

SPECIAL PUBLICATION SJ 84-SP1
REPORT ON UNCONTROLLED FREE
FLOWING ARTESIAN WELLS –
FREE FLOWING WELL
PLUGGING PROGRAM

1983

By

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Water Resources Department
St. Johns River Water Management District

Palatka, Florida

December 1983

Project Number 20 018 02

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INTRODUCTION

There are a large number of free flowing wells in Florida. Many of these wells were drilled years ago for agricultural or mosquito control purposes. Many are no longer needed but have been abandoned and their flow is uncontrolled. These uncontrolled free flowing wells are a cause for serious concern for three reasons: 1. wasting of the water resource, 2. interaquifer contamination, and 3. danger of salt water intrusion due to lowered artesian pressure.

In 1983 the Legislature of the State of Florida enacted legislation (Water Quality Act of 1983), which addresses the concerns of free flowing wells. Part IV of the "Water Quality Act of 1983" defines an abandoned artesian well as a well without proper flow control at or below the land surface or that does not meet current well construction standards. Also, a well in which the use has been permanently discontinued or cannot be used without having an adverse impact on an aquifer which is presently a source of drinking water or may be a source in the future.

The "Water Quality Act of 1983" also directs the water management districts to prepare an inventory of these wells known in their respective districts. Each of the water management districts are to submit their inventory and a detailed work plan for plugging these wells to the Department of Environmental Regulation by January 1, 1984. The water management districts are also required to submit updates yearly until 1992 or until all inventoried wells have been plugged.

PURPOSE AND SCOPE

This document was prepared for presentation of related inventory data and technical information to comply with the requirements of Part IV of the "Water Quality Act of 1983." Information contained in this document follows the general guidelines that were provided by the Department of Environmental Regulation (Appendix A). This document was also prepared for public distribution to show the District's progress in pursuing the problems of uncontrolled free flowing wells and to provide effective planning for future work in this field.

PREVIOUS WORK

An original inventory of uncontrolled free flowing wells was conducted during the 1950's by the Florida Geological Survey, (Healy 1978). There were approximately 1,000 of these wells within the St. Johns River Water Management District. Since the original inventory, the surface discharge of many free flowing wells has been controlled but may cause an undesirable condition if allowed to flow uncontrolled beneath the land surface. (Figure 1)

In 1981 the St. Johns River Water Management District organized and initiated a free flowing well plugging program. Since the organization, the program has been attentive to three major objectives: 1. public awareness of the problems related to uncontrolled free flowing wells and the program's objectives, 2. inventorying and data collection of the wells reported and 3. plugging or controlling the flow of the wells.

The District has established contacts in Federal, State, County and local Government agencies to obtain well locations. In cooperation with some of the agencies, the District has circulated literature explaining the well plugging program. Press releases were sent to over 30 newspapers requesting public input of free flowing well information, (Appendix B). The program's efforts are concentrated in areas of the District where wells penetrating the Floridan aquifer are known to discharge at the land surface, (Figure 2). From these combined efforts 293 wells have been reported and inventoried, (Figure 3). The wells were field checked by District personnel and data collected was entered into the District's computer system.

The next step was to prioritize areas that were affected by the wells. Top priority was given to the barrier islands of south Brevard and north Indian River Counties. Here a lense of fresh water is density stratified over poorer quality water. Water discharged from free flowing wells is the largest local

stress on the lense. In cooperation with Brevard County, 15 wells have already been plugged in this area, (Figure 4). By plugging the wells the life of the fresh water resource has been prolonged.

Second priority was given to an abandoned oil test well (Bethesda Retirement Home Project) discharging approximately 1200 GPM. By reconstructing this well, a useful controlled well has been developed.

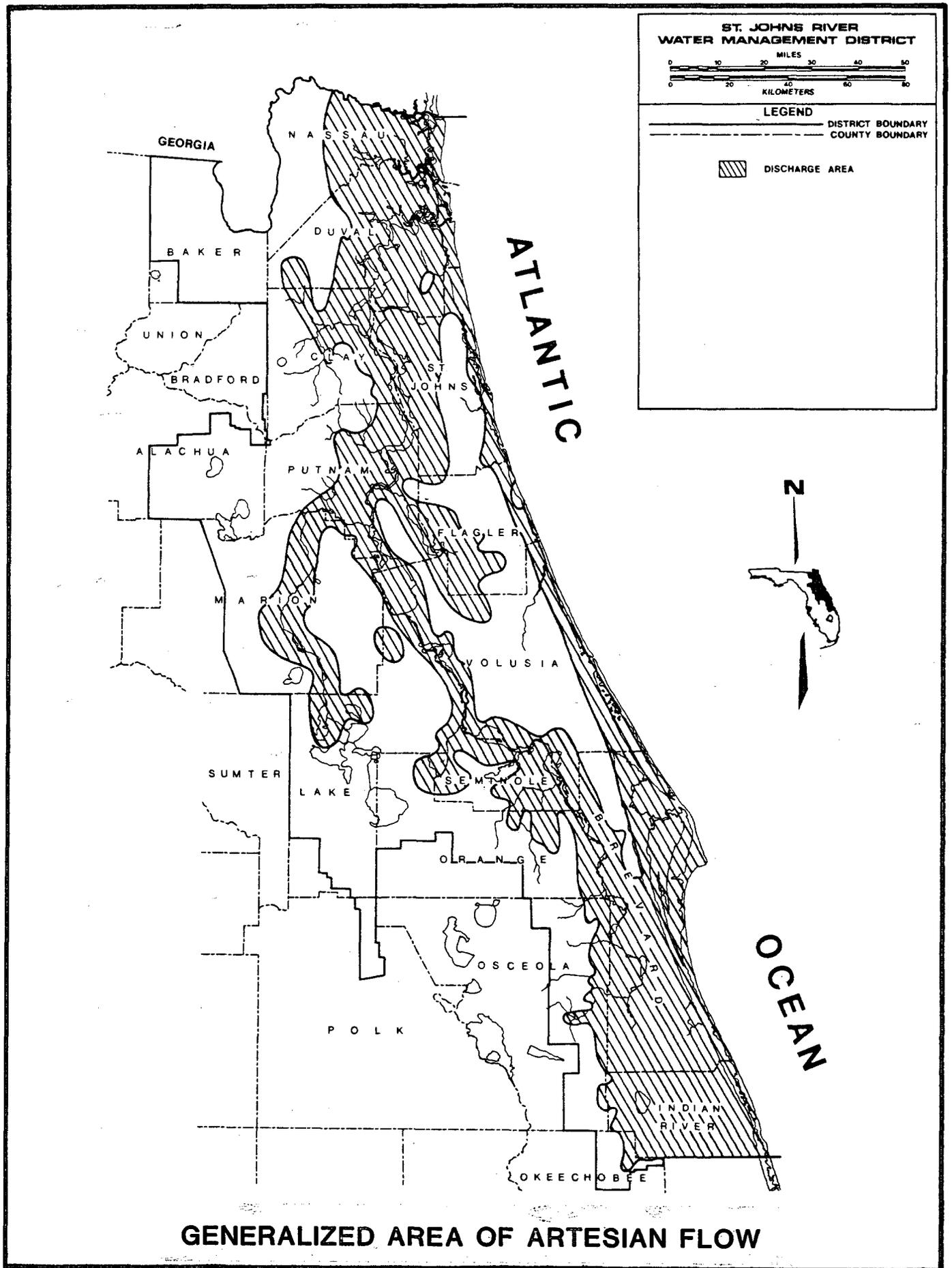


Figure 2.

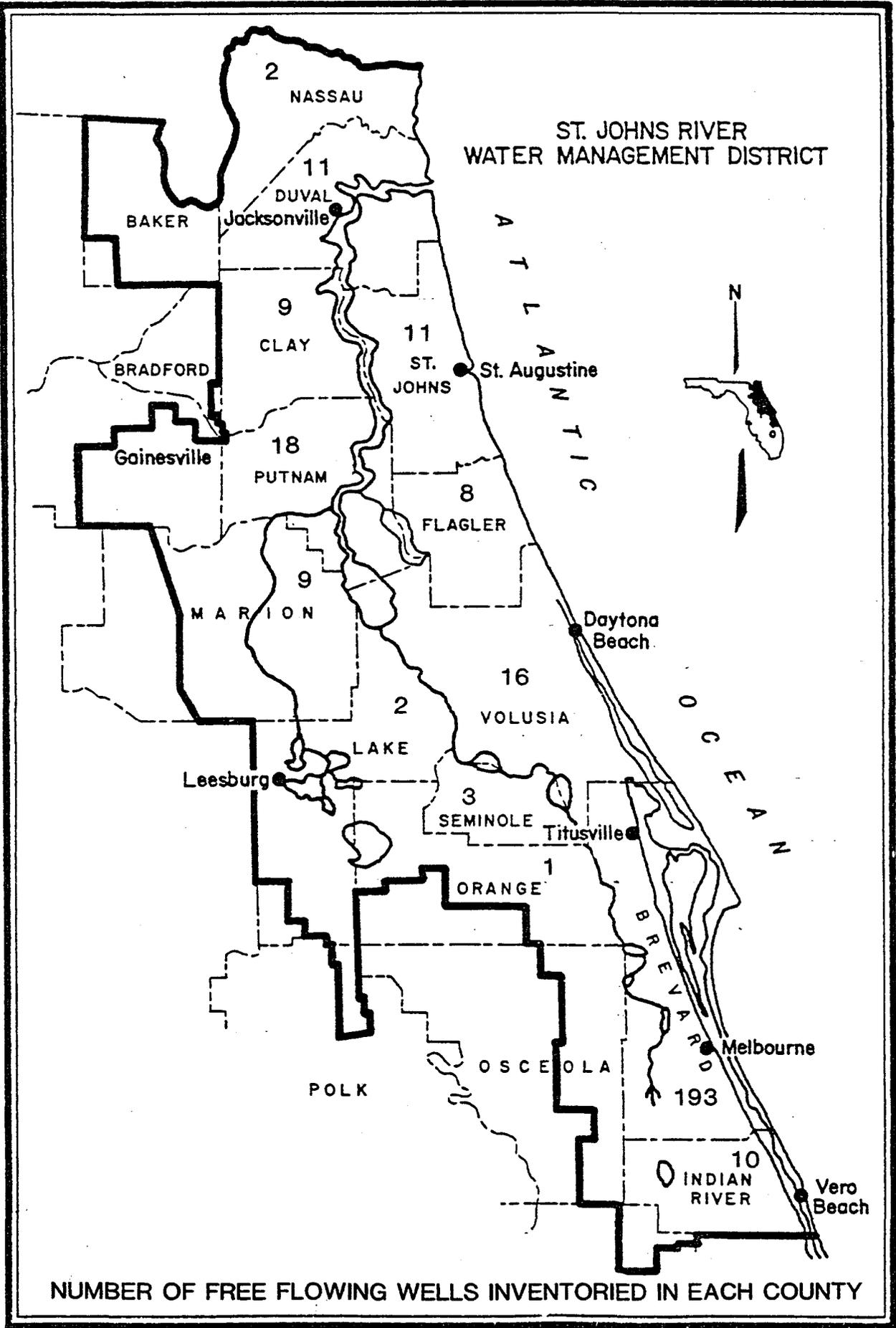


Figure 3.

SOUTH BREVARD CO.

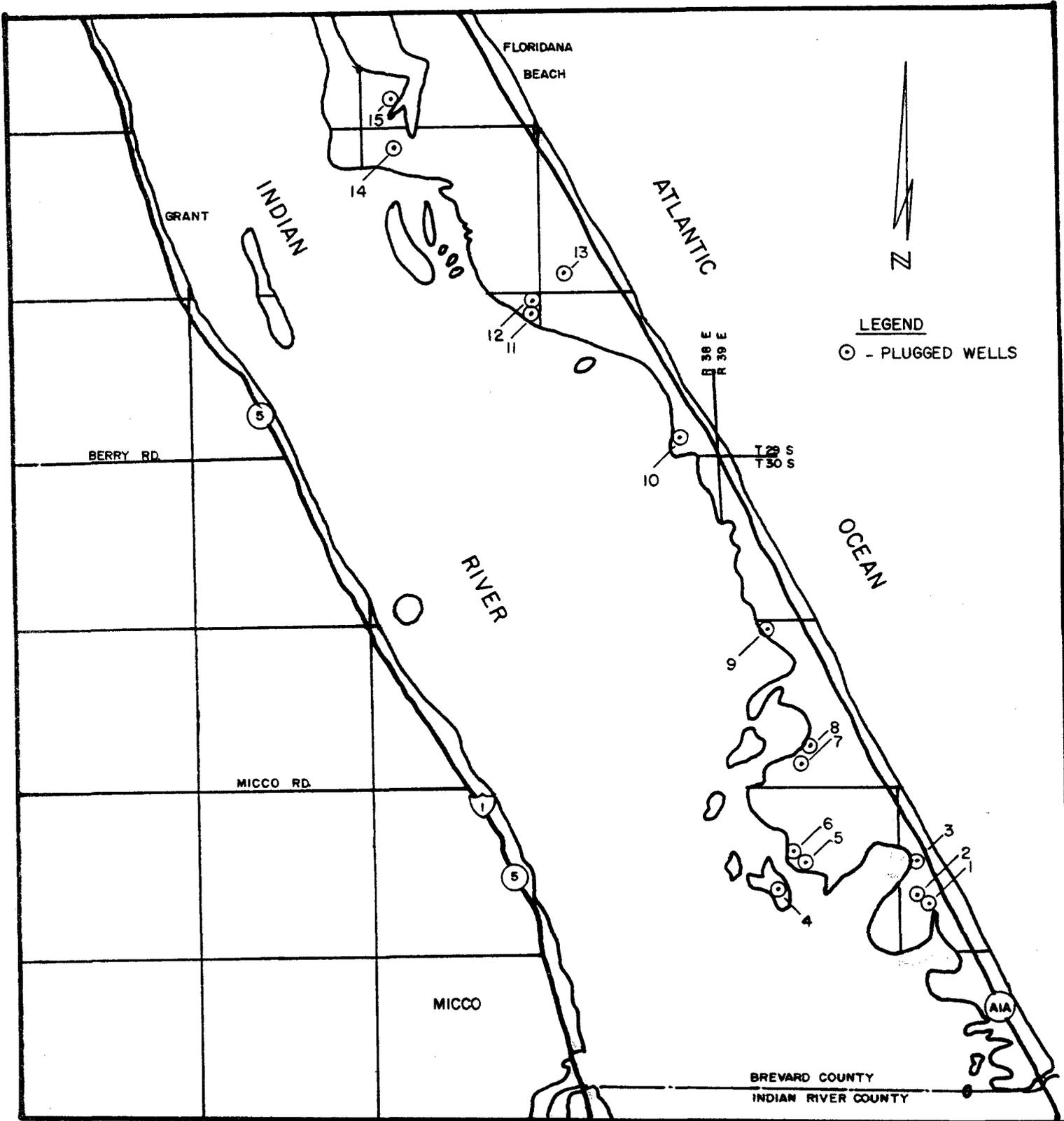


Figure 4. Location of Wells Plugged by the Free Flowing Well Plugging Program

WELL PLUGGING PROGRAM

Inventory

As of January 1, 1984, St. Johns River Water Management District has received reports of approximately 300 uncontrolled free flowing wells. Brevard County has simultaneously conducted an inventory of free flowing wells. The combined efforts located over 160 wells in Brevard County. This was the highest density of wells located in the District.

Each well reported is (if accessible) field checked by a District hydrologist or an engineering technician. The wells are photographed, mapped and assigned their respective latitude and longitude coordinates. Water quality samples from each well are collected and analyzed. The rate of flow is determined. This information is then stored on the data base of the District's computer system, (Appendix C). When specific geological information or details of well construction and condition are necessary, the well is geophysically logged by the District.

Areas where future extensive inventories are planned include Port Malabar Development in Palm Bay, the Hammock area of Flagler County, Indian River County, and further work in Brevard County. Coordination has begun with NASA hydrologists and engineers to initiate an extensive search for and inventory of uncontrolled free flowing wells at the Kennedy Space Center Properties. These are regions wherein hydrologic and geologic conditions are such that wells in these areas rank high in priority.

Priority

A priority system has been established in the District's Well Plugging Program to rank groups of wells according to the impact of the wells on the water resources of the area. The criteria considered when grouping wells

include; the quality of water being discharged or involved in interaquifer flow, the quantity of the water, the well construction, and the physical conditions of the well. The District has identified and ranked eight groups which would be indicative of these criteria. When specific hydrologic information is evaluated for a particular well or group of wells, the wells are prioritized accordingly. The priority groups established are as follows: #1 is the highest priority, #8 is the lowest priority.

1. Good quality water in limited supply with no recharge (an isolated lense of fresh water).
2. Good quality water in large supply with no recharge.
3. Good quality water in limited supply with recharge.
4. Poor quality water contaminating fresh shallow aquifers (areas dependent on shallow aquifers for potable water supply will have higher priority).
5. Poor quality water directly contaminating fresh surface water bodies (areas that exhibit rapidly increasing chloride levels will have higher priority).
6. Good quality water in large supply with recharge.
7. Poor quality water contaminating shallow aquifers exhibiting high chloride levels.
8. Poor quality water directly contaminating brackish or salt water surface water bodies.

Plugging Methodology

SJRWMD's first step in the well plugging process is to set up communications with other involved organizations or parties (i.e., Government agencies, property owners, and special interest groups). Through communications with the respective organizations and parties, explanation of the free flowing well program and discussion of the legalities, technical information, procedures,

objectives and finances of a particular well plugging project can be initiated. By obtaining a mutual understanding of these aspects of the project, an effective and feasible work plan can be devised and agreed on.

An explanation of the importance and priority of a particular plugging project is first presented. This is to encourage interest and cooperation with the respective parties involved and to minimize objections of parties opposed to the proposed project. Legal procedures are discussed so that the District's statutory authority and responsibilities (related to uncontrolled free flowing wells) can be understood and so that enforcement action can be set forth when appropriate. Cost estimates, actual costs from previous projects, and financial responsibilities of the respective parties are considered. When cost-sharing and other provisions are established, a cooperative agreement for the funding and responsibilities of the project is usually executed. (Appendix D)

Detailed specifications for the project are prepared in accordance with SJRWMD Rules Chapter 40C-3 Revised Edition. These detailed specifications include contract procedures and forms, technical specifications and detailed plugging specifications. (Appendix D) Permitting procedures are carried out when applicable.

Types of Plugs

The condition of the well, the hydrologic situation of the area influenced by the well and the financial considerations, dictate one of three types of plugs commonly used. If the well does not present any water quality problems or depletion of one aquifer to another through interaquifer flow, the most efficient way to preserve the quantity of the water resource being wasted is to install a workable valve.

Uncontrolled free flowing wells that are in high priority areas usually need to be plugged by one of the other two types of plugs. When it is necessary to stop the flow of the well at the source, plugging the well by backfilling or the QWIP (Quality of Water Improvement Program, Southwest Florida Water Management District) plug methods are considered. The backfilling method is a conventional method used to grout the entire borehole. The grout material is placed in the borehole through a tremie pipe. The grouting operations will proceed in stages as the tremie pipe is raised out of the well. The depth at which the tremie pipe is placed and the amount and type of grout mixture pumped, will be specified either in the detailed specifications or by the District Hydrologist at the job site.

The term QWIP plug refers to the QWIP bridging plug (schematically shown and cross section showing the placement of the plug in the borehole; (Figures 5 & 6). The plug is assembled as it is lowered into the well. The sock (burlap sack) is clamped at the bottom and top of each joint contained within the sock. The pipe, with threaded adaptor at the top, is perforated by seven (7) holes of 1/2 inch diameter from one (1) to three (3) feet above the bottom to allow cement slurry to flow from the pipe into the sock. A cone shaped centralizer is affixed to the bottom of the pipe. The top of the plug is connected to the contractor's tremie by coupling and a nipple with appropriate diameter right-hand threads on one end and coarse left-hand threads on the other. This left-hand threaded joint allows a positive disconnect of the tremie pipe from the plug. The plug assembly is lowered to the prescribed depth on the contractor's tremie. When set to depth specified, the QWIP plug will be filled with the cement grout mixture called for in the detailed specifications or as ordered by the project manager on the job site.

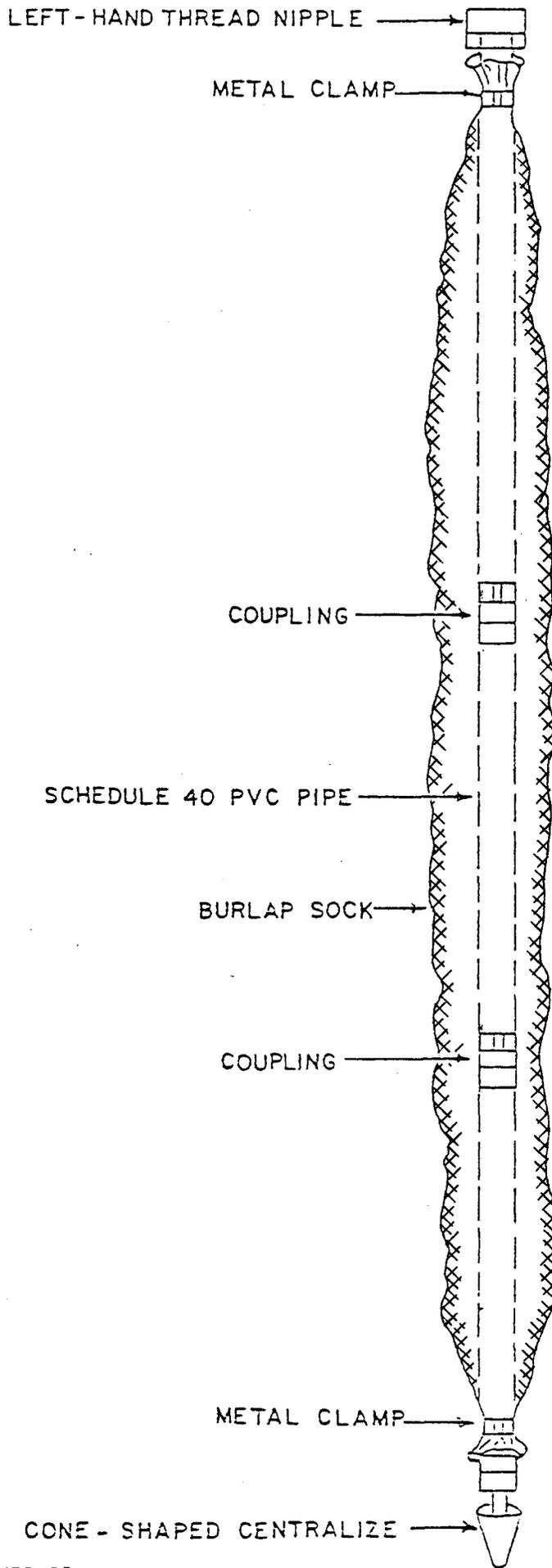


Figure 5. QWIP Plug

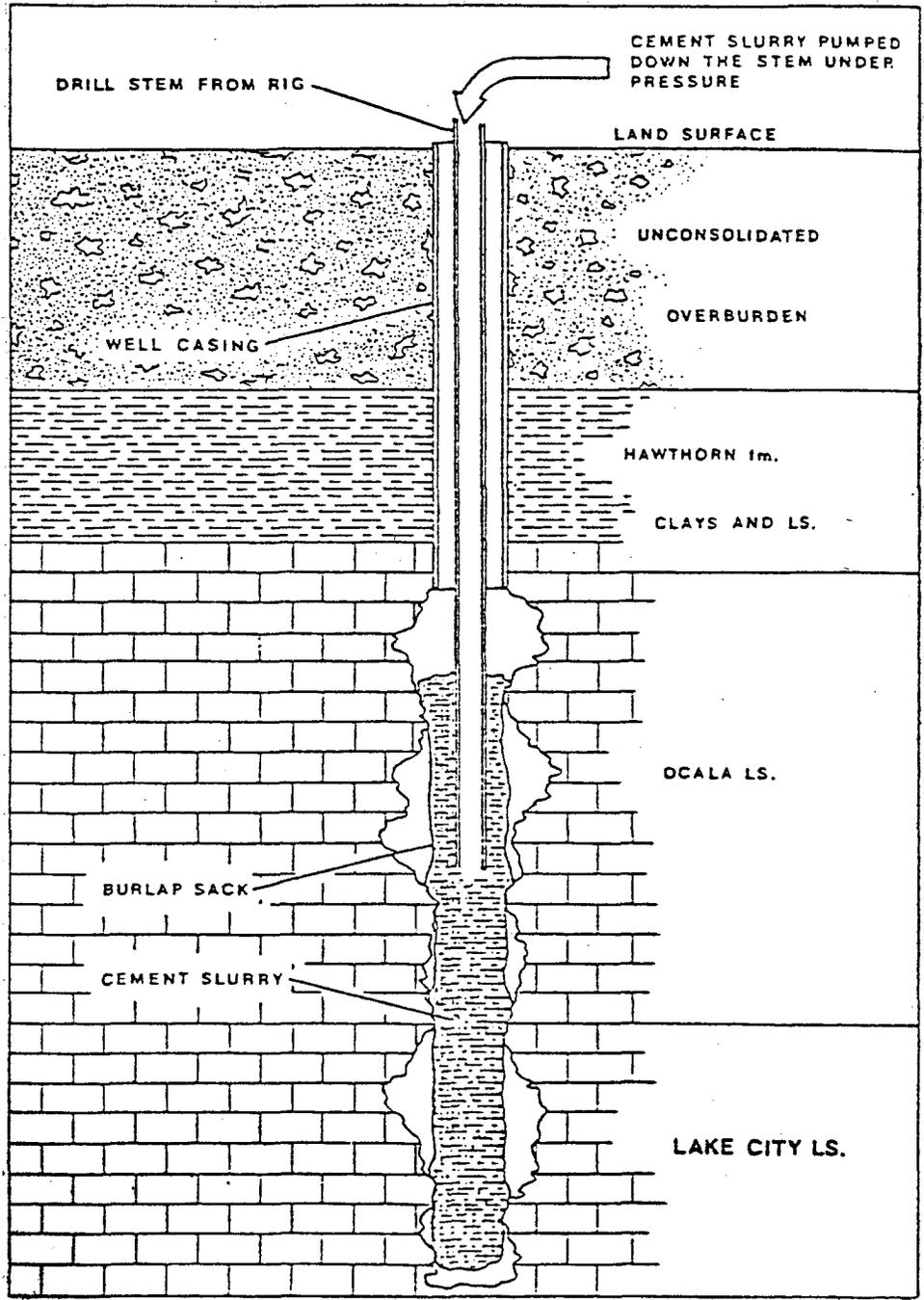


Figure 6. Generalized Cross Section Showing the Placement of the Plug within the Aquifer.

PROPOSED SCHEDULING

According to the District's estimates there are approximately 600 uncontrolled free flowing wells. Over the first three (3) years of the program 16 wells have been plugged and half of the estimated number of the existing free flowing wells have been located and inventoried. Throughout the nine (9) remaining years of the program (until 1992) efforts will be continued to locate all of the existing uncontrolled free flowing wells in the District. All of the methods previously mentioned will be utilized in the District's effort to locate the wells.

Well plugging scheduling will be directed, as funding is available, to plug 65 wells a year. This will equal the total amount of estimated free flowing wells to be plugged in nine (9) years (by 1992). The District, when feasible, will seek cost sharing in cooperation with concerned land owners, special interests and government agencies. The priorities established by the well plugging program will be considered for the scheduling of the free flowing wells to be plugged with District funds.

Currently 16 wells are tentatively scheduled to be plugged, beginning in mid-December 1983 to early February 1984. These wells are all located in high priority areas of the Barrier Islands, City of Melbourne and Palm Bay in Brevard County. Scheduling of wells to be plugged this year will continue as funding is available.

COSTS

Tables 1 and 2 have been prepared to show the breakdown and the averages of the actual costs of plugging 16 wells and money expended for District support of the plugging program, during the first three years. Actual costs for plugging includes money spent for contractual services, materials, and equipment rental. Also included in the actual cost of Bethesda Retirement Home project was the cost of District personnel on the job site other than the project manager for the Free Flowing Well Plugging Program. Other projects did not require the services of other District personnel on the job site.

A hydrologist is assigned project manager for the Free Flowing Well Plugging Program. The project manager works full time on the project, which includes organization, inventory, correspondence, and field work related to the project. Other costs incurred would be supportive personnel, administrative personnel, and supportive commodities furnished by the District.

To comply with the guidelines provided by the Department of Environmental Regulations, Tables 3 and 4 were prepared to show estimated future costs. These tables were based upon actual cost incurred over the first three years of the well plugging program. Estimated costs were prepared including a projected 6% inflation rate per year. Table 5 is a summary of Tables 3 & 4 to show the total estimated costs for completing the well plugging project by 1992.

Table 1. Actual Plugging Cost

| | |
|--|-----------------|
| Sebastian Inlet Project (15 Wells Plugged) | |
| Total Cost | \$19,293.14 |
| Average Cost Per Well | 1,286.21 |
| Bethesda Retirement Home Project (Oil Test Well) | |
| Costs | <u>9,968.80</u> |
| Combined Cost from Both Projects | \$29,261.94 |
| Average Actual Cost Per Well | 1,828.87 |

Table 2. Cost to SJRWMD for Program Support
(Includes Salaries and Commodities)

| | |
|--|---------------------|
| Fiscal Year 1980/1981 | \$ 12,725.68 |
| " " 1981/1982 | 47,337.85 |
| " " 1982/1983 | 36,440.25 |
| Sub Total | <u>\$ 96,503.78</u> |
| Additional Administrative Cost (12%) | 11,580.45 |
| Total | <u>\$108,084.23</u> |
| Less Contractual Plugging Cost (Table 1) | <u>\$ 29,261.94</u> |
| Total Amount Spent for Free Flowing Well Plugging Program Support | \$ 78,822.29 |
| Average Cost Per Year | \$ 26,274.10 |

Table 3. Estimated Average Cost to SJRWMD Per Year
Until 1992 for Program Support

| | |
|---|------------------|
| Total Cost for First 3 Years (From Table 2) | \$ 78,822.29 |
| Average Cost Per Year (From Table 2) | 26,274.10 |
| Projected Average Cost Per Year Until 1992* | |
| Fiscal Year 1983/1984 | \$ 27,850.55 |
| " " 1984/1985 | 29,521.58 |
| " " 1985/1986 | 31,292.87 |
| " " 1986/1987 | 33,170.45 |
| " " 1987/1988 | 35,160.67 |
| " " 1988/1989 | 37,270.31 |
| " " 1989/1990 | 39,506.53 |
| " " 1990/1991 | 41,876.92 |
| " " 1991/1992 | <u>44,389.54</u> |
| Total of the Average Yearly Support Costs (9 Years) | 320,039.42 |
| Estimated Cost Per Well (585 wells) | 547.08 |

Table 4. Estimated Cost for Actual Plugging
(Based on Average Cost from Table 1)

| | |
|---|-------------------|
| Total Number of Wells to Plug | 585 |
| Number of Wells to be Plugged Per Year (9 Years) | 65 |
| Average Cost Per Well (Table 1) | \$ 1,828.87 |
| Average Cost Per Year | 118,876.55 |
| Projected Average Cost Per Year Until 1992* | |
| Fiscal Year 1983/1984 | \$126,009.14 |
| " " 1984/1985 | 133,569.69 |
| " " 1985/1986 | 141,583.87 |
| " " 1986/1987 | 150,078.90 |
| " " 1987/1988 | 159,083.64 |
| " " 1988/1989 | 168,628.66 |
| " " 1989/1990 | 178,746.38 |
| " " 1990/1991 | 189,471.16 |
| " " 1991/1992 | <u>200,839.43</u> |
| Estimated Total Cost for Plugging 585 Wells in 9 years | \$1,448,010.87 |
| Estimated Cost Per Well | 2,475.23 |

*Indicates, included 6% inflation rate.

Table 5. Estimated Total Program Cost

| Fiscal Year | Estimated Program Support Cost (Table 3) | Estimated Cost for Plugging (Table 4) | Estimated Total Program Cost |
|-------------|--|---------------------------------------|------------------------------|
| 1983/1984 | \$27,850.55 | \$126,009.14 | \$ 153,859.69 |
| 1984/1985 | 29,521.58 | 133,569.69 | 163,091.27 |
| 1985/1986 | 31,292.87 | 141,583.87 | 172,876.74 |
| 1986/1987 | 33,170.45 | 150,078.90 | 183,249.35 |
| 1987/1988 | 35,160.67 | 159,083.64 | 194,244.31 |
| 1988/1989 | 37,270.31 | 168,628.66 | 205,898.97 |
| 1989/1990 | 39,506.53 | 178,746.38 | 218,252.91 |
| 1990/1991 | 41,876.92 | 189,471.16 | 231,348.08 |
| 1991/1992 | 44,389.54 | 200,839.43 | 245,228.97 |
| | | Total Cost | \$1,768,050.29 |
| | | Average Total Cost Per Well | \$ 3,022.31 |

CONCLUSION AND SUMMARY

According to United States Geological Survey References (Healy, 1978), there are approximately 1,000 artesian flowing wells within the St. Johns River Water Management District. Since the USGS's inventories and estimates, many of the wells have been abandoned or brought under control (as far as surface discharge) for future use by the owners, because of the developed concern over the years. When not abandoned properly, free flowing wells may continue to have a grave effect on the water resources of the area due to interaquifer contamination. Wells that are capped and not reported become increasingly difficult or impossible to locate and properly abandon. The District will continue to work with private well owners on request to evaluate suspect wells for remedial action.

The inventory of approximately 300 free flowing wells in the St. Johns River Water Management District is estimated to be 50 to 60 percent of the actual number of wells existing that would meet the program's responsibilities and objectives. The District's Well Plugging Program is continuing an extensive search for these wells through increasing efforts in public awareness and cooperation. The District is also increasing the scheduling of wells to be plugged to a maximum number, as each year's budget allows. Evaluation of the Program's priority criteria will be considered and followed to insure effective progress in protecting the water resource from problems resulting from uncontrolled free flowing wells.

REFERENCES

Healy, H. G., 1978, Appraisal of uncontrolled flowing artesian wells in Florida, U. S. Geological Survey WRI 78-95, 26 pages.

Munch, D. A., 1978, Improvement of water quality through a cooperative well plugging program, St. Johns River Water Management District Information Circular No. 2, 18 pages.

"Water Quality Act of 1983"

APPENDICIES

APPENDIX A

OUTLINE PROVIDED BY DEPARTMENT OF ENVIRONMENTAL REGULATION

('Subject Headings' and Page Numbers correspond with
respective information in this document.)

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

TWIN TOWERS OFFICE BUILDING
2600 BLAIR STONE ROAD
TALLAHASSEE, FLORIDA 32301-8241



BOB GRAHAM
GOVERNOR
VICTORIA J. TSCHINKEL
SECRETARY

October 12, 1983

Mr. Doug Munch
St. Johns River Water
Management District
Post Office Box 1429
Palatka, Florida 32077

RE: Artesian Well Plugging Workplan

Dear Mr. Munch:

Part IV of the Water Quality Assurance Act directs the five water management districts to prepare inventories and workplans outlining methods and costs of plugging all abandoned artesian wells in their district by January 1, 1992. The water management districts shall submit an initial workplan to the Secretary of DER by January 1, 1984.

Enclosed is a draft format for the workplan. Please review and let me know if you have any serious problems with the contents. The level of detail and length of each water management district workplan will be proportional to the number of wells and the existence of an active well plugging program. In those districts without a district-wide inventory, cost estimates may have to be given for both known and estimated number of wells.

Another topic we need to discuss is the use of the original inventory. I have the original well schedules (in pencil) complete with photographs, wellhead diagrams and hand drawn maps from which Information Circular No. 21 was prepared. These statewide records have remained intact since 1958, so I am reluctant to start mailing originals all over the state.

A meeting in Tallahassee with all water management districts can be arranged, if you feel there is a need. Suggested dates are November 8, 9, 15, or 16. Please let me know if you would prefer to meet or discuss any problems by telephone.

Sincerely,

Leslie Bell
Environmental Supervisor
Groundwater Section

LB/cs
Enclosures
cc: Rodney DeHan
Greg Parker
Howard Rhodes
John Wehle
Ed Mossier/SFWMD

A-1

Format for Artesian Well Plugging Workplan

| I. Introduction | DOCUMENT SUBHEADINGS | Page |
|---|--|-------|
| A. Brief assessment of existing problem | 'INTRODUCTION'..... | 1 |
| B. Brief summary of any existing program | 'CONCLUSION AND SUMMARY'.... | 20 |
| | | |
| II. Inventory | | |
| A. Results of 1983 Inventory presented in table form. The format in Table 1 and Table 3 from the Florida Geological Survey Information Circular No. 21 (examples attached) can be used as models..... | | C-1 |
| B. Description of methodology used in obtaining initial inventory, including types of sources contacted, publicity, and field verification methods | 'Inventory'..... | 9 |
| C. Location and Owner of each abandoned well | | C-1 |
| 1. Present by county, alphabetically by owner and latitude/longitude | | |
| 2. If inventory is already on data base, existing format may be submitted | | |
| D. Proposed Methodology for Updating Inventory | 'Inventory, CONCLUSION AND SUMMARY'..... | 9, 20 |
| 1. Location techniques | | |
| 2. Field verification | | |
| 3. Public notification techniques | | |
| | | |
| III. Well Plugging Priority Schedule | | |
| A. Criteria to be used to develop schedule: | 'Priority'..... | 9 |
| 1. Condition of casing | | |
| 2. Presence of operable valve | | |
| 3. Water quality in well and receiving aquifer | | |
| 4. Surface or subsurface flow from well | | |
| 5. Diameter of well and flow volume | | |
| 6. Surficial aquifer use in proximity to artesian well | | |
| B. Proposed Schedule | 'PROPOSED SCHEDULING'..... | 12 |
| 1. Individual wells may be listed for the water management districts with smaller inventories. Types of wells with highest priority may be listed for water management districts with larger inventories. | | |

| IV. Plugging Methodology | DOCUMENT SUBHEADINGS | Page |
|--|-----------------------------|--------|
| A. Description of existing procedure, including all legal paperwork and contract processing | 'Plugging Methodology'..... | 10 |
| B. Types of plugs commonly used | 'Types of Plugs'..... | 11 |
| C. Description of any inspection or verification | 'COSTS'..... | 16 |
| D. Timetable for plugging completion, which incorporates priority schedule developed in III | 'PROPOSED SCHEDULING'..... | 15 |
| V. Costs | | |
| A. Costs should be presented in two categories - water management district costs and actual plugging costs | 'COSTS'..... | 16 |
| B. Estimates for water management district costs should be given in 'per well' units, and should include: | 'TABLE 2, TABLE 3'..... | 17, 18 |
| 1. Staff time for locating wells | | |
| 2. Staff time for well assessment and placement in priority schedule | | |
| 3. Staff time for resolving any legal difficulties | | |
| 4. Staff time for preparing and awarding plugging contract | | |
| 5. Staff time for inspection, updating of inventory | | |
| 6. Total estimated cost | | |
| 1. 'Per well' cost times number of known or estimated wells in district | | |
| C. Actual Plugging Costs | 'TABLE 1, TABLE 4'..... | 17, 18 |
| 1. Estimated average plugging cost per well. Wells may be classified into two or three depth groups | | |
| 2. Total estimated plugging cost | | |
| 1. 'Per well' cost times number of known or estimated wells in district | | |
| VI. Recommendations | | |
| A. Need for changes or expansion of existing programs | | |
| B. Other | | |

APPENDIX B
PUBLIC INFORMATION

**...putting a
cap on —**

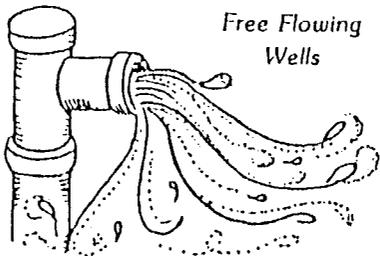
**FREE
FLOWING
WELLS**

**St. Johns River
Water Management
District**

Brochure produced by St. Johns River Water Management District:
A Brief Explanation of the Problems of Uncontrolled Free Flowing
Wells and the District Well Plugging Program.

WANTED

LOCATION OF UNCONTROLLED



REWARD

Reducing the waste of our groundwater resource

MODUS OPERANDI

Uncontrolled free-flowing wells are often unused or abandoned. They are sometimes used for stock watering, for crop irrigation, or for mosquito control purposes.

OFFENSES

Flowing well water is wasted when allowed to flow uncontrolled year-round.

Since 1953, all artesian wells are required to have a valve or other device to control the flow of water and prevent the water from going to waste (FLA. STATUTES CHAPTER 373.206, .209. CITY ORDINANCE CODE CHAPTER 625.301, .307).

CALL

633-3419

DEPARTMENT OF HEALTH, WELFARE AND
BIO-ENVIRONMENTAL SERVICES
WATER CONSERVATION

515 W. 6th STREET
JACKSONVILLE, FLORIDA 32206



WANTED

LOCATION OF UNCONTROLLED



REWARD

Reducing the waste of our groundwater resource
Reducing the contamination of our fresh surface water
bodies from brackish well water

MODUS OPERANDI

Uncontrolled free-flowing wells are often unused or abandoned. They are sometimes used for stock watering, for crop irrigation, or for mosquito control purposes.

OFFENSES

Flowing well water which is of brackish quality can pollute fresh surface waters, such as the St. Johns River. Flowing well water which is of fresh quality is wasted when allowed to flow uncontrolled year-round.

Since 1953, all artesian wells are required to have a valve or other device to control the flow of water and prevent the water from going to waste (FLA. STATUTES CHAPTER 373.206, .209).

CALL

Brevard County Water Resources Department at 453-9515,
or stop by the Merritt Island Courthouse.

The preparation of this document was financed through a 20% matching grant from the U. S. Environmental Protection Agency, under the provisions of Section 206 of the Federal Water Pollution Control Act Amendments of 1972.

Wanted Poster Produced by Cooperating Government
Agencies in the District. (Reduced from 8-1/2" X
14" Originals)



ROUTE 2 BOX 695
PALATKA, FLORIDA 32077
TELEPHONE (904) 325-5383

INFORMATION RELEASE

April 5, 1981

For Release: Immediate

CITIZENS REQUESTED TO ASSIST IN FREE FLOWING WELL INVENTORY

Billions of gallons of fresh water are needlessly wasted each year in Florida from uncontrolled free flowing wells.

A four inch well can flow as much as 150 to 200 gallons per minute (gpm), resulting in the loss of 288,000 gallons per day (gpd), or 100 million gallons per year. A six inch free flowing well can produce as much as 500 gpm, wasting 720,000 gpd or 260 million gallons per year.

The St. Johns River Water Management District is conducting a program to locate uncontrolled free flowing wells, and to collect data on the water quality and flow rate of each well.

Persons who know the location of abandoned free flowing wells are urged to contact the District.

The purpose of the free flowing well inventory is to determine the magnitude of the problem, and to identify areas in the District most affected by water loss from the wells. Results of the inventory will ultimately be used to evaluate the cost and methods available to minimize the problem.

In addition to the needless waste of valuable groundwater resources, many wild free flowing wells contain a high salt content and cause salt water contamination of shallow aquifers, rivers, lakes and streams. Wells with damaged or eroded casing also contribute other types of pollution.

The District's well inventory is being conducted in Baker, Clay, Duval, Flagler, Indian River, Putnam, St. Johns, Seminole

(MORE)

and Volusia Counties.

The program also includes portions of Alachua, Bradford, Lake, Marion, Okeechobee, Orange, Osceola and Polk Counties that are within St. Johns District boundaries.

Wild, free flowing wells are often located near abandoned homesteads, in old agricultural areas and in pastures. They are usually found in low lying areas, particularly near the coast and along inland rivers.

District hydrologists have identified 2 wells in Putnam County, 4 in Indian River County, 5 in Clay County, 7 in Nassau County, 8 in Flagler County, 12 in Volusia County and 20 in both Duval and Brevard Counties. It is estimated that St. Johns County has approximately 30 free flowing wells, and that Brevard has 170 wells in addition to those already cataloged.

Urban, agricultural, industrial and recreational demand for water is increasing at a rapid rate to keep pace with Florida's expanding population. Fresh water supplies in some areas are already stressed by overdemand. Projections for the future indicate that Florida will account for one-sixth of the nations growth between the present and the year 2000.

To meet further water needs, waste must be reduced to a minimum and the quality of ground and surface water must be protected. Minimizing water loss from uncontrolled free flowing wells could conserve billions of gallons each year.

Anyone knowing the location of uncontrolled free flowing wells is asked to call or write Hydrologist, Alan Aikens, St. Johns River Water Management District, P.O. Box 1429, Palatka, Florida, 32077, or (904) 328-8321.

APPENDIX C
INVENTORY OF FREE FLOWING AND PLUGGED WELLS

TALLY SHEET FOR RELATED INVENTORY DATA

| County | Number of Wells | Chloride content (mg/l) | | | | Principal uses of wells | | | | | |
|--------------|-----------------|-------------------------|---------|----------|-------|-------------------------|------------|------------|------------|--------|-----|
| | | 0-250 | 251-500 | 501-1000 | >1000 | Domestic Stock | Irrigation | Industrial | Recreation | Unused | |
| Brevard | 193 | 16 | 18 | 85 | 53 | 5 | 23 | 64 | 10 | 6 | 85 |
| Clay | 9 | 9 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 5 |
| Duval | 11 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| Flagler | 8 | 0 | 0 | 1 | 3 | 0 | 4 | 0 | 0 | 0 | 4 |
| Indian River | 10 | 1 | 4 | 5 | 0 | 1 | 0 | 5 | 0 | 1 | 3 |
| Lake | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| Marion | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 |
| Nassau | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Orange | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Putnam | 18 | 10 | 2 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 16 |
| St. Johns | 11 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| Seminole | 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 |
| Volusia | 16 | 6 | 0 | 4 | 6 | 1 | 1 | 0 | 0 | 0 | 14 |
| Totals | 293 | 75 | 27 | 95 | 64 | 11 | 29 | 69 | 10 | 13 | 161 |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 BREVARD COUNTY

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| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N DE MI SE | CASE DEPTH | WELL DEPTH | WELL DIAM | CHLORIDE MG/L | SAMPLE DATE | GEPI LOGS |
|----------------------|---------|------------|------------|-------------------|-------------------|------------|------------|-----------|------------------|-------------|-----------|
| FINZER, R.D. | BR360 | FLOWING | DOMESTIC | 28 36 21 | 80 50 12 | - | 300 | 2.50 | 220.00 | 9/23/75 | - |
| A. P. THOMAS | BR432 | FLOWING | IRRIGATION | 28 18 30 | 80 44 20 | - | - | 4.00 | 865.00 | 8/ 2/81 | - |
| ALLIS-CHALMERS CORP. | BR423 | FLOWING | COMMERCIAL | 27 55 53 | 80 31 38 | - | 898 | 12.00 | - | - | - |
| AQUIRINA | BR437 | PLUGGED | UNUSED | 27 55 20 | 80 29 37 | 195 | 439 | 4.00 | 250.00 | 9/14/81 | YES |
| AQUIRINA | BR438 | PLUGGED | UNUSED | 27 55 32 | 80 29 21 | - | - | 3.00 | - | - | - |
| ATLANTIC RIDGE CORP | BR90* | FLOWING | UNUSED | 27 55 25 | 80 33 35 | - | - | 4.00 | 678.00 | 2/24/91 | - |
| BEACHWOODS | BR227 | PLUGGED | UNUSED | 28 1 53 | 80 32 31 | - | - | 1.50 | 601.00 | 3/18/81 | - |
| BETHESDA RET HOME | BR17* | CONTROLLED | UNUSED | 28 1 35 | 80 35 16 | 398 | 1360 | 14.00 | 535.00 | 5/21/47 | - |
| BLISS (HELM) | BR433 | FLOWING | IRRIGATION | 28 15 25 | 80 39 50 | - | - | 6.00 | 1049.00 | 9/ 8/81 | - |
| BOGGS | BR299 | FLOWING | IRRIGATION | 28 14 47 | 80 39 24 | 105 | 220 | 2.00 | 660.00 | 8/ 2/79 | - |
| BOY SCOUTS-ORLANDO | BR100 | FLOWING | RECREATION | 27 57 19 | 80 35 13 | - | - | 4.00 | - | - | - |
| BREVARD CO. | BR386 | FLOWING | UNUSED | 28 21 23 | 80 40 17 | - | - | 4.00 | 1060.00 | 4/ 9/81 | - |
| BREVARD CO. DIST 3 | BR101 | FLOWING | UNUSED | 27 57 10 | 80 35 43 | - | 316 | 4.00 | 1400.00 | 5/ 5/75 | - |
| BREVARD CO. M. C. | BR209 | FLOWING | UNUSED | 28 24 17 | 80 41 35 | - | - | 2.00 | 1240.00 | 7/30/79 | - |
| BREVARD CO. M. C. | BR394 | FLOWING | UNUSED | 28 17 46 | 80 40 27 | - | 290 | 4.00 | 1162.00 | 4/16/81 | - |
| BREVARD CO. M.C. | BR233 | FLOWING | IRRIGATION | 28 17 32 | 80 41 55 | - | - | 4.00 | 665.00 | 10/ 2/80 | - |
| BREVARD CO. M.C. | BR388 | FLOWING | IRRIGATION | 28 20 17 | 80 41 6 | - | - | 4.00 | 1456.00 | 4/20/81 | - |
| BREVARD CO. M.C. | BR389 | FLOWING | IRRIGATION | 28 18 16 | 80 40 24 | - | - | 6.00 | 1430.00 | 4/16/81 | - |
| BREVARD CO. M.C. | BR406 | FLOWING | UNUSED | 28 23 27 | 80 40 34 | - | 260 | 4.00 | 1560.00 | 7/30/79 | - |
| BREVARD CO. M.C. | BR412 | FLOWING | IRRIGATION | 28 0 53 | 80 32 14 | - | - | 3.00 | 524.00 | 6/ 8/81 | - |
| BREVARD CO. M.C. | BR430 | FLOWING | UNUSED | 28 21 52 | 80 41 17 | 82 | 152 | 4.00 | 1470.00 | 7/31/79 | - |
| BREVARD CO. MC | BR210 | FLOWING | UNUSED | 28 22 47 | 80 41 5 | - | - | 4.00 | 1486.00 | 4/ 8/81 | - |
| BREVARD CO. MC | BR213 | FLOWING | UNUSED | 28 25 43 | 80 41 22 | - | - | 4.00 | 1250.00 | 4/ 8/81 | - |
| BREVARD CO. MC | BR219 | FLOWING | UNUSED | 28 26 43 | 80 43 15 | - | - | 4.00 | 2876.00 | 9/10/80 | - |
| BREVARD CO. MC | BR238 | FLOWING | UNUSED | 28 24 16 | 80 40 46 | 105 | 261 | 4.00 | 1483.00 | 4/ 1/81 | - |
| BREVARD CO. MC | BR239 | FLOWING | UNUSED | 28 26 52 | 80 43 23 | - | - | 3.00 | 2922.00 | 4/ 8/81 | - |
| BREVARD CO. MC | BR240 | FLOWING | UNUSED | 28 27 54 | 80 43 10 | - | - | 3.00 | 4309.00 | 4/ 8/81 | - |
| BREVARD CO. MC | BR241 | FLOWING | UNUSED | 28 26 2 | 80 41 45 | - | 172 | 4.00 | 1570.00 | 1/30/81 | - |
| BREVARD CO. MC | BR78* | PLUGGED | UNUSED | 27 52 8 | 80 27 17 | 102 | 449 | 4.00 | 180.00 | 7/26/79 | YES |
| BREVARD CO. MC | BR79* | FLOWING | UNUSED | 27 52 6 | 80 27 25 | - | 466 | 4.00 | 214.00 | 2/ 9/80 | - |
| BREVARD CO. MC | BR80* | PLUGGED | UNUSED | 27 52 27 | 80 28 3 | 103 | 406 | 4.00 | 224.00 | 1/24/75 | YES |
| BREVARD CO. MC | BR81* | PLUGGED | UNUSED | 27 52 31 | 80 28 7 | 103 | 203 | 4.00 | 221.00 | 8/14/80 | YES |
| BREVARD CO. MC | BR82* | PLUGGED | UNUSED | 27 53 1 | 80 28 4 | - | - | 4.00 | 345.00 | 8/18/80 | - |
| BREVARD CO. MC | BR83* | PLUGGED | UNUSED | 27 53 5 | 80 28 4 | 103 | 465 | 4.00 | 250.00 | 10/16/80 | YES |
| BREVARD CO. MC | BR84* | FLOWING | UNUSED | 27 53 3 | 80 28 15 | - | - | 4.00 | 190.00 | 1/27/75 | - |
| BREVARD CO. MC | BR85* | PLUGGED | UNUSED | 27 53 57 | 80 28 17 | - | - | 4.00 | 293.00 | 8/18/80 | - |
| BREVARD CO. MC | BR86* | PLUGGED | UNUSED | 27 54 25 | 80 28 38 | 101 | 358 | 4.00 | 210.00 | 1/28/75 | YES |
| BREVARD CO. MC | BR87* | PLUGGED | UNUSED | 27 55 18 | 80 29 36 | - | 496 | 4.00 | 240.00 | 7/27/79 | - |
| BREVARD CO. MC | BR88* | FLOWING | UNUSED | 27 55 30 | 80 29 40 | - | - | 4.00 | 387.00 | 2/ 9/81 | - |
| BREVARD CO. MC | BR89* | FLOWING | UNUSED | 27 55 23 | 80 32 8 | - | - | 4.00 | 661.00 | 2/26/81 | - |
| BREVARD CO. MC | BR91* | PLUGGED | UNUSED | 27 56 9 | 80 30 24 | - | 386 | 4.00 | 340.00 | 7/26/79 | YES |
| BREVARD CO. MC | BR92* | FLOWING | UNUSED | 27 56 2 | 80 30 22 | - | 387 | 4.00 | 476.00 | 2/ 4/81 | - |
| BREVARD CO. MC | BR93* | PLUGGED | UNUSED | 27 56 28 | 80 30 32 | 103 | 425 | 4.00 | 370.00 | 9/20/80 | YES |
| BREVARD CO. MC | BR94* | FLOWING | UNUSED | 27 57 35 | 80 30 48 | - | - | 4.00 | 515.00 | 2/10/75 | - |
| BREVARD CO. MC | BR95* | FLOWING | UNUSED | 27 58 58 | 80 31 18 | - | 329 | 4.00 | 871.00 | 8/25/80 | - |
| BREVARD CO. MC | BR96* | FLOWING | UNUSED | 27 58 38 | 80 31 9 | - | 346 | 4.00 | 520.00 | 8/25/80 | - |
| BREVARD CO. MC | BR97* | FLOWING | UNUSED | 27 58 46 | 80 31 21 | - | 346 | 4.00 | 585.00 | 8/25/80 | - |

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 BREVARD COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N DE MI SE | CASE DEPTH | WELL DEPTH | WELL DTAM | WELL CHLORIDE MG/L | SAMPLE DATE | GEPH LOGS |
|----------------------|---------|---------|------------|-------------------|-------------------|------------|------------|-----------|-----------------------|-------------|-----------|
| BREVARD CO. MC | BR98* | FLOWING | UNUSED | 28 18 29 | 80 40 31 | - | - | 4.00 | 1070.00 | 9/30/80 | -- |
| BREVARD CO. MC | BR99* | FLOWING | UNUSED | 28 18 50 | 80 40 38 | - | 149 | 4.00 | 1050.00 | 7/20/77 | -- |
| BREVARD COUNTY | BR151 | FLOWING | IRRIGATION | 28 24 20 | 80 41 35 | - | - | 4.00 | 1771.00 | 3/11/80 | -- |
| BREVARD COUNTY | BR199 | FLOWING | IRRIGATION | 28 22 13 | 80 40 47 | - | - | 4.00 | 1352.00 | 6/12/80 | -- |
| BREVARD COUNTY | BR300 | FLOWING | IRRIGATION | 28 16 59 | 80 40 7 | 104 | 261 | 4.00 | 865.00 | 8/22/78 | -- |
| BREVARD COUNTY M. C. | BR391 | FLOWING | IRRIGATION | 28 19 21 | 80 40 53 | - | - | 4.00 | 11.76 | 4/20/81 | -- |
| BREVARD GROVES | BR288 | FLOWING | IRRIGATION | 27 54 22 | 80 37 40 | - | - | 4.00 | 700.00 | 11/20/79 | -- |
| C. CRISAFULL | BR242 | FLOWING | UNUSED | 28 26 24 | 80 42 48 | - | - | 4.00 | 1887.00 | 3/11/81 | -- |
| CARLYLE PLATT | BR266 | FLOWING | UNUSED | 27 57 45 | 80 39 28 | - | - | 3.00 | 756.00 | 11/28/78 | -- |
| CATHEY LAURA | BR308 | FLOWING | IRRIGATION | 28 20 4 | 80 41 30 | - | - | 2.00 | 810.00 | 10/ 6/80 | -- |
| CECIL PLATT | BR372 | FLOWING | IRRIGATION | 28 4 45 | 80 42 33 | - | - | 8.00 | 720.00 | 4/25/79 | -- |
| CHARLES CRISAFULLI | BR243 | FLOWING | UNUSED | 28 26 23 | 80 42 57 | - | - | 4.00 | 2455.00 | 3/11/81 | -- |
| CITY OF MELBOURNE | BR351 | FLOWING | PUBLIC | 28 7 58 | 80 38 14 | - | 600 | 12.00 | - | - | -- |
| CORRIGAN | BR246 | FLOWING | IRRIGATION | 27 49 33 | 80 35 18 | - | - | 2.00 | 600.00 | 5/18/79 | -- |
| COYLE 412 SUNSET BLV | BR436 | FLOWING | IRRIGATION | 28 4 20 | 80 33 40 | - | - | 2.00 | 520.00 | 8/24/81 | -- |
| DAVENPORT | BR103 | FLOWING | UNUSED | 27 58 10 | 80 35 3 | - | - | 4.00 | - | - | -- |
| DE VINCI INC. | BR411 | FLOWING | IRRIGATION | 27 58 22 | 80 31 2 | - | - | 2.00 | 508.00 | 6/ 8/81 | -- |
| DEER RUN | BR247 | FLOWING | STOCK | 27 52 24 | 80 38 23 | - | - | 2.00 | 745.00 | 4/ 8/75 | -- |
| DEER RUN | BR248 | FLOWING | IRRIGATION | 27 52 53 | 80 38 32 | - | 399 | 6.00 | 705.00 | 3/12/81 | -- |
| DEER RUN | BR249 | FLOWING | STOCK | 27 52 55 | 80 38 50 | - | 305 | 6.00 | 735.00 | 3/11/81 | -- |
| DEER RUN | BR253 | FLOWING | IRRIGATION | 27 52 7 | 80 39 51 | - | 680 | 6.00 | 768.00 | 3/11/81 | -- |
| DESERET RANCH | BR231 | FLOWING | STOCK | 28 5 36 | 80 46 43 | - | - | 4.00 | 361.00 | 4/ 7/81 | -- |
| DNR-PARKS AND REC. | BR410 | PLUGGED | UNUSED | 27 52 17 | 80 27 21 | 81 | 392 | 4.00 | 214.00 | 2/ 9/81 | YES |
| DRAWDY | BR371 | FLOWING | DOMESTIC | 28 2 18 | 80 41 7 | - | - | 4.00 | - | - | -- |
| E. L. ROGERS | BR291 | FLOWING | RECREATION | 27 59 51 | 80 31 36 | - | 800 | 2.00 | 526.00 | 10/ 1/80 | -- |
| E. L. WEGERIF | BR390 | FLOWING | UNUSED | 28 18 23 | 80 40 54 | - | - | 2.00 | 1100.00 | 7/21/77 | -- |
| FELGER | BR393 | FLOWING | UNUSED | 28 16 48 | 80 40 22 | - | - | 4.00 | 1022.00 | 4/16/81 | -- |
| FLA. STATE MATHERS B | BR379 | FLOWING | UNUSED | 28 8 57 | 80 36 24 | - | - | 2.00 | - | - | -- |
| GDC-CARLYLE PLATT | BR274 | FLOWING | STOCK | 27 58 12 | 80 42 18 | - | - | 6.00 | 581.00 | 3/31/81 | -- |
| GDC-CARLYLE PLATT | BR275 | FLOWING | STOCK | 27 58 16 | 80 42 34 | - | - | 4.00 | 481.00 | 4/ 1/81 | -- |
| GDC-LOT FOR SALE | BR431 | FLOWING | UNUSED | 28 0 30 | 80 39 30 | - | - | 3.00 | 688.00 | 11/27/78 | -- |
| GEN. DEV. CORP. | BR365 | FLOWING | UNUSED | 27 55 12 | 80 41 22 | - | - | 2.00 | 735.00 | 4/14/81 | -- |
| GEN. DEV. CORP. LAWN | BR369 | FLOWING | IRRIGATION | 28 1 32 | 80 34 58 | - | - | 2.00 | 850.00 | 5/ 5/75 | -- |
| GEN. DEV. FLOD. CORP | BR370 | FLOWING | UNUSED | 28 2 32 | 80 43 27 | - | 368 | 5.00 | 595.00 | 4/28/81 | -- |
| GEN. DEVELOP. CORP. | BR225 | FLOWING | STOCK | 27 58 25 | 80 42 10 | - | - | 4.00 | 747.00 | 4/ 3/81 | -- |
| GEN. DEVELOP. CORP. | BR226 | FLOWING | STOCK | 27 58 35 | 80 42 19 | - | 266 | 4.00 | 714.00 | 4/ 3/81 | -- |
| GEN. DEVELOP. CORP. | BR258 | FLOWING | UNUSED | 27 54 59 | 80 40 11 | - | 348 | 6.00 | 712.00 | 3/17/81 | -- |
| GEN. DEVELOP. CORP. | BR259 | FLOWING | UNUSED | 27 55 30 | 80 40 50 | - | 350 | 6.00 | 695.00 | 3/17/81 | -- |
| GEN. DEVELOP. CORP. | BR260 | FLOWING | UNUSED | 27 55 2 | 80 40 24 | - | 389 | 2.00 | 701.00 | 3/17/81 | -- |
| GEN. DEVELOP. CORP. | BR261 | FLOWING | UNUSED | 27 55 48 | 80 41 35 | - | - | 4.00 | 718.00 | 3/19/81 | -- |
| GEN. DEVELOP. CORP. | BR262 | FLOWING | UNUSED | 27 55 46 | 80 41 45 | - | - | 6.00 | 715.00 | 3/19/81 | -- |
| GEN. DEVELOP. CORP. | BR263 | FLOWING | UNUSED | 27 56 30 | 80 41 21 | - | - | 2.00 | 728.00 | 3/19/81 | -- |
| GEN. DEVELOP. CORP. | BR264 | FLOWING | UNUSED | 27 56 56 | 80 41 21 | - | - | 2.50 | 668.00 | 3/18/81 | -- |
| GEN. DEVELOP. CORP. | BR265 | FLOWING | IRRIGATION | 27 56 48 | 80 42 21 | - | 322 | 4.00 | 655.00 | 3/18/81 | -- |
| GEN. DEVELOP. CORP. | BR267 | FLOWING | UNUSED | 27 57 46 | 80 41 16 | - | 299 | 3.00 | 758.00 | 3/23/81 | -- |
| GEN. DEVELOP. CORP. | BR276 | FLOWING | UNUSED | 27 59 56 | 80 38 20 | - | - | 0.00 | 725.00 | 3/30/81 | -- |
| GEN. DEVELOP. CORP. | BR277 | FLOWING | UNUSED | 27 59 55 | 80 39 40 | - | - | 4.00 | 718.00 | 3/26/81 | -- |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
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 BREVARD COUNTY

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| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N CASE DE MI SE DEPTH | WELL DEPTH | WELL CHLORIDE MG/L | SAMPLE DATE | DEPTH LOGS |
|-----------------------------|---------|---------|------------|-------------------|------------------------------|------------|-----------------------|------------------|------------|
| GEN. DEVELOP. CORP. | BR278 | FLOWING | UNUSED | 27 59 26 | 80 41 46 | - | 4.00 | 645.00 3/30/81 | - |
| GEN. DEVELOP. CORP. | BR281 | FLOWING | UNUSED | 28 0 41 | 80 40 25 | - 335 | 4.00 | 448.00 4/26/79 | - |
| GEN. DEVELOP. CORP. | BR282 | FLOWING | UNUSED | 28 0 7 | 80 43 37 | - 362 | 4.00 | 601.00 3/25/81 | - |
| GEN. DEVELOP. CORP. | BR301 | FLOWING | UNUSED | 27 56 16 | 80 41 2 | - | 6.00 | - | - |
| GEN. DEVELOP. CORP. | BR268 | FLOWING | IRRIGATION | 27 57 25 | 80 41 4 | - | 4.00 | 691.00 3/24/81 | - |
| BOUGH 504 4TH AVE GREENE | BR434 | FLOWING | IRRIGATION | 28 3 54 | 80 33 47 | 150 505 | 4.00 | 645.00 3/10/75 | - |
| HAMMOND HAPPED | BR285 | FLOWING | IRRIGATION | 27 52 8 | 80 30 14 | - | 10.00 | 300.00 9/29/80 | - |
| HAROLD PLATT | BR348 | FLOWING | DOMESTIC | 28 5 35 | 80 42 7 | 120 625 | 2.50 | 700.00 11/10/80 | - |
| HAROLD PLATT | BR234 | FLOWING | UNUSED | 28 20 40 | 80 39 51 | - | 0.00 | 1015.00 3/20/81 | - |
| HARVEY RAY | BR279 | FLOWING | STOCK | 27 59 1 | 80 43 20 | - 364 | 4.00 | 534.00 3/25/81 | - |
| HATBILL PARK | BR280 | FLOWING | STOCK | 27 59 52 | 80 45 12 | - 377 | 0.00 | 414.00 3/25/81 | - |
| HEINER, M. | BR415 | FLOWING | IRRIGATION | 28 17 41 | 80 41 58 | - | 3.00 | 1002.00 6/11/81 | - |
| HINDS, P. GLADYS | BR362 | UNUSED | COMMERCIAL | 28 36 17 | 80 57 17 | - | 2.00 | 1600.00 2/18/57 | - |
| HOLIDAY HAVEN | BR317 | FLOWING | IRRIGATION | 28 33 31 | 80 49 21 | - 150 | 2.00 | 107.00 10/ 2/80 | - |
| JACK STORY, SR | BR316 | FLOWING | IRRIGATION | 28 33 37 | 80 49 17 | - 150 | 2.00 | 30.00 10/ 2/80 | - |
| JAMESTOWN CONDOS | BR294 | FLOWING | IRRIGATION | 28 2 36 | 80 32 59 | 165 298 | 3.00 | 539.00 10/ 1/80 | - |
| JETTY PARK | BR401 | FLOWING | STOCK | 28 21 50 | 80 48 58 | - | 6.00 | 2285.00 5/ 5/81 | - |
| JIM DIDATO | BR232 | FLOWING | UNUSED | 28 8 43 | 80 35 4 | - | 4.00 | - | - |
| KEMPHER | BR208 | FLOWING | IRRIGATION | 28 24 23 | 80 35 36 | - 331 | 3.00 | 450.00 2/ 1/76 | - |
| KEMPHER | BR359 | FLOWING | UNUSED | 28 4 47 | 80 41 41 | 85 450 | 4.00 | - | - |
| KEMPHER | BR228 | FLOWING | STOCK | 28 4 43 | 80 50 32 | - 295 | 4.00 | 223.00 4/ 2/81 | - |
| KEMPHER | BR229 | FLOWING | STOCK | 28 4 57 | 80 50 18 | - | 4.00 | 387.00 4/ 2/81 | - |
| KEMPHER | BR230 | FLOWING | STOCK | 28 5 30 | 80 46 44 | - | 4.00 | 360.00 4/ 2/81 | - |
| KERSHAW, O.J. | BR340 | FLOWING | DOMESTIC | 27 55 48 | 80 31 35 | - | 1.50 | - | - |
| L. WASH. RES | BR352 | FLOWING | IRRIGATION | 28 8 53 | 80 43 59 | - 348 | 2.00 | - | - |
| LA TURE | BR392 | FLOWING | UNUSED | 28 16 5 | 80 40 13 | - | 2.00 | 1250.00 5/13/77 | - |
| LATHAM | BR283 | FLOWING | DOMESTIC | 27 52 9 | 80 27 14 | - | 2.00 | 205.00 10/15/80 | - |
| LONE CABBAGE CAMP | BR204 | FLOWING | UNUSED | 28 22 7 | 80 52 18 | - | 2.00 | 2150.00 6/21/54 | - |
| LORRIE WILSON PARK | BR307 | FLOWING | IRRIGATION | 28 20 16 | 80 36 28 | - | 4.00 | 690.00 10/22/80 | - |
| LULP LEE 2924 MAIN | BR435 | FLOWING | IRRIGATION | 28 3 44 | 80 35 59 | - | 2.00 | - | - |
| LULP LEE 2924 MAIN | BR435 | FLOWING | IRRIGATION | 28 3 49 | 80 35 59 | - | 2.00 | 762.00 9/24/81 | - |
| LUTHERAN FEUCE CHURC | BR345 | FLOWING | IRRIGATION | 28 1 8 | 80 35 55 | - | 2.00 | 1200.00 5/21/75 | - |
| MARCUS BOOKIE | BR366 | FLOWING | IRRIGATION | 27 49 21 | 80 50 33 | - 693 | 5.00 | 301.00 4/ 9/81 | - |
| MARSHALL, GEORGE | BR341 | FLOWING | COMMERCIAL | 28 0 8 | 80 34 26 | - 360 | 2.50 | 630.00 6/19/75 | - |
| MATTIOLI | BR357 | FLOWING | IRRIGATION | 28 21 40 | 80 36 55 | - | 2.00 | 950.00 10/30/80 | - |
| MCWILLIAM | BR358 | FLOWING | AIR COND. | 28 21 35 | 80 34 25 | - 165 | 2.00 | 1500.00 10/30/80 | - |
| MOONEY | BR387 | FLOWING | IRRIGATION | 28 20 47 | 80 41 7 | - 400 | 4.00 | 970.00 8/ 1/79 | - |
| NEVINS | BR428 | FLOWING | IRRIGATION | 28 18 10 | 80 44 50 | - | 4.00 | 868.00 3/31/81 | - |
| NORRIS CATTLE CO. | BR408 | FLOWING | STOCK | 28 36 55 | 80 57 50 | - | 1.00 | 1170.00 11/28/46 | - |
| PATRICK AFB | BR354 | FLOWING | AIR COND. | 28 15 42 | 80 34 27 | - 450 | 4.00 | - | - |
| PATRICK AFB | BR355 | FLOWING | IRRIGATION | 28 16 15 | 80 36 22 | - | 4.00 | 600.00 2/ 8/75 | - |
| PERRY | BR356 | FLOWING | IRRIGATION | 28 21 37 | 80 36 24 | - | 2.00 | 850.00 11/16/74 | - |
| PERRY ELISON | BR333 | FLOWING | AIR COND. | 28 22 32 | 80 42 46 | - | 2.00 | 2037.00 8/ 2/81 | - |
| PHYLLIS TINSLEY | BR419 | UNUSED | INDUSTRIAL | 28 25 43 | 80 42 59 | - | 0.00 | 2204.00 6/ 4/81 | - |
| PLATT, DON | BR350 | FLOWING | IRRIGATION | 28 6 53 | 80 42 27 | - | 4.00 | 520.00 11/21/79 | - |
| PLUMMER, C.L. | BR305 | FLOWING | IRRIGATION | 28 19 7 | 80 41 22 | - | 2.00 | 2150.00 7/28/77 | - |
| POTEET | BR421 | FLOWING | STOCK | 27 50 45 | 80 49 46 | - 284 | 6.00 | 210.00 11/16/78 | - |

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 THE FREE FLOWING WELL INVENTORY
 BREVARD COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N DE MI SE | CASE DEPTH | WELL DEPTH | WELL DIAM | CHLORIDE MG/L | SAMPLE DATE | GEPI LOGS |
|---------------------|---------|---------|------------|-------------------|-------------------|------------|------------|-----------|------------------|----------------|--------------|
| PULLEN | BR380 | FLOWING | UNUSED | 28 13 32 | 80 38 54 | - | - | 2.00 | 1042.00 | 4/28/81 | - |
| QUARBURG | BR420 | FLOWING | IRRIGATION | 27 49 59 | 80 50 39 | - | - | 6.00 | 230.00 | 11/13/78 | - |
| RAY CORBS | BR385 | FLOWING | IRRIGATION | 28 22 3 | 80 42 28 | 80 | 420 | 6.00 | 2004.00 | 5/ 5/81 | - |
| ROCKLEDGE GOLF COUR | BR235 | FLOWING | IRRIGATION | 28 20 13 | 80 44 49 | - | - | 4.00 | - | - | - |
| ROCKLEDGE GOLF COUR | BR236 | FLOWING | RECREATION | 28 20 8 | 80 44 42 | - | - | 4.00 | - | - | - |
| ROCKLEDGE GOLF COUR | BR245 | FLOWING | IRRIGATION | 28 20 2 | 80 45 6 | - | - | 4.00 | 1470.00 | 3/31/81 | - |
| SEIB GROVE | BR251 | FLOWING | IRRIGATION | 27 53 32 | 80 37 39 | - | - | 4.00 | 785.00 | 3/16/81 | - |
| SEILER | BR290 | FLOWING | IRRIGATION | 27 59 11 | 80 31 9 | - | - | 3.00 | 507.00 | 10/ 1/80 | - |
| SOMERFIELD | BR381 | FLOWING | IRRIGATION | 28 13 41 | 80 39 3 | - | 325 | 4.00 | 668.00 | 4/28/81 | - |
| STEVE FANCZL | BR414 | FLOWING | IRRIGATION | 28 17 30 | 80 40 39 | - | - | 3.00 | 888.00 | 6/11/81 | - |
| TENDERFOOT RANCH | BR403 | FLOWING | IRRIGATION | 28 22 24 | 80 47 1 | - | - | 4.00 | 1570.00 | 4/14/81 | - |
| TRICO GROVE | BR270 | FLOWING | IRRIGATION | 27 58 24 | 80 41 34 | - | - | 4.00 | 701.00 | 3/30/81 | - |
| TRIO GROVE | BR271 | FLOWING | IRRIGATION | 27 58 35 | 80 41 27 | - | - | 4.00 | 708.00 | 3/31/81 | - |
| TRIO GROVE | BR272 | FLOWING | IRRIGATION | 27 58 35 | 80 41 37 | - | - | 4.00 | 722.00 | 3/31/81 | - |
| TRIO GROVE | BR273 | FLOWING | IRRIGATION | 27 58 35 | 80 41 44 | - | 309 | 6.00 | 635.00 | 3/31/81 | - |
| TRIO RIPE GROVE | BR269 | FLOWING | IRRIGATION | 27 58 22 | 80 41 22 | - | - | 6.00 | 681.00 | 3/30/81 | - |
| UNDETERMINED | BR102 | FLOWING | UNUSED | 27 57 49 | 80 32 37 | - | - | 2.50 | 475.00 | 3/ 4/81 | - |
| UNDETERMINED | BR120 | FLOWING | UNUSED | 28 23 29 | 80 36 23 | - | - | 2.00 | 800.00 | 4/ 6/77 | - |
| UNDETERMINED | BR182 | FLOWING | UNUSED | 27 58 23 | 80 35 2 | - | - | 6.00 | 691.00 | 5/12/81 | - |
| UNDETERMINED | BR200 | FLOWING | IRRIGATION | 28 22 13 | 80 40 55 | - | - | 4.00 | 1462.00 | 6/ 2/80 | - |
| UNDETERMINED | BR237 | FLOWING | STOCK | 28 21 50 | 80 51 15 | - | - | 2.00 | 2163.00 | 1/26/79 | - |
| UNDETERMINED | BR244 | FLOWING | UNUSED | 28 19 57 | 80 39 52 | - | - | 2.00 | 1122.00 | 3/20/81 | - |
| UNDETERMINED | BR250 | FLOWING | STOCK | 27 53 57 | 80 36 37 | - | 409 | 2.00 | 671.00 | 3/11/81 | - |
| UNDETERMINED | BR252 | FLOWING | STOCK | 27 53 21 | 80 39 24 | - | - | 2.00 | 700.00 | 5/29/79 | - |
| UNDETERMINED | BR254 | FLOWING | STOCK | 27 53 25 | 80 39 16 | - | - | 2.00 | 732.00 | 3/12/81 | - |
| UNDETERMINED | BR255 | FLOWING | STOCK | 27 53 51 | 80 40 4 | - | 333 | 3.00 | 724.00 | 3/16/81 | - |
| UNDETERMINED | BR256 | FLOWING | STOCK | 27 53 51 | 80 40 4 | - | - | 2.00 | 715.00 | 3/16/81 | - |
| UNDETERMINED | BR257 | FLOWING | STOCK | 27 54 16 | 80 39 4 | - | 315 | 6.00 | 701.00 | 3/16/81 | - |
| UNDETERMINED | BR374 | FLOWING | POWER | 28 12 30 | 80 36 26 | - | - | 6.00 | - | - | - |
| UNDETERMINED | BR375 | FLOWING | POWER | 28 12 34 | 80 36 29 | - | - | 6.00 | - | - | - |
| UNDETERMINED | BR377 | FLOWING | UNUSED | 28 10 18 | 80 37 14 | - | - | 4.00 | 661.00 | 4/15/81 | - |
| UNDETERMINED | BR378 | FLOWING | UNUSED | 28 10 17 | 80 37 13 | - | - | 4.00 | 668.00 | 4/15/81 | - |
| UNDETERMINED | BR384 | FLOWING | UNUSED | 28 15 38 | 80 41 5 | - | - | 4.00 | 1189.00 | 4/27/81 | - |
| UNDETERMINED | BR395 | FLOWING | UNUSED | 28 16 5 | 80 39 55 | - | - | 2.00 | 1050.00 | 5/19/77 | - |
| UNDETERMINED | BR397 | FLOWING | UNUSED | 28 15 48 | 80 41 16 | - | - | 0.00 | 277.00 | 4/27/81 | - |
| UNDETERMINED | BR400 | FLOWING | UNUSED | 28 20 45 | 80 46 34 | - | - | 6.00 | 1336.00 | 4/21/81 | - |
| UNDETERMINED | BR409 | PLUGGED | UNUSED | 27 52 11 | 80 27 22 | - | 466 | 4.00 | 207.00 | 5/19/81 | - |
| UNDETERMINED | BR416 | FLOWING | IRRIGATION | 28 20 49 | 80 39 42 | - | - | 2.00 | 788.00 | 6/ 8/81 | - |
| UNDETERMINED | BR417 | FLOWING | IRRIGATION | 28 23 37 | 80 36 54 | - | - | 3.00 | 1136.00 | 6/ 9/81 | - |
| UNDETERMINED | BR418 | FLOWING | IRRIGATION | 28 23 59 | 80 42 34 | - | 204 | 3.00 | 1494.00 | 5/18/81 | - |
| UNDETERMINED | BR422 | FLOWING | UNUSED | 27 51 31 | 80 27 4 | - | - | 0.00 | - | - | - |
| UNDETERMINED | BR424 | FLOWING | UNUSED | 27 59 13 | 80 33 20 | - | - | 1.50 | - | - | - |
| UNDETERMINED | BR425 | FLOWING | STOCK | 27 59 53 | 80 44 42 | - | - | 4.00 | - | - | - |
| UNDETERMINED | BR426 | FLOWING | UNUSED | 28 11 26 | 80 37 48 | - | - | 2.00 | 800.00 | 3/19/76 | - |
| UNDETERMINED | BR429 | FLOWING | UNUSED | 28 19 2 | 80 44 7 | - | - | 4.00 | 980.00 | 4/ 6/77 | - |
| W. C. ROPER | BR413 | FLOWING | IRRIGATION | 28 7 18 | 80 37 32 | - | - | 6.00 | 608.00 | 6/ 9/81 | - |
| WARREN WOOTEN | BR396 | FLOWING | UNUSED | 28 15 52 | 80 41 10 | - | - | 6.00 | 1149.00 | 4/27/81 | - |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 BREVARD COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N CASE DE MI SE DEPTH | WELL DEPTH | WELL CHLORIDE DIAM MG/L | SAMPLE DATE | DEPTH LOGS |
|-------------------|---------|---------|------------|-------------------|------------------------------|------------|----------------------------|-----------------|------------|
| WATER WAY ESTATES | BR376 | FLOWING | POWER | 28 12 43 | 80 36 29 | - | 2.00 | - | - |
| WATERWAY ESTATES | BR373 | FLOWING | OTHER | 28 12 26 | 80 36 26 | - | 6.00 | - | - |
| WICKHAM PARK | BR382 | FLOWING | RECREATION | 28 9 34 | 80 39 46 | 105 600 | 4.00 | 553.00 3/ 6/80 | - |
| WICKMAN PARK | BR383 | FLOWING | RECREATION | 28 9 51 | 80 39 40 | 105 550 | 6.00 | 700.00 10/12/75 | - |
| WINDWARD APTS. | BR368 | FLOWING | UNUSED | 28 2 14 | 80 37 11 | - | 2.00 | 695.00 4/30/81 | - |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 CLAY COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N CASE DE MI SE DEPTH | WELL DEPTH | WELL CHLORIDE DIAM MG/L | SAMPLE DATE | BEPH LOGS |
|-----------------|---------|---------|------------|-------------------|------------------------------|------------|----------------------------|---------------|-----------|
| DIV OF FORESTRY | C5*** | FLWING | DOMESTIC | 30 3 2 | 81 42 27 | - | 3.00 | 6.00 1/27/75 | - |
| DRIGGERS | C6*** | FLOWING | DOMESTIC | 29 51 44 | 81 37 17 | - 600 | 6.00 | 10.00 1/23/75 | - |
| JENNINGS | C10** | FLOWING | UNUSED | 30 8 50 | 81 55 20 | 300 330 | 3.00 | 7.00 7/18/60 | - |
| L. J. IVEY | C1*** | FLOWING | DOMESTIC | 30 0 48 | 81 41 43 | 300 365 | 3.00 | 5.00 5/ 1/70 | - |
| STOKE | C8*** | FLOWING | UNUSED | 30 4 45 | 81 48 55 | - | 6.00 | 15.00 5/19/81 | - |
| STOKE | C9*** | FLOWING | RECREATION | 30 4 55 | 81 49 11 | - | 4.00 | - | - |
| TEMPLIN | C11** | FLOWING | UNUSED | 30 0 30 | 81 41 38 | - | 6.00 | 8.00 9/11/81 | - |
| TEMPLIN | C12** | FLOWING | UNUSED | 30 0 31 | 81 41 41 | - | 3.00 | 10.00 9/11/81 | - |
| UNDETERMINED | C13** | FLOWING | UNUSED | 30 6 20 | 81 46 28 | - | 6.00 | 20.00 5/19/81 | - |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 DUVAL COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N DE MI SE | CASE DEPTH | WELL DEPTH | WELL DIAM | CHLORIDE MG/L | SAMPLE DATE | GEPH LOGS |
|----------------------|---------|---------|----------|-------------------|-------------------|------------|------------|-----------|---------------|-------------|-----------|
| CITY OF JACKSONVILLE | D433* | FLOWING | UNUSED | 30 17 23 | 81 42 51 | - | - | 4.00 | - | - | - |
| F.E.C. RAILWAY | D426* | FLOWING | UNUSED | 30 7 55 | 81 30 57 | - | - | 3.00 | 36.00 | 3/13/81 | - |
| G.A. MHOON | D431* | FLOWING | UNUSED | 30 21 9 | 81 28 40 | - | - | 3.00 | 33.00 | 3/16/81 | - |
| HAROLD P. OMERANTE | D432* | FLOWING | UNUSED | 30 24 37 | 81 42 9 | - | - | 4.00 | 28.00 | 6/20/81 | - |
| MERIL CORP | D434* | FLOWING | UNUSED | 30 24 41 | 81 25 34 | - | 742 | 4.00 | 16.00 | 1/61/76 | - |
| ROMCO | D435* | FLOWING | UNUSED | 30 17 33 | 81 43 17 | - | - | 10.00 | 13.00 | 9/10/81 | - |
| UNDERTIMINED | D428* | FLOWING | UNUSED | 30 23 18 | 81 36 47 | - | - | 6.00 | 25.00 | 3/13/81 | - |
| UNDERTIMINED | D429* | FLOWING | UNUSED | 30 23 5 | 81 36 54 | - | - | 0.00 | 25.00 | 3/12/81 | - |
| UNDERTIMINED | D430* | FLOWING | UNUSED | 30 23 18 | 81 30 19 | - | - | 3.00 | - | - | - |
| UNDETERMINED | D436* | FLOWING | UNUSED | 30 11 35 | 81 34 13 | - | - | 3.00 | 30.00 | 1/28/82 | - |
| WALDON POND SOCIETY | D427* | FLOWING | UNUSED | 30 16 50 | 81 34 4 | - | - | 3.00 | - | - | - |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 FLAGLER COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N DE MI SE | CASE DEPTH | WELL DEPTH | WELL DIAM | CHLORIDE MG/L | SAMPLE DATE | GETH LOGS |
|----------------------|---------|---------|----------|-------------------|-------------------|------------|------------|-----------|------------------|-------------|-----------|
| PUBLIC DOMAIN | F207* | FLOWING | UNUSED | 29 35 0 | 81 11 35 | - | - | 6.00 | 7560.00 | 7/ 8/81 | - |
| UNDETERMINED | F209* | FLOWING | STOCK | 29 25 23 | 81 25 38 | - | - | 6.00 | 1020.00 | 1/ 7/82 | - |
| UNDETERMINED | F210* | FLOWING | STOCK | 29 25 22 | 81 25 38 | - | - | 3.00 | 940.00 | 1/ 7/82 | - |
| UNDETERMINED | F211* | FLOWING | STOCK | 29 25 28 | 81 25 49 | - | - | 3.00 | - | - | - |
| UNDETERMINED | F212* | FLOWING | STOCK | 29 25 28 | 81 25 53 | - | - | 4.00 | 1410.00 | 1/ 7/82 | - |
| UNDETERMINED | F213* | FLOWING | UNUSED | 29 25 19 | 81 25 53 | - | - | 0.00 | - | - | - |
| UNDETERMINED | F214* | FLOWING | UNUSED | 29 25 21 | 81 25 53 | - | - | 0.00 | - | - | - |
| WASHINGTON OAKS S.P. | F208* | FLOWING | OTHER | 29 37 58 | 81 12 32 | - | 380 | 4.00 | - | - | - |

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 INDIAN RIVER COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N CASE DE MI SE | WELL DEPTH | WELL CHLORIDE DIAM MG/L | SAMPLE DATE | GEPH LOGS |
|----------------------|---------|---------|------------|-------------------|------------------------|------------|----------------------------|-------------|-----------|
| GDC | IR99* | FLOWING | RECREATION | 27 47 19 | 80 27 25 | - | 3.00 | 9/16/81 | - |
| I. R. COUNTY MC. | IR41* | FLOWING | UNUSED | 27 51 6 | 80 26 42 | - | 4.00 | 2/ 2/81 | - |
| J.V.D'ALBORA CO. | IR271 | FLOWING | UNUSED | 27 46 53 | 80 25 9 | - | 8.00 | 3/ 4/82 | - |
| KNIGHT, C. REED | IR273 | FLOWING | IRRIGATION | 27 39 49 | 80 23 21 | - | 6.00 | 3/ 4/82 | - |
| KRAFT, KURT H. | IR200 | FLOWING | IRRIGATION | 27 37 20 | 80 22 56 | - | 6.00 | 1/13/82 | - |
| MARTIN, GREGORY-TRUS | IR272 | FLOWING | UNUSED | 27 40 3 | 80 23 17 | - | 6.00 | 3/ 4/82 | - |
| STRAZZULLA BROS, INC | IR199 | FLOWING | IRRIGATION | 27 37 19 | 80 22 56 | - | 6.00 | 1/13/82 | - |
| U.S. GOVT. | IR198 | FLOWING | IRRIGATION | 27 37 19 | 80 22 56 | 940 | 6.00 | 1/13/82 | - |
| UNDETERMINED | IR42* | FLOWING | IRRIGATION | 27 51 11 | 80 26 44 | - | 4.00 | 5/18/81 | - |
| VERO BEACH FARMS | IR237 | FLOWING | DOMESTIC | 27 45 23 | 80 30 42 | - | 6.00 | 2/23/82 | - |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 LAKE COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N BE MI SE | CASE DEPTH | WELL DEPTH | WELL CHLORIDE DIAM NG/L | SAMPLE DATE | SEPH LOGS | |
|------------------|---------|---------|------------|-------------------|-------------------|------------|------------|----------------------------|----------------|--------------|---|
| A.M. COLLINS, JR | L1*** | FLOWING | RECREATION | 29 10 27 | 81 32 11 | - | - | 10.00 | 1360.00 | 2/ 2/82 | - |
| UNDETERMINED | L2*** | FLOWING | OTHER | 29 10 2 | 81 31 27 | - | - | 4.00 | 410.00 | 2/ 2/82 | - |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 MARION COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N CASE DE MI SE | WELL DEPTH | WELL DEPTH | WELL CHLORIDE DIAM MG/L | SAMPLE DATE | DEPTH LOGS | |
|----------------------|---------|---------|------------|-------------------|------------------------|------------|------------|----------------------------|-------------|------------|---|
| COUNTY RIGHT OF WAY | M2*** | FLOWING | UNUSED | 29 11 2 | 81 59 33 | - | - | 4.00 | 10.00 | 1/18/82 | - |
| G.C. HEINEMANN | M4*** | FLOWING | OTHER | 29 17 43 | 81 35 15 | - | - | 6.00 | - | - | - |
| HEINEMANN, G.C. | M5*** | FLOWING | OTHER | 29 17 43 | 81 35 15 | - | - | 4.00 | - | - | - |
| LARRY MOODY | M7*** | FLOWING | RECREATION | 29 17 38 | 81 35 20 | - | - | 6.00 | - | - | - |
| PONDEROSA SHORES, IN | M9*** | FLOWING | OTHER | 29 17 17 | 81 35 3 | - | - | 6.00 | - | - | - |
| PONDEROSA SHORES, I | M8*** | FLOWING | OTHER | 29 17 27 | 81 35 4 | - | - | 6.00 | - | - | - |
| UNDETERMINED | M3*** | FLOWING | OTHER | 29 17 49 | 81 35 34 | - | - | 6.00 | 150.00 | 1/25/82 | - |
| UNDETERMINED | M6*** | FLOWING | UNUSED | 29 17 40 | 81 35 12 | - | - | 4.00 | - | - | - |
| VANCE, BILL | M1*** | FLOWING | UNUSED | 29 27 28 | 81 55 7 | - | - | 4.00 | 15.00 | 4/22/81 | - |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 NASSAU COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | | | L O N CASE DE MI SE DEPTH | | | WELL DEPTH | WELL CHLORIDE DIAM MB/L | SAMPLE DATE | SEPH LOGS |
|--------------|---------|---------|----------|-------------------|----|----|------------------------------|----|----|------------|----------------------------|----------------|--------------|
| JOHNSON LAKE | N21** | FLOWING | UNUSED | 30 | 35 | 49 | 81 | 38 | 54 | - | 2.00 | - | - |
| UNDETERMINED | N20** | FLOWING | DOMESTIC | 30 | 34 | 5 | 81 | 31 | 18 | - | 4.00 | 30.00 | 3/20/81 |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 ORANGE COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N DE MI SE | CASE DEPTH | WELL DEPTH | WELL DIAM | CHLORIDE MG/L | SAMPLE DATE | GEFH LOGS |
|-------------------|---------|---------|----------|-------------------|-------------------|------------|------------|-----------|---------------|-------------|-----------|
| CITY RIGHT OF WAY | OR1** | FLOWING | UNUSED | 28 32 14 | 80 58 34 | - | - | 2.00 | 390.00 | 2/ 5/82 | - |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 PUTNAM COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N DE MI SE | CASE DEPTH | WELL DEPTH | WELL DIAM | CHLORIDE MG/L | SAMPLE DATE | DEPTH LOGS |
|----------------------|---------|---------|------------|-------------------|-------------------|------------|------------|-----------|------------------|-------------|------------|
| CORPS OF ENGINEERS | P306* | FLOWING | OTHER | 29 33 0 | 81 52 39 | 105 | 189 | 8.00 | 12.00 | 3/17/75 | - |
| GEORGIA PACIFIC | P434* | FLOWING | UNUSED | 29 40 28 | 81 39 37 | - | - | 2.00 | 175.00 | 11/16/81 | - |
| MEELEY REED | P433* | FLOWING | RECREATION | 29 21 38 | 81 37 51 | - | - | 4.00 | 1755.00 | 1/28/82 | - |
| RAFAEL PUIG | P428* | FLOWING | UNUSED | 29 45 16 | 81 34 56 | - | - | 6.00 | 155.00 | 11/16/81 | - |
| RAVINE STATE GARDENS | P416* | FLOWING | UNUSED | 29 37 59 | 81 38 34 | - | - | 3.00 | 210.00 | 11/16/81 | - |
| S.C.L. RAILROAD | P425* | FLOWING | UNUSED | 29 35 45 | 81 40 59 | - | - | 2.00 | - | - | - |
| UNDETERMINED | P17** | UNUSED | UNUSED | 29 34 39 | 81 52 42 | - | - | 3.00 | 15.00 | 3/31/81 | - |
| UNDETERMINED | P414* | FLOWING | UNUSED | 29 35 31 | 81 37 41 | - | - | 3.00 | 195.00 | 4/22/81 | - |
| UNDETERMINED | P415* | FLOWING | OTHER | 29 26 34 | 81 35 33 | - | - | 0.00 | - | - | - |
| UNDETERMINED | P419* | FLOWING | UNUSED | 29 41 45 | 81 37 23 | - | - | 2.00 | 95.00 | 11/18/81 | - |
| UNDETERMINED | P424* | FLOWING | UNUSED | 29 40 12 | 81 36 51 | - | - | 4.00 | 285.00 | 12/ 9/81 | - |
| UNDETERMINED | P429* | FLOWING | UNUSED | 29 39 42 | 81 36 12 | - | - | 4.00 | 180.00 | 11/18/81 | - |
| UNDETERMINED | P430* | FLOWING | UNUSED | 29 41 10 | 81 35 33 | - | - | 4.00 | 355.00 | 12/ 1/81 | - |
| UNDETERMINED | P431* | FLOWING | UNUSED | 29 26 7 | 81 31 55 | - | - | 6.00 | - | - | - |
| UNDETERMINED | P432* | FLOWING | UNUSED | 29 40 32 | 81 37 29 | - | - | 4.00 | 110.00 | 12/ 9/81 | - |
| UNDETERMINED | P448* | FLOWING | UNUSED | 29 37 59 | 81 38 35 | - | - | 4.00 | - | - | - |
| UNDETERMINED | P449* | FLOWING | UNUSED | 29 33 58 | 81 43 39 | - | - | 4.00 | - | - | - |
| WHITEHEAD | P426* | FLOWING | STOCK | 29 37 7 | 81 37 47 | - | - | 4.00 | 180.00 | 1/26/82 | - |

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 ST. JOHNS COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N DE MI SE | CASE DEPTH | WELL DEPTH | WELL CHLORIDE DIAM | CHLORIDE MG/L | SAMPLE DATE | CEPH LOGS |
|----------------------|---------|---------|--------------|-------------------|-------------------|------------|------------|-----------------------|------------------|-------------|-----------|
| GUANO WILDLIFE MGT. | SJ502 | FLOWING | OTHER | 30 5 33 | 81 21 5 | - | - | 4.00 | 36.00 | 10/ 8/81 | - |
| GULF STREAM LAND & D | SJ508 | FLOWING | UNUSED | 30 3 38 | 81 38 39 | - | - | 12.00 | 8.00 | 8/31/81 | - |
| ST JOHNS CTY R OF WA | SJ513 | FLOWING | UNUSED | 29 54 57 | 81 26 43 | - | - | 4.00 | 50.00 | 1/28/82 | - |
| ST. REGIS | SJ507 | FLOWING | UNUSED | 30 3 54 | 81 22 22 | - | - | 4.00 | 180.00 | 7/ 8/81 | - |
| STEVE GREEN | SJ511 | FLOWING | UNUSED | 29 55 14 | 81 19 59 | - | 1500 | 4.00 | 110.00 | 10/ 8/81 | - |
| UNDETERMINED | SJ509 | FLOWING | UNDETERMINED | 30 3 55 | 81 23 9 | - | - | 4.00 | 100.00 | 10/ 7/81 | - |
| UNDETERMINED | SJ505 | FLOWING | UNUSED | 29 57 51 | 81 26 53 | - | - | 4.00 | 45.00 | 3/31/81 | - |
| UNDETERMINED | SJ506 | FLOWING | UNUSED | 29 56 46 | 81 26 38 | - | - | 4.00 | 45.00 | 3/31/81 | - |
| UNDETERMINED | SJ510 | FLOWING | UNUSED | 29 55 6 | 81 19 9 | - | - | 6.00 | 160.00 | 10/ 7/81 | - |
| UNDETERMINED | SJ512 | FLOWING | UNUSED | 29 49 23 | 81 16 23 | - | - | 6.00 | - | - | - |
| UNDETERMINED | SJ514 | FLOWING | UNUSED | 30 07 38 | 81 23 04 | - | - | 6.00 | - | - | - |

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 SEMINOLE COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N DE MI SE | CASE DEPTH | WELL DEPTH | WELL CHLORIDE DIAM NG/L | SAMPLE DATE | GEFH LOGS | |
|---------------------|---------|---------|------------|-------------------|-------------------|------------|------------|----------------------------|-------------|-----------|---|
| COUNTY RIGHT OF WAY | S1*** | FLOWING | UNUSED | 29 44 4 | 81 16 26 | - | - | 2.00 | 480.00 | 2/ 4/82 | - |
| STATE RIGHT OF WAY | S2*** | FLOWING | PUBLIC | 29 43 5 | 81 19 20 | - | - | 3.00 | 12.50 | 2/ 5/82 | - |
| UNDETERMINED | S3*** | FLOWING | RECREATION | 29 40 10 | 81 26 28 | - | - | 2.00 | - | - | - |

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ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 REPORT ON
 THE FREE FLOWING WELL INVENTORY
 VOLUSIA COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T DE MI SE | L O N DE MI SE | CASE DEPTH | WELL DEPTH | WELL DIAH | CHLORIDE NG/L | SAMPLE DATE | DEPTH LOGS |
|----------------------|---------|---------|----------|-------------------|-------------------|------------|------------|-----------|---------------|-------------|------------|
| J.E. PEARSON | V55** | FLOWING | UNUSED | 29 56 21 | 81 5 38 | - | - | 1.00 | 30.00 | 2/ 3/82 | - |
| J.E. PEARSON | V56** | FLOWING | DOMESTIC | 29 56 21 | 81 5 38 | - | - | 2.00 | 30.00 | 2/ 3/82 | - |
| L. WOODRUFF WILDLIFE | V54** | FLOWING | OTHER | 29 3 24 | 81 22 22 | - | - | 3.00 | 100.00 | 2/ 2/82 | - |
| LAWERENCE FARMS, INC | V51** | FLOWING | UNUSED | 29 7 52 | 81 21 9 | - | - | 8.00 | 3780.00 | 2/ 2/82 | - |
| LAWERENCE FARMS, INC | V52** | FLOWING | UNUSED | 29 7 48 | 81 21 9 | - | - | 8.00 | 1040.00 | 2/ 2/82 | - |
| LAWERENCE FARMS, INC | V53** | FLOWING | UNUSED | 29 7 46 | 81 21 9 | - | - | 8.00 | 1700.00 | 2/ 3/82 | - |
| MURRY SAMS | V49** | FLOWING | UNUSED | 29 8 5 | 81 21 53 | - | - | 12.00 | 520.00 | 2/ 2/82 | - |
| MURRY SAMS | V50** | FLOWING | UNUSED | 29 8 5 | 81 21 56 | - | - | 8.00 | 510.00 | 2/ 2/82 | - |
| STONE IS. HOMEOWNERS | V57** | FLOWING | UNUSED | 29 50 42 | 81 14 9 | - | - | 8.00 | 450.00 | 2/ 3/82 | - |
| STONE IS. HOMEOWNERS | V58** | FLOWING | UNUSED | 29 50 44 | 81 14 1 | - | - | 3.00 | 620.00 | 2/ 4/82 | - |
| UNDETERMINED | V-0094 | FLOWING | UNUSED | 29 51 44 | 81 52 21 | - | - | 8.00 | 1070.00 | 2/ 4/82 | - |
| UNDETERMINED | V-0096 | FLOWING | UNUSED | 28 52 13 | 81 16 55 | - | - | 0.00 | 25.00 | 2/ 4/82 | - |
| UNDETERMINED | V59** | FLOWING | UNUSED | 28 52 45 | 81 21 43 | - | - | 3.00 | 1670.00 | 2/ 4/82 | - |
| UNDETERMINED | V60** | FLOWING | UNUSED | 29 15 3 | 81 7 18 | - | - | 4.00 | 70.00 | 1/21/82 | - |
| UNDETERMINED | V61** | FLOWING | UNUSED | 29 5 13 | 81 2 47 | - | - | 3.00 | 50.00 | 1/21/82 | - |
| W.L. TOMPKINS-LEASEE | V-0095 | FLOWING | STOCK | 29 10 15 | 81 21 57 | - | - | 4.00 | - | - | - |

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293

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
 LISTING OF
 ALL WELLS PLUGGED BY THE FREE FLOWING WELL PROGRAM
 BREVARD COUNTY

| OWNER | WELL ID | STATUS | WELL USE | L A T | | | L O N CASE | | | WELL DEPTH | WELL DIAM | |
|--------------------|------------|------------|----------|-------|----|----|------------|----|----|---------------|--------------|-------|
| | | | | De | Mi | Se | De | Mi | Se | | | DEPTH |
| AQUIRINA | BR437 | PLUGGED | UNUSED | 27 | 55 | 20 | 80 | 29 | 37 | 195 | 439 | 4.00 |
| AQUIRINA | BR438 | PLUGGED | UNUSED | 27 | 55 | 32 | 80 | 29 | 21 | - | - | 3.00 |
| BEACHWOODS | BR227 | PLUGGED | UNUSED | 28 | 1 | 53 | 80 | 32 | 31 | - | - | 1.50 |
| BETHESDA RET HOME | BR17* | CONTROLLED | UNUSED | 28 | 1 | 35 | 80 | 35 | 16 | 398 | 1360 | 14.00 |
| BREVARD CO. MC | BR78* | PLUGGED | UNUSED | 27 | 52 | 8 | 80 | 27 | 17 | 102 | 449 | 4.00 |
| BREVARD CO. MC | BR80* | PLUGGED | UNUSED | 27 | 52 | 27 | 80 | 28 | 3 | 103 | 406 | 4.00 |
| BREVARD CO. MC | BR81* | PLUGGED | UNUSED | 27 | 52 | 31 | 80 | 28 | 7 | 103 | 203 | 4.00 |
| BREVARD CO. MC | BR82* | PLUGGED | UNUSED | 27 | 53 | 1 | 80 | 28 | 4 | - | - | 4.00 |
| BREVARD CO. MC | BR83* | PLUGGED | UNUSED | 27 | 53 | 5 | 80 | 28 | 4 | 103 | 465 | 4.00 |
| BREVARD CO. MC | BR85* | PLUGGED | UNUSED | 27 | 53 | 57 | 80 | 28 | 17 | - | - | 4.00 |
| BREVARD CO. MC | BR86* | PLUGGED | UNUSED | 27 | 54 | 25 | 80 | 28 | 38 | 101 | 358 | 4.00 |
| BREVARD CO. MC | BR87* | PLUGGED | UNUSED | 27 | 55 | 18 | 80 | 29 | 36 | - | 496 | 4.00 |
| BREVARD CO. MC | BR91* | PLUGGED | UNUSED | 27 | 56 | 9 | 80 | 30 | 24 | - | 386 | 4.00 |
| BREVARD CO. MC | BR93* | PLUGGED | UNUSED | 27 | 56 | 28 | 80 | 30 | 32 | 103 | 425 | 4.00 |
| DNR-PARKS AND REC. | BR410 | PLUGGED | UNUSED | 27 | 52 | 17 | 80 | 27 | 21 | 81 | 392 | 4.00 |
| UNDETERMINED | BR409 | PLUGGED | UNUSED | 27 | 52 | 11 | 80 | 27 | 22 | - | 466 | 4.00 |

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WELL DATA BASE HEADER FILE

| | | | | | | |
|---|--|--|------------------------------------|--|-------------------------------------|----------------------------------|
| STATION CODE <input type="text" value="0.2"/> | LATITUDE <input type="text"/> | LONGITUDE <input type="text"/> | STATION ID <input type="text"/> | HYDROLOGIC UNIT <input type="text"/> | COUNTY CODE <input type="text"/> | |
| STATION NAME <input type="text"/> | TOPO QUAD <input type="text"/> | | SECTION <input type="text"/> | TNSP <input type="text"/> | RNGE <input type="text"/> | QUADRANT <input type="text"/> |
| PROJECT NO. <input type="text" value="2,0,0,1,8,0,2"/> | AQUIFER <input type="text"/> | DEPTH <input type="text"/> | CASING <input type="text"/> | WELL PENETRATION <input type="text"/> | DIAMETER <input type="text"/> | |
| DATE DRILLED <input type="text"/> | WELL USE CODE <input type="text"/> | LEVELS <input type="text"/> | RECORDER <input type="text"/> | QW <input type="text" value="Y,E"/> | OWNERS NAME <input type="text"/> | |
| OWNERS NAME (CONTINUED) <input type="text"/> | PERIOD OF RECORD YEARS <input type="text"/> OR <input type="text"/> MOS. <input type="text"/> | | STATUS <input type="text"/> | FREQUENCY <input type="text"/> | | |
| EXTREME HIGH DAY <input type="text"/> MONTH <input type="text"/> YEAR <input type="text"/> | STAGE <input type="text"/> | EXTREME LOW DAY <input type="text"/> MONTH <input type="text"/> YEAR <input type="text"/> | STAGE <input type="text"/> | | | |
| MEASURING POINT (LSD) <input type="text"/> | MEASURING POINT (MSL) <input type="text"/> | MP CODE <input type="text"/> | PUMP TEST <input type="text"/> | GP LOG <input type="text"/> | GL LOG <input type="text"/> | |
| DATA SOURCE <input type="text"/> | COMMENTS (72 SPACES) <input type="text"/> | | | | | |
| <input type="text"/> | | | | | | |
| <input type="text"/> | | | | | | |

WATER QUALITY FILE

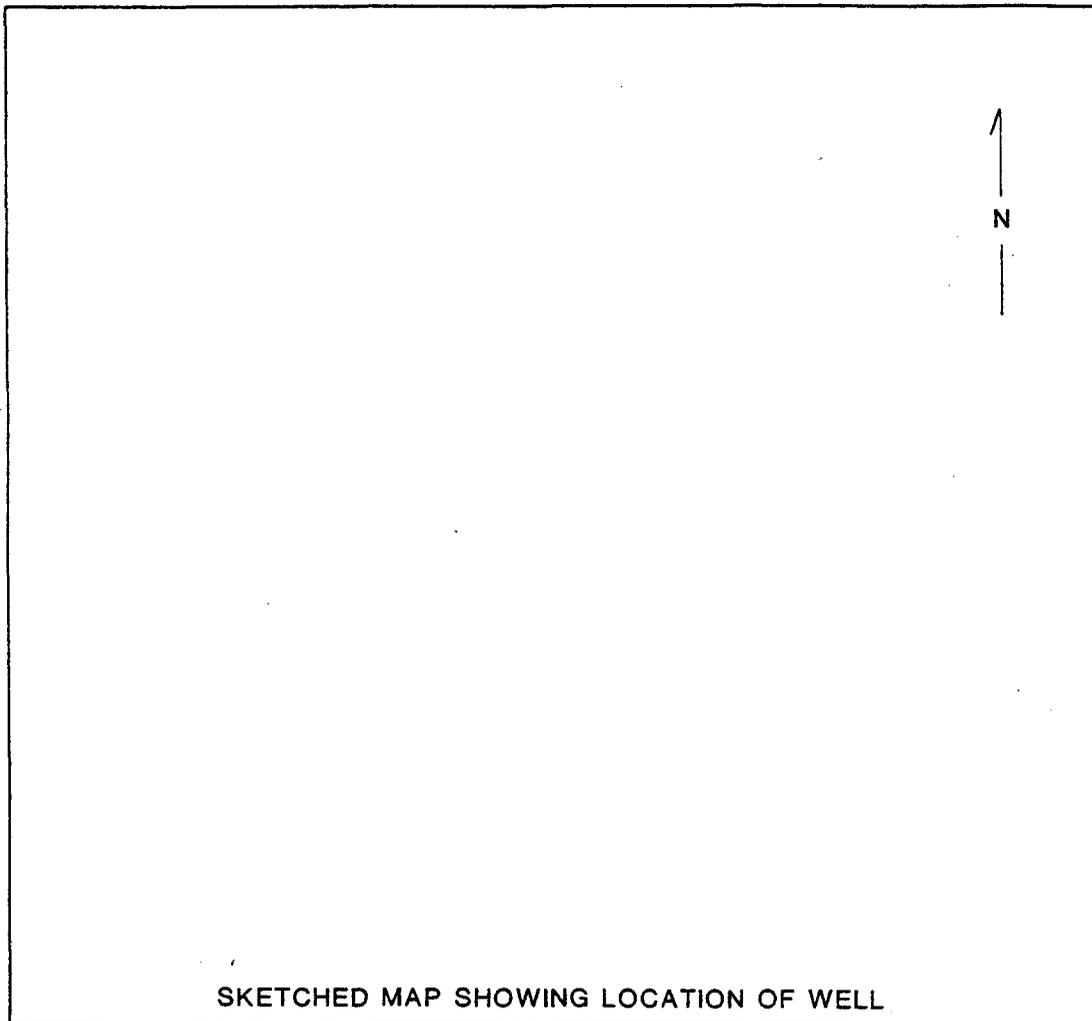
| | | | | | | | |
|--|----------------------------------|-----------------------------------|------------------------------------|-------------------------------|-----------------------------|------------------------------|------------------------------|
| PRIMARY KEY | | | | | | | |
| STATION CODE <input type="text" value="0.2"/> | LATITUDE <input type="text"/> | LONGITUDE <input type="text"/> | STATION ID <input type="text"/> | MONTH <input type="text"/> | DAY <input type="text"/> | YEAR <input type="text"/> | TIME <input type="text"/> |
| SECONDARY KEY | | | | | | | |
| STATION (SAMPLE) NAME | | | | | | | |
| COUNTY NO. A Y M O | | | | | | | |
| <input type="text"/> | | | | | | | |

PARAMETERS

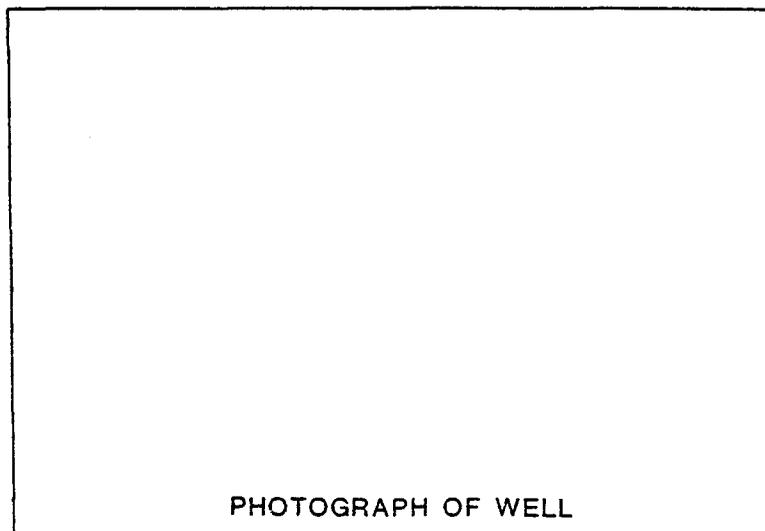
| | | | | | |
|--|---|--|---|--|---|
| <input type="text" value="0,0,0,1,0"/> | TEMPERATURE (°C) <input type="text"/> | <input type="text" value="0,0,4,4,0"/> | BICARBONATE <input type="text"/> | <input type="text" value="7,2,0,1,9"/> | WATER LEVEL (LSD) <input type="text"/> |
| <input type="text" value="0,0,9,1,5"/> | CALCIUM <input type="text"/> | <input type="text" value="0,0,4,4,5"/> | CARBONATE <input type="text"/> | <input type="text" value="7,2,0,2,0"/> | WATER LEVEL (MSL) <input type="text"/> |
| <input type="text" value="0,0,9,2,5"/> | MAGNESIUM <input type="text"/> | <input type="text" value="0,1,0,4,6"/> | IRON <input type="text"/> | <input type="text" value="7,2,0,0,0"/> | ELEVATION LSD <input type="text"/> |
| <input type="text" value="0,0,9,3,0"/> | SODIUM <input type="text"/> | <input type="text" value="0,0,9,5,0"/> | FLUORIDE <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text" value="0,0,9,3,5"/> | POTASSIUM <input type="text"/> | <input type="text" value="0,1,0,8,0"/> | STRONTIUM <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text" value="0,0,0,9,5"/> | SPECIFIC CONDUCT. <input type="text"/> | <input type="text" value="0,0,4,8,0"/> | SALINITY <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text" value="0,0,9,4,0"/> | CHLORIDE <input type="text"/> | <input type="text" value="0,0,0,5,8"/> | WELL YIELD (GPM) <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text" value="0,0,9,4,5"/> | SULFATE <input type="text"/> | <input type="text" value="0,0,9,0,0"/> | TOTAL HARDNESS <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text" value="0,0,7,4,6"/> | SULFIDE <input type="text"/> | <input type="text" value="0,0,9,0,2"/> | NON-CARB. HARD. <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text" value="0,0,4,0,0"/> | pH (FIELD) <input type="text"/> | <input type="text" value="7,0,3,0,0"/> | DISSOLVED SOL. (RES.) <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text" value="0,0,4,1,0"/> | TOTAL ALKALINITY <input type="text"/> | <input type="text" value="7,0,3,0,1"/> | DISSOLVED SOL. (SUM) <input type="text"/> | <input type="text"/> | <input type="text"/> |

SWIS FORM 11/10/80

(Reduced from 8-1/2" X 14" Originals.)



SKETCHED MAP SHOWING LOCATION OF WELL



PHOTOGRAPH OF WELL

(Reduced from 8-1/2" X 14" Originals.)

APPENDIX D
CONTRACTUAL AND COOPERATIVE AGREEMENTS

A G R E E M E N T

Between The

St. Johns River Water Management District

And The

Brevard County Board of County Commissioners

THIS AGREEMENT is entered into on the 13th day of January, 1982, by and between the ST. JOHNS RIVER WATER MANAGEMENT DISTRICT, hereinafter the "DISTRICT", and the BREVARD COUNTY BOARD OF COUNTY COMMISSIONERS, hereinafter "BREVARD COUNTY".

WHEREAS, the waters of the state are among its basic resources and it has been declared to be the policy of the legislature to promote the conservation, development, and proper utilization of surface and ground water, and

WHEREAS, a hydrologically isolated lens of fresh water has been identified in the Floridan aquifer in the South Beaches area of Brevard County, and that some of this fresh water is currently being lost through free flowing wells, and

WHEREAS, proper management of this freshwater resource is necessary to protect the water users' health, safety and welfare and to extend the life of the potable water supply, and

WHEREAS, BREVARD COUNTY, based on information from its "208" program and other water resources activities, has declared this waste of fresh water to be an emergency, and

WHEREAS, BREVARD COUNTY has received under separate agreement a commitment from a private interest to fund a separable portion of this problem, and

WHEREAS, BREVARD COUNTY has requested the DISTRICT to participate in a cooperative water resource conservation and protection program, and

WHEREAS, the DISTRICT has been established to manage water resources within its geographical area.

IN CONSIDERATION of these premises and the mutual covenants and agreements hereinafter contained, it is agreed as follows:

1) THE DISTRICT

A) Shall obligate up to a sum of Twenty-Five Thousand Dollars (\$25,000) for services related to the plugging of the uncontrolled free flowing wells identified in Exhibit A.

B) Shall be responsible for administering and letting of bids and administration of subcontract work for the plugging of uncontrolled free flowing wells in accordance with DISTRICT policy and up to a maximum of Fifty Thousand Dollars (\$50,000). The DISTRICT shall provide BREVARD COUNTY with a copy of the bid specification for BREVARD COUNTY'S review and approval prior to notice for bids. Notice for bids shall be published in a newspaper of general circulation in Brevard County.

C) Will invoice BREVARD COUNTY upon execution of each contract as they are awarded for one-half (1/2) of the amount obligated for said service to be performed. The DISTRICT shall certify that the work has been satisfactorily completed by copy to Brevard of a paid bill to the contractor.

D) Shall provide the necessary professional and technical support to properly address all aspects of this program.

E) DISTRICT shall provide to BREVARD COUNTY monthly progress report of work contracted.

2) BREVARD COUNTY

A) Shall obligate up to a sum of Twenty-Five Thousand Dollars (\$25,000) for services relating to the plugging of uncontrolled free flowing wells identified in Exhibit A and shall share expenses on a 50% basis with the DISTRICT for the services described in paragraph 1B above.

B) Will pay the DISTRICT for work invoiced by the DISTRICT up to a maximum of \$25,000.00 for work described in paragraph 1B above.

C) Shall be responsible for obtaining the consent of owner to plug free flowing wells and licenses for performing the above mentioned work.

3) DISTRICT and BREVARD COUNTY shall prepare a final report.

4) This agreement shall be effective upon the execution thereof and shall continue until September 30, 1982, except that performance of a contract executed prior to September 30, 1982, shall continue beyond that date and performance under Paragraph 5 shall continue beyond that date.

5) The DISTRICT agrees to indemnify and hold harmless BREVARD of and BREVARD agrees to indemnify and hold DISTRICT harmless of any liability

arising out of negligent acts of the DISTRICT and BREVARD, respectively, performed under this agreement.

IN WITNESS WHEREOF, the parties hereto have duly executed this agreement on the date and year ascribed above.

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

By: *James S. Rynow*
Chairman

ATTEST:

James S. Rynow
Secretary

Elin Henschen
Legal Form Content Approved

BREVARD COUNTY BOARD OF COUNTY COMMISSIONERS

By: *Joe H. Wickham*
Joe H. Wickham, Chairman 1/14/82

ATTEST:

R. C. Winstead, Jr.
R. C. Winstead, Jr., Clerk

AGREEMENT FOR
CONTRACTUAL SERVICES
BETWEEN THE

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

AND

Cumby Well Drilling

THIS AGREEMENT, dated 27 day of April, 1982 by and between the St. Johns River Water Management District, a Chapter 373, Florida Statutes water management district located at U.S. Highway 100 West, P.O. Box 1429, Palatka, Florida (hereinafter DISTRICT) and Cumby Well Drilling a Florida Corporation authorized to do business in the State of Florida, located at Tabille Fls (hereinafter CONTRACTOR).

WITNESSETH:

WHEREAS, the DISTRICT desires to plug uncontrolled flowing artesian wells in Brevard County and Indian River County; and

WHEREAS, the CONTRACTOR and the DISTRICT have reached an understanding on the type, extent, quality and time of performance and service and/or material to be rendered and the amount and method of compensation to be paid the CONTRACTOR on the project and both wish to reduce it to a written agreement.

NOW, THEREFORE, IN CONSIDERATION of these promises and mutual covenants hereinafter set forth, the DISTRICT and CONTRACTOR agree as follows:

I. SCOPE OF SERVICES

Unless otherwise specified and in addition to those services set forth in the CONTRACT DOCUMENTS which comprise this entire agreement and are made a part hereof:

The CONTRACTOR will:

1. Provide one (1) complete drilling unit capable of reaming out boreholes and grouting boreholes 1000 feet or greater in depth; a truck capable of safely transporting 100 sacks of cement; all tools and accessories associated with the drilling unit; all tremie pipes and positive pressure pump, piston type or diaphragm type; and all necessary manpower to effectuate the performance of this contract.

2. Be responsible for the required equipment to be on site and in good operating condition and ready to perform the required work.

3. Commence the work within ten (10) calendar days after receipt of written order to proceed by the DISTRICT.

4. Commence and complete work as outlined by work order without interruptions or delays.

5. Follow verbal and written direction of DISTRICT representative assigned to the project.

6. Otherwise abide by all terms and conditions set forth in the CONTRACT DOCUMENTS.

The DISTRICT will:

1. Provide all cement, additives, burlap socks for the QWIP plugs and like materials, excluding those materials to be furnished by the CONTRACTOR as specified in the CONTRACT DOCUMENTS.

2. Furnish a representative to be on site at all times while work is in progress.

II. FEES FOR SERVICES

1. The DISTRICT shall pay the CONTRACTOR for performance of the work and completion of each work order pursuant to the CONTRACT DOCUMENTS, subject to modification as provided therein.

2. The DISTRICT shall make progress payments pursuant to the contract price as provided in the CONTRACT DOCUMENTS and upon approval by the DISTRICT of each application for payment provided in the bid specifications.

III. INDEMNIFICATION

The CONTRACTOR agrees to defend, indemnify and save harmless the DISTRICT, its officers, agents and servants, and each and everyone of them against and from all suits or costs of every kind and description including suits, costs, claims and judgments of agents, servants or employees of the CONTRACTOR and of any sub-contractors, and from all damages to which the DISTRICT or any of its officers, agents or servants may be subjected by reason of injury to the person or property of others resulting from the performance of the assignment, or through the negligence of the CONTRACTOR, its agents, servants, employees and sub-contractors arising out of the performance of this Agreement; or through any improper or defective machinery, implements of appliances used in the assignment, or through any act or omission on the part of the CONTRACTOR or its agents, servants, employees and sub-contractors.

The CONTRACTOR shall further defend, indemnify and save harm-

less the DISTRICT, its officers, agents and servants from all suits and actions of any kind or character whatsoever, which may be brought or instituted by any sub-contractor, materialman or laborer who has performed work or furnished materials in or about the Project or by, or on account of, any claims or amount recovered for any infringement of patent, trademark or copyright.

So much money due to the CONTRACTOR under and by virtue of the contract as shall be considered necessary by the DISTRICT may be retained by the DISTRICT and held until such suits, actions, claims or amounts have been settled, and suitable evidence to that effect furnished to the DISTRICT.

The obligations of the CONTRACTOR will not extend to any claim, damage, loss or expense arising out of a defect in drawings, opinions, reports, surveys, change orders, designs or specifications prepared or furnished by the DISTRICT, or arising out of the giving by the DISTRICT of erroneous directions or instructions required to be given to the CONTRACTOR, or the failure of the DISTRICT to give directions or instructions required to be given to the CONTRACTOR, provided such instructions or failure to give directions or instructions is the primary cause of the injury or damage.

IV. COMPLIANCE

The CONTRACTOR shall comply with all federal, state and local laws and ordinances applicable to the work or payment for work thereof, and shall not discriminate on the grounds of race, color, religion, sex or national origin in the performance of work under this Agreement.

The CONTRACTOR warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the CONTRACTOR to solicit or secure this Agreement; and that it has not paid or agreed to pay any person, company, corporation, individual or firm, other than a bona fide employee working solely for the CONTRACTOR any fee, commission, percentage, gift or any other consideration, contingent upon or resulting from the awarding or making of this Agreement. For breach or violation of this warranty, the DISTRICT shall have the right to annul this Agreement with liability, or at its discretion, to deduct price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee from the Agreement.

The DISTRICT reserves the right to require the CONTRACTOR to remove any employee from the job or to shut down the job at no cost to the DISTRICT if, in the DISTRICT'S opinion, the CONTRACTOR or the employee is not doing the work as required by the Agreement and as directed by the DISTRICT Representative.

V. CONTRACT DOCUMENTS

The CONTRACT DOCUMENTS which comprise this agreement herein between the DISTRICT and CONTRACTOR shall be the following:

- (a) This agreement dated April 27, 1983.
- (b) Bid proposal
- (c) Special Conditions
- (d) General Conditions
- (e) Technical Specifications
- (f) Detailed Plugging Specifications

(g) Job Sites and Plans as Delineated in
Attached Appendices

(h) Any Modifications, Including Change Orders

VI. Neither the DISTRICT nor CONTRACTOR shall, without the prior written consent of the other, assign or sublet in whole or part its interest under any of the CONTRACT DOCUMENTS, and specifically, the CONTRACTOR shall not assign any monies due or to become due without the prior written consent of the DISTRICT.

VII. This Agreement may only be altered, amended or repealed by either party by duly executed written instrument. It is also agreed that this Agreement can be terminated and work suspended as specified in the General Conditions of the CONTRACT DOCUMENTS.

VIII. This Agreement is to be binding upon the DISTRICT, its successor or successors and upon the CONTRACTOR, its successor or successors, and shall be terminated in accordance with the provisions of the CONTRACT DOCUMENTS.

IN WITNESS WHEREOF, the parties hereto have accepted, made and executed this Agreement upon the terms and conditions above stated on the 24 day of April 1983.

WITNESSES

ST. JOHNS RIVER WATER
MANAGEMENT DISTRICT

George Hunt

Frances S. Pignone
FRANCES S. PIGNONE
CHAIRMAN

Pauline M. Helge
witness

ATTEST

Lynne C. Capehart
LYNNE C. CAPEHART
SECRETARY

George Crumb

George Crumb
Its PRESIDENT/VICE PRESIDENT

Pauline L. Holge
Witness

ATTEST

Colleen Darnell
CORPORATE SECRETARY

LEGAL FORM AND CONTENT APPROVED

E. Lee Worsham
E. LEE WORSHAM
STAFF ATTORNEY

STATE OF FLORIDA
COUNTY OF GLADES

Before me personally appeared George Crumb, to me well known and known to me to be the person described in and who executed the foregoing instrument, and acknowledged to and before me that he executed said instrument for the purposes therein expressed.

WITNESS MY hand and official seal, this 11th day of May A.D., 1983.

(SEAL)

Paula J. Campbell
Notary Public, State of Florida
at large
My commission expires:

Notary Public, State of Florida
My Commission Expires Aug. 2, 1986
Bonded Thru Troy Fair Insurance, Inc.

CONTRACTOR'S PERFORMANCE BOND

STATE OF FLORIDA)

No. FS-106330

COUNTY OF BREVARD)

COUNTY OF INDIAN RIVER)

KNOWN ALL MEN BY THESE PRESENTS that George and Arthur Crumb
d/b/a Crumb Well & Drilling as Principal, hereinafter called Con-
tractor, and Allied Fidelity Insurance Co.

as Surety, hereinafter called Surety, are held and firmly bound
unto St. Johns River Water Management District, as Obligee, here-
inafter called DISTRICT, in the amount of TWENTY FOUR THOUSAND 00/100
Dollars (\$ 24,000.00) for payment whereof Contractor and
Surety bind themselves, their heirs, executors, administrators,
successors and assigns, jointly and severally, firmly by these
presents.

NOW THE TERMS OF THIS INDENTURE ARE:

WHEREAS, the Principal and Obligee have entered into the attached
written contract dated _____, 19__ for the per-
formance of certain contractual work and services in a WELL PLUG-
GING PROGRAM IN BREVARD COUNTY, FLORIDA.

NOW THEREFORE, if the Principal shall well and truly perform and
fulfill all the undertakings, covenants, terms, conditions, and
agreements of said contract during the original term of said con-
tract and any extensions thereof that may be granted by the
Obligee, with or without notice to the surety, and during the
life of any guaranty required under the contract, and shall also
well and truly perform and fulfill all the undertakings, coven-
ants, terms, conditions, and agreement of any and all duly author-
ized modifications to the surety being hereby waived, then this
obligation to be void; otherwise to remain in full force and
effect.

IN WITNESS WHEREOF, the said Principal and said Surety hereto
have caused these presents to be executed this day of May 19
19 83.

WHEN THE PRINCIPAL IS AN INDIVIDUAL:
Signed, sealed and delivered in the
presence of:

Secretary

Correct Name of Corporation

By: _____

President

(CORPORATE SEAL)

Allied Fidelity Insurance Co.
Name of Surety

8945 N. Meridian, Indianapolis, Indiana
Address of Surety

By: _____

Maria A. Rossie

Maria A. Rossie -Attorney-in-Fact-


Allied Fidelity
Insurance Co.

8945 North Meridian Street • Indianapolis, Indiana 46260 • 1 (800) 428-5730

AC № 022100

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That this Power-of-Attorney is not valid unless attached to the bond which it authorizes executed. It specifies the LIMIT OF THE AGENT'S AUTHORITY AND THE LIABILITY OF THE COMPANY, HEREIN.

THE AUTHORITY OF THE ATTORNEY-IN-FACT and THE LIABILITY OF THE COMPANY

SHALL NOT EXCEED *** FIFTY THOUSAND DOLLARS ***

**USE OF MORE THAN ONE POWER VOIDS
THE BOND**

ALLIED FIDELITY INSURANCE CO., an Indiana corporation, having its principal office in the City of Indianapolis, State of Indiana, does hereby make, constitute and appoint: _____

Maria A. Rossie

in the City of Coral Gables, County of Dade,
State of Florida, its true and lawful attorney-in-fact, at anywhere,

in the State of anywhere, to make, execute, seal and deliver for and on its behalf, and as its act and deed, bonds, and undertakings in behalf of court fiduciaries, who under the jurisdiction of a court, administer property held in trust; public official bonds; license and permit bonds; tax, lien, and miscellaneous bonds; required by Federal, State, County, Municipal Authority, or other obligees, provided that the liability of the company as surety on any such bond executed under this authority shall not in any event exceed the sum shown above.

THIS POWER VOID IF ALTERED OR ERASED

The acknowledgment and execution of any such document by the said Attorney-In-Fact shall be as binding upon the Company as if such bond had been executed and acknowledged by the regularly elected officers of this Company.

This Power of Attorney is granted and is signed and sealed by facsimile under and by the authority of the following By-Law adopted by the Board of Directors of Allied Fidelity Insurance Co. at a meeting duly called and held on the 29th day of April, 1982:

"The President shall have power and authority to appoint Attorneys-in-Fact, and authorize them to execute, on behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other surety and writings obligatory in the nature thereof; and he may at any time in his judgment remove any such appointees and revoke the authority given to them; and with respect to any Certified Copy of any Power of Attorney, the signatures of any issuing or attesting officer, and the seal of the Company, may be affixed to such Power of Attorney or to any certificate relating thereto, by facsimile; and such facsimile signatures and facsimile seals shall be valid and binding on the Company, in the future, with respect to any bond, undertaking or instrument of suretyship, to which it is attached."

IN WITNESS WHEREOF, Allied Fidelity Insurance Co. has caused its official seal to be hereunto affixed and these presents to be signed by its duly authorized officers this 6th day of July, 1982.

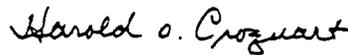


ALLIED FIDELITY INSURANCE CO.



Secretary

BY



President

**THIS POWER DOES NOT AUTHORIZE THE
EXECUTION OF BONDS FOR LOAN GUARANTEES**

STATE OF INDIANA }
COUNTY OF MARION } SS:

On this 6th day of July, 1982, before me a Notary Public, personally appeared H. O. CROQUART and T. L. EADS, who being by me duly sworn, acknowledged said instrument to be the voluntary act and deed of said Corporation.

Notary Public, Marion County, Indiana
My Commission Expires: 10/2/84

James E. Dushak

Notary Public



1. ONLY ONE POWER OF ATTORNEY MAY BE ATTACHED TO A BOND.
2. POWER OF ATTORNEY MUST NOT BE RETURNED TO ATTORNEY IN FACT, BUT SHOULD REMAIN A PERMANENT PART OF THE OBLIGEE'S RECORDS.
3. THIS POWER DOES NOT AUTHORIZE EXECUTION OF BONDS OF NE EXEAT OR ANY GUARANTEE FOR FAILURE TO PROVIDE PAYMENTS OF ALIMONY SUPPORT OR WAGE LAW CLAIMS, OR BONDS FOR CRIMINAL APPEARANCE.

STATE OF INDIANA }
COUNTY OF MARION } SS:

I, Frances A. Wilkinson, the Assistant Secretary of Allied Fidelity Insurance Co., do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Allied Fidelity Insurance Co., which is still in full force and effect.

This Certificate may be signed and sealed by facsimile under and by the authority of the following resolution of the Board of Directors of Allied Fidelity Insurance Co. at a meeting duly called and held on the 29th day of April, 1982:

"RESOLVED: That the use of a printed facsimile of the corporate seal of the company and of the signature of an Assistant Secretary on any certification of the correctness of a copy of an instrument executed by the President pursuant to the By-Laws appointing and authorizing an Attorney-in-Fact to sign in the name and on behalf of the company surety bonds, underwritings, undertakings or other instruments described in said By-Laws, with like effect as if such seal and such signature had been manually affixed and made, hereby is authorized and approved."

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said corporation, this

_____ 19 _____ day of _____ May _____, 19 83.

Frances A. Wilkinson

Assistant Secretary