



ORANGE WATER AND SEWER AUTHORITY

Quality Service Since 1977

September 6, 2006

Mayor Mark Chilton
Town of Carrboro
301 West Main Street
Carrboro, NC 27510

Mayor Kevin Foy
Town of Chapel Hill
405 Martin Luther King Jr. Blvd.
Chapel Hill, NC 27516

Chairman Barry Jacobs
Orange County
Post Office Box 8181
Hillsborough, NC 27278

Dear Mayor Chilton, Mayor Foy and Chairman Jacobs;

Enclosed is our annual report for 2005-2006. We believe that this summary of recent and upcoming activities reflects OWASA's commitment to a high level of customer service and environmental stewardship, efficient management, affordable rates, and community collaboration to which you and our customers are entitled.

Please feel free to contact me or our staff if you would like an in-person presentation or further details about any of the items in the enclosed report.

Sincerely,

Michael A. (Mac) Clarke, Chair
OWASA Board of Directors

Enclosure

c: Mr. Roger L. Stancil, Chapel Hill Town Manager (w/encs.)
Mr. Rod Visser, Interim Orange County Manager (w/encs.)
Mr. Steven Stewart, Carrboro Town Manager (w/encs.)
OWASA Board of Director (w/encs.)
Ed Kerwin, OWASA Executive Director (w/encs.)



Annual Report to Local Governments September 6, 2006

This report summarizes major OWASA accomplishments from July 2005 through June 2006. We have selected items that we believe are most likely to be of interest to the governing boards of Carrboro, Chapel Hill, and Orange County. Additional information is available on request, and OWASA Board members or staff will be glad to provide presentations if desired.

Water Supply Advisory – Regional drought conditions and seasonally low water supply levels led the OWASA Board of Directors to declare a Water Supply Advisory in April 2006 alerting our customers that additional water use restrictions might be imposed if supply/demand conditions did not improve in the near future. Subsequent customer demands remained moderate, and rainfall/streamflow conditions improved substantially by the end of June when University Lake and the Cane Creek Reservoir returned to 100 percent full for the first time in 12 months. The OWASA Board rescinded the Water Supply Advisory at their July 13, 2006 meeting. Reservoir, streamflow, and demand patterns remain good at the present time, and the likelihood of our supplies declining to critical levels within the next 18 months is very low.

Rate Study and Strategic Financial Review – With the assistance of Michael Burton and Associates, OWASA has begun a detailed study of all customer rates and fees. This will focus especially on additional rate-based conservation incentives. The overall effort seeks to identify financial and rate-setting strategies that will reinforce OWASA's financial capacity and fiscal management practices. The last such rate study was conducted in 1997. The current project will be completed this winter.

Mason Farm Wastewater Treatment Plant – Construction began in May 2004 on the \$50 million expansion and upgrade of OWASA's wastewater plant. Capacity is being increased from its present level of 12 million gallons per day (mgd) to 14.5 mgd. The project includes the addition of filters to enhance treated water quality, increased back-up electrical power, odor elimination improvements, solids and nutrients removal, and an ultraviolet (UV) light disinfection system. These improvements will support the new reclaimed water system and are designed to meet the nitrogen and phosphorus removal requirements proposed under the NC Environmental Management Commission's Jordan Lake TMDL (Total Maximum Daily Load) and Nutrient Management Strategy.

Important milestone objectives completed (on schedule) during the past year have included start-up of the new filters and startup-up of the UV disinfection system, which replaced the less environmentally friendly chlorine-based system. Additional backup electrical generator capacity has also been provided to enable continuous plant operation during power outages. The overall construction project remains on schedule for completion by the summer of 2007.

Additional projects underway at the wastewater plant include a new above ground gas handling system for the biosolids digesters. This will greatly improve our ability to avoid odor releases caused by improper functioning of the existing system. We have also begun designing a new **biosolids dewatering facility**, which will provide specialized equipment to further reduce the amount of liquid in our biosolids. This will increase the operational flexibility, economy, and long-term sustainability of our biosolids program.

Elimination of Objectionable Offsite Odors from the Mason Farm Wastewater Treatment Plant – OWASA submitted its annual progress report on meeting the **off-site odor elimination goal** in January 2006 per requirements of the Town's Special Use Permit as amended in 2004. Our staff met again with nearby residents on January 31, 2006 to discuss plans for the odor study. Staff subsequently emailed the draft scope of work to all neighbors and other stakeholders for whom we had email addresses. After receiving additional comments, the OWASA Board approved the scope on May 11, 2006.

Our consultant conducted "warm weather" odor sampling at the plant in mid-June and is currently working on other tasks to include (1) drafting a proposed definition of "successful/effective" odor elimination, (2) preparing a report of current industry standards and best management practices for odor control/elimination at wastewater plants with similar treatment processes, (3) assisting OWASA staff with new on-site monitoring equipment, (4) analyzing odor-related operations, (5) evaluating additional facility and/or operating improvements that may be needed to address unresolved odor issues, and (6) drafting a customer survey to obtain information that establishes current odor conditions to compare with future improved conditions, (7) continuing the discussion and sharing of information with wastewater plant neighbors. The odor study will be completed this fall, and all odor-related facility improvements will be completed by next summer (2007) as part of the overall wastewater plant expansion and upgrade.

Land Application of Biosolids – State regulations allow treated biosolids to be land applied as a soil amendment and fertilizer within water supply watersheds. The City of Burlington applies biosolids on several privately owned agricultural fields in the Cane Creek watershed, but OWASA has historically chosen not to do this within the Cane Creek or University Lake watersheds – not because of water quality risks, but due to concern about customer perceptions. We are now considering the land application of OWASA biosolids in our own watersheds in order to increase the operational flexibility and reduce the costs of our biosolids management program. OWASA staff believes that this would represent no additional risk to the quality of our water supply or the health and safety of nearby residents. Several property owners from the Cane Creek watershed objected to this proposal during a public comment session of the July 13, 2006 Board of Directors meeting. OWASA staff are currently gathering more information in response to those concerns and will propose next steps in the near future.

Reclaimed Water System – OWASA and the University are jointly developing a reclaimed water system to supply highly treated wastewater to certain UNC facilities. By

reducing the amount of drinking water used for non-potable purposes, the reclaimed water system will provide additional drought protection (total drinking water demand is expected to decrease by 10 to 15 percent when the system is fully implemented). The use of reclaimed water will reduce the amount of nutrients and other pollutants released from the Mason Farm WWTP to Morgan Creek. All OWASA customers will benefit from these improvements.

The reclaimed water project will be financially self-supporting. The University will fund all necessary capital improvements, and OWASA will recover all related production and overhead costs through reclaimed water rates and fees to be established per the rate study now underway. Specific funding responsibilities, including the basis for those new rates and fees, and other technical matters are detailed in a contract signed by OWASA and UNC in April 2006. OWASA has obtained a \$1.8 million grant from the North Carolina Clean Water Management Trust Fund to pay for engineering and design work, and Congressman David Price obtained an additional \$645,000 grant from the U.S. Environmental Protection Agency.

Final design and permitting of reclaimed water pumping, storage and pipeline facilities will be completed this winter. Construction is expected to begin next spring (2007). Town of Chapel Hill approval will be needed for some of these facilities. Of ongoing community interest is the route of the major reclaimed water transmission line to be installed in conjunction with OWASA's Meeting of the Waters sewer replacement in the **Old Mason Farm Road-Fordham Boulevard-Coker Pinetum area**. The route of the transmission main and sewer line in the **Pinetum-Fern Lane** area was approved by the OWASA Board in January 2006 after engaging nearby property owners and other stakeholders in a series of neighborhood meetings and Board discussions. These included:

- July 12, 2005 – Neighborhood Meeting
- September 28, 2005 – Neighborhood meeting and site walk by OWASA Board members
- October 13, 2005 – OWASA staff report to Board of Directors
- December 13, 2005 – Neighborhood Meeting
- January 12, 2006 – OWASA staff recommendation and approval by Board of Directors
- July 18, 2006 – Neighborhood Meeting

Additional neighborhood meetings to receive public comment on final project design are planned for October 2006 and early 2007. The overall reclaimed water project is expected to be completed in late 2008 or early 2009.

Meeting of the Waters Creek Sewer Replacement – As noted above, the OWASA Board selected the existing sewer line corridor through the **Coker Pinetum** as the preferred route for the Meeting of the Waters Sewer replacement and the Reclaimed Water Transmission Main projects. Planning and design work are underway. We will continue to keep the neighbors informed and will invite questions, comments, and suggestions throughout all planning, design, construction and site restoration phases of

these projects. Work is expected to be complete in late 2008 or early 2009 in conjunction with the reclaimed water pipeline discussed above.

Public Hunting on OWASA Land – After receiving extensive public comments early in 2005 – including supporting resolutions from Carrboro and Orange County – the OWASA Board requested the US Army Corps of Engineers to modify conditions of the 404 Permit under which the Cane Creek Dam and Reservoir construction were originally authorized. OWASA’s petition asked the Corps to formally recognize our land acquisition/conservation easement program in the Cane Creek watershed as “exemplary compliance with the primary goal of Wildlife Habitat Replacement required under the original Permit,” and to accept this program in lieu of any requirement for hunting on or near the Reservoir. We also offered to allow the NC Wildlife Resources Commission to implement a limited bow-hunting program for deer on OWASA’s 490-acre Mitigation Tract near Buckhorn Road. The Corps of Engineers has not issued a decision on OWASA’s request.

Increased Development Density and Demands for OWASA Services – In response to a request by the Chapel Hill Town Council, OWASA Board members and staff presented information to the Council in February 2006 about the effects of potential increases in allowable development density on OWASA’s ability to meet future water and wastewater service demands. Similar presentations were made to the Orange County Board of Commissioners and the Carrboro Board of Aldermen in March.

We reported that highly efficient water conservation technologies are available that can support increased development density with little or no net increase in water service demands. OWASA is now providing technical assistance to Carrboro, Chapel Hill, and Orange County staff identifying the best local options that can be implemented through review and approval procedures that already exist and other options that may require additional legislation.

Local Greenhouse Gas Inventory and Reduction Plan – On April 13, 2006, the OWASA Board adopted a resolution committing OWASA to participate with Carrboro, Chapel Hill, and Orange County in an interlocal initiative to reduce greenhouse gas emissions through the International Council of Local Environmental Initiatives (ICLEI) - Cities for Climate Protection Program. OWASA will provide utility-related information and technical support for the project and is pursuing membership in ICLEI. OWASA staff is participating on the interlocal Joint Staff Committee, which has selected 2002 and 2005 as baseline years for its greenhouse gas inventory. Next steps will be to propose model greenhouse gas reduction targets; to identify best practices for achieving those reductions; and to plan for a community forum. The inventory and reduction plan are scheduled for completion this winter.

Community Outreach Meeting – OWASA hosted its Second Annual Community Outreach Meeting in the Chapel Hill Town Hall on April 27, 2006. After a presentation of OWASA’s current and future water supply, demand projections, water reclamation

and conservation, and related items, the floor was opened for comments and questions from the public (there were none). Seven citizens and one newspaper reporter attended the meeting, which was televised live on local cable channels.

Capital Improvement Projects – OWASA’s capital improvements program includes a number of projects that will involve local permits and/or may affect local neighborhoods.

Two new pumps are being installed at OWASA’s existing **Stone Quarry Reservoir** to increase our raw water pumping capacity from 1 mgd to 6 mgd. Because this project will allow us to pump directly from our Quarry Reservoir to the Jones Ferry Road Water Treatment Plant (rather than from University Lake via Phil’s Creek), it will increase our operational flexibility and improve overall reliability during periods of drought or system maintenance.

Construction of a new water line on **Old Durham Road west of Interstate-40** was completed during the past year, and Special Use and Zoning Compliance Permits were obtained from the Town of Chapel Hill to construct a new water pump station near I-40. These improvements will increase our ability to transfer treated drinking water from the Durham system if necessary. Construction of the new booster pump station will begin this fall. We have also evaluated several properties near **Barbee Chapel Road and NC 54** for their suitability as sites for a future pump station that will reinforce OWASA’s interconnection with Durham. Although we are currently discussing the purchase of easement options from several property owners, actual construction of this pump station is not planned until 2016.

OWASA continues to replace aging water mains in order to maintain a high level of water service reliability. Replacement projects were completed during the past year in the **Old Oxford-Markham and Velma-Michauch Road neighborhoods, at Brookside Apartments, and on Willow Drive**. Additional water line replacement projects are currently underway in the **Colony Woods** neighborhood and are being designed for **NC 54 at Hatch Road** west of Carrboro. Further details are available on request.

A sewer project in Carrboro will also allow the **Lloyd Street and Starlite Drive pump stations** to be eliminated and will provide sewer service to several unserved properties in the neighborhood. Design and permitting have been completed, and OWASA staff is acquiring easements. Construction will begin this fall and will take several months to complete. The project will include some work in Carrboro’s Baldwin Park.

More than a mile of aging sewer lines will be replaced in a major project on portions of OWASA’s large interceptor sewer along **Bolin Creek between Estes Drive Extension and Martin Luther King, Jr. Boulevard**. Property owners in the area were notified by letter that we have begun planning this project. OWASA staff met with Friends of Bolin Creek representatives and the Town of Chapel Hill’s landscape architect to share information and receive comments. A preliminary engineering evaluation of alternative sewer alignments was completed and made available to stakeholders. Engineering design

began this past spring, and a detailed field survey was completed. The specific route of the sewer line is now being evaluated. OWASA staff will review the survey and alignment with Chapel Hill staff and coordinate, to the extent possible, with plans for the Town's Bolin Creek Trail project.

Another sewer line project (**Bolin Creek Basin Sewer Rehabilitation**) that began in March 2006 encompasses a larger portion of OWASA's service area than the interceptor project described above. Improvements are being made to sections of sewer mains with previously identified problems. The current project includes TV inspections, pipeline cleaning, and the addition of liners to reseal the insides of selected sewers. Some sections of sewer lines will be entirely replaced where necessary, and leaking/defective manholes will be repaired as needed. The project is scheduled for completion next spring (2007).

A sewer and water main replacement project along **East Main Street between Boyd Street and Brewer Lane** in Carrboro was completed in May 2006, and a contractor has been selected for another water and sewer rehab project at **Fetzer Lane at 206 West Cameron Avenue** in Chapel Hill. We expect to begin this project during the UNC semester break in December 2006 in order to minimize inconvenience to nearby residents.

The closing of OWASA's **Clayton Road sewer pump station** will include the installation of about 2,000 feet of new sewer line between **Clayton Road and Estes Drive west and south of the Chapel Hill Public Library**. Portions of this route will run through **Pritchard Park**, where the Town provided a sewer easement to OWASA several years ago in anticipation of the need for a sewer line. Final design revisions will reflect comments from the Town Council and discussions between OWASA and Chapel Hill staff. Permits have been obtained for Engineering, Zoning Compliance, Sedimentation and Erosion Control, as well as an Encroachment Agreement with NCDOT. OWASA staff has worked closely with Town staff to select a sewer route that maintains traffic access to the Library, minimizes tree removal and minimizes other local impacts to the extent possible. Construction will begin later this year.

Booth Road/Abbey Road Water Service Area/Water Pressure – Since its inception, OWASA provided water service to eight residential properties in the Booth Road/Abbey Road area just **south of Starpoint in Chatham County**. This neighborhood is subject to lower than desired water pressures due to its elevated topography. In February 2005 the OWASA Board decided that transferring the service of this area from OWASA to the Chatham County water system was the best option for improving pressure, and an agreement with the County was signed in February 2006. Design is nearly complete for a project that will extend a main line from the **Chatham County** water distribution system to serve these eight properties. Construction is expected to be completed this winter.

Credits to Developers Who Install Water or Sewer Infrastructure with More Capacity Than Is Needed for Their Projects – In response to requests from local governing boards, the OWASA Board adopted an Excess Capacity Credit Policy on March 9, 2006. This will provide credits to developers who are required to install lines or other facilities larger than what would have been needed for their development projects alone.

Carolina North – As has been reported previously, OWASA expects to meet the projected water and wastewater needs of Carolina North within the present scope of our long-range water/sewer and capital improvements plans. No new information was obtained during the past year to change our expectations about the utility demands of Carolina North. Our staff will continue to assist University staff and consultants as plans are developed in further detail. OWASA is represented on the University's Carolina North Leadership Advisory Council (LAC) by Board Member Randy Kabrick.

Annual Update of OWASA's *Comprehensive Water and Sewer Master Plan* – OWASA staff updated its *2001 Master Plan* with recent data, strategic trends, and commentary in October 2005. Printed copies and supporting graphics of the full update report are available on request from OWASA, or can be viewed online at <http://www.owasa.org/pages/MasterPlanRev05.pdf>.

KEY OWASA FACTS

JULY 1, 2005 – JUNE 30, 2006 (FY 06)

| Water Supply and Treatment | | FY 05 | FY 06 |
|--------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|--------------|
| Average Daily Raw Water Pumped from Reservoirs (Million Gallons Per Day = MGD) | | 8.5 | 8.7 |
| Peak Day Water Pumped from Reservoirs (MGD) | | 11.4 | 12.8 |
| Total Rainfall (Inches): <i>Jones Ferry Road Water Treatment Plant</i> 30 Year Average (through Dec 2005) = 47.5 inches | | 45.6 | 43.8 |
| Exceedances of Primary Drinking Water Standards | | 0 | 0 |
| Wastewater Collection and Treatment | | FY 05 | FY 06 |
| Average Daily Wastewater Treated (MGD) | | 8.2 | 7.5 |
| Reportable Sewer Overflows | | 10 | 2 |
| Exceedances of Treated Wastewater Quality Standards | | 1 | 1 |
| Financial | | FY 05 | FY 06 |
| Total Revenues (\$Million): | <i>Budget</i> | \$26.4 | \$28.2 |
| | <i>Actual</i> | \$24.7 | \$27.0 |
| Operations & Maintenance Expenditures (\$Million): | <i>Budget</i> | \$15.6 | \$15.8 |
| | <i>Actual</i> | \$14.3 | \$14.9 |
| Capital Improvements Expenditures (\$Million): | <i>Budget</i> | \$34.2 | \$31.7 |
| | <i>Actual</i> | \$28.6 | \$20.6 |
| Debt Service Coverage Ratio (1.2 required) | | 1.4 | 1.4 |
| Water Meter Connections | | 19,433 | 19,993 |
| Average monthly bill for 6,000 gallon/month for residential customer, water and sewer | | \$56.45 | \$59.88 |

Note: OWASA has established a Performance Measurement Report which currently tracks more than 150 performance indicators covering all aspects of OWASA's operations and business functions.

ADDENDUM TO OWASA'S REPORT IN SEPTEMBER, 2006

ADDITIONAL INFORMATION REGARDING OWASA'S
ODOR ELIMINATION PROGRAM
AT THE MASON FARM WASTEWATER TREATMENT PLANT (WWTP)

SUMMARY

- ✓ In March, 2004, the OWASA Board of Directors formally adopted a goal of eliminating off-site objectionable odors from the Mason Farm Wastewater Treatment Plant.
- ✓ OWASA has contracted with the consulting engineering firm of Black & Veatch to do an odor study at the WWTP. This study will help in developing a definition of successful odor elimination and will provide information about odor solutions at other treatment plants like OWASA's, as well as providing recommendations for additional odor control improvements by OWASA and related technical help.
- ✓ In late September or early October, 2006, our contractor for the overall WWTP improvement project will likely complete the installation of new, aboveground pipes to carry foul air away from our solids digesters. This past winter, OWASA staff found that restrictions in the existing underground gas piping near the digesters are a cause of odor releases.
- ✓ Our contractor for WWTP improvements is scheduled to complete, by the summer of 2007, the construction and covering of a new "headworks" facility, where wastewater enters our plant, in order to address an odor source that was identified in the planning of the WWTP improvements. Enclosing the headworks, so that foul air from this facility will be captured and treated in an odor scrubber, is now our highest priority for odor elimination.

Background. In May, 2004, following approval of a Special Use Permit Modification by the Chapel Hill Town Council, the Pizzagalli Construction Co. began a three-year, \$50 million improvement project at the Mason Farm Wastewater Treatment Plant. The improvements include odor-related modifications, expansion of the plant's capacity, enhancements in wastewater treatment processes and additional back-up power to increase our reliability during storms and other conditions that may affect normal electrical supply.

**ODOR-RELATED IMPROVEMENTS COMPLETED AND OTHER ACTIONS
IMPLEMENTED IN THE LAST YEAR**

New cover structures for solids digesters. In late November, 2005, the contractor completed on schedule the installation of new, fixed cover structures on our four "solids digesters." The digesters are tanks where we treat solids removed from wastewater and convert them into biosolids for recycling on farmland. The installation of new cover structures was a very high priority because previously, the covers moved up and down and odor was released from the gap between the cover and the inside of the digester wall. The new cover structures have a perimeter seal as well as being fixed in place.

Odor Elimination Compliance Monitoring Program. In accord with the OWASA Odor Elimination Compliance Monitoring Program developed in October 2005, the WWTP operators perform an on-site investigation of various treatment process units to determine whether odors are being generated that could have an off-site impact. The odor reviews are done at the beginning of a plant operator's shift because of the potential for the operator to become less sensitive to odor over the course of a shift.

From May through July, 2006, the WWTP operators conducted 273 investigations to evaluate the degree of odor being generated, if any, along the perimeter of the plant property. (Please see the enclosed map, Attachment 1). The records maintained by the operators show that odor was detected primarily in the areas of the headworks and digesters (sites 7 and 8 on the map).

Attachment 2 summarizes the regular on-site odor monitoring and number of odor detections by the WWTP operators from May through July at nine locations. Based on the very small number of times when our operators characterized on-site odor as strong, and because we investigate off-site odor reported by WWTP neighbors, we have not done off-site odor checks when our operators find on-site odor.

In addition to the operators' "sniff tests," OWASA purchased three hydrogen sulfide odor monitors (OdaLogs) for use in determining the concentration and duration of hydrogen sulfide (H₂S) events at various process units to better understand the pattern of hydrogen sulfide odor levels. Hydrogen sulfide, the most common odorous gas in the wastewater system, has a rotten egg smell.

Two of the OdaLog monitors are portable and have been in use since March, 2006. The third will be installed in the vicinity of the digesters upon completion of the current WWTP improvements. This odor monitoring unit will be connected to the WWTP monitoring and control system.

To date, our in-house monitoring with the OdaLogs has shown that the highest level of hydrogen sulfide gas is present at the headworks, where wastewater enters the WWTP. A new headworks, scheduled to be completed by the summer of 2007, will be enclosed as discussed below.

Monitoring has shown that the sulfide levels at the headworks normally begin to increase early in the evening, continue at elevated levels through midnight and dissipate early the following morning. Attachment 3 shows the 10 highest hydrogen sulfide readings from June 30 through July 3, 2006. The daily pattern of hydrogen sulfide levels on July 3 and 4 is shown graphically in Attachment 4.

WORK NOW UNDERWAY

Replacement of pipes that carry foul air away from our solids digesters. In the winter of 2006, OWASA staff determined that restrictions in the existing underground gas piping near the digesters were the cause of several reported odor releases. Based on this knowledge, we proceeded with the design and selected a contractor, Crowder Construction, to install new, aboveground gas pipes.

Installation of aboveground pipes to carry foul air away from the digesters began in late June, 2006 and will likely be complete in late September or early October, 2006. However, weather and other conditions can affect the progress of work.

Odor study by consulting engineers. This spring, we contracted with the consulting engineering firm of Black & Veatch for an odor study at the WWTP including the following:

1. Researching methods used to successfully resolve odor problems at wastewater treatment plants that are similar to the Mason Farm WWTP.
2. Researching industry standards and best practices to help OWASA and our WWTP neighbors in developing an operational definition of successful odor elimination.
3. Taking samples of air from various points at our WWTP to identify odor sources and help develop recommendations for further odor elimination action in addition to those already scheduled to be done by Pizzagalli Construction.
4. Providing technical assistance and guidance to OWASA staff in using odor monitoring equipment.
5. Analyzing odor-related WWTP operations.
6. Recommending additional facility and/or operating improvements that may be needed to address unresolved odor issues.

Black & Veatch began work on the odor study in June 2006 with the collection of air samples from several process units. The consultant's report covering the odor sampling, industry standards for odor control and effective odor elimination methods is due in mid-September 2006. We will share this information with our neighbors and plan to schedule a community meeting in late September. The meeting date will be set in consultation with neighborhood representatives.

UPCOMING WORK

Defining successful odor elimination

We anticipate that the community meeting in late September will include discussion of items including:

- ✓ developing a definition of successful odor elimination for the OWASA WWTP,
- ✓ effective odor elimination practices at similar WWTPs in other communities, and
- ✓ results of air sampling from various locations at the WWTP.

Evaluation of additional possible improvements based on findings of the odor study

Based on information received to date from the consultants, we plan to evaluate possible additional improvements such as:

- ✓ covering the exposed holding tanks at two pump stations in the interior of the WWTP site,
- ✓ covering or enclosing devices called “splitter boxes” where wastewater from the headworks is channeled to solids settling tanks called “primary clarifiers,” and
- ✓ addressing other odor sources that may be identified as priorities for action.

IMPROVEMENTS SCHEDULED FOR COMPLETION IN THE SUMMER OF 2007

Under our contract with Pizzagalli Construction, the odor-related work to be completed by the summer of 2007 will include:

- ✓ Replacing and enclosing the “headworks,” where wastewater enters the WWTP and undergoes preliminary treatment such as removal of debris and grit. The present headworks is open to the air and is an odor source that we identified in planning the present WWTP improvement project in 2002-03. (As noted above, installation of new cover structures at our solids digesters was a very high priority for odor control.) Foul air from the headworks, when it is enclosed, will be treated in equipment called an “odor scrubber” that we installed in 2003.

Enclosing the headworks and treating the air is our highest priority at this time to address odors. Our contractor is on schedule to complete the headworks enclosure work by next summer.

- ✓ Installation of a system to remove foam which floats to the surface at the WWTP “aeration basins” and which can be a source of odor. The aeration basins are involved in biological treatment of wastewater.

COMMUNICATIONS WITH CUSTOMERS

Optional odor survey for interested citizens

As part of the contract for the odor study by Black & Veatch, we had the consultants draft a mail-in survey form to give several hundred WWTP neighbors within 4,000 feet of our plant a formal opportunity to give us feedback about odor experienced this year and in the past. However, several stakeholders/representatives of neighborhood organizations in the WWTP area advised us that they felt the survey would have limited value. We therefore distributed a letter by e-mail and conventional mail inviting any stakeholders who are interested to give us comments and feedback through a survey form that is available on the homepage of the OWASA website (www.owasa.org) and available by paper mail on request.

WWTP Odor Hotline (537-4376)

In 2004, we set up a 24-hour odor hotline (537-4376) which we encourage citizens to use to report odor to us as soon as it is noticed.

Summary of odor reports from citizens and e-mails from OWASA to citizens

Attachments 5 through 7 summarize odor reports we received and our communications to stakeholders, primarily by e-mail.

As shown in Attachment 6, the number of odor reports from WWTP neighbors to date in 2006 (59) is higher than in the years since 2002, when we began tabulating odor reports. We did not expect this increase given odor control improvements completed in 2005. However, the increase reinforces the importance of the odor elimination program and the need to diligently pursue it.

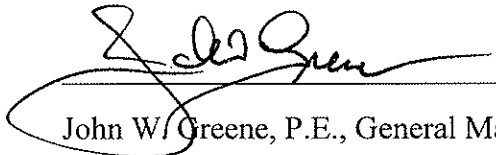
Attachment 8 is the list of customers to whom we send notices by e-mail.

CONCLUSION

We look forward to continuing our discussions with WWTP neighbors and other interested stakeholders including Town representatives.

We welcome comments on this report and would be glad to respond to any questions.

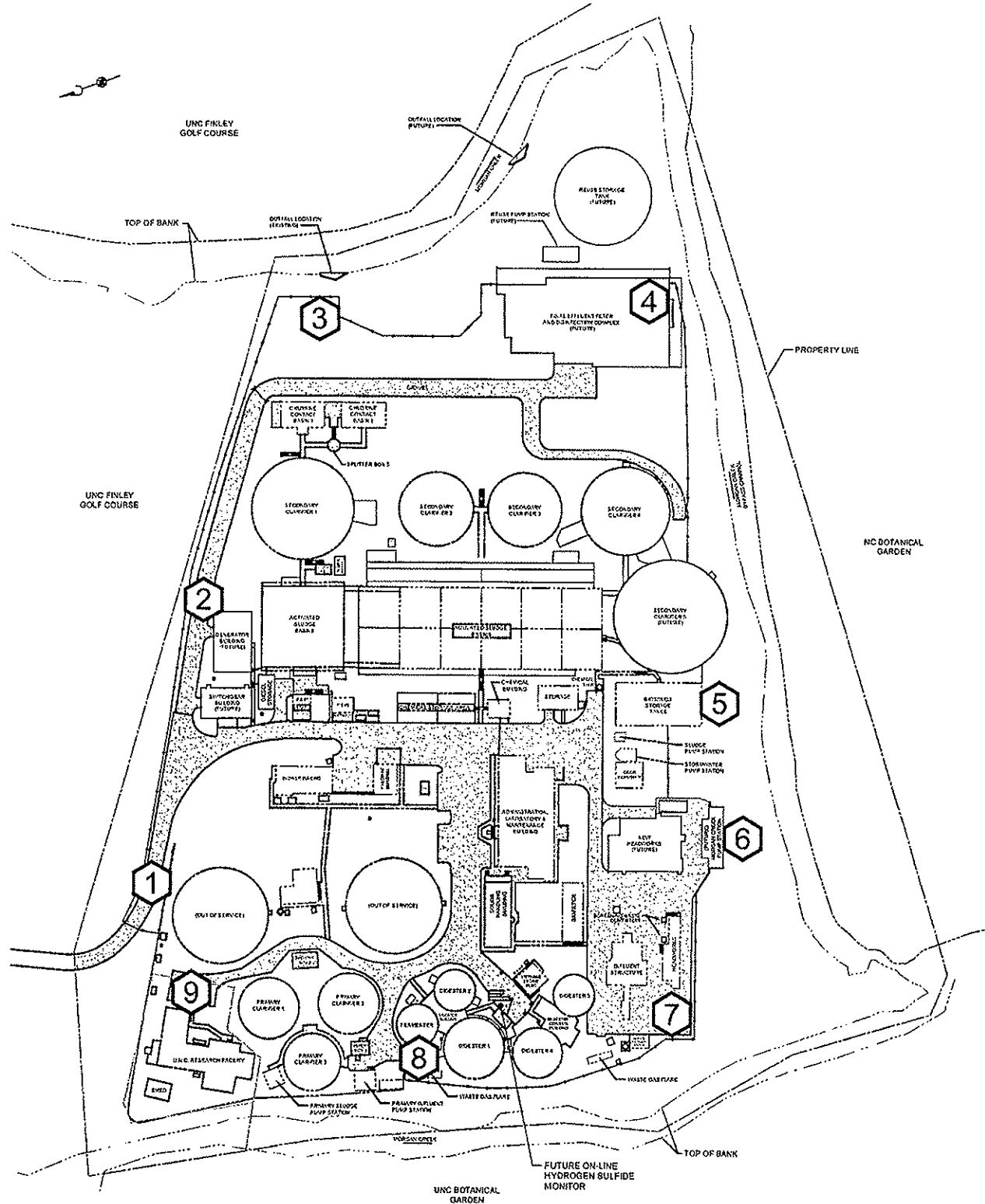
Submitted by



John W. Greene, P.E., General Manager of Operations

Attachments:

1. Map of WWTP on-site odor monitoring locations
2. Summary of on-site odor inspections and number of times odor was detected at the various monitoring sites
3. Peak hydrogen sulfide (H₂S) levels recorded at the WWTP headworks by time of day, June 30 - July 3, 2006
4. Pattern of hydrogen sulfide levels at the WWTP Headworks
5. Monthly summary of calls and e-mails to OWASA from neighbors reporting odor in the Mason Farm Wastewater Treatment Plant area, January, 2002 - August, 2006
6. Log of dates and times of calls and e-mails to OWASA by neighbors reporting odor in the Mason Farm Wastewater Treatment Plant area
7. Log of e-mails and a letter from OWASA to neighbors of the Mason Farm Wastewater Treatment Plant
8. Distribution list for OWASA e-mails about odor releases from the Mason Farm Wastewater Treatment Plant, and related items



**SUMMARY OF ON-SITE ODOR INSPECTIONS
AND NUMBER OF TIMES ODOR WAS DETECTED AT THE VARIOUS MONITORING SITES**

| Month and year | Total Inspections | Entrance Gate (1) | Generator Bldg. (2) | Old Outfall (3) | UV Complex (4) | Solids Tanks (5) | Scrubber (6) | Head- works (7) | Digesters (8) | UNC Bldg. (9) |
|-------------------|----------------------|-------------------------|---------------------------|-----------------------|----------------------|------------------------|-----------------|-----------------------|------------------|---------------------|
| May 06 | 91 | 15 | 10 | 3 | 0 | 12 | 8 | 22 | 26 | 15 |
| June 06 | 87 | 10 | 10 | 0 | 0 | 14 | 0 | 22 | 19 | 18 |
| July 06 | 95 | 18 | 15 | 0 | 0 | 13 | 1 | 15 | 12 | 8 |
| Totals | 273 | 43 | 35 | 3 | 0 | 39 | 9 | 59 | 57 | 41 |
| % | -- | 15% | 12% | 1% | 0% | 14% | 3% | 21% | 20% | 14% |

Notes:

1) All but six (6) odor events were characterized by the WWTP Operators as “Mild” with odors that would not be expected to create an off-site problem.

2) “Strong” odors were detected by the WWTP Operators on the following dates:

May 12-1:00 AM
May 25-1: 30 AM *
May 25-7:45 AM
May 29-10:00 AM
June 8 -1:00 AM *
July 14-1:00 AM

*** An asterisk indicates a date when WWTP neighbor(s) reported odor at about the same time.**

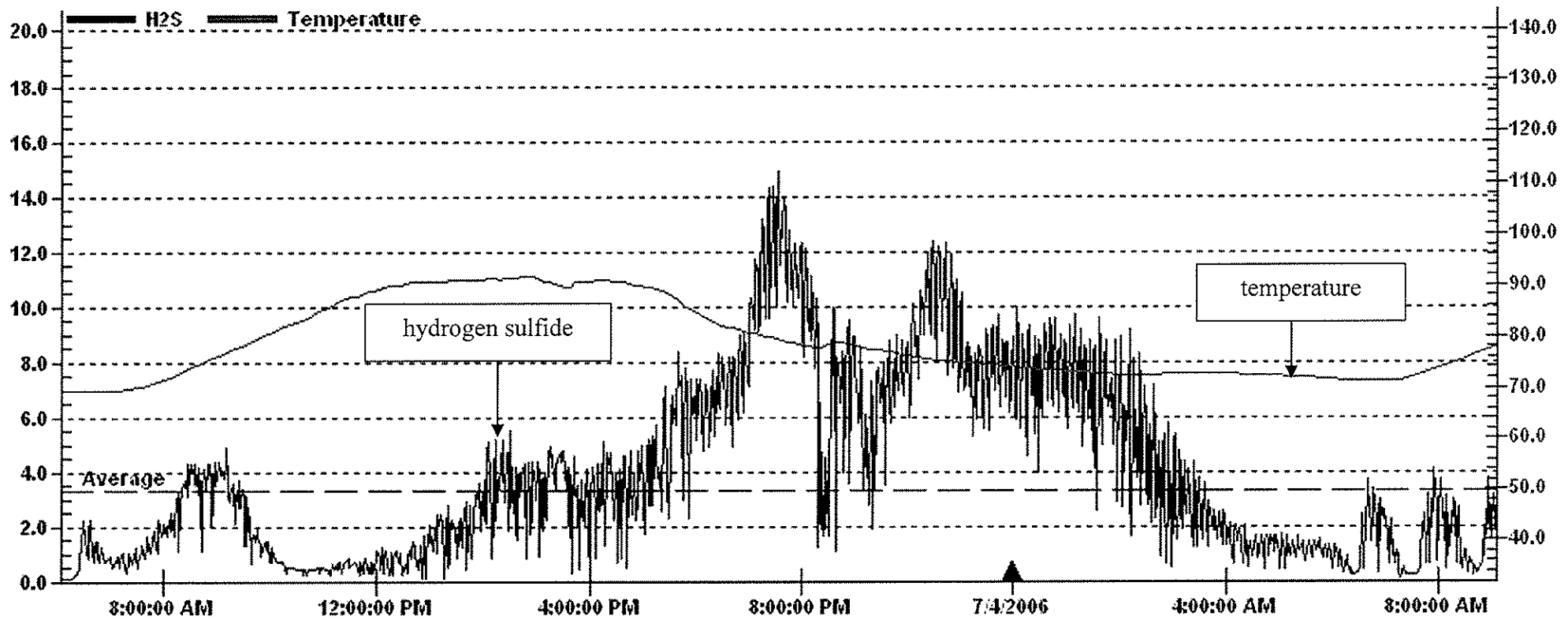
Attachment 3

Peak hydrogen sulfide (H₂S) levels recorded at the WWTP headworks
 by time of day, June 30 - July 3, 2006

| DATE | TIME | H ₂ S LEVEL | DATE | TIME | H ₂ S LEVEL |
|-----------|----------|---------------------------|----------|----------|---------------------------|
| 6/30/2006 | 5:00 PM | 7.6 | 7/1/2006 | 12:30 AM | 8.3 |
| 6/30/2006 | 6:00 PM | 6.5 | 7/1/2006 | 1:00 AM | 8.6 |
| 6/30/2006 | 6:30 PM | 8.9 | 7/1/2006 | 6:30 PM | 9.7 |
| 6/30/2006 | 7:30 PM | 10.6 | 7/1/2006 | 7:00 PM | 10.6 |
| 6/30/2006 | 8:00 PM | 7.6 | 7/1/2006 | 7:30 PM | 7.0 |
| 6/30/2006 | 8:30 PM | 5.3 | 7/1/2006 | 8:00 PM | 8.2 |
| 6/30/2006 | 9:00 PM | 5.6 | 7/1/2006 | 8:30 PM | 7.6 |
| 6/30/2006 | 10:00 PM | 6.6 | 7/1/2006 | 9:00 PM | 8.5 |
| 6/30/2006 | 10:30 PM | 6.9 | 7/1/2006 | 10:30 PM | 7.2 |
| 6/30/2006 | 11:30 PM | 4.7 | 7/1/2006 | 11:30 PM | 8.5 |

| DATE | TIME | H ₂ S LEVEL | DATE | TIME | H ₂ S LEVEL |
|----------|----------|---------------------------|----------|----------|---------------------------|
| 7/2/2006 | 12:00 AM | 8.1 | 7/3/2006 | 12:30 AM | 7.8 |
| 7/2/2006 | 12:30 AM | 7.7 | 7/3/2006 | 6:00 PM | 7.3 |
| 7/2/2006 | 2:00 AM | 9.1 | 7/3/2006 | 6:30 PM | 8.1 |
| 7/2/2006 | 6:30 PM | 11.2 | 7/3/2006 | 7:30 PM | 11.4 |
| 7/2/2006 | 7:30 PM | 10.6 | 7/3/2006 | 8:00 PM | 8.6 |
| 7/2/2006 | 8:00 PM | 8.5 | 7/3/2006 | 9:00 PM | 7.4 |
| 7/2/2006 | 8:30 PM | 7.9 | 7/3/2006 | 10:00 PM | 7.6 |
| 7/2/2006 | 9:30 PM | 8.0 | 7/3/2006 | 10:30 PM | 10.7 |
| 7/2/2006 | 10:30 PM | 9.0 | 7/3/2006 | 11:00 PM | 9.8 |
| 7/2/2006 | 11:30 PM | 11.4 | 7/3/2006 | 11:30 PM | 8.8 |

Pattern of Hydrogen Sulfide Levels at the WWTP Headworks
by time of day; with ambient air temperatures, July 3-4, 2006



Period Displayed: 7/3/2006 - 7/4/2006 Oda File: 20060710_OL04036026_01.oda -- Serial Number: OL04036026)

Average 3.2PPM Day Transition Min 0.0PPM Max 14.8PPM

Attachment 5

Monthly summary of calls and e-mails to OWASA from neighbors reporting odor in the
 Mason Farm Wastewater Treatment Plant area

January, 2002 through August, 2006

| | 2002 | 2003 | 2004 | 2005 | 2006 |
|---------------|-----------|-----------|-----------|-----------|-----------------------------|
| January | 11 | 3 | 9 | 0 | 8 |
| February | 7 | 5 | 2 | 0 | 8 |
| March | 9 | 0 | 7 | 1 | 10 |
| April | 9 | 2 | 4 | 0 | 9 |
| May | 6 | 0 | 2 | 5 | 8 |
| June | 4 | 1 | 1 | 1 | 5 |
| July | 1 | 0 | 2 | 0 | 0 |
| August | 1 | 0 | 4 | 3 | 11 |
| September | 2 | 5 | 2 | 2 | |
| October | 2 | 6 | 1 | 1 | |
| November | 0 | 0 | 1 | 7 | |
| December | 3 | 3 | 2 | 5 | |
| TOTALS | 55 | 25 | 37 | 25 | 59 (year to date) |

Log of dates and times of calls and e-mails to OWASA by neighbors
reporting odor in the Mason Farm Wastewater Treatment Plant area, April-August, 2006

| When odor was noticed | | Odor location |
|-----------------------|----------|-------------------------|
| date | time | |
| 4/1/2006 | Midnight | Woodbine Drive |
| 4/2/2006 | 10:00 PM | Woodbine Drive |
| 4/2/2006 | 10:15 PM | Highland Woods |
| 4/2/2006 | 10:15 PM | Highland Woods |
| 4/3/2006 | 10:01 PM | Highland Woods |
| 4/8/2006 | Midnight | Kings Mill Road |
| 4/10/2006 | 7:30 PM | Highland Woods |
| 4/21/2006 | 8:15 AM | Highland Woods |
| 4/23/2006 | 11:30 AM | Finley Golf Course |
| 5/4/2006 | 8:14 PM | Highland Woods |
| 5/5/2006 | 8:02 AM | Highland Woods |
| 5/5/2006 | 8:14 PM | Highland Woods |
| 5/10/2006 | 10:09 PM | Highland Woods |
| 5/16/2006 | 10:30 PM | Highland Woods |
| 5/18/2006 | 8:10 PM | Highland Woods |
| 5/17/2006 | 9:28 PM | Highland Woods |
| 5/24/2006 | 10:35 PM | Highland Woods |
| 6/4/2006 | 12:30 AM | Finley Golf Course Road |
| 6/8/2006 | 10:26 PM | Highland Woods |
| 6/12/2006 | 10:26 PM | Highland Woods |
| 6/17/2006 | 10:02 PM | Highland Woods |
| 6/22/2006 | 9:38 PM | Highland Woods |
| 8/1/2006 | 8:00 PM | Highland Woods |
| 8/2/2006 | 8:00 PM | Highland Woods |
| 8/2/2006 | 1:55 AM | Highland Woods |
| 8/3/2006 | 10:20 PM | Highland Woods |
| 8/13/2006 | 10:30 PM | Highland Woods |
| 8/24/2006 | 5:00 PM | Highland Woods |
| 8/24/2006 | 9:19 PM | Highland Woods |
| 8/25/2006 | 9:00 AM | Highland Woods |
| 8/25/2006 | 8:05 PM | Highland Woods |
| 8/26/2006 | 5:55 PM | Old Mason Farm Road |
| 8/28/2006 | 8:43 PM | Highland Woods |

Log of e-mails and a letter from OWASA
to neighbors of the Mason Farm Wastewater Treatment Plant
and the Town of Chapel Hill
in advance of expected odor releases and regarding related items,
May - August, 2006

(All items below were distributed by e-mail except the e-mail/letter sent on August 30 and 31.)

| Date | Comments |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| May 5 | Notice and copy of OWASA's quarterly report to the Chapel Hill Town Council for May 8 th Council meeting. |
| May 5 | Notice of odor release that occurred on May 5 th . |
| May 8 | Notice that the OWASA Board's agenda for May 11 th will include consideration of the proposed odor study scope. |
| May 10 | Notice of odor release that occurred on May 10. |
| May 16 | Notice of odor release that occurred on May 16. |
| May 18 | Notice of OWASA Board's approval of odor study scope on May 11. |
| May 19 | Notice about replacement of a leaking foul air pipe and potential odor releases on Monday, May 22 nd . |
| June 7 | Notice regarding expected odor releases due to of pending air sampling at potential odor sources; invitation to community meeting on June 12 regarding plans for the odor study. |
| June 21 | Notice regarding early morning work planned for June 22 (grouting work at new tank called a "clarifier"); no odor release expected. |
| June 23 | Notice regarding status of project to replace gas handling pipes, which carry foul air away from solids digesters; and notice of expected odor releases on June 26 th during 8-hour shutdown of solids digester. |
| July 5 | Notice of gas handling pipe connection work on July 6 and potential odor releases in a 2-hour period. |
| July 18 and 19 | Notices regarding expected odor releases on July 18 and 19 due to start-up of a treatment process gas handling replacement work. |
| July 25 | Notice regarding odor releases expected due to gas handling project work on July 26 and following days into the week of July 31. |
| July 31 | Notice regarding status of odor study. |
| August 18 | Note to representatives of the Highland Woods, Laurel Hill, Reserve and Morgan Creek neighborhoods and North Carolina Botanical Garden about the status of the odor study including plans for a survey of customers. |
| August 21 | Note to representatives of the Highland Woods, Laurel Hill, Reserve and Morgan Creek neighborhoods and North Carolina Botanical Garden requesting comments on the draft customer survey. |
| August 25 | Notice of odor release that occurred. The "headworks" where wastewater enters the WWTP was the likely odor source. |

| Date | Comments |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| August 28 | Follow-up note to representatives of the Highland Woods, Laurel Hill, Reserve and Morgan Creek neighborhoods and North Carolina Botanical Garden regarding plans for an update to neighbors within 4,000 feet of the WWTP including availability of an odor survey for use by interested stakeholders. |
| August 30-31 | E-mail and paper letter distributed to stakeholders within 4,000 feet of the WWTP and to Town and University representatives regarding overall status of odor-related work including consultant's odor study, plans for a community meeting in late September 2006, optional feedback survey, odor control improvements to be done by summer of 2007 at the headworks, etc. |

Distribution list for OWASA e-mails about odor releases from the Mason Farm
Wastewater Treatment Plant and related items (as of August 31, 2006)

| AREA | NAME |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Highland Woods | Joy Javits, President, Highland Woods Association Gary Richman Peg Parker Barnes Bierck Kay Johnson Reed Johnson Robert and Melissa Porter Rex Bartles Dan Pollitt Fred Hall Malcolm Forbes Nortin and Carol Hadler Frank P. Rexford Christina and Rex Page Ed Ludwig Alice W. Neebe Paul Neebe Anna K. Schwab Mary Helen and Donald Hayman |
| Finley Forest | Adam Kimple Cindy Underwood Dan Puckett Donna Kaye Linda Vaughn David J. Polewka Kathryn Conard |
| Laurel Hill Road area | Bob Wendell, President, Laurel Hill Association Bob Stipe Phyllis Barrett Carol David Pat Evans Ewan Rodewald and Sharon Hodge Joe Ferrell Dr. Sian Kwa Marcella and Paul Grendler Carolyn Goldfinch Carol Hazard and Winston Liao Dick and Marie Clark Kay Goldstein |

| | |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| St. Thomas More Church and School | Ann Wilson St. Thomas More staff |
| Morgan Creek area | Stefanie McAdoo Carlos Lima Ellen Johnson Betsy Malpass Hanson Malpass Robert Ferrier Laura K. Moore Jeanne Langley John Pendergrass A.W. Carr Gary Glish Shelly Day |
| Ronald McDonald House Reserve | Steve McPhail, President, Hunt's Reserve Homeowners Karen Hussey Doug Longman Susan Frye Jeanne & David Jarrett Nadine O'Malley Mark Witcher |
| Bayberry Drive area UNC | William Ware Jim Ward—NC Botanical Garden office Jim Ward--home Peter White, NC Botanical Garden Johnny Randall, NC Botanical Garden Carolyn Elfland, Assoc. Vice Chancellor for Campus Services Ray DuBose, Energy Services Director Margaret Holton, Water, Sewer & Stormwater Engineer Peter Reinhardt, Environment, Health and Safety Brent Webber, Environment, Health and Safety Ross Fowler, Finley Golf Course Willie Scroggs, Department of Athletics Michael Wilkinson, Finley Golf Course pro John Inman, Men's Golf Coach Sally Austin, Women's Golf Coach Aaron Bednar, Public Safety UNC Tennis Center UNC parking Mike McFarland, Corporate Relations Scott Ragland, Corporate Relations Lisa Katz, Corporate Relations Linda Convissor, Corporate Relations |

| | |
|----------------------------|-----------------------------------------------------------------------|
| | Jonathan Howes, Corporate Relations |
| | Married Student Housing Manager |
| | UNC Farm (Faculty Staff Recreation Association) staff |
| | Steve Reznick, UNC Farm Assoc. President |
| | Jim McAdams, Energy Services |
| | Jim Alty, Facility Services |
| | Steve Bryant, Facilities Management |
| | Cameron Smith, Construction Management |
| UNC Hospitals | Mel Hurston, Senior Vice President |
| | Lynn Wooten, Corporate Relations |
| | Karen McCall |
| | Chad Lefteris |
| Town of Chapel Hill | W. Calvin Horton, Town Manager (<i>Roger Stancil as of Sept. 1</i>) |
| | Florentine A. Miller, Deputy Town Manager |
| | Bruce Heflin, Asst. Town Manager |
| | Ralph Karpinos, Town Attorney |
| | Bill Letteri, Public Works Director |
| | Richard Terrell, Public Works Operations Supt. |
| | Greg Ling, Street Supervisor |
| | Robert Sykes, Public Works |
| | Dan Jones, Fire Chief |
| | Robert Bosworth, Deputy Fire Chief |
| | Gregg Jarvies, Police Chief |
| | Jane Cousins, Police Planner |
| | Bob Overton, Police Captain |
| | Brian Curran, Police Captain |
| | George Small, Town Engineer |
| | Larry Tucker, Engineering |
| | Kurt Neufeng, Transit |
| | Kathryn Spatz, Parks and Recreation Director |
| | Ted Hobgood, Manager's Office |
| | Catherine Lazorko, Town Information Officer |
| | Lance Norris, Inspections |
| | Jennie Bob Culpepper, Planning Director |
| | Phil Mason, Planner |
| | Kumar Neppalli, Traffic Engineer |
| | Sabrina Oliver, Town Clerk |
| | Sandy Cook, Deputy Town Clerk |
| City Schools | Neil Pedersen, Superintendent |
| | Steve Scroggs |
| | Bill Mullin |
| Orange County | Jack Ball, Emergency Services Director |
| | Orange 911 Center Supervisor on duty |
| | Mike Tapp, Fire Marshall |
| | Ron Holdway, Environmental Health |
| Other Utilities | Scott T. Gardner, Duke Energy |

Other

Steve Small, Duke Energy
Billy Miller, PSNC Energy
Time Warner Cable
Troy Ellis, BellSouth
Aldersgate Methodist Church c/o Deil Wright
Aurora Restaurant
Meadowmont Apts.
Dave Hill, Meadowmont Homeowners Assoc.
Mike Angelli, Pizzagalli Construction
Pat Porter, Oaks Condominiums Owners Assoc
Vanessa Blackwood-Spinks, Glen Lennox Apts. Mgr.
Chamber of Commerce