

NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
BROOKLYN-QUEENS AQUIFER FEASIBILITY STUDY

CITIZENS ADVISORY COMMITTEE MEETING: May 2, 2002

MINUTES

The third meeting of the Brooklyn-Queens Aquifer (BQA) Feasibility Study Citizens Advisory Committee (CAC) was held on Thursday, May 2, 2002 at Hillside Manor Comprehensive Care Center. (See Attachment A for copy of Attendance List.) This meeting was scheduled to discuss and adopt Operational Guidelines and review progress on the BQA study. It also included an update by the New York State Department of Environmental Conservation (DEC) on the West Side Corporation (WSC) site.

Old Business

Helen Neuhaus, Helen Neuhaus & Associates Inc. (HNA), opened the meeting by thanking Madeline Farina, Hillside Manor, for the use of their facility. She noted that several CAC members had toured the Station 6 Pilot Plant on April 24th and that the tour had received positive exposure on Channel 2 News.

The minutes of the April 8th CAC meeting were adopted without changes. Ms. Neuhaus then facilitated a discussion of responses to issues and concerns raised at that meeting. These included the following:

- Nicole Brown, Malcolm Pirnie, Inc. (MPI), reported that two facilities on Long Island, which both use Granulated Activated Carbon (GAC) systems, are available for CAC tours during business hours. In response to Linda Hazel's comment that the facility in Freeport pumps water from a different aquifer than New York City, Don Cohen, MPI, noted that the facility is still a very good example of a GAC system.
- In response to a request for the list of those invited to participate in the CAC, Ms. Neuhaus distributed the list. There was no discussion.
- In response to a discussion about Freedom of Information Law (FOIL) or Open Meetings Law restrictions on executive sessions, Ms. Neuhaus explained that FOIL relates to accessibility to public documents, while the New York State Open Meetings ("Sunshine") Law applies to meetings. Under the law, public bodies may enter executive session only under very limited circumstances, none of which apply to the CAC. (See Attachment B for copy of the materials.)
- The New York City Department of Environmental Protection (DEP) has agreed to create a page within its web site for the BQA Study. HNA is coordinating this effort with John Laduca, DEP, and has sent minutes and other materials to Mr. Laduca. The page should be ready in one to two weeks. Mark Lanaghan, DEP, gave the Department's address (www.nyc.gov/dep) and invited the CAC to contact him with any ideas for the site.
- In response to a request by Ms. Hazel for information on assay and equipment used to analyze water systems, Bill Yulinsky, DEP, introduced Tom Tipa, Deputy Chief, Division of Water Quality Control Distribution Operations, DEP. Mr. Tipa supervises monitoring operations for all of New York City, working from a state-certified laboratory in Lefrak City. He explained that the lab must use specific quality assurance procedures

to determine whether the water meets federal Clean Water Act standards, adding that the lab's criteria are audited by the U. S. Environmental Protection Agency, the New York State Department of Health (NYSDOH) and the New York City Department of Health (NYCDOH).

After explaining that annual reporting of the City's water quality is mandated by law, Mr. Tipa informed the CAC that DEP is currently preparing the 2001 report for publication. (Copies of the year 2000 report were distributed to individuals requesting it.) In response to Ms. Hazel's comment that reporting levels differ from state to state, Mr. Tipa said that recently enacted national accreditation standards now require all states to use the same reporting methods.

In response to further questions by Ms. Hazel, Mr. Tipa said that, in accordance with sanitary codes, records for each well are kept for five to ten years, depending on the parameter. Data for specific wells may be obtained through a FOIL request.

Mr. Tipa explained that residential systems are not randomly sampled. However, if requested, DEP will go to an individual's home and test the water. The Customer Service telephone number for individuals who want their water sampled is (718) 595-6366.

In a discussion of water sampling, Mr. Tipa reported that there are over 400 compliance boxes across the City, which are sampled every 10-14 days. Approximately 600 surveillance sites are also sampled and have been checked more frequently since September 11th. Mr. Tipa indicated that 23 monitoring boxes are located in the BQA Study area: 11 are checked regularly; the remainder are sampled randomly by means of a computer-generated program.

In response to a question about nitrates in Wells 48 and 48A, Roman Kensy, DEP, indicated that the wells were sampled in March, the results "look good", and DEP is waiting for comments from NYSDOH. He reiterated that the wells will not be turned on before receiving NYSDOH approval, adding that New York State has among the strictest standards in the country.

- Mr. Kensy distributed a "report card" (Attachment C) detailing the reasons why wells proposed for activation under the drought emergency program are currently out of service. There was no discussion.
- Ms. Brown reviewed a handout about the status of wells to be reactivated for the drought emergency. This information continues to be revised as updated data is received. There have been no changes in the "A" and "B" wells. However, some wells in the "C" category have been downgraded, and others in the "D" and "E" categories were upgraded as new water quality data was received. (See Attachment D.)

In response to a further question by Ms. Hazel, Mr. Kensy stated that wells 48, 48A and 54 are on-line, but not currently going to water supply distribution. Only the wells listed in the first ("A") column are in service and these wells have always been on-line. He again noted that the results of tests on wells 48 and 48A were positive adding that DEP is preparing a letter to NYSDOH regarding the re-activation of well 54.

Mr. Kensy and Mr. Yulinsky answered a question about the timeframe for well activation by stating that DEP will start phasing in some of the “C” wells within the next two to three weeks. A contract has gone out to bid for work related to the “D” wells. By the end of August, DEP hopes to have a full set of wells up and running. Based on a meeting between the NYCDOH and NYSDOH regarding protocols for the use of GAC, there will be three consecutive days of sampling.

A discussion followed regarding public notification before putting the wells into service. Several suggestions were raised, including making an announcement to the press, inserting information in residential water bills, and outreach through the CAC and Community Boards. Mr. Lanaghan noted that the Department is open to suggestions. Ms. Reddick said that the Community Boards should be notified when wells go on-line, so that they can notify everyone on their mailing list. This led to a discussion of the role of the CAC in terms of drought outreach. Several CAC members expressed the view that their role is to address Station 6 and related issues, not the drought. Ms. Neuhaus agreed that it is not fair to ask the CAC to deal with drought-related issues; however, she noted that the drought and the re-opening of wells are major community concerns. Ms. Neuhaus indicated that she has spoken with Deputy Commissioner Douglas Greeley, DEP, about creating a separate drought committee and announced two meetings on the drought that will be hosted by the Queens Borough President and DEP during the coming week.

Assemblyman William Scarborough asked whether the recent rains had eased the severity of the drought. Mr. Kensy responded by explaining that in a normal year, the reservoirs are 99%-100% full at this time of year; the reservoirs are currently 68% full. He added that New York City is presently in a “Stage 1” drought emergency. Although a decision will be made on June 1st, at this time, there are no plans to call off the drought emergency.

Adoption of CAC Guidelines

Ms. Neuhaus asked for comments on the Draft CAC Operational Guidelines, which were distributed with the Minutes of the April 8th meeting. Assemblyman Scarborough spoke in support of holding the meetings on Thursdays (the day suggested in the Guidelines) when the state legislators are back from Albany. There were no other comments, and the Guidelines were adopted.

Project Update - Station 6 Modifications

Mr. Cohen reported that work at the Station 6 Pilot Plant continues to generate results, with improvements in the taste and quality of the water. Plant workers are testing additional ways to oxygenate water and are hoping that the ozone process (which will be on-line shortly) will be even more successful than the potassium permanganate. The advantage of using ozone is that it should be more easily controlled, as it doesn’t involve the addition of chemicals. There are approximately 3 ½ months left in the six-month pilot project.

Ms. Brown distributed handouts of the display boards shown at the plant tour. (See “Process Flow Diagram” Attachment.) She explained that the pilot plant is testing more than one strategy for each process to determine what works best in terms of efficiency and effectiveness, as well as cost, operational and maintenance issues. Different technologies are being used for pH adjustment, the removal of iron and manganese, and filtration.

Mr. Yulinsky reported that the City has approved construction of a new well at Station 24. Funds are available, and the work is scheduled to start in mid June. In response to a question from Ms. Hazel, Mr. Yulinsky explained that construction is expected to take six weeks.

Update on West Side Corporation Property

After introducing Dennis Wolterding, DEC, Manager of the State Superfund Program, and Mark Tibbe, DEC, Petro Spills Program, Andrew English, DEC, Division of Environmental Remediation, provided a status report on WSC clean-up activities. He stated that although DEC is “well into” the design process for on-site remediation, there have been significant hurdles. Most importantly, a pilot study that attempted to oxidize the perchloroethylene (PERC) through “chemical injection” produced mediocre results. DEC is therefore exploring two other approaches: “steam stripping” (heating the groundwater to boil off water and chemicals, which are collected in an above-ground vacuum) and “resistance heating” (inserting resistance heaters in holes that are drilled in the ground). These hurdles have put DEC several months behind schedule, but it is hoped that a design will be ready this spring. Ms. Hazel expressed concern about the effectiveness of the proposed technologies based on DEC’s previous confidence in the pilot study.

Ms. Hazel and Councilman Leroy Comrie asked why remediation of the WSC site is taking so long. Ms. Hazel expressed concern that the clean-up is scheduled to take ten years and hasn’t even started yet. Mr. English explained that DEC’s clean-up of the on-site soils will be done sooner and Mr. Yulinsky added that the ten-year timeframe is the period of time required for removing contamination from the aquifer.

In response to Irving Hicks’ question regarding target dates for the WSC clean-up, Mr. English identified the next milestone as mid-June (when a decision on the preferred technology will be made). In response to questions relating to project costs, Mr. English explained that the work is being funded through the State Superfund program and the 1986 Environmental Bond Act. He acknowledged that although design monies have been allocated, construction funds are not yet available. DEC is hoping that the money will become available with the passage of Superfund Reform and Refinancing legislation this spring. Ms. Neuhaus asked if the CAC could do anything to support funding renewal, to which Assemblyman Scarborough and Mr. English stated that lobbying the governor and state legislature would be helpful.

In response to a question from Earl Roberts about monitoring the contaminated plume, Mr. English indicated that the WSC property is being monitored and that conditions have not changed much during the last year. He also noted that DEP and DEC will monitor conditions on-site and off-site before the Station 24 well goes on-line and that monitoring wells are typically installed at the curb or in the street. In response to Mr. Hicks’ question about movement of the plume, Mr. English explained that groundwater moves very slowly. The project team indicated that following treatment, water from well 24 will be pumped to a storm sewer and ultimately discharged into Jamaica Bay. Concerns were raised about the impact of the added volume on the local sewer system, leading to a discussion about sewers in the area (See below).

Ms. Hazel requested that Mr. English report to the CAC on a monthly or bi-monthly basis. Ms. Neuhaus noted that Mr. English would probably not be able to come down from Albany every month but asked him to establish a system of regular reporting to the CAC.

New Business

Ms. Neuhaus asked CAC members to think about disciplines and criteria for selecting candidates for the Scientific Review Panel, which will be the principal agenda item at the next CAC meeting.

Other Issues

Other issues raised during the meeting are summarized below.

- After noting that a member of the public was taping the meeting, a brief discussion and vote (from which most CAC members abstained) resulted in a decision to prohibit taping of meetings. Ms. Neuhaus noted that Minutes generated by project staff are distributed to CAC members and public attendees.
- Manuel Caughman expressed concern about new homes that are being constructed adjacent to Station 24 and remarked that sewers in the area need repair. Mr. Cohen responded that Deputy Commissioner Greeley has made a commitment to improving the local sewers. Assemblyman Scarborough, referring to the City's fiscal crisis, asked if there was a "hard and fast" commitment that the sewer project will go forward. Mr. Kensy assured him that the funds for the sewer system upgrade are available.
- Ms. Reddick stressed the importance of upgrading the sewer line prior to pumping at Station 24. Mr. Cohen confirmed that sewer improvements are scheduled early in the project. In response to Assemblyman Scarborough's related concern about outflows to Jamaica Bay, Mr. Cohen and Mr. Kensy explained that the system is gravity-fed and designed to flow in a specific direction.
- Ms. Neuhaus announced that Ms. Brown has been tutoring high school students and that three of them were recently inducted into the National Honor Society. After a round of applause, Ms. Hazel suggested that the students might be interested in becoming involved with the BQA Study.

The next CAC meeting will be held on **Thursday, June 6, 2002 at 7 p.m.** [Subsequent to the May 2nd meeting, the location of the June meeting was confirmed as the Hillside Manor Comprehensive Care Center, 188-11 Hillside Avenue, Jamaica Estates.]

Follow-Up Items

1. Schedule CAC tour of Long Island water treatment facility to view GAC and other relevant filtration technologies.
2. Provide address of project web site, when available.
3. Determine status of letter regarding reactivation of well 54.
4. Determine mechanism for providing regular NYSDEC updates on status of work at WSC site.

Brooklyn-Queens Aquifer Feasibility Study
Citizens Advisory Committee
Thursday, May 2, 2002

Attendance List

CAC Members/Alternates

Canute C. Bernard, M.D.
Community Board #12

Linda Caleb Hazel
A Better Day Inc./St. Benedict The Moor/ St
Bonaventure

Manuel Caughman
Community Board #12/Brinkerhoff Action
Association

Councilman Leroy Comrie
New York City Council

Jeff Diggs
Councilman Leroy Comrie

Kenneth Gill
Addisleigh Park Civic Association

Irving Hicks
Brinkerhoff Action Association

Debora Hunte
Brinkerhoff Action Association

Peter Lutz
Office of Queens Borough President

Celeste Morris
Office of Senator Malcolm Smith

Yvonne Reddick
Community Board #12

Peter Richards
Community Board #13

Earl Roberts
113th Precinct Community Council

Dr. Dhanonjoy C. Saha
Resident

Assemblyman William Scarborough
New York State Assembly

Senator Malcolm Smith
New York State Senate

Sadie Westbrook
St. Albans Civic Association

Guests

Susan Goodson

Sarah Hicks
Brinkerhoff Action Association

Sharon Johnson
St. Albans Civic Association

Al Jordan
Resident

Novella Oliver
Woodhull Civic Association

Laura Sanders
District Leader

Juanita Wright
Woodhull Civic Association

Denise Woodin
Helen Neuhaus & Associates Inc.

Norine Wright
Woodhull Civic Association

Anita Wright
Helen Neuhaus & Associates Inc.

Media

Courtney Dentch
Jamaica Times

Bill Yulinsky
New York City Department of
Environmental Protection

Project Team

Nicole Brown
Malcolm Pirnie, Inc.

Don Cohen
Malcolm Pirnie, Inc.

Andrew English
New York State Department of
Environmental Conservation

Roman Kensy
New York City Department of
Environmental Protection

Mark Lanaghan
New York City Department of
Environmental Protection

Helen Neuhaus
Helen Neuhaus & Associates Inc.

Mark Tibbe
New York State Department of
Environmental Conservation

Tom Tipa
New York City Department of
Environmental Protection

Dennis Wolterding
New York State Department of
Environmental Conservation

YOUR RIGHT TO KNOW
Open Meetings Law

The Open Meetings Law

The Open Meetings or "Sunshine" Law went into effect in New York in 1977. Amendments that clarify and reaffirm your right to hear the deliberations of public bodies became effective on October 1, 1979.

In brief, the law gives the public the right to attend meetings of public bodies, listen to the debates and watch the decisionmaking process in action.

As stated in the legislative declaration in the Open Meetings Law (section 100): "It is essential to the maintenance of a democratic society that the public business be performed in an open and public manner and that the citizens of this state be fully aware of and able to observe the performance of public officials and attend and listen to the deliberations and decisions that go into the making of public policy."

What is a Meeting?

Although the definition of "meeting" was vague as it appeared in the original law, the amendments to the law clarify the definition in conjunction with expansive interpretations of the law given by the courts. "Meeting" is defined to mean "the official convening of a public body for the purpose of conducting public business." As such, any time a quorum of a public body gathers for the purpose of discussing public business, the meeting must be convened open to the public, whether or not there is an intent to take action, and regardless of the manner in which the gathering may be characterized.

Since the law applies to "official" meetings, chance meetings or social gatherings are not covered by the law. Also, the law is silent with respect to public participation. Therefore, a public body may permit you to speak at open meetings, but is not required to do so.

What is Covered by the Law?

The law applies to all public bodies. "Public body" is defined to cover entities consisting of two or more people that conduct public business and perform a governmental function for the state, for an agency of the state, or for public corporations, including cities, counties, towns, villages and school districts, for example. In addition, committees and subcommittees are specifically included within the definition. Consequently, city councils, town boards, village boards of trustees, school boards, commissions, legislative bodies and committees and subcommittees of those groups all fall within the framework of the law.

Notice of Meetings

The law requires that notice of the time and place of all meetings be given prior to every meeting.

If a meeting is scheduled at least a week in advance, notice must be given to the public and the news media not less than 72 hours prior to the meeting. Notice to the public must be accomplished by posting in one or more designated public locations.

When a meeting is scheduled less than a week in advance, notice must be given to the public and the news media "to the extent practicable" at a reasonable time prior to the meeting. Again, notice to the public must be given by means of posting.

When Can a Meeting be Closed?

The law provides for closed or "executive" sessions under circumstances prescribed in the law. It is important to emphasize that an executive session is not separate from an open meeting, but rather is defined as a portion of an open meeting during which the public may be excluded.

To close a meeting for executive session, the law requires that a public body take several procedural steps. First, a motion must be made during an open meeting to enter into executive session; second, the motion must identify "the general area or areas of the subject or subjects to be considered;" and third, the motion must be carried by a majority vote of the total membership of a public body.

Further, a public body cannot close its doors to the public to discuss the subject of its choice, for the law specifies and limits the subject matter that may appropriately be discussed in executive session. The eight subjects that may be discussed behind closed doors include:

- a. matters which will imperil the public safety if disclosed;
- b. any matter which may disclose the identity of a law enforcement agency or informer;
- c. information relating to current or future investigation or prosecution of a criminal offense which would imperil effective law enforcement if disclosed;
- d. discussions regarding proposed, pending or current litigation;
- e. collective negotiations pursuant to Article 14 of the Civil Service Law (the Taylor Law);
- f. the medical, financial, credit or employment history of a particular person or corporation, or matters leading to the appointment, employment, promotion, demotion, discipline, suspension, dismissal or removal of a particular person or corporation;
- g. the preparation, grading or administration of exam-inations; and
- h. the proposed acquisition, sale or lease of real property or the proposed acquisition of securities, or sale or exchange of securities held by such public body, but only when publicity would substantially affect the value thereof.

These are the only subjects that may be discussed behind closed doors; all other deliberations must be conducted during open meetings.

It is important to point out that a public body can never vote to appropriate public monies during a closed session. Therefore, although most public bodies may vote during a properly convened executive session, any vote to expend public monies must be taken in public.

The law also states that an executive session can be attended by members of the public body and any other persons authorized by the public body.

After the Meeting—Minutes

If you cannot attend a meeting, you can still find out what actions were taken, because the Open Meetings Law requires that minutes of both open meetings and executive sessions must be compiled and made available.

Minutes of an open meeting must consist of "a record or summary of all motions, proposals, resolutions and any matter formally voted upon and the vote thereon." Minutes of executive sessions must consist of "a record or summary of the final determination" of action that was taken, "and the date and vote thereon." Therefore, if, for example, a public body merely discusses a matter during executive session, but takes no action, minutes of an executive session need not be compiled. However, if action is taken, minutes of the action taken must be compiled and made available.

It is also important to point out that the Freedom of Information Law requires that a voting record must be compiled that identifies how individual members voted in every instance in which a vote is taken. Consequently, minutes that refer to a four to three vote must also indicate who voted in favor, and who voted against.

Enforcement of the Law

What can be done if a public body holds a secret meeting? What if a public body makes a decision during an executive session that should have been open?

Any "aggrieved" person can bring a lawsuit. Since the law says that meetings are open to the general public, you would be aggrieved if you feel that you have been improperly excluded from a meeting or if you believe that an executive session was held that should have been open.

Upon the judicial challenge, a court has the power to nullify action taken by a public body in violation of the law "upon good cause shown." In addition, a court also has the authority to award reasonable attorney fees to the successful party. This means that if you go to court and you win, a court may (but need not) reimburse you for your expenditure of legal fees.

It is noted that an unintentional failure to fully comply with the notice requirements "shall not alone be grounds for invalidating action taken at a meeting of a public body."

The Site of Meetings

As specified earlier, all meetings of a public body are open to the general public. Moreover, the law requires that public bodies make reasonable efforts to ensure that meetings are held in facilities that permit "barrier-free physical access" to physically handicapped persons.

Exemptions from the Law

The Open Meetings Law does not apply to:

1. judicial or quasi-judicial proceedings, except proceedings of zoning boards of appeals;
2. deliberations of political committees, conferences and caucuses; or
3. matters made confidential by federal or state law.

Stated differently, the law does not apply to proceedings before a court or before a public body that acts in the capacity of a court, to political caucuses, or to discussions concerning matters that might be made confidential under other provisions of law. For example, federal law requires that records identifying students be kept confidential. As such, a discussion of records by a school board regarding a particular student would constitute a matter made confidential by federal law that would be exempt from the Open Meetings Law.

FREEDOM OF INFORMATION LAW

Who is subject to the Freedom of Information Law?

Any New York State or municipal department, board, bureau, division, commission, committee, public authority, public corporation, council, office or other governmental entity performing a governmental or proprietary function is subject to the Law. The courts are outside its coverage but often must disclose records under other provisions of law. The State Legislature is covered by the Freedom of Information Law but is treated differently from agencies generally. Private corporations or companies are not subject to the Freedom of Information Law.

Do I contact the Committee on Open Government to get public records?

The Committee does not maintain records generally. To obtain records, you must contact the agency that you believe maintains possession of the records. For example, if you are interested in obtaining minutes of a school board meeting, your request should be made to the school district.

A request should be directed to the "records access officer" of the agency, the person having the duty of coordinating an agency's response to a request. The request should reasonably describe the records sought, and you should provide sufficient detail to enable agency staff to locate the records.

How long must I wait to get access to records?

Section 89(3) of the Freedom of Information Law states in part the following:

"Each entity subject to the provisions of this article, within five business days of the receipt of a written request for a record reasonably described, shall make such record available to the person requesting it, deny such request in writing or furnish a written acknowledgment of the receipt of such request and a statement of the approximate date when such request will be granted or denied..."

If neither a response to a request nor an acknowledgment of the receipt of a request is given within five business days, or if an agency delays responding for an unreasonable time after it acknowledges that a request has been received, a request may be considered to have been constructively denied. In such a circumstance, the denial may be appealed in accordance with §89(4)(a) of the Freedom of Information Law. That provision states in relevant part the following:

"...any person denied access to a record may within thirty days appeal in writing such denial to the head, chief executive, or governing body, who shall within ten business days of the receipt of such appeal fully explain in writing to the person requesting the record the reasons for further denial, or provide access to the record sought."

In addition, it has been held that when an appeal is made but a determination is not rendered within ten business days of the receipt of the appeal as required under §89(4)(a) of the Freedom of Information Law, the appellant has exhausted his or her administrative remedies and may initiate a challenge to a constructive denial of access under Article 78 of the Civil Practice Rules [Floyd v. McGuire, 87 AD 2d 388, appeal dismissed 57 NY 2d 774 (1982)].

How much can I be charged for public records?

An agency may charge up to 25 cents per photocopy not in excess of 9 by 14 inches, or in the case of records that cannot be photocopied, the actual cost of reproduction (for example, photographs, computer disks, tape recordings, etc.), unless otherwise prescribed by statute. An agency cannot charge for search or clerical time.

Can I inspect records instead of paying the fees?

Yes. Any person has the right to inspect accessible records at no charge. However, there may be situations in which some aspects of a record—but not the entire record—may be properly withheld. In that event, an applicant would not have the right to inspect the record. However, the agency may prepare a redacted copy and charge the established fee.

Does the Freedom of Information Law apply to computer records?

Yes. The term "record" is defined to include all information kept, held, filed, produced or reproduced by, with or for an agency, in any physical form whatsoever. Therefore, the Freedom of Information Law clearly applies to government records generated, received, or maintained electronically.

Do I have to give a reason why I want public records?

No. An agency cannot ask a requester why he or she wants records or what the intended use of the record might be. The only instance in which an agency can ask why a person wants a record is when the request is for a list of names and home addresses. The agency is authorized to seek an assurance that the list will not be used for commercial or fund-raising purposes; if it is determined that a list will be used for these purposes, an agency can deny access.

I asked a local government official a question about his office, but he didn't answer. What can I do to make him answer?

The Freedom of Information Law pertains to records; it is not intended to be used as a vehicle for cross-examining government officials or employees. Therefore, an agency is not required to answer questions or to create a new record in response to questions. While agency staff may answer questions—and many do—that kind of service is separate from the requirements of the Freedom of Information Law, which deals with requests for existing records.

Do I have a right to know how the government spends money?

Yes. Records reflective of government expenditures are generally available. Also, an agency is required to create a payroll record, which indicates the name, public office address, title and salary of every officer or employee of the agency.

OUT OF SERVICE WELL SUMMARY

The following list indicates the reasons why wells proposed for reactivation are currently out of service:

<u>WELL NUMBER</u>	<u>REASON</u>
48 and 48A	Air Stripper Plant components require replacement to increase efficiency
54	Trace VOC's
7 and 7B	Area supplied by surface water system. Distribution piping requires reconfiguring.
13 and 13A	Area supplied by surface water system. Requires new valves and piping.
14	High Iron
21 and 21A	Trace VOC's. Supplied by surface water system.
50	Manganese clogged pipes MTBE detected
58	Area supplied by surface water system
22	Organics.
26A	Organics
27	Organics
38	MTBE
38A	MTBE
43	Organics
45	Freon
51	Organics
52	Organics

WELL NUMBER

REASON

53

MTBE

55

Organics

Groundwater System Reactivation Plan

(Rev. 05/02/02)

Station No.'s

5, 5A, 10, 10A,
23A, 32, 36, 39A,
43A, 50A, 53A, 56,
59

48, 48A, 54

7, 7B, 13, 13A,
14, 27, 58

21, 21A, 22, 26A,
29A, 38, 38A, 45,
51, 52, 53, 55

Neighborhoods

Cambria Heights,
Holliswood, Ozone Park,
Queens Village, Hillcrest,
Kew Gardens, Springfield
Gardens, St. Albans

Hollis, Bellaire,
Cambria Heights

Queens Village,
South Jamaica,
South Ozone Park,
Bellerose, Kew
Gardens Hills,
Jamaica Estates

Hillcrest, Kew
Gardens, Hollis, St.
Albans, Holliswood,
Ozone Park

**Max. Potential
Capacity (MGD)**

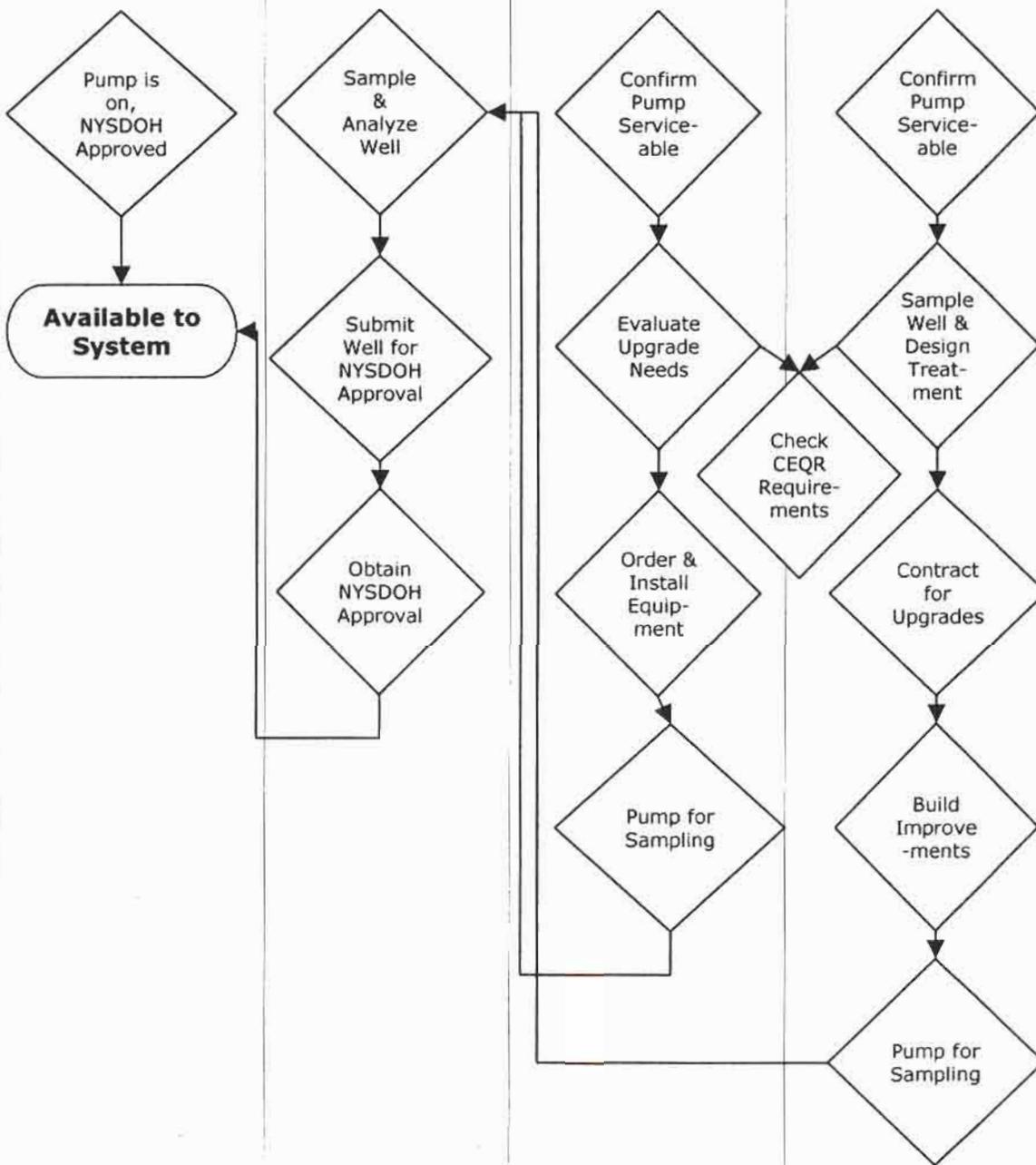
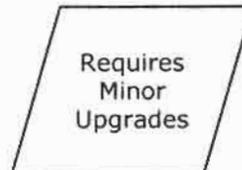
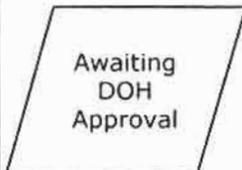
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4.0

11.8

19.4

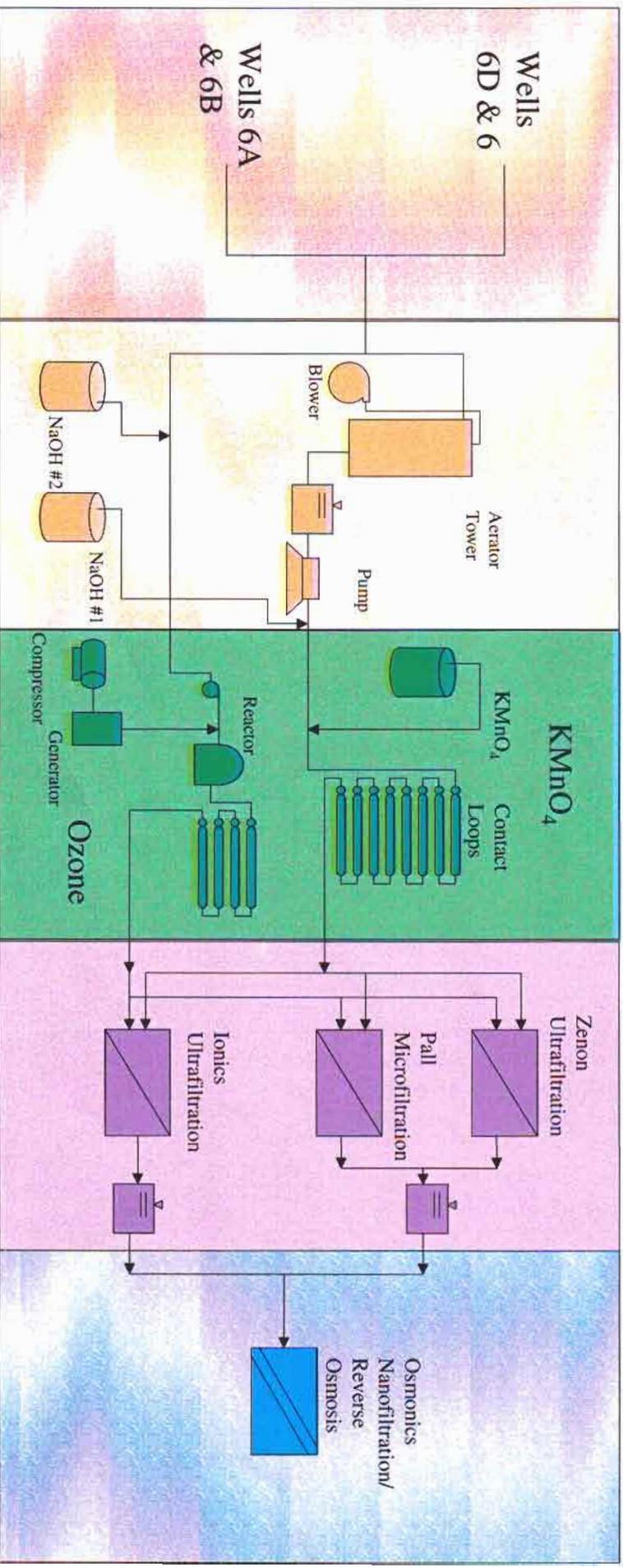
Current Status



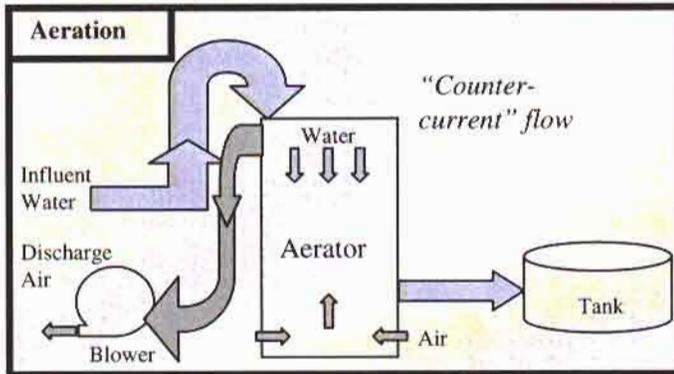
**Bureau of Water &
Sewer Operations**



Brooklyn-Queens Aquifer Project
Station 6 Pilot Plant Study
Process Flow Diagram



pH Adjustment: Aeration



Aerator

What is the process?

Raising the pH of the process water. pH is a measurement of how much hydrogen, represented as $[H^+]$, and hydroxide, represented as $[OH^-]$, are present in water. A pH value greater than 7 means the water has more $[OH^-]$ than $[H^+]$.

Where is the technology typically used?

Aeration is a cost-effective means of increasing pH while only adding air to the water. Aerators are very commonly used in drinking water systems throughout the world because they are so cost effective.

Why is the process needed?

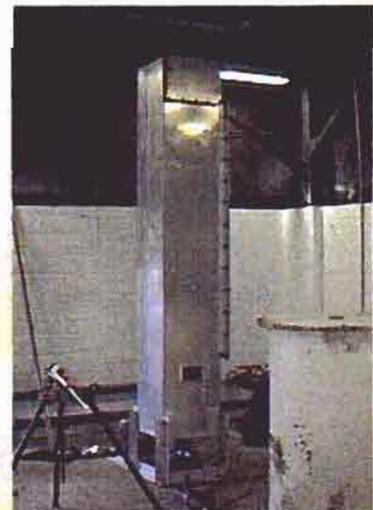
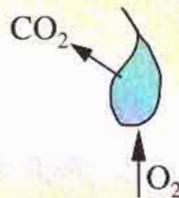
Groundwater typically has a low pH (less than 6) due to the natural interaction of the water and soil. Increased pH helps precipitate iron and manganese from solution (i.e. transfer iron and manganese from a dissolved ion to a solid particle that can be removed by filter). A higher pH may also improve the taste and reduce the corrosion potential of the water.

What will the pilot test consider?

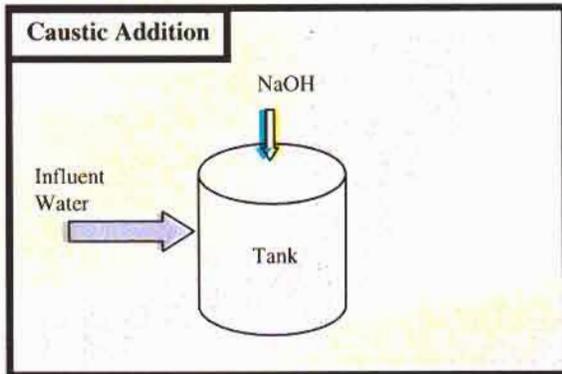
Aeration will be compared to Caustic ($NaOH$) addition for pH adjustment to determine the most efficient and cost effective alternative. We will also determine how pH adjustment improves the precipitation of the iron and manganese. Typically, a higher pH value will increase the speed that metals leave the solution and become a solid particle. The target pH value for drinking water is typically in the range of 6.5 to 8.5.

How does this technology achieve process?

Aeration is mixing air and water together. This mixing occurs by pushing the air and water against one another (counter-current flow). Slats in the tower (typically made of metal, plastic or wood) help break up the water drops and air flow so that mixing is improved. This allows the air to dissolve into the water. The oxygen in the air forces naturally occurring carbon dioxide (CO_2) out of the water. The lower CO_2 content of water increases the pH. This occurs because as CO_2 is removed from the water H^+ molecules are "freed" up from their bond to CO_2 and "left behind" in the water. This results in a higher H^+ to OH^- ratio and a higher pH.



pH Adjustment: Caustic (NaOH) Addition



Typical Chemical
Metering Pump

What is the process?

Raising the pH of the process water. pH is a measurement of how much hydrogen, represented as $[H^+]$, and hydroxide, represented as $[OH^-]$, are present in water. A pH value greater than 7 means the water has more $[OH^-]$ than $[H^+]$.

Where is the technology typically used?

Caustic addition is a cost-effective means of increasing pH through proper dosing. Most municipalities throughout the world add caustic to water to adjust pH.

Why is the process needed?

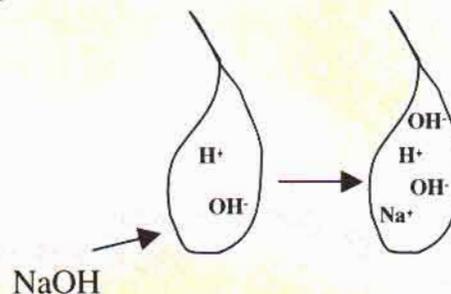
Groundwater typically has a low pH (less than 6) due to the natural interaction of the water and soil. Increased pH helps precipitate iron and manganese from solution (i.e. transfer iron and manganese from a dissolved ion to a solid particle that can be removed by filter). A higher pH may also improve the taste and reduce the corrosion potential of the water.

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How does this technology achieve process?

Caustic, also known as sodium hydroxide or NaOH, adds $[OH^-]$ molecules to water and increases the pH value. After reacting with the water, only very small amounts of sodium remain.



Fe/Mn Oxidation: Potassium Permanganate (KMnO₄)



Typical Chemical
Metering Pump

What is the process?

Oxidation is the adding of oxygen (O₂) molecules to a compound. This physically changes the compound into larger solids.

Where is the technology typically used?

Potassium permanganate has been used in municipalities throughout the world for decades. It is most commonly used to precipitate iron and manganese but it can also be used for taste and odor concerns.

Why is the process needed?

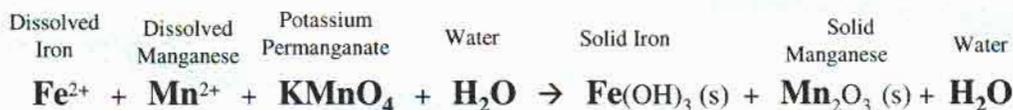
Iron (Fe) and manganese (Mn) are naturally found dissolved in groundwater. These metals are non-toxic but affect the color and taste of water. They also can stain plumbing fixtures and laundry. Oxidation changes the dissolved iron and manganese into particles large enough to be filtered out of the water.

What will the pilot test consider?

Testing will determine how effectively potassium permanganate will precipitate both iron and manganese from the water. Also, the proper amount of KMnO₄ and the time of reaction needed for successful reaction will be examined. These results will be compared to ozone and the most effective and efficient oxidant will be selected.

How does this technology achieve process?

Potassium permanganate (KMnO₄) is a purple colored chemical that adds oxygen when introduced to water.



Fe/Mn Oxidation: Ozone (O₃)



Ozone Generator

What is the process?

Oxidation is the adding of oxygen (O₂) molecules to a compound. This physically changes the compound into larger solids.

Where is the technology typically used?

Ozone is currently used at over 1,000 water systems in Europe and is gaining popularity in the United States. It was first used in the US in 1906 in New York City's Jerome Park Reservoir. While ozone is a powerful oxidant for metals and taste and odors concerns, it also can be used as a disinfectant.

Why is the process needed?

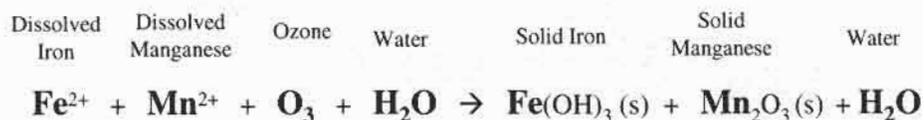
Iron (Fe) and manganese (Mn) are naturally found dissolved in groundwater. These metals are non-toxic but affect the color and taste of water. Oxidation changes the dissolved iron and manganese into particles large enough to be filtered out of the water.

What Will the pilot test consider?

The testing of ozone will determine if this is an effective means of oxidation as well as how long the process will take. Ozone is also known to oxidize some moderate levels of volatile organic chemicals (VOCs) and we will test this as well.

How does this technology achieve process?

Ozone (O₃), a form of oxygen gas, reacts quickly when it comes in contact with water to oxidize the metals present.



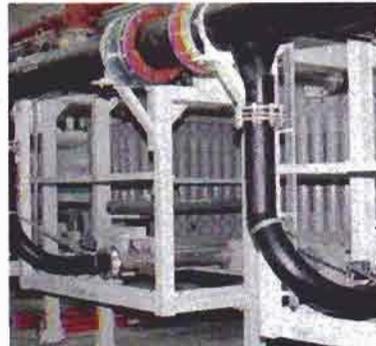
Fe/Mn Removal: Membrane Filtration



Close-Up
Cross-Section



Membrane Canister
contains approximately * strands



Membrane Equipment

What is the process?

Filtering oxidized iron and manganese solids from the water.

Why is the process needed?

Iron (Fe) and manganese (Mn) are metals naturally found in groundwater. These metals are non-toxic but affect the color and taste of water. Membrane filtration physically removes iron and manganese from the water.

How does this technology achieve process?

Microfiltration & ultrafiltration membranes resemble tiny straws made of a porous material. These filters will remove particles ranging from 0.005 to 2.0 μm (depending on the manufacturer). Tobacco smoke particles are approximately 0.1 μm meaning that smoke would not pass

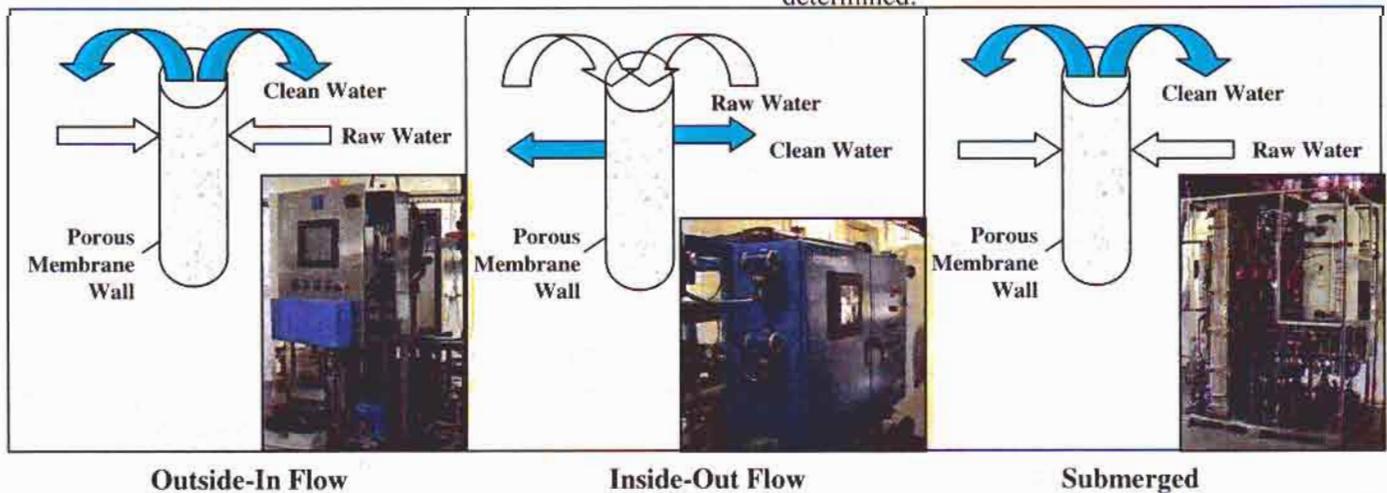
through the membrane. Water flows through the membrane but solid particles are trapped on the "raw" or "dirty" side of the membrane. Periodically these particles are then discharged to a waste line.

Where is the technology typically used?

Many drinking water facilities use membrane technology for filtration. It is preferred due to the removal efficiency and easy operation compared to traditional filtration.

What will the pilot test consider?

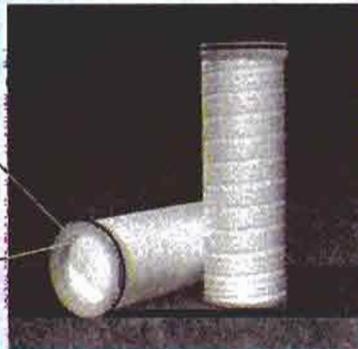
We will be comparing three types of membrane operation – outside-in, inside-out and submerged membranes. While each type works differently, all remove solids efficiently. By testing the equipment, the best application can be determined.



Membrane Softening: Membrane Filtration



Close-up



Spiral-Wound Membrane Canister

What is the process?

Softening, also known as hardness removal, is the removal of dissolved calcium carbonate, a mineral which contributes to water hardness.

Where is the technology typically used?

This type of filtration is used on both large (municipalities) and small scale (residential) systems throughout the world. It is preferred over traditional technologies for its efficiency and ease of operation.

Why is the process needed?

Calcium carbonate (CaCO_3) is found in limestone and naturally occurs in groundwater. Water which contains a lot of calcium carbonate is considered "hard". While it is non-toxic, calcium carbonate can leave a white build-up on plumbing fixtures and make a lather difficult.

What will the pilot test consider?

The primary goal is the comparison of various softening membrane manufacturers. We will also test the ease of operation and efficiency of removal.

How does this technology achieve process?

Membranes are tiny fibers made of a porous material ranging from 0.001 to 0.0001 μm (depending on the manufacturer). Water flows across the membrane but calcium carbonate particles are trapped on the membrane.

