MINUTE ITEM

This Calendar Item No. CG was approved as Minute Item No. 6 by the California State Lands Commission by a vote of 3 to 6 at its

O4-17-06 meeting.

Minute Item C61

04/17/06 W 17160 J. Frey

CITY OF LONG BEACH (APPLICANT)

Calendar item C61 was moved to the regular calendar.

The Commission was asked to consider approval of the Long Beach Annual Plan.

The item was approved as presented by a 3-0 vote.

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CALENDAR ITEM C61

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04/17/06 W 17160 A. Reid

CONSIDER APPROVAL OF THE LONG BEACH UNIT ANNUAL PLAN (JULY 1, 2006 THROUGH JUNE 30, 2007), LONG BEACH UNIT, WILMINGTON OIL FIELD, LOS ANGELES COUNTY

APPLICANT:

City of Long Beach Attn.: Mr. Christopher J. Garner, Director Long Beach Gas and Oil Department 211 East Ocean Blvd., Suite 500 Long Beach, CA 90802

BACKGROUND:

In accordance with Chapter 941 of the Statutes of 1991 (AB 227) and the Agreement for Implementation of an Optimized Waterflood Program for the Long Beach Unit, the Long Beach Unit Annual Plan (July 1, 2005 - June 30, 2006) has been submitted by the City of Long Beach (City) on March 13, 2006, to the California State Lands Commission (Commission).

At its meeting on February 21, 2006, the Long Beach City Council adopted the proposed Program Plan and Annual Plan, and authorized its submittal to the Commission for consideration and approval. The Commission has 45 days following formal submission of the Annual Plan to take action. If no action is taken, the Program Plan and Annual Plan will be deemed approved as submitted.

The economic projections based on an average oil price of \$40.00 per barrel for the period July 1, 2006 through June 30, 2007 (as presented by the City) are shown below:

Revenue Expenditures \$484,100,000

Expenditures

\$326,000,000

Net Income

\$158,000,000

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CALENDAR ITEM NO. **C61** (CONT'D)

The proposed Long Beach Unit Annual Plan was developed based on parameters outlined in the approved Program Plan for the period July 2005 through June 2010 and includes updates of anticipated drilling activity, rates of production, revenues, expenditures, and net profits for the Unit. The City has estimated that the Unit net income from 2006-2007 Fiscal Year will be \$158.0 Million, after total Expenditures of \$326.0 Million. This income scenario is based on a forecasted oil production rate of 31,400 barrels per day. This average production rate is based on the assumption that 55 wells will be drilled or redrilled during the fiscal year with the use of three full time drilling rigs.

In comparison to the Program Plan approved last year, the proposed Annual Plan increases the expenditure level by \$61.5 million. The more significant items represented in the additional expenditures are: \$18 million for the cost of the CO₂ removal plant, \$12 million for higher electrical charges to handle higher fluid volumes and anticipated higher electrical rates, \$10 million for facility expansion to handle increased fluid volumes, \$7 million for the addition of a half of a full time drilling rig, and \$6 million for additional well work to be performed due to the sustained high oil price. Some of the above items reflect increasing activity levels due to the increased revenue source generated by the currently strong oil price. The Annual Plan does state that the expanded expenditures are contingent on oil prices remaining at or near current levels and a sufficient number of economic projects are identified and approved in accordance with Unit documents.

Commission staff has reviewed the Annual Plan as submitted by the City and believes that it provides an engineering framework to meet the objectives of the Optimized Waterflood Agreement and is based on engineering, geologic, and economic information available at the time of preparation. Engineers representing the State, City, THUMS, and OXY agree that objectives will be met in all areas of interest, including those of good oil field practice, proper reservoir management, safety to employees and the public, and environmental protection, through active participation by all parties at Unit forums, Engineering Committee meetings, Voting Party Committee meetings, and during events as they occur in the field. Commission staff believes the Annual Plan is consistent with the Fiveyear Program Plan of July 2005 – June 2010, in that it meets or exceeds the goals as well as follows the industry practice of increasing activity during periods of higher oil prices.

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CALENDAR ITEM NO. **C61** (CONT'D)

OTHER PERTINENT INFORMATION

1. Pursuant to the Commission's delegation of authority and the State CEQA Guidelines [Title 14, California Code of Regulations, section 15060(c)(3)], the staff has determined that this activity is not subject to the provisions of the CEQA because it is not a "project" as defined by the CEQA and the State CEQA Guidelines.

Authority: Public Resources Code section 21065 and Title 14, California Code of Regulations, sections 15060 (c)(3) and 15378.

EXHIBITS:

- A. Letter from the City of Long Beach submitting the Long Beach Unit Annual Plan (July 1, 2006 through June 30, 2007) to the California State Lands Commission.
- B. Long Beach Unit Annual Plan (July 1, 2006 June 30, 2007)

PERMIT STREAMLINING ACT DEADLINE:

N/A (not a "development project" subject to the Act).

RECOMMENDED ACTION:

IT IS RECOMMENDED THAT THE COMMISSION:

CEQA FINDING:

FIND THAT THE ACTIVITY IS NOT SUBJECT TO THE REQUIREMENTS OF THE CEQA PURSUANT TO TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTION 15060(c)(3) BECAUSE THE ACTIVITY IS NOT A PROJECT AS DEFINED BY PUBLIC RESOURCES CODE SECTION 21065 AND TITLE 14, CALIFORNIA CODE OF REGULATIONS, SECTION 15378.

AUTHORIZATION:

APPROVE THE LONG BEACH UNIT ANNUAL PLAN (JULY 1, 2006 THROUGH JUNE 30, 2007), LONG BEACH UNIT, WILMINGTON OIL FIELD, LOS ANGELES COUNTY.

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CHRISTOPHER J. GARNER
DIRECTOR

2400 EAST SPRING STREET - LONG BEACH, CA 90806 (562) 570-2000 - FAX (562) 570-2008

www.lbgo.org

March 13, 2006

Mr. Paul B. Mount II, P.E. Chief, Mineral Resources Management Division California State Lands Commission 200 Oceangate, 12th Floor Long Beach, CA 90802-4331

SUBJECT: SUBMISSION OF THE LONG BEACH UNIT ANNUAL PLAN

(JULY 1, 2006 - JUNE 30, 2007)

Dear Mr. Mount:

The City of Long Beach, as Unit Operator of the Long Beach Unit, and in accordance with Chapter 138, Section 5, Chapter 941, Section 3, and the Agreement for Implementation of an Optimized Waterflood Program for the Long Beach Unit, Article 2, formally submits ten copies of the Long Beach Unit Annual Plan (July 1, 2006 - June 30, 2007).

The Plan was approved by the Long Beach City Council on February 21, 2006. If you have any questions, please contact Ms. Sue Schoij at (562) 570-3973.

Sincerely,

Christopher J. Garner

Director

CJG:scs

Enclosures

CC:

M. Voskanian

P. D. Thayer

A. V. Hager

R. D. Nobles

F. Komin

J. Charles Parkin

FIN 312.006

BUSINESS OPERATIONS (562) 570-2094 ENGINEERING/CONSTRUCTION [562] 570-2031

GAS SERVICES (562) 570-2110 OIL OPERATIONS (562) 570-3900 OIL PRODUCTIONS/SUBSIDENCE (562) 570-3900 S.E.R.R.F. (562) 570-1196

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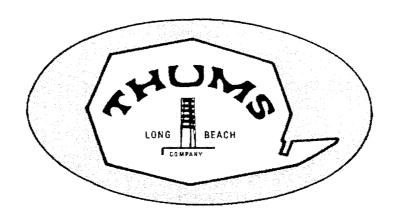
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Long Beach Unit Thums Long Beach Company

(Agent for Field Contractor)

ANNUAL PLAN

July 1, 2006 through June 30, 2007



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ANNUAL PLAN

July 1, 2006 through June 30, 2007

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Part I

Introduction

This Annual Plan ("Plan") was developed to reflect anticipated activity levels during the fiscal period from July 1, 2006 through June 30, 2007 ("FY06/07"). It is being submitted as required by Section 5(a) of Chapter 138, Statutes of 1964, First Extraordinary Session, and as revised by passage of Assembly Bill 227 (Chapter 941) and the Optimized Waterflood Program Agreement approved by the State of California, the City of Long Beach, and Atlantic Richfield Company, whose interest has been assigned to Occidental Petroleum Corporation.

This Plan provides for drilling, producing, water injection, and other associated activities from offshore and onshore locations. The budget for these activities is grouped into the following five major categories:

Plan Category	Fiscal Year 2006 – 2007 (\$ Million)
Development Drilling	\$ 73.1
Operating Expense	\$114.8
Facilities, Maintenance, and Plant	\$ 71.5
Unit Field Labor and Administrative	\$ 43.5
Taxes, Permits, and Administrative Overhead	\$ 23.1
Total	\$326.0

A. Plan Basis

This Plan was developed based on the parameters outlined in the Program Plan for the period July 2005 through June 2010 and provides current estimates of volumes, drilling activity and expenditures for FY06/07. A change from the Program Plan is the inclusion of an additional part-time drilling rig. The additional drilling associated with this expanded plan is contingent on oil prices remaining near or above current levels and a sufficient number of economic projects being identified and approved in accordance with Unit documents.

Volumes

Oil and gas production volumes in the Program Plan were predicted to average 32.6 Mbopd and 8.5 MMcfd, respectively, in FY06/07. Oil and gas volumes and ranges have been revised from the Program Plan. Oil production is now expected to average 31.4 Mbopd within a revised range of 28.3 to 33.0 Mbopd, and gas production is expected to average 10.0 MMcfd within a revised range of 7.5 to 10.0 MMcfd. Water production and injection volumes have been revised upward from the Program Plan. Water production and injection volumes in the Program Plan were predicted to average 826 Mbwpd and 926 Mbwpd, respectively. Water production for the period is now expected to average 879 Mbwpd within a revised range of 791 to 923 Mbwpd. Water injection is expected to average 986 Mbwpd within a revised range of 887 to 1,035 Mbwpd.

The downward revision in oil production volumes is a result of:

Slower drill completion pace due to more complex well projects, and slower drilling and processing time per well due to market pressures which have impacted the availability of labor and equipment from vendors.

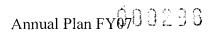
The upward revision in gas production volumes is a result of:

The expected implementation of the Shallow gas program and robust gas production from UPFord zone development wells.

Revenue and Expenses

A projected oil price of \$40.00/bbl and gas price of \$7.00/mcf will result in revenues of \$484.1 million, which is \$137.3 million higher than anticipated in the Program Plan. Budgeted expenses of \$326.0 million for FY06/07 are \$61.5 million higher than anticipated in the Program Plan. Projected net profit in FY06/07 is \$158.1 million versus \$82.3 million in the Program Plan.

The projected revenue increase in FY06/07 is the result of higher forecasted oil and gas prices (\$28.00/bbl and \$4.50/mcf in the Program Plan). The higher projected expenses stem primarily from running three full-time drilling rigs (contingent on oil prices remaining near or above current levels and a sufficient number of economic projects being identified and approved in accordance with



Unit documents), higher electricity costs (resulting from higher gross fluids rate, higher natural gas fuel cost and SCE grid rate increases), Increasing vendor costs (due to market pressures), funding of the Amine Plant and preliminary work around facility capacity limits. Other expenses consistent with strategies outlined in the Program Plan are also included but will be curtailed if revenues are not available to offset them. A comparison of revenue, expenditures, net income, and volumes is shown in Part II-C of this Plan.

Drilling

This Plan allows for drilling approximately 55 new and redrilled development and/or replacement wells. The three rig drilling plan is to start at Island Grissom and Island Chaffee and then move to White and Freeman during the year. A 3 rig will be deployed on Pier J, and moved to an alternate site when that work is completed. A workover rig will provide drilling preparation and completion work. Locations of production and injection wells to be drilled or redrilled will vary from the Program Plan (given in Part II, Schedule 2B of this Plan) to reflect drilling from Pier J.

Maintenance

Most of the major facility projects anticipated during the Plan period are required to maintain current equipment capabilities or to enhance operations. Other projects will be necessary to take advantage of improvement opportunities and to address changes in the oil field operating environment.

Many projects will be undertaken to repair or replace equipment that has outlived its useful life. Items needing to be repaired or replaced include facilities piping, tanks, and vessels. These projects are consistent with past activities to keep the Unit facilities in safe operating condition.

Abandonment

Wells and facilities with no further economic use will be abandoned to reduce current and future Unit liability. This Plan provides funds for plugging wells to surface, in-zone, and conditional abandonments.

Safety, Environmental, and Regulatory Compliance

Projects relating to safety, environmental issues, or others situations necessary for meeting compliance with code, permit, or regulatory requirements will continue to be implemented under this Plan in accordance with all Unit agreements.

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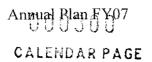
Economic Review

Project expenditures during the Plan period are subject to economic review through the Determination and Authority for Expenditure processes.

All existing wells are frequently reviewed in light of changing crude prices to determine if they are economic to operate. Well servicing work is justified on economics and other conditions consistent with good engineering, business, and operating practices.

B. Economic Projections (Data in Millions of Dollars)

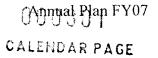
	BUDGET FIRST QUARTER	BUDGET SECOND QUARTER	BUDGET THIRD QUARTER	BUDGET FOURTH QUARTER	BUDGET TOTAL
	FY06/07	FY06/07	FY06/07	FY06/07	FY06/07
ESTIMATED REVENUE					
Oil Revenue	\$114.5	\$115.2	\$113.5	\$115.4	\$458.6
Gas Revenue	\$6.4	\$6.4	\$6.3	\$6.4	\$25.5
TOTAL REVENUE	\$120.9	\$121.6	\$119.8	\$121.8	\$484.1
ESTIMATED EXPENDITURES					
Development Drilling	\$18.2	\$18.3	\$18.3	\$18.3	\$73.1
Operating Expense	\$26.9	\$36.7	\$25.5	\$25.7	\$114.8
Facilities & Maintenance	\$17.9	\$17.9	\$17.9	\$17.8	\$71.5
Unit Field Labor & Administration	\$10.6	\$10.6	\$11.7	\$10.6	\$43.5
Taxes, Permits & Overhead	\$5.7	\$6.0	\$5.7	\$5.7	\$23.1
TOTAL EXPENDITURES	\$79.3	\$89.5	\$79.1	\$78.1	\$326.0
NET PROFIT	\$41.6	\$32.1	\$40.7	\$43.7	\$158.1

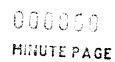




C. MAJOR PLANNING ASSUMPTIONS

	BUDGET FIRST QUARTER FY06/07	BUDGET SECOND QUARTER FY06/07	BUDGET THIRD QUARTER FY06/07	BUDGET FOURTH QUARTER FY06/07	BUDGET TOTAL FY06/07
OIL PRODUCTION					
PRODUCED (1000 BBL)	2,863	2,880	2,837	2,884	11,464
(AVERAGE B/D)	31,121	31,304	31,521	31,697	31,409
GAS PRODUCTION					
PRODUCED (1000 MCF)	920	920	900	910	3,650
(AVERAGE MCF/D)	10,000	10,000	10,000	10,000	10,000
WATER PRODUCTION					
PRODUCED (1000 BBL)	79,399	80,804	79,582	81,128	320,913
(AVERAGE B/D)	863,029	878,308	884,240	891,515	879,212
WATER INJECTION					
INJECTED (1000 BBL)	89,253	90,554	89,124	90,792	359,72
(AVERAGE B/D)	970,140	984,280	990,266	997,715	985,54
OIL PRICE (\$/BBL) GAS PRICE (\$/MCF)	\$40.00 \$ 7.00	\$40.00 \$ 7.00	\$40.00 \$ 7.00	\$40.00 \$ 7.00	\$40.0 \$ 7.0





Part II

Program Plan Schedules

Schedule 2 A Range of Production and Injection FY 2006/07 Long Beach Unit Program Plan, July 2005-June 2010

TICO. I	RANGE OF PRODUCTION AND INJECTION RATES							
FISCAL YEAR	OIL MBOPD	WATER MBWPD	GAS MMCFPD	INJECTION MBWPD				
2006-07	29.3 - 34.2	743 - 867	7.7 - 9.0 833 -	- 972				

FISCAL	RANGE OF PRODUCTION AND INJECTION RATES							
YEAR	TAR PSI	RANGER PSI	TERMINAL PSI	U. P./FORD PSI				
2006-07	UP TO 1500	UP TO 2500	UP TO 2500	UP TO 3000				

SCHEDULE 2B ANTICIPATED NEW AND REDRILLED WELLS FISCAL YEAR 2006-07 LONG BEACH UNIT PROGRAM PLAN, JULY 2005 – JUNE 2010

				PRODUCERS						INJECTORS		
Reservoir	CRB	GRISSOM MIN MAX	WHITE MIN MAX	CHAFFEE MIN MAX	FREEMAN MIN MAX	PIER J MIN MAX		GRISSOM MIN MAX	WHITE MIN MAX	CHAFFEE MIN MAX	FREEMAN MIN MAX	PIER-J MIN MAX
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237	30	0 - 0		0-1	0-0							
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TABLE 1C COMPARISON OF PROGRAM PLAN TO FISCAL YEAR 2006/07

	PROGRAM PLAN FY06/07	ANNUAL PLAN FY06/07	VARIANCE Over / (Under)	%
	to the second of		0.00.7	
Drilling - Total Wells	60	55	(5)	-8%
Net Oil Production - bbls	11,884,400	11,464,286	(420,114)	-4%
Net Oil Production - bopd	32,560	31,409	(1,151)	-4%
Water Production - bbls	301,541,100	320,912,544	19,371,444	6%
Water Production - bwpd	826,140	879,212	53,072	6%
Water Injection - bbls	337,880,500	359,722,600	21,842,100	6%
Water Injection - bwpd	925,700	985,541	59,841	6%
Total Revenue	\$346,774,000	\$484,121,000	\$137,347,000	40%
Total Expenditures	\$264,516,000	\$325,973,000	\$61,457,000	23%
Net Income	\$82,258,000	\$158,148,000	\$75,890,000	92%
Oil Price - \$/bbl	\$28.00	\$40.00	\$12.00	43%
Gas Price - \$/mcf	\$4.50	\$7.00	\$2.50	56%

C. Comparison to Program Plan

Drilling Variance: Drilling activity is forecast to be at a slower pace compared to the Program Plan, with 5 less wells anticipated to be completed in FY06/07. Drilling pace is slower than originally expected due to more complex well candidates and market pressures, which have led to delays in vendor labor and equipment availability.

<u>Revenue Variance</u>: The revenue variance from the Program Plan is due to higher oil and gas price forecasts.

Expenditure Variance: The overall expenditure variance is attributable to utilization of a third drilling rig, higher electricity costs, (resulting from higher fluid rates, SCE rate increases and higher gas price assumption), increases in vendor costs, funding for the Amine plant and preliminary work on the facilities capacity limits. The Unit will be aggressively trying to control costs during the Annual plan year. Investments in strategic projects aimed at reducing future costs will

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continue to be made as outlined in the Program Plan but will be curtailed if revenues are not available to offset them.

Part III

Itemized Budget of Expenditures

A. Development Drilling

\$73,100,000

The Development Drilling category of expenditures encompasses all new well and replacement well drilling activity, as well as maintenance and replacement of drilling equipment within the Unit. Funds for development drilling are based on the assumption that 55 wells will be developed and/or replaced during the Plan year, using three drilling rigs and one completion rig.

Drilling and completing new wells, as well as redrilling and recompleting existing wells, account for 93 percent of the funding provided in this Category. Included in these activities is funding for rig move-in, drilling and casing, completion activities, drilling rig in-zone plugs and conditional abandonments, and unscheduled activity (fishing operations, cement squeezing, special logging, contract drilling services). Also included in this category are rig repairs.

Exact specifications regarding the distribution of wells, bottom hole locations, and completion intervals will be determined by OXY Long Beach, Inc. (OLBI). These decisions will be influenced by contributions from reservoir engineering personnel, results from ongoing engineering studies, and new well performance. This information will be reviewed and approved in accordance with Unit Agreements during regularly scheduled Unit forums.

B. Operating Expense

\$114,800,000

The Operating Expense category of expenditures encompasses the ongoing costs of day-to-day well production and injection operations necessary for producing, processing, and delivering crude oil and gas, and for all electric power charges. Expenses for this category are based on estimated oil production of 31.4 Mbopd, estimated gas production of 10.0 MMcfpd, water injection requirement of 986 Mbwpd, and water production of 879 Mbwpd. Anticipated operating expenses were based on operating three and a half workover rigs per month for servicing an average active well count of 836 producers and 441 injectors, and up to 1/4 rig for abandonment activity. Abandonment well count will be determined as a function of drilling activity and the number of idle wells with no future use identified.

The day-to-day costs for production and injection well subsurface operations represent approximately 35 percent of the funding provided in this category. Included are funds for acidizing, fracturing, routine well work, well conversions,

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in-zone plugs, conditional abandonments, and other charges incurred for well maintenance.

Electricity makes up 63 percent of the funds in this Category. Cost for electric power is based on estimated kilowatt usage of 610,376,643 kwh at an average rate of \$0.1192/kwh. This cost includes all sources of Unit electrical power, including all costs associated with the power plant and electric utility purchases. Also included is funding for the pay-down of the Power Plant lease.

C. Facilities, Maintenance, and Plant

\$71,500,000

The Facilities, Maintenance, and Plant category of expenditures encompasses costs for maintenance, repairs, upgrades, additions of surface facilities and pipelines, and costs for general field services.

Approximately 40 percent of the funding in this category is for general field and operating costs. This includes, but is not limited to, charges for general labor, equipment rentals, and materials for general maintenance (painting, welding, electrical, etc.) of all Unit systems, such as oil gathering, treating, storage, and transfer; gas gathering and treating; scale and corrosion control; produced water handling; waste disposal; leasehold improvements; electrical system; fresh water system; fire protection and safety; marine operations; and automotive equipment. Funds are also provided for chemical purchases and laboratory-related charges for chemical treatment of produced and injected fluids; gas processing charges; make-up water; security; transportation; small tools; and other miscellaneous field activities.

Approximately 60 percent of the funding in this Category is for facilities repair and improvement projects. Improvement projects include spending for the construction of the Amine plant, facility capacity limits expansion, pipeline replacements, and other infrastructure related investments that position the Unit for longevity.

D. Unit Field Labor and Administrative

\$43,500,000

The Unit Field Labor and Administrative category of expenditures encompasses costs for Unit personnel and other Unit support activities.

Funding for Unit personnel includes costs of salaries, wages, benefits, training, and expenses of all Thums employees. These costs represent approximately 67% of the category total.

Funding for Unit support activities includes, but is not limited to, costs for professional and temporary services necessary for the completion of support

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activities; charges for data processing; computer hardware and software; communications; office rent; general office equipment and materials; Unit Operator billable costs; OLBI billable costs; drafting and reprographic services; Department of Transportation drug and alcohol testing; special management projects; and other miscellaneous support charges.

E. Taxes, Permits, and Administrative Overhead \$23,100,000

The Taxes, Permits, and Administrative Overhead category of expenditures includes funds for specific taxes, permits, licenses, land leases, and all administrative overhead costs for the Unit.

Funding is provided for taxes levied on personal property, mining rights, and oil production; for the Petroleum and Gas Fund Assessment; annual well permits and renewals; Conservation Committee of California Oil and Gas Producers Assessment; California Oil Spill Response, Prevention, and Administration fee; land leases; and pipeline right-of-way costs. These costs represent approximately 48 percent of the Category total.

Funding is also provided in this Category for all Administrative Overhead as called for in Exhibit F of the Unit Operating Agreement.

PART IV

Definitions

This Annual Plan may be Modified or Supplemented after review by the State Lands Commission for consistency with the current Program Plan. All Modifications and Supplements to this plan will be presented by the Department of Oil Properties, City of Long Beach, acting with the consent of OLBI, to the State Lands Commission in accordance with Article 2.06 of the Optimized Waterflood Program Agreement.

In addition, on or before October 1, 2007 the City of Long Beach shall present to the State Lands Commission a final report and closing statement of the FY06/07 Annual Plan, in accordance with the provision in Section 10 of Chapter 138.

A. Modifications

The City of Long Beach, acting with the consent of OLBI, has the authority to cause the expenditures of funds for Unit Operations in excess of the amount set forth in the budget included in the Annual Plan, provided, however, that no such expenditure shall be incurred that would result in any category of expenditures set forth in the budget to exceed 120 percent of the budgeted amount for that category. A budget modification would be required for any expenditures which would cause a budget category to exceed its budgeted amount by 120 percent.

Any transfer of funds between budget categories or an augmentation or decrease of the entire budget may be accomplished by a budget modification in accordance with section 5(g) of Chapter 138 and Article 2.06 of the Optimized Waterflood Program Agreement.

Investment, facilities, and management expense projects commenced in prior budget periods, which are to be continued during the current budget period, may be added to this budget by a modification in accordance with Article 2.06 of the Optimized Waterflood Program Agreement.

B. Supplements

This Annual Plan contains all the investment and expense projects reasonably anticipated at the time the Plan was drafted and for which adequate detailed studies existed. Any significant and uncommon expenses not originally contemplated may be added to this budget or transferred by a supplement in accordance with Article 2.06 of the Optimized Waterflood Program Agreement.

The amount of the supplement shall include sufficient funds to complete the projects.

C. Final Report and Closing Statement

The final report and closing statement for FY06/07 shall contain a reconciliation by category as finally modified and the actual accomplishments, including:

- 1. New wells and redrills by zone.
- 2. Facilities and capital projects.
- 3. Production by zone.
- 4. Injection by zone.

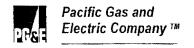
ITEM C61

04-17-06

CITY OF LONG BEACH (APPLICANT)

LETTERS OF CONCERN

(12003) or 00A



Keith Sampson Attorney at Law Mailing Address
P.O. Box 7442
San Francisco, CA 94120

Street/Courier Address Law Department 77 Beale Street, B30A San Francisco, CA 94105

Phone: (415) 973-5443 Fax: (415) 973-5520 Internet: KTS1@pge.com

Via Hand Delivery

April 17, 2006

Ms. Mary Menconi California State Lands Commission 100 Howe Avenue, Suite 100-South Sacramento, CA 95825-8202

Re:

PG&E Pipeline 57C Reliability Project

Dear Ms. Menconi:

Pacific Gas and Electric Company (PG&E) hereby respectfully requests that the official record on the above-referenced matter include all documents provided by PG&E to the Staff of the California State Lands Commission (CSLC) as part of its review of written comments submitted during the 30-day review period of the February 24, 2006 "Draft Initial Study Proposed Mitigated Negative Declaration PG&E Line 57C Reliability Project." Attached is a list of those documents. In addition, enclosed are the following documents to also be included in the official record: (1) TRIGON Letter – Reclamation District No. 24 – Palm Tract; (2) Michels' Response Statement and Experience Lists of Directional Crossings – Delta Crossings and or Similar Environmental Concerns/Levees, and Long Distance HDD's; and (3) Kleinfelder Letter.

If you have any questions or require further information, please contact me at the above-listed number, or Frank Maxwell at (925) 974-4084.

Very truly yours,

KEITH T. SAMPSON

KS:in

cc:

Attachments

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CALENDAR PAGE

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Attachment	Title
1.	Project Contact Timeline
2.	CCR 123
3.	Land Owner Agreements on Pipeline Alignment
4.	GEO Engineers HDD Design Report
5.	Michel's L-57c Drill Plan
6.	GeoSyntec Report
7.	Grouting White Paper
8.	Kleinfelder Geotechnical Report
9.	Michel's Project List, Data on Personnel, PWD Tool
10.	SSD Liquefaction Analysis
11.	NPDES Application
12.	Peat Fire Prevention Plan Min. Requirements
13.	Kleinfelder Report Clarification
14.	Memorandum on Legal Issues

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April 14, 2006

Pacific Gas & Electric Company Attn: Jay Brandli 375 N. Wiget Lane, Suite #200 Walnut Creek, CA 94598

RE: PG&E Line 57C Project – Reclamation District No. 24 – Palm Tract

Dear Mr. Brandli:

This letter is in response to the concern expressed that the proposed Line 57C, being the third PG&E pipeline to cross the Palm Tract levee, presents a risk of levee failure and possible seepage that could lead to levee failure. Line 57C is independent of lines 57A and 57B at the levee crossing, and will cross the levee at significant distances of over 1,400 feet and 2,100 feet from the Line 57B and 57A, respectively. In addition the 1949 installed Line 57A and the 1974 installed Line 57B were constructed through the levee, whereas Line 57C will be approximately 90 feet below the levee.

The significance of the depth of Line 57C can be illustrated by a hypothetical analysis completed by GeoSyntec Consultants¹, to calculate the settlement after placing one to two feet of additional fill on top of the levee for a pipe just below the levee and a pipe 80 feet below the levee. The results of this analysis were that the pipe just below the levee would experience ½ inch of immediate settlement and up to 2 feet of long term settlement. The pipe 80 feet below the levee would experience less than one hundredth of an inch in immediate settlement and no long term settlement. This illustrates that a pipe installed at a significant depth below the levee will have far less impact on the levee.

Further, GeoSyntec concluded that "The possibility of seepage failure along the pipeline is highly unlikely." This is primarily due to the thicker drilling fluid being used during pullback and the horizontal directional drill entry and exit points being so far from the levee (over 2000 feet) resulting in a very low gradient very slow water velocity. The slower rate of water movement is not fast enough to carry soil particles and will not lead to piping failure.1

If you require further clarification on this issue, please do not hesitate to call me at (303) 908-7240.

Sincerely,

Mark Olmsted

1. Elmo

Civil Manager

1. Lucia, Patrick C. Ph.D, P.E., G.E., 2006, Subject: Line 57 Reliability Project, GeoSyntec Consultants enclosure(s)

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MICHELS CORPORATION



817 W. Main Street • P.O. Box 128 • Brownsville, WI 53006-0128 920/583-3132 • Fax 920/583-3429 www.michels-usa.com

April 17, 2006

PG&E

Re: PG&E Response to TRC Lowney

Gentlemen:

The crossing lengths and bore depths to be addressed for Line 57c are well within industry standard drill lengths for horizontal directional drilling. The industry has seen crossings successfully completed over 8,000 linear feet in length and 90-feet in depth in varying types of soil conditions. Therefore, the proposed Line 57c crossings are well within the envelope.

There was concern mentioned regarding the risk of fracturing within the top 20-25 feet of loamy soil. This will be mitigated by Michels through the installation of a steel conductor casing which totally encapsulates the drilling fluid within this soil strata, thereby eliminating the risk of hydraulic fracturing at the entry points for the hole intersects.

Michels has extensive experience in varying soil conditions. Attached are lists of projects involving (1) long-bore HDD's performed by Michels, and (2) HDD's performed in soil conditions similar to the Delta.

Sincerely,

Michels Corporation

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Western Region Manager

TELECOMMUNICATIONS • GAS PIPELINE • DIRECTIONAL DRILLING • ELECTRICAL • AGGREGATE MATERIALS SEWER, WATER & TUNNELING • CONCRETE • ENGINEERING • DESIGN/BUILD

MICHELS CORPORATION

MICHELS DIRECTIONAL CROSSINGS

Delta Crossings and/or Similar Environmental Concerns/Levees DIRECTIONAL DRILLING REFERENCES/EXPERIENCE LIST

Date	Utility	Prime Contractor	Contact	<i>Phone No.</i>	Diameter of Bore	Length	Location
2005	REGENCY PIPELINE	H.C. PRICE	BUDDY HARDWICK	(972) 858-8800	30" STEEL	2,996'	OUACHITA RIVER COLUMBIA, LA
2005	PACIFIC ENERGY PARTNERS	MICHELS DIRECTIONAL CROSSINGS	DON CASWELL	(661) 836-6808	14" STEEL	1,832'	CASTAIC CREEK CASTAIC, CA
2005	PACIFIC ENERGY PARTNERS	MICHELS DIRECTIONAL CROSSINGS	DON CASWELL	(661) 836-6808	14" STEEL	1,052'	ANGELES NATIONAL FOREST SANDBERG, CA
2005	TERASEN GAS (BC GAS)	MICHELS DIRECTIONAL CROSSINGS	MIKE PRIOR	(780) 955-2120	12" STEEL	975′	BEDFORD CHANNEL OF FRASER RIVER BRITISH COLUMBIA, CANADA ⁴
2005	OLYMPIC PIPELINE	SNELSON COMPANIES	BRIAN GANSKE	(360) 856-6511	20" STEEL	1,965'	NORTH EBEY SLOUGH EVERETT, WA
2005	OLYMPIC PIPELINE	SNELSON COMPANIES	BRIAN GANSKE	(360) 856-6511	20" STEEL	2,050'	NORTH EBEY SLOUGH ——. C) AWAY CO
2005	BG ECMA DOLPHIN DEEP DEVELOPMENT	STOLT OFFSHORE INC	FRANK WANG	(713) 300-6570	24" STEEL W/2" THICK CONCRETE COATING	3,402'	ATLANTIC OCEAN ³ CO
2005	METROPOLITAN UTILITIES DISTRICT OF OMAHA	GARNEY CONSTRUCTION	MIKE KOENIG (CITY) J.W. YOUNGBLOOD (GARNEY)	(402) 554-7717 (816) 746-7223	48" STEEL	2,894'	PLATTE RIVER - NORTH OMAHA, NE
2005	METROPOLITAN UTILITIES DISTRICT OF OMAHA	GARNEY CONSTRUCTION	MIKE KOENIG (CITY) J.W. YOUNGBLOOD (GARNEY)	(402) 554-7717 (816) 746-7223	48" STEEL	2,940'	PLATTE RIVER - SOUTH OMAHA, NE
2005	CITY OF CORPUS CHRISTI TEXAS	LAUGHLIN-THYSSEN	GORDON MEANS (CITY) CHAD SANDEL (L-T)	(361) 880-3555 (361) 533-4002	42" STEEL	3,283'	OSO CREEK CORPUS CHRISTI, TX
2004	EASTERN NORTH CAROLINA GAS	PATTERSON & WILDER CONSTRUCTION	GREY LEWIS	(716) 667-6624	6" STEEL	15,684' PULLED	CURRITUCK SOUND POINT HARBOR, NC ³
2004	SOUTH CAROLINA GAS AND ELECTRIC COMPANY	MICHELS DIRECTIONAL CROSSINGS	JERRY RUSCHKOFSKI	(803) 217-9355	8" STEEL	7,074'	COOPER RIVER CHARLESTON, SC
2004	CITY OF MARYSVILLE	MICHELS DIRECTIONAL CROSSINGS	JEFFREY MASSIE, P.E.	(360) 651-5100	36" HDPE	2,032'	HIGHWAY 529 & UNION SLOUGH) MARYSVILLE, WA
2004	CITY OF MARYSVILLE	MICHELS DIRECTIONAL CROSSINGS	JEFFREY MASSIE, P.E.	(360) 651-5100	36" HDPE	2,648'	SOUTH LAGOON & EBEY SLOUGH) MARYSVILLE, WA
2004	WILLIAMS GAS PIPELINE	HOUSTON CONTRACTING COMPANY	KELLY THOMAS	(360) 753-7236	16" STEEL	5,448'	SLOUGHS CROSSING EVERETT, WA

Environmental Services² Beach Approach³ Michels Directional/Canada Division

Water to Water Crossing⁵

Hole Intersects⁶

Solid Rock Bore1

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
2004	WILLIAMS GAS PIPELINE	HOUSTON CONTRACTING COMPANY	KELLY THOMAS	(360) 753-7236	16" STEEL	1,301'	INTERSTATE 5 EVERETT, WA
2004	WILLIAMS GAS PIPELINE	HOUSTON CONTRACTING COMPANY	KELLY THOMAS	(360) 753-7236	16" STEEL	2,510'	24TH STREET EVERETT, WA
2004	WILLIAMS GAS PIPELINE	HOUSTON CONTRACTING COMPANY	KELLY THOMAS	(360) 753-7236	16" STEEL	1,301'	SNOHOMISH RIVER EVERETT, WA
2004	NORTHWEST NATURAL GAS SOUTH MIST PIPELINE	ROCKFORD CORPORATION	FRANK WELCH	(503) 647-0224	24" STEEL	2,690'	TUALATIN RIVER CORNELIUS, WA
2004	GULFSTREAM NATURAL GAS	SHEEHAN PIPELINE CONSTRUCTION	ROBERT BENDURE	(918) 747-3471	30" STEEL	1,458'	ISTOKPOGA CANAL CORNWELL, FL
2004	GULFSTREAM NATURAL GAS	SHEEHAN PIPELINE CONSTRUCTION	ROBERT BENDURE	(918) 747-3471	30" STEEL	3,330'	BARLEY BARBER SWAMP L-65 OKEECHOBEE, FL
2004	GULFSTREAM NATURAL GAS	SHEEHAN PIPELINE CONSTRUCTION	ROBERT BENDURE	(918) 747-3471	30" STEEL	3,720'	KISSIMMEE RIVER FT BASINGER, FL
2004	GULFSTREAM NATURAL GAS	SHEEHAN PIPELINE CONSTRUCTION	ROBERT BENDURE	(918) 747-3471	30" STEEL	4,096'	CHANDLER SLOUGH FT BASINGER, FL
2004	GULFSTREAM NATURAL GAS	SHEEHAN PIPELINE CONSTRUCTION	ROBERT BENDURE	(918) 747-3471	30" STEEL	2,342'	HWY-98 NORTH FLOOD PLAIN FT BASINGER, FL
2004	GULFSTREAM NATURAL GAS	SHEEHAN PIPELINE CONSTRUCTION	ROBERT BENDURE	(918) 747-3471	30" STEEL	2,009'	HWY-98 SOUTH FLOOD PLAIN, FT BASINGER, FL
2004	GULFSTREAM NATURAL GAS	SHEEHAN PIPELINE CONSTRUCTION	ROBERT BENDURE	(918) 747-3471	30" STEEL	3,075'	HWY-98 C) :
2004	ATLANTIC CITY MUNICIPAL AUTHORITY	C. ABBONIZIO CONTRACTORS, INC.	MIKE TEDESCO	(856) 228-2600	30" HDPE	1260'	BEACH THOROFARE ATLANTIC CITY, NJ
2004	SOUTH CAROLINA GAS AND ELECTRIC COMPANY	JACOBS CONSTRUCTION SERVICES	DOUG LOCKARD	(864) 676-6000	8" STEEL	7,025'	COOPER RIVER CHARLESTON, SC
2003	WILLIAMS TRANSCO	HENKELS & MCCOY	EARL KESNER	(405) 364-5433	24" STEEL	3,344'	DELAWARE RIVER FIELDSBORO, NJ
			DAVID STOTZ LATEX	(770) 760-0820			HIGHWAY 98
2003	FLORIDA GAS ENRON	LATEX CONSTRUCTION	KEN STEVENS FGT-ENRON	(800) 381-1477	36" STEEL	877'	HOMOSASSA, FL O
2003	COASTAL CORPORATION	U.S. PIPELINE	KELLY OSBORN LOWELL BRIEN U.S. PIPELINE	(281) 531-6100	12" STEEL	2,735'	ARTHUR KILL RIVER LINDEN, NJ/GULFPORTANY
			RUBIN GARCIA COASTAL CORP	(713) 420-4216			LINDEN, NJ/GULFPORT和的

Environmental Services²

Beach Approach³

Chels Directional/Canada Division

Michels Directional/Canada Division

Water to Water Crossing⁵

Hole Intersects⁶

Solid Rock Bore¹

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
2003	COASTAL CORPORATION	U.S. PIPELINE	KELLY OSBORN LOWELL BRIEN U.S. PIPELINE	(281) 531-6100	12" STEEL	1,668'	NORTH SHOOTERS ISLAND ^{1&3} PORT IVORY, NY
			RUBIN GARCIA COASTAL CORP	(713) 420-4216			, , , , , , , , , , , , , , , , , , , ,
2003	COASTAL CORPORATION	U.S. PIPELINE	KELLY OSBORN LOWELL BRIEN U.S. PIPELINE	(281) 531-6100	12" STEEL	3,524'	SOUTH REACH CHANNELS ¹⁸³
			RUBIN GARCIA COASTAL CORP	(713) 420-4216			BAYONNE, NY
2003	MARITIMES & NORTHEAST DUKE ENERGY	MICHELS CORPORATION	WAYNE DWYER MARITIMES & NORTHEAST	(978) 741-7926	30" STEEL	1,944'	EMERSON BROOK' ESSEX COUNTY, MA
2003	MARITIMES & NORTHEAST DUKE ENERGY	MICHELS CORPORATION	WAYNE DWYER MARITIMES & NORTHEAST	(978) 741-7926	30" STEEL	3,672'	WATERS RIVER ¹ DANVERS, MA
2003	MARITIMES & NORTHEAST DUKE ENERGY	MICHELS CORPORATION	WAYNE DWYER MARITIMES & NORTHEAST	(978) 741-7926	30" STEEL	1,487'	MERRIMACK RIVER - PHASEIIL HAVERHILL, MA
2002	WILLIAMS GAS PIPELINE	MICHELS PIPELINE CONSTRUCTION	RANDY NELSON	(801) 584-6828	26" STEEL	1,537'	SOUTH FORK NOOKSACK RIVER
2002	FLORIDA GAS ENRON	LATEX CONSTRUCTION	DAVID STOTZ LATEX	(770) 760-0820	36" STEEL	2,514'	MOBILE RIVER MOBILE, AL
			KEN STEVENS FGT-ENRON	(800) 381-1477			MOBILE, AL
2002	WILLIAMS GAS PIPELINE	ASSOCIATED PIPELINE	GENE BELL	(713) 789-4311	20" STEEL	1,398'	CHEHALIS RIVER #1 ELMA, WA
2002	WILLIAMS GAS PIPELINE	ASSOCIATED PIPELINE	GENE BELL	(713) 789-4311	20" STEEL	1,136'	CHEHALIS RIVER #2 ELMA, WA
2002	WILLIAMS GAS PIPELINE	ASSOCIATED PIPELINE	GENE BELL	(713) 789-4311	20" STEEL	1,290'	CHEHALIS RIVER #3 ELMA, WA
2002	FLORIDA GAS	LATEX CONSTRUCTION	DAVID STOTZ	(770) 760-0820	26" STEEL	866'	CANAL LAKE MONROE, FL
2002	FLORIDA GAS	LATEX CONSTRUCTION	DAVID STOTZ	(770) 760-0820	26" STEEL	1,050'	SWAMP AND CANAL COLLAKE MONROE, FL
2001	FLORIDA GAS	LATEX CONSTRUCTION	DAVID STOTZ	(770) 760-0820	26" STEEL	2,406'	WEKIVA RIVER SANFORD, FL
2001	FLORIDA GAS	LATEX CONSTRUCTION	DAVID STOTZ	(770) 760-0820	26" STEEL	1,570'	ST. JOHN'S RIVER O

Solid Rock Bore¹
Environmental Services²
Beach Approach³
Michels Directional/Canada Division⁴
Water to Water Crossing⁵

Hole Intersects⁸

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
2001	CITY OF CALGARY ALBERTA, CANADA	MICHELS DIRECTIONAL CROSSINGS	JIM MC AULEY	(403) 268-3475	30" HDPE 750MM	1,580' 481M	BOW RIVER⁴ CALGARY, ALBERTA CANADA
2001	WILLIAMS TRANSCO	MICHELS DIRECTIONAL CROSSINGS	RON HOEPNER	(713) 215-2857	42" STEEL	2,051'	MARSHES CREEK¹ LINDEN, NJ
2001	WILLIAMS TRANSCO	MICHELS DIRECTIONAL CROSSINGS	RON HOEPNER	(713) 215-2857	42" STEEL	2,860'	RAHWAY RIVER' LINDEN, NJ
2001	GULFSTREAM NATURAL GAS	STOLT OFFSHORE INC	ERIC SKONBERG-STOLT RON HOEPNER-GULF	(713) 430-1100 (713) 215-2857	38.5" OD 1.25" WT STEEL	4,009'	TAMPA BAY, TAMPA, FL³
2001	FLORIDA GAS	LATEX CONSTRUCTION	DAVID STOTZ	(770) 760-0820	30" STEEL	2,199'	ST. LUCIE CANAL PALM CITY, FL
20 01	FLORIDA GAS	LATEX CONSTRUCTION	DAVID STOTZ	(770) 760-0820	18" STEEL	2,000'	ST. LUCIE CANAL PALM CITY, FL
2001	VIRGINIA NATURAL GAS		RANDY MCCLUNG-VNG STEVE HARVEY-VNG	(814) 798-0095	16" STEEL	873'	CREEK AT USCG GARDENS WILLIAMSBURG, VA
2000	LEVEL III	PILCHUCK CONTRACTORS	MIKE TERRY	(425) 485-7908	10" STEEL WINNR	1,012'	YAKIMA RIVER CO EASTON, WA
2000	LEVEL III	MICHELS PIPELINE CONSTRUCTION	JOSEPH MC VEIGH AMAN KHAN	(201) 533-0020 (212) 981-0789	18" STEEL W/24-1½" INNR	1,172'	PASSAIC RIVER () () () () () () () () () () () () ()
2000	FLORIDA GAS	LATEX CONSTRUCTION	CHIEF SADDLER RICK PERKINS FL. GAS TRANS. (ENRON) DAVID STOTZ LATEX	(813) 655-7441 (713) 646-6252 (770) 760-0820	26" STEEL	1,586'	CALOOSAHATCHEE RIVER FT. MYERS SHORES, FL
2000	SOUTHERN CALIFORNIA GAS	JL STANTON CONSTRUCTION	SCG WARREN COLVIN	(310) 687-2027	20" STEEL 3-Pi'S	3,013'	CERRITOS SHIP CHANNEL LONG BEACH, CA
2000	SOUTHERN CALIFORNIA GAS	JL STANTON CONSTRUCTION	SCG WARREN COLVIN	(310) 687-2027	12" STEEL	2,631'	CERRITOS SHIP CHANNEL CONG BEACH, CA
2000	FLORIDA GAS	LATEX CONSTRUCTION	CHIEF SADDLER RICK PERKINS FL. GAS TRANS. DAVID STOTZ LATEX	(813) 655-7441 (713) 646-6252 (770) 760-0820	30" STEEL	2,032'	STATE ROUTE 663 @ WETLANDS FT. GREEN SPRINGS, FU

Environmental Services² Beach Approach³ Michels Directional/Canada Division

Water to Water Crossing⁵

Hole Intersects⁶

Solid Rock Bore¹

Solid Rock Bore¹
Environmental Services²
Beach Approach³
Michels Directional/Canada Division⁶
Water to Water Crossing⁵
Hole Intersects⁵

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
1998	PORTLAND NATURAL GAS	PORTLAND NATURAL GAS WELDED CONSTRUCTION	MARK HAMARICH BENNIE DOWELL EL PASO ENERGY	(713) 420-2902	12" STEEL	1,180'	ANDROSCOGGIN RIVER JAY, ME
			DON THORN WELDED CONST.	(419) 874-3548		and the second s	,
1998	BORTLAND NATHRAL GAS	PORTLAND NATURAL GAS DELTA GULF CORPORATION	MARK HAMARICH EL PASO ENERGY	(713) 420-2902	30" STEEL	1,060'	GREAT WORKS RIVER MP58.3
1990	PORTDAND NATURAL GAS	DELIA GOLF CORPORATION	BILL LEONE DELTA GULF	(318) 797-9300	30 STEEL	1,000	SOUTH BERWICK, ME
		DELTA CILLE CODDOCATION	MARK HAMARICH EL PASO ENERGY	(713) 420-2902	noll OTEC	4 (00)	GREAT WORKS RIVER MP63.02
1998	PORTLAND NATURAL GAS	DELTA GULF CORPORATION	BILL LEONE DELTA GULF	(318) 797-9300	30" STEEL	1,688'	SANFORD, ME
1998	PACIFIC PIPELINE	MICHELS PIPELINE CONSTRUCTION	HENRICK SARKISSIAN	(303) 705-9367	20" STEEL	5'107'	GORMAN SLIDE ¹ GORMAN, CA
1998	PACIFIC PIPELINE	MICHELS PIPELINE CONSTRUCTION	HENRICK SARKISSIAN	(303) 705-9367	20" STEEL	2,130'	CASTAIC CREEK CASTAIC, CA DOG POUND NORTH
1998	PACIFIC PIPELINE	MICHELS PIPELINE CONSTRUCTION	HENRICK SARKISSIAN	(303) 705-9367	6" STEEL	2,467'	DOG POUND NORTH BUTBANK, CA
1998	PACIFIC PIPELINE	MICHELS PIPELINE CONSTRUCTION	HENRICK SARKISSIAN	(303) 705-9367	20" STEEL	4,354'	INTERSTATE 105/110 INGLEWOOD, CA
1998	PACIFIC PIPELINE	MICHELS PIPELINE CONSTRUCTION	HENRICK SARKISSIAN	(303) 705-9367	20" STEEL	1,486'	INTERSTATE-405 HAWTHORNE, CA
1998	PACIFIC PIPELINE	MICHELS PIPELINE CONSTRUCTION	HENRICK SARKISSIAN	(303) 705-9367	20" STEEL	3,253'	DOG POUND SOUTH BURBANK, CA
1998	PACIFIC PIPELINE	MICHELS PIPELINE CONSTRUCTION	HENRICK SARKISSIAN	(303) 705-9367	20" STEEL	2,495'	SANTA CLARA RIVER SANTA CLARITA, CA
1998	ST. CHARLES COUNTY MISSOURI	MICHELS PIPELINE CONSTRUCTION	MIKE DOUGHERTY ST. CHARLES COUNTY TOM MEINHART KURT BERRGER SVERDRUP CIVIL ENG	(314) 561-3737 (314) 770-4723	42" ID STEEL WATERMAIN COATED INTR/EXTR	1/3 ROCK BORE 3,500'	MISSOURI RIVER' CHESTERFIELD, MO ST. LOUIS, MO
1997	MISSOURI AMERICAN WATER WORKS	KARSTEN EQUIPMENT	MARK GRIFFIN MAWW	(816) 236-2278	36" ID WATER MAIN	4,605'	ST. LOUIS, MO
1997	ATLANTA GAS LIGHT COMPANY	MICHELS PIPELINE CONSTRUCTION	RICHARD LONN	(404) 584-4641	24" STEEL	1,188'	GWINNETT COUNTY, GA1
1997	ALGONQUIN GAS	DELTA GULF CORPORATION	AVID NEAL ALGONQUIN GA	(614) 560-1406	20" STEEL	2,300'	MIDDLETOWN, CT1

Environmental Services²
Beach Approach³
Michels Directional/Canada Division

Water to Water Crossing⁵ Hole Intersects⁶

Solid Rock Bore¹

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
1997	MASSACHUSETTS WATER RESOURCES	J.F. WHITE	PAUL LENZA-MRW KEVIN EGAN-J.F. WHITE	(617) 242-6000 (617) 964-0100	SDR-11 42" HDPE	2,025'	WEYMOUTH, MA
1997	TOWN OF OCEAN RIDGE, FL	MICHELS PIPELINE CONSTRUCTION	ENG-B.O.A. HENRY GLAUS	(561) 626-4653	12" HDPE	1,470′	OCEAN RIDGE, FL
1997	NEW JERSEY AMERICAN WATER COMPANY	NORTHEAST CONSTRUCTION, INC.	MIKE ALTLAND ENGINEER: KILLIAM RICH PALMER	(201) 379-3400	24" HDPE SDR-11	842'	SEA GIRT, NJ
			NORTHEAST CONSTR.	(908) 364-8200			
1997	OLYMPIA PIPELINE	SNELSON COMPANIES	BRIAN GANSKE	(360) 929-6953	14" STEEL	2,200'	CENTRALIA, WA¹
1996	TRANSCO	SHEEHAN PIPELINE CONSTRUCTION	KENT SCHOBE	(918) 747-3471	36" STEEL	2,032'	CHOCTAW & MARENGO COUNTY, AL
1996	NEW JERSEY AMERICAN WATER COMPANY	F.W. SHAWL	WAYNE SHAWL	(609) 390-9284	24" HDPE	861'	OCEAN CITY, NJ
1996	AT&T/STARCOM	PILCHUCK CONTRACTORS	MIKE TERRY	(360) 653-2160	2" INNERDUCT	3,527'	CONWAY, WA
1996	AT&T/STARCOM	PILCHUCK CONTRACTORS	MIKE TERRY	(360) 653-2160	2" INNERDUCT	3,819'	CONWAY, WA
1996	AT&T/STARCOM	PILCHUCK CONTRACTORS	MIKE TERRY	(360) 653-2160	2" INNERDUCT	3,194'	CONWAY, WA
1996	AT&T/STARCOM	PILCHUCK CONTRACTORS	MIKE TERRY	(360) 653-2160	2" INNERDUCT	3,048'	CONWAY, WA
1996	AT&T/STARCOM	PILCHUCK CONTRACTORS	MIKE TERRY	(360) 653-2160	2" INNERDUCT	2,537'	BELLINGHAM, WA
1996	AT&T/STARCOM	PILCHUCK CONTRACTORS	MIKE TERRY	(360) 653-2160	2" INNERDUCT	1,695'	RENTON, WA
1996	AT&T/STARCOM	PILCHUCK CONTRACTORS	MIKE TERRY	(360) 653-2160	2" INNERDUCT	2,276'	BELLINGHAM, WA
1996	AT&T/STARCOM	UNDERGROUND UTILITIES	MARK SWANSON MIKE RAKOZ	(206) 308-6891	5½" DRILL STEM	5 BORES- 1,000' TO 2,100'	MARYSVILLE, WA
1996	TRANSCO	SHEEHAN PIPELINE CONSTRUCTION	ROBERT BENDURE KENT SCHOBE	(918) 747-3471	42" STEEL	2,262'	CHOCTAW & COMMARENGO COUNTY, AL (COMMARENGO COUNTY)
1996	HUNTSVILLE UTILITIES ALABAMA	MICHELS PIPELINE CONSTRUCTION	TERRY BEDWELL	(205) 535-1200	24" STL CSNG W/12"	1,880'	GUNTERSVILLE, AL ¹
1996	CITY OF CHARLESTON, SC	MICHELS PIPELINE CONSTRUCTION	LARRY DROLEY	(803) 727-6800	24" STL W/20" HDPE	1,568'	CHARLESTON, SC
1996	YORK COUNTY, SOUTH CAROLINA	MICHELS PIPELINE CONSTRUCTION	JOEL WOOD POWER ENG	(704) 588-4204	24" HDPE SEWER MAIN	1,119'	ROCK HILL, SC1

Solid Rock Bore¹
Environmental Services²
Beach Approach³
Michels Directional/Canada Division⁶
Water to Water Crossing⁵
Hole Intersects⁶

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
1995	CASCADE NATURAL GAS	SNELSON COMPANIES	GENE ROGER	(206) 624-3900	12" STEEL	2,260'	LONGVIEW, WA¹
1995	VIRGINIA NATURAL GAS	RACE PIPELINE COMPANY	GEORGE STUMP	(412) 837-8451	16" STEEL	2,451'	NEWPORT NEWS, VA
1995	CASCADE NATURAL GAS	MID MOUNTAIN CONT.	GENE ROGER	(206) 624-3900	8" STEEL	1,788'	WENATCHEE, WA1
1995	VIRGINIA NATURAL GAS	MICHELS PIPELINE CONSTRUCTION	LESLIE A. FLORA, JR, PE	(804) 455-2033	20" STEEL	1,558'	CHESAPEAKE, VA
1995	VIRGINIA NATURAL GAS	MICHELS PIPELINE CONSTRUCTION	LESLIE A. FLORA, JR, PE	(804) 455-2033	6" STEEL	2,532	YORKTOWN, VA
1995	NIAGARA GAS TRANSMISSION	MICHELS PIPELINE CONSTRUCTION	BRYAN DUARTE	(613) 747-4010	20" STEEL	3,628'	OTTAWA, ONTARIO
1994	NEW JERSEY BELL	KLINE CONSTRUCTION	CHARLIE FETTERS	(609) 652-3000	6" STEEL	3,706'	OCEAN CITY, NJ
1994	U.S. WEST COMMUNICATIONS	MICHELS PIPELINE CONSTRUCTION	LISA WELCH	(503) 242-7823	4-4" STEEL	850'	CORVALLIS, OR
1994	U.S. WEST COMMUNICATIONS	ARMADILLO CONSTRUCTION	LYLE SCHELLENBERG	(503) 588-8050	6 ⁺	705'	CANBY, OR
1994	COLONIAL PIPELINE	BRADFORD BROS, INC.	DEE BRADFORD	(704) 784-1341	10.75"	5,851'	CANBY, OR COUNTY, VA. O
1994	U.S. NAVY	SVERDRUP CORP.	TANVEER RAO	(714) 752-8463	16" STEEL	1,466'	OCEAN SIDE, CA CAMP PENDELTON
1994	U.S. NAVY	SVERDRUP CORP.	TANVEER RAO	(714) 752-8463	7-4" HDPE	1,424'	OCEAN SIDE, CA CAMP PENDELTON
1994	U.S. NAVY	SVERDRUP CORP.	TANVEER RAO	(714) 752-8463	16" STEEL W/4-4" HDPE	1,394'	OCEAN SIDE, CA CAMP PENDELTON
1994	U.S. NAVY	SVERDRUP CORP.	TANVÆER RAO	(714) 752-8463	6" HDPE	1,356'	OCEAN SIDE, CA CAMP PENDELTON
1994	FLORIDA GAS	MICHELS PIPELINE CONSTRUCTION	GARY CORLESS	(407) 875-5844	8" STEEL	1,039'	PANAMA CITY, FL PANAMA CITY, FL
1994	SUN PIPELINE (SUNOCO)	HENKELS & MCCOY	MARIO QUATTROCHI	(215) 977-3532 (215) 937-1467	3/8"/1-6" STEEL	1,542'	SCHUYLKILL RIVER 🤼 0 PHILADELPHIA, PA
1994	SUN PIPELINE (SUNOCO)	HENKELS & MCCOY	MARIO QUATTROCHI	(215) 977-3532 (215) 937-1467	3/8"/1-6" STEEL	4,944'	DELAWARE RIVER CO PAULSBORO, NJ-PA
1994	SUN PIPELINE (SUNOCO)	HENKELS & MCCOY	MARIO QUATTROCHI	(215) 977-3532 (215) 937-1467	3/8"/1-6" STEEL	5,110'	RACCOON CREEK (C) G BRIDGEPORT, NJ
1994	FLORIDA GAS	MICHELS PIPELINE CONSTRUCTION	BILL ROME	(713) 853-6161	30" STEEL	3,184'	LAND OF LAKES, FL

Solid Rock Bore¹
Environmental Services²
Beach Approach³
Michels Directional/Canada Division⁶
Water to Water Crossing⁵
Hole Intersects⁶

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
1994	FLORIDA GAS	MICHELS PIPELINE CONSTRUCTION	BILL ROME	(713) 853-6161	30" STEEL	1,577'	LAND OF LAKES, FL
1994	FLORIDA GAS	MICHELS PIPELINE CONSTRUCTION	BILL ROME	(713) 853-6161	30" STEEL	1,865'	SEFFNER, FL
1994	FLORIDA GAS	MURPHY BROTHERS	BILL ROME FLORIDA GAS RICE PERKINS	(713) 853-6161 (713) 646-6252	36" STEEL	2,774'	CRESTVIEW, FL
1994	FLORIDA GAS	MURPHY BROTHERS	BILL ROME FLORIDA GAS RICE PERKINS	(713) 853-6161 (713) 646-6252	36" STEEL	1,749'	JAY, FL
1994	FLORIDA GAS	MURPHY BROTHERS	BILL ROME FLORIDA GAS RICE PERKINS	(713) 853-6161 (713) 646-6252	36" STEEL	1,277'	JAY, FL OC
1994	FLORIDA GAS	MURPHY BROTHERS	BILL ROME FLORIDA GAS RICE PERKINS	(713) 853-6161 (713) 646-6252	36" STEEL	4,044'	FLOMATION, FL
1994	FLORIDA GAS	LATEX CONSTRUCTION	DAVE STOTZ LATEX	(770) 760-0820	30" STEEL	1,300'	STUART, FL
1994	FLORIDA GAS	LATEX CONSTRUCTION	DAVE STOTZ LATEX	(770) 760-0820	30" STEEL	1,333'	STUART, FL
1994	FLORIDA GAS	LATEX CONSTRUCTION	DAVE STOTZ LATEX	(770) 760-0820	30" STEEL	1,362	STUART, FL
1994	FLORIDA GAS	LATEX CONSTRUCTION	DAVE STOTZ LATEX	(770) 760-0820	30" STEEL	1,451'	PALM BEACH, FL
1994	FLORIDA GAS	LATEX CONSTRUCTION	DAVE STOTZ LATEX	(770) 760-0820	30" STEEL	2,131'	OTILA OT III
1994	FLORIDA GAS	LATEX CONSTRUCTION	DAVE STOTZ LATEX	(770) 760-0820	30" STEEL	1,350'	MELBOURNE, FL
1994	FLORIDA GAS	LATEX CONSTRUCTION	DAVE STOTZ LATEX	(770) 760-0820	30" STEEL	2,634'	LAKELAND, FL
1994	FLORIDA GAS	LATEX CONSTRUCTION	DAVE STOTZ LATEX	(770) 760-0820	22" STEEL	2,634'	LAKELAND, FL
1994	FLORIDA GAS	LATEX CONSTRUCTION	DAVE STOTZ LATEX	(770) 760-0820	22" STEEL	1,879'	LAKELAND, FL
1994	FLORIDA GAS	LATEX CONSTRUCTION	DAVE STOTZ LATEX	(770) 760-0820	30" STEEL	1,476'	MELBOURNE, FL
1993	U.S. NAVY	SVERDRUP CORP.	TANVEER RAO	(714) 752-8463	12"	1,400'	CAMP PENDLETON, CA

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
1993	U.S. NAVY	SVERDRUP CORP.	TANVEER RAO	(714) 752-8463	18"	1,400'	CAMP PENDLETON, CA
1993	CASCADE NATURAL GAS	SNELSON COMPANIES	BRIAN GANSKE	(206) 856-0571	20"	684'	BELLINGHAM, WA
1993	CASCADE NATURAL GAS	SNELSON COMPANIES	BRIAN GANSKE	(206) 856-0571	20"	670'	BELLINGHAM, WA
1993	CITY OF KANSAS CITY	MICHELS PIPELINE CONSTRUCTION	DANE SATTIEST	(816) 274-2376	36" STEEL	2,015'	KANSAS CITY, MO
1993	THE HOBE SOUND WATER CO.	MICHELS PIPELINE CONSTRUCTION	TOBY SPURGE	(407) 863-6362	16" DUAL SIDEBEND	2,990'	JUPITER ISLAND, FL1
1993	ANR PIPELINE CO.	MICHELS PIPELINE CONSTRUCTION	CHARLIE BATEMAN	(313) 496-5596	24"	4,225'	N. TONAWANDA, NY¹
1993	ANR PIPELINE CO.	MICHELS PIPELINE CONSTRUCTION	CHARLIE BATEMAN	(313) 496-5596	24"	3,650'	GRAND ISLAND, NY
1992	CASCADE NATURAL GAS	COMPLETE PLANT MAINTENANCE	BILL SNELSON BRIAN GANSKE	(206) 856-0571	16"	5-CROSSINGS RANGING IN LENGTH OF 700' TO 2000'	BURLINGTON, WA
1992	MARSHALL COUNTY GAS	MICHELS PIPELINE CONSTRUCTION	DOYLE BLAIR JONES, BLAIR, WALDRUP & TUCKER, INC. CONSULTING ENGINEERS	(203) 238-5651	5"	5,400'	GUNTERSVILLE, AL'
1992	CITY OF NORFOLK	MICHELS PIPELINE CONSTRUCTION	MARTIN DALY-ENG BETH WELSH-CITY	(804) 873-0768 (804) 441-5676	48" STEEL	2,100'	NORFOLK, VA
1991	KANSAS CITY WATER/ POLLUTION CONTROL	TOMAHAWK CONSTRUCTION	PETE BROWN	(913) 621-4233	DUAL 10"	1,500'	KANSAS CITY, MO
1991	MCI TELECOMMUNICATIONS	MICHELS PIPELINE CONSTRUCTION	MARK WINGATE	(214) 470-3347	6"	3,024'	KALAMA, WA

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MICHELS CORPORATION

MICHELS DIRECTIONAL CROSSINGS

Long Distance HDD's

DIRECTIONAL DRILLING REFERENCES/EXPERIENCE LIST

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
2005	SUNOCO PIPELINE	WATKINS CONSTRUCTION COMPANY	JERRY WATKINS	(903) 874-6587	24" STEEL	6,183'	RICHLAND CREEK RICHLAND, TX
2005	GAZ METROPOLITAN	MICHELS DIRECTIONAL CROSSINGS	ROBERT ROUSSEAU	(418) 845-3517	20" STEEL	7,455'	ST. LAWRENCE SEAWAY TROIS-RIVIÈRIES, QUEBEC, CANADA ⁶
2004	EASTERN NORTH CAROLINA GAS	PATTERSON & WILDER CONSTRUCTION	GREY LEWIS	(716) 667-6624	6" STEEL	15,684' PULLED	CURRITUCK SOUND POINT HARBOR, NC ³
2004	SOUTH CAROLINA GAS AND ELECTRIC COMPANY	MICHELS DIRECTIONAL CROSSINGS	JERRY RUSCHKOFSKI	(803) 217-9355	8" STEEL	7,074'	CHARLESTON SC
2004	WISCONSIN PUBLIC SERVICE	MICHELS PIPELINE CONSTRUCTION	ROBERT OSBORN	(920) 583-3132	8" STEEL	4,500'	LAKE TOMAHAWK LAKE TOMAHAWK, WI SLOUGHS CROSSING
2004	WILLIAMS GAS PIPELINE	HOUSTON CONTRACTING COMPANY	KELLY THOMAS	(360) 753-7236	16" STEEL	5,448'	SLOUGHS CROSSING COEVERETT, WA
2004	NORTHWEST NATURAL GAS SOUTH MIST PIPELINE	ROCKFORD CORPORATION	FRANK WELCH	(503) 647-0224	24" STEEL	5,062'	BROOKMAN ROAD PORTLAND, OR
2004	GULFSTREAM NATURAL GAS	SHEEHAN PIPELINE CONSTRUCTION	ROBERT BENDURE	(918) 747-3471	30" STEEL	4,096'	CHANDLER SLOUGH FT BASINGER, FL
2004	SOUTH CAROLINA GAS AND ELECTRIC COMPANY	JACOBS CONSTRUCTION SERVICES	DOUG LOCKARD	(864) 676-6000	8" STEEL	7,025'	COOPER RIVER CHARLESTON, SC
2003	CITY OF DULUTH	MINNESOTA LIMITED	CHRIS LEINES	(763) 428-4444	10" STEEL	4,006'	NEW DULUTH, MN & OLIVE, WI
2003	MARITIMES & NORTHEAST DUKE ENERGY	MICHELS CORPORATION	WAYNE DWYER MARITIMES & NORTHEAST	(978) 741-7926	30" STEEL	5,174'	GEORGES ISLAND WATER-TO-WATER CROSSING SALEM, MA 14546
2003	MARITIMES & NORTHEAST DUKE ENERGY	MICHELS CORPORATION	WAYNE DWYER MARITIMES & NORTHEAST	(978) 741-7926	30" STEEL	5,286'	BEVERLY HARBOR WATER-TO-WATER SALEM, MA ¹⁶⁵
2003	MARITIMES & NORTHEAST DUKE ENERGY	MICHELS CORPORATION	WAYNE DWYER MARITIMES & NORTHEAST	(978) 741-7926	30" STEEL	4,829'	SALEM LANDING ¹⁶³ SALEM, MA
2002	WILLIAMS GAS PIPELINE	WELDED CONSTRUCTION	DOUG STOUT	(419) 874-3548	36" STEEL	4,878'	WEBER RIVER/KERN RIVER COALVILLE, UT
2002	MARATHON-ASHLAND	H.L. CROUSE	LARRY SABO	(419) 666-3703	14" STEEL	5,131'	OHIO RIVER ¹ SOUTH POINT, OH/WV

Solid Rock Bore1

Environmental Services²

Beach Approach3

Michels Directional/Canada Division Water to Water Crossing⁵

Hole Intersects⁶

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
2002	FLORIDA GAS ENRON	LATEX CONSTRUCTION	DAVID STOTZ LATEX	(770) 760-0820	26" STEEL	4,367	M.L.K. BOULEVARD MANGO, FL
			KEN STEVENS FGT-ENRON	(800) 381-1477			
2002	WILLIAMS GAS PIPELINE	ASSOCIATED PIPELINE	GENE BELL	(713) 789-4311	20" STEEL	4,310'	BLACK RIVER DELPHI, WA
2002	WILLIAMS GAS PIPELINE	ASSOCIATED PIPELINE	GENE BELL	(713) 789-4311	20" STEEL	4,212'	MCCLANE PARK⁵ TUMWATER, WA
2001	TDS METROCOM	MICHELS DIRECTIONAL CROSSINGS	KEVIN MAES	(262) 939-6355	8" STEEL	4,863'	WHEELING FOREST PRESERVE WHEELING, IL
2001	GULFSTREAM NATURAL GAS	STOLT OFFSHORE INC	ERIC SKONBERG-STOLT RON HOEPNER-GULF	(713) 430-1100 (713) 215-2857	38.5" OD 1.25" WT STEEL	4,009'	TAMPA BAY, TAMPA, FL³
2000	SUPERIOR WATER & LIGHT	MICHELS PIPELINE CONSTRUCTION	TOM DONOFRIO	(715) 395-6316	24" STEEL WATER LINE	4,306'	SUPERIOR HARBOR BASIN () SUPERIOR, WI
2000	AT&T COMMUNICATIONS	MICHELS PIPELINE CONSTRUCTION	MARK MODRELL	(404) 810-3186	6" STEEL FIBER LINE	4,092'	INTERSTATE-540 (ROCK)1 (30) WINSLOW, AR
2000	AT&T COMMUNICATIONS	MICHELS PIPELINE CONSTRUCTION	MARK MODRELL	(404) 810-3186	6" STEEL FIBER LINE	4,003'	INTERSTATE-540 (ROCK)1 CO FAYETTEVILLE, AR
2000	AT&T COMMUNICATIONS	MICHELS PIPELINE CONSTRUCTION	MARK MODRELL	(404) 810-3186	6" STEEL FIBER LINE	4,818'	INTERSTATE-540 (ROCK)¹ FAYETTEVILLE, AR
2000	AT&T COMMUNICATIONS	MICHELS PIPELINE CONSTRUCTION	MARK MODRELL	(404) 810-3186	6" STEEL FIBER LINE	4,443'	INTERSTATE-540 (ROCK)¹ WEST FORK, AR
2000	AUX SABLE PIPELINE	MURPHY BROTHERS	DAN MURPHY	(309) 799-1183	8" STEEL	4,157	DES PLAINES RIVER¹ CHANNAHON, IL
2000	METROMEDIA FIBER NETWORK	MICHELS PIPELINE CONSTRUCTION	JAMES URBELIS	914.421.6700	12" STEEL W/21-1½" INNR ROCK 1,400' REST ALLUVIUM	5,111'	MANHATTAN, NY TO JERSEY CITY' HUDSON RIVER, NY
1999	SOUTHERN NATURAL GAS COMPANY	MICHELS PIPELINE CONSTRUCTION	LEE WALKER SNG	(205) 325-7195	16" STEEL	4,464'	TENNESSEE RIVER' DECATUR, AL
1998	PACIFIC PIPELINE	MICHELS PIPELINE CONSTRUCTION	HENRICK SARKISSIAN	(303) 705-9367	20" STEEL	5'107'	GORMAN SLIDE1 GORMAN, CA
1998	PACIFIC PIPELINE	MICHELS PIPELINE CONSTRUCTION	HENRICK SARKISSIAN	(303) 705-9367	20" STEEL	4,354'	INTERSTATE 105/110 INGLEWOOD, CA
1998	CARDINAL OPERATING CO. TRANSCO	MICHELS PIPELINE CONSTRUCTION	RON HOEPNER VICTOR ELIZONDO	(713) 215-2857	24" STEEL 24,000 PSI ROCK	6,040'	JORĐAN LAKE, NC¹
1997	MISSOURI AMERICAN WATER WORKS	KARSTEN EQUIPMENT	MARK GRIFFIN MAWW	(816) 236-2278	36" ID WATER MAIN	4,605	ST. LOUIS, MO

Solid Rock Bore¹ Environmental Services²

Beach Approach³

Michels Directional/Canada Division

Water to Water Crossing⁵
Hole Intersects⁶

Date	Utility	Prime Contractor	Contact	Phone No.	Diameter of Bore	Length	Location
1994	COLONIAL PIPELINE	BRADFORD BROS, INC.	DEE BRADFORD	(704) 784-1341	10.75"	5,851'	YORKTOWN COUNTY, VA
1994	SUN PIPELINE (SUNOCO)	HENKELS & MCCOY	MARIO QUATTROCHI	(215) 977-3532 (215) 937-1467	3/8"/1-6" STEEL	4,944'	DELAWARE RIVER PAULSBORO, NJ-PA
1994	SUN PIPELINE (SUNOCO)	HENKELS & MCCOY	MARIO QUATTROCHI	(215) 977-3532 (215) 937-1467	3/8"/1-6" STEEL	5,110'	RACCOON CREEK BRIDGEPORT, NJ
1994	FLORIDA GAS	MURPHY BROTHERS	BILL ROME FLORIDA GAS RICE PERKINS	(713) 853-6161 (713) 646-6252	36" STEEL	4,044'	FLOMATION, FL
1993	ARKANSAS WESTERN GAS	MICHELS PIPELINE CONSTRUCTION	CHARLES BYLES	(501) 521-5400	10"	4,592'	KENNETT, MO
1993	ANR PIPELINE CO.	MICHELS PIPELINE CONSTRUCTION	CHARLIE BATEMAN	(313) 496-5596	24"	4,225'	N, TONAWANDA, NY¹
1992	MARSHALL COUNTY GAS	MICHELS PIPELINE CONSTRUCTION	DOYLE BLAIR JONES, BLAIR, WALDRUP & TUCKER, INC. CONSULTING ENGINEERS	(203) 238-5651	5"	5,400'	GUNTERSVILLE, AL1

April 17, 2006

As requested by PG&E, we have reviewed the letter prepared by TRC Lowney dated March 30, 2006 regarding PG&E Line 57C crossing of lower Jones Tract. In this letter they state that horizontal directional drilling (HDD) should not be allowed since there is a risk drilling returns may not be maintained for the entire length of the bore and loss of returns could increase seepage beneath the levees, affecting levee stability.

We believe that TRC Lowney's concerns do not adequately account for the substantial depth of cover for these installations. The depth of cover beneath the proposed HDD crossings for Line 57C is 90 feet below the toe of the levees. Loss of bentonite drilling fluid at a depth of 90 feet below the levees is very unlikely to increase underseepage. Critical resistance to under seepage is provided by near surface blanket materials. Based on soil pore pressure measurements made during the Lodi Gas project increase in pressure was not observed at a distance of 10 feet from the bore path. If circulation is lost, pressures could extend further, but it is highly unlikely that pressure would extend to the surface.

While it is very unlikely pore pressure increase would occur anywhere near the foundation layer, it may be prudent to monitor soil pore pressure using piezometers or down-hole pressure tools during drilling. This would ensure that the TRC Lowney's concerns are fully addressed.

Richard M. Stauber, PE

Senior Engineer

Ron Heinzen, PE GE Principal Engineer

000328



APR 1 1 2006

CA STATE LANDS
COMMISSION TO

April 10, 2006

California State Lands Commission C/O Mr. Paul Thayer Executive Officer 100 Howe Ave Suite 100 South Sacramento, CA 95825-8202

Re: State Lands Commission Meeting, April 17. **Consent Item C-69**, Commercial Vessel Fouling in California: Analysis, Evaluation, and Recommendations to Reduce Nonindigenous Species Release from the Non-Ballast Water Vector.

Dear State Lands Commissioner:

I am writing in reference to the State Lands staff recommended report to the Commission, which is scheduled for the consent calendar for the April 17 Commission meeting. The report is titled *Commercial Vessel Fouling in California: Analysis, Evaluation, and Recommendations to Reduce Nonindigenous Species Release from the Non-Ballast Water Vector* and is listed as consent item C-69 on the meeting agenda.

The Pacific Merchant Shipping Association, which represents ocean carriers and terminal operators on the West Coast, appreciates the opportunity granted to participate in the Technical Advisory Group (TAG) convened by State Lands and established under statute. The group included broad representation of environmental, regulatory, academic and industry perspectives. I would like to take the opportunity to recognize the excellent work of the State Lands staff in facilitating these meetings and providing a very good summary of the work product in the referenced report.

Although the TAG's purview was restricted by statute to commercial vessels over 300 gross tons, the report does address the need to include other marine vectors, including recreational and fishing vessels, as worthy of further study and inclusion in any substantive actions taken. Based on an earlier workshop hosted by California Sea Grant that included recreational boating, as well as reference work by TAG academic participants, there is significant data to support broadening the scope of study to include these other vectors.

I believe the report is an accurate representation of the consensual issues that arose from the TAG and provides the Commission with a good set of recommendations to move forward. I look forward to working with State Lands and other agencies that may be brought in to address this issue in the future.

Sincerely,

John Berge

Vice President

CC: M. Faulkner / CSLC Marine Facilities Division

B. Chapman / Chevron Shipping

L. Swanson / Matson Navigation

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