

## MINUTES OF TOWN COUNCIL WORKSHOP MEETING OF JUNE 15, 1992

I. CALL TO ORDER AND ROLL CALL: A Workshop Meeting of the Town Council was called to order by President Heeke on June 15, 1992 at 9:30 AM in the Town Council Chambers. On roll call, the following elected officials were found to be in attendance: Mayor Marix, President Heeke, President Pro Tem Weinberg, Councilwoman Douthitt and Councilwoman Wiener. Also attending were Town Manager Doney, Town Attorney Randolph, Town Clerk Peters, Director of Public Works Dusey, Town Engineer Bowser from the staff and from James M. Montgomery, Consulting Engineers, Inc.: Dr. Ed Wetzel, Dr. Pat Gleason, and Dr. Dan Burden; William Sundstrom, Howard Osterman and John Wodraska.

President Heeke gave the procedures for the meeting and reminded all this meeting is a Workshop, so there will be no official action as the report of this Workshop will go to the Town Council for their consideration.

II. CONSIDERATION OF AQUIFER STORAGE AND RECOVERY TECHNICAL FEASIBILITY STUDY DATED May 1992 by JAMES M. MONTGOMERY, CONSULTING ENGINEERS, INC.: Attorney William Sundstrom summarized where they are at this point, noting over the last few years they have been involved in seeking ways to provide for the long-term water needs of the Town of Palm Beach and its residents. He reminded all this entire exercise is occasioned by the fact that the Town purchases all of its water from the City of West Palm Beach under a franchise agreement which expires in February of 1995. He commented that in that regard, the Town has retained the services of J. M. Montgomery, Inc., Consulting Engineers and his firm to assist the Town. He advised they have now completed the task of the draft of the Inter-local Agreement between the Town and the City of West Palm Beach to continue the relationship which has existed for the past thirty years, concerning the securing of water through a long-term agreement.

He advised another part of their charge was to deal with the issues of pressure, water availability and deliverability in the Town, in the event of above normal day-to-day usage and water restrictions. He stated the purpose of this Workshop is to apprise Council and members of the audience of where they are in the course of their deliberations and answer questions so they can frame a posture and know what their further instructions will be. He introduced the presenters, which will be Mr. Osterman and John Wodraska from his firm; Dr. Wetzel of J. M. Montgomery, who is assisted by Helen Madeksho, Dr. Pat Gleason, and Dr. Daniel Burden.

Mr. Howard Osterman addressed the Mayor and Council indicating his job is to lead into the presentation of Dr. Wetzel. He summarized as to where they began and what the responsibilities were for this project. He advised the motion adopted originally gave them a specific charge which was the firm was authorized to negotiate on behalf of the Town with the City of West Palm Beach to achieve the best possible water quality, water pressure, assurances of water quantity, and rates in the context of a new long-term franchise agreement and to negotiate simultaneously the potential terms and conditions for the construction of a reverse osmosis system. He stated these charges have molded both the scope and the tenor of what has been done. He indicated they will hear the report of J. M. Montgomery on an ASR System proposed which is a system which represents the best for the Town potentially of all other alternatives which have been examined and from their point of view, this meeting is not one where they would go back to review the alternatives, although he would like to touch on them, but rather to examine in depth the particular engineering program through ASR.

He recalled there were prior considered options as they studied desalinization, independent RO systems and shared RO systems (joint venture with the City of West Palm Beach). Also considered, he commented, was a continuation of the status quo and and finally, the Aquifer Storage Retrieval System (ASR).

He thought ASR and stored water on the island represents something that has never been considered before. He believed if there was an outage or a problem with the treatment facility in the City of West Palm Beach, or a large fire where massive amounts of water were required; or a break in the line crossing the intracoastal Waterway from West Palm Beach, this would in no way diminish the importance of having water storage available on the island.

He wished to clear up the role of ASR as a conservation tool, as he believed this theory was at the cutting edge, not because of the technology but because of the ideas it represents. He stated they have learned to talk about conservation in terms of how many gallons of water is used in the Town of Palm Beach. He submitted to them to consider the conservation of the water supply and the protection of the aquifer and the source from which this water comes, and not just the reduction of the amount of water used in the Town on a daily basis.

He believed if it is possible the Town should reduce their overall usage of water, which is good, however, they should think of when water is used which is in the dry season and it is conservation at that time that becomes very important, not because the total annual consumption of water is reduced but the ability to protect the source of the water supply during times of stress and that is what he considered as conservation and that is a new and developing definition which has never been dealt with before and that is what ASR addresses.

He commented if this meeting were to be adjourned and they all went to the banks of the C-51 Canal, they would see hundreds of millions of gallons of water lost to the system. He recalled another canal discharges 500 million gallons per day and that is lost to the environment. He stated this water is flushed out to the Ocean. He stated they are trying to capture that water and that is the goal of everyone, including the Water Management District, as to how to take water when the supply is prolific and use it when the supply is in distress. He stated during the rainy season, the system cannot hold all the waters and they need to find a way to store it. He thought they would find that ASR is best equipped as a concept to address the goal.

He referred to the goal of having better water quality, the City of West Palm Beach is doing and will do marvelous things with their system to upgrade quality and he did not believe that should be a concern of the Town, as those projects are underway on the drawing board, some required by governmental edicts and others designed to raise the standards of the overall system.

He knew pressure of the water was a concern and because there is no storage on the island or a re-pumping facility of any magnitude, pressure loss is a problem. He knew some of that would be improved as there are new hardware and lines being installed by the City of West Palm Beach. He asked them to remember that the pumping up of water from ASR, and feeding it back into the system will be a plus for the pressure problem for the system as a whole.

He addressed assurances regarding quantity and rates. He stated the Town of Palm Beach is admittedly a large water user and there are many reasons for that, one being the large irrigation the people in Palm Beach do and that is what makes Palm Beach the way they are and the way they look. He believed they ought to have a keen responsibility to participate in the management of the resource so that the lifestyle which this Town has is not in any way denigrate the supply of water for others. He viewed this as a social responsibility which can be addressed effectively by ASR.

Mr. Osterman reported there is no stress on the Aquifer when the ASR storage would be filled and as a matter of fact, the example he used about visiting the Water Plant, the forty seven million gallons a day plant is probably only pumping twenty million gallons. He asked what happens to the other capacity that is there as there are people there to staff it and it is ready to operate, but nobody wants the water now, but they do want it in the dry season, so the essence of the ASR program is to suggest to the City of West Palm Beach that they turn off the treatment plants when water is plentiful, during nighttime use when pressure is not a problem and to send that water consistently to the island so it can be stored. He felt no-one would be the loser under that program, so ASR addressed quantity very directly.

He addressed rates. He stated the City of West Palm Beach as all other water utilities are under pressure by the Water Management District to institute a system of rates known as Inverse Rate Making. He stated it has been a popular concept for a long time and the idea is the more expensive water rates are, the more they will compel the low usage and sometimes that works. He felt it only addresses one point, however, and that is if the water is expensive, the customer is compelled to reduce his usage. Mr. Osterman believed the usage is down primarily when it isn't needed and the usage is still prevalent when it is an absolute necessity to preserve the horticultural of the Town and it addresses only one point - how to get the total consumption down. He has no fault with that, but the development of the ASR water conservation system that addresses the companion point is simply reducing the gallonage usage which ought to offset the necessity for inverse rate making for the Town since it would no longer be a necessity as the goals of conservation would have been fulfilled by the program that the Town had instituted and constructed.

Mr. Osterman advised these discussions are now ongoing with the City of West Palm Beach. He will not be discussing rates today as he doesn't wish to send an incorrect message to the City of West Palm Beach that their revenue may by this program be placed at risk, as nothing is further from the truth. He indicated it has always been part of his staff's goals to be able to demonstrate there is a program which will preserve the integrity of the cash flow for the City of West Palm Beach by the Town as a customer, who if they do use 35% of the flow, should be prepared to pay 35% of the charges. He noted this discussion will be ongoing and he recognized the responsibility of a customer, and a large consumer, to the overall system that supplies the water. He suggested that rate matters, although very important, are preliminary to discuss now, but he would like to suggest one thing and that is all large users today are at risk in inverse rate making as it is not a very selective process, as it doesn't ask how big is one's property nor does it ask how many plants need to be watered, but only says when the meter records over 12,000 gallons you must pay more as your usage goes up and it is this rate consequence, not the gross revenue paid, that the ASR System is designed to address and offset.

Mr. Osterman stated when this matter finally comes before a regular meeting of the Council and it is considered whether or not this ASR test demonstration program should be adopted, he suggested they know the feeling of the consultant team which, even if this is subsequently approved, will not move forward independent of other things which must happen at the same time. He stated these are:

1. Agreement with the City of West Palm Beach and they have a preliminary draft agreement at this time.
2. Proceedings with the South Florida Water Management District to obtain a complete answer with regards to ASR being used as a conservation technique.

He stated they suggested they move forward as they feel it is essential that the City and the SFWMD know and understand there is a program that this Town Council wishes to support and lays on the table as a road map in proceeding ahead into the next decade of water usage.

He felt that message was very important to them as a negotiating team and for the City and the SFWMD to consider a plan that will be endorsed ultimately by the Town and to set that plan on the table before any monies are spent is the particular flow that they are suggesting.

He believed there are tremendous benefits to be realized with the ASR program which will be reviewed by Dr. Wetzel of JWM. He wished to set forth a few concepts:

1. The Plan is designed to cut off the peak demands that they have on the City of West Palm Beach's system and to do that Dr. Wetzel will demonstrate that five million gallons of water presently maintained by the City of West Palm Beach will be made available for other purposes. The replacement cost per day of five million gallons would probably be \$2.50 per gallon or \$12,500,000, just in hardware replacement and as the hardware is saved so too is the demand on the water supply. This program would dovetail with the goals of the Water Management District.
2. He thought it was important that they approached the City of West Palm Beach as professionals and not adversaries. The goal is to find something that they all can move down the road of benefit to everyone and if the City of West Palm Beach is made more cost effective in the saving of five million gallons of water and withdraw demand and production of water during the off-peak hours when water is the cheapest to produce, they have conferred a benefit on everyone of the customers of this system. That would not only be the residents of the Town but every other customer who receives water from the City of West Palm Beach.
3. He believed since ASR substitutes for a program of effluent reuse, irrigation quality wastewater, which by the estimates of the engineers of the City of West Palm Beach would cost seventeen million dollars to bring up four million gallons per day. He stated when

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they avoid that and substitute the ASR usage, they make that recharge available for other areas in the west to return that to the environment for the benefit of all.

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He wished for the total concept to be looked at today as this is not just a technical scheme to pump it down and then pump it up, but is part of an overall program where they hope that this Town can be of the cutting edge of not only technology, but on the cutting edge of a concept of conservation and usage which will serve everyone in the coming decades.

Dr. Wetzel of James M. Montgomery, Consulting Engineers, (JMM) then addressed the Council and gave a cursory overview of the report. He believed the fundamental question is what exactly is ASR and simplistically what they want to do is take the water that is available which comes across the Intracoastal from the City of West Palm Beach's Water Treatment Plant and pump it into an Aquifer in the upper Floridan or potentially the Hawthorn formation, which is a brackish water zone and the potable water will remain somewhat intact in a "bubble". He stated water would be pumped down in times of plenty and retrieved when the demand is excessive. He commented this works like a very large storage tank. He stated it is not feasible to store water above the ground but to put it below the ground in the Aquifer and have it stay there in tact is a very valuable concept.

He explained how this works specifically for the Town, noting in the report they plotted the Town's consumption of water in a typical year and this consumption ranges from a low of about six million gallons per day to a high up to fifteen million gallons per day. He reported the City of West Palm Beach must maintain capacity in their Plant to serve the Town and must keep approximately fifteen million gallons of water per day in reserve on behalf of the Town, as its major customer. He reported the average usage during the year amounts to approximately nine million gallons per day, however the City does maintain fifteen million so it can always serve the Town on that peak day when it is dry and the most water is demanded. He noted the concept is to take the water when less than the nine million gallons per day average is being used and that excess water consistently is taken every day and pumped down into the storage, then on days when more is demanded, the ASR pumps are turned on and pumped into the distribution system. He explained this means that the volume of water over the course of a year extracted from the ASR System is equal to the volume of water ejected into the ASR System over the course of a year.

Dr. Wetzel commented that this analysis does assume that every gallon put into the ASR System is retrievable and it is known that quite often that is not the case. He asked them to assume there could only be 50% recovery and that should be no problem as the volume of water that can be extracted from the ASR System is half of the amount of water that must be put down into the ASR System. He believed on that basis the only thing that changes is in order to accomplish this instead of taking the nine million gallons from the City each day, they would take a little bit more water every day to account for that loss, and in this analysis that would be ten million gallons per day.

Dr. Wetzel explained that in order for this to work they would take ten million gallons per day every single day from the City of West Palm Beach and on days when the demand is less than the ten million days, it would be put into storage; and on the days when the demand exceeded the ten million gallons per day, they would extract from the storage and pump into the Distribution System.

He has costed out the program in two phases, one a demonstration project, advising that there is a risk inherent in entering into this program but the risk is not the technology but the geology, and until an exploratory well is drilled into the Aquifer, it is not known what the characteristics of the Aquifer might be and whether it can support an ASR System.

He advised Phase 2, is if the geology seems amenable to this technology, they would go into a Demonstration Project, which they suggest be two years, and cycle tests would be done to make the determination as to whether or not the Aquifer would perform adequately to do an ASR system and what kind of percentage of recovery they could expect. He advised including a twenty per cent contingency, this program runs out to 1.7 million dollars. He wished to point out that included in that figure is \$375,000 which are the costs of purchasing the water from the City and discharging the water back into the City's sewer system, assuming that is the method they would be using during the cycle testing. He hoped the City would be open to negotiating those kind of prices and help support this program.

Dr. Wetzel estimated with some assumptions were this program go to a full scale system, the system might require on the order of five ASR wells and that that entire program, including the Demonstration Project, is on the order of seven million dollars, but they should recognize these are 1992 dollars and it may be four years before this kind of a system could be built and those numbers would have to be inflated.

Dr. Wetzel indicated he met with staff to consider this program and one of the questions was that this seems like a very good program, but how can we relate what has been done on the ASR Study back to the previous work done on the RO alternatives. He stated in order to do that in a fair and even-handed way, recalling when they were looking at the RO, they were looking at stand alone systems for the Town. He stated to compare the ASR alternative with RO alternative with treatment alternatives of brackish water RO and seawater RO, it should be kept in mind, these treatment alternatives were performing the same functions as ASR and these facilities were available to provide the difference between the average water taken from the system and the peak demands. He advised this represents something on the order of five million gallons per day on a peak day, the difference between the fifteen and the ten million gallons per day which is the average usage. He believed the ASR alternatives amounted to a seven million dollar cost and he estimated the increased annual O & M cost would be approximately \$65,000 per year. He compared that with the brackish water RO Plant going back to the previous study which showed a twenty million dollar capital cost for this kind of alternative, with an estimated annual increase of approximately \$330,000. He stated the final alternative was a seawater RO Desal Plant pegged at forty million dollars with an annual cost O & M of \$850,000. He stated these costs put on a per thousand gallon basis, added to it the capital expenses and look at the debt service on the capital costs, the numbers work out at 21¢ for the ASR option; 60¢ per thousand for brackish water RO; and \$1.20 for seawater RO. He noted if they extend out the O & M costs they would add an additional two cents for ASR; ten cents for brackish water and twenty-five cents for seawater. He stated this adds up to approximately 23 cents per thousand gallons additional cost by instituting the ASR program. He advised it would be 70 cents per thousand gallons for the brackish water RO and \$1.45 for seawater RO. He explained to a Town's typical customer using 28,000 gallons per month, the cost for the typical town user would be \$6.00 per month for ASR; \$20.00 per month for brackish water RO; and \$41.00 a month for seawater RO, again based on the five mgd alternative.

He summarized the benefits indicating relative to the RO alternative, the ASR system represents a reduced capital expenditure and a reduced O & M cost for the operation of the system. He recalled Mr. Osterman mentioning that the difference between the 15 million gallons per day currently held in reserve for the Town and the 10 million gallons per day they would provide on a consistent basis to feed the ASR system represents a return of five million gallons per day of treatment capacity to the City. He recognizes the City is not currently in need of excess capacity, but in their master planning document there is down the road, as the system expands and the demands go higher, they see a need of potentially requiring five or ten million gallon per day and they may be looking at RO Plants themselves. He stated the utilization of ASR by the Town may in fact eliminate the need for that expansion of their system in the future. He sees this representing an efficient utilization of regional water supplies from the Town's perspective and could result in relief from certain drought restrictions. He viewed this as an emergency water supply as if for any reason the City's system was to go down or one or more of the Intracoastal crossings were to be destroyed or a hurricane would wipe out the water plant, the Town would have two hundred fifty to three hundred million gallons of water in storage with emergency power provision so the Town residents could be supplied for some period of time. He informed the Mayor and Council the ASR pumps can provide the benefit of being a booster station so that if there was a fire in the Town which resulted in a loss of pressure, the ASR pumps could help to stabilize those pressures.

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Mr. Heeke called for public comments and Mr. Adrian Winterfield addressed the Council, indicating he has not thoroughly studied the report so some of his questions may be answered in the report. He asked if the ASR System was premised upon the assumption that the Town itself will purchase water in bulk from the City of West Palm Beach and then retail it to the consumer? He stated the Town of Palm Beach has the franchise agreement which provides the City of West Palm Beach furnish the water to the residents of the Town and the Town has a very limited role in the operation of the franchise agreement, except as a consumer itself. He believed that if the Town will act as a wholesaler under the terms of the proposed agreement, have there been discussions on:

1. Purchase of the Distribution System located in the Town which presumably belongs to the City. If the Town purchased the Plant, it would be responsible for the maintenance of the system as he heard the figure of \$65,000 as this fee and wondered if there was a breakdown of that if the Town is retailing to consumers.
2. He asked once the bubble was filled under the ASR operation, does it rest untouched until the capacity is needed? Or, is production funnelled through the bubble? He thought there would have to be treatment between the ASR and the consumer and based upon whatever additional impurities are indicated after the testing. Is such a treatment plant on-line?
3. In Section 4.4 it shows a figure of \$700,000 including a contingency. Section 4.5 picks up only \$550,000 to which is added another contingency.

Mr. Osterman responded to the question about whether or not the Town intends to purchase water from the City on a bulk basis and sell it retail to its own customers and whether it is the intention of the Town to purchase the Water Distribution System and to operate and maintain it thereafter? He advised there is no suggestion that the Town would assume either fully or partially a retail role, as the purpose of ASR is to allow the City of West Palm Beach to reach into storage when that was appropriate and would continue to sell water it produces on a daily basis but water withdrawn from the ASR and will continue to sell all waters directly to consumers on a retail basis. He continued by stating there will be no role for the Town to play in water distribution. He stated this also answers the question about the purchase of the lines on the Island as there will be no purchase and no maintenance and no entry into the utility business itself. He advised the program is for the Town to constitute a storage reservoir from which the City can better supply the needs of the Town's residents.

Dr. Wetzel was asked the question as to once the bubble was filled, does the water lay there at rest until it is used and if it not exercised or turned over, is a retreatment obligation likely to occur? Dr. Wetzel advised there is currently a provision in the document for a requirement to re-disinfect the water when it comes out of the ASR bubble with chlorine and ammonia and there is a provision for any PH adjustment which might be necessary. He felt it was a very important consideration in the cycle testing demonstration project is to in fact see what the quality is of the water retrieved from the bubble as opposed to what it was like when it went into the bubble. He did not anticipate a large change in the fundamental water ability but if that change was to occur, they would address those issues as they come along. He thought the plan was to utilize this system on a fairly regular basis and anytime demand exceeds the average requirement from the City, ten million gallons per day, the water will be pumped out of the bubble and when it is less, water is pumped into the bubble. He felt virtually every day there would be no activity in this scenario either injecting into or recovering from the bubble.

Mr. Osterman felt it was an important point about who pays for the water in the bubble and the answer is the Town purchases the water at a constant rate and it is put into the bubble and that is the consumer's responsibility and as the City withdraws the water from the bubble the water is being sold at retail and they would continue on a rotating basis to refill the supply, therefore constituting the bubble the first time is a financial issue to be discussed and resolved with the City of West Palm Beach, but thereafter, it simply rolls over as other water supplies would.

Dr. Wetzel reminded that they have put in an allowance for the first time purchase to fill the bubble into their cost estimate.

Dr. Wetzel answered the question about the tables 4.4 and 4.5 stating this question deals with contingencies and because of the feasibility study, they are trying to be as conservative as possible with their numbers and have included in all of their numbers a ten per cent contingency on all construction costs and added on top of the construction issue a twenty per cent contingency on the total program to account for changes in the direction of the program or things which might occur between now and the time that such a program actually moves forward.

Dr. Stan Lilja addressed the Council noting he has brought to this Council's attention on three occasions about several drawbacks, and has offered suggestions and he would be glad to review them with anyone who wishes to hear about them. He wished to confine himself today with the issues on the present ASR Report and wished to ask Mr. Olson some questions about the statements that were made in the newspaper such as "West Palm Beach can give the Town what it says it wants - water supply is not an issue here, Olson said, as over the next thirty years we can supply as much water

as they could ever dream of using at the lowest cost." He believed if that statement was correct, the ASR study has been a waste of time and money to try and solve a problem which does not exist, but fails to address the main problem which is safeguard against restrictions.

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He was concerned that the two consulting firms have had and would continue to have a financial interest in pursuing this project, which cannot be justified in any other way than to be an interesting gambling project. He was disturbed that no effort has been made to further pursue other avenues other than ASR, which violates direct instructions for this Council. He felt that by not pursuing and gathering information about reverse osmosis, the consulting firms have appeared to shut out other commercial enterprises from sharing the cake. He recalled Mr. Winterfield's statement which was a great deal of the study was for the education of Montgomery. He believed the Town had spent the last three and one-half years and \$270,000 and is looking forward to another one to five years and eight million dollars before possibly learning that the Town owns nothing more than a hole in the ground, which the State will not permit to be used for anything else. He is not saying that ASR cannot work but it was his opinion that the chance for success may be in the order of perhaps twenty per cent. He did not believe those were good odds.

He wished to bring up the diffused question of intellectual honesty and this reminds him of a case he was involved in when he had come up with a technical process which a company very much wanted to have but was concerned if it would work and about the needed capital involved. He stated the problem was solved when he contributed every dollar he had to his name at the time which showed a vote of his confidence. He suggested the Council test the two consultant firms by proposing that all fees and costs contributable to the consultants pertaining to past and future charges be refunded to the Town if the ASR project did not turn out satisfactorily.

Dr. Lilja believed the schedule of ASR reports in the study are very skimpy and if it is examined carefully, is misleading. He knew that Manatee County did not have ASR but had water draining by gravity into a potable water well. He knew Marathon stored salty or briny water to fight fires. He knew Okeechobee lost more than 90% and they should look at the recovery rate of the few remaining that are still being tested and cautioned this is a very risky business, as it is very experimental at this time and they are at a level where the Town should not be involved. He noticed the calculated recovery rate was at 50% and he believed the cause was either leakage or contamination and he believed the contamination was due to infiltration or mixing or whatever at the surface of the underground bubble and recovery would have to stop when it is noticed the water is contaminated. He envisioned a 50% recovery which was now found to be contaminated, do they pump out the remaining 50% of the water paying money to dispose of the contaminated water in order to be able to pump in or do they just pump in the 50% which was found to be contaminated. He recalled at the last meeting the Council requested firm assurances that ASR would be exempted from state regulation and those assurances have not been obtained but on the contrary provided proof that the exemptions will probably be not given.

Dr. Lilja asked if the Town signs an agreement with West Palm Beach, the only remaining supply problem for the Town is the matter of compensating for restrictions by the State which would effect the water supply and he sees the solution is RO or Seawater, which is the only program which is free of regulations. He reminded them that Palm Beach is in the exceptional position of having an ocean outfall to process water and therefore would not have to have a permit to build and operate a seawall RO installation. He recalled proposing to the Town that there be captive participation with the City of West Palm Beach and the most revealing operation in the Alice in Wonderland ASR proposed can be found in the very last sentence of the report which states: "The only drawback to the ASR option is the risk inherent in not knowing whether the system is technically viable for the Town until completion of the exploratory well and demonstration projects." He added not only the exploratory well but he thought it should include the production well also.

Mr. Sundstrom advised he has counted nine questions to which they will respond but he wished to make a preparatory remark on the agreement, stating the ground rules for this meeting is this is a Town workshop for the Council and citizens to hear from representatives of the Town and they invited Mr. Olson to attend with the promise he would not be asked to participate in the proceedings and he would like to honor that agreement.

Mr. Sundstrom stated the first area of inquiry is does the problem exist and does the construction of the ASR lead to the development of any safeguards from future restrictions and he called on Mr. Wodraska for the reply. Mr. Wodraska responded the Water Management District is the only agency in Florida charged with developing how Florida will manage a drought and in the South Florida area which covers over 130 units of government from Orlando to the Keys, all of those units of government have to comply with the rules. He believed there was a misunderstanding that the rules they presently operate under, the three time a week watering are as severe as a drought restriction could get, but they have been very fortunate in Florida to not experience the kind of drought they have had in California where it has gone on for years. He did not believe South Florida has gone past Level 2 and there are five levels in restricting and cutting back outside irrigation being more restrictive than three times a week. He felt the importance of this is on the question that was posed on the question of what the safeguards are, there are two areas in the District are eligible for variance exemptions from water restrictions and one is for reclaimed water, that is waste water that is treated which are used by golf courses; and the other is the ASR systems. He stated it is not true that brackish water from RO systems is an unlimited supply of water as in the Floridan Aquifer, they have been seeing a lowering of the water level and it does have limitations and there is no automatic exemption eligible for RO usage of water.

He wished to make another important point that if recovered water was mixed with water derived from the source which is under restriction, a partial variance may be issued, and he felt everyone needs to understand that if they were at a Level 4 or 5 Drought, internal domestic use is restricted. He advised the key concept here is the blending of that system and he believed they needed to go back to the South Florida Water Management District and get a declaratory statement as to how that will work in times when they are at Level 2 or 3 and when they are cutting back and the five million gallons a day the Town would be using during drought restrictions would not be blended water. He stated if they cross that line and get to the point where they are using West Palm Beach's water and that is under restriction, there could also be restrictions for the Town. He believed that is what the Water Management District suggested that depending upon the severity of the drought, and the concluding paragraph states that ASR is a technology that is really the ultimate in water conservation and takes the water that is being lost to the system and holds on to it and brings it back when it is needed and if the Town were to take that progressive step, there would be some restrictions. He stated there are no guarantees for all five levels of the drought

but the ASR would provide more variances and drought-proofing than any other the other proposals looked at today.

Mr. Sundstrom indicated the next question is whether or not this is a gambling project and whether there are other avenues than ASR such as Reverse Osmosis and whether or not other commercial enterprises are being foreclosed from participating in these proceedings by the course of action recommended by the consultants. Mr. Osterman responded he will make the assumption that the term "gambling project" means a program to put down the exploratory well has risk of failure and if that is what it means, he would have to say that all exploratory facilities such as this do have an element of risk. He recalled Dr. Wetzel making that clear but he would re-emphasize it again as it is the geology that lies beneath this island that needs to accommodate effective ASR storage and recovery. He stated if the geology is not satisfactory to that extent, then they would have demonstrated that ASR is not for this area. He commented that 90% of everything they need to know comes from the first exploratory well since that tells them the geology.

He advised that he is a consultant for the Town of Jupiter who just completed their RO system and if gambling means four wells instead of two, it is true that that is a gamble. But if it means that the productivity of the Florida Aquifer was less than what they thought it was, that's also true. He stated the RO system has the same element of mystery to it as the search for a good confining area for ASR would have.

He focused on the comment of Mr. Olson referred to by Dr. Lilja that they had "all the water the Town could ever use" and he has known Mr. Olson for a long time and he knows that the plant capacity for the Town's needs has been provided and there is no doubt about that, but the Aquifer from which the raw water is drawn - all of those are subject to restrictions and part of their goal as consultants was to see if they could better provide for the needs for the Town during the dry season and he thought Mr. Olson has expanded his system to the extent that he addresses the needs of all of their customers, but they are addressed within the framework of a tight regulatory climate, one that is getting more restrictive. He stated the water supplies allocated to the major users in SE Florida are being reduced steadily and the demand to relieve the pressure on the Aquifer from a withdrawal point of view, continues year by year and in his judgment will follow along on that same trend.

He recalled there was a comment about fees and costs, pointing out they are a funny group of professionals, since they started out looking at seawater RO for \$250,000,000 and now they are suggesting a program which may result in \$8,000,000. He recalled the goal at the beginning was for them to find the most cost effective way to better improve the Town's situation and that is why it is incumbent upon them, as professionals to continue to advise this Council there is a cheaper way to do it.

Mr. Osterman addressed the refunding fees suggested by Dr. Lilja and asked if it was implicit in that question that if he agreed to refund his fees if it did work, would they vote to double them? He suggested as professionals as well known in this industry as they are, the accomplishments which they had in the past and the fees they charge are well documented to really argue about that here. He is very much committed to the program and gives the advice as they see it. He believed if the statement made that there is enough water to take care of this Town's future needs into the next century, then they should simply forget this as there is no need it need be done, although he recalls they have been through times where the need was demonstrated.

He advised that in Charlotte County, the Peace River Water Treatment Plant and the water facilities there are also his clients and he suggested they go over there and take a look at it and when they do, they will find the source of water from the Peace River is enormously prolific at certain times of the year and at other times, not a drop can be drawn from the Peace River, because the fresh water/salt water interface is changed during the dry season. He stated for as much as five months of the year, 35,000 water customers hang on the effectiveness of an eight million gallons system and every day it is pumped down and brought back. He stated this is a good geological area for ASR and he doesn't know if that condition is present here in the Town but he recommends this program which is designed to make that determination.

Mr. Sundstrom recalled it has been pointed out earlier that in their discussions with the South Florida Water Management District, one of the things they learned, early on, was that Reverse Osmosis is not the panacea they had earlier been told it was, in fact the Floridan Aquifer is stressed and would be subject to restrictions under certain conditions as it is not an unlimited source. He believed that as far as ASR is concerned, they are involved with management and advice to some of the biggest utility systems in the State and his firm is involved in a major project in the area between Naples and Ft. Myers where the area is growing very rapidly with expanding golf course communities and in looking at the future, they find that taking every single drop of treated waste water that they can get and reusing it is simply not enough, and the only technologically and economically feasible solution is Aquifer Storage and Recovery.

Dr. Wetzel addressed the gamble question, reporting there are now about 50 ASR programs at various stages of development around the country and he believes this technology is no longer experimental but is innovative and emerging and is real and will become quite significant for a number of communities. He wished to advise they have considered other alternatives, such as the seawater reverse osmosis as their initial study did look at a variety of alternatives which dealt with RO, both seawater and brackish water, stand-alone systems, combined systems, as well as the privatization options. He stated they reported on this in 1990.

Dr. Wetzel advised the recovery rate on the system will not be known until after the demonstration rate and when they presented this phase, they used as an example the recovery rate of 50% to be able to cost out, in broad terms, what a program of this magnitude might cost the Town.

Helen V. Madeksho of JMM addressed the Council asking for a clarification of the question asked by Dr. Lilja on the ocean outfall, as she didn't quite understand.

Dr. Wetzel believed the question is whether the use of the ocean outfall would require permitting? Dr. Dan Burden of JMM responded there would have to be permits secured from EPA and DSR which would look at the mixing zones and whether or not they would meet the toxicity requirements as depicted by State Law.

Mr. Sundstrom stated Florida Law does provide a mechanism for binding an agency into the future and that mechanism is called Petition for Declaratory Judgment and what would be done is

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they would go before the agency and file a legal document which would be a pleading which sets out what procedures the Town would like to do and stating they would only like to do those things if they know how a particular agency would respond when faced with a permit to operationalize that particular system, and in this case, it would be to construct an Aquifer Recovery and Storage system and they could not in good conscience counsel this Council to go forward with this kind of an expenditure unless it was known they would receive the result sought.

A short break was taken. President Heeke reconvened the meeting.

Dr. Lilja stated he did receive an answer to his question on contamination, which was a misuse of a word on his part as the word should have been inter-mixing. He complimented Mr. Osterman for his responses but he wished to clarify further some questions he has. He asked the question and Mr. Wodraska evidently misunderstood his question. He restated the question which was that RO of seawater would be the only program which would not be subject to regulation and he did not say brackish water since he knew that would be subject to regulation.

Dr. Lilja stated during the break he had an opportunity to talk to a gentleman whose name he did not recall about his statement about no permitting is necessary for the ocean outfall and recalled in 1990, someone from a State Agency confirmed to this Council that by a fluke or whatever, the present outfall on Palm Beach into the ocean would not be subject to any permitting since it does exist and what they would put back into the ocean would be exactly what was taken from the ocean without any additions.

Dr. Lilja thanked Mr. Osterman for agreeing with him that a test well can only provide partial information and he makes that deduction from the example he gave about the Jupiter installation and he assured the Council that the only information that can be gathered for sure from a test well is if it fails, otherwise to go on from there, they have to see what happens in the future.

Dr. Lilja thought the suggestion by Mr. Osterman to double the fees in the event of success would be in the best interest of the Town.

President Heeke called for further input and Dr. Aaron J. Teller addressed the Council, indicating he has reviewed the report and sees no risk assessment evaluation which one would hope did exist to ascertain the viability of going into a project of this nature. He believed the references made regarding the existing ASR facilities, which show that:

1. Cocos Beach shows 400 parts per million chloride and in those cases would require minimal RO;
2. Port Malabar is still testing and there are upcoming possibilities there;
3. Marathon does contain salt water;
4. Okeechobee has a ten per cent potential recovery which is minimal and not economically viable;
5. Manatee needs final treatment but it may be successful as it has only been in service for two years;
6. Peace River requires some final retreatment and this is inland and is in fertilizer country;
7. Stock Island is undergoing testing.

He believed the others in Utah and California are still in the demonstrational stages, so the historic viability of this technology has little justification for a no-risk position. He does not deny it is a very interesting technology. He has been in the industry for a long time and what they do is minimize risk when a problem is evaluated and they do that by taking a worse case scenario. He believed if Palm Beach were to build an ASR, it would be subject to contamination by infusion from the existing chloride content of around two thousand parts per million, which appears to be rising from 1940. He felt it could increase its chloride content by rate of draw downstream of the ASR facility in Palm Beach because if it is drawn below Palm Beach, something has to replace that water drawn and part of it be ours and part of it may be replaced by two thousand parts per million of chloride water, which is a possibility. He did a quick calculation as in the preliminary report they indicated they were shooting for one hundred eight milligrams per liter of chloride in an RO system, and if there were five per cent incursion due to draw, permeation, or diffusion, they would rise to 271 and if they went ten per cent, it would rise to 362 and twenty per cent, it would be 544 and these would all require RO because lime, caustic ammonia do not affect the chloride levels. He thought it would be a good idea that when they look at risk assessment on a venture of this type, they should include the fact that an RO facility may be necessary in conjunction with ASR with the structure that exists under Palm Beach itself.

Dr. Wetzel responded indicating he does appreciate the comments of Dr. Teller but he believed there was a fundamental misunderstanding which he will try to clear up. He stated in his report it states the chloride levels in Cocos are at 400 and that is the chloride level of the receiving water and is not the chloride level of the water being pulled up. He stated the comment about the 180 milligrams per liter, pointing out this would be the upper limit of what they would want to pull out as the federal standard is 250 milligrams per liter and they can in no way produce water out of the Aquifer for distribution which exceeds 250. He pointed out the comments about risk assessment are good ones, and he has not done a risk assessment, but essentially this program requires testing and initially, an exploratory well so they can learn about the geology as well as the quality of the water in the various Aquifer zones. He indicated he is recommending the demonstration project be a two year project to see exactly how the Aquifer will respond as part of the testing program.

Helen V. Madeksho addressed the Council noting there seems to be some confusion about how the intermixing and the inter-relationship between the treated water and the native formation water and the issue about contamination and inter-mixing which she would like to clarify. She explained what basically does happen is there is a zone which is an inter-mixing zone and how the 180 milligrams per liter would occur is in that actual inter-mixing zone. She stated the water that is injected may be 50 milligrams per liter and in the formation it might be 1000 or 2000 and this is hard to say and that is what the exploratory well program would determine.

She advised when the treated water is injected into the Aquifer, there is an interface which exists and the mixing is dependent upon the density difference between the two waters and that is the zone of inter-mixing or the zone of contamination which Dr. Lilja talked about and in injecting and retrieving the water, that bubble is enlarged and reduced and that zone of mixing is very dependent upon the size of the bubble and how much that is extended. She reported in retrieving

the water, they don't want to pull that zone of mixing anymore than when they start retrieving water of the 180 milligrams per liter as that would be an arbitrary decision and would be criteria that would be set by the Town and what they considered to be palatable water quality. She stated it is not really contamination as it is the intermixing of water and the Town would arbitrarily set the kind of quality it wants.

Mr. Wodraska added there is another issue on the Okeechobee ten per cent recovery rate, stating they are not comparing apples to apples as in Okeechobee, what was attempted was to take the untreated raw water which was being discharged into Lake Okeechobee as opposed to discharging it into the Lake to eject it underground without treating it. He recalled that because of the fact that it was raw water, they had a clogging problem and this doesn't relate to what they are proposing, or the Boynton experiment or the Marathon project where they take treated potable water and eject it underground.

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John Rybovich addressed the Council indicating he does not know too much about water so he hoped they would forgive his questions. He believed it was obvious there are different Aquifers and there is salt intrusion. He heard them talking about a "bubble" but he believed what they were talking about is pumping into what is now rock and that rock has to be flushed out to accommodate the water that will be pumped down there. He was disturbed about the fact they are talking about doing this under the Town. He knows there have been experimental wells drilled in the Town and very few produced water that could be used. He has a shallow well in his block and it has good water but it is outside of the swamp that once ran down the middle of this Town. He didn't know why they wanted to pump the water into the Town and then pump it back for re-treatment and asked why they just didn't drill these wells closer to the Water Plant as there is a twenty mile water catchment area and he didn't see why they just didn't use that area. He heard the statement there is enough water to last them for a long term and he thought this may be true but it may not as the droughts have been with us and they are no worse or no better. He recalled in the twenties when the whole of South Florida was blanketed with muck smoke and they haven't had a serious fire like that for a long long time. He thought there are places where the water level has been lowered and with the watering of lawns, they have pumped themselves out of business. He believed if they followed through with the ASR project, they will have salt water in the system, and he knows that too far away from Palm Beach there are deep wells injecting sewage and that could also be a contamination problem.

He related that he was born here and he knew of a time when there was no water in Palm Beach and now it is overstretched and there is always a tendency to screw things up as he can recall when Lake Worth was totally a fresh water lake until the channel was dug and there was salt water intrusion. He keeps hearing all of this information and he doesn't believe they should infringe on what is now in existence as the water company is here and what they should do is make a deal with the City of West Palm Beach. He was sure they used more water in this Town than others do and should train the people on how to use the water as we do have some dry times, but he didn't really think they needed what was proposed.

Mr. Sundstrom asked Mr. Osterman to answer some of the points raised by Mr. Rybovich and Dr. Wetzel will handle the technical points. Mr. Osterman advised the water will not be shipped back to West Palm Beach for re-treatment and if chlorine and ammonia need to be added, it will done right at the site when the water is brought back up. He stated the only treatment would be exactly that and if he calls that re-treatment, then that is what it is. He stated when Florida was young people installed cisterns at their homes so when it rained, they could catch the water and store it for those times when it didn't rain so very much. He stated what they are suggesting here is not so different from that as they are suggesting when there is an excess of water, for instance when it does rain, that they store that water for the periods of time when it is dry. He too has been here a long time but he too agrees that they are using up their resources and they have to do a little bit better in handling this resource. He stated the fact that it is under the Town of Palm Beach gives him no discomfort whatsoever and they will address how that works and what the testing program will show. He asked them to visualize this as the source facility to give a hedge against the dry times.

Dr. Wetzel stated during the break he was asked a couple of questions which indicated to him there is some confusion as to where the water comes from and whether it has to go back to the City. He explained the water does come from the City through five Intracoastal crossings and the Lake Drive Park site which they propose for the test program and ultimately for the ASR system is in close proximity to portions of the existing distribution system. He noted the water will come out of that existing distribution on the island, be sent to the ASR bubble and will be retired from that bubble and put back into the same distribution system and kept on the island and there would be no need for it to go back to the City for any kind of re-treatment nor should it go back as that is water kept in reserve for the Town and its residents.

He recalled there were a number of questions concerning the Aquifer System and he asked Ms. Madeksho to explain the suffical aquifer and the Floridan. Ms. Madeksho addressed the Council explaining the technical aspects, indicating there is a limestone material which could be used as a producing zone and it would be a suitable zone for aquifer storage and recovery since it is contained in a small area and is well defined on either side, which means it will not leak too much and there were not too many places for the water to go to after they inject and it will stay in that zone, so it will be injectable and retrievable. She noted there is an area which is part of the Floridan Aquifer and this area is what Jupiter is using for their water supply and there may be zones on top of there which may also be suitable for the ASR, as this has been used in other areas. She stated beneath that about 1850', the Aquifer is salty and below that 1850' it is pretty much considered to not be suitable for ever being used as a source for drinking water. She pointed out beneath the 1850' depth, there are areas which are designated for disposal fluids, such as ejection wells. She advised as part of the regulations for ejection wells, they do require an additional confining sequence, as part of the regulations on these wells. She stated this is not the Hawthorn sequence but another confining sequence and in the lower half of the Floridan Aquifer is another fairly dense limestone and it is not permeable. She advised it is beneath this zone that the ejection wells eject treated effluent or reverse osmosis concentrate and that is pretty much as far as they have gone. She stated there is a whole band of permeable and confining zones, and they will be looking at a very small zone, about 700' above where the ejection wells are disposing of effluent.

President Heeke recognized several people in the room, former Mayor Jeff Koons of the City of West Palm Beach, Ron Schutta, City Manager of the City of West Palm Beach, and Director of Public Works Erik Olson. He pointed out this is a cooperative and ongoing effort between the two

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communities and public exchanges of ideas are very much encouraged. He knew there were things happening which were encouraging to both communities and he is glad that the Town of Palm Beach is a part of this.

Allen Wyatt, resident of the Town, asked what is the fallback in the event the ASR system, after the testing, is found to be the system which should not be used? Also, he asked what would the benefit of the ASR system would be in the event we were in a Level 3, 4, or 5 Drought pattern. He asked if each one would comment on whether or not it would be their recommendation that this Council spend the taxpayers money to handle the Level One or Two restrictions.

Mr. Sundstrom responded the fallback is for this Town to continue to rely on the City of West Palm Beach exclusively and what they are recommending that the Aquifer Storage and Recovery program to take off the peaks and utilize the periods of wet weather as a method of conservation.

Mr. Sundstrom referred to the question with regards to the benefits of ASR if they hit Level 3, 4, or 5 and the question of whether the taxpayers' money should be spent on the construction of such a system. He went back to the genesis of the entire exercise which was the existing franchise agreement between the parties is expiring and the renewal of that agreement gives an opportunity to bring the document up to date. He stated another item is unlike this year and last year but the two years prior to that, South Florida did suffer an extreme drought and the quality of life and the benefits for which a lot of people moved to the Town were jeopardized and it was a fundamental policy question when you get right down to it and the question is do they wish to improve the quality and quantity of water available to the Town under any circumstances for the long haul? He felt this was a policy decision which comes down to the elected officials and if he was sitting in their seats, the answer would be "yes."

Mr. Osterman stated he heard the question if all of this was really worth it and he asked if restrictions during the dry weather were sufficiently severe enough to motivate the Council to spend the public's money to correct that problem. He stated this group of consultants wouldn't make that judgment as because of what it is worth and that determination is the job of the Council. He stated as an alternative, RO is a back-up, but the question asked was what would they do if the well didn't work and if that was the case, an RO plant could be put in but there would be no place to store the water and consequently, the RO would work during the days of the year when a supplement was needed. He stated RO plants are designed to work all the time at least to some extent and he thought there were alternatives they could revisit. He commented on the question of economic viability becomes intensified because all of the options are much more expensive.

He referred to the Level 3, 4, and 5 and stated it is his personal opinion that he does see where they are going in the future and there will be a greater and greater restrictive climate. He stated he based this judgment on such things as the Everglades National Park which has assumed the No. 1 position in the pecking order of uses and that case has been settled and before a drink of water can be gotten by him or this Council they have to be sure the Park has the water which it needs. He stated the diversion of water entitlement has a ripple effect moving down throughout everyone's uses and to say that they can go on and on and on is not right and they are all going to have to learn to do the one thing that SFWM wishes they can do and that is catch it all when it rains and use it when it doesn't and in its own small way, this suggested program is designed to try and do just that and in his opinion is the ultimate solution.

Mr. Wodraska gave a history of the water supply and the visionary that people brought at the turn of the century and hooking up West Palm Beach to Lake Okeechobee into the water catchment area and West Palm Beach makes it one of the few communities with an above-ground reservoir system. He advised that 98% of all the water used in Florida comes from ground level systems as they are inherently more efficient. He advised the City still gets its water from the Everglades system - Lake Okeechobee Water Shed and pump about ninety million gallons per day from that system and use thirty million gallons per day to supply their service area, which includes Palm Beach. He advised what is happening now is the draw from the Regional System is having an impact on the Everglades and they are trying to find ways to wean West Palm Beach people and all the way down to Homestead off of that regional system in order to have a healthy Everglades system. He commented that West Palm Beach is looking at creative ways to use and identify other sources of water, so their future is somewhat limited. He thought they were at a point where decisions need to be made about the future, as they have relied on a system built 50 years ago but their values are appreciation of the environment and understanding the environment and if they want to continue that, 4.5 million people have to come up with other alternatives.

He predicted there will be more and more reclaimed water use in South Florida and there will ASR and RO alternatives in different communities in Florida. He believed this Council now sits in an unique position to be able to take that excess water from the City of West Palm Beach and create an underground storage area. He believed this was a future alternative and provides a source of water in times of emergency and catastrophe. He related this type of emergency planning is a vital consideration the Town Council should take into consideration in their future planning. He told them when they sit down and negotiate with the South Florida Water Management District, they can go to the table and tell them that the Town is creating this storage tank and he viewed it as a creative conservation program and it was his belief that the District will recognize that. He noted this also gives the Town a back-up source of water which otherwise it would not have.

Dr. Wetzel heard the question about what happens if the test well doesn't work and he knew there was some risk inherent in that situation, but he didn't want to overstate that risk as they have survey edit, and the reports indicated there are a substantial number of Floridan wells around the area and he would be surprised if they didn't find a suitable zone for this ASR system beneath the Town, but until the well is drilled, they cannot be sure.

Mr. Erik Olson, Utilities Director of the City of West Palm Beach addressed the Council and congratulated the Town on being so active in seeking alternatives. He thought if there were no alternatives to explore and make decisions, their choice would be limited and quite often they could make the wrong choice. He recalled when the first Montgomery Report came out, he applauded their work as it was well done and he has the same feelings about this report as it is excellent, primarily because of the fact that the report does recognize there are risks involved and he considers this a credit to the Company.

Mr. Olson remarked from the standpoint of the City of West Palm Beach, he would like to indicate where they are heading and where they are at, as he didn't think it was appropriate to get into a dialogue point and counterpoint as that is not the purpose of this meeting today, but to get

the public comments. He advised ASR technology is a viable technology and the City had some studies with ASR and they will be continuing on with it. He stated his consideration was to look at ASR at the Water Treatment Plant as there may be some treatment technology required and it may be minimal, however, he wanted them to know they do believe in it enough whereby they have invested time and money simply to analyze the ability of it and will continue on with that concept.

Mr. Olson indicated they have some future planning and one of the reports involves taking the water from the water catchment area during periods of excessive rainfall and potentially using ASR as an injection technology to supplement it at the source of supply. He stated they are exploring the options of ASR at the Plant. He indicated the C-51 Canal System is a critical situation and recalled last week there was a meeting with the South Florida Water Management District and the Palm Beach County Planning Council Committee wherein the C-51 Canal System is being examined for the problems they have talked about here today. He indicated if there is a heavy rainfall the water runs straight out to the Intracoastal system and doesn't do anyone any good. He is entering into studies with the SFWMD to take a look at this and during heavy rainfalls, they could backpump the excess into a basin area west of Town. He felt this was a vital supply system and it should not be thrown away so in their process they will re-utilize that water and they are going to study ways to reallocate it to the Water Catchment Area itself, and also are looking into ways to recycle the water.

Mr. Olson advised another program they are looking at and which he supports wholeheartedly is reuse technology and from the standpoint of needs of what they have to do in the future, he would like to see every drop used. He stated they are entering into a cooperative regional wastewater reuse system and they are going to utilize wastewater on a regional basis from the northeast to the southern part of the County, so supply alternatives are being explored. He agreed with the Town that ASR is indeed a viable technology and is a decision which the Town needs to take a look at. He indicated the City of West Palm Beach is ready to do a number of things, such as distribution improvement, but a decision is needed.

He recalled when this was first being discussed, there was some talk about the Town perhaps going on an independent pathway and he hoped that would not be the case as by definition, they believe the Town is their sister city and in the concept of what have been planned with regards to distribution pressure, for instance, they have recognized something should be done there. He stated they needed a definitive idea of which way the Town is going to go so they can get some things done. He felt there were a number of options and without getting into a lot of discussion, he wanted them to know the City is exploring a lot of options to maintain supply, they are looking at RO as a potential alternative technology down the road; they are using wastewater reuse technology and they may embark on ASR themselves, so they are looking to the Town for guidance as they have a number of programs being studied and they will make some decisions on them, but the guidance of the Town is needed. He advised they do have a lot of things on the shelf which they wish to accomplish for everybody. He recognized Don Hubb, Assistant Director of Utilities, and Ray Taylor, Water Plant Superintendent of his staff, who were not introduced earlier.

President Heeke thanked them for coming to the meeting. Mr. Sundstrom stated they do have a meeting next week on the long term agreement with the City of West Palm Beach.

President Heeke advised they are now in Executive Session. He recalled experiencing severe water restrictions in June of 1947 in Germany and in 1961 in Greensboro, N. C., when they literally ran out of water and water was distributed by the National Guard.

Mayor Marx commented that her general thinking at this point is all of this is boiling down to a matter of money and the trouble is there are not unlimited sums of money available in this Town. She believed there are going to be times when there is not going to be enough water and there will be periods of severe drought which could be quite extensive and not only the situation with the Everglades but the growth of the State and the County in general, all of which will put more serious drain on the water supplies. She felt on the one hand it was important to get some form of an agreement made but she has a problem with the agreement being for a thirty year period. She believed there needed to be a workable program, and stated her concern when she heard the statement that West Palm Beach is looking at all of these systems and the Town is doing the same thing, she thought from a money point of view that is not the best way to do it.

She did not recall being given in depth reports on what other alternatives there are available. She realized technology does keep changing. She was asked recently if she had a favorite method of taking care of the water problems and she responded she did not, but she felt to a certain extent that skipping over what other areas and even other countries are doing, and she knows they have a high cost but the cost is being reduced and she would not personally be happy with anything until it has been explored in great depth. She needed to know what the five, or eight or ten year future of these systems would be, bearing in mind that this will not be on line at this point and perhaps we could share some expenses with the City of West Palm Beach. She was worried about the technical points of view, such as they can rely on this in cases of emergency and that may be so, but she thought all of the ASR water did go to one place and she didn't know how it would go to just the people in this Town. She gathered when the ASR bubble is full, it shouldn't take too long to refill it, and if it was full and it was the rainy season the excess water would still be going out to sea, so they are only preserving a certain amount. She was also troubled about the money points of view, so she was in no hurry to go into this as she wants to make the best possible deal they can to relieve all the worries, however, they shouldn't tie themselves up indefinitely, as all of them needed to be looking at alternatives for the future. She asked if there were some fallback that they haven't looked at that they should be looking at?

President Heeke asked if other members of the Council could speak before the questions are answered.

Councilman Weinberg agreed with the Mayor when she stated she wanted to get the best possible deal and in these days of mergers and acquisitions, perhaps we should buy a piece of the West Palm Beach organization.

Councilwoman Douthit heard them talking about four or five wells and she wondered if the first one does prove successful, do all of the others have to go in at the same time, wondering if they would put one in one year, then one another year, as she is trying to think of this in terms of economy and budgeting and that sort of thing, as she wasn't too enthralled with having a bond issue on this, which she really wasn't for as once they get to the point they are finally paid off, then they have to do it again because the machinery is worn out and needs to be replaced.

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Dr. Wetzel advised the program can be done in stages as the initial demonstration project involves the drilling of an exploratory well, followed up with the drilling of a demonstration well which will convert into one of the ASR production wells, one of the five. He believed that well would be able to produce approximately one million gallons per day, so even if there was only the single well, once hooked into the system, they could use that well to provide themselves with an additional one million gallons per day capacity. He advised if they then wanted to go and invest in a second well, they could do so.

Mr. Osterman explained no matter how the life of the initial construction is funded, be it one or several, the amortization of that capital cost should be done in such a manner so that it provides adequately for the ultimate replacement of the facility, but this is not like a treatment plant and this would be a pretty long life type of thing. Dr. Wetzel stated he would expect the Aquifer would be there for a long time but in terms of the treatment equipment and the chemicals feed equipment which would be above the ground, they normally would assume they would have a twenty or twenty-five year life and there should be monies available to maintain that equipment. Ms. Madeksho addressed the life expectancy of the well would also be twenty to twenty five years.

Councilwoman Wiener noted the City of Boynton Beach is mentioned in this report and wondered if they could monitor that situation, but when she went beyond that, she wondered if it was necessary, when all of these are in an experimental stage, to put in another well, as it may be that if they are only going to provide a minimal amount of water, it probably wouldn't make sense for the Town to put in another one in. Dr. Wetzel advised there are systems which have been working for some time, such as the Port Charlotte System which has been in operation for ten years or so. He knows the technology works but whether the geology beneath the Town will support such a system is a question. He didn't believe if they were to talk to the utilities people in Boynton Beach today, they would tell you that they have every intention for their system to operate properly and will be providing a storage system in the near future, as it just happens they are now in the middle of their demonstration project at this point of time. He advised they have a significant amount of data on drilling Floridan Aquifer wells throughout the area and those wells do suggest there will be a viable zone. He believed there would be no guarantees without drilling a well beneath the Town but they are confident it is workable technology and will work for the Town.

Mrs. Wiener asked what sort of population sizes are the current ASR's serving? Mr. Osterman responded this program is tailored for the size of the Town. He stated the larger the City the more ASR wells they have and the larger is the storage requirement. He cited the Charlotte system as an example, noting there are about 35,000 families and from the consumption point of view, it is not much different than the Town when they talk about total consumption. He stated he would not foreclose the fact that a very small Town of 1500 could have one well instead of five wells.

Mrs. Wiener asked if on the initial treatment, how does it happen - underground or above ground? Dr. Wetzel responded the water comes out of the well and goes into a building on the site and that building would house some chlorine and ammonia facilities and the ability to inject that into the pipeline. Mayor Marix asked how big would the building be? Dr. Wetzel recalled the building would be about 500 square feet, which would include the first demonstration pump system plus the electrical control system.

Mrs. Wiener asked if this all happened automatically or would they need personnel and whose payroll would they be on the Town's or the City's? Mr. Osterman believed it would be operated by telemetry remote but the fact of the matter is the maintenance and operation of the system rests with the City of West Palm Beach as it becomes part of their system from an operational point of view. He stated the ownership of the well and the stored water would remain with the Town but operationally the City's staff and people would operate it the way other storage facilities are operated.

Mrs. Wiener noted there was a paragraph in the report which referred to North Las Vegas, Nevada and stated this was successful and may be a viable water management technique for the municipality and asked why they used the term "may"? Ms. Madeksho stated the reason was because the decision has not been made as yet by the elected officials.

Mrs. Wiener referred to the comment made that a system of this kind would have no stress on the Aquifer and asked if there were a number of ASR projects in the area suddenly that are using the Aquifer, would a number of them cause stress? Mr. Osterman stated the answer is "no" because the basic principle of all storage, ASR included, fill it when there is a prolific supply and use it when there is a reduced supply. He believed all the experts would agree that the more storage they have designed to capture as much as they can, so multiple systems would not adversely impact the Aquifer but would support it.

Mrs. Wiener recalled they talked about what if the West Palm Beach plant was wiped out by a hurricane, which would leave the Town with a month's supply and wondered what would happen after the water ran out in the thirty days. Dr. Wetzel believed if there was a catastrophic failure, they would clearly cut back the water usage in an emergency situation and it would be water available to them that would not be otherwise available at all, so that is an important consideration. He advised that under most emergency situations, it would be rare to see a leveling of the West Palm Beach Plant.

Mrs. Wiener asked if in the event we were under extreme drought situation, she had a concern about that as they told her this community has never experienced a Level 3 Drought. Mr. Osterman responded he was talking about the best utilization of the water supply which is available and to provide them with a level of comfort or flexibility in their usage pattern during periods of time when the community as a whole is asked to lighten up on their irrigation or external uses. He didn't think they were talking about domestic supply as he viewed that as relatively safe until they get to 3, 4, or 5 level, and he thinks they are talking about a system of improved utilization of environmental sources of water and it is no more threatening than that.

Mrs. Wiener asked if in their conversations with the City of West Palm Beach did the fact they were moving ahead with their studies on ASR have any influence on their thinking or would it in regard to the Town having its own ASR? Mr. Osterman believed there was one limitation on West Palm's entry into ASR as they would have to site it very carefully if they were thinking about going into RO later, and would have to be careful that the two programs do not interfere with each other. He thought the fact of the matter is that storage on the mainland is not the same as storage on the Island. He knows there are remote circumstances where it could be, but at the risk of not damaging the ongoing negotiations, he will say no more on that subject.

Councilman Weinberg commented if the Town operationalized ASR, they would end up with a major number of underground cisterns, however, if the Island of Palm Beach does not prove geologically sound to effectively serve the Town, perhaps the area around West Palm Beach may be a more safe, productive and efficient location to serve our ASR system. Mr. Osterman responded as long as it is implicit in the question that the combined effort with the City of West Palm Beach on ASR technology on the mainland would place the ASR storage in their system generally and when he says a cooperative effort, he believes they are suggesting a situation where they mutually do something. He stated ASR is a good second alternative and in that respect, it would be a good alternative, however, he doubted the Town would want to participate in the program as a partner or as a customer, as they have to be either one or the other and if they do it on the mainland, it would have to be a system where all customers would share the cost and when the capital charges find their way into rates, which they always do, then all customers would share that on an equal basis, based upon their relationship to the system. He didn't think they would partner a system which would be solely dependent on their system, as that is the difference of putting it here on the Island.

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Dr. Wetzel believed the question was to have the system on the mainland dedicated to the Town's usage and paid for by the Town. Mr. Osterman stated he didn't understand the question but in that context, it could be made remote.

Mayor Marix stated they have talked about the City of West Palm Beach's plant getting washed away by a hurricane but she thought it would be much more likely for the Town's facility to be washed away along the Lake and if that happened, there would be in a big hole in the ground there, and she would rather work with them with them doing some of the research as it seems a tremendous duplication of financial effort if they are studying ASR and so are we. Mr. Osterman believed this program worked hand-in-hand with the City and that it is remarkable. He stated they have equal benefits and he didn't believe they wouldn't want a storage facility designed to serve 35% of their customers, as that would be silly and any utility wants to have the optimum amount of stored water that it can afford, but what they are saying here, they would like to bring that about economically and the reason that they suggested the Town pay for it is why should they negatively impact customers of the utility system generally when there is a specific storage facility and they ought to pay for that as it is scientific and she would encourage any large user in the West Palm Beach system to consider dedicated storage where the facts were appropriate.

Mayor Marix stated they have explained to the Council very thoroughly that the Water Management District is very keen on preserving water and cooperating with people and enlarge the present source, and asked if they would ever consider partially financing a salt water system because that would give them masses of water forever and bring the cost down for the municipalities. Mr. Wodraska responded that question should be proceeded with the District recalling Broward Co. is going through this same type of thing right now. Mayor Marix believed they may be ahead of themselves in that they don't know what this will cost and there are a lot of possibilities out there. Mr. Wodraska responded they will continue with their plan and sit down with the Water Management District in approaching them as to how they would deal with this and if there are any funding alternatives available and he perceived this as the kick-off stage for the Town to make the decision if this is something they want to proceed with and authorize them to begin the negotiations. He believed it could take various alternatives with all concerned as how they would proceed.

Mayor Marix commented that since all the agencies are concerned with the Town preserving what they can and not using what they can and going to systems which will help, she wondered if they might be interested in helping with a salt water program. Dr. Wetzel advised that all of the systems he is aware of with regards to this alternative the economics of which would put the Town into a different field and he is not aware of any agency helping with the funding of that alternative. Mayor Marix believed this is a concept which has been in use in other parts of the world and is moving forward very quickly and at some point, it will become more financially more feasible or certainly more lasting than any other program. Dr. Wetzel stated technically it is used all over the world, but the problem is the cost. He recalled in the original study when they looked at sea water RO, the numbers were \$130,000,000 in capital costs and \$3.30 per thousand gallons of O and M costs. Mayor Marix believed that was changing. Dr. Wetzel responded that even if the capital costs were cut in half, the end product would still be ten times the capital costs. He didn't believe there was a lot which could be done with the Operating Cost, as that cost is primarily to power the water through the membranes and it is very difficult to reduce that particular cost. He suggested that perhaps in the next five or ten years, the cost may come down. Mayor Marix didn't believe this program was going to be on line for another five years, and she thought they needed to have some study on whether or not this particular system is feasible.

Mrs. Wiener recalled that West Palm Beach, perhaps not because of their own volition but perhaps because of the mandates of the South Florida Water Management District, does have inverse rates and if they use a certain amount, they must pay more money and if they were to take the ASR, they would exclude that because that would be at lower rates. She stated they are talking about spending somewhere between five or ten million dollars of tax payers money to underwrite the rates of those people who spend a lot more money on water because they have larger pieces of property compared to someone who lives in a small apartment and uses minimum water. She believed this was a policy decision that had to be made.

Mr. Osterman responded as to the question of taxpayer's money - yes - but the true concept is that they are talking about ratepayer's money as compared to taxpayer's money, but it does lead to the question "how do you support the cost of a system like this - or how do you apportion that cost?" He felt they should target the apportionment of the cost to those customers in relation to the demand that they incur on the system. He stated that is done to address the problem raised, as why would they have small users subsidizing large users in their cost and it is structured so that it does not do that.

Mr. Doney recalled they had a pre-review of the draft report of JMM and had a number of questions at that time, some of which have been answered but there are some additional questions as a result of the discussions today which he would like to ask. He indicated there is a Water Conservation Study coming to the Council for action and he asked how that would inter-relate with the recommendations contained in the ASR report especially with regards to cost, timing and details? Mr. Osterman answered that subject-wise, they do address two different situations as it is important today that the Conservation Study be implemented to the extent this Council finds appropriate and there is no crossover as they address different elements of conservation.

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Mr. Doney recalled that under the State's Comprehensive Plan which the Town is mandated to meet, the ASR Plan being an alternative of conservation, how from the Department of Community Affairs perspective, will the Town be able to address that issue or meet that requirement? Mr. Sundstrom responded the State Comprehensive Plan is mandated by the 1990 Florida Legislature, will require the Management Districts and the Department of Environmental Regulation to insure that the State Comprehensive Plan will address two issues:

1. Conservation
2. Re-use.

He believed ASR does address the question of conservation, so they are complimentary.

Mr. Doney recalled the Water Conservation Study still must be considered by the Mayor and Town Council and the earliest possible date would be the July 14, 1992 Town Council Meeting unless there is a Special Meeting called, and asked if that Study should be considered prior to any authorization being given on ASR? Mr. Sundstrom believed these do go hand-in-hand. He felt it was obvious that any long-term approach to the Water Management District should be done jointly with the City of West Palm Beach, and he would expect to receive the question as to what is being done for conservation and the Conservation Study being prepared by JMM does deal specifically with ways to reduce per capita and on site consumption within the Town, so he believed the two would have to go hand-in-hand and he doesn't know if it was necessary for the Town to consider this at the July meeting or whether or not it was in a form to be presented.

Dr. Burden of JMM indicated the Conservation Study has been submitted to the Town and Mr. Dusey informed him the staff comments have been compiled and are being returned to JMM and they would have an opportunity to respond to the comments and then finalize their report. He doesn't know the answer as to whether it needs to be approved before they have some action on the ASR project, he doesn't know.

Mr. Sundstrom asked Dr. Burden if they were close to ready to be presenting it to the Council to which Dr. Burden responded they will be ready to finalize the report and it could be ready for the July 14th meeting. Mayor Marix stated it would be disastrous to believe that they would be making a decision on some kind of an ASR project at the next meeting of the Council. Mr. Heeke pointed out no-one has had an opportunity to review these studies and he would like to stay on track and called on Mr. Doney to continue with the questions he had.

Mr. Doney stated the next question relates to the South Florida Water Management District, recalling there has to be a written Declaratory Relief Statement, which is the written statement of the Board of the SFWMD, asking what their estimate was in terms of the cost and the timing? Mr. Osterman responded he wished to clarify that there should be no expenditure of funds under the program until all elements are in place, such as the negotiations with the City of West Palm Beach as well as the final decision from SFWMD. He thought it was important to have an authorizing resolution by the Town before they go to SFWMD and it may be subject to certain other things, but the Declaration by the Town that they wanted to move forward or they authorize the program is very important and it wouldn't necessarily have to be the July meeting, but at some point in the timing sequence of things he thought it should be done.

Mr. Sundstrom indicated they are in the process of putting together the estimates on both the cost and the timing, but they didn't intend to request authorization at the July meeting, and what they wanted to do is move forward with their discussions with the City of West Palm Beach concerning the Inter-local Agreement and get a little bit farther along with that before they came back to the Council with a specific list of requests for instructions.

Mr. Doney asked if was logical and he realized it would not be to take action, but it would be advisable that Mr. Sundstrom and others, as needed, make a progress report at the July 14, 1992 meeting as there will be a meeting on June 14th with the City of West Palm Beach and there are a lot of things ongoing. He has these concerns, as the signing off of bills is his responsibility and he thought the progress report should be beneficial to the Mayor and Council. Mr. Sundstrom advised he has this down on his calendar.

Mr. Doney continued with his questioning noting that the report states Lake Drive Park is an item of consideration and before anything is done, there needs to be some final research by the Town Attorney with regards to the deed of that particular property.

Mr. Dusey asked if the proposed plan for the ultimate ASR System is to connect the Lake Drive Park location with the water main at Flagler Memorial Bridge and in doing that, would that connection allow the Island to be supplied with water in the event of an emergency? Dr. Wetzel responded as currently envisioned, although there is a lot of leg work to be done, under normal circumstances, this would replace the water which typically comes across at the Flagler Bridge, and they have costed it out as a sixteen inch water line from Lake Drive Park up to that connection and this will provide the additional five million gallons into the System, and assumes the other crossings are operational. He believed that under an emergency situation if none of the other lines were operational, they could only get the five mgd's that come out of the ASR and which tends to serve the central part of the Town, if all five crossings were shut off.

Mr. Dusey asked if what he was saying was that the Town would not be supplied with emergency water? Dr. Wetzel responded this is very preliminary and they have not looked at, given the pressures provided by the ASR pumps, what would the pressures be on the extremities of the Island, if all they had was the ASR pumps operating, they just have not looked at that. Mr. Dusey asked if he was saying that the one pressure could not supply water pressure in the south end of Town to which Dr. Wetzel responded he just didn't have an answer to that. He thought if they wanted a system where ASR could provide the booster pumping necessary to maintain pressures throughout the Town, they would have to have multiple locations where such pumps would be located.

Mr. Dusey asked what level of drought relief would be sought from the SFWMD, as they have gone through a Level 2 Drought when he recalled they were allowed to water three times a week or alternate days, but there were some pressure problems in the Town. He asked if they were looking at perhaps not having to adhere to a three day a week watering but be allowed to water any time they wanted under a Phase 2 Drought? Mr. Wodraska responded it would probably depend on how much the Town will be blending with the West Palm Beach water and what the Water Management District's letter stated their variance would be structured in such a way that if the Town is drawing ten mgd's from West Palm Beach and West Palm Beach is under restriction, how that would effect what

percentage of the water the Town would be relying on and he didn't believe there was an answer to that question. Dr. Wetzel advised there was a draft rule change which places ASR in the same category as Waste Water Reuse and in that draft rule it does exempt systems which utilize ASR as systems which utilize waste water reuse from the hours of water restrictions.

Mayor Marix asked if this was a percentage of what was used? Dr. Wetzel responded the percentage number in there is currently 75%, but this figure is subject to debate. Mayor Marix asked if there is an emergency in the south end, could the lake water be used? Mr. Dusey responded the Fire Department could directly pump from the Lake if they were close enough to the building.

President Heeke stated he believed they needed to remind themselves what the consultants are supposed to be doing for the Town and he views them as carrying that out. He related that those who were not here to hear Mr. Osterman's comments earlier concerning the conservation aspects of this ASR program and he requested the members of the press who did not hear those statements should either listen to the tape or be in touch with Mr. Osterman directly, as he answered a lot of the questions raised. He read the report and he believed there was some knowledge of the geology under the Island to which Dr. Wetzel responded affirmatively. Mr. Heeke referred to the emergency situation and the pressure problems, and he thought it would depend on what kind of an emergency we are talking about and how many ASR wells would be in place at the time there was an emergency. Dr. Wetzel responded he didn't mean to overstate the issue of emergencies, but it would be a benefit to have the water available beneath the Island would be an advantage, but he didn't wish to mislead everyone that it would be a fail safe situation as it isn't, and they wouldn't know specifically whether that benefit could be provided and how many wells there are and what the pressures would be, but it would be a clear benefit under certain circumstances.

President Heeke addressed the repairs to the distribution system, commenting that the system didn't get in the shape it is in within the last 24 hours, and doing anything there is sort of like putting oil on a squeaky wheel, as we are getting close to a judgment time and these things need to be taken care of.

Mr. Heeke thought the questions raised by Mr. Doney particularly with the conservation study are important issues and the answers were well handled. He keeps thinking about federal assistance when they talk about conservation and he will not speculate any further on that point. He recalled the statement of Mr. Olson that we need to use every drop, we are all saying exactly the same thing, whether it be the Consultants or the staff of the City of West Palm Beach as this is something that needs to continue to be addressed and the two communities are doing it concurrently as it should be done so, and now they have to just see where that is all heading.

Mr. Heeke reminded all this is a Workshop meeting and the Town Council is not in a position to make any decisions at this meeting, and he will look forward to the report which is upcoming at the July 14th Town Council meeting.

He called for further comments and there were none.

Meeting was adjourned at 1:29 PM.

Grace T. Peters  
Town Clerk

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