Council Meeting: November 16, 2010

SUBJECT: Award of Contract for Technical Assistance for the Mode 1 Operational Trial at the Water Pollution Control Plant (F1010-37) and Approval of Budget Modification No. 19

REPORT IN BRIEF
Approval is requested to award a contract to Brown and Caldwell, of Walnut Creek, in an amount not to exceed $118,323 for technical assistance for the Mode 1 Operational Trial at the Water Pollution Control Plant. Approval is also requested for Budget Modification No. 19 to provide funding for this project.

BACKGROUND
The City’s National Pollutant Discharge Elimination System (NPDES) permit for discharge from the Water Pollution Control Plant requires that it reduce ammonia levels for discharge to the Bay. The level of reduction required was a significant point of discussion during negotiations for the most recent permit, which was issued in late 2009. Ammonia levels in discharges to waterways from treatment plants is a topic currently being discussed at the national level.

As with any regulated constituent, ammonia limits included in the City’s permit could change in the future. In order to fully ascertain the capabilities of the City’s existing treatment facilities to reduce ammonia levels, an operational study is being recommended. The study will look at alternative ways of operating the existing facilities. These operational alternatives were included as part of the original design of the plant, but have not been utilized in any ongoing way because the selected method has functioned well to meet permit requirements to date.

DISCUSSION
This project will operate the plant in Mode 1 configuration, which reorders some of the steps in the Tertiary stage of the wastewater treatment process in order to assess potential ammonia reduction. It is estimated that the trial will run one full year to assess the Mode 1 operation under various seasonal loads.

A scope of work for technical assistance during the trial was prepared by Environmental Services staff. Plant staff will continue to operate the facility, including changes in operations required by the study, while the technical consultant selected will provide operational guidance and trouble-shooting (if needed), analysis of the data collected during the study, and a determination, based on the firm’s specialized wastewater model, of whether the Sunnyvale facility can achieve ammonia removal levels comparable to other facilities with...
similar technology. The proposed scope of work was developed in conjunction with the pre-qualification process established at the outset of the Sunnyvale Works! program. The scope was sent to five engineering firms pre-qualified in the Wastewater Collection and Storm Drainage Service Category. One responsive proposal was received, from Brown and Caldwell in the amount of $107,566. A 10% project contingency in the amount of $10,757 is also recommended.

The proposed Brown and Caldwell project team utilizes the services of design/process engineers who are world-recognized experts in the removal of ammonia using the type of processes in use at the Sunnyvale Water Pollution Control Plant. Brown and Caldwell’s expertise will provide valuable information as the City looks to move forward with long term capital infrastructure plans for the plant.

**FISCAL IMPACT**

The total cost of the project is $118,323. Staff has completed several wastewater projects under budget and has proposed to return those funds to reserve through the project carryover process currently underway. As a result, staff recommends approval of Budget Modification No. 19 to appropriate $118,823 from the Wastewater Capital and Infrastructure Reserve to a new project to fund the needed work. Approximately $800,000 in funds will be returned through the carryover process, exceeding the funds needed to complete this project. Therefore there will be no impact to planned wastewater utility rates. Details on the project carryovers will be provided with the FY 2009/2010 Budgetary Year End Financial Report to Council.

<table>
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<th>Budget Modification No. 19</th>
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PUBLIC CONTACT
Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's Web site.

RECOMMENDATION
It is recommended that Council:

1. Award a contract to Brown and Caldwell, in substantially the same form as the attached draft Consultant Services Agreement and in an amount not to exceed $107,566 for technical assistance for the Mode 1 Operational Trial at the Water Pollution Control Plant;
2. Approve a project contingency in the amount of $10,757; and
3. Approve Budget Modification No. 19 to provide funding for this project.

Reviewed by:

Grace K. Leung, Acting Director, Finance
Prepared by: Pete Gonda, Purchasing Officer

Reviewed by:

Marvin Rose, Director of Public Works

Approved by:

Gary M. Luebbers
City Manager

Attachments
A. Draft Consultant Services Agreement
CONSULTANT SERVICES AGREEMENT BETWEEN CITY OF SUNNYVALE AND BROWN AND CALDWELL FOR TECHNICAL ASSISTANCE FOR THE MODE 1 OPERATIONAL TRIAL AT THE WATER POLLUTION CONTROL PLANT

THIS AGREEMENT dated ______________________________ is by and between the CITY OF SUNNYVALE, a municipal corporation ("CITY"), and BROWN AND CALDWELL ("CONSULTANT").

WHEREAS, CITY desires to secure professional services necessary for investigation, analysis, consultation, services during operations, reporting and other services for a project known as Mode 1 Operational Trial at the Water Pollution Control Plant; and

WHEREAS, CONSULTANT represents that it, and its sub-consultants, if any, possess the professional qualifications and expertise to provide the required services and are licensed by the State of California to practice engineering in the required disciplines;

NOW, THEREFORE, THE PARTIES ENTER INTO THIS AGREEMENT.

1. Services by CONSULTANT

CONSULTANT shall provide services in accordance with Exhibit "A" entitled "Scope of Work." All exhibits referenced in this Agreement are attached hereto and are incorporated herein by reference. To accomplish that end, CONSULTANT agrees to assign Lloyd Slezak, P.E. to this project, to act in the capacity of Project Manager and personally direct the professional services to be provided by CONSULTANT.

Except as specified in this Agreement, CONSULTANT shall furnish all technical and professional services, including labor, material, equipment, transportation, supervision and expertise to perform all operations necessary and required to satisfactorily complete the services required in this Agreement.

2. Notice to Proceed/Completion of Services

(a) CONSULTANT shall commence services upon receipt of a Notice to Proceed from CITY. Notice shall be deemed to have occurred three (3) calendar days after deposit in the regular course of the United States mail.

(b) When CITY determines that CONSULTANT has satisfactorily completed the services defined in Exhibit "A," CITY shall give CONSULTANT written Notice of Final Acceptance, and CONSULTANT shall not incur any further costs hereunder. CONSULTANT may request this determination of completion when, in its opinion, it has satisfactorily completed the Scope of Work (Exhibit "A"), and if so requested, CITY shall make this determination within fourteen (14) days of such request.

3. Project Schedule

The Project Schedule is set forth in the attached Exhibit "A-1."

4. Payment of Fees and Expenses

Payments shall be made to CONSULTANT on a monthly basis as set forth in the attached Exhibit "B" entitled "Compensation Schedule." All compensation will be based on monthly billings as provided in Exhibit "B." Compensation will not be due until said detailed billing is submitted to CITY within a reasonable time before payment is expected to allow for normal CITY processing. An estimate of the percent of total completion associated with the various categories of the services shall be furnished by CONSULTANT with said billing.
applicable, copies of pertinent financial records will be included with the submission of billing(s) for all direct reimbursables. Compensation shall not exceed the amounts set forth in Exhibit “B” for each phase. In no event shall the total amount of compensation payable under this agreement exceed the sum of One Hundred Seven Thousand Five Hundred Sixty Six and No/100 Dollars ($107,566.00) unless upon written modification of this Agreement. All invoices, including detailed backup, shall be sent to City of Sunnyvale, attention Accounts Payable, P.O. Box 3707, Sunnyvale, CA 94088-3707.

5. **No Assignment of Agreement**

CONSULTANT bind themselves, their partners, successors, assigns, executors, and administrators to all covenants of this Agreement. Except as otherwise set forth in this Agreement, no interest in this Agreement or any of the work provided for under this Agreement shall be assigned or transferred, either voluntarily or by operation of law, without the prior written approval of CITY. However, claims for money due to or to become due to CONSULTANT from CITY under this Agreement may be assigned to a bank, trust company or other financial institutions, or to a trustee in bankruptcy, provided that written notice of any such assignment or transfer shall be first furnished to CITY. In case of the death of one or more members of CONSULTANT's firm, the surviving member or members shall complete the services covered by this Agreement. Any such assignment shall not relieve CONSULTANT from any liability under the terms of this Agreement.

6. **Consultant is an Independent Contractor**

CONSULTANT is not an agent or employee of CITY but is an independent contractor with full rights to manage its employees subject to the requirements of the law. All persons employed by CONSULTANT in connection with this Agreement will be employees of CONSULTANT and not employees of CITY in any respect. CONSULTANT is responsible for obtaining statutory Workers' Compensation coverage for its employees.

7. **Consultant's Services to be Approved by a Registered Professional**

All reports, costs estimates, plans and other documents which may be submitted or furnished by CONSULTANT shall be approved and signed by a qualified registered professional in the State of California. The title sheet for calculations, specifications and reports, and each sheet of plans, shall bear the professional seal, certificate number, registration classification, expiration date of certificate and signature of the professional responsible for their preparation.

8. **Standard of Workmanship**

CONSULTANT represents and maintains that it is skilled in the professional calling necessary to perform the services and its duties and obligations, expressed and implied, contained herein, and CITY expressly relies upon CONSULTANT's representations regarding its skills and knowledge. CONSULTANT shall perform such services and duties in conformance to and consistent with the standards generally recognized as being employed by professionals in the same discipline in the State of California.

The plans, designs, specifications, estimates, calculations reports and other documents furnished under the Scope of Work (Exhibit "A") shall be of a quality acceptable to CITY. The criteria for acceptance of the work provided under this Agreement shall be a product of neat appearance, well-organized, technically and grammatically correct, checked and having the maker and checker identified. The minimum standard of appearance, organization and content of the drawings shall be that used by CITY for similar projects.

9. **Responsibility of CONSULTANT**

CONSULTANT shall be responsible for the professional quality, technical accuracy and the coordination of the services furnished by it under this Agreement. Neither CITY’s review, acceptance nor payment for any of the
services required under this Agreement shall be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement and CONSULTANT shall be and remain liable to CITY in accordance with applicable law for all damages to CITY caused by CONSULTANT’s negligent performance of any of the services furnished under this Agreement.

Any acceptance by CITY of plans, specifications, calculations, construction contract documents, reports, diagrams, maps and other material prepared by CONSULTANT shall not, in any respect, absolve CONSULTANT for the responsibility CONSULTANT has in accordance with customary standards of good engineering practice in compliance with applicable Federal, State, County and/or municipal laws, ordinances, regulations, rules and orders.

10. Right of CITY to Inspect Records of CONSULTANT

CITY, through its authorized employees, representatives, or agents, shall have the right, at any and all reasonable times, to audit the books and records including, but not limited to, invoices, vouchers, canceled checks, time cards of CONSULTANT for the purpose of verifying any and all charges made by CONSULTANT in connection with this Agreement. CONSULTANT shall maintain for a minimum period of three (3) years from the date of final payment to CONSULTANT or for any longer period required by law, sufficient books and records in accordance with generally accepted accounting practices to establish the correctness of all charges submitted to CITY by CONSULTANT. Any expenses not so recorded shall be disallowed by CITY.

11. Confidentiality of Material

All ideas, memoranda, specifications, plans, calculations, manufacturing procedures, data, drawings, descriptions, documents, discussions or other information developed or received by or for CONSULTANT and all other written information submitted to CONSULTANT in connection with the performance of this Agreement shall be held confidential by CONSULTANT and shall not, without the prior written consent of CITY be used for any purposes other than the performance of the Project services, nor be disclosed to an entity not connected with the performance of the Project services. Nothing furnished to CONSULTANT which is otherwise known to CONSULTANT or is or becomes generally known to the related industry shall be deemed confidential. CONSULTANT shall not use CITY’s name, insignia or distribute exploitative publicity pertaining to the services rendered under this Agreement in any magazine, trade paper, newspaper or other medium without the express written consent of CITY.

12. No Pledging of CITY’s Credit

Under no circumstances shall CONSULTANT have the authority or power to pledge the credit of CITY or incur any obligation in the name of CITY.

13. Ownership of Material

All material, including information developed on computer(s), which shall include, but not be limited to, data, sketches, tracings, drawings, plans, diagrams, quantities, estimates, specifications, proposals, tests, maps, calculations, photographs, reports and other material developed, collected, prepared or caused to be prepared, under this Agreement shall be the property of CITY, but CONSULTANT may retain and use copies thereof.

CITY shall not be limited, in any way, in its use of said material, at any time, for work associated with Project. However, CONSULTANT shall not be responsible for damages resulting from the use of said material for work other than Project, including, but not limited to the release of this material to third parties for work other than on Project.
14. **Hold Harmless/Indemnification**

To the extent permitted by law, CONSULTANT agrees to indemnify, defend and hold harmless CITY, its officers and employees from any and all claims, demands, actions, causes of action, losses, damages, liabilities, known or unknown, and all costs and expenses, including reasonable attorneys’ fees in connection with any injury or damage to persons or property to the extent arising out of any negligent act, error, omission or negligence of CONSULTANT, its officers, employees, agents, contractor, subcontractors or any officer, agent or employee thereof in relation to CONSULTANT’s performance under this Agreement. Such defense and indemnification shall not apply in any instance of and to the extent caused by the sole negligence or willful misconduct of CITY, its officers, employees, agents or representatives.

15. **Insurance Requirements**

CONSULTANT shall take out and maintain during the life of this Agreement policies of insurance as specified in Exhibit "C" attached and incorporated by reference, and shall provide all certificates and/or endorsements as specified in Exhibit "C."

16. **No Third Party Beneficiary**

This Agreement shall not be construed or deemed to be an agreement for the benefit of any third party or parties and no third party or parties shall have any claim or right of action hereunder for any cause whatsoever.

17. **Notices**

All notices required by this Agreement, other than invoices for payment which shall be sent directly to Accounts Payable, shall be in writing, and shall be personally delivered, sent by first class with postage prepaid, or sent by commercial courier, addressed as follows:

**To CITY:**
Lorrie Gervin, Environmental Division Manager  
Department of Public Works  
CITY OF SUNNYVALE  
P. O. Box 3707  
Sunnyvale, CA 94088-3707

**To CONSULTANT:**  
BROWN AND CALDWELL  
Attn: Lloyd Slezak, P.E.  
201 N. Civic Drive, Suite 115  
Walnut Creek, CA 94596-3864

Nothing in this provision shall be construed to prohibit communication by more expedient means, such as by telephone or facsimile transmission, to accomplish timely communication. However, to constitute effective notice, written confirmation of a telephone conversation or an original of a facsimile transmission must be sent by first class mail, by commercial carrier, or hand-delivered. Each party may change the address by written notice in accordance with this paragraph. Notices delivered personally shall be deemed communicated as of actual receipt; mailed notices shall be deemed communicated as of three days after mailing, unless such date is a date on which there is no mail service. In that event communication is deemed to occur on the next mail service day.

18. **Waiver**

CONSULTANT agrees that waiver by CITY of any one or more of the conditions of performance under this Agreement shall not be construed as waiver(s) of any other condition of performance under this Agreement.
19. **Amendments**

No alterations or changes to the terms of this Agreement shall be valid unless made in writing and signed by both parties.

20. **Integrated Agreement**

This Agreement embodies the agreement between CITY and CONSULTANT and its terms and conditions. No verbal agreements or conversation with any officer, agent or employee of CITY prior to execution of this Agreement shall affect or modify any of the terms or obligations contained in any documents comprising this Agreement. Any such verbal agreement shall be considered as unofficial information and in no way binding upon CITY.

21. **Conflict of Interest**

CONSULTANT certifies that to the best of its knowledge, no CITY employee or officer of any public agency interested in this Agreement has any pecuniary interest in the business of CONSULTANT and that no person associated with CONSULTANT has any interest that would conflict in any manner or degree with the performance of this Agreement.

22. **California Agreement**

This Agreement has been entered into in the State of California and this Agreement shall be governed by California law.

23. **Records, Reports and Documentation**

CONSULTANT shall maintain complete and accurate records of its operation, including any and all additional records required by CITY in writing. CONSULTANT shall submit to CITY any and all reports concerning its performance under this Agreement that may be requested by CITY in writing. CONSULTANT agrees to assist CITY in meeting CITY's reporting requirements to the state and other agencies with respect to CONSULTANT's work hereunder. All records, reports and documentation relating to the work performed under this Agreement shall be made available to City during the term of this Agreement.

24. **Termination of Agreement**

If CONSULTANT defaults in the performance of this Agreement, or materially breaches any of its provisions, CITY at its option may terminate this Agreement by giving written notice to CONSULTANT. If CITY fails to pay CONSULTANT, CONSULTANT at its option may terminate this Agreement if the failure is not remedied by CITY within thirty (30) days after written notification of failure to pay.

Without limitation to such rights or remedies as CITY shall otherwise have by law, CITY also shall have the right to terminate this Agreement for any reason upon ten (10) days' written notice to CONSULTANT. In the event of such termination, CONSULTANT shall be compensated in proportion to the percentage of services performed or materials furnished (in relation to the total which would have been performed or furnished) through the date of receipt of notification from CITY to terminate. CONSULTANT shall present CITY with any work product completed at that point in time.
25. **Subcontracting**

None of the services covered by this Agreement shall be subcontracted without the prior written consent of CITY. Such consent may be issued with notice to proceed if subcontract consultants are listed in the project work plan.

26. **Fair Employment**

CONSULTANT shall not discriminate against any employee or applicant for employment because of race, color, creed, national origin, sex, age, condition of physical handicap, religion, ethnic background or marital status, in violation of state or federal law.

27. **Changes**

CITY or CONSULTANT may, from time to time, request changes in the terms and conditions of this Agreement. Such changes, which are mutually agreed upon by CITY and CONSULTANT, shall be incorporated in amendments to this Agreement.

28. **Other Agreements**

This Agreement shall not prevent either Party from entering into similar agreements with others.

29. **Severability Clause**

In case any one or more of the provisions contained herein shall, for any reason, be held invalid, illegal or unenforceable in any respect, it shall not affect the validity of the other provisions which shall remain in full force and effect.

30. **Captions**

The captions of the various sections, paragraphs and subparagraphs, of the contract are for convenience only and shall not be considered nor referred to for resolving questions of interpretation.

31. **Entire Agreement; Amendment**

This writing constitutes the entire agreement between the parties relating to the services to be performed or materials to be furnished hereunder. No modification of this Agreement shall be effective unless and until such modification is evidenced by writing signed by all parties.

32. **Miscellaneous**

Time shall be of the essence in this Agreement. Failure on the part of either party to enforce any provision of this Agreement shall not be construed as a waiver of the right to compel enforcement of such provision or any other provision. This Agreement shall be governed and construed in accordance with the laws of the State of California.
IN WITNESS WHEREOF, the parties have executed this Agreement.

ATTEST:                  CITY OF SUNNYVALE ("CITY")

By_____________________________  By_____________________________

City Clerk                  City Manager

BROWN AND CALDWELL
("CONSULTANT")

By_____________________________

APPROVED AS TO FORM:

__________________________________  By_____________________________

Name/Title

__________________________________

City Attorney

__________________________________

Name/Title
Mode 1 Operational Trial
at the Water Pollution Control Plant

Project Understanding

Brown and Caldwell conceived the concept of the Mode 1 Operational Trial as an important part of our Strategic Infrastructure Plan (SIP). In the SIP we recommend an alternative that saves the City $40 million in achieving Water Pollution Control Plant (WPCP) renewal. Demonstrating that the existing fixed growth reactors (FGRs) are reliable ammonia control units during the winter season is an important component of the decision to re-invest in the plants existing processes for the long-term future. In the SIP we used our fixed film reactor nitrification models and kinetic parameter database to show a high probability that modifications to operation would likely result in significant improvements in winter season ammonia removal. Two of the most important recommendations were to switch from Mode 2 process operation to Mode 1 process operation, and to restore active ventilation of the FGR plenums. These are the two principal process changes that are to be evaluated with the Mode 1 Operational Trial.

Switching to Mode 1 will load the FGRs with a more algae-free influent. In Mode 2 the FGRs receive influent directly from the oxidation ponds, before algae are separated in the downstream dissolved air flotation (DAF) separators. Algae deposition in the FGRs previously has been found to create less than optimal conditions for establishing and maintaining nitrifying biofilms under the lower temperature/higher ammonia feed conditions that predominate in the winter season. Mode 1 places the DAF separators upstream of the FGRs, thereby removing substantial algae that have traditionally been applied to the biofilm units.

Reinstating active ventilation of the FGR plenums will help ensure that there is active air circulation in all zones of the biofilm-supporting plastic media. The previously supplied fans were disabled and the vent openings associated with them had been blocked for many years. This has created a concern that there are likely stagnant zones within the media where the oxygen fraction within the gas phase has been depleted (less conducive to nitrification), possibly reducing the overall ammonia removal performance of the reactors. Re-opening the fan vents last year coincided with an improvement in winter time ammonia removal that had not been seen for several years. Active ventilation with new ventilation fans should remove any question of stagnant air zones and their impacts on the biofilm.

Brown and Caldwell designed the original process in the 1970s and created the Mode 1/Mode 2 functionality in the system. The WPCP has not had winter limits for ammonia discharge for many years and has not focused on optimizing the FGRs’ winter performance. For this and other reasons, the WPCP has used only the Mode 2 operational configuration for several decades, and there are operational questions and concerns about making the change. EOA Consultants and WPCC staff have already worked through many of the technical issues in preparation for switching to Mode 1, as has been described in the request for proposal (RFP).

Our assistance will be focused on developing a plan for monitoring a long-term Mode 1 trial that uses performance data to confirm model predictions obtained from our kinetic parameter database and further show that the FGRs will be a reliable winter season ammonia removal process. We will also assist with regular review and discussion of data collection, process performance, and discussion for dealing with unforeseen contingencies through the long term trial period. Finally, we will prepare a summary report that includes the results of the demonstration trial and related conclusions that are applicable to the long-term recommendations of the SIP.
The principal objectives for demonstration are to:
1. Monitor ammonia loading and removal through winter season conditions and during transitions to and from the winter season.
2. Identify, evaluate and address consequential process issues with the Mode 1 configuration.
3. Compare and evaluate differences in Mode 1 operation and performance with prior operation and performance in Mode 1.

Secondary objectives may or may not be able to be evaluated during the effort but include:
1. Determine impacts of Mode 1 configuration on the ability to produce 2 NTU water for recycling. While this is a near-term issue, the long-term SIP ultimately would require the Mode 1 operational process to produce 10 NTU water for bay discharge.
2. Optimize the amount of ventilation energy necessary for reliable FGR operation.

Our proposed team is the best that can be provided in terms of high-level FGR expertise and first-hand knowledge of this effort's relationship to the long-term plans of the SIP. Dr. Denny Parker is our senior technical leader for this effort. He is a premier international expert on biofilm systems for ammonia control, was the original process engineer for the tertiary facilities that have served the WPCP for the last three decades, and was the technology director during SIP development. Dr. Linda Sawyer performed the FGR model evaluation and worked with Denny in preparing the SIP Technical Memorandum that addressed alternatives for improved nitrification and recommended operational modifications to improve the winter season ammonia removal. Lloyd Slezak will provide project management oversight. He was the project manager and principal architect of our SIP evaluation, and he is personally committed to working with the City throughout the entire implementation of the WPCP modifications recommended in our SIP.

Our Process Model

Brown and Caldwell will use a fixed film nitrification model (Parker et al., 1989) to analyze the measured performance of the FGRs. This model has been successfully used for analyzing ammonia removal in trickling filters at other facilities including Midland, Michigan and Central Valley, Utah (Parker et al., 1989), a pilot plant at Malmö, Sweden (Parker et al., 1995), and Littleton/Englewood Wastewater Treatment Plant (Parker et al. 1997).

The fixed film nitrification model was used during the SIP to evaluate performance of the Sunnyvale FGRs. Both recent data (2006 to 2008) and pilot scale data from the original design (1974) were successfully modeled. Results show a high probability that modifications to FGR operations would result in significant improvements in winter season ammonia removal.

References:


Reference Projects

Water Pollution Control Plant Infrastructure Plan, City of Sunnyvale, California

Liquid Treatment Process Engineer. Dr. Parker developed two major alternatives for Sunnyvale's treatment future, one based on upgrading and refurbishing existing facilities, the other based on adoption of new state-of-the-art technologies to replace the existing facilities. Suggested sub-alternatives to consider are 1) repair and rehabilitation, plus debottlenecking the existing processes to enhance performance and flexibility; 2) transitioning to a new "high technology" state-of-the-art facility; 3) transitioning to a conventional state-of-the-art facility; or 4) a combination of some state-of-the-art technologies with upgrades of some of the City’s existing facilities. Effluent requirements considered current conditions (ammonia levels seasonally to 5 mg/L) to full nitrification in the future. Alternatives considered include modification of current nitrifying trickling filters for higher efficiency, to conventional activated sludge and membrane bioreactors.

Reference
Lorrie Gervin
City of Sunnyvale
Littleton/Englewood Wastewater Treatment Planning and Design, Colorado

Process Engineer and Process Design Reviewer. Dr. Parker has been involved with this client since the beginning of Brown and Caldwell's remodeling and expansion of the plant, beginning in the mid-eighties and continuing to date. A high rate activated sludge plant and parallel rock trickling filter plant were converted to a Trickling Filter/Solids Contact process followed by nitrifying trickling filters (NTFs). The NTFs also provide treatment of foul gases and provide excellent odor removal. Later expansions involved changes to digestion and dewatering and included the addition of tertiary denitrification filters. Detailed process models were developed, calibrated and then recalibrated as plant units came on line. Today this is a 50 mgd plant providing full nitrogen removal, while in 1985 it was rated at 27 mgd and provided only secondary treat-

Reference
Dennis Stowe
Cities of Littleton/Englewood
2900 S Platte River Dr.
Englewood, CO 80110
303.762.2634

WERF/WEF Study Quantifying Nutrient Removal Technology Performance

Co-Principal Investigator (WERF)/Workshop Chair (WEF). This unique joint effort of the Water Research Foundation and the Water Environment Federation is surveying the best performing nutrient removal plants in the US (22 plants), using both the plant data, design data and operating schemes to identify the LOT (Limit of Technology) for conventionally nutrient removal technologies. LOT has previously loosely been described as meeting a TN of 3.0 mg/L or a TP of 0.1 mg/L without specifying any averaging period. Parker developed the experimental plan, worked with a steering committee that developed the statistical analysis approach and recruited the plant managers and volunteers participating in the investigation. Dr. Parker provided engineering assessment of the results in progress reports and technical papers. Results from the investigation will impact the wastewater industry broadly, in terms of establishing technology rankings, guidance for features or operating schemes that enhance reliability and the appropriate use of performance statistics in permit writing.

Reference
Amit Permanik
WERF/WEF
635 Slaters Lane, Suite G:110
Alexandria, VA 22314-1177
571.384.2101

Biofilm Controlled Nitrifying Trickling Filter (BCNTF), Various Clients

Inventor/Process Engineer/Reviewer. The BCNTF is a nitrifying trickling filter placed downstream from conventional secondary treatment and has demonstrated high nitrification rates and smaller structures than previously used. Pilot tested at Central Valley, Utah and Malmö, Sweden. Dr. Parker was the technical reviewer or process designer for applications at Central Valley, Utah; Fulton County, Georgia; Malmö, Sweden; Boulder, Colorado and Littleton/Englewood, Colorado. Dr. Parker was process consultant for full-scale rerating studies at latter two client sites.
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<td><strong>008</strong> Demonstration Report</td>
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<td><strong>013</strong> Project Management</td>
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<td><strong>014</strong> Admin and Coordination</td>
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<td><strong>GRAND TOTAL</strong></td>
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**Optional Troubleshooting**

**Ovrd. and Field Visits**

*Hours and Dollars are rounded to nearest whole number. To display decimals, change the format of the cells.*
INSURANCE REQUIREMENTS FOR CONSULTANTS

Consultant shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work by the Consultant, his agents, representatives, or employees.

Minimum Scope and Limits of Insurance: Consultant shall maintain limits no less than:

1. **Commercial General Liability**: $1,000,000 per occurrence and $2,000,000 aggregate for bodily injury, personal injury and property damage. ISO Occurrence Form CG 0001 is required.

2. **Automobile Liability**: $1,000,000 per accident for bodily injury and property damage. ISO Form CA 0001 is required.

3. **Workers' Compensation** and **Employer's Liability**: $1,000,000 per accident for bodily injury or disease.

4. **Errors and Omissions** Liability Insurance appropriate to the Consultants Profession: $1,000,000 per occurrence and $2,000,000 aggregate.

Deductibles and Self-Insured Retentions

Any deductibles or self-insured retentions must be declared and approved by the City of Sunnyvale. The consultant shall guarantee payment of any losses and related investigations, claim administration and defense expenses within the deductible or self-insured retention.

Other Insurance Provisions

The **general liability** and **automobile liability** policies are to contain, or be endorsed to contain, the following provisions:

1. The City of Sunnyvale, its officials, employees, agents and volunteers are to be covered as additional insureds with respects to liability arising out of activities performed by or on behalf of the Consultant; products and completed operations of the Consultant; premises owned, occupied or used by the Consultant; or automobiles owned, leased, hired or borrowed by the Consultant. The coverage shall contain no special limitations on the scope of protection afforded to the City of Sunnyvale, its officers, employees, agents or volunteers.

2. For any claims related to this project, the Consultant's insurance shall be primary. Any insurance or self-insurance maintained by the City of Sunnyvale, its officers, officials, employees, agents and volunteers shall be excess of the Consultant's insurance and shall not contribute with it.

3. Any failure to comply with reporting or other provisions of the policies including breaches of warranties shall not affect coverage provided to the City of Sunnyvale, its officers, officials, employees, agents or volunteers.
4. The Consultant's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the insurer's liability.

5. Each insurance policy required by this clause shall be endorsed to state that coverage shall not be suspended, voided, cancelled by either party, reduced in coverage or in limits except after thirty (30) days' prior written notice by certified mail, return receipt requested, has been given to the City of Sunnyvale.

**Claims Made Coverage**

If the General Liability and/or Errors & Omissions coverages are written on a claims-made form:

1. The retroactive date must be shown, and must be before the date of the contract or the beginning of contract work.

2. Insurance must be maintained and evidence of insurance must be provided for at least five years after completion of the contract work.

3. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a retroactive date prior to the contract effective date, the Consultant must purchase an extended period coverage for a minimum of five years after completion of contract work.

4. A copy of the claims reporting requirements must be submitted to the City of Sunnyvale for review.

**Acceptability of Insurers**

Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A:VII, unless otherwise acceptable to the City of Sunnyvale.

**Verification of Coverage**

Consultant shall furnish the City of Sunnyvale with original a Certificate of Insurance effecting the coverage required. The certificates are to be signed by a person authorized by that insurer to bind coverage on its behalf. All certificates are to be received and approved by the City of Sunnyvale prior to commencement of work.