.026	158	2,900	65	2.05	65015
4½"	4.950	20[6]	.248	4.364	4.454	134	7,400	160	2.39	65115
		17	.291	4.273	4.368	224	7,400	160	2.77	65655
5"	5.563	21	.265	4.941	5.033	115	7,600	150	2.86	65425
		17	.327	4.810	4.909	224	7,600	150	3.46	65665
6"	6.625	24[6]	.280	5.961	6.065	79	12,000	280	3.92	65025
		21	.316	5.885	5.993	115	12,000	280	4.33	65435
		17	.390	5.728	5.845	224	12,000	280	5.22	65675
6"CI[7]	6.900	17	.405	5.970	6.090	224	14,850	210	5.48	65685
8"	8.625	21	.410	7.666	7.805	115	22,440	210	7.17	65745
8"CI[7]	9.050	17	.532	7.848	7.986	224	22,440	185	9.61	65695
10"	10.750	17	.632	9.334	9.486	224	26,000	300	13.70	65405
12"	12.750	17	.750	11.070	11.250	224	30,800	150	18.84	65705
14"	14.000	17	.823	12.156	12.354	224	36,440	150	22.57	65715
16"	16.000	26	.616	14.544	14.768	59	41,000	150	20.51	65285
		21	.762	14.235	14.476	115	41,000	150	24.66	65485
		17	.941	13.894	14.118	224	41,000	150	31.66	65475
16"CI[7]	17.400	17	1.024	15.106	15.352	224	37,000	125	35.05	65725

[1] O.D. - Outside Diameter
[2] I.D. - Inside Diameter
[3] RHCP - Resistance to Hydrostatic Collapse Pressure
[4] 66% of Ultimate Tensile Strength
[5] 66% of Ultimate Pressure
[6] Schedule 40
[7] Cast Iron O.D.

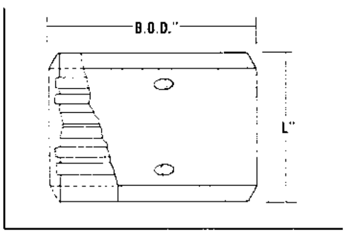
Note: All dimensions and weights are subject to manufacturing tolerances.

ACCESSORIES

COUPLING

INCLUDES GASKETS AND SPLINES

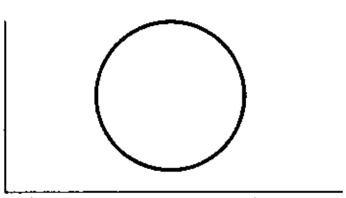
O.D. SIZE	PART NUMBER	L"	B.O.D."
4.500"	70703	6.00	4.950
4.950"	70704	6.00	5.563
5.563"	70705	6.00	6.180
6.625"	70706	6.00	7.600
6.900"	70707	8.25	7.840
8.625"	70708	10.00	9.854
9.050"	70716	10.00	10.190
10.750"	70712	12.00	12.438
12.750"	70709	12.00	14.000
14.000"	70710	12.00	15.300
16.000"	70711	12.00	17.400
17.400"	70719	12.00	18.700



O-RING (GASKET)

O.D. SIZE	PART NUMBER	C/S	DASH NO.
4.500"	86123	.210"	-349
4.950"	86260	.210"	-353
5.563"	86124	.210"	-358
6.625"	86125	.210"	-364
6.900"	86174	.275"	-441
8.625"	86168	.350"	-
9.050"	86175	.350"	-
10.750"	86196	.365"	-
12.750"	86178	.365"	-
14.000"	86171	.365"	-
16.000"	86172	.365"	-
17.400"	86173	.365"	-

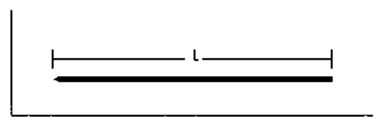
O-Ring Material: 4.500-6.900 NBR
8.625-Larger Poly Isoprene



SPLINE

O.D. SIZE	PART NUMBER	L"	SIZE
4.500"	86462	18	.250" [1]
4.950"	86462	18	.250" [1]
5.563"	86484	19	.250" [1]
6.625"	86463	24	.250" [1]
6.900"	86463	24	.250" [1]
8.625"	86464	32	.313" [2]
9.050"	86493	32	.375 [2]
10.750"	86465	39	.375 [2]
12.750"	86466	46	.375 [2]
14.000"	86490	48	.375 [2]
16.000"	86491	53	.375 [2]
17.400"	86492	60	.375 [2]

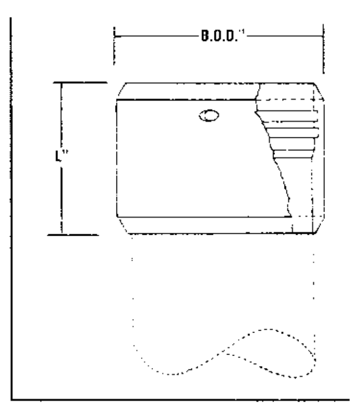
[1] Round Spline
[2] Square Spline



COUPLING

CERTA-LOK BELL BY SOLVENT WELD BELL

O.D. SIZE	PART NUMBER	L"	B.O.D."
4.500"	71703	6.00	4.950
4.950"	71704	6.00	5.563
5.563"	71705	6.13	6.180
6.625"	71706	6.63	7.600
6.900"	71708	8.25	7.840
8.625"	71707	10.00	9.854
9.050"	71709	10.00	10.190
10.750"	71710	12.00	12.438
12.750"	71711	12.00	14.000

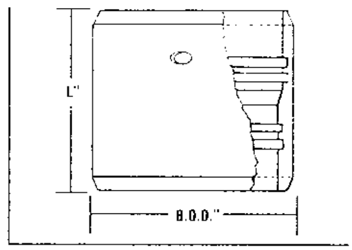


ACCESSORIES

REDUCER COUPLING

CERTA-LOK FEMALE BY CERTA-LOK FEMALE

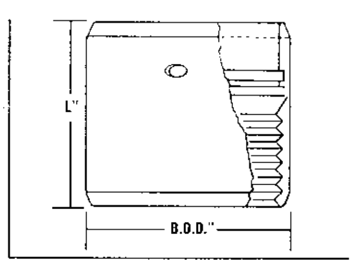
O.D. SIZE	PART NUMBER	L"	B.O.D."
6.900" x 6.625"	71250	8.25	7.84
9.050" x 8.625"	71251	10.00	10.190



THREAD ADAPTER

CERTA-LOK FEMALE X FIPT

O.D. SIZE	FEMALE THREAD SIZE	PART NUMBER	B.O.D."
4.500"	4"	81077	5.470
4.950"	4"	81078	5.563
5.563"	5"	81079	6.180
6.625"	6"	81080	7.600
6.900"	6"	81081	7.840
8.625"	8"	81082	9.854
9.050"	8"	81083	10.190
10.750"	10"	81084	12.438
12.750"	12"	81085	14.000

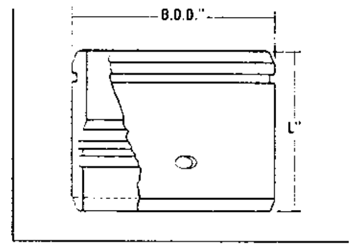


REDUCER BUSHING

CERTA-LOK SPIGOT BY CERTA-LOK BELL

O.D. SIZE	PART NUMBER	L"	B.O.D."
8.625" x 6.625"	71225	8.25	8.625
8.625" x 6.900"	71226	8.25	8.625
10.750" x 8.625"	71227	10.00	10.750
10.750" x 9.050"	71228	10.00	10.750
12.750" x 10.750"	71229	12.00	12.750
14.000" x 12.750"	71230	12.00	14.000
16.000" x 14.000"	71232	12.00	16.000
17.400" x 16.000"	71231	12.00	17.400

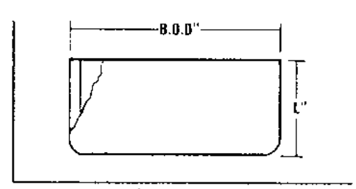
Note: Reduces coupling socket one size.



CASING & SCREEN CAP

SOLVENT WELD BELL

O.D. SIZE	PART NUMBER	L"	B.O.D."
4.500"	81037	2.50	4.900
4.950"	81043	2.50	5.350
5.563"	81038	2.50	5.963
6.625"	81039	2.50	7.025
6.900"	81045	4.00	7.300
8.625"	81040	4.00	9.025
9.050"	81048	4.00	9.450
10.750"	81041	5.00	11.150
12.750"	81042	5.00	13.150
14.000"	81050	5.00	14.400
16.000"	81047	5.00	16.400
17.400"	81051	5.25	17.800

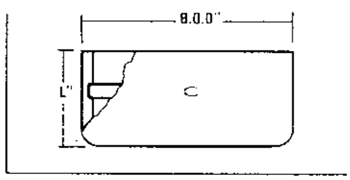


ACCESSORIES

CASING & SCREEN CAP

CERTA-LOK BELL

O.D. SIZE	PART NUMBER	L"	B.O.D."
4.500"	81061	4.00	4.950
4.950"	81062	4.00	5.563
5.563"	81063	4.25	6.180
6.625"	81064	4.25	7.600
6.900"	81065	4.25	7.600
8.625"	81066	4.50	9.854
9.050"	81067	4.50	10.190
10.750"	81068	5.00	11.600
12.750"	81069	5.00	14.000
14.000"	81070	5.00	15.300
16.000"	81071	5.25	17.400
17.400"	81072	5.50	18.700



PACKAGING AND WEIGHTS

O.D. SIZE	SDR	WEIGHT LBS./FT. WITH COUPLING	LAYING LENGTH	FAST PAK FEET	FAST PAK LBS.	FAST PAK % T/L	TRUCK LOAD FEET	TRUCK LOAD LBS.	TRUCK LOAD FAST PAK PER T/L	PART NUMBER
4.500"	19	2.05	20'	580	1,189	3.6	16,240	33,292	28	65015
4.950"	20	2.39	20'	520	1,243	4.2	12,480	29,827	24	65115
	17	2.77	20'	520	1,440	4.2	12,480	34,570	24	65655
5.563"	21	2.86	20'	460	1,315	4.2	11,040	31,574	24	65425
	17	3.46	20'	460	1,592	4.2	11,040	38,198	24	65665
6.625"	24	3.92	20'	400	1,568	5.0	8,000	31,360	20	65025
	21	4.33	20'	400	1,732	5.0	8,000	34,640	20	65435
	17	5.22	20'	400	2,088	5.0	8,000	41,760	20	65675
6.900"	17	5.48	20'	420	2,301	6.3	6,720	36,825	16	65685
8.625"	21	7.17	20'	280	2,008	6.3	4,480	32,121	16	65745
9.050"	17	9.61	20'	200	1,922	5.0	4,000	38,440	20	65695
10.750"	17	13.70	20'	160	2,192	6.3	2,560	35,072	16	65405
12.750"	17	18.84	20'	160/80[1]	3,014/1507	7.1/3.6	2,240	42,197	12/4	65705
14.000"	17	22.57	20'	120	2,708	8.3	1,440	32,501	12	65715
16.000"	26	20.51	20'	120	2,461	8.3	1,440	29,534	12	65285
	21	24.66	20'	120	2,959	8.3	1,440	35,510	12	65485
	17	31.66	20'	120	3,799	8.3	1,440	45,590	12	65475
17.400"	17	35.05	20'	60/40[1]	2,103/1402	6.0/4.0	1,000	35,050	14/4	65725

[1] Special Topping off fast-paks

Certa-Lok WELL PRODUCTS

CertainTeed

Code No: 40-37-37E
Date: 8/96

Printed in U.S.A.

APPENIDX 3.3

NEAT CEMENT SPECIFICATIONS AND COMPRESSIVE STRENGTH SUMMARY

400C.721-A 3.4

Tarmac

Tarmac America, Inc.
11000 N.W. 121st Way
Medley, FL 33178
(305) 364-2230
Fax (305) 364-2288

Consignee
Date Car/Truck
Destination
Plant
TYPE AND SPECIFICATION No C-150 TYPE II
RESULTS OF TESTS 99-0700-03
SILOS 6,9,10,11,12

CHEMICAL REQUIREMENTS	Average Percent		SPECIFICATION A.S.T.M. C-150	SPECIFICATION Federal SS-C-192
Silicon Dioxide (SiO2)	21.51			
Aluminum Oxide (Al2O3)	5.11	Max%		
Ferric Oxide (Fe2O3)	3.44	Max%		7.50
Calcium Oxide (CaO)	64.77	Max%		
Magnesium Oxide (MgO)	1.34	Max%	6.00	6.00
Sulfur Trioxide (SO3) When 3CaO.Al2O3<8%	2.81	Max%	6.00	6.00
Sulfur Trioxide (SO3) When 3CaO.Al2O3>8%		Max%	3.00	3.00
Ignition Loss	1.13	Max%	3.50	3.50
Insoluble Residue	0.21	Max%	0.75	0.75
Tricalcium Silicate (C3S)	53.8			
Tricalcium Aluminate (C3A)	7.7			
Na2O Equivalent	0.31			

PHYSICAL REQUIREMENTS				
BLAINE	3999	Min	2800	
Specific Surface (Wagner)	2089	Min	1600	
Soundness, Autoclave expansion	-0.01	Max	0.80	0.80
- 325 MESH % Passing	89.9			
7 days Heat of Hydration (cal/g)	78			
AIR CONTENT %	8.57	Max	12	12
Time of set(Gillmore) initial	135	Min	60	60
Time of set(Gillmore) Final	251	Max	600	600
Compressive Strength, psi 1 Day	1556			
Compressive Strength, psi 3 Day	3117	Min	1800	1800
Compressive Strength, psi 7 Day	4231	Min	2800	2800

This certification covers cement in this shipment and all future shipments with this batch number. This cement conforms to A.S.T.M. C-150 The cement covered by this mill test certificate has been produced in the United States including the manufacture of clinker.

DATE: JULY 3,1999

Victor M. Tirie

Youngquist Brothers, Inc.

15465 Pine Ridge Rd.
Ft. Myers, Fl. 33908

Phone: 941-489-4444
Fax: 941-489-4545

December 13, 1999

Water Resource Solution
428 Pine Island Road, SW

Cape Coral, Florida 33991

Attn: Mark S. Pearce

Project: Marco Island Raw Water ASR Wellfield
Re: Cement Reports

Project #: 01-03733.HO
Job #: 996018

Dear Dr. Pearce:

The 24-hour compressive strength reports are as follows:

ASR Zone Monitor Well
Stage 1- Neat 1290 psi
Stage 2- 6% 450 psi
Stage 3- 6% 470 psi
Stage 4- 6% 440 psi

Zone II Monitor Well
Stage 1- Neat 1260 psi
Stage 2- 6% 440 psi

ASR Well # 2
Stage 1- Neat 1270 psi
Stage 2- 6% 460 psi
Stage 3- 6% 440 psi

ASR Well # 3
Stage 1- Neat 1290 psi
Stage 2- 6% 450 psi
Stage 3- 6% 460 psi

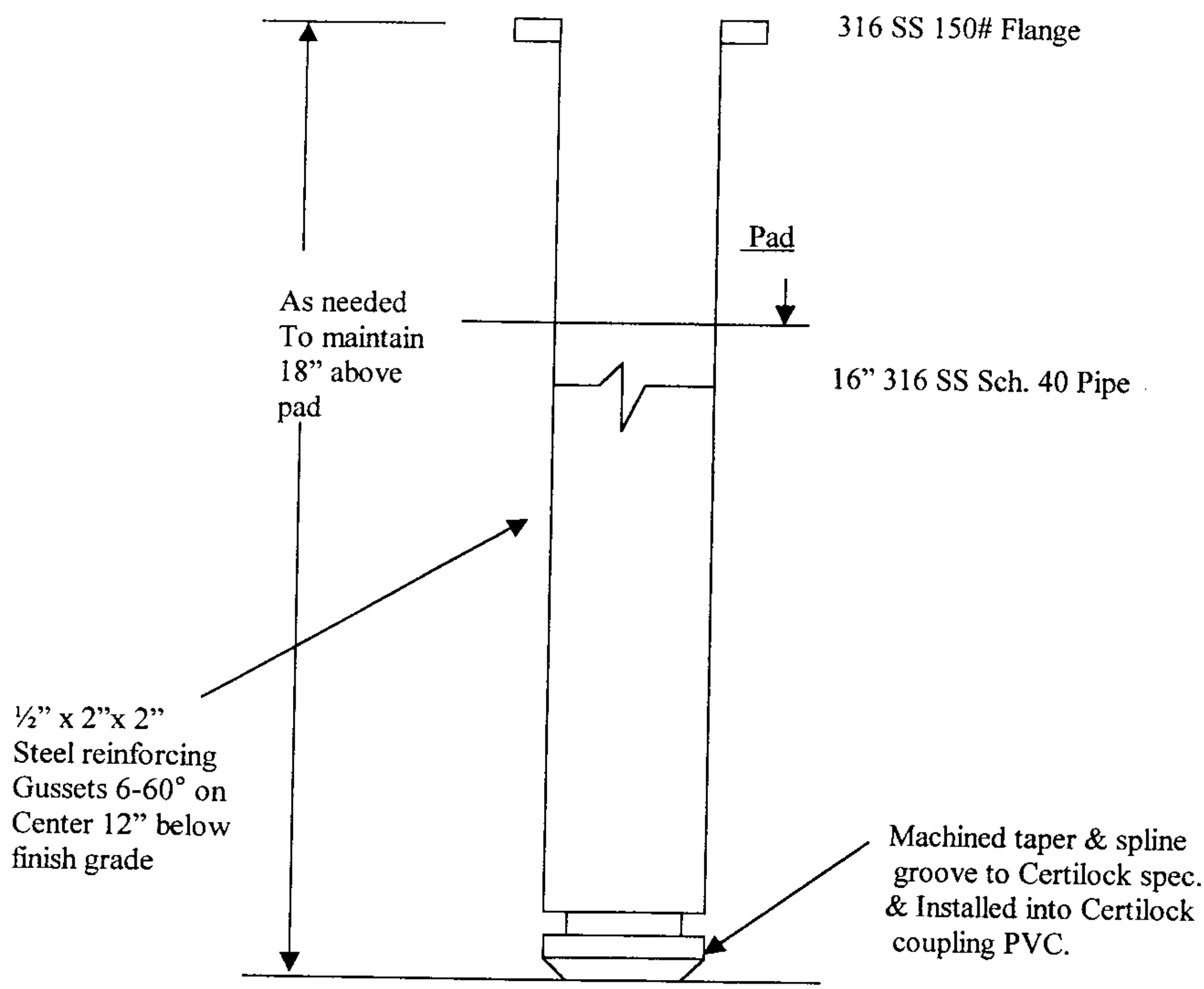
If there are any questions, please feel free to call.

Sincerely,

Craig Brugger

APPENDIX 3.4

STAINLESS STEEL CERTA-LOK TO FLANGE ADAPTER



16" Stainless Certilock Adapter
Submittal# 4000.8-01-A

Marco ASR
Project# 01-03733.HO
Youngquist Brothers, Inc.

Youngquist Brothers, Inc.
15465 Pine Ridge Rd.
Ft. Myers, FL. 33908
Tel: 941-489-4444 Fax: 941-489-4545

August 18, 1999

Mark Pearce PhD.
Water Resource Solutions, Inc.
428 Pine Island Road
Cape Coral, FL. 33991

Re: Marco Island ASR Wellfield

Dear Mark,

In response to your letter dated August 25, 1999, I am forwarding a copy of the Certainteed detail for the dimensions of the Certa-Lok joint for your review. YBI will fabricate the stainless steel Flange x Certa-Lok adapter piece to the specifications on this sheet.

Additionally, it is agreed that YBI will warranty this connection in accordance with the warranty requirements of the contract.

Respectfully,

Dave Collins
Contract Administrator
Youngquist Brothers, Inc.

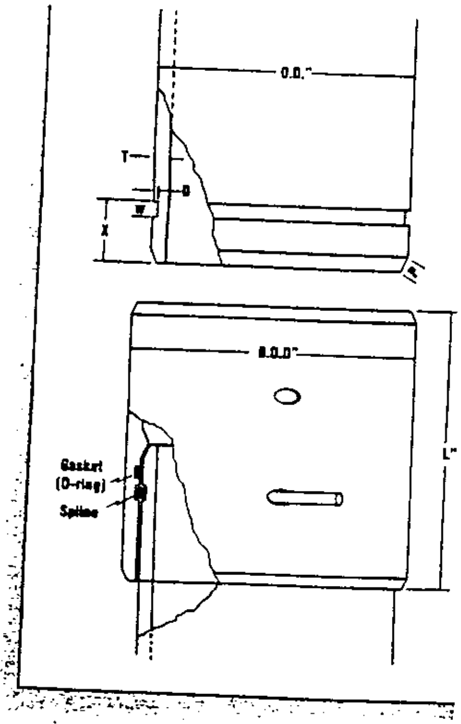
Att: Certa-Lok Detail

Cc: Ed McCullers, YBI

CERTA-LOK™ PVC WELL CASING

DIMENSIONS, WEIGHTS AND PERFORMANCE DATA

O.D. SIZE	SDR	X	W	D MIN.	D MAX.	P	L	COUPLING B.O.D.
4.500"	19	1.313	.375	.125	.130	.25	6.00	4.950
4.950"	20	1.313	.375	.125	.130	.25	6.00	5.563
	17	1.313	.375	.125	.130	.25	6.00	5.563
5.563"	21	1.313	.375	.125	.130	.25	6.00	6.180
	17	1.313	.375	.125	.130	.25	6.00	6.180
6.625"	24	1.313	.375	.125	.130	.25	6.00	7.600
	21	1.313	.375	.125	.130	.25	6.00	7.600
	17	1.313	.375	.125	.130	.25	6.00	7.600
6.900"	17	3.000	.375	.125	.130	.25	8.25	7.840
8.625"	21	3.163	.500	.135	.140	.68	10.00	9.854
9.050"	17	3.163	.500	.205	.215	.68	10.00	10.190
10.750"	17	3.500	.500	.205	.215	.68	12.00	12.438
12.750"	17	3.500	.500	.205	.215	.68	12.00	14.000
14.000"	17	3.500	.500	.205	.215	.68	12.00	15.300
16.000"	26	3.500	.500	.205	.215	.68	12.00	17.400
	21	3.500	.500	.205	.215	.68	12.00	17.400
	17	3.500	.500	.205	.215	.68	12.00	17.400
17.400"	17	3.500	.500	.205	.215	.68	12.00	18.701



Note: All dimensions are in inches.

NOMINAL SIZE DESIGNATION	O.D.[1] SIZE (INCHES)	SDR	T MIN. WALL (INCHES)	I.D.[2] (INCHES) MIN.	I.D.[2] (INCHES) MAX.	R.H.C.P.[3] (PSI)	MAX.[4] TENSILE PULL (LBS.)	MAX.[5] INTERNAL PRESSURE (LBS.)	APPROX. WEIGHT PER FOOT (LBS.)	PART NO.
4"	4.500	19[6]	.237	3.968	4.026	158	2,900	65	2.05	65015
4½"	4.950	20[6]	.248	4.364	4.454	134	7,400	160	2.39	65115
		17	.291	4.273	4.368	224	7,400	160	2.77	65655
5"	5.563	21	.265	4.941	5.033	115	7,600	150	2.86	65425
		17	.327	4.810	4.909	224	7,600	150	3.46	65665
6"	6.625	24[6]	.280	5.961	6.065	79	12,000	280	3.92	65025
		21	.316	5.885	5.993	115	12,000	280	4.33	65435
		17	.390	5.728	5.845	224	12,000	280	5.22	65675
6"CI[7]	6.900	17	.405	5.970	6.090	224	14,850	210	5.48	65685
8"	8.625	21	.410	7.666	7.805	115	22,440	210	7.17	65745
8"CI[7]	9.050	17	.532	7.848	7.986	224	22,440	185	9.61	65695
10"	10.750	17	.632	9.334	9.486	224	26,000	300	13.70	65405
12"	12.750	17	.750	11.070	11.250	224	30,800	150	18.84	65705
14"	14.000	17	.823	12.156	12.354	224	36,440	150	22.57	65715
16"	16.000	26	.616	14.544	14.768	59	41,000	150	20.51	65285
		21	.762	14.235	14.476	115	41,000	150	24.66	65485
		17	.941	13.894	14.118	224	41,000	150	31.66	65475
16"CI[7]	17.400	17	1.024	15.106	15.352	224	37,000	125	35.05	65725

[1] O.D. - Outside Diameter
[2] I.D. - Inside Diameter
[3] RHCP - Resistance to Hydrostatic Collapse Pressure
[4] 66% of Ultimate Tensile Strength
[5] 66% of Ultimate Pressure
[6] Schedule 40
[7] Cast Iron O.D.

Note: All dimensions and weights are subject to manufacturing tolerances.

CertainTeed

Certainteed Corp.
Ken Crago
PO Box 2461
Valdosta, Ga. 31604

August 24, 1999

Mr. Ed McCullers
Youngquist Brothers, Inc.
15465 Pine Ridge Rd.
Ft. Myers, Fl. 33908

Re: Wellhead Design Change

Dear Ed,

The use of stainless steel with Certa-Lok well casing and drop pipe is a very common construction practice. The end finish on the stainless steel nipple will need to be the same specification as the Certa-Lok casing. The application of standard pipe lubricant will be needed to install stainless steel nipple in the Certa-Lok coupling.

Information to the following questions that were asked by Mark Pearce:

1) Tensile strength is 43,114 lbs. safe working load.

2) The connection will be as strong as the as the Certa-Lok Casing connections.

3) This is a common construction practice for the installation of both discharge heads and stainless steel well screens.

4) Cetainteed Corp. has no problem with the use of stainless steel nipples with Ceta-Lok well casing or Certa-Lok drop pipe as long as the end finish of stainless steel nipple meets Certa-Lok specification.

Please call me if you have any questions.

Sincerely,

Ken Crago
Senior Territory Manager
Certainteed Corp.
Pipe and Plastics Group
912-242-2888
Fax 912-247-2898

APPENDIX 3.5

MONITORING WELL CASING SPECIFICATIONS

ENGINEERING SPECIFICATION

RESTRAINED JOINT PVC WELL CASING

1.0 SCOPE

This specification covers Poly-Vinyl Chloride (PVC) Well Casing pipe and couplings which are assembled and installed as a completely non-metallic restrained joint system. Pipe is produced in nominal sizes 4"–16", and is available in both solid and slotted configurations.

2.0 REFERENCE DOCUMENTS

American Society for Testing and Materials (ASTM):

ASTM D1784 – Standard Specification for Rigid PVC Compounds and Chlorinated PVC Compounds.

ASTM D2837 – Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials.

ASTM F480 – Standard Specification for Thermoplastic Well Casing Pipe and Couplings Made in Standard Dimension Ratios (SDR), SCH 40 and SCH 80.

National Sanitation Foundation (NSF):

NSF14 – Plastic Piping System Components and Related Materials

NSF61 – Drinking Water System Components – Health Effects

3.0 REQUIREMENTS

3.1 Materials: Pipe and couplings shall be made from unplasticized PVC compounds having a minimum cell classification of 12454-B, as defined in ASTM D1784. The compound shall qualify for a Hydrostatic Design Basis (HDB) of 4000psi for water at 73.4° F, in accordance with the requirements of ASTM D2837. White pipe shall be supplied, unless otherwise agreed upon at time of purchase.

3.2 Approvals: Products intended for contact with potable water shall be evaluated, tested, and certified for conformance with NSF61, or the health effects portion of NSF14, by an acceptable certifying organization, when required by the regulatory authority having jurisdiction.

3.3 Physical Requirements: Product dimensions, weights, and performance data are summarized in the table on the reverse side of this page. Standard pipe length is 20'. Nominal casing size should be selected by the Design Engineer based on required flow performance, pump diameter, and local installation conditions under which the well will be constructed.

3.4 Performance: All pipe supplied to this specification shall meet the stiffness (crush resistance), flattening, impact, and puncture test requirements of ASTM F480.

3.5 Joints: Pipe shall be joined using non-metallic couplings which, together, have been designed as an integral system for maximum reliability and interchangeability. High-strength flexible thermoplastic splines shall be inserted into mating precision-machined grooves in the pipe and coupling to provide full 360° restraint with evenly distributed loading. No external pipe-to-pipe restraining devices which clamp onto or otherwise damage the pipe surface as a result of point-loading shall be permitted. Couplings shall incorporate twin elastomeric sealing gaskets. Consult the manufacturer for availability of joint accessories and fittings. Note that this specification does not cover integral bell pipe with solvent-cement joints.

3.6 Marking: Well Casing pipe shall be legibly and permanently marked in ink with the following information:

- Manufacturer and Trade Name
- Nominal Size & SDR or SCH Rating
- Manufacturing Date Code
- Cell Classification
- ASTM F480-94 SE
- (NSF-61)

3.7 Workmanship: Pipe and couplings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions, blisters and dents, interior roughness, and other injurious defects that may affect wall integrity. The pipe and couplings shall be as uniform as commercially practicable in color, opacity, density, and other physical characteristics.

4.0 SLOTTING

Pipe can be supplied with multiple rows of machined circumferential slots, to allow for water entry into the casing. Slot patterns should be specified to provide the required open areas and flow rates (taking into account the surrounding embedment material), while maintaining structural integrity of the installed system. Consult the manufacturer for design data and product availability. The following slotting parameters must be specified:

- Slot Width
- Slot Spacing
- Number of Rows
- Row Length
- Slot O.D. Length

5.0 SUGGESTED SOURCE OF SUPPLY

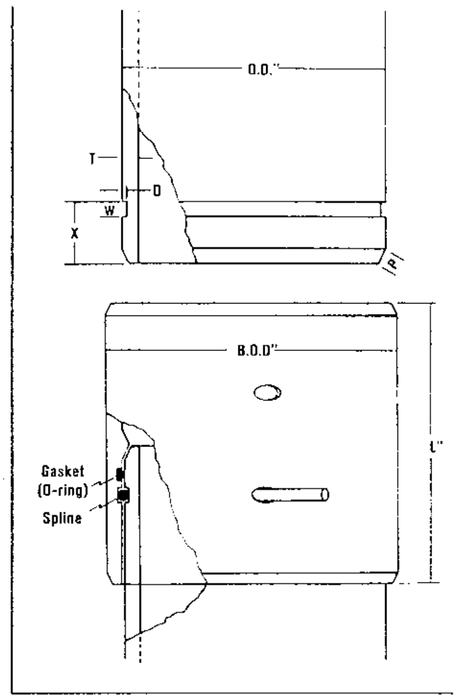
Certa-Lok PVC Well Casing as supplied by:

CertainTeed Corporation
Pipe & Plastics Group
P.O. Box 860
Valley Forge, PA 19482

CERTA-LOK™ PVC WELL CASING

DIMENSIONS, WEIGHTS AND PERFORMANCE DATA

O.D. SIZE	SDR	X"	W"	D" MIN.	D" MAX.	P"	L"
4.500"	19	1.313	.375	.125	.130	.25	6.00
4.950"	20	1.313	.375	.125	.130	.25	6.00
	17	1.313	.375	.125	.130	.25	6.00
5.563"	21	1.313	.375	.125	.130	.25	6.00
	17	1.313	.375	.125	.130	.25	6.00
6.625"	21	1.313	.375	.125	.130	.25	6.00
	17	1.313	.375	.125	.130	.25	6.00
6.900"	17	3.000	.375	.125	.130	.25	8.25
8.625"	21	3.163	.500	.135	.140	.68	10.00
9.050"	17	3.163	.500	.205	.215	.68	10.00
10.750"	17	3.500	.500	.205	.215	.68	12.00
12.750"	17	3.500	.500	.205	.215	.68	12.00
14.000"	17	3.500	.500	.205	.215	.68	12.00
16.000"	26	3.500	.500	.205	.215	.68	12.00
	21	3.500	.500	.205	.215	.68	12.00
	17	3.500	.500	.205	.215	.68	12.00
17.400"	17	3.500	.500	.205	.215	.68	12.00



O.D.[1] SIZE (INCHES)	SDR	T MIN. WALL (INCHES)	I.D.[2] (INCHES) MIN.	I.D.[2] (INCHES) MAX.	R.H.C.P.[3] PSI	R.H.C.P.[3] FEET[4]	MAX.[5] TENSILE PULL (LBS.)	MAX.[6] INTERNAL PRESSURE (LBS.)	COUPLING B.O.D. (INCHES)	APPROX. WEIGHT PER FOOT (LBS.)	PART NO.
4.500	19[7]	.237	3.968	4.026	158	365	2,937	65	4.950	2.05	65015
4.950	20[7]	.248	4.364	4.454	134	310	7,392	160	5.563	2.39	65115
	17	.291	4.273	4.368	224	517	7,392	160	5.563	2.77	65655
5.563	21	.265	4.941	5.033	115	265	7,656	150	6.180	2.86	65425
	17	.327	4.810	4.909	224	517	7,722	150	6.180	3.46	65665
6.625	21	.316	5.885	5.993	115	265	12,705	200	7.600	4.33	65435
	17	.390	5.728	5.845	224	517	13,431	280	7.600	5.22	65675
6.900	17	.405	5.970	6.090	224	517	14,850	210	7.840	5.48	65685
8.625	21	.410	7.707	7.805	115	265	22,440	210	9.854	7.17	65745
9.050	17	.532	7.848	7.986	224	517	22,440	185	10.190	9.61	65695
10.750	17	.632	9.334	9.486	224	517	26,000	300	12.438	13.70	65405
12.750	17	.750	11.070	11.250	224	517	30,789	150	14.000	18.84	65705
14.000	17	.823	12.156	12.354	224	517	36,440	150	15.300	22.57	65715
16.000	26	.616	14.568	14.768	59	136	40,610	150	17.400	20.51	65285
	21	.762	14.252	14.476	115	265	41,400	150	17.400	24.66	65485
	17	.941	13.894	14.118	224	517	41,400	150	17.400	31.66	65475
17.400	17	1.024	15.106	15.352	224	517	37,092	125	18.701	34.50	65725

Note: All dimensions and weights are subject to manufacturing tolerances.

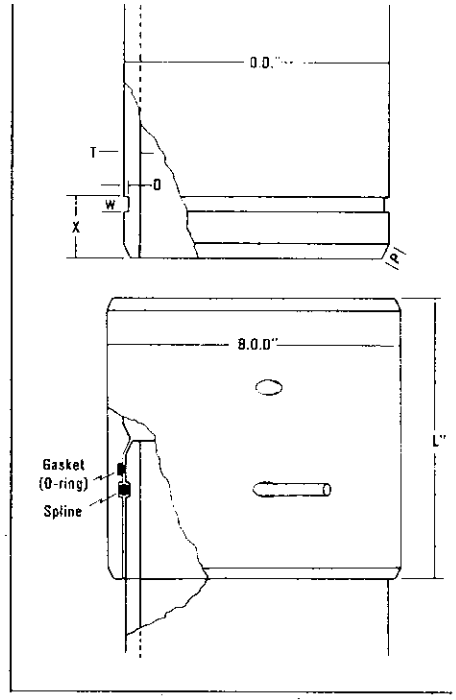
[1] O.D. - Outside Diameter
[2] I.D. - Inside Diameter
[3] RHCP - Resistance to Hydrostatic Collapse Pressure
[4] FEET - Feet of Water Head
[5] 66% of Ultimate Tensile Strength
[6] 66% of Ultimate Pressure
[7] Schedule 40

CertainTeed

CERTA-LOK™ PVC WELL CASING

DIMENSIONS, WEIGHTS AND PERFORMANCE DATA

O.D. SIZE	SDR	X	W	D MIN.	D MAX.	P	L	COUPLING B.O.D.
4.500"	19	1.313	.375	.125	.130	.25	6.00	4.950
4.950"	20	1.313	.375	.125	.130	.25	6.00	5.563
	17	1.313	.375	.125	.130	.25	6.00	5.563
5.563"	21	1.313	.375	.125	.130	.25	6.00	6.180
	17	1.313	.375	.125	.130	.25	6.00	6.180
6.625"	24	1.313	.375	.125	.130	.25	6.00	7.600
	21	1.313	.375	.125	.130	.25	6.00	7.600
	17	1.313	.375	.125	.130	.25	6.00	7.600
6.900"	17	3.000	.375	.125	.130	.25	8.25	7.840
8.625"	21	3.163	.500	.135	.140	.68	10.00	9.854
9.050"	17	3.163	.500	.205	.215	.68	10.00	10.190
10.750"	17	3.500	.500	.205	.215	.68	12.00	12.438
12.750"	17	3.500	.500	.205	.215	.68	12.00	14.000
14.000"	17	3.500	.500	.205	.215	.68	12.00	15.300
16.000"	26	3.500	.500	.205	.215	.68	12.00	17.400
	21	3.500	.500	.205	.215	.68	12.00	17.400
	17	3.500	.500	.205	.215	.68	12.00	17.400
17.400"	17	3.500	.500	.205	.215	.68	12.00	18.701



Note: All dimensions are in inches.

NOMINAL SIZE DESIGNATION	O.D.[1] SIZE (INCHES)	SDR	T MIN. WALL (INCHES)	I.D.[2] (INCHES) MIN.	I.D.[2] (INCHES) MAX.	R.H.C.P.[3] (PSI)	MAX.[4] TENSILE PULL (LBS.)	MAX.[5] INTERNAL PRESSURE (LBS.)	APPROX. WEIGHT PER FOOT (LBS.)	PART NO.
4"	4.500	19[6]	.237	3.968	4.026	158	2,900	65	2.05	65015
4½"	4.950	20[6]	.248	4.364	4.454	134	7,400	160	2.39	65115
		17	.291	4.273	4.368	224	7,400	160	2.77	65655
5"	5.563	21	.265	4.941	5.033	115	7,600	150	2.86	65425
		17	.327	4.810	4.909	224	7,600	150	3.46	65665
6"	6.625	24[6]	.280	5.961	6.065	79	12,000	280	3.92	65025
		21	.316	5.885	5.993	115	12,000	280	4.33	65435
		17	.390	5.728	5.845	224	12,000	280	5.22	65675
6"CI[7]	6.900	17	.405	5.970	6.090	224	14,850	210	5.48	65685
8"	8.625	21	.410	7.666	7.805	115	22,440	210	7.17	65745
8"CI[7]	9.050	17	.532	7.848	7.986	224	22,440	185	9.61	65695
10"	10.750	17	.632	9.334	9.486	224	26,000	300	13.70	65405
12"	12.750	17	.750	11.070	11.250	224	30,800	150	18.84	65705
14"	14.000	17	.823	12.156	12.354	224	36,440	150	22.57	65715
16"	16.000	26	.616	14.544	14.768	59	41,000	150	20.51	65285
		21	.762	14.235	14.476	115	41,000	150	24.66	65485
		17	.941	13.894	14.118	224	41,000	150	31.66	65475
16"CI[7]	17.400	17	1.024	15.106	15.352	224	37,000	125	35.05	65725

[1] O.D. - Outside Diameter
[2] I.D. - Inside Diameter
[3] RHCP - Resistance to Hydrostatic Collapse Pressure
[4] 66% of Ultimate Tensile Strength
[5] 66% of Ultimate Pressure
[6] Schedule 40
[7] Cast Iron O.D.

Note: All dimensions and weights are subject to manufacturing tolerances.

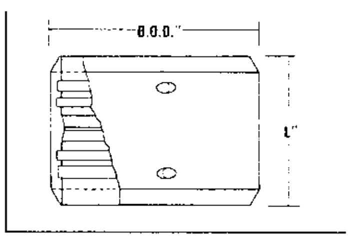
CertainTeed

ACCESSORIES

COUPLING

INCLUDES GASKETS AND SPLINES

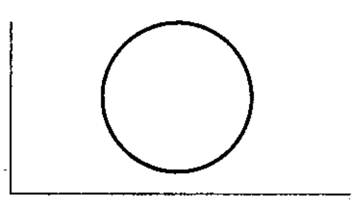
O.D. SIZE	PART NUMBER	L"	B.O.D."
4.500"	70703	6.00	4.950
4.950"	70704	6.00	5.563
5.563"	70705	6.00	6.180
6.625"	70706	6.00	7.600
6.900"	70707	8.25	7.840
8.625"	70708	10.00	9.854
9.050"	70716	10.00	10.190
10.750"	70712	12.00	12.438
12.750"	70709	12.00	14.000
14.000"	70710	12.00	15.300
16.000"	70711	12.00	17.400
17.400"	70719	12.00	18.700



O-RING (GASKET)

O.D. SIZE	PART NUMBER	C/S	DASH NO.
4.500"	86123	.210"	-349
4.950"	86260	.210"	-353
5.563"	86124	.210"	-358
6.625"	86125	.210"	-364
6.900"	86174	.275"	-441
8.625"	86168	.350"	-
9.050"	86175	.350"	-
10.750"	86196	.365"	-
12.750"	86178	.365"	-
14.000"	86171	.365"	-
16.000"	86172	.365"	-
17.400"	86173	.365"	-

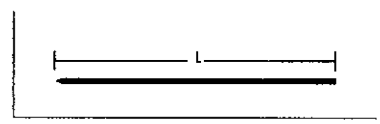
O-Ring Material: 4.500-6.900 NBR
8.625-Larger Poly Isoprene



SPLINE

O.D. SIZE	PART NUMBER	L"	SIZE
4.500"	86462	18	.250" [1]
4.950"	86462	18	.250" [1]
5.563"	86484	19	.250" [1]
6.625"	86463	24	.250" [1]
6.900"	86463	24	.250" [1]
8.625"	86464	32	.313" [2]
9.050"	86493	32	.375 [2]
10.750"	86465	39	.375 [2]
12.750"	86466	46	.375 [2]
14.000"	86490	48	.375 [2]
16.000"	86491	53	.375 [2]
17.400"	86492	60	.375 [2]

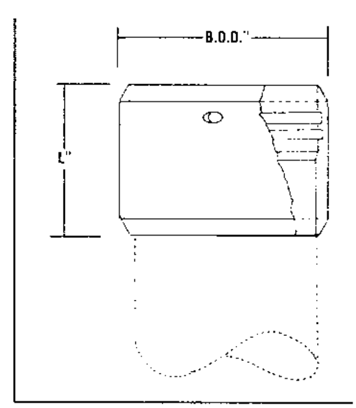
[1] Round Spline
[2] Square Spline



COUPLING

CERTA-LOK BELL BY SOLVENT WELD BELL

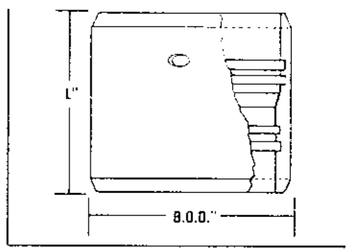
O.D. SIZE	PART NUMBER	L"	B.O.D."
4.500"	71703	6.00	4.950
4.950"	71704	6.00	5.563
5.563"	71705	6.13	6.180
6.625"	71706	6.63	7.600
6.900"	71708	8.25	7.840
8.625"	71707	10.00	9.854
9.050"	71709	10.00	10.190
10.750"	71710	12.00	12.438
12.750"	71711	12.00	14.000



REDUCER COUPLING

CERTA-LOK FEMALE BY CERTA-LOK FEMALE

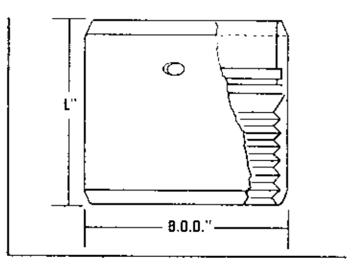
O.D. SIZE	PART NUMBER	L"	B.O.D."
6.900" x 6.625"	71250	8.25	7.84
9.050" x 8.625"	71251	10.00	10.190



THREAD ADAPTER

CERTA-LOK FEMALE X FIPT

O.D. SIZE	FEMALE THREAD SIZE	PART NUMBER	B.O.D."
4.500"	4"	81077	5.470
4.950"	4"	81078	5.563
5.563"	5"	81079	6.180
6.625"	6"	81080	7.600
6.900"	6"	81081	7.840
8.625"	8"	81082	9.854
9.050"	8"	81083	10.190
10.750"	10"	81084	12.438
12.750"	12"	81085	14.000

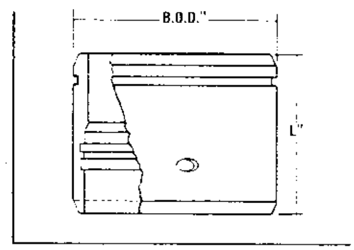


REDUCER BUSHING

CERTA-LOK SPIGOT BY CERTA-LOK BELL

O.D. SIZE	PART NUMBER	L"	B.O.D."
8.625" x 6.625"	71225	8.25	8.625
8.625" x 6.900"	71226	8.25	8.625
10.750" x 8.625"	71227	10.00	10.750
10.750" x 9.050"	71228	10.00	10.750
12.750" x 10.750"	71229	12.00	12.750
14.000" x 12.750"	71230	12.00	14.000
16.000" x 14.000"	71232	12.00	16.000
17.400" x 16.000"	71231	12.00	17.400

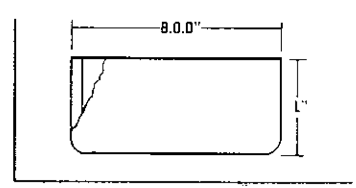
Note: Reduces coupling socket one size.



CASING & SCREEN CAP

SOLVENT WELD BELL

O.D. SIZE	PART NUMBER	L"	B.O.D."
4.500"	81037	2.50	4.900
4.950"	81043	2.50	5.350
5.563"	81038	2.50	5.963
6.625"	81039	2.50	7.025
6.900"	81045	4.00	7.300
8.625"	81040	4.00	9.025
9.050"	81048	4.00	9.450
10.750"	81041	5.00	11.150
12.750"	81042	5.00	13.150
14.000"	81050	5.00	14.400
16.000"	81047	5.00	16.400
17.400"	81051	5.25	17.800

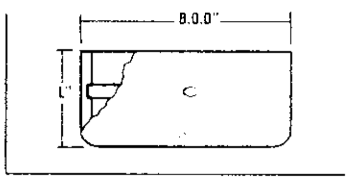


ACCESSORIES

CASING & SCREEN CAP

CERTA-LOK BELL

O.D. SIZE	PART NUMBER	L"	B.O.D."
4.500"	81061	4.00	4.950
4.950"	81062	4.00	5.563
5.563"	81063	4.25	6.180
6.625"	81064	4.25	7.600
6.900"	81065	4.25	7.600
8.625"	81066	4.50	9.854
9.050"	81067	4.50	10.190
10.750"	81068	5.00	11.600
12.750"	81069	5.00	14.000
14.000"	81070	5.00	15.300
16.000"	81071	5.25	17.400
17.400"	81072	5.50	18.700



PACKAGING AND WEIGHTS

O.D. SIZE	SDR	WEIGHT LBS./FT. WITH COUPLING	LAYING LENGTH	FAST PAK FEET	FAST PAK LBS.	FAST PAK % T/L	TRUCK LOAD FEET	TRUCK LOAD LBS.	TRUCK LOAD FAST PAK PER T/L	PART NUMBER
4.500"	19	2.05	20'	580	1,189	3.6	16,240	33,292	28	65015
4.950"	20	2.39	20'	520	1,243	4.2	12,480	29,827	24	65115
	17	2.77	20'	520	1,440	4.2	12,480	34,570	24	65655
5.563"	21	2.86	20'	460	1,315	4.2	11,040	31,574	24	65425
	17	3.46	20'	460	1,592	4.2	11,040	38,198	24	65665
6.625"	24	3.92	20'	400	1,568	5.0	8,000	31,360	20	65025
	21	4.33	20'	400	1,732	5.0	8,000	34,640	20	65435
	17	5.22	20'	400	2,088	5.0	8,000	41,760	20	65675
6.900"	17	5.48	20'	420	2,301	6.3	6,720	36,825	16	65685
8.625"	21	7.17	20'	280	2,008	6.3	4,480	32,121	16	65745
9.050"	17	9.61	20'	200	1,922	5.0	4,000	38,440	20	65695
10.750"	17	13.70	20'	160	2,192	6.3	2,560	35,072	16	65405
12.750"	17	18.84	20'	160/80‡	3,014/1507	7.1/3.6	2,240	42,197	12/4	65705
14.000"	17	22.57	20'	120	2,708	8.3	1,440	32,501	12	65715
16.000"	26	20.51	20'	120	2,461	8.3	1,440	29,534	12	65285
	21	24.66	20'	120	2,959	8.3	1,440	35,510	12	65485
	17	31.66	20'	120	3,799	8.3	1,440	45,590	12	65475
17.400"	17	35.05	20'	60/40‡	2,103/1402	6.0/4.0	1,000	35,050	14/4	65725

‡Special Topping off fast-paks

Certa-Lok WELL PRODUCTS

CertainTeed

APPENDIX 3.6

BACTERICAL SURVEY LAB REPORTS

ASR#2
ASR#3

ASR#2

350

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/24/99 3:40 DB

FOR LAB USE ONLY
ID# 85449
REC'D 11/26 11 [illegible]
REPORTED BY Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist SYSTEM I D NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR Mike Gonzalez COLLECTOR PHONE 590-0337

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco

DATE AND TIME COLLECTED 11/26 ASR 2 1040

TYPE OF SUPPLY (CIRCLE ONE): Community Water System · Private Well · Noncommunity Water System · Swimming Pool · Nontransient - Noncommunity Water System · Bottled Water · Limited Use Community · Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw · Repeat · Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] · Main Clearance · Well Survey · Other Well Clear (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
#1	ASR #2	0.0	8.22	FB 10497		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/27 1130 [illegible]

FOR LAB USE ONLY
ID# 85449
REC'D 11/27 1057 [illegible]
REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I D NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR Mark Ochs COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco

DATE AND TIME COLLECTED 11-26-99 1735

TYPE OF SUPPLY (CIRCLE ONE): Community Water System / Noncommunity Water System / Nontransient - Noncommunity Water System / Limited Use Community / Private Well / Swimming Pool / Bottled Water / Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw / Repeat / Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] / Main Clearance / Well Survey / Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
#2	ASR#2	0.2	7.28	FB10500		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

3"335

Sanders Laboratories
Environmental Testing Services
625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/27 11/30 MS

FOR LAB USE ONLY
ID# 85449
REC'D 11/27 10:55 PV
REPORTED BY Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME YB Marco RO SYSTEM I.D. NO. ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR Mark Ochs COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco

DATE AND TIME COLLECTED 11-27-99 0008

TYPE OF SUPPLY (CIRCLE ONE): Community Water System / Private Well / Noncommunity Water System / Swimming Pool / Nontransient - Noncommunity Water System / Bottled Water / Limited Use Community / Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [ ] Raw / Repeat / Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] / Main Clearance / Well Survey / Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
#3	ASR Well #2	0.2	7.31	FB10502		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/27 1130 [illegible]

FOR LAB USE ONLY
ID# 85449
REC'D 11/27 1330
REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco PO SYSTEM I.D. NO. ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR Mac Ochs COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco

DATE AND TIME COLLECTED 11-27-99 0608

TYPE OF SUPPLY (CIRCLE ONE): Community Water System, Noncommunity Water System, Nontransient - Noncommunity Water System, Limited Use Community, Private Well, Swimming Pool, Bottled Water, Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw; Repeat; Replacement (Check Box) [ ] TNTC [ ] Turbid [ ]; Main Clearance; Well Survey; Other Well Clearance (Specify)

REMARKS

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
#4	ASR #2	0.2	7.26	FB 10504		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

3-3-1

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/29/99 10:00 DB

FOR LAB USE ONLY

ID# 85449

REC'D 11/29/99 9:00 DB

REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I D NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OCENICH COLLECTOR PHONE 4888103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco RO (ASR2)

DATE AND TIME COLLECTED 11-28-99 1300 / 1900

TYPE OF SUPPLY (CIRCLE ONE): Community Water System / Private Well / Noncommunity Water System / Swimming Pool / Nontransient - Noncommunity Water System / Bottled Water / Limited Use Community / Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw / Repeat / Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] / Main Clearance / Well Survey / Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
5	ASR 2	0.0	7.29	FB1050~~4~~		A		
6	ASR 2	0.0	7.21	↓ 105055		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/29/99 10:00 DB

FOR LAB USE ONLY
ID# 85449
REC'D 11/29/99 9:00 DB
REPORTED BY Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Yangquist Marco RO SYSTEM I.D. NO. ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OCENYCH COLLECTOR PHONE 488 8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco RO (ASR2)

DATE AND TIME COLLECTED: ______

TYPE OF SUPPLY (CIRCLE ONE): Community Water System / Private Well / Noncommunity Water System / Swimming Pool / Nontransient - Noncommunity Water System / Bottled Water / Limited Use Community / Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw / Repeat / Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] / Main Clearance / Well Survey / Other Well Clearance (Specify)

REMARKS: ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
7	ASR 2	0.0	7.31	FB 10508		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

3-386

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/29/99 15:45 DB

FOR LAB USE ONLY

ID# 85449

REC'D 11/29 [initials] 1400

REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I.D. NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OCENVCH COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 11-29-99 1015

TYPE OF SUPPLY (CIRCLE ONE): Community Water System · Noncommunity Water System · Nontransient - Noncommunity Water System · Limited Use Community · Private Well · Swimming Pool · Bottled Water · Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw · Repeat · Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] · Main Clearance · Well Survey · Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
8	ASR 2	0.0	7.7	FB 10511		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

Sanders Laboratories
Environmental Testing Services

1050 Endeavor Ct.
Nokomis, FL 34275-3623
(941) 488-8103

RUN 12/1/99 10:40 DB

FOR LAB USE ONLY
ID#84352

REC'D 12/01 830

REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I D NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OLENYCH COLLECTOR PHONE 488 8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 11-30-99 1400 / 2000

TYPE OF SUPPLY (CIRCLE ONE) Community Water System Noncommunity Water System Nontransient - Noncommunity Water System Limited Use Community Private Well Swimming Pool Bottled Water Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE) Compliance (Check Box) { } Distribution {x} Raw Repeat Replacement (Check Box) { } TNTC { } Turbid { } Main Clearance Well Survey Other Well Clearance (Specify)

REMARKS

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL NO.	SAMPLE POINT (Specific Address)	CI RES'D	pH	SAMPLE NUMBER	NON COLIFORM	* TOTAL	CONFIRM TOTAL	CONFIRM FECAL
9	ASR 2	0.0	7.29	DB 10546		A		
10	ASR 2	0.0	7.27	10547		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform conformation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME AND MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 2/98

465

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/1/99 15:10 DB

FOR LAB USE ONLY

ID# 85449

REC'D 12/1/99 1315

REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I.D. NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OLENYCH COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 12-1-99 0400 / 1000

TYPE OF SUPPLY (CIRCLE ONE): Community Water System; Private Well; Noncommunity Water System; Swimming Pool; Nontransient - Noncommunity Water System; Bottled Water; Limited Use Community; Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) ( ) Distribution (X) Raw; Repeat; Replacement (Check Box) ( ) TNTC ( ) Turbid ( ); Main Clearance; Well Survey; Other Well Clearance (Specify)

REMARKS: ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
11	ASR 2	0.0	7.28	FB 10555		A		
12	ASR 2	0.0	7.25	FB 10556		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

37440

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/2/99 10:40 DB

FOR LAB USE ONLY
ID# 85449
REC'D 12/2/99 10:45
REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco AO SYSTEM I.D. NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OLENYCH COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 12-2-99 0500

TYPE OF SUPPLY (CIRCLE ONE): Community Water System, Noncommunity Water System, Nontransient - Noncommunity Water System, Limited Use Community, Private Well, Swimming Pool, Bottled Water, Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw; Repeat; Replacement (Check Box) [ ] TNTC [ ] Turbid [ ]; Main Clearance; Well Survey; Other Well Clearance (Specify)

REMARKS: ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD: MF		MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
13	ASR 2	0.0	7.23	FB 10578		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

37 '79

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/2/99 13:25 DB

FOR LAB USE ONLY
ID# 85449
REC'D 12/2/99 1:20
REPORTED BY Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Yanaguist Marco RO SYSTEM I D NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OLENYCH COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 12-2-99 1130

TYPE OF SUPPLY (CIRCLE ONE): Community Water System / Private Well / Noncommunity Water System / Swimming Pool / Nontransient - Noncommunity Water System / Bottled Water / Limited Use Community / Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw / Repeat / Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] / Main Clearance / Well Survey / Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD MF		MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
14	ASR 2	0.0	7.25	FB10580		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

2513

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/30 1235

FOR LAB USE ONLY
ID# 85449
REC'D 12/3/99 1040
REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I D NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OCENYCH COLLECTOR PHONE ~~478~~-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED ~~10~~ 12-3-99 0530/0930

TYPE OF SUPPLY (CIRCLE ONE): Community Water System / Private Well / Noncommunity Water System / Swimming Pool / Nontransient - Noncommunity Water System / Bottled Water / Limited Use Community / Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [X] ~~Distribution~~ [X] Raw / Repeat / Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] / Main Clearance / Well Survey / Other ~~Main~~ Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
15	ASR 2	0.0	7.27	FB 10586		A		
16	ASR 2	0.0	7.31	FB 10587		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

373-3
(Y)

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 144 1210

FOR LAB USE ONLY
ID# 85449
REC'D 12/4/99 1130
REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist MarcoRO SYSTEM I.D. NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR Mark Ochs COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 12-4-99 0001 /0603

TYPE OF SUPPLY (CIRCLE ONE): Community Water System, Private Well, Noncommunity Water System, Swimming Pool, Nontransient - Noncommunity Water System, Bottled Water, Limited Use Community, Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [X] ~~Distribution~~ [X] Raw; Repeat; Replacement (Check Box) [ ] TNTC [ ] Turbid [ ]; Main Clearance; Well Survey; Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
17	ASR#2	0.0	7.46	FB 10596		A		
18	ASR#2	0.0	7.42	FB 10597		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

37-45

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/6/99 11:55 DB

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ID# 85449
REC'D 12/6/99
REPORTED BY Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME VQ Marco RO SYSTEM I.D. NO ______ SYSTEM PHONE ______
ADDRESS ______ COUNTY Collier DER DISTRICT South
COLLECTOR Noah Hoolenych COLLECTOR PHONE 4778103
SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR
DATE AND TIME COLLECTED 12-5-99 1315 / 1915

TYPE OF SUPPLY (CIRCLE ONE): Community Water System · Noncommunity Water System · Nontransient - Noncommunity Water System · Limited Use Community · Private Well · Swimming Pool · Bottled Water · Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw · Repeat · Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] · Main Clearance · Well Survey · Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
19	ASR 2	0.0	7.29	FB 10604		A		
20	ASR 2	0.0	7.25	↓ 10605		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

ASR#3

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
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RUN 11/26/99 13:40 DB

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REC'D 11/26 11:55
REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist SYSTEM I.D. NO. ____ SYSTEM PHONE ____
ADDRESS ____ COUNTY Collier DER DISTRICT South
COLLECTOR Mike Gonzalez COLLECTOR PHONE 590-0337
SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco
DATE AND TIME COLLECTED 11/26 1030

TYPE OF SUPPLY (CIRCLE ONE): Community Water System, Private Well, Noncommunity Water System, Swimming Pool, Nontransient - Noncommunity Water System, Bottled Water, Limited Use Community, Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw; Repeat; Replacement (Check Box) [ ] TNTC [ ] Turbid [ ]; Main Clearance; Well Survey; Other Well Clear (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
#1	ASR #3	0.0	8.33	FB 10498		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ____

TITLE ____

Rev. 1/96

2433 2

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/27 1130 BZ

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ID# 85449
REC'D 11/27 10[?] AV
REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I.D. NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR Mark Ochs COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco

DATE AND TIME COLLECTED 11-26-99 1730

TYPE OF SUPPLY (CIRCLE ONE): Community Water System Noncommunity Water System Nontransient - Noncommunity Water System Limited Use Community
Private Well Swimming Pool Bottled Water Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw Repeat Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] Main Clearance Well Survey Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
#2	ASR #3	0.2	7.44	FB10499		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

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M 3351

Sanders Laboratories

Environmental Testing Services

625 Unit I, North Tamiami Trail
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RUN 11/27 1130 B

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ID# 85449

REC'D 11/27 1015 B

REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME: YQ Marco RO   SYSTEM I D NO: ______   SYSTEM PHONE: ______

ADDRESS: ______   COUNTY: Collier   DER DISTRICT: South

COLLECTOR: Mark Ochs   COLLECTOR PHONE: 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION): Marco

DATE AND TIME COLLECTED: 11-27-99 0002

TYPE OF SUPPLY (CIRCLE ONE): Community Water System, Private Well, Noncommunity Water System, Swimming Pool, Nontransient - Noncommunity Water System, Bottled Water, Limited Use Community, Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw; Repeat; Replacement (Check Box) [ ] TNTC [ ] Turbid [ ]; Main Clearance; Well Survey; Other: Well Clearance (Specify)

REMARKS: ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
#3	ASR# 3	0.2	7.38	FB10501		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL: ______

TITLE: ______

Rev. 1/96

35C

(V)

Sanders Laboratories
Environmental Testing Services

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RUN 11/27 1130 BS

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ID# 85449
REC'D 11/27 1055 BS
REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Marco RO (Kruggeist) SYSTEM I.D. NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR Mark Ochs COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco

DATE AND TIME COLLECTED 11-27-99 0604

TYPE OF SUPPLY (CIRCLE ONE): Community Water System, Private Well, Noncommunity Water System, Swimming Pool, Nontransient - Noncommunity Water System, Bottled Water, Limited Use Community, ~~Limited Use Commercial~~

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw; Repeat; Replacement (Check Box) [ ] TNTC [ ] Turbid [ ]; Main Clearance; Well Survey; Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	~~NON~~ COLIFORM	* TOTAL	CONFIRM TOTAL	CONFIRM FECAL
#4	ASR #3	0.2	7.40	FB10503		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

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Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/29/99 10:00 DB

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ID# 85449
REC'D 11/29/99 9:00
REPORTED BY Debra Sanders DB

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I D NO ______ SYSTEM PHONE ______

ADDRESS: " COUNTY Collier DER DISTRICT South

COLLECTOR: NOAH OLCUYCH COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION): ______

DATE AND TIME COLLECTED: 11-28-99 1300 / 1910

TYPE OF SUPPLY (CIRCLE ONE): Community Water System · Private Well · Noncommunity Water System · Swimming Pool · Nontransient - Noncommunity Water System · Bottled Water · Limited Use Community · Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [✓] Raw · Repeat · Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] · Main Clearance · Well Survey · Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
5	ASR 3	0.1	7.33	FB105006		A		
6	ASR 3	0.0	7.36	FB10507		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present · A - Coliforms Are Absent · C - Confluent Growth · TNTC - Too Numerous To Count · TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

1364

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/29/99 10:00 DB

FOR LAB USE ONLY
ID# 85449
REC'D 11/29/99 9:00
REPORTED BY Debra Sanders DB

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I.D. NO ____ SYSTEM PHONE ____

ADDRESS ____ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OCENYCH COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco RO (ASR 3)

DATE AND TIME COLLECTED 12/29/99 0600

TYPE OF SUPPLY (CIRCLE ONE): Community Water System, Private Well, Noncommunity Water System, Swimming Pool, Nontransient - Noncommunity Water System, Bottled Water, Limited Use Community, Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw; Repeat; Replacement (Check Box) [ ] TNTC [ ] Turbid [ ]; Main Clearance; Well Survey; Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
7	ASR 3	0.0	7.38	FB 10509		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ____

TITLE ____

Rev. 1/96

3:81

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 11/29/99 15:45 DB

FOR LAB USE ONLY

ID# 85449

REC'D 11/29/99 BG 1400

REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I D NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OLENYCH COLLECTOR PHONE 488-5107

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 11-29-99 1020

TYPE OF SUPPLY (CIRCLE ONE): Community Water System / Private Well / Noncommunity Water System / Swimming Pool / Nontransient - Noncommunity Water System / Bottled Water / Limited Use Community / Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [x] Raw / Repeat / Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] / Main Clearance / Well Survey / Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
8	ASR 3	0.0	7.39	fB 10510		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

Sanders Laboratories

Environmental Testing Services

1050 Endeavor Ct.
Nokomis, FL 34275-3623
(941) 488-8103

RUN 12/1/99 10:40 DB

FOR LAB USE ONLY
ID#84352

REC'D 12/01 8:30 [illegible]

REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I D NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR Noah Oceavich COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 11-30-99 1410 / 2010

TYPE OF SUPPLY (CIRCLE ONE) Community Water System, Private Well, Noncommunity Water System, Swimming Pool, Nontransient - Noncommunity Water System, Bottled Water, Limited Use Community, Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE) Compliance (Check Box; { } Distribution { X } Raw) Repeat Replacement (Check Box) { } TNTC { } Turbid { } Main Clearance Well Survey Other Well Clearance (Specify)

REMARKS

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	* TOTAL	CONFIRM TOTAL	CONFIRM FECAL
0	ASR 3	0.0	7.33	PB 10544		A		
10	ASR 3	0.0	7.36	↓ 10545		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform conformation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME AND MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 2/98

466
m

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/1/99 15:10 DB

FOR LAB USE ONLY
ID# 85449
REC'D 12/1/99 1315
REPORTED BY
Debra Sanders

RO/ DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco ASR SYSTEM I.D. NO. ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OLENYCH COLLECTOR PHONE 488 8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED: 12-1-99 0410 / 1010

TYPE OF SUPPLY (CIRCLE ONE): Community Water System, Private Well, Noncommunity Water System, Swimming Pool, Nontransient - Noncommunity Water System, Bottled Water, Limited Use Community, Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw; Repeat; Replacement (Check Box) [ ] TNTC [ ] Turbid [ ]; Main Clearance; Well Survey; Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB — ANALYSIS METHOD: MF, MTF, MMO-MUG, PA				
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
11	ASR 3	0.0	7.31	FB10557		A		
12	ASR 3	0.0	7.36	FB 10558		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

337.91

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/2/99 10:40 DB

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ID# 85449

REC'D 12/2/99 10:45

REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I.D. NO. ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OLENYCH COLLECTOR PHONE 488 8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 12-2-99 0510

TYPE OF SUPPLY (CIRCLE ONE): Community Water System / Private Well / Noncommunity Water System / Swimming Pool / Nontransient - Noncommunity Water System / Bottled Water / Limited Use Community / Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw / Repeat / Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] / Main Clearance / Well Survey / Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	* TOTAL	CONFIRM TOTAL	CONFIRM FECAL
13	ASR 3	0.0	7.31	FB 10579		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/2/99 13:25 DB

FOR LAB USE ONLY
ID# 85449
REC'D 12/2/99 1:20
REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RD SYSTEM I D NO ______ SYSTEM PHONE ______
ADDRESS ______ COUNTY Collier DER DISTRICT South
COLLECTOR NOAH OCENYCH COLLECTOR PHONE 488-8103
SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR
DATE AND TIME COLLECTED 12-2-99 1140

TYPE OF SUPPLY (CIRCLE ONE): Community Water System, Private Well, Noncommunity Water System, Swimming Pool, Nontransient - Noncommunity Water System, Bottled Water, Limited Use Community, Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) ( ) Distribution (X) Raw; Repeat; Replacement (Check Box) ( ) TNTC ( ) Turbid ( ); Main Clearance; Well Survey; Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
14	ASR 3	0.0	7.31	FB 10581		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

3512

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/3 1230

FOR LAB USE ONLY
ID# 85449
REC'D 12/3/99 1040
REPORTED BY Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I.D. NO ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR NOAH OLENYCH COLLECTOR PHONE 488-8103

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 12-3-99 0340/0940

TYPE OF SUPPLY (CIRCLE ONE): Community Water System Private Well Noncommunity Water System Swimming Pool Nontransient - Noncommunity Water System Bottled Water Limited Use Community Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw Repeat Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] Main Clearance Well Survey Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	* TOTAL	CONFIRM TOTAL	CONFIRM FECAL
15	ASR 3	0.0	7.35	FB 10534		A		
16	ASR 3	0.0	7.36	FB 10535		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

3/29

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/4 1210

FOR LAB USE ONLY
ID# 85449
REC'D 12/4/99 1130
REPORTED BY
Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME Youngquist Marco RO SYSTEM I.D. NO. ______ SYSTEM PHONE ______

ADDRESS ______ COUNTY Collier DER DISTRICT South

COLLECTOR Mick Ochs COLLECTOR PHONE 590-0337

SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR

DATE AND TIME COLLECTED 12-4-99 0006/0609

TYPE OF SUPPLY (CIRCLE ONE): Community Water System, Private Well, Noncommunity Water System, Swimming Pool, Nontransient - Noncommunity Water System, Bottled Water, Limited Use Community, Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [X] ~~Distribution~~ [X] Raw; Repeat; Replacement (Check Box) [ ] TNTC [ ] Turbid [ ]; Main Clearance; Well Survey; Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	CI RES'D	pH	SAMPLE NUMBER	NON-COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
17	ASR#3	0.0	7.33	FB10598		A		
18	ASR#3	0.0	7.38	FB10599		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ______

TITLE ______

Rev. 1/96

Sanders Laboratories
Environmental Testing Services

625 Unit I, North Tamiami Trail
Nokomis, FL 34275 • (941) 488-8103

RUN 12/6/99 11:55 JB

FOR LAB USE ONLY
ID# 85449
REC'D 12/6/99
REPORTED BY Debra Sanders

DRINKING WATER BACTERIOLOGICAL ANALYSIS

SYSTEM NAME VQ Marco RO SYSTEM I.D. NO. ____ SYSTEM PHONE ____
ADDRESS ____ COUNTY Collier DER DISTRICT South
COLLECTOR NOAH OCENYCH COLLECTOR PHONE 488-8113
SAMPLE SITE (LOCALLY OR SUBDIVISION) Marco ASR
DATE AND TIME COLLECTED 12-5-99 1325 / 1425

TYPE OF SUPPLY (CIRCLE ONE): Community Water System / Private Well / Noncommunity Water System / Swimming Pool / Nontransient - Noncommunity Water System / Bottled Water / Limited Use Community / Limited Use Commercial

TYPE OF SAMPLE (CIRCLE ONE): Compliance (Check Box) [ ] Distribution [X] Raw / Repeat / Replacement (Check Box) [ ] TNTC [ ] Turbid [ ] / Main Clearance / Well Survey / Other Well Clearance (Specify)

REMARKS:

ASR Clearance

TO BE COMPLETED BY COLLECTOR OF SAMPLE				TO BE COMPLETED BY LAB				
				ANALYSIS METHOD	MF	MTF	MMO-MUG	PA
COLL. NO.	SAMPLE POINT (Specific Address)	Cl RES'D	pH	SAMPLE NUMBER	NON COLIFORM	*TOTAL	CONFIRM TOTAL	CONFIRM FECAL
19	ASR 3	0.0	7.31	f99 10606		A		
20	ASR 3	0.0	7.34	↓ 10607		A		

* Results in this column are preliminary. Fecal coliform confirmation on community and noncommunity water systems and total coliform confirmation on all types of water systems will follow in 24-48 hours.

P - Coliforms Are Present
A - Coliforms Are Absent
C - Confluent Growth
TNTC - Too Numerous To Count
TA - Turbid Absence Of Gas Or Acid

INTERPRETATIONS - REMARKS BY PROGRAM REVIEWER

NAME & MAILING ADDRESS OF PERSON/FIRM TO RECEIVE REPORT

( ) Unsatisfactory
( ) Satisfactory
( ) Incomplete Collection Information
( ) Repeat Samples
( ) Replacement Samples

REVIEWING OFFICIAL ____

TITLE ____

Rev. 1/96

APPENDIX 4.1

PUMP TEST DATA

ASR#2
ASR#3

ASR#2 PUMP TEST DATA

File7	Test 0 Step 0	9/15/99 10:44
File6	Test 0 Step 1	9/15/99 13:46
File5	Test 0 Step 2	9/16/99 8:29
File4	Test 0 Step 3	9/16/99 9:38
File3	Test 0 Step 4	9/16/99 13:47
File2	Test 1 Step 0	9/16/99 16:26
File1	Test 1 Step 1	9/16/99 17:42

	Hermit DT	ASR #2	Monitor Well	Real Time	Elapsed Tim
1	0	0	27.905	9/15/99 10:44	0.0
2	0.0083	0	27.905	9/15/99 10:44	0.0
3	0.0166	0.077	27.905	9/15/99 10:44	0.0
4	0.025	0.077	27.905	9/15/99 10:44	0.0
5	0.0333	0	27.936	9/15/99 10:44	0.0
6	0.0416	0	27.936	9/15/99 10:44	0.0
7	0.05	0.077	27.905	9/15/99 10:44	0.1
8	0.0583	0.077	27.905	9/15/99 10:44	0.1
9	0.0666	0	27.936	9/15/99 10:44	0.1
10	0.075	0	27.936	9/15/99 10:44	0.1
11	0.0833	0.077	27.905	9/15/99 10:44	0.1
12	0.0916	0	27.905	9/15/99 10:44	0.1
13	0.1	0.077	27.905	9/15/99 10:44	0.1
14	0.1083	0	27.905	9/15/99 10:44	0.1
15	0.1166	0.077	27.936	9/15/99 10:44	0.1
16	0.125	0	27.905	9/15/99 10:44	0.1
17	0.1333	0.077	27.936	9/15/99 10:44	0.1
18	0.1416	0.077	27.936	9/15/99 10:44	0.1
19	0.15	0	27.905	9/15/99 10:44	0.2
20	0.1583	0	27.905	9/15/99 10:44	0.2
21	0.1666	0.077	27.936	9/15/99 10:44	0.2
22	0.175	0.077	27.905	9/15/99 10:44	0.2
23	0.1833	0.077	27.905	9/15/99 10:44	0.2
24	0.1916	0.077	27.905	9/15/99 10:44	0.2
25	0.2	0.077	27.905	9/15/99 10:44	0.2
26	0.2083	0	27.936	9/15/99 10:44	0.2
27	0.2166	0.077	27.905	9/15/99 10:44	0.2
28	0.225	0.077	27.936	9/15/99 10:44	0.2
29	0.2333	0	27.936	9/15/99 10:44	0.2
30	0.2416	0	27.905	9/15/99 10:44	0.2
31	0.25	0	27.905	9/15/99 10:44	0.2
32	0.2583	0.077	27.905	9/15/99 10:44	0.3
33	0.2666	0	27.905	9/15/99 10:44	0.3
34	0.275	0	27.905	9/15/99 10:44	0.3
35	0.2833	0.077	27.905	9/15/99 10:44	0.3
36	0.2916	0	27.936	9/15/99 10:44	0.3
37	0.3	0.077	27.936	9/15/99 10:44	0.3
38	0.3083	0.077	27.936	9/15/99 10:44	0.3

39	0.3166	0.077	27.936	9/15/99 10:44	0.3
40	0.325	0	27.936	9/15/99 10:44	0.3
41	0.3333	0	27.905	9/15/99 10:44	0.3
42	0.35	0	27.905	9/15/99 10:44	0.3
43	0.3666	0.077	27.936	9/15/99 10:44	0.4
44	0.3833	0.077	27.936	9/15/99 10:45	0.4
45	0.4	0.077	27.905	9/15/99 10:45	0.4
46	0.4166	0	27.905	9/15/99 10:45	0.4
47	0.4333	0	27.936	9/15/99 10:45	0.4
48	0.45	0	27.936	9/15/99 10:45	0.5
49	0.4666	0	27.936	9/15/99 10:45	0.5
50	0.4833	0.077	27.936	9/15/99 10:45	0.5
51	0.5	0	27.905	9/15/99 10:45	0.5
52	0.5166	0	27.936	9/15/99 10:45	0.5
53	0.5333	0	27.936	9/15/99 10:45	0.5
54	0.55	0	27.936	9/15/99 10:45	0.6
55	0.5666	0	27.905	9/15/99 10:45	0.6
56	0.5833	0	27.905	9/15/99 10:45	0.6
57	0.6	0	27.936	9/15/99 10:45	0.6
58	0.6166	0	27.936	9/15/99 10:45	0.6
59	0.6333	0	27.936	9/15/99 10:45	0.6
60	0.65	0	27.936	9/15/99 10:45	0.6
61	0.6666	0	27.936	9/15/99 10:45	0.7
62	0.6833	0	27.936	9/15/99 10:45	0.7
63	0.7	0	27.936	9/15/99 10:45	0.7
64	0.7166	0	27.936	9/15/99 10:45	0.7
65	0.7333	0	27.936	9/15/99 10:45	0.7
66	0.75	0	27.936	9/15/99 10:45	0.7
67	0.7666	0	27.936	9/15/99 10:45	0.8
68	0.7833	0	27.905	9/15/99 10:45	0.8
69	0.8	0	27.936	9/15/99 10:45	0.8
70	0.8166	0	27.936	9/15/99 10:45	0.8
71	0.8333	0	27.936	9/15/99 10:45	0.8
72	0.85	0	27.936	9/15/99 10:45	0.8
73	0.8666	0	27.936	9/15/99 10:45	0.9
74	0.8833	0.077	27.936	9/15/99 10:45	0.9
75	0.9	0	27.936	9/15/99 10:45	0.9
76	0.9166	0	27.936	9/15/99 10:45	0.9
77	0.9333	0	27.936	9/15/99 10:45	0.9
78	0.95	0	27.905	9/15/99 10:45	1.0
79	0.9666	0	27.936	9/15/99 10:45	1.0
80	0.9833	0	27.936	9/15/99 10:45	1.0
81	1	0	27.905	9/15/99 10:45	1.0
82	1.2	0.077	27.936	9/15/99 10:45	1.2
83	1.4	0.077	27.936	9/15/99 10:46	1.4
84	1.6	0.077	27.936	9/15/99 10:46	1.6
85	1.8	0.077	27.936	9/15/99 10:46	1.8
86	2	0.077	27.936	9/15/99 10:46	2.0
87	2.2	0.077	27.936	9/15/99 10:46	2.2
88	2.4	0.077	27.936	9/15/99 10:47	2.4
89	2.6	0.077	27.936	9/15/99 10:47	2.6

90	2.8	0.077	27.905	9/15/99 10:47	2.8
91	3	0.077	27.936	9/15/99 10:47	3.0
92	3.2	0.077	27.936	9/15/99 10:47	3.2
93	3.4	0.077	27.936	9/15/99 10:48	3.4
94	3.6	0.077	27.936	9/15/99 10:48	3.6
95	3.8	0.077	27.905	9/15/99 10:48	3.8
96	4	0	27.905	9/15/99 10:48	4.0
97	4.2	0	27.905	9/15/99 10:48	4.2
98	4.4	0	27.905	9/15/99 10:49	4.4
99	4.6	0	27.905	9/15/99 10:49	4.6
100	4.8	0	27.905	9/15/99 10:49	4.8
101	5	0	27.905	9/15/99 10:49	5.0
102	5.2	0	27.905	9/15/99 10:49	5.2
103	5.4	0	27.905	9/15/99 10:50	5.4
104	5.6	0	27.905	9/15/99 10:50	5.6
105	5.8	0	27.905	9/15/99 10:50	5.8
106	6	0	27.936	9/15/99 10:50	6.0
107	6.2	0	27.905	9/15/99 10:50	6.2
108	6.4	0	27.905	9/15/99 10:51	6.4
109	6.6	0	27.905	9/15/99 10:51	6.6
110	6.8	0.077	27.905	9/15/99 10:51	6.8
111	7	0.077	27.936	9/15/99 10:51	7.0
112	7.2	0.077	27.936	9/15/99 10:51	7.2
113	7.4	0.077	27.936	9/15/99 10:52	7.4
114	7.6	0	27.905	9/15/99 10:52	7.6
115	7.8	0.077	27.905	9/15/99 10:52	7.8
116	8	0.077	27.905	9/15/99 10:52	8.0
117	8.2	0.077	27.905	9/15/99 10:52	8.2
118	8.4	0	27.905	9/15/99 10:53	8.4
119	8.6	0.077	27.936	9/15/99 10:53	8.6
120	8.8	0	27.905	9/15/99 10:53	8.8
121	9	0.077	27.936	9/15/99 10:53	9.0
122	9.2	0.077	27.905	9/15/99 10:53	9.2
123	9.4	0.077	27.905	9/15/99 10:54	9.4
124	9.6	0.077	27.936	9/15/99 10:54	9.6
125	9.8	0.077	27.936	9/15/99 10:54	9.8
126	10	0.077	27.936	9/15/99 10:54	10.0
127	11	0.155	27.968	9/15/99 10:55	11.0
128	12	0.155	27.968	9/15/99 10:56	12.0
129	13	0.155	28	9/15/99 10:57	13.0
130	14	0.155	28	9/15/99 10:58	14.0
131	15	0.232	28	9/15/99 10:59	15.0
132	16	0.155	27.968	9/15/99 11:00	16.0
133	17	0.155	27.968	9/15/99 11:01	17.0
134	18	0.155	27.968	9/15/99 11:02	18.0
135	19	0.155	27.968	9/15/99 11:03	19.0
136	20	0.155	27.968	9/15/99 11:04	20.0
137	21	0.155	27.968	9/15/99 11:05	21.0
138	22	0.155	28	9/15/99 11:06	22.0
139	23	0.155	28	9/15/99 11:07	23.0
140	24	0.155	27.968	9/15/99 11:08	24.0

141	25	0.155	28	9/15/99 11:09	25.0
142	26	0.232	28	9/15/99 11:10	26.0
143	27	0.232	28	9/15/99 11:11	27.0
144	28	0.232	28	9/15/99 11:12	28.0
145	29	0.155	27.968	9/15/99 11:13	29.0
146	30	0.232	28	9/15/99 11:14	30.0
147	31	0.155	27.968	9/15/99 11:15	31.0
148	32	0.155	27.968	9/15/99 11:16	32.0
149	33	0.155	27.968	9/15/99 11:17	33.0
150	34	0.155	28	9/15/99 11:18	34.0
151	35	0.155	27.968	9/15/99 11:19	35.0
152	36	0.155	27.968	9/15/99 11:20	36.0
153	37	0.155	27.968	9/15/99 11:21	37.0
154	38	0.232	28	9/15/99 11:22	38.0
155	39	0.232	27.968	9/15/99 11:23	39.0
156	40	0.232	28	9/15/99 11:24	40.0
157	41	0.232	28	9/15/99 11:25	41.0
158	42	0.232	28	9/15/99 11:26	42.0
159	43	0.155	27.968	9/15/99 11:27	43.0
160	44	0.232	28	9/15/99 11:28	44.0
161	45	0.155	28	9/15/99 11:29	45.0
162	46	0.232	28	9/15/99 11:30	46.0
163	47	0.155	28	9/15/99 11:31	47.0
164	48	0.155	27.968	9/15/99 11:32	48.0
165	49	0.155	28	9/15/99 11:33	49.0
166	50	0.232	28	9/15/99 11:34	50.0
167	51	0.232	28	9/15/99 11:35	51.0
168	52	0.232	28	9/15/99 11:36	52.0
169	53	0.155	28	9/15/99 11:37	53.0
170	54	0.232	27.968	9/15/99 11:38	54.0
171	55	0.155	28	9/15/99 11:39	55.0
172	56	0.155	27.968	9/15/99 11:40	56.0
173	57	0.232	28	9/15/99 11:41	57.0
174	58	0.232	28	9/15/99 11:42	58.0
175	59	0.232	28	9/15/99 11:43	59.0
176	60	0.232	27.968	9/15/99 11:44	60.0
177	61	0.155	27.968	9/15/99 11:45	61.0
178	62	0.232	28	9/15/99 11:46	62.0
179	63	0.232	27.968	9/15/99 11:47	63.0
180	64	0.232	28	9/15/99 11:48	64.0
181	65	0.232	28	9/15/99 11:49	65.0
182	66	0.232	27.968	9/15/99 11:50	66.0
183	67	0.232	28	9/15/99 11:51	67.0
184	68	0.232	27.968	9/15/99 11:52	68.0
185	69	0.232	28	9/15/99 11:53	69.0
186	70	0.232	27.968	9/15/99 11:54	70.0
187	71	0.232	28	9/15/99 11:55	71.0
188	72	0.232	28	9/15/99 11:56	72.0
189	73	0.155	27.968	9/15/99 11:57	73.0
190	74	0.232	28	9/15/99 11:58	74.0
191	75	0.232	27.968	9/15/99 11:59	75.0

192	76	0.232	28	9/15/99 12:00	76.0
193	77	0.155	27.968	9/15/99 12:01	77.0
194	78	0.232	27.968	9/15/99 12:02	78.0
195	79	0.232	28.031	9/15/99 12:03	79.0
196	80	0.232	28	9/15/99 12:04	80.0
197	81	0.232	27.968	9/15/99 12:05	81.0
198	82	0.232	28	9/15/99 12:06	82.0
199	83	0.232	28	9/15/99 12:07	83.0
200	84	0.232	28.031	9/15/99 12:08	84.0
201	85	0.232	27.968	9/15/99 12:09	85.0
202	86	0.232	28	9/15/99 12:10	86.0
203	87	0.232	28	9/15/99 12:11	87.0
204	88	0.232	28	9/15/99 12:12	88.0
205	89	0.232	28	9/15/99 12:13	89.0
206	90	0.232	28.031	9/15/99 12:14	90.0
207	91	0.232	28	9/15/99 12:15	91.0
208	92	0.232	28	9/15/99 12:16	92.0
209	93	0.232	28.031	9/15/99 12:17	93.0
210	94	0.31	28.031	9/15/99 12:18	94.0
211	95	0.232	28	9/15/99 12:19	95.0
212	96	0.31	28.031	9/15/99 12:20	96.0
213	97	0.232	28	9/15/99 12:21	97.0
214	98	0.232	27.968	9/15/99 12:22	98.0
215	99	0.232	28	9/15/99 12:23	99.0
216	100	0.232	28.031	9/15/99 12:24	100.0
217	101	0.232	28	9/15/99 12:25	101.0
218	102	0.232	28	9/15/99 12:26	102.0
219	103	0.232	28	9/15/99 12:27	103.0
220	104	0.31	28	9/15/99 12:28	104.0
221	105	0.232	28	9/15/99 12:29	105.0
222	106	0.31	28.031	9/15/99 12:30	106.0
223	107	0.31	28.031	9/15/99 12:31	107.0
224	108	0.232	27.968	9/15/99 12:32	108.0
225	109	0.31	28	9/15/99 12:33	109.0
226	110	0.232	28	9/15/99 12:34	110.0
227	111	0.232	28	9/15/99 12:35	111.0
228	112	0.232	28.031	9/15/99 12:36	112.0
229	113	0.232	28	9/15/99 12:37	113.0
230	114	0.232	28	9/15/99 12:38	114.0
231	115	0.232	28	9/15/99 12:39	115.0
232	116	0.232	27.968	9/15/99 12:40	116.0
233	117	0.232	27.968	9/15/99 12:41	117.0
234	118	0.232	28	9/15/99 12:42	118.0
235	119	0.232	27.968	9/15/99 12:43	119.0
236	120	0.232	28	9/15/99 12:44	120.0
237	121	0.232	28	9/15/99 12:45	121.0
238	122	0.232	28	9/15/99 12:46	122.0
239	123	0.232	28	9/15/99 12:47	123.0
240	124	0.232	28	9/15/99 12:48	124.0
241	125	0.31	28	9/15/99 12:49	125.0
242	126	0.31	28	9/15/99 12:50	126.0

243	127	0.232	27.968	9/15/99 12:51	127.0
244	128	0.31	28	9/15/99 12:52	128.0
245	129	0.232	28	9/15/99 12:53	129.0
246	130	0.31	28	9/15/99 12:54	130.0
247	131	0.232	27.968	9/15/99 12:55	131.0
248	132	0.232	27.968	9/15/99 12:56	132.0
249	133	0.31	28	9/15/99 12:57	133.0
250	134	0.31	28	9/15/99 12:58	134.0
251	135	0.31	28.031	9/15/99 12:59	135.0
252	136	0.232	28	9/15/99 13:00	136.0
253	137	0.31	28	9/15/99 13:01	137.0
254	138	0.232	28	9/15/99 13:02	138.0
255	139	0.232	27.968	9/15/99 13:03	139.0
256	140	0.31	28	9/15/99 13:04	140.0
257	141	0.232	27.968	9/15/99 13:05	141.0
258	142	0.232	27.968	9/15/99 13:06	142.0
259	143	0.232	28	9/15/99 13:07	143.0
260	144	0.31	28.031	9/15/99 13:08	144.0
261	145	0.232	27.968	9/15/99 13:09	145.0
262	146	0.232	28	9/15/99 13:10	146.0
263	147	0.31	28	9/15/99 13:11	147.0
264	148	0.232	28	9/15/99 13:12	148.0
265	149	0.232	27.968	9/15/99 13:13	149.0
266	150	0.31	28	9/15/99 13:14	150.0
267	151	0.31	28	9/15/99 13:15	151.0
268	152	0.31	28.031	9/15/99 13:16	152.0
269	153	0.232	28	9/15/99 13:17	153.0
270	154	0.232	28	9/15/99 13:18	154.0
271	155	0.31	28	9/15/99 13:19	155.0
272	156	0.31	28	9/15/99 13:20	156.0
273	157	0.31	28	9/15/99 13:21	157.0
274	158	0.232	28	9/15/99 13:22	158.0
275	159	0.232	28	9/15/99 13:23	159.0
276	160	0.31	28	9/15/99 13:24	160.0
277	161	0.31	28	9/15/99 13:25	161.0
278	162	0.31	28	9/15/99 13:26	162.0
279	163	0.31	28	9/15/99 13:27	163.0
280	164	0.31	28	9/15/99 13:28	164.0
281	165	0.31	28	9/15/99 13:29	165.0
282	166	0.31	28.031	9/15/99 13:30	166.0
283	167	0.31	28	9/15/99 13:31	167.0
284	168	0.232	28	9/15/99 13:32	168.0
285	169	0.155	27.968	9/15/99 13:33	169.0
286	170	0.155	27.936	9/15/99 13:34	170.0
287	171	0.232	27.968	9/15/99 13:35	171.0
288	172	0.232	28	9/15/99 13:36	172.0
289	173	0.232	28	9/15/99 13:37	173.0
290	174	0.232	28	9/15/99 13:38	174.0
291	175	0.232	27.968	9/15/99 13:39	175.0
292	176	0.232	28	9/15/99 13:40	176.0
293	177	0.31	28	9/15/99 13:41	177.0

294	178	0.232	27.968	9/15/99 13:42	178.0
295	179	0.31	28	9/15/99 13:43	179.0
296	180	0.232	28	9/15/99 13:44	180.0
297	181	0.31	28	9/15/99 13:45	181.0
298	182	0.155	27.968	9/15/99 13:46	182.0
299	0	0.155	27.936	9/15/99 13:46	182.1
300	0.0083	0.155	27.936	9/15/99 13:46	182.1
301	0.0166	0.155	27.936	9/15/99 13:46	182.1
302	0.025	0.155	27.936	9/15/99 13:46	182.1
303	0.0333	0.155	27.936	9/15/99 13:46	182.1
304	0.0416	0.155	27.936	9/15/99 13:46	182.1
305	0.05	0.155	27.936	9/15/99 13:46	182.1
306	0.0583	0.155	27.936	9/15/99 13:46	182.1
307	0.0666	0.155	27.936	9/15/99 13:46	182.1
308	0.075	0.155	27.936	9/15/99 13:46	182.1
309	0.0833	0.155	27.936	9/15/99 13:46	182.1
310	0.0916	0.155	27.936	9/15/99 13:46	182.2
311	0.1	0.155	27.936	9/15/99 13:46	182.2
312	0.1083	0.155	27.936	9/15/99 13:46	182.2
313	0.1166	0.155	27.936	9/15/99 13:46	182.2
314	0.125	0.155	27.936	9/15/99 13:46	182.2
315	0.1333	0.155	27.936	9/15/99 13:46	182.2
316	0.1416	0.155	27.936	9/15/99 13:46	182.2
317	0.15	0.155	27.936	9/15/99 13:46	182.2
318	0.1583	0.155	27.936	9/15/99 13:46	182.2
319	0.1666	0.155	27.936	9/15/99 13:46	182.2
320	0.175	0.155	27.936	9/15/99 13:46	182.2
321	0.1833	0.155	27.936	9/15/99 13:46	182.2
322	0.1916	0.155	27.936	9/15/99 13:46	182.3
323	0.2	0.155	27.936	9/15/99 13:46	182.3
324	0.2083	0.155	27.936	9/15/99 13:46	182.3
325	0.2166	0.155	27.936	9/15/99 13:46	182.3
326	0.225	0.155	27.936	9/15/99 13:46	182.3
327	0.2333	0.155	27.936	9/15/99 13:46	182.3
328	0.2416	0.155	27.936	9/15/99 13:46	182.3
329	0.25	0.155	27.936	9/15/99 13:46	182.3
330	0.2583	0.155	27.936	9/15/99 13:46	182.3
331	0.2666	0.155	27.936	9/15/99 13:46	182.3
332	0.275	0.155	27.936	9/15/99 13:46	182.3
333	0.2833	0.155	27.936	9/15/99 13:46	182.3
334	0.2916	0.155	27.936	9/15/99 13:46	182.4
335	0.3	0.155	27.936	9/15/99 13:46	182.4
336	0.3083	0.155	27.936	9/15/99 13:46	182.4
337	0.3166	0.155	27.936	9/15/99 13:47	182.4
338	0.325	0.155	27.936	9/15/99 13:47	182.4
339	0.3333	0.155	27.936	9/15/99 13:47	182.4
340	0.35	0.155	27.936	9/15/99 13:47	182.4
341	0.3666	0.155	27.936	9/15/99 13:47	182.4
342	0.3833	0.155	27.936	9/15/99 13:47	182.4
343	0.4	0.155	27.936	9/15/99 13:47	182.5
344	0.4166	0.155	27.936	9/15/99 13:47	182.5

345	0.4333	0.155	27.936	9/15/99 13:47	182.5
346	0.45	0.155	27.936	9/15/99 13:47	182.5
347	0.4666	0.155	27.936	9/15/99 13:47	182.5
348	0.4833	0.155	27.936	9/15/99 13:47	182.5
349	0.5	0.155	27.936	9/15/99 13:47	182.6
350	0.5166	0.155	27.936	9/15/99 13:47	182.6
351	0.5333	0.155	27.936	9/15/99 13:47	182.6
352	0.55	0.155	27.936	9/15/99 13:47	182.6
353	0.5666	0.155	27.936	9/15/99 13:47	182.6
354	0.5833	0.155	27.936	9/15/99 13:47	182.6
355	0.6	0.155	27.936	9/15/99 13:47	182.7
356	0.6166	0.155	27.936	9/15/99 13:47	182.7
357	0.6333	0.155	27.936	9/15/99 13:47	182.7
358	0.65	0.155	27.936	9/15/99 13:47	182.7
359	0.6666	0.155	27.936	9/15/99 13:47	182.7
360	0.6833	0.155	27.936	9/15/99 13:47	182.7
361	0.7	0.155	27.936	9/15/99 13:47	182.8
362	0.7166	0.155	27.936	9/15/99 13:47	182.8
363	0.7333	0.155	27.936	9/15/99 13:47	182.8
364	0.75	0.155	27.936	9/15/99 13:47	182.8
365	0.7666	0.155	27.936	9/15/99 13:47	182.8
366	0.7833	0.155	27.936	9/15/99 13:47	182.8
367	0.8	0.155	27.936	9/15/99 13:47	182.9
368	0.8166	0.155	27.936	9/15/99 13:47	182.9
369	0.8333	0.155	27.936	9/15/99 13:47	182.9
370	0.85	0.155	27.936	9/15/99 13:47	182.9
371	0.8666	0.155	27.936	9/15/99 13:47	182.9
372	0.8833	0.155	27.936	9/15/99 13:47	182.9
373	0.9	0.155	27.936	9/15/99 13:47	183.0
374	0.9166	0.155	27.936	9/15/99 13:47	183.0
375	0.9333	0.155	27.936	9/15/99 13:47	183.0
376	0.95	0.155	27.936	9/15/99 13:47	183.0
377	0.9666	0.155	27.936	9/15/99 13:47	183.0
378	0.9833	0.155	27.936	9/15/99 13:47	183.0
379	1	0.155	27.936	9/15/99 13:47	183.1
380	1.2	0.155	27.936	9/15/99 13:47	183.3
381	1.4	0.155	27.936	9/15/99 13:48	183.5
382	1.6	0.155	27.936	9/15/99 13:48	183.7
383	1.8	0.155	27.936	9/15/99 13:48	183.9
384	2	0.155	27.936	9/15/99 13:48	184.1
385	2.2	0.155	27.936	9/15/99 13:48	184.3
386	2.4	0.155	27.936	9/15/99 13:49	184.5
387	2.6	0.155	27.936	9/15/99 13:49	184.7
388	2.8	0.155	27.936	9/15/99 13:49	184.9
389	3	0.155	27.936	9/15/99 13:49	185.1
390	3.2	0.155	27.936	9/15/99 13:49	185.3
391	3.4	0.155	27.905	9/15/99 13:50	185.5
392	3.6	0.155	27.936	9/15/99 13:50	185.7
393	3.8	0.232	27.936	9/15/99 13:50	185.9
394	4	0.31	27.936	9/15/99 13:50	186.1
395	4.2	0.388	27.936	9/15/99 13:50	186.3

396	4.4	0.388	27.936	9/15/99 13:51	186.5
397	4.6	0.465	27.936	9/15/99 13:51	186.7
398	4.8	0.465	27.936	9/15/99 13:51	186.9
399	5	0.543	27.936	9/15/99 13:51	187.1
400	5.2	0.621	27.936	9/15/99 13:51	187.3
401	5.4	0.621	27.905	9/15/99 13:52	187.5
402	5.6	0.698	27.936	9/15/99 13:52	187.7
403	5.8	0.776	27.936	9/15/99 13:52	187.9
404	6	0.776	27.936	9/15/99 13:52	188.1
405	6.2	0.853	27.936	9/15/99 13:52	188.3
406	6.4	0.853	27.936	9/15/99 13:53	188.5
407	6.6	0.931	27.936	9/15/99 13:53	188.7
408	6.8	0.931	27.936	9/15/99 13:53	188.9
409	7	1.009	27.905	9/15/99 13:53	189.1
410	7.2	1.009	27.936	9/15/99 13:53	189.3
411	7.4	1.086	27.905	9/15/99 13:54	189.5
412	7.6	1.086	27.936	9/15/99 13:54	189.7
413	7.8	1.164	27.905	9/15/99 13:54	189.9
414	8	1.164	27.936	9/15/99 13:54	190.1
415	8.2	1.242	27.936	9/15/99 13:54	190.3
416	8.4	1.242	27.936	9/15/99 13:55	190.5
417	8.6	1.242	27.905	9/15/99 13:55	190.7
418	8.8	1.319	27.936	9/15/99 13:55	190.9
419	9	1.319	27.936	9/15/99 13:55	191.1
420	9.2	1.397	27.936	9/15/99 13:55	191.3
421	9.4	1.397	27.936	9/15/99 13:56	191.5
422	9.6	1.474	27.905	9/15/99 13:56	191.7
423	9.8	1.474	27.936	9/15/99 13:56	191.9
424	10	1.474	27.936	9/15/99 13:56	192.1
425	11	1.707	27.936	9/15/99 13:57	193.1
426	12	1.863	27.968	9/15/99 13:58	194.1
427	13	1.863	27.936	9/15/99 13:59	195.1
428	14	1.94	27.905	9/15/99 14:00	196.1
429	15	2.173	27.968	9/15/99 14:01	197.1
430	16	2.328	27.968	9/15/99 14:02	198.1
431	17	2.328	27.968	9/15/99 14:03	199.1
432	18	2.406	27.968	9/15/99 14:04	200.1
433	19	2.483	27.968	9/15/99 14:05	201.1
434	20	2.561	27.968	9/15/99 14:06	202.1
435	21	2.639	27.936	9/15/99 14:07	203.1
436	22	2.716	27.968	9/15/99 14:08	204.1
437	23	2.794	27.968	9/15/99 14:09	205.1
438	24	2.794	27.968	9/15/99 14:10	206.1
439	25	2.872	27.968	9/15/99 14:11	207.1
440	26	2.949	27.968	9/15/99 14:12	208.1
441	27	3.027	27.968	9/15/99 14:13	209.1
442	28	3.027	27.968	9/15/99 14:14	210.1
443	29	3.104	27.968	9/15/99 14:15	211.1
444	30	3.104	27.968	9/15/99 14:16	212.1
445	31	3.182	27.968	9/15/99 14:17	213.1
446	32	3.182	27.936	9/15/99 14:18	214.1

447	33	3.26	27.968	9/15/99 14:19	215.1
448	34	3.337	27.968	9/15/99 14:20	216.1
449	35	3.415	27.968	9/15/99 14:21	217.1
450	36	3.415	27.968	9/15/99 14:22	218.1
451	37	3.415	27.968	9/15/99 14:23	219.1
452	38	3.415	27.968	9/15/99 14:24	220.1
453	39	3.493	28	9/15/99 14:25	221.1
454	40	3.57	27.968	9/15/99 14:26	222.1
455	41	3.57	27.968	9/15/99 14:27	223.1
456	42	3.57	27.936	9/15/99 14:28	224.1
457	43	3.648	27.968	9/15/99 14:29	225.1
458	44	3.648	27.968	9/15/99 14:30	226.1
459	45	3.725	27.968	9/15/99 14:31	227.1
460	46	3.725	27.968	9/15/99 14:32	228.1
461	47	3.725	27.968	9/15/99 14:33	229.1
462	48	3.725	27.968	9/15/99 14:34	230.1
463	49	3.803	27.936	9/15/99 14:35	231.1
464	50	3.881	28	9/15/99 14:36	232.1
465	51	3.803	27.968	9/15/99 14:37	233.1
466	52	3.881	28	9/15/99 14:38	234.1
467	53	3.958	27.968	9/15/99 14:39	235.1
468	54	3.958	28	9/15/99 14:40	236.1
469	55	3.958	27.968	9/15/99 14:41	237.1
470	56	4.036	27.968	9/15/99 14:42	238.1
471	57	3.958	27.968	9/15/99 14:43	239.1
472	58	4.036	27.968	9/15/99 14:44	240.1
473	59	4.036	27.968	9/15/99 14:45	241.1
474	60	4.036	27.968	9/15/99 14:46	242.1
475	61	4.113	27.968	9/15/99 14:47	243.1
476	62	4.113	27.968	9/15/99 14:48	244.1
477	63	4.113	27.968	9/15/99 14:49	245.1
478	64	4.191	27.968	9/15/99 14:50	246.1
479	65	4.191	27.968	9/15/99 14:51	247.1
480	66	4.191	27.968	9/15/99 14:52	248.1
481	67	4.191	27.968	9/15/99 14:53	249.1
482	68	4.191	27.968	9/15/99 14:54	250.1
483	69	4.269	27.968	9/15/99 14:55	251.1
484	70	4.269	27.968	9/15/99 14:56	252.1
485	71	4.269	27.968	9/15/99 14:57	253.1
486	72	4.269	27.936	9/15/99 14:58	254.1
487	73	4.269	27.968	9/15/99 14:59	255.1
488	74	4.346	27.968	9/15/99 15:00	256.1
489	75	4.346	27.968	9/15/99 15:01	257.1
490	76	4.346	27.968	9/15/99 15:02	258.1
491	77	4.346	27.968	9/15/99 15:03	259.1
492	78	4.346	27.968	9/15/99 15:04	260.1
493	79	4.346	27.968	9/15/99 15:05	261.1
494	80	4.424	27.936	9/15/99 15:06	262.1
495	81	4.424	27.968	9/15/99 15:07	263.1
496	82	4.424	27.968	9/15/99 15:08	264.1
497	83	4.424	27.968	9/15/99 15:09	265.1

498	84	4.502	27.968	9/15/99 15:10	266.1
499	85	4.424	27.968	9/15/99 15:11	267.1
500	86	4.502	27.968	9/15/99 15:12	268.1
501	87	4.502	27.936	9/15/99 15:13	269.1
502	88	4.502	27.968	9/15/99 15:14	270.1
503	89	4.502	27.968	9/15/99 15:15	271.1
504	90	4.502	27.968	9/15/99 15:16	272.1
505	91	4.579	27.968	9/15/99 15:17	273.1
506	92	4.579	27.968	9/15/99 15:18	274.1
507	93	4.579	27.968	9/15/99 15:19	275.1
508	94	4.579	27.968	9/15/99 15:20	276.1
509	95	4.579	27.968	9/15/99 15:21	277.1
510	96	4.657	28	9/15/99 15:22	278.1
511	97	4.657	28	9/15/99 15:23	279.1
512	98	4.657	27.968	9/15/99 15:24	280.1
513	99	4.657	27.968	9/15/99 15:25	281.1
514	100	4.657	27.936	9/15/99 15:26	282.1
515	101	4.657	27.968	9/15/99 15:27	283.1
516	102	4.657	27.968	9/15/99 15:28	284.1
517	103	4.657	27.968	9/15/99 15:29	285.1
518	104	4.734	27.968	9/15/99 15:30	286.1
519	105	4.657	27.936	9/15/99 15:31	287.1
520	106	4.734	27.968	9/15/99 15:32	288.1
521	107	4.734	27.968	9/15/99 15:33	289.1
522	108	4.734	28	9/15/99 15:34	290.1
523	109	4.734	27.968	9/15/99 15:35	291.1
524	110	4.734	27.968	9/15/99 15:36	292.1
525	111	4.812	27.968	9/15/99 15:37	293.1
526	112	4.812	27.968	9/15/99 15:38	294.1
527	113	4.812	27.968	9/15/99 15:39	295.1
528	114	4.812	27.968	9/15/99 15:40	296.1
529	115	4.812	27.968	9/15/99 15:41	297.1
530	116	4.812	27.968	9/15/99 15:42	298.1
531	117	4.812	27.968	9/15/99 15:43	299.1
532	118	4.812	27.936	9/15/99 15:44	300.1
533	119	4.812	27.968	9/15/99 15:45	301.1
534	120	4.89	27.968	9/15/99 15:46	302.1
535	121	4.89	27.968	9/15/99 15:47	303.1
536	122	4.812	27.936	9/15/99 15:48	304.1
537	123	4.89	27.936	9/15/99 15:49	305.1
538	124	4.89	27.968	9/15/99 15:50	306.1
539	125	4.967	27.968	9/15/99 15:51	307.1
540	126	4.89	27.936	9/15/99 15:52	308.1
541	127	4.967	28	9/15/99 15:53	309.1
542	128	4.967	27.968	9/15/99 15:54	310.1
543	129	4.89	28	9/15/99 15:55	311.1
544	130	4.89	27.968	9/15/99 15:56	312.1
545	131	4.89	27.968	9/15/99 15:57	313.1
546	132	4.967	27.968	9/15/99 15:58	314.1
547	133	4.89	27.968	9/15/99 15:59	315.1
548	134	4.967	27.968	9/15/99 16:00	316.1

549	135	4.967	27.968	9/15/99 16:01	317.1
550	136	4.967	27.968	9/15/99 16:02	318.1
551	137	4.967	27.968	9/15/99 16:03	319.1
552	138	4.967	27.968	9/15/99 16:04	320.1
553	139	4.967	27.968	9/15/99 16:05	321.1
554	140	4.967	27.968	9/15/99 16:06	322.1
555	141	4.967	27.968	9/15/99 16:07	323.1
556	142	4.967	27.968	9/15/99 16:08	324.1
557	143	5.045	27.968	9/15/99 16:09	325.1
558	144	4.967	27.968	9/15/99 16:10	326.1
559	145	4.967	27.968	9/15/99 16:11	327.1
560	146	5.045	27.968	9/15/99 16:12	328.1
561	147	5.045	27.936	9/15/99 16:13	329.1
562	148	5.045	27.968	9/15/99 16:14	330.1
563	149	5.045	27.968	9/15/99 16:15	331.1
564	150	5.122	28	9/15/99 16:16	332.1
565	151	5.122	28	9/15/99 16:17	333.1
566	152	5.045	27.968	9/15/99 16:18	334.1
567	153	5.122	28	9/15/99 16:19	335.1
568	154	5.122	27.968	9/15/99 16:20	336.1
569	155	5.045	27.968	9/15/99 16:21	337.1
570	156	5.122	28	9/15/99 16:22	338.1
571	157	5.122	28	9/15/99 16:23	339.1
572	158	5.122	27.968	9/15/99 16:24	340.1
573	159	5.122	27.968	9/15/99 16:25	341.1
574	160	5.122	27.936	9/15/99 16:26	342.1
575	161	5.122	27.968	9/15/99 16:27	343.1
576	162	5.122	27.968	9/15/99 16:28	344.1
577	163	5.122	27.968	9/15/99 16:29	345.1
578	164	5.2	27.968	9/15/99 16:30	346.1
579	165	5.122	27.968	9/15/99 16:31	347.1
580	166	5.2	28	9/15/99 16:32	348.1
581	167	5.2	28	9/15/99 16:33	349.1
582	168	5.2	28	9/15/99 16:34	350.1
583	169	5.122	27.968	9/15/99 16:35	351.1
584	170	5.2	27.968	9/15/99 16:36	352.1
585	171	5.2	28	9/15/99 16:37	353.1
586	172	5.2	28	9/15/99 16:38	354.1
587	173	5.2	27.968	9/15/99 16:39	355.1
588	174	5.2	28	9/15/99 16:40	356.1
589	175	5.2	27.968	9/15/99 16:41	357.1
590	176	5.2	27.968	9/15/99 16:42	358.1
591	177	5.2	28	9/15/99 16:43	359.1
592	178	5.2	27.968	9/15/99 16:44	360.1
593	179	5.2	27.968	9/15/99 16:45	361.1
594	180	5.2	27.968	9/15/99 16:46	362.1
595	181	5.278	28	9/15/99 16:47	363.1
596	182	5.278	27.968	9/15/99 16:48	364.1
597	183	5.278	28	9/15/99 16:49	365.1
598	184	5.278	28	9/15/99 16:50	366.1
599	185	5.278	27.968	9/15/99 16:51	367.1

600	186	5.278	28	9/15/99 16:52	368.1
601	187	5.278	28	9/15/99 16:53	369.1
602	188	5.278	27.968	9/15/99 16:54	370.1
603	189	5.2	27.968	9/15/99 16:55	371.1
604	190	5.278	27.968	9/15/99 16:56	372.1
605	191	5.278	27.968	9/15/99 16:57	373.1
606	192	5.278	28	9/15/99 16:58	374.1
607	193	5.278	27.968	9/15/99 16:59	375.1
608	194	5.278	27.968	9/15/99 17:00	376.1
609	195	5.278	27.968	9/15/99 17:01	377.1
610	196	5.278	27.968	9/15/99 17:02	378.1
611	197	5.278	28	9/15/99 17:03	379.1
612	198	5.278	27.968	9/15/99 17:04	380.1
613	199	5.278	28	9/15/99 17:05	381.1
614	200	5.278	28	9/15/99 17:06	382.1
615	201	5.355	28	9/15/99 17:07	383.1
616	202	5.355	28	9/15/99 17:08	384.1
617	203	5.355	28	9/15/99 17:09	385.1
618	204	5.355	28	9/15/99 17:10	386.1
619	205	5.355	28	9/15/99 17:11	387.1
620	206	5.355	28	9/15/99 17:12	388.1
621	207	5.355	27.968	9/15/99 17:13	389.1
622	208	5.355	28	9/15/99 17:14	390.1
623	209	5.278	27.968	9/15/99 17:15	391.1
624	210	5.355	28	9/15/99 17:16	392.1
625	211	5.355	28	9/15/99 17:17	393.1
626	212	5.355	27.968	9/15/99 17:18	394.1
627	213	5.355	28	9/15/99 17:19	395.1
628	214	5.355	28	9/15/99 17:20	396.1
629	215	5.355	27.968	9/15/99 17:21	397.1
630	216	5.355	27.968	9/15/99 17:22	398.1
631	217	5.355	28	9/15/99 17:23	399.1
632	218	5.355	28	9/15/99 17:24	400.1
633	219	5.355	28	9/15/99 17:25	401.1
634	220	5.355	28	9/15/99 17:26	402.1
635	221	5.355	28	9/15/99 17:27	403.1
636	222	5.355	28	9/15/99 17:28	404.1
637	223	5.433	28	9/15/99 17:29	405.1
638	224	5.433	28.031	9/15/99 17:30	406.1
639	225	5.433	28	9/15/99 17:31	407.1
640	226	5.433	28	9/15/99 17:32	408.1
641	227	5.433	28	9/15/99 17:33	409.1
642	228	5.433	28	9/15/99 17:34	410.1
643	229	5.433	28	9/15/99 17:35	411.1
644	230	5.433	28	9/15/99 17:36	412.1
645	231	5.433	28	9/15/99 17:37	413.1
646	232	5.433	28	9/15/99 17:38	414.1
647	233	5.433	28	9/15/99 17:39	415.1
648	234	5.433	27.968	9/15/99 17:40	416.1
649	235	5.433	28	9/15/99 17:41	417.1
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653	239	5.433	28	9/15/99 17:45	421.1
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655	241	5.433	28	9/15/99 17:47	423.1
656	242	5.433	28	9/15/99 17:48	424.1
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658	244	5.433	28	9/15/99 17:50	426.1
659	245	5.51	28	9/15/99 17:51	427.1
660	246	5.433	28	9/15/99 17:52	428.1
661	247	5.433	28	9/15/99 17:53	429.1
662	248	5.433	28	9/15/99 17:54	430.1
663	249	5.51	28	9/15/99 17:55	431.1
664	250	5.433	28	9/15/99 17:56	432.1
665	251	5.433	28	9/15/99 17:57	433.1
666	252	5.433	28	9/15/99 17:58	434.1
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668	254	5.51	28	9/15/99 18:00	436.1
669	255	5.51	28	9/15/99 18:01	437.1
670	256	5.51	28	9/15/99 18:02	438.1
671	257	5.51	28	9/15/99 18:03	439.1
672	258	5.51	28	9/15/99 18:04	440.1
673	259	5.51	28	9/15/99 18:05	441.1
674	260	5.51	28	9/15/99 18:06	442.1
675	261	5.51	28	9/15/99 18:07	443.1
676	262	5.51	28	9/15/99 18:08	444.1
677	263	5.51	28	9/15/99 18:09	445.1
678	264	5.51	28	9/15/99 18:10	446.1
679	265	5.51	28.031	9/15/99 18:11	447.1
680	266	5.51	28	9/15/99 18:12	448.1
681	267	5.51	28	9/15/99 18:13	449.1
682	268	5.51	28	9/15/99 18:14	450.1
683	269	5.51	28	9/15/99 18:15	451.1
684	270	5.51	28	9/15/99 18:16	452.1
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686	272	5.51	28	9/15/99 18:18	454.1
687	273	5.51	28	9/15/99 18:19	455.1
688	274	5.51	28	9/15/99 18:20	456.1
689	275	5.51	28	9/15/99 18:21	457.1
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691	277	5.51	28	9/15/99 18:23	459.1
692	278	5.51	28	9/15/99 18:24	460.1
693	279	5.588	28	9/15/99 18:25	461.1
694	280	5.51	28.031	9/15/99 18:26	462.1
695	281	5.51	28	9/15/99 18:27	463.1
696	282	5.588	28	9/15/99 18:28	464.1
697	283	5.51	28	9/15/99 18:29	465.1
698	284	5.588	28	9/15/99 18:30	466.1
699	285	5.588	28.031	9/15/99 18:31	467.1
700	286	5.588	28.031	9/15/99 18:32	468.1
701	287	5.588	28	9/15/99 18:33	469.1

702	288	5.588	28.031	9/15/99 18:34	470.1
703	289	5.588	28.031	9/15/99 18:35	471.1
704	290	5.588	28.031	9/15/99 18:36	472.1
705	291	5.588	28	9/15/99 18:37	473.1
706	292	5.588	28.031	9/15/99 18:38	474.1
707	293	5.588	28	9/15/99 18:39	475.1
708	294	5.588	28.031	9/15/99 18:40	476.1
709	295	5.588	28	9/15/99 18:41	477.1
710	296	5.588	28.031	9/15/99 18:42	478.1
711	297	5.588	28.031	9/15/99 18:43	479.1
712	298	5.588	28.031	9/15/99 18:44	480.1
713	299	5.588	28.031	9/15/99 18:45	481.1
714	300	5.588	28	9/15/99 18:46	482.1
715	301	5.588	28.031	9/15/99 18:47	483.1
716	302	5.588	28.031	9/15/99 18:48	484.1
717	303	5.588	28.031	9/15/99 18:49	485.1
718	304	5.588	28.031	9/15/99 18:50	486.1
719	305	5.588	28.031	9/15/99 18:51	487.1
720	306	5.588	28.031	9/15/99 18:52	488.1
721	307	5.588	28.031	9/15/99 18:53	489.1
722	308	5.588	28.031	9/15/99 18:54	490.1
723	309	5.588	28.031	9/15/99 18:55	491.1
724	310	5.588	28.031	9/15/99 18:56	492.1
725	311	5.588	28.031	9/15/99 18:57	493.1
726	312	5.588	28.031	9/15/99 18:58	494.1
727	313	5.588	28.031	9/15/99 18:59	495.1
728	314	5.588	28.031	9/15/99 19:00	496.1
729	315	5.588	28.031	9/15/99 19:01	497.1
730	316	5.588	28.031	9/15/99 19:02	498.1
731	317	5.588	28.031	9/15/99 19:03	499.1
732	318	5.588	28.031	9/15/99 19:04	500.1
733	319	5.588	28.031	9/15/99 19:05	501.1
734	320	5.666	28.031	9/15/99 19:06	502.1
735	321	5.588	28.031	9/15/99 19:07	503.1
736	322	5.666	28.031	9/15/99 19:08	504.1
737	323	5.666	28.031	9/15/99 19:09	505.1
738	324	5.666	28.031	9/15/99 19:10	506.1
739	325	5.666	28.031	9/15/99 19:11	507.1
740	326	5.666	28.031	9/15/99 19:12	508.1
741	327	5.666	28.031	9/15/99 19:13	509.1
742	328	5.666	28.031	9/15/99 19:14	510.1
743	329	5.666	28.031	9/15/99 19:15	511.1
744	330	5.666	28.031	9/15/99 19:16	512.1
745	331	5.666	28.031	9/15/99 19:17	513.1
746	332	5.666	28.031	9/15/99 19:18	514.1
747	333	5.666	28.031	9/15/99 19:19	515.1
748	334	5.666	28.031	9/15/99 19:20	516.1
749	335	5.666	28.031	9/15/99 19:21	517.1
750	336	5.666	28.031	9/15/99 19:22	518.1
751	337	5.666	28.031	9/15/99 19:23	519.1
752	338	5.666	28.031	9/15/99 19:24	520.1

753	339	5.666	28.031	9/15/99 19:25	521.1
754	340	5.666	28.031	9/15/99 19:26	522.1
755	341	5.666	28.031	9/15/99 19:27	523.1
756	342	5.666	28.063	9/15/99 19:28	524.1
757	343	5.666	28.063	9/15/99 19:29	525.1
758	344	5.666	28.031	9/15/99 19:30	526.1
759	345	5.666	28.031	9/15/99 19:31	527.1
760	346	5.666	28.031	9/15/99 19:32	528.1
761	347	5.666	28.063	9/15/99 19:33	529.1
762	348	5.666	28.031	9/15/99 19:34	530.1
763	349	5.666	28.063	9/15/99 19:35	531.1
764	350	5.666	28.031	9/15/99 19:36	532.1
765	351	5.666	28.031	9/15/99 19:37	533.1
766	352	5.666	28.031	9/15/99 19:38	534.1
767	353	5.666	28.031	9/15/99 19:39	535.1
768	354	5.666	28.031	9/15/99 19:40	536.1
769	355	5.666	28.031	9/15/99 19:41	537.1
770	356	5.666	28.031	9/15/99 19:42	538.1
771	357	5.666	28.031	9/15/99 19:43	539.1
772	358	5.666	28.031	9/15/99 19:44	540.1
773	359	5.666	28.031	9/15/99 19:45	541.1
774	360	5.666	28.031	9/15/99 19:46	542.1
775	361	5.666	28.031	9/15/99 19:47	543.1
776	362	5.666	28.031	9/15/99 19:48	544.1
777	363	5.666	28.031	9/15/99 19:49	545.1
778	364	5.666	28.031	9/15/99 19:50	546.1
779	365	5.666	28.031	9/15/99 19:51	547.1
780	366	5.666	28.031	9/15/99 19:52	548.1
781	367	5.666	28.031	9/15/99 19:53	549.1
782	368	5.666	28.031	9/15/99 19:54	550.1
783	369	5.666	28.031	9/15/99 19:55	551.1
784	370	5.666	28.063	9/15/99 19:56	552.1
785	371	5.743	28.063	9/15/99 19:57	553.1
786	372	5.666	28.031	9/15/99 19:58	554.1
787	373	5.666	28.063	9/15/99 19:59	555.1
788	374	5.666	28.031	9/15/99 20:00	556.1
789	375	5.743	28.063	9/15/99 20:01	557.1
790	376	5.666	28.063	9/15/99 20:02	558.1
791	377	5.666	28.031	9/15/99 20:03	559.1
792	378	5.743	28.063	9/15/99 20:04	560.1
793	379	5.666	28.063	9/15/99 20:05	561.1
794	380	5.743	28.031	9/15/99 20:06	562.1
795	381	5.666	28.031	9/15/99 20:07	563.1
796	382	5.743	28.031	9/15/99 20:08	564.1
797	383	5.743	28.063	9/15/99 20:09	565.1
798	384	5.743	28.031	9/15/99 20:10	566.1
799	385	5.743	28.031	9/15/99 20:11	567.1
800	386	5.743	28.031	9/15/99 20:12	568.1
801	387	5.666	28.031	9/15/99 20:13	569.1
802	388	5.743	28.063	9/15/99 20:14	570.1
803	389	5.666	28.031	9/15/99 20:15	571.1

804	390	5.743	28.063	9/15/99 20:16	572.1
805	391	5.743	28.031	9/15/99 20:17	573.1
806	392	5.743	28.063	9/15/99 20:18	574.1
807	393	5.743	28.063	9/15/99 20:19	575.1
808	394	5.743	28.031	9/15/99 20:20	576.1
809	395	5.743	28.063	9/15/99 20:21	577.1
810	396	5.743	28.031	9/15/99 20:22	578.1
811	397	5.743	28.031	9/15/99 20:23	579.1
812	398	5.743	28.063	9/15/99 20:24	580.1
813	399	5.743	28.063	9/15/99 20:25	581.1
814	400	5.743	28.063	9/15/99 20:26	582.1
815	401	5.743	28.063	9/15/99 20:27	583.1
816	402	5.743	28.063	9/15/99 20:28	584.1
817	403	5.743	28.063	9/15/99 20:29	585.1
818	404	5.743	28.063	9/15/99 20:30	586.1
819	405	5.743	28.063	9/15/99 20:31	587.1
820	406	5.743	28.063	9/15/99 20:32	588.1
821	407	5.743	28.063	9/15/99 20:33	589.1
822	408	5.743	28.063	9/15/99 20:34	590.1
823	409	5.743	28.063	9/15/99 20:35	591.1
824	410	5.743	28.063	9/15/99 20:36	592.1
825	411	5.743	28.063	9/15/99 20:37	593.1
826	412	5.743	28.063	9/15/99 20:38	594.1
827	413	5.743	28.063	9/15/99 20:39	595.1
828	414	5.743	28.063	9/15/99 20:40	596.1
829	415	5.743	28.063	9/15/99 20:41	597.1
830	416	5.743	28.063	9/15/99 20:42	598.1
831	417	5.743	28.063	9/15/99 20:43	599.1
832	418	5.743	28.063	9/15/99 20:44	600.1
833	419	5.743	28.063	9/15/99 20:45	601.1
834	420	5.743	28.063	9/15/99 20:46	602.1
835	421	5.743	28.063	9/15/99 20:47	603.1
836	422	5.743	28.063	9/15/99 20:48	604.1
837	423	5.743	28.063	9/15/99 20:49	605.1
838	424	5.743	28.063	9/15/99 20:50	606.1
839	425	5.743	28.063	9/15/99 20:51	607.1
840	426	5.743	28.063	9/15/99 20:52	608.1
841	427	5.743	28.063	9/15/99 20:53	609.1
842	428	5.743	28.063	9/15/99 20:54	610.1
843	429	5.743	28.063	9/15/99 20:55	611.1
844	430	5.743	28.063	9/15/99 20:56	612.1
845	431	5.743	28.063	9/15/99 20:57	613.1
846	432	5.743	28.063	9/15/99 20:58	614.1
847	433	5.743	28.063	9/15/99 20:59	615.1
848	434	5.743	28.063	9/15/99 21:00	616.1
849	435	5.743	28.063	9/15/99 21:01	617.1
850	436	5.743	28.063	9/15/99 21:02	618.1
851	437	5.743	28.063	9/15/99 21:03	619.1
852	438	5.743	28.063	9/15/99 21:04	620.1
853	439	5.743	28.063	9/15/99 21:05	621.1
854	440	5.743	28.063	9/15/99 21:06	622.1

855	441	5.743	28.063	9/15/99 21:07	623.1
856	442	5.743	28.063	9/15/99 21:08	624.1
857	443	5.821	28.063	9/15/99 21:09	625.1
858	444	5.743	28.063	9/15/99 21:10	626.1
859	445	5.821	28.063	9/15/99 21:11	627.1
860	446	5.821	28.063	9/15/99 21:12	628.1
861	447	5.821	28.063	9/15/99 21:13	629.1
862	448	5.821	28.063	9/15/99 21:14	630.1
863	449	5.821	28.063	9/15/99 21:15	631.1
864	450	5.821	28.063	9/15/99 21:16	632.1
865	451	5.743	28.063	9/15/99 21:17	633.1
866	452	5.821	28.063	9/15/99 21:18	634.1
867	453	5.821	28.063	9/15/99 21:19	635.1
868	454	5.821	28.063	9/15/99 21:20	636.1
869	455	5.821	28.063	9/15/99 21:21	637.1
870	456	5.821	28.063	9/15/99 21:22	638.1
871	457	5.821	28.063	9/15/99 21:23	639.1
872	458	5.821	28.063	9/15/99 21:24	640.1
873	459	5.821	28.063	9/15/99 21:25	641.1
874	460	5.821	28.063	9/15/99 21:26	642.1
875	461	5.821	28.063	9/15/99 21:27	643.1
876	462	5.821	28.063	9/15/99 21:28	644.1
877	463	5.821	28.063	9/15/99 21:29	645.1
878	464	5.821	28.063	9/15/99 21:30	646.1
879	465	5.821	28.063	9/15/99 21:31	647.1
880	466	5.821	28.063	9/15/99 21:32	648.1
881	467	5.821	28.063	9/15/99 21:33	649.1
882	468	5.821	28.063	9/15/99 21:34	650.1
883	469	5.821	28.063	9/15/99 21:35	651.1
884	470	5.821	28.094	9/15/99 21:36	652.1
885	471	5.821	28.063	9/15/99 21:37	653.1
886	472	5.821	28.094	9/15/99 21:38	654.1
887	473	5.821	28.063	9/15/99 21:39	655.1
888	474	5.821	28.063	9/15/99 21:40	656.1
889	475	5.821	28.063	9/15/99 21:41	657.1
890	476	5.821	28.063	9/15/99 21:42	658.1
891	477	5.821	28.063	9/15/99 21:43	659.1
892	478	5.821	28.063	9/15/99 21:44	660.1
893	479	5.821	28.063	9/15/99 21:45	661.1
894	480	5.821	28.094	9/15/99 21:46	662.1
895	481	5.821	28.063	9/15/99 21:47	663.1
896	482	5.821	28.063	9/15/99 21:48	664.1
897	483	5.821	28.063	9/15/99 21:49	665.1
898	484	5.821	28.094	9/15/99 21:50	666.1
899	485	5.821	28.094	9/15/99 21:51	667.1
900	486	5.821	28.094	9/15/99 21:52	668.1
901	487	5.821	28.094	9/15/99 21:53	669.1
902	488	5.821	28.094	9/15/99 21:54	670.1
903	489	5.821	28.094	9/15/99 21:55	671.1
904	490	5.821	28.094	9/15/99 21:56	672.1
905	491	5.821	28.094	9/15/99 21:57	673.1

906	492	5.821	28.094	9/15/99 21:58	674.1
907	493	5.821	28.094	9/15/99 21:59	675.1
908	494	5.821	28.094	9/15/99 22:00	676.1
909	495	5.821	28.094	9/15/99 22:01	677.1
910	496	5.821	28.094	9/15/99 22:02	678.1
911	497	5.821	28.094	9/15/99 22:03	679.1
912	498	5.821	28.094	9/15/99 22:04	680.1
913	499	5.821	28.094	9/15/99 22:05	681.1
914	500	5.821	28.094	9/15/99 22:06	682.1
915	501	5.821	28.094	9/15/99 22:07	683.1
916	502	5.821	28.094	9/15/99 22:08	684.1
917	503	5.821	28.094	9/15/99 22:09	685.1
918	504	5.821	28.094	9/15/99 22:10	686.1
919	505	5.821	28.094	9/15/99 22:11	687.1
920	506	5.899	28.094	9/15/99 22:12	688.1
921	507	5.821	28.094	9/15/99 22:13	689.1
922	508	5.821	28.094	9/15/99 22:14	690.1
923	509	5.821	28.094	9/15/99 22:15	691.1
924	510	5.899	28.094	9/15/99 22:16	692.1
925	511	5.821	28.094	9/15/99 22:17	693.1
926	512	5.821	28.094	9/15/99 22:18	694.1
927	513	5.899	28.094	9/15/99 22:19	695.1
928	514	5.821	28.094	9/15/99 22:20	696.1
929	515	5.821	28.094	9/15/99 22:21	697.1
930	516	5.821	28.094	9/15/99 22:22	698.1
931	517	5.821	28.094	9/15/99 22:23	699.1
932	518	5.821	28.094	9/15/99 22:24	700.1
933	519	5.821	28.094	9/15/99 22:25	701.1
934	520	5.899	28.094	9/15/99 22:26	702.1
935	521	5.899	28.094	9/15/99 22:27	703.1
936	522	5.821	28.094	9/15/99 22:28	704.1
937	523	5.821	28.094	9/15/99 22:29	705.1
938	524	5.899	28.094	9/15/99 22:30	706.1
939	525	5.899	28.094	9/15/99 22:31	707.1
940	526	5.899	28.094	9/15/99 22:32	708.1
941	527	5.899	28.126	9/15/99 22:33	709.1
942	528	5.899	28.126	9/15/99 22:34	710.1
943	529	5.899	28.094	9/15/99 22:35	711.1
944	530	5.899	28.094	9/15/99 22:36	712.1
945	531	5.899	28.094	9/15/99 22:37	713.1
946	532	5.899	28.094	9/15/99 22:38	714.1
947	533	5.899	28.094	9/15/99 22:39	715.1
948	534	5.821	28.126	9/15/99 22:40	716.1
949	535	5.899	28.126	9/15/99 22:41	717.1
950	536	5.899	28.126	9/15/99 22:42	718.1
951	537	5.899	28.126	9/15/99 22:43	719.1
952	538	5.899	28.126	9/15/99 22:44	720.1
953	539	5.899	28.126	9/15/99 22:45	721.1
954	540	5.899	28.126	9/15/99 22:46	722.1
955	541	5.899	28.126	9/15/99 22:47	723.1
956	542	5.899	28.126	9/15/99 22:48	724.1

957	543	5.899	28.126	9/15/99 22:49	725.1
958	544	5.899	28.126	9/15/99 22:50	726.1
959	545	5.899	28.126	9/15/99 22:51	727.1
960	546	5.899	28.126	9/15/99 22:52	728.1
961	547	5.899	28.126	9/15/99 22:53	729.1
962	548	5.899	28.126	9/15/99 22:54	730.1
963	549	5.899	28.126	9/15/99 22:55	731.1
964	550	5.899	28.126	9/15/99 22:56	732.1
965	551	5.899	28.126	9/15/99 22:57	733.1
966	552	5.899	28.126	9/15/99 22:58	734.1
967	553	5.899	28.126	9/15/99 22:59	735.1
968	554	5.899	28.126	9/15/99 23:00	736.1
969	555	5.899	28.126	9/15/99 23:01	737.1
970	556	5.899	28.126	9/15/99 23:02	738.1
971	557	5.899	28.126	9/15/99 23:03	739.1
972	558	5.899	28.126	9/15/99 23:04	740.1
973	559	5.899	28.126	9/15/99 23:05	741.1
974	560	5.899	28.126	9/15/99 23:06	742.1
975	561	5.899	28.126	9/15/99 23:07	743.1
976	562	5.899	28.126	9/15/99 23:08	744.1
977	563	5.899	28.126	9/15/99 23:09	745.1
978	564	5.899	28.126	9/15/99 23:10	746.1
979	565	5.899	28.126	9/15/99 23:11	747.1
980	566	5.899	28.126	9/15/99 23:12	748.1
981	567	5.899	28.126	9/15/99 23:13	749.1
982	568	5.899	28.126	9/15/99 23:14	750.1
983	569	5.899	28.126	9/15/99 23:15	751.1
984	570	5.899	28.126	9/15/99 23:16	752.1
985	571	5.899	28.126	9/15/99 23:17	753.1
986	572	5.899	28.126	9/15/99 23:18	754.1
987	573	5.899	28.126	9/15/99 23:19	755.1
988	574	5.899	28.126	9/15/99 23:20	756.1
989	575	5.899	28.126	9/15/99 23:21	757.1
990	576	5.899	28.126	9/15/99 23:22	758.1
991	577	5.899	28.126	9/15/99 23:23	759.1
992	578	5.899	28.126	9/15/99 23:24	760.1
993	579	5.899	28.126	9/15/99 23:25	761.1
994	580	5.899	28.126	9/15/99 23:26	762.1
995	581	5.899	28.126	9/15/99 23:27	763.1
996	582	5.899	28.126	9/15/99 23:28	764.1
997	583	5.899	28.126	9/15/99 23:29	765.1
998	584	5.899	28.126	9/15/99 23:30	766.1
999	585	5.899	28.126	9/15/99 23:31	767.1
1000	586	5.899	28.126	9/15/99 23:32	768.1
1001	587	5.899	28.126	9/15/99 23:33	769.1
1002	588	5.899	28.126	9/15/99 23:34	770.1
1003	589	5.899	28.126	9/15/99 23:35	771.1
1004	590	5.899	28.126	9/15/99 23:36	772.1
1005	591	5.899	28.126	9/15/99 23:37	773.1
1006	592	5.899	28.126	9/15/99 23:38	774.1
1007	593	5.899	28.126	9/15/99 23:39	775.1

1008	594	5.899	28.126	9/15/99 23:40	776.1
1009	595	5.899	28.126	9/15/99 23:41	777.1
1010	596	5.899	28.126	9/15/99 23:42	778.1
1011	597	5.899	28.126	9/15/99 23:43	779.1
1012	598	5.899	28.126	9/15/99 23:44	780.1
1013	599	5.899	28.126	9/15/99 23:45	781.1
1014	600	5.899	28.126	9/15/99 23:46	782.1
1015	601	5.899	28.126	9/15/99 23:47	783.1
1016	602	5.899	28.126	9/15/99 23:48	784.1
1017	603	5.899	28.126	9/15/99 23:49	785.1
1018	604	5.899	28.126	9/15/99 23:50	786.1
1019	605	5.899	28.126	9/15/99 23:51	787.1
1020	606	5.899	28.126	9/15/99 23:52	788.1
1021	607	5.899	28.126	9/15/99 23:53	789.1
1022	608	5.899	28.126	9/15/99 23:54	790.1
1023	609	5.899	28.126	9/15/99 23:55	791.1
1024	610	5.976	28.126	9/15/99 23:56	792.1
1025	611	5.899	28.126	9/15/99 23:57	793.1
1026	612	5.899	28.126	9/15/99 23:58	794.1
1027	613	5.899	28.126	9/15/99 23:59	795.1
1028	614	5.899	28.126	9/16/99 0:00	796.1
1029	615	5.899	28.126	9/16/99 0:01	797.1
1030	616	5.899	28.126	9/16/99 0:02	798.1
1031	617	5.899	28.126	9/16/99 0:03	799.1
1032	618	5.899	28.126	9/16/99 0:04	800.1
1033	619	5.976	28.126	9/16/99 0:05	801.1
1034	620	5.976	28.158	9/16/99 0:06	802.1
1035	621	5.899	28.126	9/16/99 0:07	803.1
1036	622	5.899	28.126	9/16/99 0:08	804.1
1037	623	5.976	28.126	9/16/99 0:09	805.1
1038	624	5.899	28.126	9/16/99 0:10	806.1
1039	625	5.899	28.126	9/16/99 0:11	807.1
1040	626	5.976	28.126	9/16/99 0:12	808.1
1041	627	5.976	28.126	9/16/99 0:13	809.1
1042	628	5.976	28.158	9/16/99 0:14	810.1
1043	629	5.976	28.126	9/16/99 0:15	811.1
1044	630	5.899	28.126	9/16/99 0:16	812.1
1045	631	5.976	28.126	9/16/99 0:17	813.1
1046	632	5.976	28.158	9/16/99 0:18	814.1
1047	633	5.976	28.158	9/16/99 0:19	815.1
1048	634	5.899	28.126	9/16/99 0:20	816.1
1049	635	5.976	28.126	9/16/99 0:21	817.1
1050	636	5.976	28.126	9/16/99 0:22	818.1
1051	637	5.976	28.158	9/16/99 0:23	819.1
1052	638	5.976	28.158	9/16/99 0:24	820.1
1053	639	5.976	28.158	9/16/99 0:25	821.1
1054	640	5.976	28.158	9/16/99 0:26	822.1
1055	641	5.899	28.158	9/16/99 0:27	823.1
1056	642	5.976	28.158	9/16/99 0:28	824.1
1057	643	5.976	28.158	9/16/99 0:29	825.1
1058	644	5.976	28.158	9/16/99 0:30	826.1

1059	645	5.976	28.158	9/16/99 0:31	827.1
1060	646	5.976	28.158	9/16/99 0:32	828.1
1061	647	5.976	28.158	9/16/99 0:33	829.1
1062	648	5.976	28.158	9/16/99 0:34	830.1
1063	649	5.976	28.158	9/16/99 0:35	831.1
1064	650	5.976	28.158	9/16/99 0:36	832.1
1065	651	5.976	28.158	9/16/99 0:37	833.1
1066	652	5.976	28.158	9/16/99 0:38	834.1
1067	653	5.976	28.158	9/16/99 0:39	835.1
1068	654	5.976	28.158	9/16/99 0:40	836.1
1069	655	5.976	28.158	9/16/99 0:41	837.1
1070	656	5.976	28.158	9/16/99 0:42	838.1
1071	657	5.976	28.158	9/16/99 0:43	839.1
1072	658	5.976	28.158	9/16/99 0:44	840.1
1073	659	5.976	28.158	9/16/99 0:45	841.1
1074	660	5.976	28.126	9/16/99 0:46	842.1
1075	661	5.976	28.158	9/16/99 0:47	843.1
1076	662	5.976	28.158	9/16/99 0:48	844.1
1077	663	5.976	28.158	9/16/99 0:49	845.1
1078	664	5.976	28.158	9/16/99 0:50	846.1
1079	665	5.976	28.158	9/16/99 0:51	847.1
1080	666	5.976	28.158	9/16/99 0:52	848.1
1081	667	5.976	28.158	9/16/99 0:53	849.1
1082	668	5.976	28.158	9/16/99 0:54	850.1
1083	669	5.976	28.158	9/16/99 0:55	851.1
1084	670	5.976	28.158	9/16/99 0:56	852.1
1085	671	5.976	28.158	9/16/99 0:57	853.1
1086	672	5.976	28.158	9/16/99 0:58	854.1
1087	673	5.976	28.158	9/16/99 0:59	855.1
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1089	675	5.976	28.158	9/16/99 1:01	857.1
1090	676	5.976	28.158	9/16/99 1:02	858.1
1091	677	5.976	28.126	9/16/99 1:03	859.1
1092	678	5.976	28.158	9/16/99 1:04	860.1
1093	679	5.976	28.158	9/16/99 1:05	861.1
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1096	682	5.976	28.158	9/16/99 1:08	864.1
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1099	685	5.976	28.158	9/16/99 1:11	867.1
1100	686	5.976	28.158	9/16/99 1:12	868.1
1101	687	5.976	28.158	9/16/99 1:13	869.1
1102	688	5.976	28.158	9/16/99 1:14	870.1
1103	689	5.976	28.158	9/16/99 1:15	871.1
1104	690	5.976	28.158	9/16/99 1:16	872.1
1105	691	5.976	28.158	9/16/99 1:17	873.1
1106	692	5.976	28.158	9/16/99 1:18	874.1
1107	693	5.976	28.158	9/16/99 1:19	875.1
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1109	695	5.976	28.158	9/16/99 1:21	877.1

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1111	697	5.976	28.158	9/16/99 1:23	879.1
1112	698	5.976	28.158	9/16/99 1:24	880.1
1113	699	5.976	28.158	9/16/99 1:25	881.1
1114	700	5.976	28.158	9/16/99 1:26	882.1
1115	701	5.976	28.158	9/16/99 1:27	883.1
1116	702	5.976	28.158	9/16/99 1:28	884.1
1117	703	5.976	28.158	9/16/99 1:29	885.1
1118	704	5.976	28.158	9/16/99 1:30	886.1
1119	705	5.976	28.158	9/16/99 1:31	887.1
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1122	708	5.976	28.158	9/16/99 1:34	890.1
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1124	710	5.976	28.158	9/16/99 1:36	892.1
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1136	722	5.976	28.158	9/16/99 1:48	904.1
1137	723	5.976	28.158	9/16/99 1:49	905.1
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1143	729	5.976	28.158	9/16/99 1:55	911.1
1144	730	5.976	28.158	9/16/99 1:56	912.1
1145	731	5.976	28.158	9/16/99 1:57	913.1
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1159	745	5.976	28.158	9/16/99 2:11	927.1
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1162	748	5.976	28.158	9/16/99 2:14	930.1
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1171	757	5.976	28.158	9/16/99 2:23	939.1
1172	758	5.976	28.158	9/16/99 2:24	940.1
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1177	763	5.976	28.158	9/16/99 2:29	945.1
1178	764	5.976	28.158	9/16/99 2:30	946.1
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1180	766	5.976	28.158	9/16/99 2:32	948.1
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1182	768	5.976	28.158	9/16/99 2:34	950.1
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1185	771	5.976	28.158	9/16/99 2:37	953.1
1186	772	5.976	28.158	9/16/99 2:38	954.1
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1191	777	5.976	28.158	9/16/99 2:43	959.1
1192	778	5.976	28.158	9/16/99 2:44	960.1
1193	779	5.976	28.158	9/16/99 2:45	961.1
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1195	781	5.976	28.158	9/16/99 2:47	963.1
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1197	783	5.976	28.158	9/16/99 2:49	965.1
1198	784	5.976	28.158	9/16/99 2:50	966.1
1199	785	5.976	28.158	9/16/99 2:51	967.1
1200	786	5.976	28.158	9/16/99 2:52	968.1
1201	787	5.976	28.158	9/16/99 2:53	969.1
1202	788	5.976	28.158	9/16/99 2:54	970.1
1203	789	5.976	28.158	9/16/99 2:55	971.1
1204	790	5.976	28.158	9/16/99 2:56	972.1
1205	791	5.976	28.158	9/16/99 2:57	973.1
1206	792	5.976	28.158	9/16/99 2:58	974.1
1207	793	5.976	28.158	9/16/99 2:59	975.1
1208	794	5.976	28.158	9/16/99 3:00	976.1
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1210	796	6.054	28.158	9/16/99 3:02	978.1
1211	797	5.976	28.158	9/16/99 3:03	979.1

1212	798	6.054	28.158	9/16/99 3:04	980.1
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1215	801	5.976	28.158	9/16/99 3:07	983.1
1216	802	5.976	28.158	9/16/99 3:08	984.1
1217	803	5.976	28.158	9/16/99 3:09	985.1
1218	804	5.976	28.126	9/16/99 3:10	986.1
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1222	808	5.976	28.158	9/16/99 3:14	990.1
1223	809	5.976	28.158	9/16/99 3:15	991.1
1224	810	5.976	28.158	9/16/99 3:16	992.1
1225	811	5.976	28.158	9/16/99 3:17	993.1
1226	812	5.976	28.158	9/16/99 3:18	994.1
1227	813	5.976	28.158	9/16/99 3:19	995.1
1228	814	5.976	28.158	9/16/99 3:20	996.1
1229	815	5.976	28.158	9/16/99 3:21	997.1
1230	816	5.976	28.158	9/16/99 3:22	998.1
1231	817	6.054	28.158	9/16/99 3:23	999.1
1232	818	5.976	28.158	9/16/99 3:24	1000.1
1233	819	5.976	28.158	9/16/99 3:25	1001.1
1234	820	5.976	28.158	9/16/99 3:26	1002.1
1235	821	5.976	28.158	9/16/99 3:27	1003.1
1236	822	5.976	28.158	9/16/99 3:28	1004.1
1237	823	5.976	28.158	9/16/99 3:29	1005.1
1238	824	5.976	28.158	9/16/99 3:30	1006.1
1239	825	5.976	28.158	9/16/99 3:31	1007.1
1240	826	5.976	28.158	9/16/99 3:32	1008.1
1241	827	5.976	28.158	9/16/99 3:33	1009.1
1242	828	5.976	28.158	9/16/99 3:34	1010.1
1243	829	5.976	28.158	9/16/99 3:35	1011.1
1244	830	5.976	28.158	9/16/99 3:36	1012.1
1245	831	6.054	28.158	9/16/99 3:37	1013.1
1246	832	5.976	28.158	9/16/99 3:38	1014.1
1247	833	6.054	28.158	9/16/99 3:39	1015.1
1248	834	5.976	28.158	9/16/99 3:40	1016.1
1249	835	5.976	28.158	9/16/99 3:41	1017.1
1250	836	5.976	28.158	9/16/99 3:42	1018.1
1251	837	5.976	28.158	9/16/99 3:43	1019.1
1252	838	5.976	28.158	9/16/99 3:44	1020.1
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1254	840	6.054	28.158	9/16/99 3:46	1022.1
1255	841	6.054	28.158	9/16/99 3:47	1023.1
1256	842	6.054	28.158	9/16/99 3:48	1024.1
1257	843	5.976	28.126	9/16/99 3:49	1025.1
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1259	845	6.054	28.126	9/16/99 3:51	1027.1
1260	846	6.054	28.158	9/16/99 3:52	1028.1
1261	847	5.976	28.126	9/16/99 3:53	1029.1
1262	848	5.976	28.158	9/16/99 3:54	1030.1

1263	849	6.054	28.158	9/16/99 3:55	1031.1
1264	850	5.976	28.126	9/16/99 3:56	1032.1
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1266	852	5.976	28.126	9/16/99 3:58	1034.1
1267	853	5.976	28.158	9/16/99 3:59	1035.1
1268	854	5.976	28.158	9/16/99 4:00	1036.1
1269	855	6.054	28.126	9/16/99 4:01	1037.1
1270	856	6.054	28.158	9/16/99 4:02	1038.1
1271	857	5.976	28.126	9/16/99 4:03	1039.1
1272	858	5.976	28.126	9/16/99 4:04	1040.1
1273	859	6.054	28.158	9/16/99 4:05	1041.1
1274	860	6.054	28.126	9/16/99 4:06	1042.1
1275	861	5.976	28.158	9/16/99 4:07	1043.1
1276	862	5.976	28.126	9/16/99 4:08	1044.1
1277	863	6.054	28.126	9/16/99 4:09	1045.1
1278	864	5.976	28.158	9/16/99 4:10	1046.1
1279	865	5.976	28.158	9/16/99 4:11	1047.1
1280	866	5.976	28.158	9/16/99 4:12	1048.1
1281	867	5.976	28.126	9/16/99 4:13	1049.1
1282	868	6.054	28.158	9/16/99 4:14	1050.1
1283	869	5.976	28.126	9/16/99 4:15	1051.1
1284	870	5.976	28.126	9/16/99 4:16	1052.1
1285	871	6.054	28.158	9/16/99 4:17	1053.1
1286	872	6.054	28.158	9/16/99 4:18	1054.1
1287	873	6.054	28.158	9/16/99 4:19	1055.1
1288	874	6.054	28.158	9/16/99 4:20	1056.1
1289	875	5.976	28.158	9/16/99 4:21	1057.1
1290	876	5.976	28.126	9/16/99 4:22	1058.1
1291	877	6.054	28.126	9/16/99 4:23	1059.1
1292	878	6.054	28.126	9/16/99 4:24	1060.1
1293	879	5.976	28.126	9/16/99 4:25	1061.1
1294	880	5.976	28.126	9/16/99 4:26	1062.1
1295	881	5.976	28.126	9/16/99 4:27	1063.1
1296	882	5.976	28.158	9/16/99 4:28	1064.1
1297	883	6.054	28.158	9/16/99 4:29	1065.1
1298	884	5.976	28.126	9/16/99 4:30	1066.1
1299	885	5.976	28.158	9/16/99 4:31	1067.1
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1301	887	6.054	28.158	9/16/99 4:33	1069.1
1302	888	5.976	28.126	9/16/99 4:34	1070.1
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1304	890	6.054	28.158	9/16/99 4:36	1072.1
1305	891	6.054	28.126	9/16/99 4:37	1073.1
1306	892	5.976	28.126	9/16/99 4:38	1074.1
1307	893	6.054	28.126	9/16/99 4:39	1075.1
1308	894	5.976	28.158	9/16/99 4:40	1076.1
1309	895	5.976	28.126	9/16/99 4:41	1077.1
1310	896	5.976	28.126	9/16/99 4:42	1078.1
1311	897	5.976	28.158	9/16/99 4:43	1079.1
1312	898	5.976	28.126	9/16/99 4:44	1080.1
1313	899	6.054	28.158	9/16/99 4:45	1081.1

1314	900	5.976	28.126	9/16/99 4:46	1082.1
1315	901	5.976	28.126	9/16/99 4:47	1083.1
1316	902	5.976	28.158	9/16/99 4:48	1084.1
1317	903	5.976	28.158	9/16/99 4:49	1085.1
1318	904	6.054	28.126	9/16/99 4:50	1086.1
1319	905	6.054	28.158	9/16/99 4:51	1087.1
1320	906	6.054	28.158	9/16/99 4:52	1088.1
1321	907	5.976	28.126	9/16/99 4:53	1089.1
1322	908	5.976	28.158	9/16/99 4:54	1090.1
1323	909	6.054	28.126	9/16/99 4:55	1091.1
1324	910	5.976	28.158	9/16/99 4:56	1092.1
1325	911	5.976	28.126	9/16/99 4:57	1093.1
1326	912	6.054	28.126	9/16/99 4:58	1094.1
1327	913	6.054	28.126	9/16/99 4:59	1095.1
1328	914	6.054	28.126	9/16/99 5:00	1096.1
1329	915	5.976	28.126	9/16/99 5:01	1097.1
1330	916	5.976	28.126	9/16/99 5:02	1098.1
1331	917	5.976	28.158	9/16/99 5:03	1099.1
1332	918	6.054	28.126	9/16/99 5:04	1100.1
1333	919	6.054	28.126	9/16/99 5:05	1101.1
1334	920	6.054	28.126	9/16/99 5:06	1102.1
1335	921	6.054	28.126	9/16/99 5:07	1103.1
1336	922	5.976	28.126	9/16/99 5:08	1104.1
1337	923	6.054	28.126	9/16/99 5:09	1105.1
1338	924	6.054	28.126	9/16/99 5:10	1106.1
1339	925	6.054	28.126	9/16/99 5:11	1107.1
1340	926	6.054	28.158	9/16/99 5:12	1108.1
1341	927	6.054	28.126	9/16/99 5:13	1109.1
1342	928	6.054	28.158	9/16/99 5:14	1110.1
1343	929	6.054	28.158	9/16/99 5:15	1111.1
1344	930	6.054	28.126	9/16/99 5:16	1112.1
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1347	933	5.976	28.126	9/16/99 5:19	1115.1
1348	934	6.054	28.126	9/16/99 5:20	1116.1
1349	935	6.054	28.126	9/16/99 5:21	1117.1
1350	936	6.054	28.126	9/16/99 5:22	1118.1
1351	937	6.054	28.126	9/16/99 5:23	1119.1
1352	938	6.054	28.126	9/16/99 5:24	1120.1
1353	939	6.054	28.126	9/16/99 5:25	1121.1
1354	940	5.976	28.126	9/16/99 5:26	1122.1
1355	941	5.976	28.126	9/16/99 5:27	1123.1
1356	942	6.054	28.126	9/16/99 5:28	1124.1
1357	943	5.976	28.126	9/16/99 5:29	1125.1
1358	944	5.976	28.126	9/16/99 5:30	1126.1
1359	945	6.054	28.126	9/16/99 5:31	1127.1
1360	946	6.054	28.126	9/16/99 5:32	1128.1
1361	947	6.054	28.126	9/16/99 5:33	1129.1
1362	948	6.054	28.126	9/16/99 5:34	1130.1
1363	949	6.054	28.126	9/16/99 5:35	1131.1
1364	950	6.054	28.126	9/16/99 5:36	1132.1

1365	951	5.976	28.126	9/16/99 5:37	1133.1
1366	952	6.054	28.126	9/16/99 5:38	1134.1
1367	953	6.054	28.126	9/16/99 5:39	1135.1
1368	954	6.054	28.126	9/16/99 5:40	1136.1
1369	955	6.054	28.126	9/16/99 5:41	1137.1
1370	956	5.976	28.126	9/16/99 5:42	1138.1
1371	957	6.054	28.126	9/16/99 5:43	1139.1
1372	958	6.054	28.126	9/16/99 5:44	1140.1
1373	959	6.054	28.126	9/16/99 5:45	1141.1
1374	960	6.054	28.126	9/16/99 5:46	1142.1
1375	961	6.054	28.126	9/16/99 5:47	1143.1
1376	962	6.054	28.126	9/16/99 5:48	1144.1
1377	963	6.054	28.126	9/16/99 5:49	1145.1
1378	964	6.054	28.126	9/16/99 5:50	1146.1
1379	965	6.054	28.126	9/16/99 5:51	1147.1
1380	966	6.054	28.126	9/16/99 5:52	1148.1
1381	967	5.976	28.126	9/16/99 5:53	1149.1
1382	968	6.054	28.126	9/16/99 5:54	1150.1
1383	969	6.054	28.126	9/16/99 5:55	1151.1
1384	970	6.054	28.126	9/16/99 5:56	1152.1
1385	971	6.054	28.126	9/16/99 5:57	1153.1
1386	972	6.054	28.126	9/16/99 5:58	1154.1
1387	973	6.054	28.126	9/16/99 5:59	1155.1
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1390	976	6.054	28.126	9/16/99 6:02	1158.1
1391	977	6.054	28.126	9/16/99 6:03	1159.1
1392	978	5.976	28.126	9/16/99 6:04	1160.1
1393	979	6.054	28.126	9/16/99 6:05	1161.1
1394	980	6.054	28.126	9/16/99 6:06	1162.1
1395	981	6.054	28.126	9/16/99 6:07	1163.1
1396	982	6.054	28.126	9/16/99 6:08	1164.1
1397	983	6.054	28.126	9/16/99 6:09	1165.1
1398	984	6.054	28.126	9/16/99 6:10	1166.1
1399	985	6.054	28.126	9/16/99 6:11	1167.1
1400	986	6.054	28.126	9/16/99 6:12	1168.1
1401	987	6.054	28.126	9/16/99 6:13	1169.1
1402	988	6.054	28.126	9/16/99 6:14	1170.1
1403	989	6.054	28.126	9/16/99 6:15	1171.1
1404	990	6.054	28.158	9/16/99 6:16	1172.1
1405	991	6.054	28.126	9/16/99 6:17	1173.1
1406	992	6.054	28.126	9/16/99 6:18	1174.1
1407	993	6.054	28.126	9/16/99 6:19	1175.1
1408	994	6.054	28.126	9/16/99 6:20	1176.1
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1411	997	6.054	28.126	9/16/99 6:23	1179.1
1412	998	6.054	28.158	9/16/99 6:24	1180.1
1413	999	6.054	28.126	9/16/99 6:25	1181.1
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1415	1001	6.054	28.126	9/16/99 6:27	1183.1

1416	1002	6.054	28.126	9/16/99 6:28	1184.1
1417	1003	6.054	28.158	9/16/99 6:29	1185.1
1418	1004	6.054	28.126	9/16/99 6:30	1186.1
1419	1005	6.054	28.126	9/16/99 6:31	1187.1
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1421	1007	6.054	28.126	9/16/99 6:33	1189.1
1422	1008	6.054	28.158	9/16/99 6:34	1190.1
1423	1009	6.054	28.126	9/16/99 6:35	1191.1
1424	1010	6.054	28.126	9/16/99 6:36	1192.1
1425	1011	6.054	28.126	9/16/99 6:37	1193.1
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1436	1022	6.054	28.126	9/16/99 6:48	1204.1
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1452	1038	6.054	28.158	9/16/99 7:04	1220.1
1453	1039	6.054	28.158	9/16/99 7:05	1221.1
1454	1040	6.054	28.126	9/16/99 7:06	1222.1
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1456	1042	6.054	28.158	9/16/99 7:08	1224.1
1457	1043	6.054	28.126	9/16/99 7:09	1225.1
1458	1044	6.054	28.158	9/16/99 7:10	1226.1
1459	1045	6.054	28.158	9/16/99 7:11	1227.1
1460	1046	6.054	28.126	9/16/99 7:12	1228.1
1461	1047	6.054	28.126	9/16/99 7:13	1229.1
1462	1048	6.054	28.158	9/16/99 7:14	1230.1
1463	1049	6.054	28.126	9/16/99 7:15	1231.1
1464	1050	6.054	28.126	9/16/99 7:16	1232.1
1465	1051	6.054	28.126	9/16/99 7:17	1233.1
1466	1052	6.054	28.126	9/16/99 7:18	1234.1

1467	1053	6.054	28.126	9/16/99 7:19	1235.1
1468	1054	6.054	28.126	9/16/99 7:20	1236.1
1469	1055	6.054	28.126	9/16/99 7:21	1237.1
1470	1056	6.054	28.126	9/16/99 7:22	1238.1
1471	1057	6.054	28.126	9/16/99 7:23	1239.1
1472	1058	6.054	28.126	9/16/99 7:24	1240.1
1473	1059	6.054	28.126	9/16/99 7:25	1241.1
1474	1060	6.054	28.126	9/16/99 7:26	1242.1
1475	1061	6.054	28.126	9/16/99 7:27	1243.1
1476	1062	6.054	28.126	9/16/99 7:28	1244.1
1477	1063	6.054	28.126	9/16/99 7:29	1245.1
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1479	1065	6.054	28.126	9/16/99 7:31	1247.1
1480	1066	6.054	28.126	9/16/99 7:32	1248.1
1481	1067	6.054	28.126	9/16/99 7:33	1249.1
1482	1068	6.054	28.126	9/16/99 7:34	1250.1
1483	1069	6.054	28.126	9/16/99 7:35	1251.1
1484	1070	6.054	28.126	9/16/99 7:36	1252.1
1485	1071	6.054	28.126	9/16/99 7:37	1253.1
1486	1072	6.054	28.126	9/16/99 7:38	1254.1
1487	1073	6.054	28.126	9/16/99 7:39	1255.1
1488	1074	6.054	28.126	9/16/99 7:40	1256.1
1489	1075	6.054	28.126	9/16/99 7:41	1257.1
1490	1076	6.054	28.126	9/16/99 7:42	1258.1
1491	1077	6.054	28.126	9/16/99 7:43	1259.1
1492	1078	6.054	28.126	9/16/99 7:44	1260.1
1493	1079	6.054	28.094	9/16/99 7:45	1261.1
1494	1080	6.054	28.094	9/16/99 7:46	1262.1
1495	1081	6.054	28.126	9/16/99 7:47	1263.1
1496	1082	6.054	28.094	9/16/99 7:48	1264.1
1497	1083	6.054	28.094	9/16/99 7:49	1265.1
1498	1084	6.054	28.094	9/16/99 7:50	1266.1
1499	1085	6.054	28.094	9/16/99 7:51	1267.1
1500	1086	6.054	28.094	9/16/99 7:52	1268.1
1501	1087	6.054	28.094	9/16/99 7:53	1269.1
1502	1088	6.054	28.094	9/16/99 7:54	1270.1
1503	1089	6.054	28.094	9/16/99 7:55	1271.1
1504	1090	6.054	28.094	9/16/99 7:56	1272.1
1505	1091	6.054	28.094	9/16/99 7:57	1273.1
1506	1092	6.054	28.094	9/16/99 7:58	1274.1
1507	1093	6.054	28.094	9/16/99 7:59	1275.1
1508	1094	5.976	28.063	9/16/99 8:00	1276.1
1509	1095	5.976	28.031	9/16/99 8:01	1277.1
1510	1096	6.054	28.063	9/16/99 8:02	1278.1
1511	1097	6.054	28.063	9/16/99 8:03	1279.1
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1513	1099	5.976	28.031	9/16/99 8:05	1281.1
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1515	1101	6.054	28.063	9/16/99 8:07	1283.1
1516	1102	6.054	28.063	9/16/99 8:08	1284.1
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1518	1104	6.054	28.063	9/16/99 8:10	1286.1
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1521	1107	5.976	28.031	9/16/99 8:13	1289.1
1522	1108	6.054	28.063	9/16/99 8:14	1290.1
1523	1109	6.054	28.063	9/16/99 8:15	1291.1
1524	1110	6.054	28.063	9/16/99 8:16	1292.1
1525	1111	6.054	28.063	9/16/99 8:17	1293.1
1526	1112	6.054	28.063	9/16/99 8:18	1294.1
1527	1113	5.976	28.031	9/16/99 8:19	1295.1
1528	1114	6.054	28.063	9/16/99 8:20	1296.1
1529	1115	6.054	28.063	9/16/99 8:21	1297.1
1530	1116	5.976	28.031	9/16/99 8:22	1298.1
1531	1117	5.976	28.031	9/16/99 8:23	1299.1
1532	1118	5.976	28.031	9/16/99 8:24	1300.1
1533	1119	5.976	28.031	9/16/99 8:25	1301.1
1534	1120	6.054	28.063	9/16/99 8:26	1302.1
1535	1121	5.976	28.031	9/16/99 8:27	1303.1
1536	1122	6.054	28.063	9/16/99 8:28	1304.1
1537	1123	5.976	28.031	9/16/99 8:29	1305.1
1538	0	5.899	28.031	9/16/99 8:29	1305.1
1539	0.0083	5.899	28.031	9/16/99 8:29	1305.1
1540	0.0166	5.976	28.031	9/16/99 8:29	1305.1
1541	0.025	5.899	28.031	9/16/99 8:29	1305.2
1542	0.0333	6.83	28.031	9/16/99 8:29	1305.2
1543	0.0416	7.063	28.031	9/16/99 8:29	1305.2
1544	0.05	6.131	28.031	9/16/99 8:29	1305.2
1545	0.0583	5.821	28.031	9/16/99 8:29	1305.2
1546	0.0666	5.743	28.031	9/16/99 8:29	1305.2
1547	0.075	6.364	28.031	9/16/99 8:29	1305.2
1548	0.0833	6.675	28.031	9/16/99 8:29	1305.2
1549	0.0916	6.442	28	9/16/99 8:29	1305.2
1550	0.1	5.51	28.031	9/16/99 8:29	1305.2
1551	0.1083	11.253	28.031	9/16/99 8:29	1305.2
1552	0.1166	19.476	28.031	9/16/99 8:29	1305.2
1553	0.125	17.925	28.031	9/16/99 8:29	1305.3
1554	0.1333	17.692	28.031	9/16/99 8:29	1305.3
1555	0.1416	18.158	28.031	9/16/99 8:29	1305.3
1556	0.15	18.701	28.031	9/16/99 8:29	1305.3
1557	0.1583	18.856	28.031	9/16/99 8:29	1305.3
1558	0.1666	19.399	28	9/16/99 8:29	1305.3
1559	0.175	19.554	28.031	9/16/99 8:29	1305.3
1560	0.1833	20.019	28.031	9/16/99 8:29	1305.3
1561	0.1916	20.019	28	9/16/99 8:29	1305.3
1562	0.2	26.379	28.031	9/16/99 8:29	1305.3
1563	0.2083	40.565	28.031	9/16/99 8:29	1305.3
1564	0.2166	30.798	28.031	9/16/99 8:29	1305.3
1565	0.225	30.488	28.031	9/16/99 8:29	1305.4
1566	0.2333	27.232	28	9/16/99 8:29	1305.4
1567	0.2416	31.883	28.031	9/16/99 8:29	1305.4
1568	0.25	31.108	28	9/16/99 8:30	1305.4

1569	0.2583	31.806	28.031	9/16/99 8:30	1305.4
1570	0.2666	31.418	28.031	9/16/99 8:30	1305.4
1571	0.275	31.186	28	9/16/99 8:30	1305.4
1572	0.2833	32.038	28.031	9/16/99 8:30	1305.4
1573	0.2916	31.806	28.031	9/16/99 8:30	1305.4
1574	0.3	31.341	28.031	9/16/99 8:30	1305.4
1575	0.3083	32.271	28.031	9/16/99 8:30	1305.4
1576	0.3166	32.581	28.031	9/16/99 8:30	1305.4
1577	0.325	32.194	28.031	9/16/99 8:30	1305.5
1578	0.3333	32.736	28	9/16/99 8:30	1305.5
1579	0.35	32.271	28.031	9/16/99 8:30	1305.5
1580	0.3666	32.969	28	9/16/99 8:30	1305.5
1581	0.3833	33.124	28.031	9/16/99 8:30	1305.5
1582	0.4	32.349	28	9/16/99 8:30	1305.5
1583	0.4166	33.279	28.031	9/16/99 8:30	1305.5
1584	0.4333	33.434	28	9/16/99 8:30	1305.6
1585	0.45	32.891	28.031	9/16/99 8:30	1305.6
1586	0.4666	33.434	28.031	9/16/99 8:30	1305.6
1587	0.4833	33.046	28.031	9/16/99 8:30	1305.6
1588	0.5	33.279	28.031	9/16/99 8:30	1305.6
1589	0.5166	33.124	28	9/16/99 8:30	1305.6
1590	0.5333	33.124	28.031	9/16/99 8:30	1305.7
1591	0.55	32.581	28	9/16/99 8:30	1305.7
1592	0.5666	31.961	28.031	9/16/99 8:30	1305.7
1593	0.5833	32.194	28.031	9/16/99 8:30	1305.7
1594	0.6	32.271	28	9/16/99 8:30	1305.7
1595	0.6166	32.426	28	9/16/99 8:30	1305.7
1596	0.6333	32.659	28	9/16/99 8:30	1305.8
1597	0.65	32.504	28	9/16/99 8:30	1305.8
1598	0.6666	32.271	28.031	9/16/99 8:30	1305.8
1599	0.6833	32.426	28.031	9/16/99 8:30	1305.8
1600	0.7	32.891	28.031	9/16/99 8:30	1305.8
1601	0.7166	32.659	28	9/16/99 8:30	1305.8
1602	0.7333	32.038	28	9/16/99 8:30	1305.9
1603	0.75	32.426	28.031	9/16/99 8:30	1305.9
1604	0.7666	32.814	28.031	9/16/99 8:30	1305.9
1605	0.7833	32.969	28.031	9/16/99 8:30	1305.9
1606	0.8	32.271	28	9/16/99 8:30	1305.9
1607	0.8166	32.504	28	9/16/99 8:30	1305.9
1608	0.8333	32.581	28.031	9/16/99 8:30	1306.0
1609	0.85	32.891	28.031	9/16/99 8:30	1306.0
1610	0.8666	32.659	28	9/16/99 8:30	1306.0
1611	0.8833	32.891	28	9/16/99 8:30	1306.0
1612	0.9	32.969	28	9/16/99 8:30	1306.0
1613	0.9166	32.736	28	9/16/99 8:30	1306.0
1614	0.9333	32.504	28	9/16/99 8:30	1306.1
1615	0.95	32.426	28	9/16/99 8:30	1306.1
1616	0.9666	32.581	28	9/16/99 8:30	1306.1
1617	0.9833	32.426	28	9/16/99 8:30	1306.1
1618	1	32.349	28.031	9/16/99 8:30	1306.1
1619	1.2	32.271	28	9/16/99 8:30	1306.3

1620	1.4	32.038	28	9/16/99 8:31	1306.5
1621	1.6	27.697	28	9/16/99 8:31	1306.7
1622	1.8	24.207	28	9/16/99 8:31	1306.9
1623	2	23.975	28	9/16/99 8:31	1307.1
1624	2.2	23.82	28	9/16/99 8:31	1307.3
1625	2.4	23.82	28	9/16/99 8:32	1307.5
1626	2.6	22.579	28	9/16/99 8:32	1307.7
1627	2.8	21.881	28	9/16/99 8:32	1307.9
1628	3	21.881	28	9/16/99 8:32	1308.1
1629	3.2	21.881	28	9/16/99 8:32	1308.3
1630	3.4	21.803	28	9/16/99 8:33	1308.5
1631	3.6	21.726	28	9/16/99 8:33	1308.7
1632	3.8	21.726	28	9/16/99 8:33	1308.9
1633	4	21.648	28	9/16/99 8:33	1309.1
1634	4.2	21.57	28	9/16/99 8:33	1309.3
1635	4.4	21.726	28	9/16/99 8:34	1309.5
1636	4.6	21.493	28	9/16/99 8:34	1309.7
1637	4.8	21.57	28	9/16/99 8:34	1309.9
1638	5	21.415	28	9/16/99 8:34	1310.1
1639	5.2	21.648	28	9/16/99 8:34	1310.3
1640	5.4	21.415	28	9/16/99 8:35	1310.5
1641	5.6	21.493	28	9/16/99 8:35	1310.7
1642	5.8	21.338	28	9/16/99 8:35	1310.9
1643	6	21.493	28	9/16/99 8:35	1311.1
1644	6.2	21.415	28	9/16/99 8:35	1311.3
1645	6.4	21.26	28	9/16/99 8:36	1311.5
1646	6.6	21.57	28	9/16/99 8:36	1311.7
1647	6.8	21.493	28	9/16/99 8:36	1311.9
1648	7	21.26	28	9/16/99 8:36	1312.1
1649	7.2	21.338	28	9/16/99 8:36	1312.3
1650	7.4	21.57	28	9/16/99 8:37	1312.5
1651	7.6	20.95	28	9/16/99 8:37	1312.7
1652	7.8	21.338	28	9/16/99 8:37	1312.9
1653	8	21.26	28	9/16/99 8:37	1313.1
1654	8.2	21.183	28	9/16/99 8:37	1313.3
1655	8.4	21.26	28	9/16/99 8:38	1313.5
1656	8.6	21.493	28	9/16/99 8:38	1313.7
1657	8.8	21.183	28	9/16/99 8:38	1313.9
1658	9	21.26	28	9/16/99 8:38	1314.1
1659	9.2	21.105	28	9/16/99 8:38	1314.3
1660	9.4	21.183	28	9/16/99 8:39	1314.5
1661	9.6	21.105	28	9/16/99 8:39	1314.7
1662	9.8	21.183	28	9/16/99 8:39	1314.9
1663	10	20.95	28	9/16/99 8:39	1315.1
1664	11	21.415	28.031	9/16/99 8:40	1316.1
1665	12	21.183	28.031	9/16/99 8:41	1317.1
1666	13	21.105	28.031	9/16/99 8:42	1318.1
1667	14	21.028	28	9/16/99 8:43	1319.1
1668	15	21.105	28.031	9/16/99 8:44	1320.1
1669	16	21.105	28.031	9/16/99 8:45	1321.1
1670	17	21.105	28.031	9/16/99 8:46	1322.1

1671	18	21.26	28.031	9/16/99 8:47	1323.1
1672	19	21.338	28.031	9/16/99 8:48	1324.1
1673	20	21.26	28.031	9/16/99 8:49	1325.1
1674	21	21.105	28	9/16/99 8:50	1326.1
1675	22	21.26	28	9/16/99 8:51	1327.1
1676	23	21.415	28.031	9/16/99 8:52	1328.1
1677	24	21.415	28.031	9/16/99 8:53	1329.1
1678	25	21.26	28.031	9/16/99 8:54	1330.1
1679	26	21.26	28.031	9/16/99 8:55	1331.1
1680	27	21.183	28.031	9/16/99 8:56	1332.1
1681	28	21.648	28.031	9/16/99 8:57	1333.1
1682	29	21.493	28.031	9/16/99 8:58	1334.1
1683	30	21.26	28.063	9/16/99 8:59	1335.1
1684	31	21.26	28.031	9/16/99 9:00	1336.1
1685	32	21.415	28.031	9/16/99 9:01	1337.1
1686	33	21.338	28.031	9/16/99 9:02	1338.1
1687	34	21.338	28.031	9/16/99 9:03	1339.1
1688	35	21.415	28.031	9/16/99 9:04	1340.1
1689	36	21.493	28.031	9/16/99 9:05	1341.1
1690	37	21.26	28.031	9/16/99 9:06	1342.1
1691	38	21.415	28.031	9/16/99 9:07	1343.1
1692	39	21.493	28.031	9/16/99 9:08	1344.1
1693	40	21.493	28.031	9/16/99 9:09	1345.1
1694	41	21.26	28.031	9/16/99 9:10	1346.1
1695	42	21.493	28.031	9/16/99 9:11	1347.1
1696	43	21.493	28.031	9/16/99 9:12	1348.1
1697	44	21.26	28.031	9/16/99 9:13	1349.1
1698	45	21.57	28.031	9/16/99 9:14	1350.1
1699	46	21.493	28.031	9/16/99 9:15	1351.1
1700	47	21.648	28.031	9/16/99 9:16	1352.1
1701	48	21.493	28.031	9/16/99 9:17	1353.1
1702	49	21.415	28.031	9/16/99 9:18	1354.1
1703	50	21.648	28.031	9/16/99 9:19	1355.1
1704	51	21.648	28.031	9/16/99 9:20	1356.1
1705	52	21.726	28.031	9/16/99 9:21	1357.1
1706	53	21.57	28.031	9/16/99 9:22	1358.1
1707	54	21.57	28.031	9/16/99 9:23	1359.1
1708	55	21.57	28.031	9/16/99 9:24	1360.1
1709	56	21.493	28.031	9/16/99 9:25	1361.1
1710	57	21.648	28.031	9/16/99 9:26	1362.1
1711	58	21.493	28.031	9/16/99 9:27	1363.1
1712	59	21.726	28.031	9/16/99 9:28	1364.1
1713	60	21.415	28.031	9/16/99 9:29	1365.1
1714	61	21.57	28.031	9/16/99 9:30	1366.1
1715	62	21.415	28	9/16/99 9:31	1367.1
1716	63	21.338	28.031	9/16/99 9:32	1368.1
1717	64	21.726	28.031	9/16/99 9:33	1369.1
1718	65	21.415	28.031	9/16/99 9:34	1370.1
1719	66	21.726	28.031	9/16/99 9:35	1371.1
1720	67	21.726	28.031	9/16/99 9:36	1372.1
1721	68	21.803	28.031	9/16/99 9:37	1373.1

1722	69	21.57	28	9/16/99 9:38	1374.1
1723	0	21.183	28	9/16/99 9:38	1374.3
1724	0.0083	21.338	28	9/16/99 9:38	1374.3
1725	0.0166	21.415	27.968	9/16/99 9:38	1374.3
1726	0.025	21.493	28	9/16/99 9:38	1374.3
1727	0.0333	21.415	28	9/16/99 9:38	1374.3
1728	0.0416	21.338	27.968	9/16/99 9:38	1374.4
1729	0.05	21.493	28	9/16/99 9:38	1374.4
1730	0.0583	21.415	28	9/16/99 9:38	1374.4
1731	0.0666	21.338	28	9/16/99 9:39	1374.4
1732	0.075	21.493	27.968	9/16/99 9:39	1374.4
1733	0.0833	21.415	28	9/16/99 9:39	1374.4
1734	0.0916	21.493	27.968	9/16/99 9:39	1374.4
1735	0.1	21.338	27.968	9/16/99 9:39	1374.4
1736	0.1083	21.493	27.968	9/16/99 9:39	1374.4
1737	0.1166	21.57	27.968	9/16/99 9:39	1374.4
1738	0.125	21.493	27.968	9/16/99 9:39	1374.4
1739	0.1333	21.648	28	9/16/99 9:39	1374.4
1740	0.1416	21.726	27.968	9/16/99 9:39	1374.5
1741	0.15	21.648	27.968	9/16/99 9:39	1374.5
1742	0.1583	21.648	28	9/16/99 9:39	1374.5
1743	0.1666	21.803	28	9/16/99 9:39	1374.5
1744	0.175	22.036	28	9/16/99 9:39	1374.5
1745	0.1833	21.881	28	9/16/99 9:39	1374.5
1746	0.1916	22.191	28	9/16/99 9:39	1374.5
1747	0.2	23.82	28	9/16/99 9:39	1374.5
1748	0.2083	24.983	28	9/16/99 9:39	1374.5
1749	0.2166	23.664	27.968	9/16/99 9:39	1374.5
1750	0.225	23.975	27.968	9/16/99 9:39	1374.5
1751	0.2333	23.664	28	9/16/99 9:39	1374.5
1752	0.2416	25.681	27.968	9/16/99 9:39	1374.6
1753	0.25	25.06	28	9/16/99 9:39	1374.6
1754	0.2583	25.991	28	9/16/99 9:39	1374.6
1755	0.2666	26.456	28	9/16/99 9:39	1374.6
1756	0.275	26.921	27.968	9/16/99 9:39	1374.6
1757	0.2833	27.619	27.968	9/16/99 9:39	1374.6
1758	0.2916	27.774	28	9/16/99 9:39	1374.6
1759	0.3	27.697	27.968	9/16/99 9:39	1374.6
1760	0.3083	28.084	28	9/16/99 9:39	1374.6
1761	0.3166	28.239	27.968	9/16/99 9:39	1374.6
1762	0.325	28.239	28	9/16/99 9:39	1374.6
1763	0.3333	28.395	27.968	9/16/99 9:39	1374.6
1764	0.35	28.705	28	9/16/99 9:39	1374.7
1765	0.3666	28.627	27.968	9/16/99 9:39	1374.7
1766	0.3833	28.937	28	9/16/99 9:39	1374.7
1767	0.4	28.627	28	9/16/99 9:39	1374.7
1768	0.4166	28.86	28	9/16/99 9:39	1374.7
1769	0.4333	28.782	28	9/16/99 9:39	1374.7
1770	0.45	29.17	28	9/16/99 9:39	1374.8
1771	0.4666	28.937	28	9/16/99 9:39	1374.8
1772	0.4833	29.015	28	9/16/99 9:39	1374.8

1773	0.5	29.17	27.968	9/16/99 9:39	1374.8
1774	0.5166	29.17	28	9/16/99 9:39	1374.8
1775	0.5333	29.17	28	9/16/99 9:39	1374.8
1776	0.55	29.092	28	9/16/99 9:39	1374.9
1777	0.5666	29.247	28	9/16/99 9:39	1374.9
1778	0.5833	29.325	28	9/16/99 9:39	1374.9
1779	0.6	29.325	28	9/16/99 9:39	1374.9
1780	0.6166	29.558	28	9/16/99 9:39	1374.9
1781	0.6333	29.092	28	9/16/99 9:39	1374.9
1782	0.65	29.325	28	9/16/99 9:39	1375.0
1783	0.6666	29.015	28	9/16/99 9:39	1375.0
1784	0.6833	29.325	28	9/16/99 9:39	1375.0
1785	0.7	29.403	28	9/16/99 9:39	1375.0
1786	0.7166	29.48	27.968	9/16/99 9:39	1375.0
1787	0.7333	29.403	27.968	9/16/99 9:39	1375.0
1788	0.75	29.015	28	9/16/99 9:39	1375.1
1789	0.7666	29.48	28	9/16/99 9:39	1375.1
1790	0.7833	29.403	28	9/16/99 9:39	1375.1
1791	0.8	29.247	28	9/16/99 9:39	1375.1
1792	0.8166	29.325	28	9/16/99 9:39	1375.1
1793	0.8333	29.247	28	9/16/99 9:39	1375.1
1794	0.85	29.48	28	9/16/99 9:39	1375.2
1795	0.8666	29.48	28	9/16/99 9:39	1375.2
1796	0.8833	29.247	28	9/16/99 9:39	1375.2
1797	0.9	29.48	28	9/16/99 9:39	1375.2
1798	0.9166	29.247	28	9/16/99 9:39	1375.2
1799	0.9333	29.48	28	9/16/99 9:39	1375.2
1800	0.95	29.17	28	9/16/99 9:39	1375.3
1801	0.9666	29.325	28	9/16/99 9:39	1375.3
1802	0.9833	29.17	28	9/16/99 9:39	1375.3
1803	1	29.403	28	9/16/99 9:39	1375.3
1804	1.2	29.17	28	9/16/99 9:40	1375.5
1805	1.4	30.643	27.968	9/16/99 9:40	1375.7
1806	1.6	30.41	27.968	9/16/99 9:40	1375.9
1807	1.8	30.333	27.968	9/16/99 9:40	1376.1
1808	2	30.565	27.968	9/16/99 9:40	1376.3
1809	2.2	30.488	28	9/16/99 9:41	1376.5
1810	2.4	30.721	27.968	9/16/99 9:41	1376.7
1811	2.6	30.178	27.968	9/16/99 9:41	1376.9
1812	2.8	30.41	27.968	9/16/99 9:41	1377.1
1813	3	30.488	27.968	9/16/99 9:41	1377.3
1814	3.2	30.488	28	9/16/99 9:42	1377.5
1815	3.4	30.488	27.968	9/16/99 9:42	1377.7
1816	3.6	30.178	28	9/16/99 9:42	1377.9
1817	3.8	30.333	28	9/16/99 9:42	1378.1
1818	4	31.031	28	9/16/99 9:42	1378.3
1819	4.2	31.263	28	9/16/99 9:43	1378.5
1820	4.4	30.876	28	9/16/99 9:43	1378.7
1821	4.6	30.953	28	9/16/99 9:43	1378.9
1822	4.8	31.031	28	9/16/99 9:43	1379.1
1823	5	31.341	27.968	9/16/99 9:43	1379.3

1824	5.2	31.031	28	9/16/99 9:44	1379.5
1825	5.4	30.953	27.968	9/16/99 9:44	1379.7
1826	5.6	31.418	27.968	9/16/99 9:44	1379.9
1827	5.8	31.108	27.968	9/16/99 9:44	1380.1
1828	6	31.108	28	9/16/99 9:44	1380.3
1829	6.2	31.186	28	9/16/99 9:45	1380.5
1830	6.4	31.186	28	9/16/99 9:45	1380.7
1831	6.6	31.263	28	9/16/99 9:45	1380.9
1832	6.8	31.186	28	9/16/99 9:45	1381.1
1833	7	30.798	28	9/16/99 9:45	1381.3
1834	7.2	30.643	28	9/16/99 9:46	1381.5
1835	7.4	30.721	28	9/16/99 9:46	1381.7
1836	7.6	30.643	28	9/16/99 9:46	1381.9
1837	7.8	31.031	28	9/16/99 9:46	1382.1
1838	8	30.953	28	9/16/99 9:46	1382.3
1839	8.2	31.186	28	9/16/99 9:47	1382.5
1840	8.4	30.953	28	9/16/99 9:47	1382.7
1841	8.6	30.876	28	9/16/99 9:47	1382.9
1842	8.8	30.798	28	9/16/99 9:47	1383.1
1843	9	30.721	28	9/16/99 9:47	1383.3
1844	9.2	30.721	28	9/16/99 9:48	1383.5
1845	9.4	31.186	28	9/16/99 9:48	1383.7
1846	9.6	31.031	28	9/16/99 9:48	1383.9
1847	9.8	31.108	28	9/16/99 9:48	1384.1
1848	10	30.953	28	9/16/99 9:48	1384.3
1849	11	31.263	28.031	9/16/99 9:49	1385.3
1850	12	30.876	28.031	9/16/99 9:50	1386.3
1851	13	31.108	28.031	9/16/99 9:51	1387.3
1852	14	30.721	28.063	9/16/99 9:52	1388.3
1853	15	30.876	28.063	9/16/99 9:53	1389.3
1854	16	30.798	28.063	9/16/99 9:54	1390.3
1855	17	30.643	28.063	9/16/99 9:55	1391.3
1856	18	30.565	28.063	9/16/99 9:56	1392.3
1857	19	30.953	28.063	9/16/99 9:57	1393.3
1858	20	30.876	28.063	9/16/99 9:58	1394.3
1859	21	31.263	28.063	9/16/99 9:59	1395.3
1860	22	30.643	28.063	9/16/99 10:00	1396.3
1861	23	31.263	28.063	9/16/99 10:01	1397.3
1862	24	31.263	28.063	9/16/99 10:02	1398.3
1863	25	30.721	28.063	9/16/99 10:03	1399.3
1864	26	31.418	28.063	9/16/99 10:04	1400.3
1865	27	31.263	28.063	9/16/99 10:05	1401.3
1866	28	31.341	28.063	9/16/99 10:06	1402.3
1867	29	30.953	28.063	9/16/99 10:07	1403.3
1868	30	31.573	28.063	9/16/99 10:08	1404.3
1869	31	31.418	28.063	9/16/99 10:09	1405.3
1870	32	31.263	28.063	9/16/99 10:10	1406.3
1871	33	31.263	28.063	9/16/99 10:11	1407.3
1872	34	30.798	28.063	9/16/99 10:12	1408.3
1873	35	31.341	28.063	9/16/99 10:13	1409.3
1874	36	31.341	28.063	9/16/99 10:14	1410.3

1875	37	31.341	28.063	9/16/99 10:15	1411.3
1876	38	31.186	28.094	9/16/99 10:16	1412.3
1877	39	31.806	28.094	9/16/99 10:17	1413.3
1878	40	31.186	28.094	9/16/99 10:18	1414.3
1879	41	31.573	28.094	9/16/99 10:19	1415.3
1880	42	31.418	28.094	9/16/99 10:20	1416.3
1881	43	31.186	28.094	9/16/99 10:21	1417.3
1882	44	31.108	28.094	9/16/99 10:22	1418.3
1883	45	31.341	28.094	9/16/99 10:23	1419.3
1884	46	31.263	28.094	9/16/99 10:24	1420.3
1885	47	31.573	28.094	9/16/99 10:25	1421.3
1886	48	31.573	28.094	9/16/99 10:26	1422.3
1887	49	31.728	28.094	9/16/99 10:27	1423.3
1888	50	31.651	28.094	9/16/99 10:28	1424.3
1889	51	31.883	28.094	9/16/99 10:29	1425.3
1890	52	31.728	28.094	9/16/99 10:30	1426.3
1891	53	31.496	28.126	9/16/99 10:31	1427.3
1892	54	31.341	28.094	9/16/99 10:32	1428.3
1893	55	31.031	28.094	9/16/99 10:33	1429.3
1894	56	31.728	28.126	9/16/99 10:34	1430.3
1895	57	31.728	28.126	9/16/99 10:35	1431.3
1896	58	31.418	28.126	9/16/99 10:36	1432.3
1897	59	31.806	28.126	9/16/99 10:37	1433.3
1898	60	31.728	28.126	9/16/99 10:38	1434.3
1899	61	31.186	28.126	9/16/99 10:39	1435.3
1900	62	31.883	28.126	9/16/99 10:40	1436.3
1901	63	31.496	28.126	9/16/99 10:41	1437.3
1902	64	31.728	28.126	9/16/99 10:42	1438.3
1903	65	31.883	28.126	9/16/99 10:43	1439.3
1904	66	31.728	28.126	9/16/99 10:44	1440.3
1905	67	32.038	28.126	9/16/99 10:45	1441.3
1906	68	31.961	28.126	9/16/99 10:46	1442.3
1907	69	31.961	28.126	9/16/99 10:47	1443.3
1908	70	31.883	28.126	9/16/99 10:48	1444.3
1909	71	31.961	28.158	9/16/99 10:49	1445.3
1910	72	31.883	28.158	9/16/99 10:50	1446.3
1911	73	31.806	28.158	9/16/99 10:51	1447.3
1912	74	31.573	28.158	9/16/99 10:52	1448.3
1913	75	32.038	28.158	9/16/99 10:53	1449.3
1914	76	32.271	28.158	9/16/99 10:54	1450.3
1915	77	32.038	28.158	9/16/99 10:55	1451.3
1916	78	31.883	28.158	9/16/99 10:56	1452.3
1917	79	32.038	28.158	9/16/99 10:57	1453.3
1918	80	31.496	28.158	9/16/99 10:58	1454.3
1919	81	31.418	28.158	9/16/99 10:59	1455.3
1920	82	32.038	28.158	9/16/99 11:00	1456.3
1921	83	31.806	28.158	9/16/99 11:01	1457.3
1922	84	31.883	28.158	9/16/99 11:02	1458.3
1923	85	32.194	28.158	9/16/99 11:03	1459.3
1924	86	31.186	28.158	9/16/99 11:04	1460.3
1925	87	31.883	28.158	9/16/99 11:05	1461.3

1926	88	31.728	28.158	9/16/99 11:06	1462.3
1927	89	31.728	28.158	9/16/99 11:07	1463.3
1928	90	32.271	28.158	9/16/99 11:08	1464.3
1929	91	31.806	28.158	9/16/99 11:09	1465.3
1930	92	31.651	28.158	9/16/99 11:10	1466.3
1931	93	31.573	28.189	9/16/99 11:11	1467.3
1932	94	31.651	28.158	9/16/99 11:12	1468.3
1933	95	31.728	28.158	9/16/99 11:13	1469.3
1934	96	32.194	28.189	9/16/99 11:14	1470.3
1935	97	31.651	28.189	9/16/99 11:15	1471.3
1936	98	31.651	28.189	9/16/99 11:16	1472.3
1937	99	31.883	28.158	9/16/99 11:17	1473.3
1938	100	32.116	28.189	9/16/99 11:18	1474.3
1939	101	32.271	28.189	9/16/99 11:19	1475.3
1940	102	32.116	28.189	9/16/99 11:20	1476.3
1941	103	31.961	28.189	9/16/99 11:21	1477.3
1942	104	32.426	28.189	9/16/99 11:22	1478.3
1943	105	32.194	28.158	9/16/99 11:23	1479.3
1944	106	31.806	28.189	9/16/99 11:24	1480.3
1945	107	31.806	28.189	9/16/99 11:25	1481.3
1946	108	32.271	28.189	9/16/99 11:26	1482.3
1947	109	32.038	28.189	9/16/99 11:27	1483.3
1948	110	32.116	28.189	9/16/99 11:28	1484.3
1949	111	32.116	28.158	9/16/99 11:29	1485.3
1950	112	31.883	28.189	9/16/99 11:30	1486.3
1951	113	32.194	28.158	9/16/99 11:31	1487.3
1952	114	31.883	28.189	9/16/99 11:32	1488.3
1953	115	31.961	28.189	9/16/99 11:33	1489.3
1954	116	31.883	28.189	9/16/99 11:34	1490.3
1955	117	32.038	28.189	9/16/99 11:35	1491.3
1956	118	32.271	28.189	9/16/99 11:36	1492.3
1957	119	32.504	28.189	9/16/99 11:37	1493.3
1958	120	32.116	28.189	9/16/99 11:38	1494.3
1959	121	32.194	28.189	9/16/99 11:39	1495.3
1960	122	31.883	28.189	9/16/99 11:40	1496.3
1961	123	32.194	28.189	9/16/99 11:41	1497.3
1962	124	32.038	28.189	9/16/99 11:42	1498.3
1963	125	32.038	28.189	9/16/99 11:43	1499.3
1964	126	31.806	28.189	9/16/99 11:44	1500.3
1965	127	32.194	28.189	9/16/99 11:45	1501.3
1966	128	32.426	28.189	9/16/99 11:46	1502.3
1967	129	32.194	28.189	9/16/99 11:47	1503.3
1968	130	32.116	28.189	9/16/99 11:48	1504.3
1969	131	32.116	28.189	9/16/99 11:49	1505.3
1970	132	31.883	28.189	9/16/99 11:50	1506.3
1971	133	32.271	28.189	9/16/99 11:51	1507.3
1972	134	32.581	28.189	9/16/99 11:52	1508.3
1973	135	32.814	28.189	9/16/99 11:53	1509.3
1974	136	32.581	28.189	9/16/99 11:54	1510.3
1975	137	32.194	28.189	9/16/99 11:55	1511.3
1976	138	31.961	28.189	9/16/99 11:56	1512.3

1977	139	32.581	28.189	9/16/99 11:57	1513.3
1978	140	31.806	28.189	9/16/99 11:58	1514.3
1979	141	32.504	28.189	9/16/99 11:59	1515.3
1980	142	32.116	28.189	9/16/99 12:00	1516.3
1981	143	32.349	28.189	9/16/99 12:01	1517.3
1982	144	32.194	28.189	9/16/99 12:02	1518.3
1983	145	32.038	28.189	9/16/99 12:03	1519.3
1984	146	32.038	28.189	9/16/99 12:04	1520.3
1985	147	32.194	28.189	9/16/99 12:05	1521.3
1986	148	32.271	28.189	9/16/99 12:06	1522.3
1987	149	32.271	28.189	9/16/99 12:07	1523.3
1988	150	32.194	28.189	9/16/99 12:08	1524.3
1989	151	31.961	28.189	9/16/99 12:09	1525.3
1990	152	31.728	28.189	9/16/99 12:10	1526.3
1991	153	32.116	28.189	9/16/99 12:11	1527.3
1992	154	32.271	28.189	9/16/99 12:12	1528.3
1993	155	32.891	28.189	9/16/99 12:13	1529.3
1994	156	32.271	28.189	9/16/99 12:14	1530.3
1995	157	32.038	28.189	9/16/99 12:15	1531.3
1996	158	32.814	28.189	9/16/99 12:16	1532.3
1997	159	32.116	28.189	9/16/99 12:17	1533.3
1998	160	32.271	28.189	9/16/99 12:18	1534.3
1999	161	32.116	28.189	9/16/99 12:19	1535.3
2000	162	32.581	28.189	9/16/99 12:20	1536.3
2001	163	32.271	28.189	9/16/99 12:21	1537.3
2002	164	31.883	28.189	9/16/99 12:22	1538.3
2003	165	32.271	28.189	9/16/99 12:23	1539.3
2004	166	32.426	28.189	9/16/99 12:24	1540.3
2005	167	32.504	28.189	9/16/99 12:25	1541.3
2006	168	31.883	28.189	9/16/99 12:26	1542.3
2007	169	32.271	28.189	9/16/99 12:27	1543.3
2008	170	32.116	28.189	9/16/99 12:28	1544.3
2009	171	32.116	28.189	9/16/99 12:29	1545.3
2010	172	32.116	28.189	9/16/99 12:30	1546.3
2011	173	32.736	28.189	9/16/99 12:31	1547.3
2012	174	32.271	28.189	9/16/99 12:32	1548.3
2013	175	32.814	28.189	9/16/99 12:33	1549.3
2014	176	32.116	28.189	9/16/99 12:34	1550.3
2015	177	32.891	28.189	9/16/99 12:35	1551.3
2016	178	32.659	28.189	9/16/99 12:36	1552.3
2017	179	32.194	28.221	9/16/99 12:37	1553.3
2018	180	32.814	28.189	9/16/99 12:38	1554.3
2019	181	32.271	28.189	9/16/99 12:39	1555.3
2020	182	32.426	28.221	9/16/99 12:40	1556.3
2021	183	32.426	28.189	9/16/99 12:41	1557.3
2022	184	32.038	28.189	9/16/99 12:42	1558.3
2023	185	32.038	28.189	9/16/99 12:43	1559.3
2024	186	32.038	28.189	9/16/99 12:44	1560.3
2025	187	32.194	28.221	9/16/99 12:45	1561.3
2026	188	32.504	28.221	9/16/99 12:46	1562.3
2027	189	32.736	28.189	9/16/99 12:47	1563.3

2028	190	32.116	28.189	9/16/99 12:48	1564.3
2029	191	32.194	28.189	9/16/99 12:49	1565.3
2030	192	31.806	28.189	9/16/99 12:50	1566.3
2031	193	32.581	28.189	9/16/99 12:51	1567.3
2032	194	32.116	28.189	9/16/99 12:52	1568.3
2033	195	31.883	28.221	9/16/99 12:53	1569.3
2034	196	32.349	28.221	9/16/99 12:54	1570.3
2035	197	32.581	28.221	9/16/99 12:55	1571.3
2036	198	32.659	28.221	9/16/99 12:56	1572.3
2037	199	32.271	28.189	9/16/99 12:57	1573.3
2038	200	32.038	28.221	9/16/99 12:58	1574.3
2039	201	32.814	28.221	9/16/99 12:59	1575.3
2040	202	31.961	28.189	9/16/99 13:00	1576.3
2041	203	31.961	28.189	9/16/99 13:01	1577.3
2042	204	32.038	28.221	9/16/99 13:02	1578.3
2043	205	32.038	28.221	9/16/99 13:03	1579.3
2044	206	32.426	28.189	9/16/99 13:04	1580.3
2045	207	32.581	28.189	9/16/99 13:05	1581.3
2046	208	32.426	28.221	9/16/99 13:06	1582.3
2047	209	32.349	28.189	9/16/99 13:07	1583.3
2048	210	32.426	28.189	9/16/99 13:08	1584.3
2049	211	32.581	28.189	9/16/99 13:09	1585.3
2050	212	32.194	28.189	9/16/99 13:10	1586.3
2051	213	32.271	28.221	9/16/99 13:11	1587.3
2052	214	32.116	28.221	9/16/99 13:12	1588.3
2053	215	32.426	28.189	9/16/99 13:13	1589.3
2054	216	32.194	28.189	9/16/99 13:14	1590.3
2055	217	31.961	28.221	9/16/99 13:15	1591.3
2056	218	32.426	28.189	9/16/99 13:16	1592.3
2057	219	32.116	28.221	9/16/99 13:17	1593.3
2058	220	32.271	28.221	9/16/99 13:18	1594.3
2059	221	32.426	28.189	9/16/99 13:19	1595.3
2060	222	32.659	28.221	9/16/99 13:20	1596.3
2061	223	32.736	28.221	9/16/99 13:21	1597.3
2062	224	32.038	28.221	9/16/99 13:22	1598.3
2063	225	32.426	28.221	9/16/99 13:23	1599.3
2064	226	32.504	28.189	9/16/99 13:24	1600.3
2065	227	32.349	28.221	9/16/99 13:25	1601.3
2066	228	32.271	28.189	9/16/99 13:26	1602.3
2067	229	32.581	28.189	9/16/99 13:27	1603.3
2068	230	32.194	28.189	9/16/99 13:28	1604.3
2069	231	32.581	28.221	9/16/99 13:29	1605.3
2070	232	32.504	28.221	9/16/99 13:30	1606.3
2071	233	32.504	28.221	9/16/99 13:31	1607.3
2072	234	32.194	28.221	9/16/99 13:32	1608.3
2073	235	32.736	28.221	9/16/99 13:33	1609.3
2074	236	32.581	28.221	9/16/99 13:34	1610.3
2075	237	32.969	28.189	9/16/99 13:35	1611.3
2076	238	32.504	28.221	9/16/99 13:36	1612.3
2077	239	32.659	28.221	9/16/99 13:37	1613.3
2078	240	32.969	28.221	9/16/99 13:38	1614.3

2079	241	32.116	28.221	9/16/99 13:39	1615.3
2080	242	32.659	28.221	9/16/99 13:40	1616.3
2081	243	32.659	28.221	9/16/99 13:41	1617.3
2082	244	32.116	28.221	9/16/99 13:42	1618.3
2083	245	32.038	28.189	9/16/99 13:43	1619.3
2084	246	32.581	28.189	9/16/99 13:44	1620.3
2085	247	32.659	28.189	9/16/99 13:45	1621.3
2086	248	32.116	28.126	9/16/99 13:46	1622.3
2087	0	31.961	28.126	9/16/99 13:47	1622.8
2088	0.0083	32.504	28.126	9/16/99 13:47	1622.8
2089	0.0166	32.038	28.126	9/16/99 13:47	1622.8
2090	0.025	32.038	28.126	9/16/99 13:47	1622.8
2091	0.0333	32.426	28.126	9/16/99 13:47	1622.8
2092	0.0416	31.806	28.126	9/16/99 13:47	1622.8
2093	0.05	32.349	28.126	9/16/99 13:47	1622.8
2094	0.0583	32.116	28.126	9/16/99 13:47	1622.8
2095	0.0666	32.116	28.126	9/16/99 13:47	1622.8
2096	0.075	32.891	28.126	9/16/99 13:47	1622.8
2097	0.0833	28.239	28.126	9/16/99 13:47	1622.8
2098	0.0916	18.08	28.126	9/16/99 13:47	1622.8
2099	0.1	15.83	28.126	9/16/99 13:47	1622.9
2100	0.1083	14.744	28.126	9/16/99 13:47	1622.9
2101	0.1166	12.262	28.126	9/16/99 13:47	1622.9
2102	0.125	9.236	28.126	9/16/99 13:47	1622.9
2103	0.1333	1.63	28.126	9/16/99 13:47	1622.9
2104	0.1416	13.115	28.126	9/16/99 13:47	1622.9
2105	0.15	18.003	28.126	9/16/99 13:47	1622.9
2106	0.1583	21.415	28.126	9/16/99 13:47	1622.9
2107	0.1666	16.917	28.126	9/16/99 13:47	1622.9
2108	0.175	12.417	28.158	9/16/99 13:47	1622.9
2109	0.1833	8.537	28.158	9/16/99 13:47	1622.9
2110	0.1916	10.787	28.158	9/16/99 13:47	1622.9
2111	0.2	14.434	28.158	9/16/99 13:47	1623.0
2112	0.2083	16.373	28.126	9/16/99 13:47	1623.0
2113	0.2166	15.287	28.158	9/16/99 13:47	1623.0
2114	0.225	12.417	28.158	9/16/99 13:47	1623.0
2115	0.2333	10.787	28.158	9/16/99 13:47	1623.0
2116	0.2416	11.331	28.126	9/16/99 13:47	1623.0
2117	0.25	13.193	28.126	9/16/99 13:47	1623.0
2118	0.2583	14.201	28.158	9/16/99 13:47	1623.0
2119	0.2666	13.736	28.126	9/16/99 13:47	1623.0
2120	0.275	12.339	28.158	9/16/99 13:47	1623.0
2121	0.2833	11.486	28.158	9/16/99 13:47	1623.0
2122	0.2916	11.719	28.158	9/16/99 13:47	1623.0
2123	0.3	12.572	28.126	9/16/99 13:47	1623.1
2124	0.3083	13.115	28.126	9/16/99 13:47	1623.1
2125	0.3166	12.882	28.158	9/16/99 13:47	1623.1
2126	0.325	12.106	28.126	9/16/99 13:47	1623.1
2127	0.3333	11.719	28.158	9/16/99 13:47	1623.1
2128	0.35	12.262	28.158	9/16/99 13:47	1623.1
2129	0.3666	12.339	28.158	9/16/99 13:47	1623.1

2130	0.3833	11.641	28.158	9/16/99 13:47	1623.1
2131	0.4	11.951	28.158	9/16/99 13:47	1623.2
2132	0.4166	11.951	28.158	9/16/99 13:47	1623.2
2133	0.4333	11.641	28.158	9/16/99 13:47	1623.2
2134	0.45	11.719	28.158	9/16/99 13:47	1623.2
2135	0.4666	11.719	28.158	9/16/99 13:47	1623.2
2136	0.4833	11.563	28.158	9/16/99 13:47	1623.2
2137	0.5	11.563	28.158	9/16/99 13:47	1623.3
2138	0.5166	11.563	28.158	9/16/99 13:47	1623.3
2139	0.5333	11.408	28.158	9/16/99 13:47	1623.3
2140	0.55	11.408	28.158	9/16/99 13:47	1623.3
2141	0.5666	11.408	28.158	9/16/99 13:47	1623.3
2142	0.5833	11.253	28.126	9/16/99 13:47	1623.3
2143	0.6	11.253	28.126	9/16/99 13:47	1623.4
2144	0.6166	11.253	28.126	9/16/99 13:47	1623.4
2145	0.6333	11.253	28.126	9/16/99 13:48	1623.4
2146	0.65	11.175	28.158	9/16/99 13:48	1623.4
2147	0.6666	11.175	28.158	9/16/99 13:48	1623.4
2148	0.6833	11.098	28.158	9/16/99 13:48	1623.4
2149	0.7	11.098	28.126	9/16/99 13:48	1623.4
2150	0.7166	11.02	28.126	9/16/99 13:48	1623.5
2151	0.7333	10.943	28.158	9/16/99 13:48	1623.5
2152	0.75	10.943	28.126	9/16/99 13:48	1623.5
2153	0.7666	10.943	28.158	9/16/99 13:48	1623.5
2154	0.7833	10.943	28.126	9/16/99 13:48	1623.5
2155	0.8	10.865	28.126	9/16/99 13:48	1623.6
2156	0.8166	10.865	28.158	9/16/99 13:48	1623.6
2157	0.8333	10.865	28.158	9/16/99 13:48	1623.6
2158	0.85	10.787	28.158	9/16/99 13:48	1623.6
2159	0.8666	10.787	28.158	9/16/99 13:48	1623.6
2160	0.8833	10.787	28.158	9/16/99 13:48	1623.6
2161	0.9	10.71	28.158	9/16/99 13:48	1623.7
2162	0.9166	10.71	28.158	9/16/99 13:48	1623.7
2163	0.9333	10.71	28.158	9/16/99 13:48	1623.7
2164	0.95	10.632	28.158	9/16/99 13:48	1623.7
2165	0.9666	10.632	28.126	9/16/99 13:48	1623.7
2166	0.9833	10.632	28.158	9/16/99 13:48	1623.7
2167	1	10.555	28.126	9/16/99 13:48	1623.8
2168	1.2	10.399	28.158	9/16/99 13:48	1624.0
2169	1.4	10.244	28.126	9/16/99 13:48	1624.2
2170	1.6	10.089	28.158	9/16/99 13:48	1624.4
2171	1.8	9.934	28.126	9/16/99 13:49	1624.6
2172	2	9.856	28.158	9/16/99 13:49	1624.7
2173	2.2	9.779	28.158	9/16/99 13:49	1625.0
2174	2.4	9.701	28.158	9/16/99 13:49	1625.1
2175	2.6	9.624	28.158	9/16/99 13:49	1625.4
2176	2.8	9.546	28.158	9/16/99 13:50	1625.6
2177	3	9.468	28.158	9/16/99 13:50	1625.8
2178	3.2	9.391	28.158	9/16/99 13:50	1626.0
2179	3.4	9.391	28.158	9/16/99 13:50	1626.2
2180	3.6	9.313	28.158	9/16/99 13:50	1626.4

2181	3.8	9.313	28.158	9/16/99 13:51	1626.6
2182	4	9.236	28.158	9/16/99 13:51	1626.8
2183	4.2	9.158	28.158	9/16/99 13:51	1627.0
2184	4.4	9.158	28.158	9/16/99 13:51	1627.2
2185	4.6	9.08	28.158	9/16/99 13:51	1627.3
2186	4.8	9.08	28.158	9/16/99 13:52	1627.6
2187	5	9.08	28.158	9/16/99 13:52	1627.7
2188	5.2	9.003	28.158	9/16/99 13:52	1628.0
2189	5.4	9.003	28.158	9/16/99 13:52	1628.2
2190	5.6	8.925	28.158	9/16/99 13:52	1628.4
2191	5.8	8.925	28.158	9/16/99 13:53	1628.6
2192	6	8.848	28.158	9/16/99 13:53	1628.8
2193	6.2	8.848	28.158	9/16/99 13:53	1629.0
2194	6.4	8.848	28.158	9/16/99 13:53	1629.2
2195	6.6	8.77	28.158	9/16/99 13:53	1629.4
2196	6.8	8.77	28.158	9/16/99 13:54	1629.6
2197	7	8.77	28.158	9/16/99 13:54	1629.8
2198	7.2	8.692	28.158	9/16/99 13:54	1629.9
2199	7.4	8.692	28.158	9/16/99 13:54	1630.2
2200	7.6	8.692	28.158	9/16/99 13:54	1630.3
2201	7.8	8.615	28.158	9/16/99 13:55	1630.6
2202	8	8.615	28.158	9/16/99 13:55	1630.8
2203	8.2	8.615	28.158	9/16/99 13:55	1631.0
2204	8.4	8.537	28.158	9/16/99 13:55	1631.2
2205	8.6	8.537	28.158	9/16/99 13:55	1631.4
2206	8.8	8.537	28.158	9/16/99 13:56	1631.6
2207	9	8.537	28.158	9/16/99 13:56	1631.8
2208	9.2	8.46	28.158	9/16/99 13:56	1632.0
2209	9.4	8.46	28.158	9/16/99 13:56	1632.2
2210	9.6	8.46	28.158	9/16/99 13:56	1632.4
2211	9.8	8.46	28.158	9/16/99 13:57	1632.6
2212	10	8.46	28.158	9/16/99 13:57	1632.8
2213	11	8.46	28.189	9/16/99 13:58	1633.8
2214	12	8.304	28.158	9/16/99 13:59	1634.8
2215	13	8.304	28.189	9/16/99 14:00	1635.8
2216	14	8.304	28.221	9/16/99 14:01	1636.8
2217	15	8.227	28.221	9/16/99 14:02	1637.8
2218	16	8.149	28.221	9/16/99 14:03	1638.8
2219	17	8.149	28.221	9/16/99 14:04	1639.8
2220	18	8.072	28.221	9/16/99 14:05	1640.7
2221	19	8.072	28.221	9/16/99 14:06	1641.8
2222	20	7.994	28.221	9/16/99 14:07	1642.8
2223	21	7.916	28.221	9/16/99 14:08	1643.7
2224	22	7.916	28.221	9/16/99 14:09	1644.8
2225	23	7.916	28.221	9/16/99 14:10	1645.8
2226	24	7.839	28.252	9/16/99 14:11	1646.8
2227	25	7.839	28.221	9/16/99 14:12	1647.8
2228	26	7.761	28.252	9/16/99 14:13	1648.8
2229	27	7.761	28.221	9/16/99 14:14	1649.8
2230	28	7.683	28.221	9/16/99 14:15	1650.8
2231	29	7.683	28.221	9/16/99 14:16	1651.8

2232	30	7.606	28.221	9/16/99 14:17	1652.8
2233	31	7.606	28.221	9/16/99 14:18	1653.8
2234	32	7.606	28.221	9/16/99 14:19	1654.8
2235	33	7.528	28.252	9/16/99 14:20	1655.8
2236	34	7.528	28.252	9/16/99 14:21	1656.7
2237	35	7.528	28.252	9/16/99 14:22	1657.8
2238	36	7.451	28.221	9/16/99 14:23	1658.8
2239	37	7.451	28.252	9/16/99 14:24	1659.7
2240	38	7.451	28.221	9/16/99 14:25	1660.8
2241	39	7.373	28.252	9/16/99 14:26	1661.8
2242	40	7.373	28.221	9/16/99 14:27	1662.8
2243	41	7.373	28.221	9/16/99 14:28	1663.8
2244	42	7.295	28.221	9/16/99 14:29	1664.8
2245	43	7.373	28.221	9/16/99 14:30	1665.8
2246	44	7.373	28.252	9/16/99 14:31	1666.8
2247	45	7.373	28.252	9/16/99 14:32	1667.8
2248	46	7.373	28.252	9/16/99 14:33	1668.8
2249	47	7.295	28.252	9/16/99 14:34	1669.7
2250	48	7.295	28.252	9/16/99 14:35	1670.8
2251	49	7.295	28.252	9/16/99 14:36	1671.8
2252	50	7.295	28.284	9/16/99 14:37	1672.7
2253	51	7.295	28.284	9/16/99 14:38	1673.8
2254	52	7.295	28.284	9/16/99 14:39	1674.8
2255	53	7.218	28.252	9/16/99 14:40	1675.8
2256	54	7.14	28.252	9/16/99 14:41	1676.8
2257	55	7.14	28.252	9/16/99 14:42	1677.8
2258	56	7.14	28.252	9/16/99 14:43	1678.8
2259	57	7.14	28.252	9/16/99 14:44	1679.8
2260	58	7.14	28.252	9/16/99 14:45	1680.8
2261	59	7.14	28.252	9/16/99 14:46	1681.8
2262	60	7.063	28.252	9/16/99 14:47	1682.8
2263	61	7.063	28.252	9/16/99 14:48	1683.8
2264	62	7.063	28.252	9/16/99 14:49	1684.8
2265	63	7.063	28.221	9/16/99 14:50	1685.7
2266	64	6.985	28.252	9/16/99 14:51	1686.8
2267	65	7.063	28.252	9/16/99 14:52	1687.8
2268	66	7.063	28.252	9/16/99 14:53	1688.7
2269	67	7.063	28.252	9/16/99 14:54	1689.8
2270	68	6.985	28.252	9/16/99 14:55	1690.8
2271	69	6.985	28.252	9/16/99 14:56	1691.8
2272	70	6.985	28.252	9/16/99 14:57	1692.8
2273	71	6.985	28.252	9/16/99 14:58	1693.8
2274	72	6.907	28.252	9/16/99 14:59	1694.8
2275	73	6.907	28.252	9/16/99 15:00	1695.8
2276	74	6.907	28.252	9/16/99 15:01	1696.8
2277	75	6.83	28.252	9/16/99 15:02	1697.8
2278	76	6.83	28.252	9/16/99 15:03	1698.8
2279	77	6.83	28.252	9/16/99 15:04	1699.8
2280	78	6.83	28.221	9/16/99 15:05	1700.8
2281	79	6.83	28.252	9/16/99 15:06	1701.7
2282	80	6.83	28.252	9/16/99 15:07	1702.8

2283	81	6.752	28.252	9/16/99 15:08	1703.8
2284	82	6.752	28.252	9/16/99 15:09	1704.7
2285	83	6.752	28.252	9/16/99 15:10	1705.8
2286	84	6.752	28.252	9/16/99 15:11	1706.8
2287	85	6.752	28.252	9/16/99 15:12	1707.8
2288	86	6.752	28.252	9/16/99 15:13	1708.8
2289	87	6.752	28.252	9/16/99 15:14	1709.8
2290	88	6.752	28.252	9/16/99 15:15	1710.8
2291	89	6.752	28.252	9/16/99 15:16	1711.8
2292	90	6.752	28.252	9/16/99 15:17	1712.8
2293	91	6.752	28.252	9/16/99 15:18	1713.8
2294	92	6.752	28.252	9/16/99 15:19	1714.7
2295	93	6.752	28.221	9/16/99 15:20	1715.8
2296	94	6.675	28.221	9/16/99 15:21	1716.8
2297	95	6.752	28.221	9/16/99 15:22	1717.7
2298	96	6.752	28.252	9/16/99 15:23	1718.8
2299	97	6.752	28.252	9/16/99 15:24	1719.8
2300	98	6.752	28.252	9/16/99 15:25	1720.8
2301	99	6.752	28.252	9/16/99 15:26	1721.8
2302	100	6.752	28.252	9/16/99 15:27	1722.8
2303	101	6.752	28.252	9/16/99 15:28	1723.8
2304	102	6.752	28.252	9/16/99 15:29	1724.8
2305	103	6.752	28.252	9/16/99 15:30	1725.8
2306	104	6.752	28.252	9/16/99 15:31	1726.8
2307	105	6.752	28.252	9/16/99 15:32	1727.8
2308	106	6.752	28.252	9/16/99 15:33	1728.8
2309	107	6.675	28.252	9/16/99 15:34	1729.8
2310	108	6.752	28.252	9/16/99 15:35	1730.7
2311	109	6.752	28.252	9/16/99 15:36	1731.8
2312	110	6.752	28.284	9/16/99 15:37	1732.8
2313	111	6.675	28.252	9/16/99 15:38	1733.7
2314	112	6.675	28.284	9/16/99 15:39	1734.8
2315	113	6.752	28.284	9/16/99 15:40	1735.8
2316	114	6.675	28.284	9/16/99 15:41	1736.8
2317	115	6.675	28.252	9/16/99 15:42	1737.8
2318	116	6.675	28.284	9/16/99 15:43	1738.8
2319	117	6.597	28.252	9/16/99 15:44	1739.8
2320	118	6.597	28.252	9/16/99 15:45	1740.8
2321	119	6.675	28.252	9/16/99 15:46	1741.8
2322	120	6.675	28.284	9/16/99 15:47	1742.8
2323	121	6.675	28.284	9/16/99 15:48	1743.8
2324	122	6.597	28.284	9/16/99 15:49	1744.8
2325	123	6.442	28.221	9/16/99 15:50	1745.8
2326	124	6.442	28.221	9/16/99 15:51	1746.7
2327	125	6.442	28.221	9/16/99 15:52	1747.8
2328	126	6.442	28.221	9/16/99 15:53	1748.8
2329	127	6.442	28.189	9/16/99 15:54	1749.7
2330	128	6.442	28.221	9/16/99 15:55	1750.8
2331	129	6.364	28.189	9/16/99 15:56	1751.8
2332	130	6.364	28.221	9/16/99 15:57	1752.8
2333	131	6.364	28.189	9/16/99 15:58	1753.8

2334	132	6.442	28.221	9/16/99 15:59	1754.8
2335	133	6.519	28.221	9/16/99 16:00	1755.8
2336	134	6.519	28.252	9/16/99 16:01	1756.8
2337	135	6.519	28.252	9/16/99 16:02	1757.8
2338	136	6.519	28.252	9/16/99 16:03	1758.8
2339	137	6.519	28.252	9/16/99 16:04	1759.7
2340	138	6.519	28.252	9/16/99 16:05	1760.8
2341	139	6.519	28.252	9/16/99 16:06	1761.8
2342	140	6.519	28.252	9/16/99 16:07	1762.7
2343	141	6.519	28.252	9/16/99 16:08	1763.8
2344	142	6.519	28.252	9/16/99 16:09	1764.8
2345	143	6.519	28.284	9/16/99 16:10	1765.8
2346	144	6.519	28.252	9/16/99 16:11	1766.8
2347	145	6.519	28.284	9/16/99 16:12	1767.8
2348	146	6.519	28.252	9/16/99 16:13	1768.8
2349	147	6.519	28.284	9/16/99 16:14	1769.8
2350	148	6.597	28.284	9/16/99 16:15	1770.8
2351	149	6.519	28.284	9/16/99 16:16	1771.8
2352	150	6.519	28.252	9/16/99 16:17	1772.8
2353	151	6.519	28.284	9/16/99 16:18	1773.8
2354	152	6.519	28.284	9/16/99 16:19	1774.8
2355	153	6.519	28.284	9/16/99 16:20	1775.7
2356	154	6.519	28.284	9/16/99 16:21	1776.8
2357	155	6.442	28.252	9/16/99 16:22	1777.8
2358	156	6.442	28.252	9/16/99 16:23	1778.7
2359	157	6.287	28.189	9/16/99 16:24	1779.8
2360	0	6.364	28.189	9/16/99 16:26	1781.9
2361	0.0083	6.287	28.189	9/16/99 16:26	1781.9
2362	0.0166	6.287	28.189	9/16/99 16:26	1781.9
2363	0.025	6.364	28.189	9/16/99 16:26	1781.9
2364	0.0333	6.287	28.189	9/16/99 16:26	1781.9
2365	0.0416	6.364	28.189	9/16/99 16:26	1781.9
2366	0.05	6.364	28.189	9/16/99 16:26	1781.9
2367	0.0583	6.287	28.189	9/16/99 16:26	1781.9
2368	0.0666	6.287	28.189	9/16/99 16:26	1781.9
2369	0.075	6.287	28.189	9/16/99 16:26	1781.9
2370	0.0833	6.287	28.189	9/16/99 16:26	1781.9
2371	0.0916	6.287	28.189	9/16/99 16:26	1782.0
2372	0.1	6.364	28.189	9/16/99 16:26	1782.0
2373	0.1083	6.364	28.189	9/16/99 16:26	1782.0
2374	0.1166	6.287	28.189	9/16/99 16:26	1782.0
2375	0.125	6.287	28.189	9/16/99 16:26	1782.0
2376	0.1333	6.287	28.189	9/16/99 16:26	1782.0
2377	0.1416	6.287	28.189	9/16/99 16:26	1782.0
2378	0.15	6.364	28.189	9/16/99 16:26	1782.0
2379	0.1583	6.287	28.189	9/16/99 16:26	1782.0
2380	0.1666	6.364	28.189	9/16/99 16:26	1782.0
2381	0.175	6.287	28.189	9/16/99 16:26	1782.0
2382	0.1833	6.287	28.189	9/16/99 16:26	1782.0
2383	0.1916	6.287	28.189	9/16/99 16:26	1782.1
2384	0.2	6.364	28.189	9/16/99 16:26	1782.1

2385	0.2083	6.287	28.189	9/16/99 16:26	1782.1
2386	0.2166	6.287	28.189	9/16/99 16:26	1782.1
2387	0.225	6.364	28.189	9/16/99 16:26	1782.1
2388	0.2333	6.364	28.189	9/16/99 16:26	1782.1
2389	0.2416	6.364	28.189	9/16/99 16:26	1782.1
2390	0.25	6.287	28.189	9/16/99 16:26	1782.1
2391	0.2583	6.364	28.189	9/16/99 16:26	1782.1
2392	0.2666	6.287	28.189	9/16/99 16:26	1782.1
2393	0.275	6.364	28.189	9/16/99 16:26	1782.1
2394	0.2833	6.364	28.189	9/16/99 16:26	1782.1
2395	0.2916	6.364	28.189	9/16/99 16:26	1782.2
2396	0.3	6.287	28.189	9/16/99 16:26	1782.2
2397	0.3083	6.287	28.189	9/16/99 16:26	1782.2
2398	0.3166	6.364	28.189	9/16/99 16:26	1782.2
2399	0.325	6.287	28.189	9/16/99 16:26	1782.2
2400	0.3333	6.364	28.189	9/16/99 16:26	1782.2
2401	0.35	6.287	28.189	9/16/99 16:26	1782.2
2402	0.3666	6.364	28.189	9/16/99 16:26	1782.2
2403	0.3833	6.364	28.189	9/16/99 16:26	1782.2
2404	0.4	6.287	28.189	9/16/99 16:26	1782.3
2405	0.4166	6.287	28.189	9/16/99 16:26	1782.3
2406	0.4333	6.364	28.189	9/16/99 16:26	1782.3
2407	0.45	6.364	28.221	9/16/99 16:26	1782.3
2408	0.4666	6.364	28.189	9/16/99 16:26	1782.3
2409	0.4833	6.287	28.189	9/16/99 16:26	1782.3
2410	0.5	6.364	28.189	9/16/99 16:26	1782.4
2411	0.5166	6.364	28.189	9/16/99 16:27	1782.4
2412	0.5333	6.287	28.189	9/16/99 16:27	1782.4
2413	0.55	6.364	28.189	9/16/99 16:27	1782.4
2414	0.5666	6.364	28.189	9/16/99 16:27	1782.4
2415	0.5833	6.364	28.189	9/16/99 16:27	1782.4
2416	0.6	6.364	28.221	9/16/99 16:27	1782.5
2417	0.6166	6.364	28.189	9/16/99 16:27	1782.5
2418	0.6333	6.364	28.221	9/16/99 16:27	1782.5
2419	0.65	6.287	28.189	9/16/99 16:27	1782.5
2420	0.6666	6.364	28.189	9/16/99 16:27	1782.5
2421	0.6833	6.364	28.221	9/16/99 16:27	1782.5
2422	0.7	6.364	28.189	9/16/99 16:27	1782.6
2423	0.7166	6.364	28.221	9/16/99 16:27	1782.6
2424	0.7333	6.364	28.221	9/16/99 16:27	1782.6
2425	0.75	6.364	28.221	9/16/99 16:27	1782.6
2426	0.7666	6.364	28.189	9/16/99 16:27	1782.6
2427	0.7833	6.364	28.189	9/16/99 16:27	1782.6
2428	0.8	6.364	28.189	9/16/99 16:27	1782.7
2429	0.8166	6.364	28.221	9/16/99 16:27	1782.7
2430	0.8333	6.364	28.189	9/16/99 16:27	1782.7
2431	0.85	6.364	28.221	9/16/99 16:27	1782.7
2432	0.8666	6.364	28.221	9/16/99 16:27	1782.7
2433	0.8833	6.364	28.221	9/16/99 16:27	1782.7
2434	0.9	6.364	28.221	9/16/99 16:27	1782.8
2435	0.9166	6.287	28.221	9/16/99 16:27	1782.8

2436	0.9333	6.364	28.221	9/16/99 16:27	1782.8
2437	0.95	6.364	28.221	9/16/99 16:27	1782.8
2438	0.9666	6.287	28.221	9/16/99 16:27	1782.8
2439	0.9833	6.364	28.221	9/16/99 16:27	1782.8
2440	1	6.364	28.221	9/16/99 16:27	1782.9
2441	1.2	6.364	28.221	9/16/99 16:27	1783.1
2442	1.4	6.364	28.221	9/16/99 16:27	1783.3
2443	1.6	6.364	28.221	9/16/99 16:28	1783.5
2444	1.8	6.364	28.221	9/16/99 16:28	1783.7
2445	2	6.364	28.221	9/16/99 16:28	1783.9
2446	2.2	6.364	28.221	9/16/99 16:28	1784.1
2447	2.4	6.364	28.221	9/16/99 16:28	1784.3
2448	2.6	6.364	28.221	9/16/99 16:29	1784.5
2449	2.8	6.364	28.221	9/16/99 16:29	1784.7
2450	3	6.364	28.221	9/16/99 16:29	1784.9
2451	3.2	6.364	28.221	9/16/99 16:29	1785.1
2452	3.4	6.287	28.221	9/16/99 16:29	1785.3
2453	3.6	6.287	28.221	9/16/99 16:30	1785.5
2454	3.8	6.287	28.221	9/16/99 16:30	1785.7
2455	4	6.287	28.221	9/16/99 16:30	1785.9
2456	4.2	6.287	28.221	9/16/99 16:30	1786.1
2457	4.4	6.287	28.189	9/16/99 16:30	1786.3
2458	4.6	6.287	28.221	9/16/99 16:31	1786.5
2459	4.8	6.287	28.221	9/16/99 16:31	1786.7
2460	5	6.287	28.221	9/16/99 16:31	1786.9
2461	5.2	6.287	28.221	9/16/99 16:31	1787.1
2462	5.4	6.287	28.221	9/16/99 16:31	1787.3
2463	5.6	6.287	28.221	9/16/99 16:32	1787.5
2464	5.8	6.287	28.221	9/16/99 16:32	1787.7
2465	6	6.287	28.189	9/16/99 16:32	1787.9
2466	6.2	6.287	28.221	9/16/99 16:32	1788.1
2467	6.4	6.287	28.221	9/16/99 16:32	1788.3
2468	6.6	6.287	28.189	9/16/99 16:33	1788.5
2469	6.8	6.287	28.189	9/16/99 16:33	1788.7
2470	7	6.287	28.189	9/16/99 16:33	1788.9
2471	7.2	6.287	28.221	9/16/99 16:33	1789.1
2472	7.4	6.287	28.189	9/16/99 16:33	1789.3
2473	7.6	6.287	28.221	9/16/99 16:34	1789.5
2474	7.8	6.287	28.221	9/16/99 16:34	1789.7
2475	8	6.287	28.221	9/16/99 16:34	1789.9
2476	8.2	6.287	28.221	9/16/99 16:34	1790.1
2477	8.4	6.287	28.221	9/16/99 16:34	1790.3
2478	8.6	6.287	28.189	9/16/99 16:35	1790.5
2479	8.8	6.287	28.221	9/16/99 16:35	1790.7
2480	9	6.287	28.189	9/16/99 16:35	1790.9
2481	9.2	6.287	28.189	9/16/99 16:35	1791.1
2482	9.4	6.287	28.189	9/16/99 16:35	1791.3
2483	9.6	6.287	28.189	9/16/99 16:36	1791.5
2484	9.8	6.287	28.189	9/16/99 16:36	1791.7
2485	10	6.287	28.221	9/16/99 16:36	1791.9
2486	11	6.287	28.252	9/16/99 16:37	1792.9

2487	12	6.364	28.252	9/16/99 16:38	1793.9
	13	6.364	28.252	9/16/99 16:39	1794.9
	14	6.364	28.252	9/16/99 16:40	1795.9
	15	6.364	28.252	9/16/99 16:41	1796.9
	16	6.364	28.252	9/16/99 16:42	1797.9
	17	6.364	28.252	9/16/99 16:43	1798.9
	18	6.364	28.252	9/16/99 16:44	1799.9
	19	6.364	28.252	9/16/99 16:45	1800.9
	20	6.442	28.252	9/16/99 16:46	1801.9
	21	6.442	28.252	9/16/99 16:47	1802.9
	22	6.442	28.252	9/16/99 16:48	1803.9
	23	6.442	28.284	9/16/99 16:49	1804.9
	24	6.442	28.252	9/16/99 16:50	1805.9
	25	6.442	28.284	9/16/99 16:51	1806.9
	26	6.442	28.252	9/16/99 16:52	1807.9
	27	6.442	28.252	9/16/99 16:53	1808.9
	28	6.364	28.284	9/16/99 16:54	1809.9
	29	6.442	28.284	9/16/99 16:55	1810.9
	30	6.442	28.284	9/16/99 16:56	1811.9
	31	6.364	28.284	9/16/99 16:57	1812.9
	32	6.442	28.284	9/16/99 16:58	1813.9
	33	6.364	28.284	9/16/99 16:59	1814.9
	34	6.364	28.284	9/16/99 17:00	1815.9
	35	6.364	28.284	9/16/99 17:01	1816.9
	36	6.364	28.284	9/16/99 17:02	1817.9
	37	6.364	28.252	9/16/99 17:03	1818.9
	38	6.364	28.252	9/16/99 17:04	1819.9
	39	6.364	28.284	9/16/99 17:05	1820.9
	40	6.364	28.252	9/16/99 17:06	1821.9
	41	6.364	28.284	9/16/99 17:07	1822.9
	42	6.364	28.284	9/16/99 17:08	1823.9
	43	6.364	28.284	9/16/99 17:09	1824.9
	44	6.364	28.284	9/16/99 17:10	1825.9
	45	6.364	28.284	9/16/99 17:11	1826.9
	46	6.364	28.284	9/16/99 17:12	1827.9
	47	6.364	28.252	9/16/99 17:13	1828.9
	48	6.364	28.284	9/16/99 17:14	1829.9
	49	6.364	28.284	9/16/99 17:15	1830.9
	50	6.364	28.284	9/16/99 17:16	1831.9
	51	6.364	28.252	9/16/99 17:17	1832.9
	52	6.364	28.284	9/16/99 17:18	1833.9
	53	6.364	28.284	9/16/99 17:19	1834.9
	54	6.364	28.284	9/16/99 17:20	1835.9
	55	6.364	28.284	9/16/99 17:21	1836.9
	56	6.364	28.284	9/16/99 17:22	1837.9
	57	6.364	28.284	9/16/99 17:23	1838.9
	58	6.364	28.284	9/16/99 17:24	1839.9
	59	6.364	28.284	9/16/99 17:25	1840.9
	60	6.287	28.284	9/16/99 17:26	1841.9
	61	6.364	28.284	9/16/99 17:27	1842.9
	62	6.364	28.284	9/16/99 17:28	1843.9

63	6.287	28.284	9/16/99 17:29	1844.9
64	6.287	28.284	9/16/99 17:30	1845.9
65	6.364	28.284	9/16/99 17:31	1846.9
66	6.287	28.252	9/16/99 17:32	1847.9
67	6.287	28.284	9/16/99 17:33	1848.9
68	6.287	28.284	9/16/99 17:34	1849.9
69	6.287	28.284	9/16/99 17:35	1850.9
70	6.287	28.284	9/16/99 17:36	1851.9
71	6.287	28.284	9/16/99 17:37	1852.9
72	6.287	28.284	9/16/99 17:38	1853.9
73	6.287	28.284	9/16/99 17:39	1854.9
74	6.287	28.284	9/16/99 17:40	1855.9
75	6.287	28.284	9/16/99 17:41	1856.9
76	6.209	28.221	9/16/99 17:42	1857.9
0	6.209	28.221	9/16/99 17:42	1857.9
0.0083	6.209	28.221	9/16/99 17:42	1857.9
0.0166	6.209	28.221	9/16/99 17:42	1857.9
0.025	6.209	28.221	9/16/99 17:42	1857.9
0.0333	6.209	28.221	9/16/99 17:42	1857.9
0.0416	6.209	28.221	9/16/99 17:42	1857.9
0.05	6.131	28.221	9/16/99 17:42	1857.9
0.0583	6.131	28.189	9/16/99 17:42	1858.0
0.0666	6.131	28.221	9/16/99 17:42	1858.0
0.075	6.209	28.221	9/16/99 17:42	1858.0
0.0833	6.209	28.221	9/16/99 17:42	1858.0
0.0916	6.131	28.221	9/16/99 17:42	1858.0
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0.1083	6.209	28.221	9/16/99 17:42	1858.0
0.1166	6.131	28.189	9/16/99 17:42	1858.0
0.125	6.131	28.189	9/16/99 17:42	1858.0
0.1333	6.131	28.221	9/16/99 17:42	1858.0
0.1416	6.209	28.189	9/16/99 17:42	1858.0
0.15	6.131	28.189	9/16/99 17:42	1858.1
0.1583	6.131	28.221	9/16/99 17:42	1858.1
0.1666	6.131	28.189	9/16/99 17:42	1858.1
0.175	6.131	28.189	9/16/99 17:42	1858.1
0.1833	6.131	28.189	9/16/99 17:42	1858.1
0.1916	6.131	28.189	9/16/99 17:42	1858.1
0.2	6.131	28.221	9/16/99 17:42	1858.1
0.2083	6.131	28.189	9/16/99 17:42	1858.1
0.2166	6.131	28.189	9/16/99 17:42	1858.1
0.225	6.131	28.189	9/16/99 17:42	1858.1
0.2333	6.131	28.189	9/16/99 17:42	1858.1
0.2416	6.131	28.189	9/16/99 17:42	1858.1
0.25	6.131	28.189	9/16/99 17:42	1858.1
0.2583	6.131	28.189	9/16/99 17:42	1858.2
0.2666	6.131	28.189	9/16/99 17:42	1858.2
0.275	6.131	28.189	9/16/99 17:42	1858.2
0.2833	6.131	28.189	9/16/99 17:42	1858.2
0.2916	6.131	28.189	9/16/99 17:42	1858.2
0.3	6.131	28.189	9/16/99 17:42	1858.2

0.3083	6.131	28.189	9/16/99 17:42	1858.2
0.3166	6.131	28.189	9/16/99 17:42	1858.2
0.325	6.131	28.189	9/16/99 17:42	1858.2
0.3333	6.131	28.189	9/16/99 17:42	1858.2
0.35	6.131	28.189	9/16/99 17:42	1858.2
0.3666	6.131	28.189	9/16/99 17:42	1858.3
0.3833	6.131	28.189	9/16/99 17:42	1858.3
0.4	6.131	28.189	9/16/99 17:42	1858.3
0.4166	6.131	28.189	9/16/99 17:42	1858.3
0.4333	6.131	28.189	9/16/99 17:42	1858.3
0.45	6.131	28.189	9/16/99 17:42	1858.3
0.4666	6.131	28.189	9/16/99 17:42	1858.4
0.4833	6.131	28.189	9/16/99 17:43	1858.4
0.5	6.131	28.189	9/16/99 17:43	1858.4
0.5166	6.131	28.189	9/16/99 17:43	1858.4
0.5333	6.131	28.189	9/16/99 17:43	1858.4
0.55	6.131	28.189	9/16/99 17:43	1858.5
0.5666	6.131	28.189	9/16/99 17:43	1858.5
0.5833	6.131	28.189	9/16/99 17:43	1858.5
0.6	6.131	28.221	9/16/99 17:43	1858.5
0.6166	6.131	28.189	9/16/99 17:43	1858.5
0.6333	6.131	28.189	9/16/99 17:43	1858.5
0.65	6.131	28.189	9/16/99 17:43	1858.5
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0.6833	6.131	28.221	9/16/99 17:43	1858.6
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0.7666	6.131	28.189	9/16/99 17:43	1858.7
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0.8	6.131	28.221	9/16/99 17:43	1858.7
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0.8333	6.131	28.221	9/16/99 17:43	1858.7
0.85	6.131	28.221	9/16/99 17:43	1858.7
0.8666	6.131	28.189	9/16/99 17:43	1858.8
0.8833	6.131	28.221	9/16/99 17:43	1858.8
0.9	6.131	28.221	9/16/99 17:43	1858.8
0.9166	6.131	28.221	9/16/99 17:43	1858.8
0.9333	6.131	28.189	9/16/99 17:43	1858.8
0.95	6.131	28.189	9/16/99 17:43	1858.9
0.9666	6.131	28.221	9/16/99 17:43	1858.9
0.9833	6.131	28.221	9/16/99 17:43	1858.9
1	6.131	28.221	9/16/99 17:43	1858.9
1.2	6.131	28.221	9/16/99 17:43	1859.1
1.4	6.209	28.221	9/16/99 17:43	1859.3
1.6	6.209	28.221	9/16/99 17:44	1859.5
1.8	6.209	28.221	9/16/99 17:44	1859.7
2	6.209	28.221	9/16/99 17:44	1859.9
2.2	6.209	28.221	9/16/99 17:44	1860.1
2.4	6.209	28.221	9/16/99 17:44	1860.3

2.6	6.209	28.221	9/16/99 17:45	1860.5
2.8	6.209	28.221	9/16/99 17:45	1860.7
3	6.209	28.221	9/16/99 17:45	1860.9
3.2	6.209	28.221	9/16/99 17:45	1861.1
3.4	6.209	28.221	9/16/99 17:45	1861.3
3.6	6.209	28.221	9/16/99 17:46	1861.5
3.8	6.209	28.221	9/16/99 17:46	1861.7
4	6.209	28.221	9/16/99 17:46	1861.9
4.2	6.209	28.221	9/16/99 17:46	1862.1
4.4	6.209	28.221	9/16/99 17:46	1862.3
4.6	6.209	28.221	9/16/99 17:47	1862.5
4.8	6.209	28.221	9/16/99 17:47	1862.7
5	6.209	28.221	9/16/99 17:47	1862.9
5.2	6.209	28.221	9/16/99 17:47	1863.1
5.4	6.209	28.221	9/16/99 17:47	1863.3
5.6	6.131	28.221	9/16/99 17:48	1863.5
5.8	6.209	28.221	9/16/99 17:48	1863.7
6	6.209	28.221	9/16/99 17:48	1863.9
6.2	6.209	28.221	9/16/99 17:48	1864.1
6.4	6.209	28.221	9/16/99 17:48	1864.3
6.6	6.131	28.221	9/16/99 17:49	1864.5
6.8	6.209	28.221	9/16/99 17:49	1864.7
7	6.131	28.221	9/16/99 17:49	1864.9
7.2	6.209	28.221	9/16/99 17:49	1865.1
7.4	6.209	28.221	9/16/99 17:49	1865.3
7.6	6.209	28.221	9/16/99 17:50	1865.5
7.8	6.131	28.221	9/16/99 17:50	1865.7
8	6.209	28.221	9/16/99 17:50	1865.9
8.2	6.209	28.221	9/16/99 17:50	1866.1
8.4	6.209	28.221	9/16/99 17:50	1866.3
8.6	6.209	28.221	9/16/99 17:51	1866.5
8.8	6.209	28.221	9/16/99 17:51	1866.7
9	6.209	28.221	9/16/99 17:51	1866.9
9.2	6.209	28.221	9/16/99 17:51	1867.1
9.4	6.209	28.221	9/16/99 17:51	1867.3
9.6	6.131	28.221	9/16/99 17:52	1867.5
9.8	6.209	28.221	9/16/99 17:52	1867.7
10	6.209	28.221	9/16/99 17:52	1867.9
11	6.287	28.252	9/16/99 17:53	1868.9
12	6.287	28.284	9/16/99 17:54	1869.9
13	6.287	28.284	9/16/99 17:55	1870.9
14	6.287	28.284	9/16/99 17:56	1871.9
15	6.287	28.284	9/16/99 17:57	1872.9
16	6.287	28.284	9/16/99 17:58	1873.9
17	6.287	28.284	9/16/99 17:59	1874.9
18	6.287	28.284	9/16/99 18:00	1875.9
19	6.287	28.284	9/16/99 18:01	1876.9
20	6.287	28.284	9/16/99 18:02	1877.9
21	6.287	28.284	9/16/99 18:03	1878.9
22	6.287	28.284	9/16/99 18:04	1879.9
23	6.287	28.284	9/16/99 18:05	1880.9

24	6.287	28.284	9/16/99 18:06	1881.9
25	6.287	28.284	9/16/99 18:07	1882.9
26	6.287	28.284	9/16/99 18:08	1883.9
27	6.287	28.284	9/16/99 18:09	1884.9
28	6.287	28.284	9/16/99 18:10	1885.9
29	6.287	28.284	9/16/99 18:11	1886.9
30	6.287	28.284	9/16/99 18:12	1887.9
31	6.287	28.284	9/16/99 18:13	1888.9
32	6.287	28.284	9/16/99 18:14	1889.9
33	6.287	28.284	9/16/99 18:15	1890.9
34	6.287	28.284	9/16/99 18:16	1891.9
35	6.287	28.284	9/16/99 18:17	1892.9
36	6.287	28.284	9/16/99 18:18	1893.9
37	6.287	28.284	9/16/99 18:19	1894.9
38	6.287	28.284	9/16/99 18:20	1895.9
39	6.287	28.284	9/16/99 18:21	1896.9
40	6.287	28.284	9/16/99 18:22	1897.9
41	6.287	28.284	9/16/99 18:23	1898.9
42	6.287	28.284	9/16/99 18:24	1899.9
43	6.287	28.284	9/16/99 18:25	1900.9
44	6.287	28.284	9/16/99 18:26	1901.9
45	6.287	28.284	9/16/99 18:27	1902.9
46	6.287	28.284	9/16/99 18:28	1903.9
47	6.287	28.284	9/16/99 18:29	1904.9
48	6.287	28.284	9/16/99 18:30	1905.9
49	6.287	28.284	9/16/99 18:31	1906.9
50	6.287	28.284	9/16/99 18:32	1907.9
51	6.287	28.284	9/16/99 18:33	1908.9
52	6.287	28.284	9/16/99 18:34	1909.9
53	6.287	28.284	9/16/99 18:35	1910.9
54	6.287	28.284	9/16/99 18:36	1911.9
55	6.287	28.284	9/16/99 18:37	1912.9
56	6.287	28.284	9/16/99 18:38	1913.9
57	6.287	28.284	9/16/99 18:39	1914.9
58	6.287	28.284	9/16/99 18:40	1915.9
59	6.287	28.284	9/16/99 18:41	1916.9
60	6.287	28.284	9/16/99 18:42	1917.9
61	6.287	28.284	9/16/99 18:43	1918.9
62	6.287	28.284	9/16/99 18:44	1919.9
63	6.287	28.284	9/16/99 18:45	1920.9
64	6.287	28.284	9/16/99 18:46	1921.9
65	6.287	28.284	9/16/99 18:47	1922.9
66	6.287	28.284	9/16/99 18:48	1923.9
67	6.287	28.284	9/16/99 18:49	1924.9
68	6.287	28.284	9/16/99 18:50	1925.9
69	6.287	28.284	9/16/99 18:51	1926.9
70	6.287	28.284	9/16/99 18:52	1927.9
71	6.287	28.284	9/16/99 18:53	1928.9
72	6.287	28.284	9/16/99 18:54	1929.9
73	6.287	28.316	9/16/99 18:55	1930.9
74	6.287	28.316	9/16/99 18:56	1931.9

75	6.287	28.316	9/16/99 18:57	1932.9
76	6.287	28.316	9/16/99 18:58	1933.9
77	6.287	28.316	9/16/99 18:59	1934.9
78	6.287	28.316	9/16/99 19:00	1935.9
79	6.287	28.316	9/16/99 19:01	1936.9
80	6.287	28.316	9/16/99 19:02	1937.9
81	6.287	28.316	9/16/99 19:03	1938.9
82	6.287	28.316	9/16/99 19:04	1939.9
83	6.287	28.316	9/16/99 19:05	1940.9
84	6.287	28.316	9/16/99 19:06	1941.9
85	6.287	28.316	9/16/99 19:07	1942.9
86	6.287	28.316	9/16/99 19:08	1943.9
87	6.287	28.316	9/16/99 19:09	1944.9
88	6.287	28.316	9/16/99 19:10	1945.9
89	6.287	28.316	9/16/99 19:11	1946.9
90	6.287	28.316	9/16/99 19:12	1947.9
91	6.287	28.316	9/16/99 19:13	1948.9
92	6.287	28.316	9/16/99 19:14	1949.9
93	6.287	28.316	9/16/99 19:15	1950.9
94	6.287	28.316	9/16/99 19:16	1951.9
95	6.287	28.316	9/16/99 19:17	1952.9
96	6.287	28.316	9/16/99 19:18	1953.9
97	6.287	28.316	9/16/99 19:19	1954.9
98	6.287	28.316	9/16/99 19:20	1955.9
99	6.287	28.316	9/16/99 19:21	1956.9
100	6.287	28.316	9/16/99 19:22	1957.9
101	6.287	28.316	9/16/99 19:23	1958.9
102	6.287	28.316	9/16/99 19:24	1959.9
103	6.287	28.316	9/16/99 19:25	1960.9
104	6.287	28.316	9/16/99 19:26	1961.9
105	6.287	28.316	9/16/99 19:27	1962.9
106	6.287	28.316	9/16/99 19:28	1963.9
107	6.287	28.316	9/16/99 19:29	1964.9
108	6.287	28.316	9/16/99 19:30	1965.9
109	6.287	28.316	9/16/99 19:31	1966.9
110	6.287	28.316	9/16/99 19:32	1967.9
111	6.287	28.316	9/16/99 19:33	1968.9
112	6.287	28.316	9/16/99 19:34	1969.9
113	6.287	28.316	9/16/99 19:35	1970.9
114	6.287	28.316	9/16/99 19:36	1971.9
115	6.287	28.316	9/16/99 19:37	1972.9
116	6.209	28.316	9/16/99 19:38	1973.9
117	6.287	28.316	9/16/99 19:39	1974.9
118	6.287	28.316	9/16/99 19:40	1975.9
119	6.209	28.316	9/16/99 19:41	1976.9
120	6.209	28.316	9/16/99 19:42	1977.9
121	6.209	28.316	9/16/99 19:43	1978.9
122	6.209	28.316	9/16/99 19:44	1979.9
123	6.287	28.316	9/16/99 19:45	1980.9
124	6.209	28.316	9/16/99 19:46	1981.9
125	6.209	28.316	9/16/99 19:47	1982.9

126	6.209	28.316	9/16/99 19:48	1983.9
127	6.209	28.316	9/16/99 19:49	1984.9
128	6.209	28.316	9/16/99 19:50	1985.9
129	6.287	28.316	9/16/99 19:51	1986.9
130	6.209	28.316	9/16/99 19:52	1987.9
131	6.209	28.316	9/16/99 19:53	1988.9
132	6.209	28.316	9/16/99 19:54	1989.9
133	6.209	28.316	9/16/99 19:55	1990.9
134	6.209	28.316	9/16/99 19:56	1991.9
135	6.209	28.347	9/16/99 19:57	1992.9
136	6.209	28.316	9/16/99 19:58	1993.9
137	6.209	28.316	9/16/99 19:59	1994.9
138	6.209	28.316	9/16/99 20:00	1995.9
139	6.209	28.316	9/16/99 20:01	1996.9
140	6.209	28.316	9/16/99 20:02	1997.9
141	6.209	28.316	9/16/99 20:03	1998.9
142	6.209	28.316	9/16/99 20:04	1999.9
143	6.209	28.316	9/16/99 20:05	2000.9

ASR#3 PUMP TEST DATA

	Daate / Time
Step 0	11/22/99 15:45
Step 1	11/23/99 8:17
Step 2	11/23/99 9:28
Step 3	11/23/99 10:35
Step 4	11/23/99 11:35

		Input #1	Input #2	Input #3	Input #4	Input #5	Input #6
0	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.0083	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.0166	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.025	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.0333	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.0416	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.05	11/22/99 15:45	-0.031	-0.078	5.87	6.195	9.245	9.329
0.0583	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.0666	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.075	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.0833	11/22/99 15:45	-0.031	-0.078	5.87	6.195	9.245	9.329
0.0916	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.1	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.1083	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.1166	11/22/99 15:45	-0.031	-0.078	5.87	6.195	9.245	9.329
0.125	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.1333	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.1416	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.15	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.1583	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.1666	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.175	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.1833	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.1916	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.2	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.2083	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.2166	11/22/99 15:45	0	-0.078	5.874	6.195	9.245	9.329
0.225	11/22/99 15:45	0	-0.078	5.87	6.195	9.245	9.329
0.2333	11/22/99 15:46	0	-0.078	5.87	6.195	9.245	9.329
0.2416	11/22/99 15:46	0	-0.078	5.87	6.195	9.245	9.329
0.25	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.2583	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.2666	11/22/99 15:46	0	-0.078	5.87	6.195	9.245	9.329
0.275	11/22/99 15:46	0	-0.156	5.874	6.195	9.245	9.329
0.2833	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.2916	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.3	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.3083	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.3166	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.325	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.3333	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.35	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.3666	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329

0.3833	11/22/99 15:46	0	-0.078	5.87	6.195	9.245	9.329
0.4	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.4166	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.4333	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.45	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.4666	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.4833	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.5	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.5166	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.5333	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.55	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.5666	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.5833	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.6	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.6166	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.6333	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.65	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.6666	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.6833	11/22/99 15:46	0	-0.078	5.874	6.195	9.245	9.329
0.7	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.7166	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.7333	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.75	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.7666	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.7833	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.8	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.8166	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.8333	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.85	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.8666	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.8833	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.9	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.9166	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.9333	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.95	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.9666	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
0.9833	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
1	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
1.2	11/22/99 15:46	0	-0.078	5.874	6.199	9.245	9.329
1.4	11/22/99 15:47	0	-0.078	5.878	6.199	9.245	9.329
1.6	11/22/99 15:47	0	-0.078	5.878	6.199	9.245	9.329
1.8	11/22/99 15:47	-0.031	-0.078	5.878	6.199	9.245	9.329
2	11/22/99 15:47	-0.031	-0.078	5.878	6.199	9.245	9.325
2.2	11/22/99 15:47	-0.031	-0.078	5.878	6.203	9.245	9.325
2.4	11/22/99 15:48	-0.031	-0.078	5.878	6.203	9.245	9.325
2.6	11/22/99 15:48	-0.031	-0.156	5.878	6.203	9.245	9.325
2.8	11/22/99 15:48	-0.031	-0.078	5.878	6.203	9.245	9.325
3	11/22/99 15:48	-0.031	-0.078	5.878	6.203	9.245	9.325
3.2	11/22/99 15:48	-0.031	-0.078	5.882	6.203	9.245	9.325
3.4	11/22/99 15:49	-0.031	-0.078	5.882	6.203	9.245	9.325
3.6	11/22/99 15:49	-0.031	-0.078	5.882	6.207	9.245	9.325

3.8	11/22/99 15:49	-0.031	-0.078	5.882	6.207	9.245	9.325
4	11/22/99 15:49	-0.031	-0.078	5.882	6.207	9.245	9.325
4.2	11/22/99 15:49	-0.031	-0.156	5.886	6.207	9.245	9.325
4.4	11/22/99 15:50	-0.031	-0.156	5.886	6.212	9.245	9.325
4.6	11/22/99 15:50	-0.031	-0.078	5.886	6.212	9.245	9.325
4.8	11/22/99 15:50	-0.031	-0.078	5.886	6.212	9.245	9.325
5	11/22/99 15:50	-0.031	-0.078	5.886	6.212	9.245	9.325
5.2	11/22/99 15:50	-0.031	-0.156	5.886	6.212	9.245	9.325
5.4	11/22/99 15:51	-0.063	-0.156	5.886	6.212	9.245	9.325
5.6	11/22/99 15:51	-0.031	-0.156	5.891	6.212	9.245	9.325
5.8	11/22/99 15:51	-0.063	-0.156	5.891	6.216	9.245	9.325
6	11/22/99 15:51	-0.063	-0.156	5.891	6.216	9.245	9.325
6.2	11/22/99 15:51	-0.063	-0.156	5.891	6.216	9.245	9.325
6.4	11/22/99 15:52	-0.063	-0.156	5.895	6.216	9.245	9.325
6.6	11/22/99 15:52	-0.063	-0.156	5.891	6.216	9.245	9.325
6.8	11/22/99 15:52	-0.063	-0.156	5.895	6.22	9.245	9.325
7	11/22/99 15:52	-0.063	-0.156	5.895	6.22	9.245	9.325
7.2	11/22/99 15:52	-0.063	-0.156	5.895	6.22	9.245	9.325
7.4	11/22/99 15:53	-0.063	-0.156	5.895	6.22	9.245	9.325
7.6	11/22/99 15:53	-0.063	-0.156	5.899	6.22	9.245	9.325
7.8	11/22/99 15:53	-0.094	-0.156	5.899	6.224	9.245	9.325
8	11/22/99 15:53	-0.094	-0.156	5.899	6.224	9.245	9.325
8.2	11/22/99 15:53	-0.094	-0.156	5.899	6.224	9.245	9.325
8.4	11/22/99 15:54	-0.094	-0.156	5.903	6.228	9.245	9.325
8.6	11/22/99 15:54	-0.094	-0.156	5.903	6.228	9.245	9.325
8.8	11/22/99 15:54	-0.094	-0.156	5.903	6.228	9.245	9.325
9	11/22/99 15:54	-0.094	-0.156	5.907	6.228	9.245	9.325
9.2	11/22/99 15:54	-0.094	-0.156	5.907	6.232	9.245	9.325
9.4	11/22/99 15:55	-0.094	-0.235	5.907	6.232	9.245	9.325
9.6	11/22/99 15:55	-0.126	-0.235	5.911	6.232	9.245	9.325
9.8	11/22/99 15:55	-0.126	-0.235	5.911	6.232	9.245	9.325
10	11/22/99 15:55	-0.126	-0.156	5.911	6.232	9.245	9.321
11	11/22/99 15:56	-0.094	-0.156	5.915	6.236	9.178	9.321
12	11/22/99 15:57	-0.126	-0.078	5.915	6.24	9.178	9.321
13	11/22/99 15:58	-0.126	-0.078	5.923	6.244	9.178	9.321
14	11/22/99 15:59	-0.126	-0.156	5.927	6.252	9.178	9.321
15	11/22/99 16:00	-0.158	-0.156	5.931	6.256	9.178	9.321
16	11/22/99 16:01	-0.158	-0.156	5.936	6.26	9.178	9.321
17	11/22/99 16:02	-0.158	-0.156	5.94	6.265	9.178	9.317
18	11/22/99 16:03	-0.189	-0.156	5.944	6.269	9.178	9.317
19	11/22/99 16:04	-0.189	-0.156	5.948	6.273	9.178	9.317
20	11/22/99 16:05	-0.189	-0.156	5.952	6.277	9.178	9.317
21	11/22/99 16:06	-0.221	-0.156	5.956	6.281	9.178	9.317
22	11/22/99 16:07	-0.221	-0.235	5.96	6.285	9.178	9.317
23	11/22/99 16:08	-0.221	-0.235	5.964	6.289	9.178	9.317
24	11/22/99 16:09	-0.221	-0.235	5.968	6.293	9.178	9.317
25	11/22/99 16:10	-0.253	-0.235	5.972	6.293	9.178	9.317
26	11/22/99 16:11	-0.253	-0.235	5.976	6.297	9.145	9.317
27	11/22/99 16:12	-0.253	-0.235	5.976	6.301	9.145	9.317
28	11/22/99 16:13	-0.253	-0.235	5.981	6.305	9.145	9.317
29	11/22/99 16:14	-0.284	-0.235	5.985	6.309	9.145	9.317

30	11/22/99 16:15	-0.284	-0.235	5.989	6.309	9.145	9.317
31	11/22/99 16:16	-0.284	-0.313	5.989	6.314	9.145	9.317
32	11/22/99 16:17	-0.284	-0.313	5.993	6.318	9.145	9.317
33	11/22/99 16:18	-0.316	-0.313	5.997	6.318	9.145	9.317
34	11/22/99 16:19	-0.316	-0.313	5.997	6.322	9.145	9.312
35	11/22/99 16:20	-0.316	-0.313	6.001	6.322	9.145	9.312
36	11/22/99 16:21	-0.316	-0.313	6.001	6.322	9.145	9.312
37	11/22/99 16:22	-0.316	-0.313	6.001	6.322	9.145	9.308
38	11/22/99 16:23	-0.316	-0.313	6.001	6.326	9.145	9.308
39	11/22/99 16:24	-0.348	-0.313	6.009	6.33	9.145	9.308
40	11/22/99 16:25	-0.348	-0.313	6.009	6.334	9.145	9.308
41	11/22/99 16:26	-0.348	-0.313	6.013	6.338	9.145	9.308
42	11/22/99 16:27	-0.348	-0.313	6.017	6.338	9.178	9.312
43	11/22/99 16:28	-0.348	-0.313	6.021	6.342	9.178	9.312
44	11/22/99 16:29	-0.348	-0.313	6.021	6.346	9.178	9.312
45	11/22/99 16:30	-0.379	-0.313	6.026	6.35	9.145	9.312
46	11/22/99 16:31	-0.379	-0.392	6.03	6.35	9.145	9.312
47	11/22/99 16:32	-0.379	-0.313	6.03	6.35	9.178	9.312
48	11/22/99 16:33	-0.379	-0.392	6.03	6.35	9.145	9.312
49	11/22/99 16:34	-0.379	-0.392	6.034	6.358	9.178	9.312
50	11/22/99 16:35	-0.379	-0.392	6.034	6.358	9.145	9.312
51	11/22/99 16:36	-0.379	-0.392	6.038	6.358	9.178	9.312
52	11/22/99 16:37	-0.379	-0.392	6.042	6.362	9.178	9.312
53	11/22/99 16:38	-0.411	-0.392	6.042	6.362	9.178	9.312
54	11/22/99 16:39	-0.411	-0.392	6.042	6.362	9.145	9.312
55	11/22/99 16:40	-0.411	-0.392	6.046	6.367	9.178	9.312
56	11/22/99 16:41	-0.411	-0.392	6.046	6.367	9.178	9.312
57	11/22/99 16:42	-0.411	-0.392	6.05	6.371	9.145	9.312
58	11/22/99 16:43	-0.411	-0.392	6.05	6.371	9.178	9.312
59	11/22/99 16:44	-0.411	-0.392	6.05	6.375	9.178	9.312
60	11/22/99 16:45	-0.411	-0.392	6.054	6.375	9.178	9.312
61	11/22/99 16:46	-0.411	-0.392	6.054	6.375	9.178	9.312
62	11/22/99 16:47	-0.411	-0.392	6.054	6.379	9.178	9.312
63	11/22/99 16:48	-0.411	-0.392	6.071	6.395	9.178	9.312
64	11/22/99 16:49	-0.474	-0.47	6.169	6.493	9.178	9.308
65	11/22/99 16:50	-0.569	-0.549	6.275	6.599	9.178	9.308
66	11/22/99 16:51	-0.664	-0.627	6.373	6.697	9.145	9.304
67	11/22/99 16:52	-0.759	-0.784	6.443	6.77	9.178	9.304
68	11/22/99 16:53	-0.854	-0.862	6.508	6.832	9.145	9.304
69	11/22/99 16:54	-0.949	-0.941	6.562	6.885	9.145	9.304
70	11/22/99 16:55	-1.044	-1.019	6.611	6.938	9.145	9.304
71	11/22/99 16:56	-1.139	-1.098	6.66	6.983	9.145	9.304
72	11/22/99 16:57	-1.202	-1.176	6.701	7.027	9.145	9.304
73	11/22/99 16:58	-1.297	-1.255	6.742	7.068	9.145	9.3
74	11/22/99 16:59	-1.361	-1.333	6.778	7.105	9.145	9.3
75	11/22/99 17:00	-1.424	-1.412	6.811	7.138	9.145	9.3
76	11/22/99 17:01	-1.487	-1.49	6.844	7.17	9.145	9.3
77	11/22/99 17:02	-1.55	-1.49	6.873	7.199	9.145	9.3
78	11/22/99 17:03	-1.614	-1.569	6.897	7.223	9.145	9.3
79	11/22/99 17:04	-1.645	-1.647	6.926	7.248	9.145	9.3
80	11/22/99 17:05	-1.709	-1.647	6.95	7.272	9.145	9.296

81	11/22/99 17:06	-1.74	-1.725	6.971	7.297	9.145	9.296
82	11/22/99 17:07	-1.804	-1.804	6.995	7.321	9.145	9.296
83	11/22/99 17:08	-1.835	-1.804	7.016	7.342	9.145	9.3
84	11/22/99 17:09	-1.867	-1.882	7.036	7.362	9.145	9.296
85	11/22/99 17:10	-1.93	-1.882	7.057	7.383	9.145	9.3
86	11/22/99 17:11	-1.962	-1.961	7.077	7.403	9.145	9.3
87	11/22/99 17:12	-1.994	-1.961	7.094	7.419	9.145	9.3
88	11/22/99 17:13	-2.025	-2.039	7.11	7.436	9.145	9.3
89	11/22/99 17:14	-2.057	-2.039	7.126	7.452	9.145	9.296
90	11/22/99 17:15	-2.089	-2.118	7.139	7.464	9.145	9.3
91	11/22/99 17:16	-2.12	-2.118	7.155	7.481	9.145	9.3
92	11/22/99 17:17	-2.184	-2.118	7.167	7.493	9.145	9.296
93	11/22/99 17:18	-2.184	-2.196	7.184	7.509	9.145	9.296
94	11/22/99 17:19	-2.215	-2.196	7.196	7.521	9.145	9.3
95	11/22/99 17:20	-2.247	-2.275	7.212	7.534	9.145	9.3
96	11/22/99 17:21	-2.279	-2.275	7.225	7.55	9.145	9.296
97	11/22/99 17:22	-2.31	-2.275	7.237	7.562	9.145	9.296
98	11/22/99 17:23	-2.342	-2.353	7.249	7.574	9.145	9.296
99	11/22/99 17:24	-2.373	-2.353	7.262	7.587	9.145	9.296
100	11/22/99 17:25	-2.373	-2.353	7.274	7.599	9.145	9.296
101	11/22/99 17:26	-2.405	-2.432	7.282	7.611	9.145	9.296
102	11/22/99 17:27	-2.437	-2.432	7.294	7.619	9.145	9.296
103	11/22/99 17:28	-2.468	-2.432	7.307	7.632	9.145	9.296
104	11/22/99 17:29	-2.468	-2.51	7.315	7.64	9.145	9.296
105	11/22/99 17:30	-2.5	-2.51	7.327	7.652	9.145	9.296
106	11/22/99 17:31	-2.532	-2.51	7.335	7.66	9.145	9.296
107	11/22/99 17:32	-2.563	-2.51	7.347	7.672	9.145	9.296
108	11/22/99 17:33	-2.563	-2.588	7.356	7.681	9.145	9.292
109	11/22/99 17:34	-2.595	-2.588	7.368	7.693	9.145	9.296
110	11/22/99 17:35	-2.627	-2.588	7.376	7.701	9.145	9.292
111	11/22/99 17:36	-2.627	-2.588	7.384	7.709	9.145	9.292
112	11/22/99 17:37	-2.658	-2.667	7.393	7.717	9.145	9.292
113	11/22/99 17:38	-2.658	-2.667	7.397	7.721	9.145	9.292
114	11/22/99 17:39	-2.69	-2.667	7.409	7.734	9.145	9.292
115	11/22/99 17:40	-2.69	-2.667	7.413	7.742	9.145	9.292
116	11/22/99 17:41	-2.722	-2.745	7.421	7.75	9.111	9.292
117	11/22/99 17:42	-2.753	-2.745	7.429	7.754	9.145	9.292
118	11/22/99 17:43	-2.753	-2.745	7.438	7.762	9.111	9.292
119	11/22/99 17:44	-2.785	-2.745	7.446	7.77	9.111	9.292
120	11/22/99 17:45	-2.785	-2.745	7.45	7.774	9.111	9.292
121	11/22/99 17:46	-2.817	-2.824	7.458	7.783	9.111	9.292
122	11/22/99 17:47	-2.817	-2.824	7.462	7.791	9.111	9.292
123	11/22/99 17:48	-2.848	-2.824	7.47	7.795	9.111	9.292
124	11/22/99 17:49	-2.848	-2.824	7.474	7.799	9.111	9.292
125	11/22/99 17:50	-2.848	-2.824	7.483	7.807	9.111	9.292
126	11/22/99 17:51	-2.88	-2.824	7.487	7.811	9.111	9.292
127	11/22/99 17:52	-2.88	-2.902	7.495	7.819	9.111	9.292
128	11/22/99 17:53	-2.912	-2.902	7.499	7.823	9.111	9.288
129	11/22/99 17:54	-2.912	-2.902	7.503	7.827	9.111	9.292
130	11/22/99 17:55	-2.912	-2.902	7.511	7.836	9.111	9.292
131	11/22/99 17:56	-2.943	-2.902	7.515	7.84	9.145	9.288

132	11/22/99 17:57	-2.943	-2.902	7.519	7.844	9.111	9.288
133	11/22/99 17:58	-2.943	-2.902	7.524	7.848	9.111	9.288
134	11/22/99 17:59	-2.975	-2.981	7.528	7.852	9.111	9.288
135	11/22/99 18:00	-2.975	-2.981	7.532	7.856	9.111	9.288
136	11/22/99 18:01	-3.007	-2.981	7.536	7.864	9.111	9.288
137	11/22/99 18:02	-3.007	-2.981	7.54	7.868	9.111	9.288
138	11/22/99 18:03	-3.007	-2.981	7.548	7.872	9.111	9.288
139	11/22/99 18:04	-3.007	-2.981	7.552	7.876	9.111	9.288
140	11/22/99 18:05	-3.038	-3.059	7.556	7.881	9.111	9.288
141	11/22/99 18:06	-3.038	-3.059	7.56	7.889	9.111	9.288
142	11/22/99 18:07	-3.07	-3.059	7.564	7.893	9.111	9.288
143	11/22/99 18:08	-3.07	-3.059	7.569	7.897	9.111	9.288
144	11/22/99 18:09	-3.07	-3.059	7.573	7.901	9.111	9.288
145	11/22/99 18:10	-3.102	-3.059	7.577	7.905	9.111	9.288
146	11/22/99 18:11	-3.102	-3.059	7.585	7.909	9.111	9.288
147	11/22/99 18:12	-3.102	-3.059	7.589	7.913	9.111	9.288
148	11/22/99 18:13	-3.102	-3.138	7.593	7.917	9.111	9.284
149	11/22/99 18:14	-3.133	-3.138	7.597	7.921	9.111	9.284
150	11/22/99 18:15	-3.133	-3.138	7.601	7.925	9.111	9.284
151	11/22/99 18:16	-3.133	-3.138	7.605	7.934	9.111	9.284
152	11/22/99 18:17	-3.165	-3.138	7.614	7.938	9.111	9.284
153	11/22/99 18:18	-3.165	-3.138	7.618	7.942	9.111	9.284
154	11/22/99 18:19	-3.165	-3.138	7.622	7.946	9.111	9.284
155	11/22/99 18:20	-3.197	-3.138	7.626	7.95	9.111	9.284
156	11/22/99 18:21	-3.197	-3.216	7.63	7.958	9.111	9.284
157	11/22/99 18:22	-3.197	-3.216	7.634	7.962	9.111	9.284
158	11/22/99 18:23	-3.197	-3.216	7.638	7.966	9.111	9.284
159	11/22/99 18:24	-3.228	-3.216	7.642	7.97	9.111	9.284
160	11/22/99 18:25	-3.228	-3.216	7.646	7.974	9.111	9.284
161	11/22/99 18:26	-3.228	-3.216	7.65	7.979	9.111	9.284
162	11/22/99 18:27	-3.26	-3.216	7.655	7.983	9.111	9.284
163	11/22/99 18:28	-3.26	-3.216	7.659	7.987	9.111	9.284
164	11/22/99 18:29	-3.26	-3.216	7.663	7.991	9.111	9.284
165	11/22/99 18:30	-3.26	-3.295	7.667	7.995	9.111	9.284
166	11/22/99 18:31	-3.291	-3.295	7.671	7.995	9.111	9.284
167	11/22/99 18:32	-3.291	-3.295	7.675	7.999	9.111	9.28
168	11/22/99 18:33	-3.291	-3.295	7.679	8.003	9.111	9.28
169	11/22/99 18:34	-3.291	-3.295	7.679	8.003	9.111	9.28
170	11/22/99 18:35	-3.291	-3.295	7.683	8.011	9.111	9.28
171	11/22/99 18:36	-3.323	-3.295	7.687	8.015	9.111	9.28
172	11/22/99 18:37	-3.323	-3.295	7.691	8.019	9.111	9.28
173	11/22/99 18:38	-3.323	-3.295	7.696	8.023	9.111	9.28
174	11/22/99 18:39	-3.323	-3.295	7.7	8.023	9.111	9.28
175	11/22/99 18:40	-3.355	-3.295	7.704	8.028	9.111	9.28
176	11/22/99 18:41	-3.355	-3.373	7.708	8.032	9.111	9.28
177	11/22/99 18:42	-3.355	-3.373	7.708	8.036	9.111	9.28
178	11/22/99 18:43	-3.386	-3.373	7.712	8.036	9.111	9.28
179	11/22/99 18:44	-3.386	-3.373	7.716	8.04	9.111	9.28
180	11/22/99 18:45	-3.386	-3.373	7.72	8.044	9.111	9.28
181	11/22/99 18:46	-3.386	-3.373	7.724	8.048	9.111	9.28
182	11/22/99 18:47	-3.386	-3.373	7.724	8.048	9.111	9.28

183	11/22/99 18:48	-3.418	-3.373	7.728	8.052	9.111	9.28
184	11/22/99 18:49	-3.418	-3.373	7.732	8.056	9.111	9.28
185	11/22/99 18:50	-3.418	-3.373	7.732	8.06	9.111	9.28
186	11/22/99 18:51	-3.418	-3.373	7.736	8.064	9.111	9.28
187	11/22/99 18:52	-3.418	-3.373	7.741	8.068	9.111	9.28
188	11/22/99 18:53	-3.418	-3.452	7.745	8.068	9.111	9.276
189	11/22/99 18:54	-3.45	-3.452	7.745	8.072	9.111	9.28
190	11/22/99 18:55	-3.45	-3.452	7.749	8.077	9.111	9.28
191	11/22/99 18:56	-3.45	-3.452	7.753	8.077	9.111	9.276
192	11/22/99 18:57	-3.45	-3.452	7.753	8.081	9.111	9.276
193	11/22/99 18:58	-3.45	-3.452	7.757	8.081	9.111	9.276
194	11/22/99 18:59	-3.481	-3.452	7.757	8.085	9.111	9.276
195	11/22/99 19:00	-3.481	-3.452	7.761	8.085	9.111	9.276
196	11/22/99 19:01	-3.481	-3.452	7.765	8.089	9.111	9.276
197	11/22/99 19:02	-3.481	-3.452	7.765	8.089	9.111	9.276
198	11/22/99 19:03	-3.481	-3.452	7.769	8.093	9.111	9.276
199	11/22/99 19:04	-3.513	-3.452	7.769	8.097	9.111	9.276
200	11/22/99 19:05	-3.513	-3.53	7.773	8.101	9.111	9.276
201	11/22/99 19:06	-3.513	-3.53	7.777	8.101	9.111	9.276
202	11/22/99 19:07	-3.513	-3.53	7.777	8.101	9.111	9.276
203	11/22/99 19:08	-3.513	-3.53	7.782	8.105	9.111	9.276
204	11/22/99 19:09	-3.513	-3.53	7.782	8.109	9.111	9.276
205	11/22/99 19:10	-3.513	-3.53	7.786	8.109	9.111	9.276
206	11/22/99 19:11	-3.545	-3.53	7.79	8.113	9.111	9.276
207	11/22/99 19:12	-3.545	-3.53	7.79	8.113	9.111	9.276
208	11/22/99 19:13	-3.545	-3.53	7.794	8.117	9.111	9.276
209	11/22/99 19:14	-3.545	-3.53	7.794	8.121	9.111	9.276
210	11/22/99 19:15	-3.545	-3.53	7.798	8.121	9.111	9.276
211	11/22/99 19:16	-3.545	-3.53	7.798	8.121	9.111	9.276
212	11/22/99 19:17	-3.545	-3.53	7.798	8.126	9.111	9.272
213	11/22/99 19:18	-3.576	-3.53	7.802	8.126	9.111	9.272
214	11/22/99 19:19	-3.576	-3.53	7.806	8.13	9.111	9.272
215	11/22/99 19:20	-3.576	-3.53	7.806	8.134	9.111	9.272
216	11/22/99 19:21	-3.576	-3.53	7.81	8.134	9.111	9.272
217	11/22/99 19:22	-3.576	-3.53	7.81	8.134	9.111	9.272
218	11/22/99 19:23	-3.576	-3.53	7.814	8.138	9.111	9.272
219	11/22/99 19:24	-3.576	-3.608	7.814	8.142	9.111	9.272
220	11/22/99 19:25	-3.576	-3.608	7.818	8.142	9.111	9.272
221	11/22/99 19:26	-3.576	-3.608	7.818	8.146	9.111	9.272
222	11/22/99 19:27	-3.608	-3.608	7.822	8.15	9.111	9.272
223	11/22/99 19:28	-3.608	-3.608	7.827	8.15	9.111	9.272
224	11/22/99 19:29	-3.608	-3.608	7.827	8.15	9.111	9.272
225	11/22/99 19:30	-3.608	-3.608	7.827	8.154	9.111	9.272
226	11/22/99 19:31	-3.608	-3.608	7.831	8.154	9.111	9.272
227	11/22/99 19:32	-3.608	-3.608	7.831	8.158	9.111	9.272
228	11/22/99 19:33	-3.64	-3.608	7.835	8.158	9.111	9.272
229	11/22/99 19:34	-3.64	-3.608	7.835	8.162	9.111	9.272
230	11/22/99 19:35	-3.64	-3.608	7.839	8.162	9.111	9.272
231	11/22/99 19:36	-3.64	-3.608	7.839	8.166	9.111	9.268
232	11/22/99 19:37	-3.64	-3.608	7.839	8.166	9.111	9.268
233	11/22/99 19:38	-3.64	-3.608	7.843	8.166	9.111	9.268

234	11/22/99 19:39	-3.64	-3.608	7.847	8.17	9.111	9.268
235	11/22/99 19:40	-3.64	-3.608	7.847	8.17	9.111	9.268
236	11/22/99 19:41	-3.64	-3.608	7.847	8.17	9.111	9.268
237	11/22/99 19:42	-3.64	-3.608	7.851	8.175	9.111	9.268
238	11/22/99 19:43	-3.64	-3.608	7.851	8.175	9.111	9.268
239	11/22/99 19:44	-3.671	-3.608	7.851	8.175	9.111	9.268
240	11/22/99 19:45	-3.671	-3.687	7.855	8.179	9.111	9.268
241	11/22/99 19:46	-3.671	-3.687	7.855	8.179	9.111	9.268
242	11/22/99 19:47	-3.671	-3.608	7.855	8.179	9.111	9.268
243	11/22/99 19:48	-3.671	-3.687	7.859	8.183	9.111	9.268
244	11/22/99 19:49	-3.671	-3.608	7.859	8.183	9.111	9.268
245	11/22/99 19:50	-3.671	-3.687	7.859	8.183	9.111	9.268
246	11/22/99 19:51	-3.671	-3.687	7.859	8.187	9.111	9.268
247	11/22/99 19:52	-3.671	-3.687	7.863	8.187	9.111	9.268
248	11/22/99 19:53	-3.671	-3.687	7.863	8.187	9.111	9.268
249	11/22/99 19:54	-3.671	-3.687	7.863	8.187	9.111	9.268
250	11/22/99 19:55	-3.703	-3.687	7.863	8.191	9.111	9.268
251	11/22/99 19:56	-3.703	-3.687	7.868	8.191	9.111	9.268
252	11/22/99 19:57	-3.703	-3.687	7.868	8.191	9.111	9.268
253	11/22/99 19:58	-3.703	-3.687	7.868	8.195	9.111	9.268
254	11/22/99 19:59	-3.703	-3.687	7.872	8.195	9.111	9.268
255	11/22/99 20:00	-3.703	-3.687	7.872	8.195	9.111	9.268
256	11/22/99 20:01	-3.703	-3.687	7.876	8.199	9.111	9.268
257	11/22/99 20:02	-3.703	-3.687	7.876	8.199	9.111	9.268
258	11/22/99 20:03	-3.703	-3.687	7.876	8.199	9.111	9.268
259	11/22/99 20:04	-3.703	-3.687	7.876	8.203	9.111	9.268
260	11/22/99 20:05	-3.703	-3.687	7.88	8.203	9.111	9.263
261	11/22/99 20:06	-3.703	-3.687	7.884	8.207	9.111	9.263
262	11/22/99 20:07	-3.735	-3.687	7.892	8.215	9.111	9.263
263	11/22/99 20:08	-3.735	-3.687	7.896	8.219	9.111	9.263
264	11/22/99 20:09	-3.735	-3.765	7.9	8.224	9.111	9.263
265	11/22/99 20:10	-3.735	-3.687	7.904	8.228	9.111	9.263
266	11/22/99 20:11	-3.735	-3.765	7.904	8.232	9.111	9.263
267	11/22/99 20:12	-3.766	-3.765	7.908	8.232	9.111	9.263
268	11/22/99 20:13	-3.766	-3.765	7.908	8.236	9.111	9.263
269	11/22/99 20:14	-3.766	-3.765	7.913	8.236	9.111	9.263
270	11/22/99 20:15	-3.766	-3.765	7.917	8.24	9.111	9.263
271	11/22/99 20:16	-3.766	-3.765	7.917	8.24	9.111	9.263
272	11/22/99 20:17	-3.766	-3.765	7.921	8.244	9.111	9.263
273	11/22/99 20:18	-3.766	-3.765	7.921	8.248	9.111	9.263
274	11/22/99 20:19	-3.798	-3.765	7.925	8.248	9.111	9.263
275	11/22/99 20:20	-3.798	-3.765	7.925	8.252	9.111	9.263
276	11/22/99 20:21	-3.798	-3.765	7.929	8.252	9.111	9.263
277	11/22/99 20:22	-3.798	-3.765	7.929	8.256	9.111	9.263
278	11/22/99 20:23	-3.798	-3.765	7.933	8.256	9.111	9.263
279	11/22/99 20:24	-3.798	-3.765	7.933	8.26	9.111	9.263
280	11/22/99 20:25	-3.798	-3.765	7.937	8.26	9.111	9.263
281	11/22/99 20:26	-3.83	-3.844	7.937	8.264	9.111	9.263
282	11/22/99 20:27	-3.83	-3.765	7.941	8.264	9.111	9.263
283	11/22/99 20:28	-3.83	-3.844	7.941	8.268	9.111	9.263
284	11/22/99 20:29	-3.83	-3.844	7.945	8.268	9.111	9.263

285	11/22/99 20:30	-3.83	-3.844	7.945	8.268	9.111	9.263
286	11/22/99 20:31	-3.83	-3.844	7.945	8.273	9.111	9.263
287	11/22/99 20:32	-3.83	-3.844	7.949	8.273	9.111	9.263
288	11/22/99 20:33	-3.83	-3.844	7.949	8.277	9.111	9.263
289	11/22/99 20:34	-3.83	-3.844	7.954	8.277	9.111	9.263
290	11/22/99 20:35	-3.83	-3.844	7.954	8.277	9.111	9.263
291	11/22/99 20:36	-3.83	-3.844	7.954	8.277	9.111	9.263
292	11/22/99 20:37	-3.861	-3.844	7.954	8.281	9.111	9.263
293	11/22/99 20:38	-3.861	-3.844	7.958	8.281	9.111	9.259
294	11/22/99 20:39	-3.861	-3.844	7.958	8.281	9.111	9.259
295	11/22/99 20:40	-3.861	-3.844	7.962	8.285	9.111	9.263
296	11/22/99 20:41	-3.861	-3.844	7.962	8.285	9.111	9.259
297	11/22/99 20:42	-3.861	-3.844	7.962	8.285	9.111	9.259
298	11/22/99 20:43	-3.861	-3.844	7.962	8.285	9.111	9.259
299	11/22/99 20:44	-3.861	-3.844	7.962	8.285	9.111	9.259
300	11/22/99 20:45	-3.861	-3.844	7.966	8.289	9.111	9.259
301	11/22/99 20:46	-3.861	-3.844	7.966	8.289	9.111	9.259
302	11/22/99 20:47	-3.861	-3.844	7.966	8.289	9.111	9.259
303	11/22/99 20:48	-3.861	-3.844	7.966	8.293	9.111	9.259
304	11/22/99 20:49	-3.861	-3.844	7.97	8.293	9.111	9.259
305	11/22/99 20:50	-3.893	-3.844	7.97	8.293	9.111	9.259
306	11/22/99 20:51	-3.893	-3.844	7.97	8.297	9.111	9.259
307	11/22/99 20:52	-3.893	-3.844	7.974	8.297	9.111	9.259
308	11/22/99 20:53	-3.893	-3.844	7.974	8.297	9.111	9.259
309	11/22/99 20:54	-3.893	-3.844	7.974	8.297	9.111	9.259
310	11/22/99 20:55	-3.893	-3.844	7.974	8.301	9.111	9.259
311	11/22/99 20:56	-3.893	-3.844	7.978	8.301	9.111	9.259
312	11/22/99 20:57	-3.893	-3.844	7.978	8.301	9.111	9.259
313	11/22/99 20:58	-3.893	-3.922	7.978	8.305	9.111	9.259
314	11/22/99 20:59	-3.893	-3.844	7.982	8.305	9.111	9.255
315	11/22/99 21:00	-3.893	-3.922	7.982	8.305	9.111	9.259
316	11/22/99 21:01	-3.893	-3.922	7.986	8.309	9.111	9.259
317	11/22/99 21:02	-3.925	-3.922	7.986	8.309	9.111	9.259
318	11/22/99 21:03	-3.925	-3.922	7.986	8.309	9.111	9.259
319	11/22/99 21:04	-3.925	-3.922	7.986	8.309	9.111	9.255
320	11/22/99 21:05	-3.925	-3.922	7.99	8.313	9.111	9.255
321	11/22/99 21:06	-3.925	-3.922	7.99	8.313	9.111	9.255
322	11/22/99 21:07	-3.925	-3.922	7.99	8.313	9.111	9.255
323	11/22/99 21:08	-3.925	-3.922	7.99	8.313	9.111	9.255
324	11/22/99 21:09	-3.925	-3.922	7.99	8.317	9.111	9.255
325	11/22/99 21:10	-3.925	-3.922	7.995	8.317	9.111	9.255
326	11/22/99 21:11	-3.925	-3.922	7.995	8.322	9.111	9.255
327	11/22/99 21:12	-3.925	-3.922	7.995	8.317	9.111	9.255
328	11/22/99 21:13	-3.925	-3.922	7.999	8.322	9.111	9.255
329	11/22/99 21:14	-3.925	-3.922	7.999	8.322	9.111	9.255
330	11/22/99 21:15	-3.925	-3.922	7.999	8.322	9.111	9.255
331	11/22/99 21:16	-3.925	-3.922	8.003	8.326	9.111	9.255
332	11/22/99 21:17	-3.925	-3.922	8.003	8.326	9.111	9.255
333	11/22/99 21:18	-3.925	-3.922	8.003	8.326	9.111	9.255
334	11/22/99 21:19	-3.925	-3.922	8.003	8.326	9.111	9.255
335	11/22/99 21:20	-3.956	-3.922	8.007	8.33	9.111	9.255

336	11/22/99 21:21	-3.956	-3.922	8.007	8.33	9.111	9.255
337	11/22/99 21:22	-3.956	-3.922	8.007	8.33	9.111	9.255
338	11/22/99 21:23	-3.956	-3.922	8.007	8.33	9.111	9.255
339	11/22/99 21:24	-3.956	-3.922	8.007	8.33	9.111	9.255
340	11/22/99 21:25	-3.956	-3.922	8.011	8.334	9.111	9.255
341	11/22/99 21:26	-3.956	-3.922	8.011	8.334	9.111	9.255
342	11/22/99 21:27	-3.956	-3.922	8.011	8.334	9.111	9.255
343	11/22/99 21:28	-3.956	-3.922	8.011	8.334	9.111	9.255
344	11/22/99 21:29	-3.956	-3.922	8.011	8.338	9.111	9.255
345	11/22/99 21:30	-3.956	-3.922	8.011	8.338	9.111	9.255
346	11/22/99 21:31	-3.956	-3.922	8.011	8.334	9.111	9.255
347	11/22/99 21:32	-3.956	-3.922	8.015	8.338	9.111	9.255
348	11/22/99 21:33	-3.956	-3.922	8.015	8.338	9.111	9.255
349	11/22/99 21:34	-3.956	-3.922	8.011	8.334	9.111	9.255
350	11/22/99 21:35	-3.956	-3.922	8.011	8.334	9.111	9.255
351	11/22/99 21:36	-3.956	-3.922	8.011	8.334	9.111	9.255
352	11/22/99 21:37	-3.956	-3.922	8.011	8.334	9.111	9.255
353	11/22/99 21:38	-3.956	-3.922	8.011	8.338	9.111	9.255
354	11/22/99 21:39	-3.956	-3.922	8.011	8.334	9.111	9.251
355	11/22/99 21:40	-3.956	-3.922	8.011	8.338	9.111	9.251
356	11/22/99 21:41	-3.956	-3.922	8.015	8.338	9.111	9.251
357	11/22/99 21:42	-3.956	-3.922	8.015	8.338	9.111	9.255
358	11/22/99 21:43	-3.956	-3.922	8.015	8.338	9.111	9.255
359	11/22/99 21:44	-3.956	-3.922	8.015	8.338	9.111	9.251
360	11/22/99 21:45	-3.956	-3.922	8.015	8.338	9.111	9.255
361	11/22/99 21:46	-3.956	-3.922	8.015	8.338	9.111	9.255
362	11/22/99 21:47	-3.956	-3.922	8.015	8.338	9.111	9.255
363	11/22/99 21:48	-3.956	-3.922	8.015	8.338	9.111	9.255
364	11/22/99 21:49	-3.956	-3.922	8.015	8.338	9.111	9.251
365	11/22/99 21:50	-3.956	-3.922	8.015	8.338	9.111	9.255
366	11/22/99 21:51	-3.956	-3.922	8.015	8.338	9.111	9.251
367	11/22/99 21:52	-3.988	-3.922	8.015	8.338	9.111	9.251
368	11/22/99 21:53	-3.988	-3.922	8.015	8.338	9.111	9.251
369	11/22/99 21:54	-3.988	-4.001	8.015	8.338	9.111	9.251
370	11/22/99 21:55	-3.956	-4.001	8.015	8.338	9.111	9.251
371	11/22/99 21:56	-3.956	-3.922	8.015	8.338	9.111	9.251
372	11/22/99 21:57	-3.956	-3.922	8.015	8.338	9.111	9.251
373	11/22/99 21:58	-3.988	-3.922	8.015	8.338	9.111	9.251
374	11/22/99 21:59	-3.956	-3.922	8.015	8.338	9.111	9.251
375	11/22/99 22:00	-3.988	-3.922	8.015	8.338	9.111	9.251
376	11/22/99 22:01	-3.988	-3.922	8.015	8.338	9.111	9.251
377	11/22/99 22:02	-3.988	-3.922	8.015	8.338	9.111	9.251
378	11/22/99 22:03	-3.956	-3.922	8.015	8.338	9.111	9.251
379	11/22/99 22:04	-3.956	-3.922	8.015	8.338	9.111	9.251
380	11/22/99 22:05	-3.956	-3.922	8.015	8.338	9.111	9.251
381	11/22/99 22:06	-3.988	-3.922	8.015	8.338	9.111	9.251
382	11/22/99 22:07	-3.956	-3.922	8.015	8.338	9.111	9.251
383	11/22/99 22:08	-3.988	-3.922	8.015	8.338	9.111	9.251
384	11/22/99 22:09	-3.988	-4.001	8.015	8.338	9.111	9.251
385	11/22/99 22:10	-3.988	-3.922	8.015	8.338	9.111	9.251
386	11/22/99 22:11	-3.988	-3.922	8.015	8.338	9.111	9.251

387	11/22/99 22:12	-3.988	-3.922	8.015	8.338	9.111	9.251
388	11/22/99 22:13	-3.988	-3.922	8.015	8.338	9.111	9.251
389	11/22/99 22:14	-3.988	-3.922	8.015	8.338	9.111	9.251
390	11/22/99 22:15	-3.988	-3.922	8.015	8.338	9.111	9.251
391	11/22/99 22:16	-3.988	-3.922	8.019	8.342	9.111	9.251
392	11/22/99 22:17	-3.988	-3.922	8.019	8.342	9.111	9.251
393	11/22/99 22:18	-3.956	-4.001	8.019	8.342	9.111	9.251
394	11/22/99 22:19	-3.988	-3.922	8.015	8.342	9.111	9.251
395	11/22/99 22:20	-3.988	-4.001	8.019	8.342	9.111	9.251
396	11/22/99 22:21	-3.988	-3.922	8.019	8.342	9.111	9.251
397	11/22/99 22:22	-3.988	-3.922	8.019	8.342	9.111	9.251
398	11/22/99 22:23	-3.988	-3.922	8.019	8.342	9.111	9.251
399	11/22/99 22:24	-3.988	-4.001	8.019	8.342	9.111	9.251
400	11/22/99 22:25	-3.988	-3.922	8.019	8.342	9.111	9.251
401	11/22/99 22:26	-3.988	-4.001	8.023	8.342	9.111	9.251
402	11/22/99 22:27	-3.988	-3.922	8.023	8.346	9.111	9.251
403	11/22/99 22:28	-3.988	-4.001	8.023	8.346	9.111	9.251
404	11/22/99 22:29	-3.988	-4.001	8.023	8.346	9.111	9.251
405	11/22/99 22:30	-3.988	-3.922	8.023	8.346	9.111	9.251
406	11/22/99 22:31	-3.988	-3.922	8.023	8.346	9.111	9.251
407	11/22/99 22:32	-3.988	-4.001	8.023	8.346	9.111	9.251
408	11/22/99 22:33	-3.988	-3.922	8.023	8.346	9.111	9.251
409	11/22/99 22:34	-3.988	-3.922	8.023	8.346	9.111	9.251
410	11/22/99 22:35	-3.988	-3.922	8.027	8.35	9.111	9.251
411	11/22/99 22:36	-3.988	-4.001	8.023	8.346	9.111	9.251
412	11/22/99 22:37	-3.988	-4.001	8.027	8.35	9.111	9.251
413	11/22/99 22:38	-3.988	-4.001	8.027	8.35	9.111	9.251
414	11/22/99 22:39	-3.988	-4.001	8.027	8.35	9.111	9.251
415	11/22/99 22:40	-3.988	-3.922	8.027	8.35	9.111	9.251
416	11/22/99 22:41	-3.988	-4.001	8.027	8.35	9.111	9.251
417	11/22/99 22:42	-3.988	-4.001	8.027	8.35	9.111	9.251
418	11/22/99 22:43	-3.988	-4.001	8.027	8.35	9.111	9.251
419	11/22/99 22:44	-3.988	-3.922	8.027	8.35	9.111	9.251
420	11/22/99 22:45	-3.988	-4.001	8.027	8.346	9.111	9.251
421	11/22/99 22:46	-3.988	-4.001	8.027	8.35	9.111	9.251
422	11/22/99 22:47	-3.988	-4.001	8.023	8.346	9.111	9.251
423	11/22/99 22:48	-3.988	-4.001	8.023	8.346	9.111	9.251
424	11/22/99 22:49	-3.988	-4.001	8.023	8.346	9.111	9.251
425	11/22/99 22:50	-3.988	-4.001	8.023	8.346	9.111	9.251
426	11/22/99 22:51	-3.988	-4.001	8.023	8.346	9.111	9.251
427	11/22/99 22:52	-3.988	-3.922	8.023	8.346	9.111	9.251
428	11/22/99 22:53	-3.988	-3.922	8.023	8.346	9.111	9.251
429	11/22/99 22:54	-3.988	-3.922	8.023	8.346	9.111	9.251
430	11/22/99 22:55	-3.988	-4.001	8.023	8.342	9.111	9.251
431	11/22/99 22:56	-3.988	-4.001	8.019	8.342	9.111	9.251
432	11/22/99 22:57	-3.988	-3.922	8.019	8.342	9.111	9.251
433	11/22/99 22:58	-3.988	-3.922	8.019	8.342	9.111	9.251
434	11/22/99 22:59	-3.988	-3.922	8.019	8.342	9.111	9.251
435	11/22/99 23:00	-3.988	-3.922	8.019	8.342	9.111	9.251
436	11/22/99 23:01	-3.988	-3.922	8.019	8.342	9.111	9.251
437	11/22/99 23:02	-3.988	-3.922	8.019	8.342	9.111	9.251

438	11/22/99 23:03	-3.988	-4.001	8.019	8.342	9.111	9.251
439	11/22/99 23:04	-3.988	-3.922	8.019	8.342	9.111	9.251
440	11/22/99 23:05	-3.988	-3.922	8.019	8.342	9.111	9.251
441	11/22/99 23:06	-3.988	-3.922	8.019	8.342	9.111	9.251
442	11/22/99 23:07	-3.988	-3.922	8.019	8.342	9.111	9.251
443	11/22/99 23:08	-3.988	-3.922	8.019	8.342	9.111	9.251
444	11/22/99 23:09	-3.988	-3.922	8.019	8.342	9.111	9.251
445	11/22/99 23:10	-3.988	-3.922	8.019	8.342	9.111	9.255
446	11/22/99 23:11	-3.988	-3.922	8.019	8.342	9.111	9.251
447	11/22/99 23:12	-3.988	-3.922	8.019	8.342	9.111	9.255
448	11/22/99 23:13	-3.988	-3.922	8.019	8.342	9.111	9.255
449	11/22/99 23:14	-3.988	-3.922	8.019	8.342	9.111	9.251
450	11/22/99 23:15	-3.988	-3.922	8.019	8.342	9.111	9.251
451	11/22/99 23:16	-3.988	-3.922	8.019	8.342	9.111	9.255
452	11/22/99 23:17	-3.988	-4.001	8.019	8.342	9.111	9.251
453	11/22/99 23:18	-3.988	-3.922	8.019	8.342	9.111	9.255
454	11/22/99 23:19	-3.988	-3.922	8.019	8.342	9.111	9.255
455	11/22/99 23:20	-3.988	-3.922	8.019	8.342	9.111	9.255
456	11/22/99 23:21	-3.988	-4.001	8.019	8.342	9.111	9.255
457	11/22/99 23:22	-3.988	-3.922	8.023	8.346	9.111	9.255
458	11/22/99 23:23	-3.988	-3.922	8.019	8.342	9.111	9.255
459	11/22/99 23:24	-3.988	-4.001	8.019	8.342	9.111	9.255
460	11/22/99 23:25	-3.988	-4.001	8.019	8.342	9.111	9.255
461	11/22/99 23:26	-3.988	-3.922	8.019	8.342	9.111	9.255
462	11/22/99 23:27	-3.988	-4.001	8.019	8.342	9.111	9.255
463	11/22/99 23:28	-3.988	-3.922	8.019	8.342	9.111	9.255
464	11/22/99 23:29	-3.988	-3.922	8.019	8.342	9.111	9.255
465	11/22/99 23:30	-3.988	-4.001	8.019	8.342	9.111	9.255
466	11/22/99 23:31	-3.988	-3.922	8.023	8.342	9.111	9.255
467	11/22/99 23:32	-3.988	-4.001	8.023	8.342	9.111	9.255
468	11/22/99 23:33	-3.988	-4.001	8.023	8.346	9.111	9.255
469	11/22/99 23:34	-3.988	-3.922	8.023	8.346	9.145	9.255
470	11/22/99 23:35	-3.988	-4.001	8.023	8.346	9.111	9.255
471	11/22/99 23:36	-3.988	-3.922	8.023	8.346	9.111	9.255
472	11/22/99 23:37	-3.988	-4.001	8.023	8.346	9.111	9.255
473	11/22/99 23:38	-3.988	-3.922	8.023	8.346	9.111	9.255
474	11/22/99 23:39	-3.988	-3.922	8.023	8.346	9.111	9.255
475	11/22/99 23:40	-3.988	-3.922	8.023	8.346	9.111	9.255
476	11/22/99 23:41	-3.988	-4.001	8.023	8.346	9.111	9.255
477	11/22/99 23:42	-3.988	-4.001	8.023	8.346	9.111	9.255
478	11/22/99 23:43	-3.988	-4.001	8.023	8.346	9.111	9.255
479	11/22/99 23:44	-3.988	-3.922	8.023	8.346	9.111	9.255
480	11/22/99 23:45	-3.988	-4.001	8.023	8.346	9.145	9.255
481	11/22/99 23:46	-3.988	-4.001	8.023	8.346	9.111	9.259
482	11/22/99 23:47	-3.988	-3.922	8.023	8.346	9.111	9.259
483	11/22/99 23:48	-3.988	-3.922	8.023	8.346	9.111	9.259
484	11/22/99 23:49	-3.988	-4.001	8.023	8.346	9.111	9.259
485	11/22/99 23:50	-3.988	-4.001	8.023	8.346	9.111	9.259
486	11/22/99 23:51	-3.988	-4.001	8.023	8.346	9.145	9.259
487	11/22/99 23:52	-3.988	-3.922	8.023	8.346	9.111	9.259
488	11/22/99 23:53	-3.988	-4.001	8.027	8.35	9.145	9.259

489	11/22/99 23:54	-3.988	-4.001	8.027	8.346	9.111	9.259
490	11/22/99 23:55	-3.988	-3.922	8.023	8.346	9.111	9.259
491	11/22/99 23:56	-3.988	-3.922	8.027	8.35	9.145	9.259
492	11/22/99 23:57	-3.988	-3.922	8.023	8.346	9.111	9.259
493	11/22/99 23:58	-3.988	-4.001	8.023	8.346	9.145	9.259
494	11/22/99 23:59	-3.988	-3.922	8.027	8.35	9.145	9.259
495	11/23/99 0:00	-3.988	-3.922	8.027	8.35	9.145	9.259
496	11/23/99 0:01	-3.988	-4.001	8.027	8.35	9.145	9.259
497	11/23/99 0:02	-3.988	-4.001	8.027	8.35	9.145	9.259
498	11/23/99 0:03	-3.988	-4.001	8.027	8.35	9.145	9.259
499	11/23/99 0:04	-3.988	-3.922	8.027	8.35	9.111	9.259
500	11/23/99 0:05	-3.988	-4.001	8.027	8.35	9.145	9.259
501	11/23/99 0:06	-3.988	-4.001	8.027	8.35	9.145	9.259
502	11/23/99 0:07	-3.988	-3.922	8.027	8.35	9.145	9.259
503	11/23/99 0:08	-3.988	-4.001	8.027	8.35	9.145	9.259
504	11/23/99 0:09	-3.988	-4.001	8.027	8.35	9.145	9.259
505	11/23/99 0:10	-3.988	-4.001	8.027	8.35	9.145	9.259
506	11/23/99 0:11	-3.988	-4.001	8.031	8.354	9.145	9.259
507	11/23/99 0:12	-3.988	-4.001	8.031	8.354	9.145	9.259
508	11/23/99 0:13	-3.988	-4.001	8.031	8.354	9.145	9.263
509	11/23/99 0:14	-3.988	-4.001	8.031	8.354	9.145	9.263
510	11/23/99 0:15	-3.988	-4.001	8.031	8.354	9.145	9.259
511	11/23/99 0:16	-4.02	-4.001	8.031	8.354	9.145	9.263
512	11/23/99 0:17	-4.02	-4.001	8.031	8.354	9.145	9.263
513	11/23/99 0:18	-3.988	-4.001	8.035	8.354	9.145	9.263
514	11/23/99 0:19	-4.02	-4.001	8.031	8.354	9.145	9.263
515	11/23/99 0:20	-3.988	-4.001	8.035	8.354	9.145	9.263
516	11/23/99 0:21	-3.988	-4.001	8.035	8.358	9.145	9.263
517	11/23/99 0:22	-3.988	-4.001	8.035	8.358	9.145	9.263
518	11/23/99 0:23	-4.02	-4.001	8.035	8.358	9.145	9.263
519	11/23/99 0:24	-4.02	-4.001	8.035	8.358	9.145	9.263
520	11/23/99 0:25	-4.02	-4.001	8.035	8.358	9.145	9.263
521	11/23/99 0:26	-4.02	-4.001	8.035	8.358	9.145	9.263
522	11/23/99 0:27	-4.02	-4.001	8.04	8.358	9.145	9.263
523	11/23/99 0:28	-4.02	-4.001	8.04	8.362	9.145	9.263
524	11/23/99 0:29	-4.02	-4.001	8.04	8.362	9.145	9.263
525	11/23/99 0:30	-4.02	-4.001	8.04	8.362	9.145	9.263
526	11/23/99 0:31	-4.02	-4.001	8.04	8.362	9.145	9.263
527	11/23/99 0:32	-4.02	-4.001	8.04	8.362	9.145	9.263
528	11/23/99 0:33	-4.02	-4.001	8.044	8.362	9.145	9.263
529	11/23/99 0:34	-4.02	-4.001	8.044	8.366	9.145	9.263
530	11/23/99 0:35	-4.02	-4.001	8.044	8.366	9.145	9.263
531	11/23/99 0:36	-4.02	-4.001	8.044	8.362	9.145	9.263
532	11/23/99 0:37	-4.02	-4.001	8.044	8.366	9.145	9.263
533	11/23/99 0:38	-4.02	-4.001	8.044	8.366	9.145	9.263
534	11/23/99 0:39	-4.02	-4.001	8.044	8.366	9.145	9.263
535	11/23/99 0:40	-4.02	-4.001	8.048	8.366	9.145	9.263
536	11/23/99 0:41	-4.02	-4.001	8.048	8.366	9.145	9.263
537	11/23/99 0:42	-4.02	-4.001	8.048	8.366	9.145	9.263
538	11/23/99 0:43	-4.02	-4.001	8.048	8.371	9.145	9.268
539	11/23/99 0:44	-4.02	-4.001	8.048	8.371	9.145	9.263

540	11/23/99 0:45	-4.02	-4.001	8.048	8.371	9.145	9.268
541	11/23/99 0:46	-4.02	-4.001	8.048	8.371	9.145	9.263
542	11/23/99 0:47	-4.02	-4.001	8.048	8.371	9.145	9.263
543	11/23/99 0:48	-4.02	-4.001	8.048	8.371	9.145	9.268
544	11/23/99 0:49	-4.02	-4.001	8.048	8.371	9.145	9.268
545	11/23/99 0:50	-4.02	-4.001	8.048	8.371	9.145	9.268
546	11/23/99 0:51	-4.02	-4.001	8.048	8.371	9.145	9.268
547	11/23/99 0:52	-4.02	-4.001	8.052	8.375	9.145	9.268
548	11/23/99 0:53	-4.02	-4.001	8.052	8.371	9.145	9.268
549	11/23/99 0:54	-4.02	-4.001	8.052	8.375	9.145	9.268
550	11/23/99 0:55	-4.02	-4.001	8.052	8.375	9.145	9.268
551	11/23/99 0:56	-4.02	-4.001	8.052	8.375	9.145	9.268
552	11/23/99 0:57	-4.02	-4.001	8.052	8.375	9.145	9.268
553	11/23/99 0:58	-4.02	-4.001	8.052	8.375	9.145	9.268
554	11/23/99 0:59	-4.02	-4.001	8.052	8.375	9.145	9.268
555	11/23/99 1:00	-4.02	-4.001	8.052	8.375	9.145	9.268
556	11/23/99 1:01	-4.02	-4.001	8.052	8.375	9.145	9.268
557	11/23/99 1:02	-4.02	-4.001	8.052	8.375	9.145	9.268
558	11/23/99 1:03	-4.02	-4.001	8.052	8.375	9.145	9.272
559	11/23/99 1:04	-4.02	-4.001	8.052	8.375	9.145	9.272
560	11/23/99 1:05	-4.051	-4.001	8.052	8.375	9.145	9.272
561	11/23/99 1:06	-4.02	-4.001	8.052	8.375	9.145	9.272
562	11/23/99 1:07	-4.02	-4.001	8.052	8.375	9.145	9.268
563	11/23/99 1:08	-4.051	-4.001	8.052	8.375	9.145	9.268
564	11/23/99 1:09	-4.02	-4.001	8.052	8.375	9.145	9.268
565	11/23/99 1:10	-4.051	-4.001	8.052	8.375	9.145	9.272
566	11/23/99 1:11	-4.02	-4.001	8.052	8.375	9.145	9.272
567	11/23/99 1:12	-4.02	-4.001	8.052	8.375	9.145	9.272
568	11/23/99 1:13	-4.051	-4.001	8.052	8.375	9.145	9.272
569	11/23/99 1:14	-4.02	-4.001	8.052	8.375	9.145	9.272
570	11/23/99 1:15	-4.02	-4.001	8.052	8.375	9.145	9.272
571	11/23/99 1:16	-4.02	-4.001	8.052	8.375	9.145	9.272
572	11/23/99 1:17	-4.051	-4.001	8.052	8.375	9.145	9.272
573	11/23/99 1:18	-4.02	-4.001	8.052	8.375	9.145	9.272
574	11/23/99 1:19	-4.02	-4.001	8.052	8.375	9.145	9.272
575	11/23/99 1:20	-4.051	-4.001	8.052	8.375	9.145	9.272
576	11/23/99 1:21	-4.02	-4.001	8.052	8.375	9.145	9.272
577	11/23/99 1:22	-4.02	-4.001	8.052	8.375	9.145	9.272
578	11/23/99 1:23	-4.02	-4.001	8.052	8.375	9.145	9.272
579	11/23/99 1:24	-4.02	-4.001	8.052	8.375	9.145	9.272
580	11/23/99 1:25	-4.02	-4.001	8.052	8.375	9.145	9.272
581	11/23/99 1:26	-4.02	-4.001	8.056	8.375	9.178	9.272
582	11/23/99 1:27	-4.02	-4.001	8.056	8.375	9.145	9.272
583	11/23/99 1:28	-4.02	-4.001	8.056	8.375	9.145	9.272
584	11/23/99 1:29	-4.02	-4.001	8.052	8.375	9.145	9.272
585	11/23/99 1:30	-4.051	-4.001	8.056	8.375	9.178	9.272
586	11/23/99 1:31	-4.02	-4.001	8.056	8.379	9.145	9.272
587	11/23/99 1:32	-4.02	-4.001	8.056	8.375	9.178	9.272
588	11/23/99 1:33	-4.02	-4.001	8.056	8.375	9.145	9.272
589	11/23/99 1:34	-4.02	-4.001	8.056	8.375	9.145	9.272
590	11/23/99 1:35	-4.02	-4.001	8.056	8.379	9.145	9.272

591	11/23/99 1:36	-4.051	-4.001	8.056	8.379	9.178	9.272
592	11/23/99 1:37	-4.02	-4.001	8.056	8.379	9.178	9.272
593	11/23/99 1:38	-4.051	-4.001	8.056	8.379	9.145	9.276
594	11/23/99 1:39	-4.051	-4.001	8.056	8.379	9.145	9.276
595	11/23/99 1:40	-4.051	-4.001	8.056	8.375	9.178	9.276
596	11/23/99 1:41	-4.02	-4.001	7.97	8.289	9.178	9.276
597	11/23/99 1:42	-3.956	-3.922	7.88	8.199	9.178	9.276
598	11/23/99 1:43	-3.861	-3.844	7.827	8.146	9.178	9.276
599	11/23/99 1:44	-3.798	-3.765	7.814	8.134	9.178	9.28
600	11/23/99 1:45	-3.735	-3.687	7.761	8.081	9.178	9.28
601	11/23/99 1:46	-3.671	-3.687	7.716	8.036	9.178	9.28
602	11/23/99 1:47	-3.64	-3.608	7.757	8.072	9.178	9.28
603	11/23/99 1:48	-3.671	-3.608	7.806	8.126	9.178	9.28
604	11/23/99 1:49	-3.671	-3.687	7.847	8.166	9.178	9.28
605	11/23/99 1:50	-3.703	-3.687	7.876	8.199	9.178	9.28
606	11/23/99 1:51	-3.735	-3.687	7.904	8.228	9.178	9.276
607	11/23/99 1:52	-3.766	-3.765	7.929	8.248	9.178	9.276
608	11/23/99 1:53	-3.798	-3.765	7.949	8.268	9.178	9.276
609	11/23/99 1:54	-3.798	-3.765	7.966	8.285	9.178	9.276
610	11/23/99 1:55	-3.83	-3.844	7.982	8.301	9.178	9.276
611	11/23/99 1:56	-3.861	-3.844	7.995	8.317	9.178	9.276
612	11/23/99 1:57	-3.893	-3.844	8.007	8.33	9.178	9.276
613	11/23/99 1:58	-3.893	-3.844	8.019	8.342	9.178	9.276
614	11/23/99 1:59	-3.925	-3.844	8.027	8.35	9.178	9.276
615	11/23/99 2:00	-3.925	-3.922	8.04	8.358	9.178	9.276
616	11/23/99 2:01	-3.956	-3.922	8.048	8.371	9.178	9.28
617	11/23/99 2:02	-3.956	-3.922	8.056	8.375	9.178	9.28
618	11/23/99 2:03	-3.988	-3.922	8.064	8.383	9.178	9.28
619	11/23/99 2:04	-3.988	-4.001	8.072	8.391	9.178	9.28
620	11/23/99 2:05	-4.02	-4.001	8.076	8.399	9.178	9.28
621	11/23/99 2:06	-4.02	-4.001	8.085	8.407	9.178	9.28
622	11/23/99 2:07	-4.02	-4.001	8.089	8.411	9.178	9.28
623	11/23/99 2:08	-4.051	-4.001	8.093	8.415	9.178	9.28
624	11/23/99 2:09	-4.051	-4.001	8.101	8.424	9.178	9.28
625	11/23/99 2:10	-4.051	-4.001	8.105	8.428	9.178	9.28
626	11/23/99 2:11	-4.083	-4.079	8.109	8.432	9.178	9.28
627	11/23/99 2:12	-4.083	-4.079	8.113	8.436	9.178	9.28
628	11/23/99 2:13	-4.083	-4.079	8.117	8.44	9.178	9.28
629	11/23/99 2:14	-4.115	-4.079	8.121	8.444	9.178	9.28
630	11/23/99 2:15	-4.115	-4.079	8.126	8.448	9.178	9.28
631	11/23/99 2:16	-4.115	-4.079	8.13	8.452	9.178	9.28
632	11/23/99 2:17	-4.115	-4.079	8.134	8.456	9.178	9.28
633	11/23/99 2:18	-4.115	-4.079	8.138	8.46	9.178	9.28
634	11/23/99 2:19	-4.146	-4.079	8.142	8.464	9.178	9.28
635	11/23/99 2:20	-4.146	-4.079	8.146	8.469	9.178	9.28
636	11/23/99 2:21	-4.146	-4.158	8.146	8.469	9.178	9.28
637	11/23/99 2:22	-4.146	-4.158	8.15	8.473	9.178	9.284
638	11/23/99 2:23	-4.146	-4.158	8.154	8.477	9.178	9.28
639	11/23/99 2:24	-4.178	-4.158	8.154	8.477	9.178	9.284
640	11/23/99 2:25	-4.178	-4.158	8.158	8.481	9.178	9.284
641	11/23/99 2:26	-4.178	-4.158	8.162	8.481	9.178	9.284

642	11/23/99 2:27	-4.178	-4.158	8.162	8.485	9.178	9.284
643	11/23/99 2:28	-4.178	-4.158	8.167	8.489	9.178	9.284
644	11/23/99 2:29	-4.178	-4.158	8.171	8.489	9.178	9.284
645	11/23/99 2:30	-4.209	-4.158	8.171	8.493	9.178	9.284
646	11/23/99 2:31	-4.209	-4.158	8.175	8.493	9.178	9.284
647	11/23/99 2:32	-4.209	-4.158	8.175	8.497	9.178	9.284
648	11/23/99 2:33	-4.209	-4.236	8.179	8.501	9.178	9.284
649	11/23/99 2:34	-4.209	-4.158	8.179	8.501	9.178	9.284
650	11/23/99 2:35	-4.209	-4.158	8.183	8.501	9.178	9.284
651	11/23/99 2:36	-4.209	-4.158	8.183	8.505	9.178	9.284
652	11/23/99 2:37	-4.241	-4.236	8.183	8.505	9.178	9.284
653	11/23/99 2:38	-4.241	-4.236	8.187	8.509	9.178	9.284
654	11/23/99 2:39	-4.241	-4.236	8.191	8.509	9.178	9.284
655	11/23/99 2:40	-4.241	-4.236	8.191	8.513	9.178	9.284
656	11/23/99 2:41	-4.241	-4.236	8.195	8.518	9.178	9.284
657	11/23/99 2:42	-4.241	-4.236	8.195	8.518	9.178	9.284
658	11/23/99 2:43	-4.241	-4.236	8.199	8.518	9.178	9.284
659	11/23/99 2:44	-4.241	-4.236	8.199	8.522	9.178	9.284
660	11/23/99 2:45	-4.273	-4.236	8.199	8.522	9.178	9.284
661	11/23/99 2:46	-4.273	-4.236	8.203	8.522	9.178	9.284
662	11/23/99 2:47	-4.273	-4.236	8.203	8.526	9.178	9.288
663	11/23/99 2:48	-4.273	-4.236	8.203	8.526	9.178	9.284
664	11/23/99 2:49	-4.273	-4.236	8.203	8.526	9.178	9.284
665	11/23/99 2:50	-4.273	-4.236	8.207	8.53	9.178	9.288
666	11/23/99 2:51	-4.273	-4.236	8.207	8.53	9.178	9.288
667	11/23/99 2:52	-4.273	-4.236	8.207	8.53	9.178	9.288
668	11/23/99 2:53	-4.273	-4.236	8.212	8.534	9.178	9.288
669	11/23/99 2:54	-4.273	-4.236	8.212	8.534	9.178	9.288
670	11/23/99 2:55	-4.304	-4.236	8.212	8.534	9.178	9.288
671	11/23/99 2:56	-4.304	-4.236	8.216	8.534	9.178	9.288
672	11/23/99 2:57	-4.304	-4.236	8.216	8.538	9.178	9.288
673	11/23/99 2:58	-4.304	-4.315	8.22	8.542	9.178	9.288
674	11/23/99 2:59	-4.304	-4.236	8.22	8.542	9.178	9.288
675	11/23/99 3:00	-4.304	-4.236	8.22	8.542	9.178	9.288
676	11/23/99 3:01	-4.304	-4.315	8.22	8.542	9.178	9.288
677	11/23/99 3:02	-4.304	-4.315	8.224	8.546	9.178	9.288
678	11/23/99 3:03	-4.304	-4.315	8.224	8.546	9.178	9.288
679	11/23/99 3:04	-4.304	-4.315	8.224	8.546	9.178	9.288
680	11/23/99 3:05	-4.304	-4.315	8.224	8.546	9.178	9.288
681	11/23/99 3:06	-4.304	-4.315	8.228	8.55	9.178	9.288
682	11/23/99 3:07	-4.304	-4.315	8.228	8.55	9.178	9.288
683	11/23/99 3:08	-4.304	-4.315	8.228	8.55	9.178	9.288
684	11/23/99 3:09	-4.336	-4.315	8.232	8.554	9.178	9.288
685	11/23/99 3:10	-4.336	-4.315	8.232	8.554	9.178	9.288
686	11/23/99 3:11	-4.336	-4.315	8.232	8.554	9.178	9.288
687	11/23/99 3:12	-4.336	-4.315	8.236	8.558	9.178	9.288
688	11/23/99 3:13	-4.336	-4.315	8.236	8.558	9.178	9.288
689	11/23/99 3:14	-4.336	-4.315	8.236	8.558	9.178	9.288
690	11/23/99 3:15	-4.336	-4.315	8.236	8.562	9.178	9.288
691	11/23/99 3:16	-4.336	-4.315	8.24	8.562	9.212	9.288
692	11/23/99 3:17	-4.336	-4.315	8.24	8.562	9.178	9.288

693	11/23/99 3:18	-4.336	-4.315	8.24	8.562	9.212	9.292
694	11/23/99 3:19	-4.336	-4.315	8.24	8.567	9.178	9.288
695	11/23/99 3:20	-4.336	-4.315	8.24	8.567	9.212	9.288
696	11/23/99 3:21	-4.336	-4.315	8.244	8.567	9.178	9.288
697	11/23/99 3:22	-4.336	-4.315	8.244	8.567	9.178	9.292
698	11/23/99 3:23	-4.336	-4.315	8.244	8.567	9.178	9.288
699	11/23/99 3:24	-4.368	-4.315	8.244	8.567	9.178	9.288
700	11/23/99 3:25	-4.368	-4.315	8.248	8.571	9.178	9.292
701	11/23/99 3:26	-4.368	-4.315	8.248	8.571	9.178	9.288
702	11/23/99 3:27	-4.368	-4.315	8.248	8.571	9.178	9.288
703	11/23/99 3:28	-4.368	-4.315	8.248	8.571	9.178	9.292
704	11/23/99 3:29	-4.368	-4.315	8.248	8.575	9.178	9.288
705	11/23/99 3:30	-4.368	-4.315	8.253	8.575	9.178	9.288
706	11/23/99 3:31	-4.368	-4.315	8.248	8.575	9.178	9.288
707	11/23/99 3:32	-4.368	-4.315	8.253	8.575	9.212	9.288
708	11/23/99 3:33	-4.368	-4.315	8.253	8.575	9.212	9.292
709	11/23/99 3:34	-4.368	-4.315	8.253	8.579	9.178	9.292
710	11/23/99 3:35	-4.368	-4.315	8.253	8.575	9.178	9.288
711	11/23/99 3:36	-4.368	-4.315	8.257	8.579	9.212	9.292
712	11/23/99 3:37	-4.368	-4.315	8.257	8.579	9.212	9.292
713	11/23/99 3:38	-4.368	-4.393	8.257	8.579	9.212	9.288
714	11/23/99 3:39	-4.368	-4.393	8.257	8.579	9.212	9.292
715	11/23/99 3:40	-4.368	-4.393	8.261	8.583	9.178	9.292
716	11/23/99 3:41	-4.368	-4.315	8.261	8.583	9.212	9.292
717	11/23/99 3:42	-4.399	-4.393	8.261	8.583	9.212	9.292
718	11/23/99 3:43	-4.368	-4.315	8.261	8.583	9.212	9.292
719	11/23/99 3:44	-4.399	-4.393	8.261	8.583	9.212	9.292
720	11/23/99 3:45	-4.399	-4.393	8.261	8.583	9.178	9.292
721	11/23/99 3:46	-4.399	-4.393	8.265	8.587	9.212	9.292
722	11/23/99 3:47	-4.399	-4.393	8.265	8.587	9.212	9.292
723	11/23/99 3:48	-4.399	-4.393	8.261	8.587	9.178	9.292
724	11/23/99 3:49	-4.399	-4.315	8.265	8.587	9.178	9.292
725	11/23/99 3:50	-4.399	-4.393	8.265	8.587	9.212	9.292
726	11/23/99 3:51	-4.399	-4.393	8.265	8.587	9.212	9.292
727	11/23/99 3:52	-4.399	-4.393	8.265	8.587	9.212	9.292
728	11/23/99 3:53	-4.399	-4.393	8.265	8.587	9.212	9.292
729	11/23/99 3:54	-4.399	-4.393	8.269	8.591	9.212	9.292
730	11/23/99 3:55	-4.399	-4.393	8.269	8.591	9.212	9.292
731	11/23/99 3:56	-4.399	-4.393	8.269	8.591	9.212	9.292
732	11/23/99 3:57	-4.399	-4.393	8.269	8.591	9.212	9.292
733	11/23/99 3:58	-4.399	-4.393	8.269	8.591	9.212	9.292
734	11/23/99 3:59	-4.399	-4.393	8.269	8.591	9.212	9.292
735	11/23/99 4:00	-4.399	-4.393	8.269	8.591	9.212	9.292
736	11/23/99 4:01	-4.399	-4.393	8.269	8.591	9.212	9.292
737	11/23/99 4:02	-4.399	-4.393	8.269	8.591	9.212	9.292
738	11/23/99 4:03	-4.399	-4.393	8.269	8.591	9.212	9.292
739	11/23/99 4:04	-4.399	-4.393	8.265	8.591	9.212	9.292
740	11/23/99 4:05	-4.399	-4.393	8.269	8.591	9.212	9.292
741	11/23/99 4:06	-4.399	-4.393	8.269	8.591	9.212	9.292
742	11/23/99 4:07	-4.399	-4.393	8.269	8.591	9.212	9.292
743	11/23/99 4:08	-4.399	-4.393	8.269	8.591	9.212	9.292

744	11/23/99 4:09	-4.399	-4.393	8.269	8.591	9.212	9.292
745	11/23/99 4:10	-4.399	-4.393	8.269	8.591	9.212	9.292
746	11/23/99 4:11	-4.399	-4.393	8.273	8.595	9.212	9.292
747	11/23/99 4:12	-4.399	-4.393	8.273	8.595	9.212	9.292
748	11/23/99 4:13	-4.399	-4.393	8.273	8.595	9.212	9.292
749	11/23/99 4:14	-4.399	-4.393	8.273	8.595	9.212	9.292
750	11/23/99 4:15	-4.399	-4.393	8.273	8.595	9.212	9.296
751	11/23/99 4:16	-4.399	-4.393	8.273	8.595	9.212	9.292
752	11/23/99 4:17	-4.399	-4.393	8.273	8.595	9.212	9.292
753	11/23/99 4:18	-4.399	-4.393	8.273	8.595	9.212	9.292
754	11/23/99 4:19	-4.399	-4.393	8.273	8.595	9.212	9.292
755	11/23/99 4:20	-4.399	-4.393	8.273	8.595	9.212	9.292
756	11/23/99 4:21	-4.399	-4.393	8.273	8.599	9.212	9.296
757	11/23/99 4:22	-4.399	-4.393	8.273	8.595	9.212	9.292
758	11/23/99 4:23	-4.399	-4.393	8.273	8.595	9.212	9.292
759	11/23/99 4:24	-4.399	-4.393	8.273	8.595	9.212	9.292
760	11/23/99 4:25	-4.399	-4.393	8.273	8.599	9.212	9.292
761	11/23/99 4:26	-4.399	-4.393	8.277	8.599	9.212	9.292
762	11/23/99 4:27	-4.399	-4.393	8.277	8.599	9.212	9.292
763	11/23/99 4:28	-4.431	-4.393	8.277	8.599	9.212	9.292
764	11/23/99 4:29	-4.431	-4.393	8.277	8.599	9.212	9.292
765	11/23/99 4:30	-4.431	-4.393	8.277	8.599	9.212	9.292
766	11/23/99 4:31	-4.431	-4.393	8.277	8.599	9.212	9.292
767	11/23/99 4:32	-4.431	-4.393	8.277	8.599	9.212	9.292
768	11/23/99 4:33	-4.431	-4.393	8.277	8.599	9.212	9.292
769	11/23/99 4:34	-4.431	-4.393	8.277	8.599	9.212	9.292
770	11/23/99 4:35	-4.431	-4.393	8.277	8.599	9.212	9.292
771	11/23/99 4:36	-4.431	-4.393	8.277	8.599	9.212	9.292
772	11/23/99 4:37	-4.431	-4.393	8.277	8.599	9.212	9.292
773	11/23/99 4:38	-4.431	-4.393	8.281	8.603	9.212	9.292
774	11/23/99 4:39	-4.431	-4.393	8.281	8.603	9.212	9.292
775	11/23/99 4:40	-4.431	-4.393	8.281	8.603	9.212	9.292
776	11/23/99 4:41	-4.431	-4.393	8.281	8.603	9.212	9.292
777	11/23/99 4:42	-4.431	-4.393	8.281	8.603	9.212	9.292
778	11/23/99 4:43	-4.431	-4.393	8.281	8.603	9.212	9.292
779	11/23/99 4:44	-4.431	-4.393	8.281	8.603	9.212	9.292
780	11/23/99 4:45	-4.431	-4.393	8.281	8.603	9.212	9.292
781	11/23/99 4:46	-4.431	-4.393	8.281	8.603	9.212	9.296
782	11/23/99 4:47	-4.431	-4.393	8.281	8.603	9.212	9.292
783	11/23/99 4:48	-4.431	-4.393	8.281	8.603	9.212	9.292
784	11/23/99 4:49	-4.431	-4.393	8.277	8.603	9.212	9.292
785	11/23/99 4:50	-4.431	-4.393	8.277	8.599	9.212	9.292
786	11/23/99 4:51	-4.431	-4.393	8.277	8.603	9.212	9.292
787	11/23/99 4:52	-4.431	-4.393	8.277	8.599	9.212	9.292
788	11/23/99 4:53	-4.431	-4.393	8.277	8.599	9.212	9.292
789	11/23/99 4:54	-4.431	-4.393	8.277	8.599	9.212	9.292
790	11/23/99 4:55	-4.431	-4.393	8.281	8.603	9.212	9.292
791	11/23/99 4:56	-4.431	-4.393	8.281	8.603	9.212	9.292
792	11/23/99 4:57	-4.431	-4.393	8.277	8.603	9.212	9.292
793	11/23/99 4:58	-4.431	-4.393	8.281	8.603	9.212	9.292
794	11/23/99 4:59	-4.431	-4.393	8.281	8.603	9.212	9.292

795	11/23/99 5:00	-4.431	-4.393	8.281	8.603	9.212	9.292
796	11/23/99 5:01	-4.431	-4.393	8.281	8.603	9.212	9.292
797	11/23/99 5:02	-4.431	-4.393	8.281	8.603	9.212	9.292
798	11/23/99 5:03	-4.431	-4.393	8.281	8.603	9.212	9.292
799	11/23/99 5:04	-4.431	-4.393	8.285	8.607	9.212	9.292
800	11/23/99 5:05	-4.431	-4.393	8.285	8.607	9.212	9.292
801	11/23/99 5:06	-4.431	-4.393	8.285	8.607	9.212	9.292
802	11/23/99 5:07	-4.431	-4.393	8.285	8.607	9.212	9.292
803	11/23/99 5:08	-4.431	-4.393	8.285	8.607	9.212	9.292
804	11/23/99 5:09	-4.431	-4.393	8.285	8.607	9.212	9.292
805	11/23/99 5:10	-4.431	-4.393	8.285	8.607	9.212	9.292
806	11/23/99 5:11	-4.431	-4.393	8.285	8.607	9.212	9.292
807	11/23/99 5:12	-4.431	-4.393	8.289	8.607	9.212	9.292
808	11/23/99 5:13	-4.431	-4.393	8.285	8.611	9.212	9.292
809	11/23/99 5:14	-4.431	-4.393	8.285	8.607	9.212	9.292
810	11/23/99 5:15	-4.431	-4.393	8.289	8.611	9.212	9.292
811	11/23/99 5:16	-4.431	-4.393	8.289	8.611	9.212	9.292
812	11/23/99 5:17	-4.431	-4.393	8.289	8.611	9.212	9.292
813	11/23/99 5:18	-4.431	-4.393	8.289	8.611	9.212	9.292
814	11/23/99 5:19	-4.431	-4.393	8.289	8.611	9.212	9.292
815	11/23/99 5:20	-4.431	-4.393	8.289	8.611	9.212	9.292
816	11/23/99 5:21	-4.431	-4.393	8.289	8.611	9.212	9.292
817	11/23/99 5:22	-4.431	-4.393	8.289	8.611	9.212	9.292
818	11/23/99 5:23	-4.431	-4.393	8.289	8.611	9.212	9.292
819	11/23/99 5:24	-4.431	-4.393	8.289	8.611	9.212	9.292
820	11/23/99 5:25	-4.431	-4.393	8.289	8.611	9.212	9.292
821	11/23/99 5:26	-4.431	-4.393	8.289	8.611	9.212	9.292
822	11/23/99 5:27	-4.431	-4.393	8.289	8.611	9.212	9.292
823	11/23/99 5:28	-4.431	-4.393	8.289	8.611	9.212	9.292
824	11/23/99 5:29	-4.431	-4.393	8.289	8.611	9.212	9.292
825	11/23/99 5:30	-4.431	-4.393	8.289	8.611	9.212	9.292
826	11/23/99 5:31	-4.431	-4.393	8.289	8.611	9.212	9.292
827	11/23/99 5:32	-4.431	-4.393	8.289	8.611	9.212	9.292
828	11/23/99 5:33	-4.431	-4.393	8.289	8.611	9.212	9.292
829	11/23/99 5:34	-4.431	-4.393	8.289	8.611	9.212	9.288
830	11/23/99 5:35	-4.431	-4.393	8.289	8.611	9.212	9.288
831	11/23/99 5:36	-4.431	-4.393	8.289	8.611	9.212	9.292
832	11/23/99 5:37	-4.431	-4.393	8.289	8.611	9.212	9.288
833	11/23/99 5:38	-4.431	-4.393	8.289	8.611	9.212	9.288
834	11/23/99 5:39	-4.431	-4.393	8.285	8.607	9.212	9.288
835	11/23/99 5:40	-4.431	-4.393	8.281	8.603	9.212	9.288
836	11/23/99 5:41	-4.431	-4.393	8.281	8.603	9.212	9.288
837	11/23/99 5:42	-4.431	-4.393	8.277	8.599	9.212	9.288
838	11/23/99 5:43	-4.431	-4.393	8.277	8.599	9.212	9.288
839	11/23/99 5:44	-4.431	-4.393	8.277	8.595	9.212	9.288
840	11/23/99 5:45	-4.431	-4.393	8.273	8.595	9.212	9.288
841	11/23/99 5:46	-4.431	-4.393	8.273	8.595	9.212	9.288
842	11/23/99 5:47	-4.399	-4.393	8.269	8.591	9.212	9.288
843	11/23/99 5:48	-4.399	-4.393	8.269	8.591	9.212	9.288
844	11/23/99 5:49	-4.399	-4.393	8.269	8.591	9.212	9.288
845	11/23/99 5:50	-4.399	-4.393	8.269	8.591	9.212	9.288

846	11/23/99 5:51	-4.399	-4.393	8.269	8.591	9.212	9.288
847	11/23/99 5:52	-4.399	-4.393	8.269	8.591	9.212	9.288
848	11/23/99 5:53	-4.399	-4.315	8.269	8.591	9.212	9.288
849	11/23/99 5:54	-4.399	-4.393	8.269	8.591	9.212	9.288
850	11/23/99 5:55	-4.399	-4.393	8.269	8.591	9.212	9.284
851	11/23/99 5:56	-4.399	-4.393	8.269	8.591	9.212	9.284
852	11/23/99 5:57	-4.399	-4.393	8.269	8.591	9.212	9.284
853	11/23/99 5:58	-4.399	-4.393	8.269	8.591	9.212	9.288
854	11/23/99 5:59	-4.399	-4.393	8.265	8.587	9.212	9.284
855	11/23/99 6:00	-4.399	-4.393	8.265	8.587	9.212	9.284
856	11/23/99 6:01	-4.399	-4.393	8.265	8.587	9.212	9.284
857	11/23/99 6:02	-4.399	-4.393	8.265	8.583	9.212	9.284
858	11/23/99 6:03	-4.399	-4.393	8.265	8.583	9.212	9.284
859	11/23/99 6:04	-4.399	-4.393	8.261	8.583	9.212	9.284
860	11/23/99 6:05	-4.399	-4.393	8.261	8.583	9.212	9.284
861	11/23/99 6:06	-4.399	-4.393	8.261	8.583	9.212	9.284
862	11/23/99 6:07	-4.399	-4.315	8.261	8.583	9.212	9.284
863	11/23/99 6:08	-4.368	-4.315	8.261	8.583	9.212	9.284
864	11/23/99 6:09	-4.368	-4.393	8.261	8.583	9.212	9.284
865	11/23/99 6:10	-4.399	-4.315	8.261	8.583	9.212	9.284
866	11/23/99 6:11	-4.399	-4.315	8.261	8.583	9.212	9.284
867	11/23/99 6:12	-4.399	-4.315	8.265	8.583	9.212	9.284
868	11/23/99 6:13	-4.368	-4.315	8.261	8.583	9.212	9.284
869	11/23/99 6:14	-4.368	-4.393	8.261	8.583	9.212	9.284
870	11/23/99 6:15	-4.368	-4.393	8.265	8.587	9.212	9.284
871	11/23/99 6:16	-4.368	-4.315	8.265	8.583	9.212	9.284
872	11/23/99 6:17	-4.368	-4.315	8.265	8.583	9.212	9.284
873	11/23/99 6:18	-4.368	-4.315	8.265	8.587	9.212	9.284
874	11/23/99 6:19	-4.368	-4.315	8.265	8.587	9.212	9.28
875	11/23/99 6:20	-4.368	-4.315	8.265	8.587	9.212	9.284
876	11/23/99 6:21	-4.368	-4.315	8.261	8.583	9.212	9.284
877	11/23/99 6:22	-4.368	-4.315	8.265	8.587	9.212	9.28
878	11/23/99 6:23	-4.368	-4.315	8.265	8.587	9.212	9.28
879	11/23/99 6:24	-4.368	-4.315	8.265	8.583	9.212	9.28
880	11/23/99 6:25	-4.368	-4.315	8.265	8.587	9.212	9.28
881	11/23/99 6:26	-4.368	-4.315	8.265	8.587	9.212	9.28
882	11/23/99 6:27	-4.368	-4.315	8.265	8.587	9.212	9.28
883	11/23/99 6:28	-4.368	-4.315	8.265	8.587	9.212	9.28
884	11/23/99 6:29	-4.368	-4.315	8.261	8.583	9.212	9.28
885	11/23/99 6:30	-4.368	-4.315	8.265	8.587	9.212	9.28
886	11/23/99 6:31	-4.368	-4.315	8.265	8.587	9.212	9.28
887	11/23/99 6:32	-4.368	-4.315	8.265	8.587	9.212	9.28
888	11/23/99 6:33	-4.368	-4.315	8.265	8.587	9.212	9.28
889	11/23/99 6:34	-4.368	-4.315	8.265	8.587	9.212	9.28
890	11/23/99 6:35	-4.368	-4.315	8.265	8.587	9.212	9.28
891	11/23/99 6:36	-4.368	-4.315	8.261	8.583	9.212	9.28
892	11/23/99 6:37	-4.368	-4.315	8.265	8.587	9.212	9.28
893	11/23/99 6:38	-4.368	-4.315	8.261	8.583	9.212	9.28
894	11/23/99 6:39	-4.368	-4.315	8.265	8.587	9.212	9.28
895	11/23/99 6:40	-4.368	-4.315	8.265	8.587	9.212	9.276
896	11/23/99 6:41	-4.368	-4.315	8.265	8.587	9.212	9.276

897	11/23/99 6:42	-4.368	-4.315	8.265	8.583	9.212	9.28
898	11/23/99 6:43	-4.399	-4.393	8.265	8.587	9.245	9.28
899	11/23/99 6:44	-4.399	-4.393	8.265	8.587	9.245	9.28
900	11/23/99 6:45	-4.399	-4.393	8.265	8.587	9.245	9.284
901	11/23/99 6:46	-4.368	-4.393	8.265	8.583	9.212	9.276
902	11/23/99 6:47	-4.368	-4.315	8.261	8.583	9.212	9.28
903	11/23/99 6:48	-4.368	-4.315	8.261	8.583	9.212	9.28
904	11/23/99 6:49	-4.368	-4.315	8.261	8.583	9.212	9.28
905	11/23/99 6:50	-4.368	-4.315	8.261	8.583	9.212	9.276
906	11/23/99 6:51	-4.368	-4.315	8.261	8.583	9.212	9.276
907	11/23/99 6:52	-4.368	-4.315	8.257	8.579	9.212	9.276
908	11/23/99 6:53	-4.368	-4.315	8.257	8.579	9.212	9.276
909	11/23/99 6:54	-4.368	-4.315	8.257	8.579	9.212	9.276
910	11/23/99 6:55	-4.368	-4.315	8.257	8.579	9.212	9.276
911	11/23/99 6:56	-4.368	-4.315	8.257	8.579	9.212	9.276
912	11/23/99 6:57	-4.368	-4.315	8.257	8.579	9.212	9.276
913	11/23/99 6:58	-4.336	-4.315	8.257	8.579	9.212	9.276
914	11/23/99 6:59	-4.368	-4.315	8.257	8.575	9.212	9.28
915	11/23/99 7:00	-4.368	-4.315	8.257	8.579	9.212	9.28
916	11/23/99 7:01	-4.368	-4.315	8.257	8.579	9.212	9.28
917	11/23/99 7:02	-4.368	-4.315	8.257	8.579	9.212	9.28
918	11/23/99 7:03	-4.336	-4.315	8.257	8.579	9.212	9.28
919	11/23/99 7:04	-4.336	-4.315	8.257	8.579	9.212	9.28
920	11/23/99 7:05	-4.336	-4.315	8.257	8.579	9.212	9.276
921	11/23/99 7:06	-4.336	-4.315	8.257	8.579	9.212	9.276
922	11/23/99 7:07	-4.336	-4.315	8.257	8.579	9.212	9.276
923	11/23/99 7:08	-4.336	-4.315	8.257	8.579	9.212	9.276
924	11/23/99 7:09	-4.336	-4.315	8.257	8.575	9.212	9.276
925	11/23/99 7:10	-4.336	-4.315	8.253	8.575	9.212	9.276
926	11/23/99 7:11	-4.336	-4.315	8.253	8.575	9.212	9.276
927	11/23/99 7:12	-4.336	-4.315	8.253	8.575	9.212	9.276
928	11/23/99 7:13	-4.336	-4.315	8.253	8.575	9.212	9.272
929	11/23/99 7:14	-4.336	-4.315	8.253	8.575	9.212	9.276
930	11/23/99 7:15	-4.336	-4.315	8.253	8.575	9.212	9.276
931	11/23/99 7:16	-4.336	-4.315	8.253	8.571	9.212	9.272
932	11/23/99 7:17	-4.336	-4.315	8.248	8.571	9.212	9.276
933	11/23/99 7:18	-4.336	-4.315	8.253	8.571	9.212	9.272
934	11/23/99 7:19	-4.336	-4.315	8.253	8.571	9.212	9.276
935	11/23/99 7:20	-4.336	-4.315	8.224	8.546	9.212	9.276
936	11/23/99 7:21	-4.304	-4.236	8.142	8.46	9.212	9.28
937	11/23/99 7:22	-4.209	-4.158	8.06	8.379	9.212	9.28
938	11/23/99 7:23	-4.146	-4.079	7.986	8.305	9.212	9.28
939	11/23/99 7:24	-4.051	-4.001	7.925	8.244	9.212	9.28
940	11/23/99 7:25	-3.956	-3.922	7.872	8.191	9.212	9.28
941	11/23/99 7:26	-3.893	-3.844	7.818	8.142	9.212	9.28
942	11/23/99 7:27	-3.798	-3.765	7.777	8.097	9.212	9.284
943	11/23/99 7:28	-3.735	-3.687	7.732	8.052	9.212	9.28
944	11/23/99 7:29	-3.671	-3.608	7.696	8.011	9.212	9.28
945	11/23/99 7:30	-3.608	-3.608	7.659	7.979	9.212	9.28
946	11/23/99 7:31	-3.545	-3.53	7.626	7.946	9.212	9.28
947	11/23/99 7:32	-3.481	-3.452	7.597	7.913	9.212	9.28

948	11/23/99 7:33	-3.418	-3.373	7.564	7.885	9.212	9.28
949	11/23/99 7:34	-3.386	-3.373	7.54	7.86	9.279	9.28
950	11/23/99 7:35	-3.323	-3.295	7.511	7.832	9.245	9.28
951	11/23/99 7:36	-3.26	-3.373	7.491	7.811	9.279	9.276
952	11/23/99 7:37	-3.228	-3.138	7.462	7.783	9.245	9.276
953	11/23/99 7:38	-3.165	-3.138	7.442	7.762	9.245	9.28
954	11/23/99 7:39	-3.133	-3.059	7.421	7.742	9.245	9.276
955	11/23/99 7:40	-3.07	-3.059	7.401	7.721	9.245	9.276
956	11/23/99 7:41	-3.038	-2.981	7.38	7.701	9.245	9.28
957	11/23/99 7:42	-3.007	-2.981	7.364	7.681	9.245	9.276
958	11/23/99 7:43	-2.975	-2.902	7.347	7.664	9.245	9.276
959	11/23/99 7:44	-2.943	-2.902	7.327	7.648	9.245	9.276
960	11/23/99 7:45	-2.88	-2.824	7.311	7.632	9.245	9.276
961	11/23/99 7:46	-2.848	-2.824	7.294	7.615	9.245	9.276
962	11/23/99 7:47	-2.817	-2.745	7.278	7.599	9.245	9.276
963	11/23/99 7:48	-2.785	-2.745	7.266	7.583	9.245	9.276
964	11/23/99 7:49	-2.753	-2.667	7.249	7.57	9.245	9.276
965	11/23/99 7:50	-2.722	-2.667	7.237	7.554	9.245	9.276
966	11/23/99 7:51	-2.722	-2.667	7.225	7.542	9.245	9.276
967	11/23/99 7:52	-2.658	-2.588	7.208	7.525	9.245	9.276
968	11/23/99 7:53	-2.627	-2.588	7.196	7.517	9.245	9.272
969	11/23/99 7:54	-2.627	-2.588	7.184	7.501	9.245	9.276
970	11/23/99 7:55	-2.595	-2.51	7.167	7.489	9.245	9.272
971	11/23/99 7:56	-2.563	-2.51	7.159	7.481	9.245	9.272
972	11/23/99 7:57	-2.532	-2.51	7.147	7.464	9.245	9.272
973	11/23/99 7:58	-2.5	-2.432	7.139	7.456	9.245	9.272
974	11/23/99 7:59	-2.468	-2.432	7.126	7.444	9.245	9.272
975	11/23/99 8:00	-2.468	-2.432	7.118	7.436	9.245	9.272
976	11/23/99 8:01	-2.437	-2.353	7.106	7.423	9.245	9.272
977	11/23/99 8:02	-2.405	-2.353	7.094	7.415	9.245	9.272
978	11/23/99 8:03	-2.405	-2.353	7.081	7.399	9.245	9.272
979	11/23/99 8:04	-2.373	-2.353	7.077	7.395	9.245	9.272
980	11/23/99 8:05	-2.342	-2.353	7.065	7.387	9.245	9.268
981	11/23/99 8:06	-2.342	-2.275	7.057	7.374	9.245	9.272
982	11/23/99 8:07	-2.31	-2.275	7.049	7.366	9.245	9.272
983	11/23/99 8:08	-2.279	-2.196	7.036	7.358	9.245	9.268
984	11/23/99 8:09	-2.279	-2.196	7.032	7.35	9.279	9.272
985	11/23/99 8:10	-2.247	-2.196	7.02	7.338	9.245	9.268
986	11/23/99 8:11	-2.215	-2.196	7.016	7.334	9.245	9.268
987	11/23/99 8:12	-1.772	-1.725	7.004	7.325	9.245	9.268
988	11/23/99 8:13	-1.74	-1.647	6.991	7.309	9.245	9.268
989	11/23/99 8:14	-1.677	-1.647	6.975	7.297	9.245	9.268
990	11/23/99 8:15	-1.677	-1.725	6.971	7.289	9.312	9.272
991	11/23/99 8:16	-1.677	-1.647	6.959	7.276	9.312	9.268
0	11/23/99 8:17	-1.424	-1.412	6.954	7.272	9.312	9.272
0.0083	11/23/99 8:17	-1.55	-1.569	6.954	7.272	9.312	9.272
0.0166	11/23/99 8:17	-1.645	-1.647	6.954	7.272	9.312	9.268
0.025	11/23/99 8:17	-1.645	-1.569	6.954	7.272	9.312	9.268
0.0333	11/23/99 8:17	1.012	1.569	6.954	7.272	9.312	9.268
0.0416	11/23/99 8:17	0.664	0.156	6.954	7.272	9.312	9.268
0.05	11/23/99 8:17	-1.519	-1.647	6.954	7.272	9.312	9.268

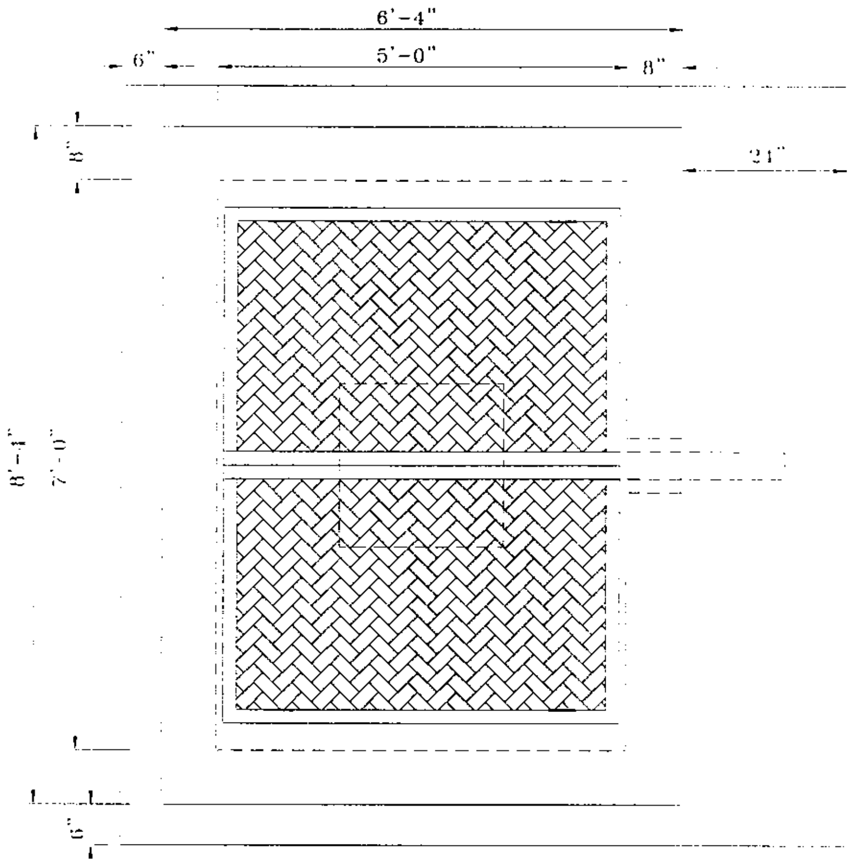
0.0583	11/23/99 8:17	-2.753	-2.824	6.954	7.272	9.312	9.268
0.0666	11/23/99 8:17	-2.247	-2.039	6.954	7.272	9.312	9.268
0.075	11/23/99 8:17	-1.804	-1.725	6.954	7.272	9.312	9.268
0.0833	11/23/99 8:17	-1.74	-1.804	6.954	7.272	9.312	9.268
0.0916	11/23/99 8:17	-1.835	-1.804	6.954	7.272	9.312	9.268
0.1	11/23/99 8:17	-1.645	-1.647	6.954	7.272	9.312	9.268
0.1083	11/23/99 8:17	-1.645	-1.647	6.954	7.272	9.312	9.268
0.1166	11/23/99 8:17	-1.772	-1.804	6.954	7.272	9.312	9.268
0.125	11/23/99 8:17	-2.12	-2.118	6.954	7.272	9.312	9.268
0.1333	11/23/99 8:17	-0.917	-0.47	6.954	7.272	9.312	9.268
0.1416	11/23/99 8:17	0.284	0.235	6.954	7.272	9.312	9.268
0.15	11/23/99 8:17	0.917	1.647	6.95	7.272	9.312	9.268
0.1583	11/23/99 8:17	6.298	6.589	6.954	7.272	9.312	9.272
0.1666	11/23/99 8:17	5.728	5.648	6.95	7.272	9.312	9.268
0.175	11/23/99 8:17	7.247	7.452	6.954	7.272	9.312	9.268
0.1833	11/23/99 8:17	6.931	6.981	6.95	7.272	9.312	9.268
0.1916	11/23/99 8:17	7.247	7.373	6.95	7.268	9.312	9.268
0.2	11/23/99 8:17	29.233	38.11	6.954	7.272	9.312	9.268
0.2083	11/23/99 8:17	45.863	43.596	6.95	7.268	9.312	9.268
0.2166	11/23/99 8:17	25.564	24.548	6.95	7.268	9.312	9.268
0.225	11/23/99 8:17	25.248	25.41	6.954	7.272	9.312	9.268
0.2333	11/23/99 8:17	25.122	25.41	6.95	7.268	9.312	9.268
0.2416	11/23/99 8:17	27.494	28.389	6.95	7.272	9.312	9.272
0.25	11/23/99 8:17	28.221	28.625	6.95	7.272	9.312	9.268
0.2583	11/23/99 8:17	28.253	28.703	6.95	7.268	9.312	9.268
0.2666	11/23/99 8:17	29.075	29.252	6.95	7.268	9.312	9.268
0.275	11/23/99 8:17	29.265	29.173	6.95	7.268	9.312	9.268
0.2833	11/23/99 8:17	29.36	29.565	6.95	7.268	9.312	9.268
0.2916	11/23/99 8:17	30.719	30.663	6.95	7.268	9.346	9.268
0.3	11/23/99 8:17	30.498	30.663	6.95	7.268	9.312	9.268
0.3083	11/23/99 8:17	30.656	30.976	6.946	7.264	9.346	9.272
0.3166	11/23/99 8:17	31.067	31.133	6.946	7.264	9.312	9.268
0.325	11/23/99 8:17	31.352	31.447	6.946	7.26	9.312	9.268
0.3333	11/23/99 8:17	31.921	31.76	6.942	7.26	9.312	9.272
0.35	11/23/99 8:17	32.111	32.074	6.938	7.256	9.312	9.272
0.3666	11/23/99 8:17	32.617	32.388	6.934	7.252	9.312	9.268
0.3833	11/23/99 8:18	32.585	32.466	6.926	7.244	9.312	9.272
0.4	11/23/99 8:18	32.617	32.388	6.922	7.24	9.312	9.272
0.4166	11/23/99 8:18	32.996	32.779	6.918	7.236	9.312	9.272
0.4333	11/23/99 8:18	32.775	33.015	6.909	7.227	9.312	9.268
0.45	11/23/99 8:18	32.711	32.701	6.905	7.223	9.312	9.268
0.4666	11/23/99 8:18	32.87	33.015	6.897	7.215	9.312	9.272
0.4833	11/23/99 8:18	32.838	33.093	6.889	7.207	9.312	9.268
0.5	11/23/99 8:18	33.059	33.171	6.881	7.199	9.346	9.272
0.5166	11/23/99 8:18	32.364	32.623	6.877	7.191	9.312	9.272
0.5333	11/23/99 8:18	32.553	32.858	6.869	7.183	9.312	9.272
0.55	11/23/99 8:18	31.953	32.074	6.86	7.178	9.312	9.268
0.5666	11/23/99 8:18	31.067	31.055	6.852	7.17	9.312	9.268
0.5833	11/23/99 8:18	30.403	30.349	6.844	7.162	9.312	9.268
0.6	11/23/99 8:18	29.802	29.33	6.836	7.154	9.312	9.272
0.6166	11/23/99 8:18	29.328	29.252	6.832	7.146	9.312	9.268

0.6333	11/23/99 8:18	29.075	29.095	6.823	7.138	9.312	9.268
0.65	11/23/99 8:18	28.664	29.017	6.815	7.134	9.312	9.268
0.6666	11/23/99 8:18	28.189	28.076	6.807	7.125	9.312	9.268
0.6833	11/23/99 8:18	27.747	27.919	6.803	7.117	9.312	9.272
0.7	11/23/99 8:18	26.355	26.429	6.795	7.109	9.312	9.272
0.7166	11/23/99 8:18	26.102	26.116	6.787	7.105	9.312	9.272
0.7333	11/23/99 8:18	23.603	23.92	6.778	7.097	9.312	9.272
0.75	11/23/99 8:18	23.003	22.744	6.774	7.089	9.312	9.272
0.7666	11/23/99 8:18	22.718	22.195	6.766	7.085	9.312	9.272
0.7833	11/23/99 8:18	23.129	22.352	6.758	7.076	9.312	9.272
0.8	11/23/99 8:18	21.927	21.803	6.754	7.072	9.312	9.272
0.8166	11/23/99 8:18	20.282	20.157	6.746	7.064	9.312	9.272
0.8333	11/23/99 8:18	20.757	21.176	6.742	7.06	9.312	9.272
0.85	11/23/99 8:18	21.136	21.255	6.733	7.052	9.312	9.272
0.8666	11/23/99 8:18	21.263	21.255	6.729	7.048	9.312	9.272
0.8833	11/23/99 8:18	20.82	20.706	6.725	7.044	9.312	9.272
0.9	11/23/99 8:18	20.662	20.706	6.717	7.036	9.312	9.272
0.9166	11/23/99 8:18	21.01	20.706	6.713	7.032	9.312	9.272
0.9333	11/23/99 8:18	21.041	20.862	6.709	7.027	9.312	9.272
0.95	11/23/99 8:18	20.725	20.235	6.705	7.023	9.312	9.268
0.9666	11/23/99 8:18	20.82	20.862	6.701	7.019	9.312	9.272
0.9833	11/23/99 8:18	20.725	20.941	6.697	7.015	9.312	9.272
1	11/23/99 8:18	20.472	20.627	6.693	7.011	9.312	9.272
1.2	11/23/99 8:18	20.725	20.627	6.652	6.97	9.346	9.272
1.4	11/23/99 8:19	20.409	20.314	6.619	6.938	9.346	9.272
1.6	11/23/99 8:19	20.472	20.314	6.59	6.909	9.346	9.272
1.8	11/23/99 8:19	20.946	20.706	6.566	6.885	9.346	9.272
2	11/23/99 8:19	20.599	20.706	6.541	6.86	9.346	9.272
2.2	11/23/99 8:19	20.852	20.784	6.521	6.84	9.346	9.272
2.4	11/23/99 8:20	20.662	20.235	6.5	6.819	9.346	9.272
2.6	11/23/99 8:20	20.504	20.784	6.48	6.799	9.346	9.272
2.8	11/23/99 8:20	20.599	20.314	6.467	6.783	9.346	9.272
3	11/23/99 8:20	20.788	20.549	6.451	6.766	9.346	9.272
3.2	11/23/99 8:20	20.757	20.627	6.435	6.754	9.346	9.272
3.4	11/23/99 8:21	20.63	20.941	6.422	6.738	9.346	9.272
3.6	11/23/99 8:21	20.282	20.706	6.406	6.726	9.346	9.272
3.8	11/23/99 8:21	20.757	20.862	6.394	6.713	9.346	9.272
4	11/23/99 8:21	20.504	21.176	6.382	6.701	9.312	9.272
4.2	11/23/99 8:21	20.693	21.333	6.369	6.689	9.346	9.276
4.4	11/23/99 8:22	20.44	20.941	6.361	6.677	9.346	9.272
4.6	11/23/99 8:22	21.01	21.019	6.349	6.664	9.346	9.272
4.8	11/23/99 8:22	20.883	20.784	6.336	6.656	9.346	9.272
5	11/23/99 8:22	20.693	21.019	6.328	6.644	9.346	9.272
5.2	11/23/99 8:22	20.567	21.019	6.316	6.632	9.346	9.272
5.4	11/23/99 8:23	20.915	20.862	6.304	6.624	9.346	9.276
5.6	11/23/99 8:23	20.946	20.784	6.296	6.611	9.346	9.276
5.8	11/23/99 8:23	21.041	20.941	6.283	6.603	9.312	9.272
6	11/23/99 8:23	20.82	21.333	6.275	6.591	9.346	9.272
6.2	11/23/99 8:23	20.883	20.784	6.267	6.587	9.346	9.276
6.4	11/23/99 8:24	21.073	20.941	6.259	6.579	9.346	9.272
6.6	11/23/99 8:24	20.915	21.098	6.251	6.571	9.346	9.272

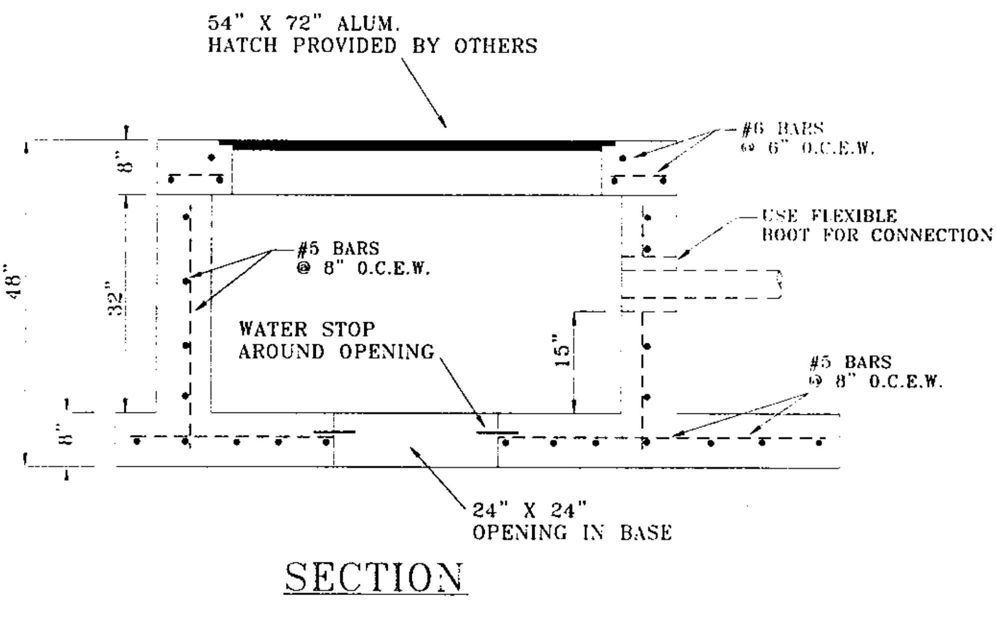
6.8	11/23/99 8:24	20.757	20.941	6.242	6.562	9.346	9.272
7	11/23/99 8:24	20.725	20.941	6.234	6.554	9.312	9.272
7.2	11/23/99 8:24	20.757	21.098	6.226	6.542	9.346	9.272
7.4	11/23/99 8:25	20.978	20.941	6.214	6.534	9.346	9.272
7.6	11/23/99 8:25	21.041	21.333	6.206	6.526	9.346	9.272
7.8	11/23/99 8:25	20.978	21.019	6.201	6.517	9.346	9.272
8	11/23/99 8:25	21.326	21.411	6.193	6.509	9.346	9.272
8.2	11/23/99 8:25	20.852	20.706	6.185	6.505	9.346	9.272
8.4	11/23/99 8:26	21.073	21.098	6.181	6.497	9.346	9.272
8.6	11/23/99 8:26	20.63	21.019	6.177	6.493	9.346	9.276
8.8	11/23/99 8:26	20.788	20.862	6.169	6.489	9.346	9.272
9	11/23/99 8:26	21.01	20.941	6.161	6.481	9.346	9.272
9.2	11/23/99 8:26	20.915	20.862	6.156	6.473	9.346	9.272
9.4	11/23/99 8:27	21.358	20.862	6.148	6.469	9.346	9.272
9.6	11/23/99 8:27	21.168	21.019	6.144	6.46	9.346	9.272
9.8	11/23/99 8:27	20.883	20.941	6.136	6.452	9.346	9.272
10	11/23/99 8:27	20.883	21.176	6.128	6.448	9.312	9.272
11	11/23/99 8:28	20.978	21.176	6.099	6.42	9.312	9.272
12	11/23/99 8:29	20.915	21.411	6.071	6.391	9.279	9.272
13	11/23/99 8:30	21.01	21.411	6.05	6.367	9.279	9.268
14	11/23/99 8:31	21.421	21.333	6.021	6.338	9.279	9.268
15	11/23/99 8:32	21.294	21.411	6.001	6.322	9.279	9.272
16	11/23/99 8:33	21.358	21.49	5.981	6.301	9.279	9.268
17	11/23/99 8:34	21.579	21.255	5.96	6.277	9.279	9.268
18	11/23/99 8:35	21.2	21.49	5.94	6.26	9.279	9.268
19	11/23/99 8:36	21.073	21.49	5.923	6.24	9.312	9.268
20	11/23/99 8:37	21.453	21.333	5.907	6.224	9.312	9.268
21	11/23/99 8:38	21.073	21.568	5.882	6.203	9.279	9.268
22	11/23/99 8:39	21.484	21.568	5.866	6.187	9.312	9.268
23	11/23/99 8:40	21.737	21.568	5.854	6.175	9.279	9.268
24	11/23/99 8:41	21.737	21.411	5.837	6.154	9.312	9.268
25	11/23/99 8:42	21.674	21.647	5.821	6.138	9.312	9.268
26	11/23/99 8:43	21.864	21.568	5.805	6.126	9.312	9.263
27	11/23/99 8:44	21.421	21.49	5.792	6.11	9.312	9.268
28	11/23/99 8:45	21.421	21.96	5.776	6.093	9.312	9.268
29	11/23/99 8:46	21.801	21.803	5.768	6.085	9.312	9.263
30	11/23/99 8:47	21.801	21.647	5.751	6.069	9.312	9.263
31	11/23/99 8:48	21.674	21.49	5.739	6.057	9.312	9.263
32	11/23/99 8:49	21.927	21.803	5.727	6.044	9.312	9.268
33	11/23/99 8:50	21.737	21.882	5.715	6.032	9.312	9.268
34	11/23/99 8:51	21.674	21.647	5.702	6.02	9.279	9.263
35	11/23/99 8:52	21.959	21.882	5.686	6.008	9.279	9.263
36	11/23/99 8:53	21.864	21.725	5.682	5.999	9.279	9.263
37	11/23/99 8:54	21.864	21.803	5.666	5.987	9.279	9.263
38	11/23/99 8:55	21.769	22.039	5.657	5.975	9.279	9.263
39	11/23/99 8:56	21.611	21.882	5.645	5.963	9.279	9.263
40	11/23/99 8:57	21.769	22.039	5.637	5.955	9.279	9.263
41	11/23/99 8:58	22.117	22.274	5.625	5.942	9.279	9.263
42	11/23/99 8:59	22.054	22.352	5.608	5.93	9.279	9.263
43	11/23/99 9:00	22.022	22.039	5.604	5.922	9.245	9.259
44	11/23/99 9:01	21.99	22.039	5.592	5.91	9.245	9.259

APPENDIX 4.2

PROJECT SURFACE EQUIPMENT DETAILS



PLAN



SECTION

WELL / METER VAULT

WT./VERT. FT.= 2682 LBS.
CONC. TOP WT.= 5313 LBS.
BASE WT. = 7886 LBS.
CONCRETE = 4000 PSI. TYPE II

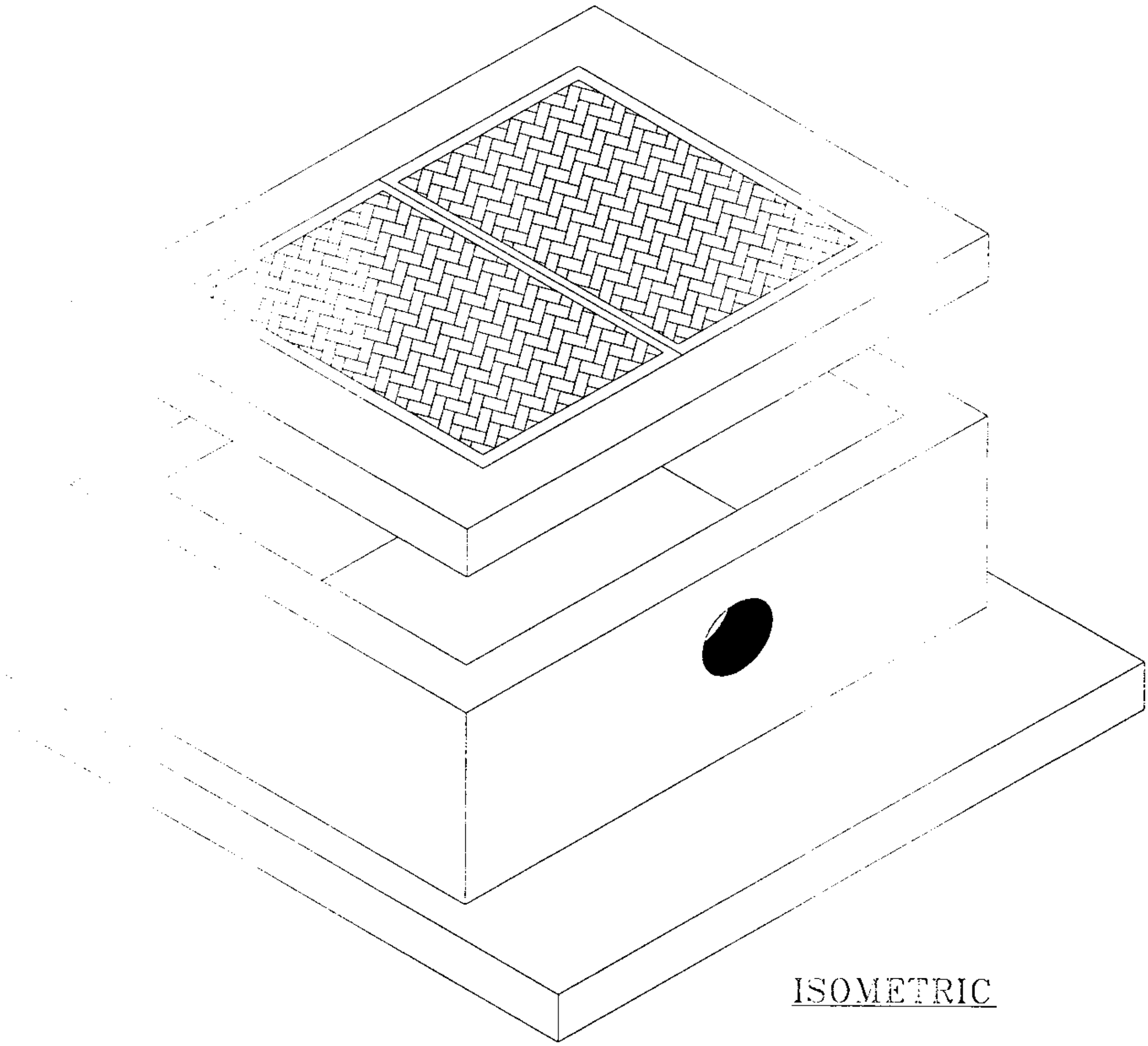
CSR™ PRECON
A DIVISION OF RINKER MATERIALS CORP.

7730 ALICO RD. 33912 FORT MYERS, FL	FT MYERS (941) 267-7713 NAPLES (941) 597-5929 FAX: (941) 267-3917

JOB NAME: MARCO ISLAND ASR

CONTRACTOR: YOUNGQUIST BROTHERS

INLET NO.



ISOMETRIC

CSR™ PRECON
A DIVISION OF RINKER MATERIALS CORP.

7730 ALICO RD. 33912 FORT MYERS, FL	FT MYERS (941) 267-7713 NAPLES (941) 597-5929 FAX: (941) 267-3917

JOB NAME: MARCO ISLAND ASR

CONTRACTOR: YOUNGQUIST BROTHERS

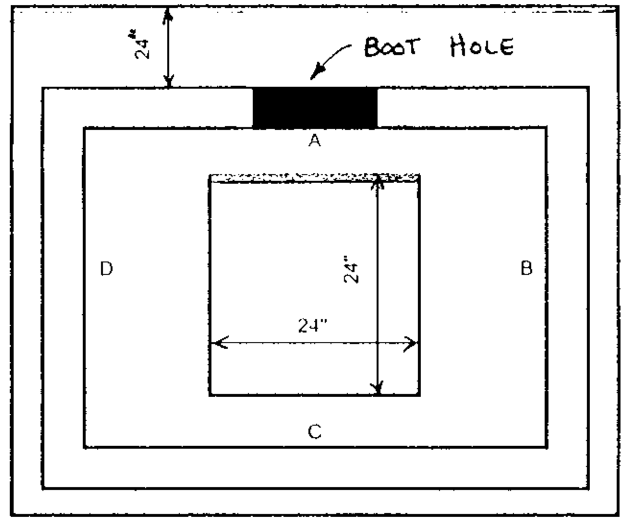
INLET NO.

WELL / METER VAULT

WT./VERT. FT.= 2682 LBS.
CONC. TOP WT.= 5313 LBS.
BASE WT. = 7886 LBS.
CONCRETE = 4000 PSI, TYPE II

A	8" HOLE	UP 15"
B		
C		
D		

" BASE
EXTENSION



8	Wall
8	Base

Box Size: 5'-0" X 7'-0" BOX

FINISHED TOP YES [ ] NO [X]

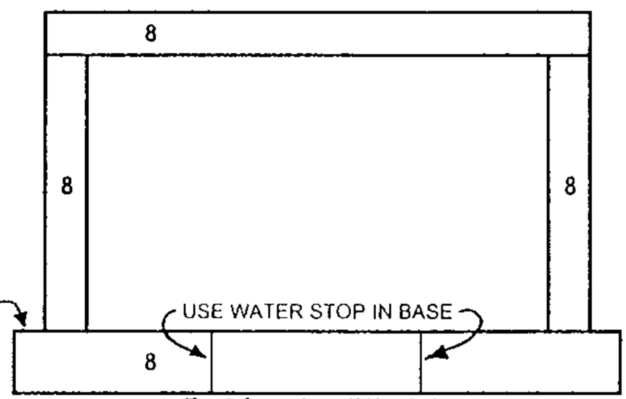
Build Height 32.0 "

Top/Grate Elev.		0.00
Base/Inv. Elev.	-	0.00
Difference		0.00
Pipe Thk. & Adj.	+	0.00
Less Top Slab	-	0.00
Less R&C or F&G	-	0.00
Net Height		0.00

6" BASE EXTENSION

(3) SIDES

24" EXT. ON (1) SIDE



Top Information (If Needed)

	Concrete Cu. Ft.	Date Cast
Vert. Ft.		
Less Holes		
ıl Wall		
Base		
Top lbs.		
Center Wall		
Total lbs		

CSR PRECON
A Division of Hydro Conduit
7730 Alico Rd.
Ft. Myers, Fl. 33912

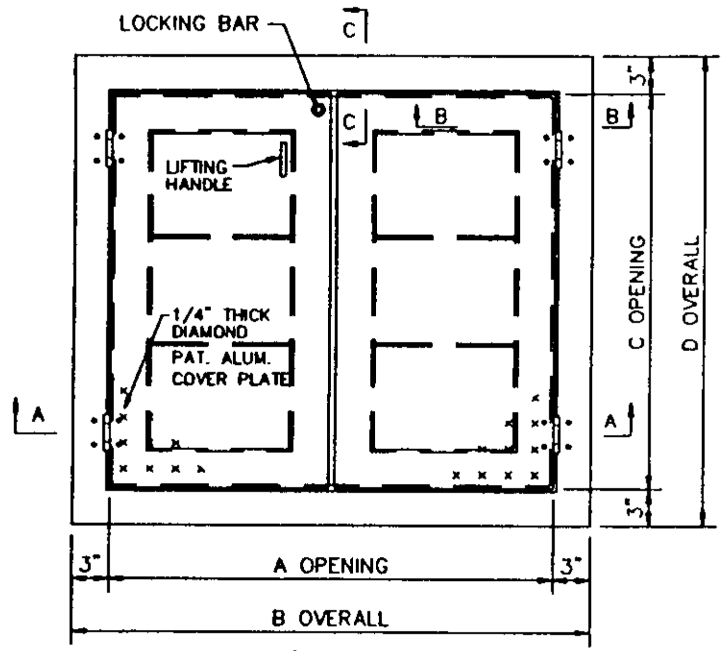
Ft. Myers	(941) 267-7713
Naples	(941) 597-5929
Fax	(941) 267-3917

Job Name:	MARCO ISLAND ASR
Contractor:	YOUNGQUIST BROTHERS
Structure #:	**MV-1, MV-2, MV-3**

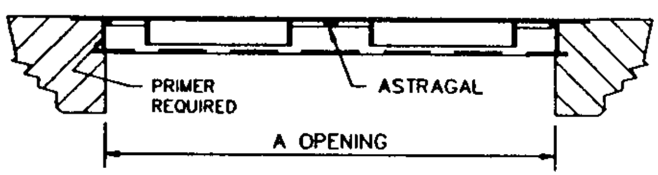
HALLIDAY PRODUCTS

SERIES S2R ACCESS DOOR

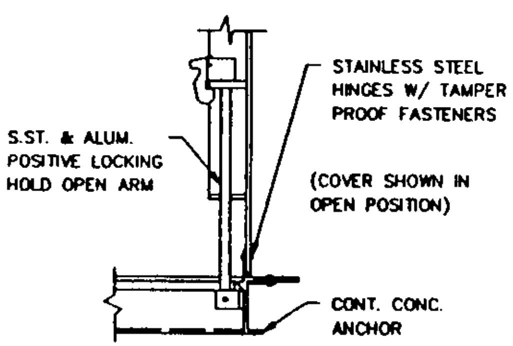
(STANDARD REGULAR)



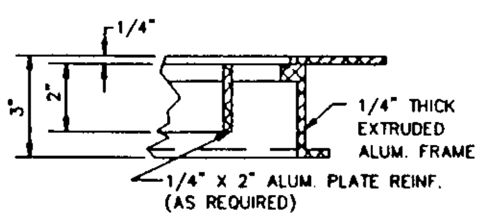
PLAN



SECTION AA



SECTION B–B



SECTION C–C

STANDARD FEATURES:

- AUTO-LOCK STAINLESS STEEL HOLD OPEN ARMS WITH RELEASE HANDLES
- STAINLESS STEEL LIFTING HANDLE, HINGES AND ATTACHING HARDWARE
- NON-CORROSIVE LOCKING BAR
- DOUBLE LEAF CONSTRUCTION
- 300 LBS. PER SQ. FT. LOAD RATING
- 10 YEAR GUARANTEE

SPECIFICATIONS

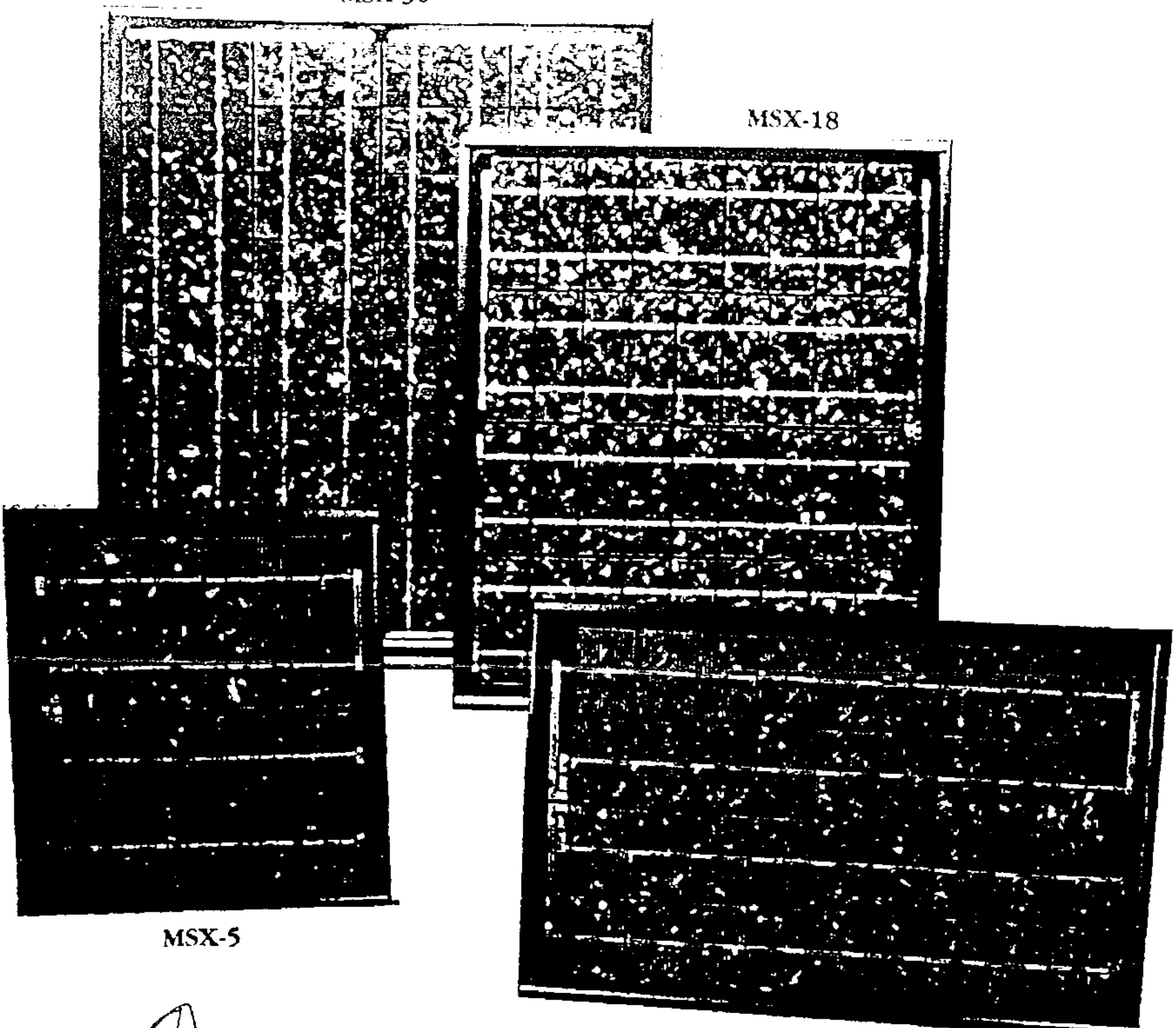
THE S2R SERIES (DOUBLE LEAF) ACCESS FRAMES AND COVERS AS MANUFACTURED BY HALLIDAY PRODUCTS, INC. OF ORLANDO, FLORIDA SHALL HAVE A 1/4" THICK ONE-PIECE, MILL FINISH, EXTRUDED ALUMINUM FRAME, INCORPORATING A CONTINUOUS CONCRETE ANCHOR. DOOR PANELS SHALL BE 1/4" ALUMINUM DIAMOND PLATE, REINFORCED TO WITHSTAND A LIVE LOAD OF 300 LBS. PSF. DOORS SHALL OPEN TO 90° AND AUTOMATICALLY LOCK WITH STAINLESS STEEL HOLD OPEN ARMS WITH ALUMINUM RELEASE HANDLES. DOORS SHALL CLOSE FLUSH WITH THE FRAME. LIFTING HANDLES, HINGES AND ALL FASTENING HARDWARE SHALL BE STAINLESS STEEL. UNIT SHALL LOCK WITH A NON-CORROSIVE LOCKING BAR. UNIT SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIAL AND/OR WORKMANSHIP FOR A PERIOD OF 10 YEARS.

MODEL NO.	DIMENSIONS				UNIT WT.
	A	B	C	D	
S2R4242	42"	48"	42"	48"	106 LBS.
S2R4848	48"	54"	48"	54"	123 LBS.
S2R5448	54"	60"	48"	54"	132 LBS.
S2R7248	72"	78"	48"	54"	164 LBS.
S2R6060	60"	66"	60"	66"	171 LBS.

PHOTOVOLTAIC MODULES UNDER 38 WATTS
MSX-5, MSX-10, MSX-18 and MSX-30

SOLAREX
Corporation
An Amoco Company

PHOTOVOLTAIC MODULES
INFORMATION SHEET .... P/N 425 10000



MSX-30

MSX-18

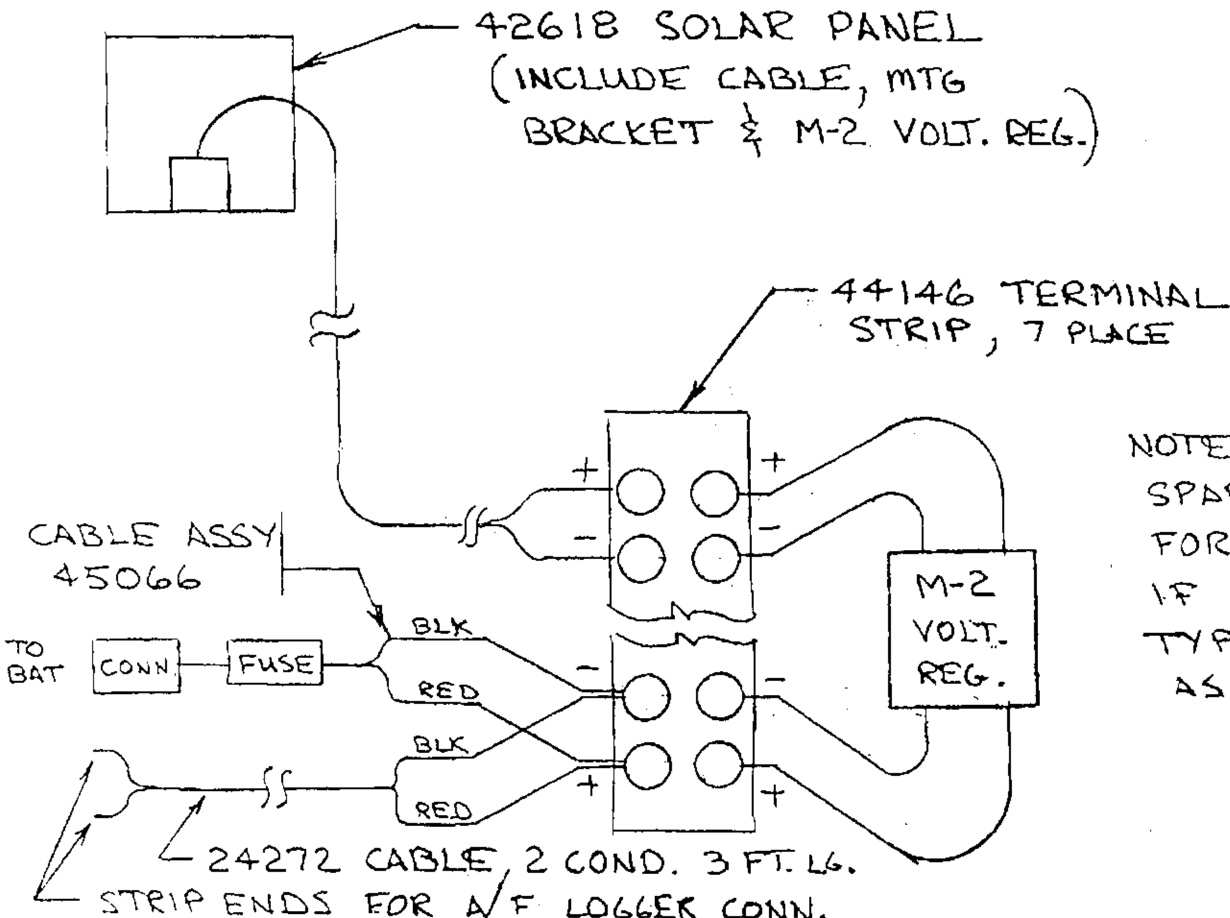
MSX-5

MSX-10

1335 Piccard Drive, P.O. Box 6008, Rockville, MD 20850 USA • (301) 948-0202 • TLX 64358 SOLAREX • FAX 301-948-7148

DWG. NO. | SH

REVISIONS					
LTR	ECO NO	DATE	DESCRIPTION	BY	APPVD



NOTE – ALSO FURNISH 2 LOOSE, SPADE LUG TERMINALS P.N. 38458 FOR CUSTOMER TO CRIMP ON IF POWER GOES TO SCREW TYPE TERMINAL STRIP SUCH AS TELEMARK II

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±	CONTRACT NO.
MATERIAL	DRAWN W. BRADLEY — DATE 90/8/22
FINISH	CHECKED
DO NOT SCALE DRAWING	DESIGN
	MFG. ENG.
	Q.A.
	CUSTOMER

	PROTOTYPE
	PREPRODUCTION
X	PRODUCTION

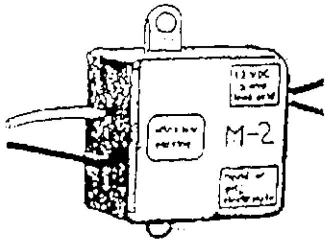
LEUPOLD & STEVENS, INC.

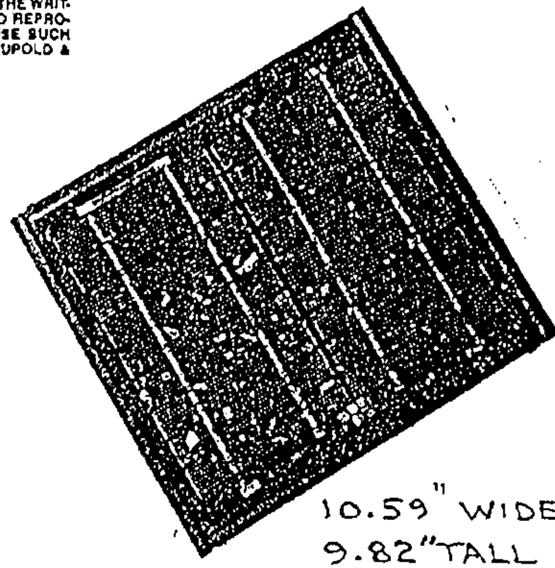
BEAVERTON, OREGON U.S.A.

SOLAR PANEL, 4 WATT, W/ CABLES FOR A/F LOGGER & RECHARGEABLE BATTERY

SIZE	FSCM NO.	DWG. NO.
A	35848	SKETCH #22
SCALE	RELEASE DATE	SHEET

REVISIONS					
LTR	ECO NO	DATE	DESCRIPTION	BY	APPVD



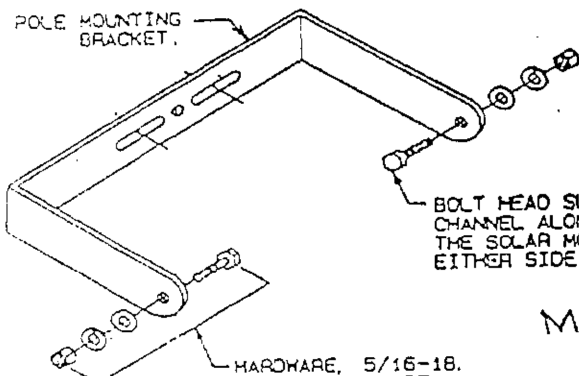


10.59" WIDE
9.82" TALL
.89" THICK
WT. 1.7 LB.

RELIABILITY AND ENVIRONMENTAL SPECIFICATIONS

These modules are subjected to intense quality control during manufacture and rigorous testing before shipment. They meet or exceed JPL Block V test criteria, including the following tests, with no performance degradation:

- Repetitive cycling between −40°C and 90°C;
- Repetitive cycling between −40°C and 85°C at 85% relative humidity;
- Wind loading exceeding 125 mph;
- Surface withstands impact of one-inch hail at terminal velocity (52 mph) without breakage.



MATERIAL: SOLAREX PANEL MSX-5/12
WITH M-2/12 VOLTAGE REGULATOR
AND PANEL MTG BRACKET

CAT. 5201

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL SEE NOTE ABOVE

FINISH ——————

DO NOT SCALE DRAWING

PROTOTYPE
PREPRODUCTION
X PRODUCTION

CONTRACT NO.
DRAWN W. BRADLEY DATE 90/8/22
CHECKED
DESIGN
MFG. ENG.
Q.A.
CUSTOMER

LEUPOLD & STEVENS, INC.
BEAVERTON, OREGON U.S.A.

SOLAR-ELECTRIC PANEL
4 WATT

SIZE A | FSCM NO. 35848 | DWG. NO. SKETCH #21

SCALE | RELEASE DATE | SHEET 1 OF 2

REVISIONS					
LTR	ECO NO	DATE	DESCRIPTION	BY	APPVD

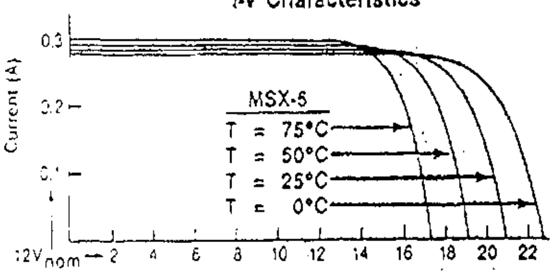
TYPICAL ELECTRICAL CHARACTERISTICS[1]

	MSX-5
Typical peak power (P_p)	4.5W
Voltage @ peak power (V_{pp})	17.5V
Current @ peak power (I_{pp})	0.26A
Guaranteed minimum peak power	4W
Short-circuit current (I_{sc})	0.28A
Open-circuit voltage (V_{oc})	21.4V
Temperature coefficient of current	0.275 mA/°C
Approximate effect of temperature on power	−0.37%/°C
Temperature coefficient of voltage	−72 mV/°C
NOCT	45°C

NOTES:

These data represent the performance of typical modules as measured at their output terminals, and do not include the effect of such additional equipment as diodes and cabling. The data are based on measurements made at Standard Test Conditions (STC), which are:
- Illumination of 1 kW/m² (1 sun) at spectral distribution of AM 1.5
- Cell temperature of 25°C or as otherwise specified (on curves).

I-V Characteristics



SOLAR PANEL FOR 12V. NOMINAL BATTERY OPERATION. SEMICRYSTALLINE SILICON CELLS ENCAPSULATED AND PROTECTED WITH A TEMPERED, LOW IRON, GLASS COVER. OUTPUT CABLE IS 15 FT. LG., 18-2 AWG, POLYETHYLENE JACKETED. ALSO INCLUDED IS A MOUNTING BRACKET AND A SEPARATELY MOUNTABLE VOLTAGE REGULATOR WHICH ALSO CONTAINS A BLOCKING DIODE TO PREVENT BAT. DISCHARGE AT NIGHT. FORWARD VOLTAGE DROP IS BETWEEN .37V AND .47 VDC AT REGULATOR'S MAX RATING OF 2A. CHARGE TERMINATION SETPOINT IS 14.15 VDC. CURRENT CONSUMPTION IN BOTH CHARGE & STANDBY MODES IS LESS THAN 1 MA.

CAT. 520:

	PROTOTYPE
	PREPRODUCTION
X	PRODUCTION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE:
FRACTIONS ± DECIMALS .XX ± .XXX ± ANGLES ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO.		
DRAWN	W. BRADLEY	DATE 90/8/22
CHECKED		
DESIGN		
MFG. ENG.		
Q.A.		
CUSTOMER		

LEUPOLD & STEVENS, INC.
BEAVERTON, OREGON U.S.A.

SOLAR-ELECTRIC PANEL
4 WATT

SIZE	FSCM NO.	DWG. NO.
A	35848	SKETCH #21
SCALE	RELEASE DATE	SHEET 2 OF 2

43343

WARNINGS AND PRECAUTIONS

General Information

Instructions in this pamphlet are for use with the SOLAREX MSX Series: MSX-5, MSX-10, MSX-18, and MSX-30 photovoltaic modules. For specific module information, i.e. type, serial number, Vsc, Isc, actual peak power and minimum peak power for this class of product, refer to the label on the back of the module and to the appropriate data sheets.

Before attempting to install, wire, or operate the module, it is important that the instructions in this pamphlet be read and understood.

These modules should be installed by someone familiar with the basic principles of electricity and electric appliances.

Electric Shock and Burn Hazard

Photovoltaic modules generate electricity when exposed to sunlight or other sources of light. Though the current and voltage produced by a single module are low, shocks and burns can result from contact with module output wiring or terminals. This hazard increases when modules are connected in a series to increase voltage.

PV modules do not have to be "connected" or powering a load to generate electricity. Light from the sun or other sources activates production of electricity. Therefore module front surfaces should be completely covered by an opaque cloth or other material before electrical connections to the modules or other system components are handled.

As with most electrical equipment, additional hazards exist when the modules are wet (see handling instructions below).

Storage Batteries

When using a storage battery with photovoltaic modules, battery manufacturer's safety recommendations should be followed.

Local Codes

Local building and fire codes may address the installation and use of photovoltaic modules, and should be followed when in effect. Modules mounted on rooftops, or exterior walls, or on boats or motor vehicles may involve special installation requirements.

National Electrical Code (NEC) for U.S.A.

The United States NEC addresses the installation of photovoltaic devices, and should be consulted for recommendations, especially when installing multiple module systems.

General Handling and Use

- Handle with care. Though the module is rugged, blows to the front or rear surface can result in damage to the module.
- Do not bend the module.
- Do not attempt to disassemble the module.
- Do not concentrate light on the module in an attempt to increase its power output.
- When working with modules use properly insulated tools and wear rubber gloves.

Preventive Maintenance

Inspect the module twice a year for overall integrity. Make certain that connections to the load and/or battery are tight and free of corrosion.

Cleaning

Dirt accumulation on the module's front surface can reduce the light energy collected by the module and thereby decrease its power output. If the module surface is dirty, gently clean it with water and a mild detergent. A soft cloth or sponge should be used. Scrub brushes may damage the module front surface and should be avoided. Again, rubber gloves should be worn to protect against possible electric shock.

Disclaimer of Liability

Since the conditions or methods of installation, operation, use and maintenance of PV modules are beyond its control, Solarex Corporation does not assume responsibility and expressly disclaims liability of loss, damage, or expense arising out of or in any way connected with such installation, operation, use, or maintenance.

Module Application Information

These solar modules produce DC electricity and are used for small to moderate energy applications including instrumentation, battery charging, water pumping, security sensors, remote telemetry, navigational aids, and powering radios or portable communications equipment around the home or farm. They may be used in single module and multiple module systems to provide increased current or voltage (see block diagrams below).

INSTALLATION

Mounting Dimensions

The Solarex MSX-5 and MSX-10 modules covered by this pamphlet are equipped with Solarex's new Multimount frame. Oriented parallel to the edge and the back of the module, the Multimount frame provides dual channels which accept the heads of 5/16" or 8 mm hex bolts, and allow the module to be side or rear mounted. The channel prevents the bolt heads from turning during tightening and allows installation with just one wrench.

The Solarex MSX-18 and MSX-30 series modules covered by this pamphlet are mounted by bolting through any combination of 4 out of the 6 holes present in the rear flange of the module mounting frame.

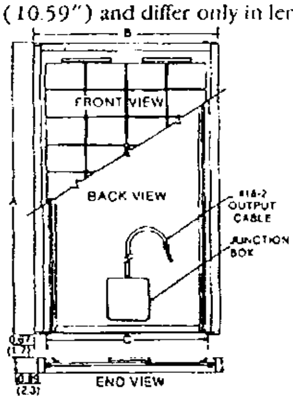
(NOTE: The MSX-18 and MSX-30 need only two (2) holes for pole mounting. Use the two center holes for pole mounting or the four outer holes for other mounting arrangements.)

All holes are 0.38" (10.0 mm) in diameter and designed to accommodate up to 5/16" (8 mm) bolts.

Solarex manufactures a wide variety of mounting kits for these modules which allows them to be mounted in various vertical and horizontal positions and in multiple arrays.

Contact your Solarex Distributor or Representative for information on mounting kits and other Solarex Accessories.

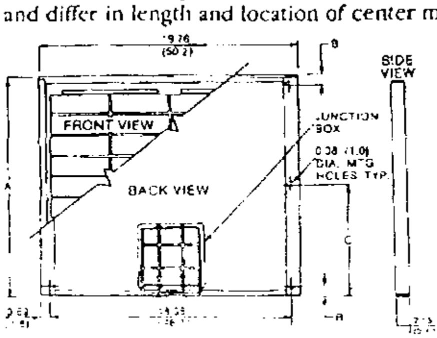
MSX-5 and MSX-10 Modules:
MSX-5 and MSX-10 are mechanically identical in width (10.59") and differ only in length.



Dimensions: Dimensions in brackets are in centimeters. Unbracketed dimensions are in inches.

	DIM. A	DIM. B	DIM. C
MSX-5	9.82 (24.9)	10.59 (26.9)	9.25 (23.5)
MSX-10	16.54 (42.0)	10.59 (26.9)	9.25 (23.5)

MSX-18 and MSX-30 Modules:
MSX-18 and MSX-30 are also identical in width (19.76") and differ in length and location of center mounting holes.



	DIM A	DIM. B	DIM C
MSX-18	16.57 (42.1)	0.75 (1.9)	8.29 (21.1)
MSX 30	23.32 (59.2)	0.75 (1.9)	11.66 (29.6)

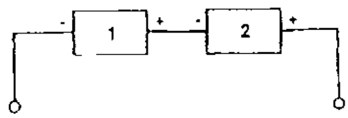
Wiring and Connections

The MSX-5 and MSX-10 come equipped with a 15 ft. long, polyethylene jacketed, AWG18-2 output cable.

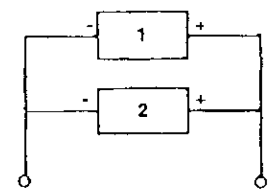
The MSX-18 and MSX-30 modules terminate in a weatherproof junction box mounted on the back of the module. These junction boxes are made of high dielectric strength, impact resistant molded thermoplastic resin. The internal dimensions are approximately 4.3" square, providing for ease of connections and accommodating a Solarex Solarstate™ regulator. Terminals will accept a wide range of connectors. Cable holes in the junction box are .846" (21.5mm) in diameter and will accept up to 1/2" (21mm) nominal trade size fittings.

CONNECTION OF MODULES IN SERIES OR PARALLEL COMBINATIONS

TWO SIMILAR PHOTOVOLTAIC DEVICES CONNECTED IN SERIES
NOTE: Modules must be of the same power rating.



TWO SIMILAR PHOTOVOLTAIC DEVICES CONNECTED IN PARALLEL
NOTE: Modules do not need to be of the same power rating.



PLACEMENT

The module should be oriented toward the sun as much as possible. This is especially important during the middle part of the day, the module's most productive period. It is important to keep the module free from shadowing all day and during all seasons.

DIRECTIONAL FACING

As a general rule, modules used in the northern hemisphere should be faced due south (not magnetic south). Modules used in the southern hemisphere should face due north (not magnetic north).

TILT ANGLE

The following table shows the angle (from horizontal) at which the module should be installed in order to maximize annual energy output. At most latitudes, performance can be improved by a somewhat flatter angle during the summer and a somewhat steeper angle during the winter.

LATITUDE	INSTALLATION ANGLE
0- 4°	10° from Horizontal
5-20°	Add 5° to Local Latitude
21-45°	Add 10° to Local Latitude
45-65°	Add 15° to Local Latitude
65-75°	80° from Horizontal

Example: A module mounted in Miami, Florida (latitude 26°) should be tilted at approximately 36° from horizontal and should be faced due south. If modules are not subject to regular cleaning, it is recommended that they not be mounted at less than a 15° tilt angle. Flatter angles cannot take full advantage of the cleansing effect of rainfall.

BLOCKING DIODES AND CHARGE CONTROL REGULATION

Depending upon their use the modules covered in this pamphlet may require a blocking diode, which prevents battery discharge during periods of darkness, or a battery charge regulator, which prevents storage batteries from being overcharged and possibly damaged or destroyed. The Solarex Solarstate Control model SSH1 or SSH2 (circuitry includes blocking diode) is recommended.

LIMITED WARRANTY

Limited Warranty — One Year

Solarex warrants the MSX-5, MSX-10, MSX-18, and MSX-30 modules to be free from defects in materials and workmanship under normal applications, use and service conditions for twelve (12) months from the date of sale to the original consumer purchaser. If the module becomes inoperable due to a defect in material or workmanship during the twelve (12) month period of this warranty, Solarex will, at its option, either repair or replace the product or, if it is unable to repair or replace the product, refund the purchase price.

This warranty shall apply only while the original consumer purchaser owns the product.

Limited Five Year Warranty on Power Output

For five (5) years from the date of sale of the product to the original consumer purchaser, Solarex will replace the lost power of any modules that fail to produce at least ninety percent (90%) of the minimum power output specified by Solarex at the time of delivery. Power output shall be measured by Solarex using standard Solarex test conditions. Solarex will replace such lost power, up to the minimum output originally specified, either by providing the purchaser with additional modules to make up the total wattage lost, or by repairing or replacing the module, at Solarex's option. This warranty shall only apply while the original consumer purchaser owns the product.

What This Warranty Does Not Cover

This warranty does not apply to any of the above modules which has been subject to misuse, neglect or accident, or which has been damaged through abuse, alteration, improper installation or application, or negligence in use, storage, transportation or handling, or which has been repaired by anyone other than Solarex or an authorized Solarex service representative. This warranty does not cover any transportation costs for the return of the module or cost associated with installation, removal, or re-installation of the module.

Warranty Limitations

THERE IS NO OTHER EXPRESS WARRANTY ON THESE PRODUCTS. SOLAREX IS NOT RESPONSIBLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM THE USE OR LOSS OF USE OF THE PRODUCT.

ANY WARRANTIES IMPLIED BY LAW, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE TERM OF THIS WARRANTY.

Solarex's maximum liability under any warranty, expressed, implied, or statutory, is limited to the purchase price of the product. The purchaser's exclusive remedy shall be only as stated herein.

SOME JURISDICTIONS DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

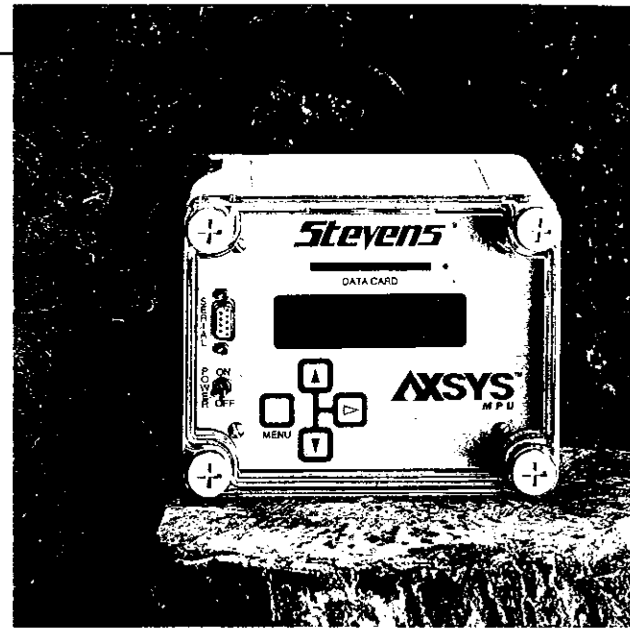
Obtaining Warranty Performance

If you feel you have a claim under this warranty, contact the vendor who sold you the product, any authorized Solarex service representative, or Solarex at the address set forth below. You will be advised what you need to do to obtain warranty service.

You should read and follow the installation instructions supplied with the product. If you need to contact Solarex, please write us at the following address:

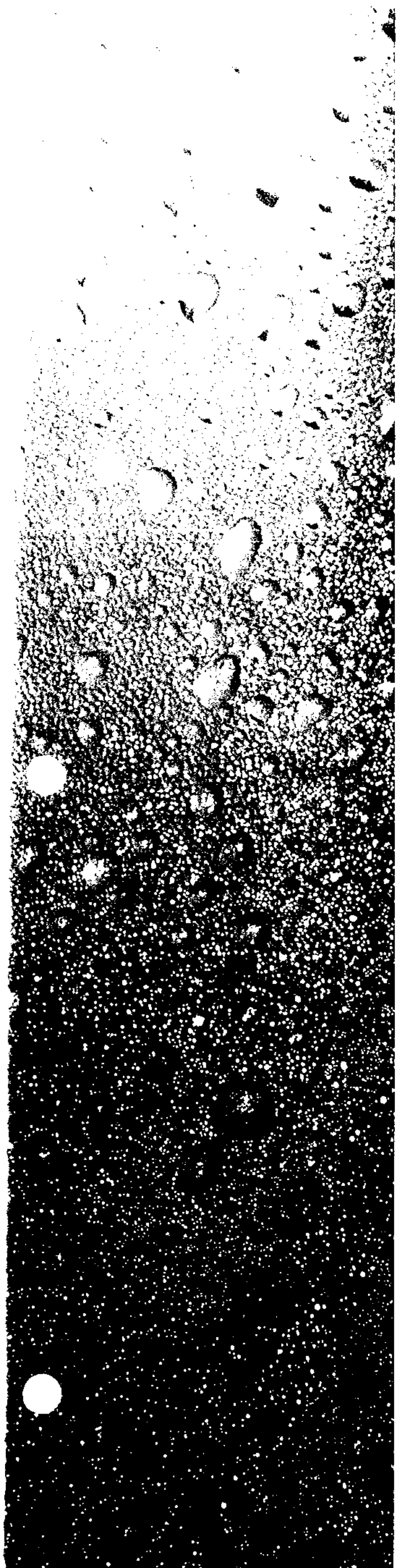
Solarex Corporation
Customer Service Department
1335 Piccard Drive
P.O. Box 6008
Rockville, MD 20850

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY ACCORDING TO JURISDICTION.



AXSYS MPU

- Instrument for water and wastewater monitoring, recording & controlling
- Built-in keypad and 2-line alpha-numeric display
- Data stored internally or on removable PCMCIA FLASH Data Card
- Fully portable, NEMA 4 enclosure
- RS-232 port standard for computer access
- Industry-standard digital, analog and serial (RS-232, SDI-12) sensor interfaces available



AXSYS MPU

The Stevens AxSys System is a microprocessor-based, low power instrument used for various applications involved in water and wastewater monitoring, recording and controlling.

The unit is designed to accept a variety of signal inputs for such variables as water level, flow, temperature, quality or other similar parameter. It offers a large memory capacity in a removable Stevens Data Card, which can be brought in from the field and read into a computer in the office. Additional onboard, non-volatile memory is also available for applications where the Data Card is not needed, or the security of redundant data storage is desirable.

The sensor interface is configurable to suit the particular application involved. Single parameter analog or digital sensing is possible for monitoring water level, temperature, flow or water quality. Multi-parameter sensing is possible using SDI-12 serial interface capability. Two opto-isolated output signals are optional, available for alarms, chemical pacing or triggering samplers.

Various hardware and operational firmware configurations provide the instrument the versatility to be applied in a wide variety of water and wastewater management applications. The simplicity of the keypad and display make set up and operation easy to understand for users at all levels of experience. Basic instrument operation is consistent from application to application, so there is no longer the need to learn how to operate many different types of instruments.

The instrument has a built-in keypad and display, which facilitates programming in the field without the need for a computer or other programming device. A simple, self-prompting menu leads the user through various programming options, allowing for quick and easy set up and configuration of the unit and applicable sensor.

WATER AND WASTEWATER APPLICATIONS

Surface Water Hydrology:

Stream gaging, water level, water flow, water quality.

Hydropower:

Headwater, tailwater, gate position and control, minimum flow monitoring, temperature and dissolved oxygen.

Groundwater:

Long-term aquifer studies, pump tests and slug tests, pump control.

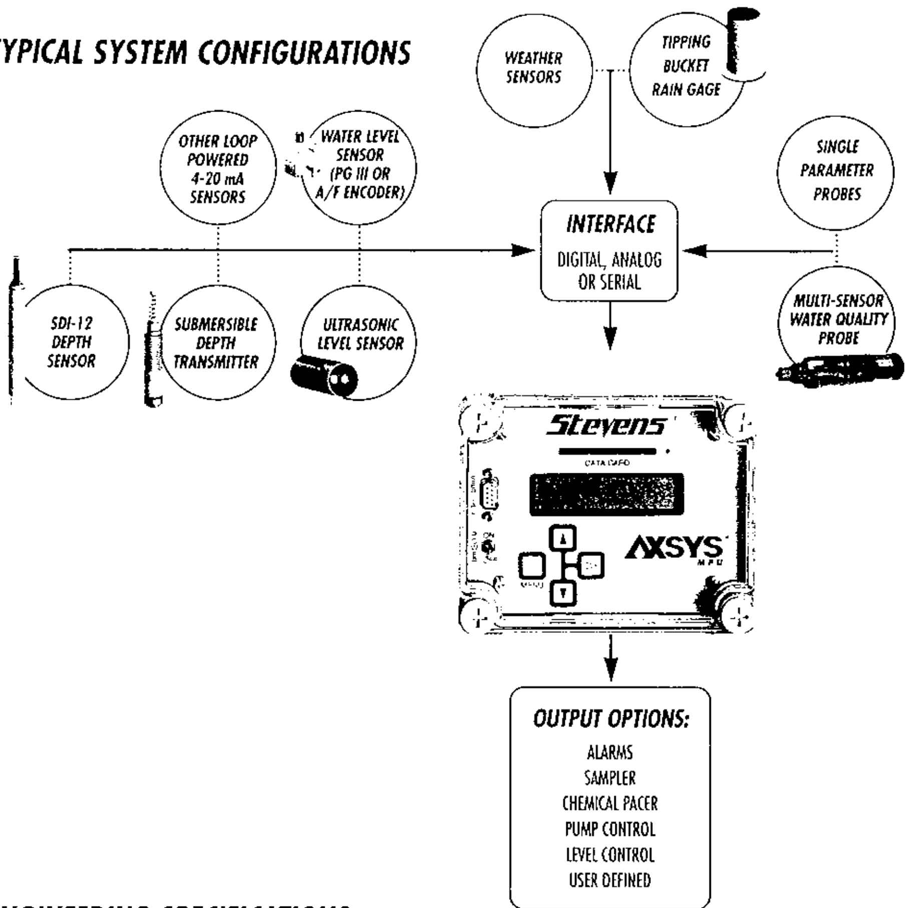
Stormwater:

Runoff, stream channel capacity, sampling for NPDES permitting.

Wastewater:

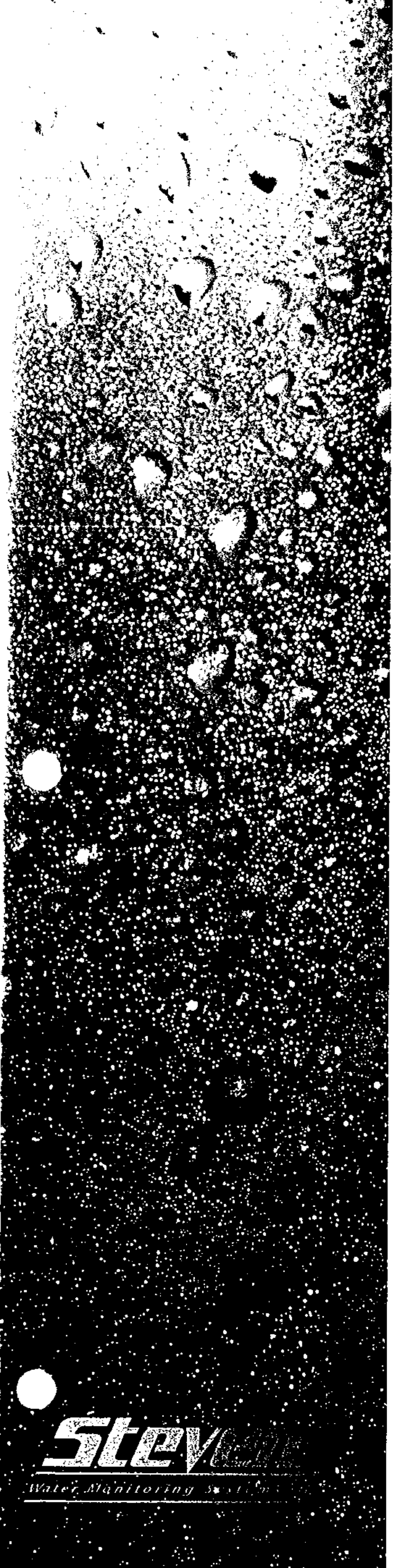
Open-channel flows in flumes and weirs, sampling and chlorination control, water quality.

TYPICAL SYSTEM CONFIGURATIONS



ENGINEERING SPECIFICATIONS

1. A basic instrument, capable of accepting one to four loop-power, 4-20 mA transmitting devices, a single, bidirectional or quadrature digital encoding device, a multiparameter serial interface sensing 8 parameters using SDI-12, or two loop-power, 4-20 mA transmitter devices and 6 parameters using SDI-12.
2. Power requirements shall be 12 volts DC, supplied from an external source.
3. The instrument shall have a built-in keypad and display, capable of field programming the unit. The display shall be 2 line by 20 character alpha-numeric, and the keypad an integral, 4-key, sealed membrane. The display shall also allow for review of recorded data.
4. The instrument shall have standard menu items for set up and various special menu items for overall system and sensor configuration. All setup and configuration settings shall be achieved through the keypad and display. No external programming device shall be required. No DIP switches or other hardware settings shall be required.
5. The instrument shall have a standard RS-232 port for access to set up parameters and transfer of stored data. Available baud rates shall be 300, 1200, 2400, 4800, 9600.
6. Data shall be stored on a removable Data Card, capable of storing 120,000 readings. The Card shall incorporate FLASH EPROM technology. It shall operate over a temperature range of -20 to +50 degrees Celsius. Optional operation down to -40 degrees Celsius shall be available. Size shall be 3.36" x 2.1" x .14". Additional onboard memory shall be capable of storing 60,000 readings, either as primary storage, or redundant, circulating storage in parallel to the Data Card.
7. The instrument shall operate over a temperature span of -40 to +70 degrees Celsius, to humidities to 100%, condensing, with the installation and maintenance of proper desiccant (NEMA 4/4X enclosure).
8. Available recording time intervals shall be: 1, 5, 6, 10, 15, 30 seconds, 1, 5, 6, 10, 15, 30 minutes, 1, 2, 4, 6, 8, 12, 24 hours. Also available shall be threshold recording, based on crossing above or below a programmed threshold level.
9. A real-time clock shall be internal to the instrument. It shall be battery-backed to maintain operation while the unit is powered down.
10. The instrument shall have user defined range and offset of -499.99 to 19999.99, with a maximum resolution of 1 part in 50,000.



SPECIFICATION HEADER

Power Requirements
10-17 VDC, <10 mA standby current (telemetry system may require additional power)

Size
5.3 x 6.7 x 5.15 inches (134 x 170 x130 mm)

Weight
3 lbs.

Number of Inputs
One digital, one or two analog, or 8 SDI-12 Serial MultiDrop

Keypad & Display
2x20 character alpha-numeric display, 4 key integral touch keypad

Recording Intervals
1, 5, 6, 10, 15, 30 seconds; 1, 5, 6, 10, 15, 30 minutes; 1, 2, 4, 6, 8, 12, 24 hours

Real-time Clock
Accuracy +/- 3 minutes/month, leap year correction

Non-volatile Memory
All setup parameters and clock, internal lithium battery

Serial Port
RS-232, minimum +/- 5VDC levels, 300 to 9600 baud

Environment
-40 to +70 degrees Celsius, to 100% humidity condensing in NEMA 4 configuration

On-Board Data Storage
FLASH EPROM, 128K Bytes, capable of storing 60,000 readings

Data Card
FLASH EPROM, PCMCIA, 256K Bytes, capable of storing 120,000 readings

Options
2 Alarms, Tipping Bucket Precipitation Input

SENSOR INTERFACE CAPABILITIES

DIGITAL

Number of Sensors
One

Sensor Type
Bi-directional pulse count or digital quadrature

Sensor Power
5 or 12 VDC continuous, or 5 VDC auto-switched for quadrature encoder

Maximum Rate
500 pulses per second

ANALOG

Number of Sensors
One to four

Input Type
2 wire, 4-20 mA current loop

Sensor Power
24VDC, under firmware control

Accuracy & Resolution
.25% accuracy, .1% resolution

SERIAL

Number of Sensors
Up to 8

Input Type
RS232 or SDI-12

Sensor Power
12 VDC continuous, 5 or 12 VDC under firmware control (switched)

Accuracy & Resolution
Sensor dependent

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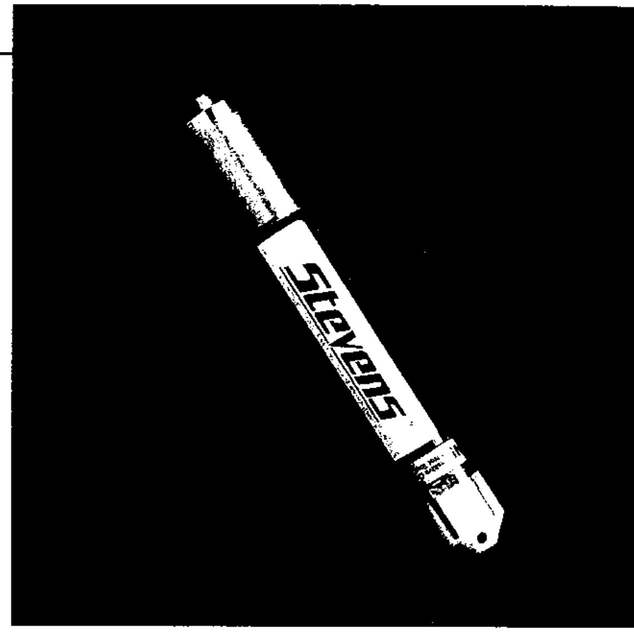
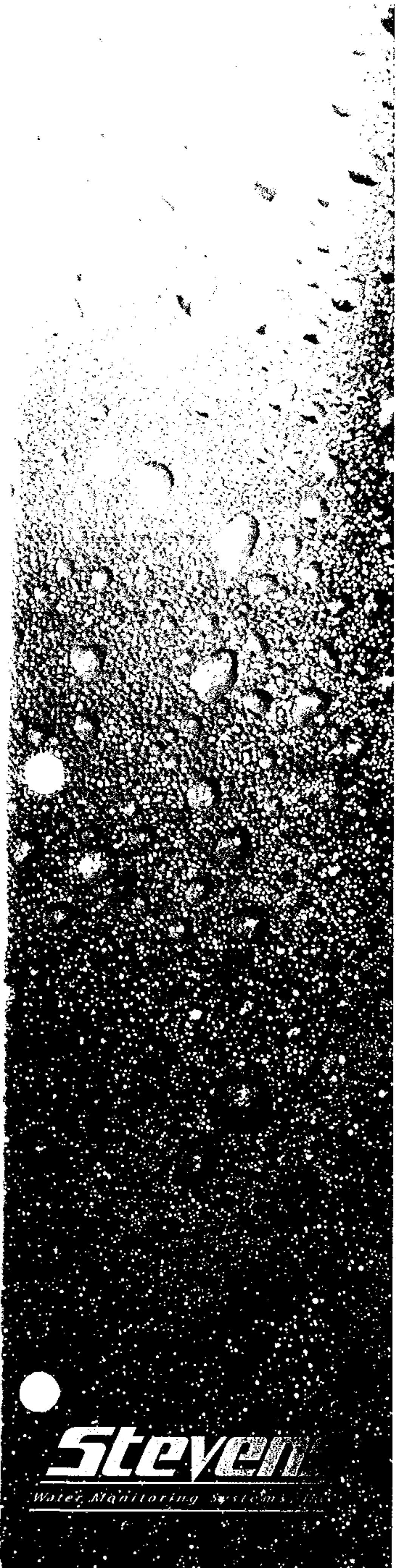


SDI DEPTH SENSOR

- SDI-12 serial interface capability
- Accuracy to better than .05%
- Ranges from 17.5 feet to 350 feet of water level change, full scale
- Rugged stainless steel construction
- Low power operation
- Small diameter - 1.18" (3.0 cm)
- Totally submersible

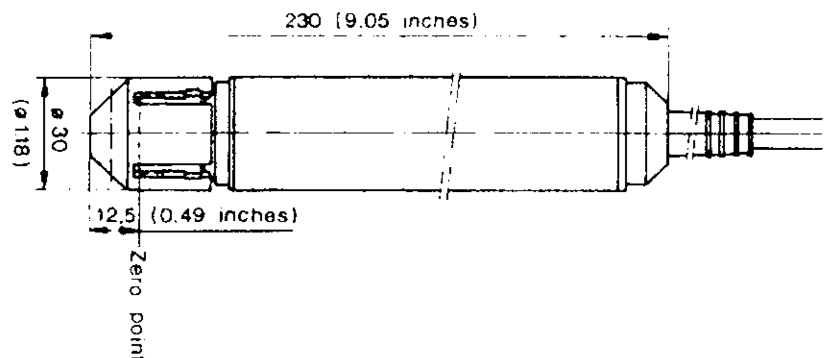


SDI DEPTH SENSOR

Stevens Water Monitoring Systems has a range of submersible water depth and temperature sensors, known as the Stevens SDI Depth Sensor. These sensors utilize the SDI-12 interface for operation with the AxSys MPU. The integrated unit is less than 1 1/4 inches in diameter and of stainless steel construction. Its depth sensing accuracy is .05% of full scale, and it is available in ranges from 17.5 feet to 350 feet of water.

The SDI Depth Sensor provides both depth and temperature signals in the SDI-12 interface format. Designed for use with the Stevens AxSys MPU, the sensor is capable of integrating into other systems using the SDI-12 smart sensor interface. Up to eight such sensors can be connected to the AxSys MPU, which can log up to eight different parameters.

The SDI Depth Sensor is available with custom cable lengths, and in fully integrated configurations for use with the Stevens AxSys MPU.



TECHNICAL SPECIFICATIONS

Ranges
0 to: 17.5, 35, 70, 175, 350 feet of water
0 to: 5.3, 10.6, 21.3, 53.3, 106.6 meters of water

Overpressure
3X

Accuracy, depth
.05% or .01 feet, whichever is greater

Accuracy, temp
< 1.8°F (< 1°C)

Operating temp
-4° to +160°F (-20° to +70°C)

Power
7.5 to 28 VDC, 600 uA stand-by

Max. Cable Length
1500 feet (457 meters)

Communication
Multidrop serial, three wire SDI-12, ASCII 7 bits, even parity, one stop bit

ORDERING INFORMATION

SDI-17.5
0 - 17.5 Feet of water

SDI-35
0 - 35 Feet of water

SDI-70
0 - 70 Feet of water

SDI-175
0 - 175 Feet of water

SDI-350
0 - 350 Feet of water

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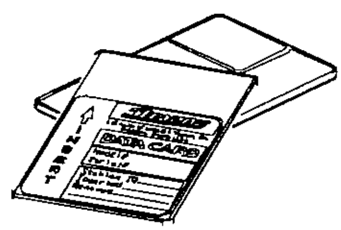
Data Cards

- *Solid state memory devices for data storage*
- *Used with Stevens Data Loggers*
- *FLASH EPROM and battery-backed SRAM versions*
- *Extended temperature operation for harsh field conditions*
- *Erasable and reusable*
- *Data transfer to PC using PCM2 Dual Card Reader*



The Stevens Data Cards are solid state memory devices for use with Stevens data loggers. These devices provide the data storage for the loggers. The cards provide a convenient method for retrieving field data, simply by removing the card from a logger and replacing it with one that has been cleared. The card with data can be returned to the office for transfer of information to a PC, using the Stevens PCM2 Dual Card Reader.

There are two types of Data Cards. The DC64 SRAM card with internal battery is for use with Stevens Type A/F, 420, and Pulse Loggers, as well as the MultiLogger. The FC256 FLASH EPROM Card is for use with the Stevens GS-93 Water Level Monitoring System.

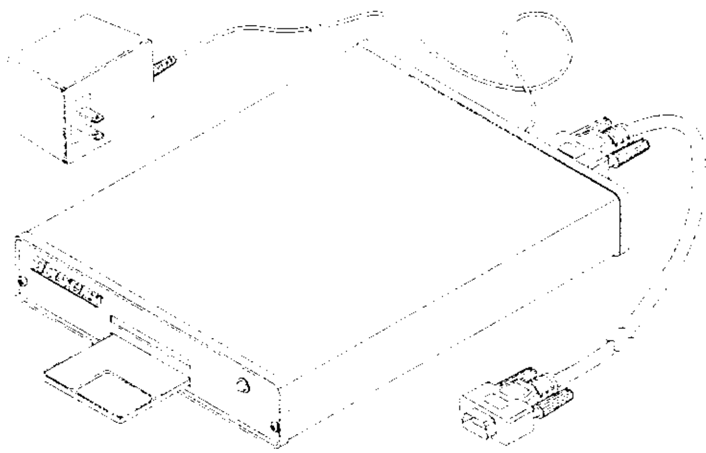
DC64. The DC64 contains 64K Bytes of battery backed SRAM. A small area on the back side of the card houses a lithium battery for maintaining the memory as non-volatile. Battery life is typically 6 months under normal operating temperatures, and 3 months in temperatures above 45 degrees Celsius.

FC256. The FC256 is a Data Card which conforms to the PCMCIA standard for PC card interface. It contains 256K Bytes of FLASH EPROM memory, and requires no back-up battery for data storage.

General. Data Cards require no special setup or formatting before being used in the field. The appropriate logger accesses the card when installed and performs all necessary formatting operations. A card with data already on it will not be erased. New data will be stored in memory locations beginning at the end of existing data. Data is only removed from the card when it is cleared, either in a PCM2 Card Reader or in a logger itself, when accessed through the logger's serial communications port. Cards are cleared entirely, with no provisions for clearing partial data. Data storage is non-circulating. New data does not write over old data. If the card is full, no additional data will be recorded.

Data is stored on the card in a compacted data format. This data is accessible through the logger serial port or a PCM2 Card Reader as an ASCII text file, formatted with headers and data readings in a 6 column configuration. Additional software utilities from Stevens can be used to format this data into columns for further data manipulation by standard spread sheet programs. Typical data storage capacity for different recording time intervals on single parameter loggers is shown in the table below.

TIME INTERVAL	STORAGE IN DAYS	
	DC64	FC256
1 SECOND	1/3	1 1/2
00:01	22	90
00:05	111	443
00:06	133	529
00:10	219	866
00:15	323	1270
00:30	615	2379
01:00	1125	4222



PCM2 Dual Card Reader, shown with DC64 Data Card Inserted

DATA CARD SPECIFICATIONS		
	DC64	FC256 (PCMCIA)
Battery	CR2016 (BR2016 opt.)	None
Size	3.37 x 2.16 x .14 inches (85.6 x 55 x 3.5 mm)	3.37 x 2.126 x .12 inches (85.6 x 54 x 3 mm)
Weight	1 oz. (28 gm)	
Connector style	Single row	Dual Row
Capacity	64K Bytes	256K Bytes
Storage, # of Readings	30,000	120,000
Environment	-20 to +50 degrees Celsius (Optional to -40 Degrees) Humidity 0-95%, non-condensing	

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Water Monitoring Systems
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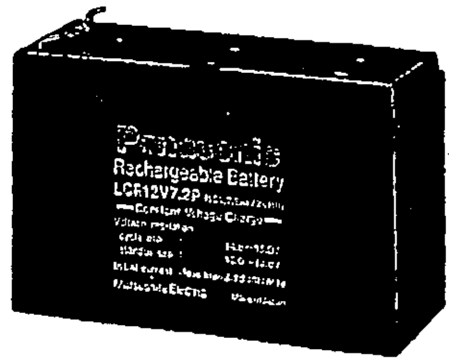
LCR 12V7.2P (High Capacity Type)

■ Specifications

Nominal Voltage		12V
Rated Capacity (20 hour rate)		7.2Ah
Dimensions	Total Height (with terminals)	3.94 inches(100 mm)
	Height	3.70 inches(94 mm)
	Length	5.95 inches(151 mm)
	Width	2.54 inches(64.5mm)
Mass		Approx.5.45lbs(2470g)

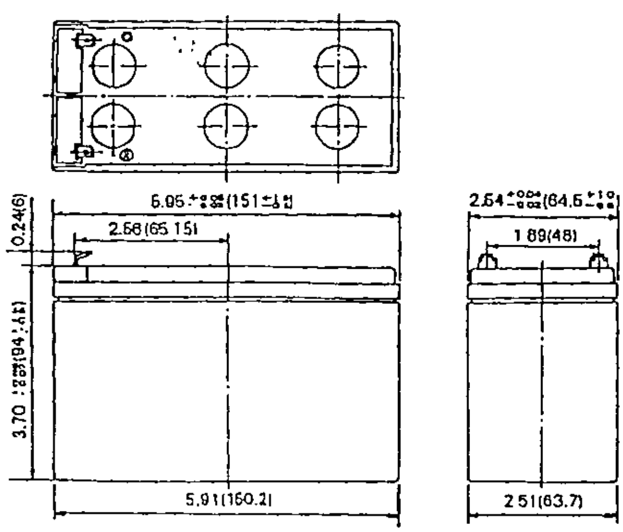
NOTE: The container material of the current model corresponds to UL94HB material. And the color is black.
*The container material of the optional new model "LCV12V7.2P" corresponds to UL94 V-0 material. And the color of this new model is gray.



*The marking of battery (including the Recycling Symbol) may be changed without notice.

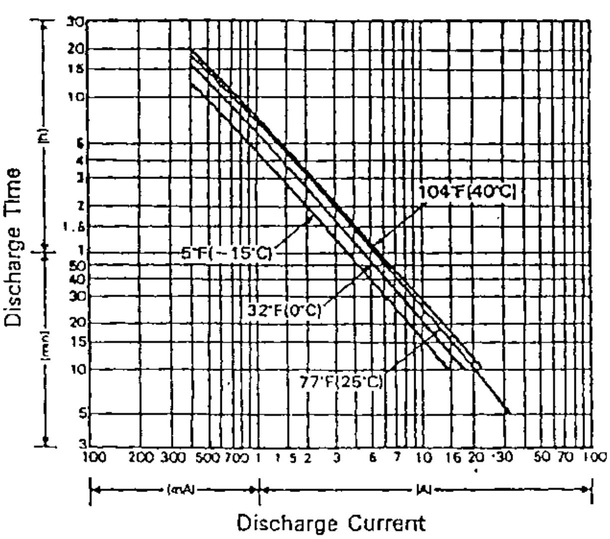
■ Characteristics

Capacity* 77°F(25°C)		20 hour rate (360mA)	7.2Ah
		10 hour rate (680mA)	6.8Ah
		5 hour rate (1260mA)	6.3Ah
		1 hour rate (4900mA)	4.9Ah
		1.5 hour discharge to 10.5V	3.5A
Internal Resistance		Full charged Battery 77°F(25°C)	40mΩ
Capacity affected by Temperature (20 hour rate)		104°F(40°C)	102%
		77°F(25°C)	100%
		32°F(0°C)	85%
		5°F(−15°C)	65%
Self-Discharge 77°F(25°C)		Capacity after 3 month storage	91%
		Capacity after 6 month storage	82%
		Capacity after 12 month storage	64%
Terminal	Standard	LCR12V7.2P	AMP Faston type 187
	Optional	LCR12V7.2P1	AMP Faston type 250
Charge (Constant Voltage)	Cycle	Initial Charging Current less than 2.88A Voltage 14.5~14.9V/12V 77°F(25°C)	
	Stand-by	Voltage 13.6~13.8V/12V 77°F(25°C)	

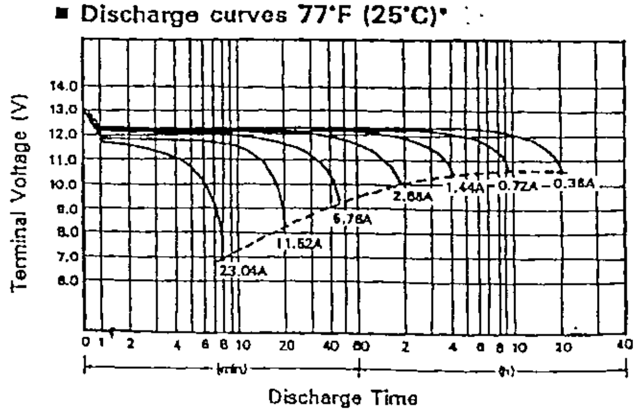


Unit : Inch(mm)

■ Discharging Current & Discharge Duration Time*



■ Discharge curves 77°F (25°C)*



*The above data are average values, and can be obtained within 3 charge/discharge cycles. These are not minimum values.