TO: BOARD OF DIRECTORS

FROM: BRUCE BUEL BSB

DATE: SEPT. 7, 2007

AGENDA ITEM
E-4
SEPT. 12, 2007

AUTHORIZE RETENTION OF FUGRO TO PERFORM SOUTHLAND PHASE II DISCHARGE EVALUATION

ITEM

Authorize execution of agreement with Fugro West, Inc. to implement Phase II research re discharge of Southland WWTF effluent [RECOMMEND APPROVAL].

BACKGROUND

Staff previously released Boyle's April 2, 2007 "Evaluation of Southland WWTF Ground Water Monitoring Data" and May 10, 2007 "Southland WWTF Recharge/Disposal Action Plan" which document the water quality and water hydrology problems associated with discharge of treated wastewater from the existing Southland WWTF percolation ponds. Your Honorable Board then retained Fugro West, Inc. (Fugro) to develop a characterization of the geo-hydrology of the groundwater basin underlying the Southland Disposal area. In July, Fugro submitted their Phase I report, entitled "Hydro-Geologic Characterization – Southland WWTF", which summarized the available information and recommended additional studies. Your Honorable Board reviewed Fugro's Phase I report and directed staff to work with Fugro and Boyle Engineering to develop a Phase II proposal. Based on the Phase I evaluation and consultation with RWQCB staff (see attached RWQCB Letter), Fugro has submitted the attached Phase II proposal.

Paul Sorensen from Fugro West is scheduled to present this proposal to the Board and answer questions regarding each section.

RECOMMENDATION

District Staff believes that the work described in Fugro's Phase II proposal will be needed to determine the quantity of disposal possible with the existing percolation ponds; the wastewater treatment upgrades necessary to achieve compliance with the conditions set forth in NCSD's existing Discharge Order; the relationship between discharge at Southland and flow in Nipomo Creek; and the options for off-site disposal. Until these additional evaluations are complete, it will not be possible to "Scope" the Upgrade Project or to complete the Southland WWTF Upgrade Master Plan. Staff recommends that your Honorable Board authorize execution of an agreement with Fugro West, Inc. to perform the Phase II services set forth in the attached proposal on a time and materials basis with a not to exceed expenditure limit of $158,841.

ATTACHMENTS

- SWRCB Letter
- Fugro Southland WWTF Disposal/Recharge Proposal

T:doc\board matters\board meetings\board letter 2007\Southland WWTF MP7

California Regional Water Quality Control Board
Central Coast Region

895 Aerovista Place, Suite 101, San Luis Obispo, California 93401-7906
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http://www.waterboards.ca.gov/centralcoast

Linda S. Adams.
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

August 20, 2007

Bruce Buel, General Manager
Nipomo Community Services District
P. O. Box 326
Nipomo, CA 93444-0326

Dear Mr. Buel:

HYDROGEOLOGIC CHARACTERIZATION AND UPGRADE OF NIPOMO COMMUNITY SERVICES DISTRICT SOUTHLAND WASTEWATER FACILITY, SAN LUIS OBISPO COUNTY

Thank you for the opportunity to review and comment on the report "*Hydrogeologic Characterization Southland Wastewater Treatment Facility Nipomo, California*" prepared by Fugro West, Inc. This letter provides our comments on that report, and responds to questions raised in your August 3, 2007, meeting with Central Coast Water Board staff, Sorrel Marks. We concur with the District's plans (described during the meeting) to further investigate impacts associated with the current discharge and to develop long-term plans for community wastewater disposal needs.

1. The report concludes that the shallow groundwater and effluent are similar in the characteristics measured. The constituent trend graphs (figures 9a-c) show groundwater constituent concentrations approximating effluent concentrations for TDS, chloride, and sodium. However, some of the constituent data indicate increasing groundwater values and some indicate decreasing groundwater values, as they approach the effluent concentration. It is unclear whether the effluent discharge is degrading groundwater quality or diluting poorer quality water from other sources. This distinction between sources of pollutants (effluent or others) should be clarified in order to evaluate water quality impacts that might be eliminated by improving effluent quality or altering disposal practices.

2. Water quality degradation caused by the discharge is prohibited. Prior reviews of the District's wastewater disposal have considered potential impacts to groundwater as the first and most likely indicator of impacts caused by the discharge. If the discharge is ultimately migrating to Nipomo Creek, further investigation should evaluate potential water quality impacts to the creek. The Clean Water Act 303(d) list of impaired waters includes Nipomo Creek as impaired with fecal coliform bacteria. Further investigation of effluent migration should include fecal bacteria analyses in order to assess or preclude effluent as a source for such impairment.

3. Investigation should focus on whether groundwater downgradient from the discharge is degraded when compared with upgradient constituents. Your report indicates that additional monitoring wells may need to be located outside the groundwater/effluent mound, in order to properly characterize water quality impacts. Water quality objectives for the Nipomo area are specified in the Basin Plan and include: TDS 710 mg/L, chloride 95 mg/L, sulfate 250 mg/L, boron 0.15 mg/L, sodium 90 mg/L, and nitrate (as N) 5.7 mg/L. However, these values are area-wide average concentrations and may not be comparable to groundwater conditions near the wastewater facility.

4. During the recent meeting, you inquired what level of treatment is needed and what discharge criteria apply if water quality impacts are observed. The answer is - whatever level of treatment will eliminate the impact. The District currently operates an advanced primary treatment facility that removes approximately 75% of the wastewater solids. Water quality protection depends upon additional pollutant removal in the soil column and assimilative capacity of underlying groundwater. The discharge requirements specified in Order No. 97-75 (Waste Discharge Requirements for Nipomo Community Services District, Southland Wastewater Works) are typical of requirements for discharges in settings such as yours. We do not anticipate that those requirements will significantly change in the foreseeable future, provided water quality impacts do not result from the discharge. If impacts to groundwater and/or the creek are identified, then additional treatment (such as nitrogen removal) may be required. If nitrogen removal is required, an effluent limitation of 10 mg/L total nitrogen is likely to be proposed by staff to the Central Coast Water Board. The basis of such a limit is that it would preclude degradation of groundwater above 10 mg/L, even if the groundwater is primarily effluent. Discharge requirements may be revised if alternative disposal methods or locations are used. Direct discharges to Nipomo Creek are not allowed.

5. Regarding your proposal to discharge water harvested from below the Southland discharge area and transported to a disposal site near Mesa/Osage, requirements similar to those specified in Order No. 97-75 would likely apply. The District would need to demonstrate that the discharge will not cause degradation of underlying groundwater or pose a public health risk.

6. We have reviewed the August 13, 2007 memorandum from Boyle Engineers to Sorrel Marks. The memorandum describes anticipated effluent quality from an upgraded facility (using Biolac technology) that would meet the District's needs for land application even if nitrogen reduction becomes necessary. However, the last statement of the memorandum refers to penetration of the aquitard and disposal of effluent directly into the deeper groundwater - such practice would not be allowed.

We whole-heartedly support the District's efforts to characterize water quality impacts and develop long-term, sustainable wastewater treatment and disposal plans. If you have questions, please call **Sorrel Marks at 805/549-3695** or Harvey Packard at 805/542-4639.

Sincerely,

Roger W. Briggs
Executive Officer

S:/wdr/wdr facilities/san luis obispo co/Nipomo/hydro&upgrade study comments
Task: 126-01
File: Nipomo CSD Southland Plant

FUGRO WEST, INC.

660 Clarion Court, Suite A
San Luis Obispo, California 93401
Tel: (805) 542-0797
Fax: (805) 542-9311

September 5, 2007
Project No. 3596.001

Nipomo Community Services District
PO Box 326
148 S. Wilson Street
Nipomo, California 93444

Attention: Mr. Bruce Buel
General Manager

Proposed Scope of Work and Fee Estimate
Phase 2 Hydrogeologic Investigation of the Southland WWTF
Nipomo, California

Dear Mr. Buel:

Fugro is pleased to submit this proposal for a comprehensive hydrogeologic investigation of Nipomo Community Services District's Southland Wastewater Treatment Facility (WWTF). This proposal is based on the results of Fugro's Phase 1 assessment, discussions with and direction from a representative of the Regional Water Quality Control Board (RWQCB), and meetings and discussions with you and representatives from Boyle Engineering. This proposal package presents our understanding of the project, a scope of work, fee estimate, and schedule to complete the work

PROJECT UNDERSTANDING

The District owns and operates the Southland WWTF, which is permitted to operate at a plant capacity of 0.9 million gallons per day (MGD). As the District plans for an upgrade and expansion of the facility to 1.3 MGD, a need was identified for additional assessment of the groundwater conditions beneath the site. The Phase 1 efforts, which were documented in a Fugro report to the District dated July 17, 2007, focused on the development of a baseline understanding of the local groundwater conditions.

The primary conclusions of the Phase 1 work effort included:

- A dual aquifer system is inferred to exist beneath the WWTF. The shallow aquifer, which ranges from 60- to 140-feet below ground surface, is separated from the deep aquifer by a thick, relatively impermeable aquitard (clay layer) that likely precludes vertical migration of groundwater from the surface to the deep aquifer. As a result, a

perched effluent mound has formed beneath the WWTF that appears to be centered beneath the central portion of the percolation field.

- The discharged effluent from the mound may be flowing, in part, laterally towards Nipomo Creek.
- Based on a comparison of water quality analyses, the shallow aquifer beneath the Southland facility appears to consist largely of WWTF effluent. The present monitoring network is inadequate for measuring up- and downgradient water quality impacts, as required by the RWQCB.
- Water levels in the deep aquifer are 170 to 250 feet deep in the vicinity of the site. Limited data exist of water quality for the deep aquifer in the vicinity of the plant, and insufficient historical data exist to establish trends to assess whether effluent disposal has had any impact on water quality of the deep aquifer.
- Sufficient data do not exist to adequately evaluate the potential for the disposed effluent to reach the deep aquifer.

Based on the conclusions outlined above, and discussions with you, Boyle Engineering, and the RWQCB, the primary tasks to be addressed in this next phase of work include:

- Conduct an initial, feasibility level exploration program of potential new disposal sites west of the existing facility.
- Assess the potential for extracting discharged water from beneath the existing facility, for transport and subsequent disposal at another as-yet unidentified site.
- Recommend new monitoring well locations for the Southland WWTF, and meet with the RWQCB to discuss the strategy for developing an adequate monitoring well network, as appropriate.
- Assess the hydraulic relationship of the WWTF and Nipomo Creek, to evaluate whether discharged effluent may be contributing to flow in the creek.
- Obtain water quality samples from the deep aquifer.

SCOPE OF WORK

Task 1 – Feasibility Level Exploration Program of New Potential Disposal Sites

One option under consideration for the upgrade and expansion of the WWTF is to develop new sites for percolation ponds that will have sufficient capacity for increased loading. A feasibility level exploration program is proposed to evaluate the area west of the existing facility, generally in the area bounded by Eucalyptus, Mesa, and Camino Caballo, from Easy Lane on the west as far east as Calle Fresa and Waypoint. Included within this area are several

vacant parcels and/or parcels under active agriculture. The District has been approached by the owners of and/or has access to two parcels in this area, including the 40-acre Kaminaka lot between Pomeroy and Calle Caballo, and the 10-acre Silva parcel off of Mesa Lane.

A screening level feasibility program will be conducted using Fugro's Cone Penetrometer Testing (CPT) rig to investigate subsurface conditions in the area. The CPT is an excellent tool for this level of investigation because it pushes a small diameter probe into the subsurface materials, and measures tip resistance at the end of the probe to provide a rapid qualitative evaluation of soil properties, consistency of the materials, and spatial variability of materials. A series of CPT holes will be advanced on the Kaminaka and Silva properties, as well as on any other vacant and/or agricultural properties on which we can gain access. We will work with District staff to attempt to contact property owners of a few select properties in the area to advance a series of CPT holes on the sites. If access is not possible on a sufficient number of properties to adequately canvass the area, then we will utilize the road rights-of-way and push several CPT holes along the shoulders of the roads, most likely concentrating on Mesa Lane.

Although the CPT can be an effective tool for rapid delineation of soil properties and a valuable tool for site screening, it should be noted that there are potential limitations should the subsurface materials be particularly dense or hard. If a sufficiently thick clay layer (aquitard) is present, the CPT may not be able to penetrate the clay; however, such information is particularly informative for this type of study.

Key issues to address for the new percolation pond sites include percolation capacity, local geology and hydrogeology, and presence of near-surface retarding clay layers.

Provision is included herein to conduct additional subsurface investigations if the results of the feasibility level screening program appears favorable. At the sites that appear most favorable, hollow-stem auger borings will be drilled at each site (likely two per site, based on an estimated two sites for further consideration) to depths of approximately 100 feet to verify soil conditions, percolation capacity, and stratigraphy. Undisturbed subsurface samples will be grabbed to obtain estimates of sustained infiltration rates based on laboratory-determined permeability values.

Task 2 – Assess the Potential for Extracting Discharge Water from Beneath the Southland WWTF, for Transport and Subsequent Disposal at Other Sites

Under this concept, discharged effluent will be pumped directly from the effluent mound beneath the Southland WWTF, and piped to a new site for additional percolation and disposal. To evaluate the potential for wells at the Southland site to extract sufficient effluent to make the concept viable, a series of pumping tests will be conducted on two of the existing monitoring wells, specifically MW-1 and MW-3. The existing purge pumps will be pulled from each monitoring well, and a temporary submersible pump set in each well. Each well will then be tested using a series of pumping tests, including a step-drawdown test, a 24-hour constant discharge test, and a recovery test. The length of the constant rate discharge test, while

planned for 24 hours, will be run a sufficient duration to achieve the objectives of the test, or a maximum of 72 hours. Throughout the pumping tests, water levels will be monitored in the pumping well as well as in several of the on-site monitoring wells to measure hydraulic characteristics and parameters of the shallow aquifer beneath the site. At the conclusion of the constant rate pumping test, a water sample will be obtained to analyze for general mineral, nitrogen species, and other appropriate minerals and constituents as identified by the District and engineers from Boyle Engineering.

The results of this task will be critically important towards advancing the "put and take" concept of extracting discharged effluent from the mound beneath the Southland site, with subsequent disposal at the potential site(s) identified in Task 1, above. Should this concept appear favorable, it is likely that a site-specific numerical flow model should be constructed to simulate the impacts of the concept on the mound and the ability of the program to effectively control the effluent mound. The data obtained through these pumping tests will provide hydraulic conductivity values necessary to construct the flow model.

Task 3 – Recommend New Monitoring Well Locations at the Southland WWTF

As described in the Phase 1 report (Fugro, July 17, 2007), the water quality of the produced water in the existing monitoring wells appear to be equivalent to the water quality of the effluent, indicating that the shallow aquifer consists of effluent. Thus, the present monitoring network is inadequate for measuring up- and downgradient water quality impacts, as required by the RWQCB. In order to satisfy the requirements of the RWQCB, new monitoring well locations must be sited to effectively monitor the up- and downgradient water quality impacts of the site.

The work that was started in the Phase 1 efforts will be expanded to assess potential sites for new monitoring wells. Well logs for all the existing wells in the vicinity of the site will be obtained from the Department of Water Resources and reviewed for lithology, depth to groundwater, and presence of the aquitard that exists beneath the WWTF. Based on this review, we will recommend potential sites for new monitoring wells. Additional investigation of these sites may be necessary once identified, but the extent of those investigations will not be known until this initial review is conducted. Any additional necessary work will be outlined in subsequent work tasks. It should be noted that, given the history and mounding influence of the area, it might not be possible to obtain background upgradient water quality that has not been impacted by the mound. We will discuss the results of this task with the RWQCB and develop an appropriate strategy to address it.

Task 4 – Investigate the Relationship of the WWTF and Nipomo Creek

The discharged effluent from the Southland WWTF may be flowing, in part, laterally towards Nipomo Creek. If operations are to continue at the WWTF, the RWQCB will require an investigation of the potential water quality impacts to the creek. As indicated by the RWQCB, the Clean Water Act 303(d) list of impaired waters included Nipomo Creek as impaired with

fecal coliform bacteria. Thus, the RWQCB indicates that any further investigation should include fecal bacteria analyses in order to assess or preclude effluent as a source for the possible impairment. We will pursue this approach as outlined by the RWQCB, although we may not be able to use fecal coliform as a chemical signature for identifying the source of the water.

We propose a first-level investigation at this time. If, through this initial investigation, we can rule out that the WWTF is not responsible or contributing to the impairment of the water quality of the creek, then additional investigation will not be needed. If, however, the results of this initial study suggest a possible link, additional work will likely be required to investigate the degree of hydraulic communication and contribution of the facility to the creek. This subsequent investigation, if necessary, will be developed in future work tasks.

A series of surface water quality samples will be obtained from Nipomo Creek from a point upstream of the WWTF, to a point downstream of the facility. Prior to obtaining the surface water samples, we will work with the District, engineers from Boyle Engineering, and the analytical laboratory chemists to identify possible effluent signatures that may be unique to the effluent. We will also identify an appropriate suite of bacteria analyses that will help either link or eliminate the WWTF effluent from the surface water flow. These signature constituents will then be analyzed for in the samples, as well as testing for basic general mineral and inorganic chemical constituents.

As discussed in our meetings during the development of this work effort, the laboratory cost of the water quality sampling task will not be known until the chemical signatures are identified. Thus, the costs of the laboratory analyses are not provided in the attached fee estimate, and will be paid for directly by the District.

Task 5 –Assess the Water Quality of the Deep Aquifer in the Vicinity of the Southland WWTF and Potential New Percolation Pond Sites

Before permits are granted and new Waste Discharge Requirements are issued by the RWQCB for the upgrade and expansion of the WWTF, the potential impacts of the expanded facility on the receiving aquifer must be evaluated. To assess this potential impact, the water quality of the deep aquifer must be known.

Based on our review of the well logs obtained from the DWR, as well as a canvass of the area, we will identify several potential water wells that pump groundwater from the deep aquifer for sampling. We will then work with District staff to contact the well owners and obtain permission to sample their well. This will provide a baseline for future investigations and discussions with the RWQCB.

Task 6 –Summary Report

The results of the tasks described above will be documented in a summary report, in which we will present the findings and conclusions and provide appropriate recommendations.

SCHEDULE

We can start work within two weeks of receiving a Notice to Proceed (NTP). We understand that time is of critical importance for all these activities, so we are prepared to assign appropriate personnel to the tasks to accomplish the work as quickly as possible.

The Task 1 efforts will be partly dependent on CPT rig availability. Typical backlog of the rig is about one month. In the time, however, work can proceed on gaining property access, permits, etc. Assuming that no difficulties are encountered with property access, data acquisition, contractor availability, etc., we estimate that approximately four to five months will be required to complete the work as outlined above.

FEE

We will provide our services on a time and expense basis according to the attached fee schedule rates. Our anticipated fee for the Phase 2 efforts described in this proposal is approximately $158,841.

We appreciate the opportunity to continue working with you on this project. We look forward to meeting with you and your Board on September 12 to discuss the proposal and answer any questions. Please contact us if you have questions or require additional information.

Sincerely,
FUGRO WEST, INC.

Paul A. Sorensen, PG, CHg
Principal Hydrogeologist
California Professional Geologist
California Certified Hydrogeologist

David Gardner, PG, CHg
Senior Vice President
Principal Hydrogeologist

Southland WWTF Phase 2 Hydrogeologic Investigation

Task	Principal (Gardner)	Principal (Sorensen)	Project (Roberts)	Staff	Staff II	CAD Operator	Word Process	Total Hours	Total Cost
Rate/Hour:	$180	$180	$120	$100	$95	$85	$60		
Phase 2 Hydrogeologic Investigation									
Task 1a -Feasibility Expl Prog of Disp Sites	2	16	72					90	$ 11,880
Task 1b -Feasibility Expl Prog of Disp Sites	2	12	84					98	$ 12,600
Laboratory Testing	per unit rates listed below								$ 2,740
Task 2-Facility Aquifer Testing		10	100					110	$ 13,800
Task 3-New Monitoring Well Locations	8	24	52					84	$ 12,000
Task 4-WWTF Influence on Nipomo Creek	16	16	56					88	$ 12,480
Task 5-Water Quality of Deep Aquifer			68					68	$ 8,160
Hydrogeologic Report	16	40	80			40	40	216	$ 25,480
Project Management/Meetings	24	70	16					110	$ 18,840
Subtotal Labor:	66	172	456	0	0	40	40	774	$ 117,980

Laboratory Costs	Rate	No.
Sieve Analyses	$ 90	8
Falling Head Permeability	$ 325	4
Specific Gravity	$ 90	8

Other Direct Costs	Units	Rate	Billing Factor	ODC Costs
Task 1a: CPT Investigation				
CPT Rig, Mobilization	1	$ 1,200	1.00	$ 1,200
CPT Rig, Demobilization	1	$ 1,200	1.00	$ 1,200
CPT Rig Rate (per foot)	1120	$ 7	1.00	$ 7,840
Subsistence	3	$ 300	1.00	$ 900
Task 1b: HSA Investigation				
HSA Rig, Mobilization (per hour)	2	$ 195	1.15	$ 449
HSA Crew, Mobilization/Demob	6	$ 150	1.15	$ 1,035
HSA Chase Truck (per day)	4	$ 100	2.15	$ 860
HSA Rig Rate (per hour)	40	$ 215	1.15	$ 9,890
Task 2: Aquifer Testing				
Installation of Pump to MW-1	1	$ 1,000	1.15	$ 1,150
Installation of Pump to MW-3	1	$ 1,000	1.15	$ 1,150
Miller Drilling -- pump I/O, generator rental	1	$ 3,000	1.15	$ 3,450
Install extra piping	1	$ 600	1.15	$ 690
Field Supplies (Fuel)	1	$ 500	1.15	$ 575
Transducer rental x3 for pump test	3	$ 200	1.00	$ 600
Pump Test Supervision MW-3 (per hour)	82	$ 65	1.15	$ 6,130
Pump Test Supervision MW-1 (per hour)	30	$ 65	1.15	$ 2,243
Field Service				
Pickup Truck (per day)	15	$ 100	1.00	$ 1,500
Subtotal ODCs:				**$ 40,861**
			Estimated total	**$158,841**

Note: Pump test Supervision of MW-1 need not be required if power is available to drive the pump.

TO: BOARD OF DIRECTORS

FROM: BRUCE BUEL

DATE: SEPT. 7, 2007

AGENDA ITEM
E-5
SEPT. 12, 2007

PCASC RESIGNATION AND APPOINTMENT

ITEM

Accept Peg Miller's Resignation from the Parks Citizen's Advisory Sub-Committee (PCASC) and Consider Selection of Replacement [RECOMMEND ADOPTION].

BACKGROUND

Attached is Peg Miller's letter of resignation from the PCASC. Director Vierheilig is scheduled to nominate a replacement candidate at the Board Meeting for Board ratification.

RECOMMENDATION

Staff recommends that your Honorable Board accept Peg Miller's resignation and ratify Director Vierheilig's nominee.

ATTACHMENTS

- Peg Miller's Resignation Letter

T:\BOARD MATTERS\BOARD MEETINGS\BOARD LETTER\BOARD LETTER 2007\Parks Citizens Advisory Sub-COMM4.DOC

August 28, 2007

From: Peg Miller, CEO
Miller Enterprise
330-H W. Tefft St.
Nipomo, CA 93444

To: Bruce Buel, GM
Nipomo Community Services District (NCSD)
148 S. Wilson St.
Nipomo, CA 94333

Re: Citizens Parks Advisory Sub-Committee (CPASC)

Dear Mr. Buel,

Following discussions with NCSD Director Larry Vierheilig, it is apparent that my participation on the CPASC would be in conflict with the Fair Political Practices Commission (FPPC) guidelines regarding conflict of interest. This conflict would arise on matters regarding the proposed Jim O. Miller Park which is adjacent to property that I own.

Since this proposed park is of significant personal interest to me, I feel that my participation in the development of this park is of utmost importance. Since this would be in conflict with FPPC guidelines, I am tendering my resignation as a member of the CPASC as of the date of this letter.

I want to thank you for the opportunity to serve on the CPASC since many important matters regarding future parks for the Nipomo community will be addressed and resolved.

Sincerely,

Peg Miller