

- **Board of Directors**
Engineering and Capital Programs Committee

September 9, 2008 Board Meeting

9-1

Subject

Status report for the Inland Feeder Program for activities through July 2008

Description

Recent Events:

The tunnel boring machine (TBM) holed through on the Arrowhead West Tunnel (AWT) on August 20, 2008, completing the 3.8 mile journey.

Work Completed to Date

The Inland Feeder Program consists of 44 miles of pipelines and tunnels that will enable Metropolitan to convey up to 1,000 cubic feet per second of State Water Project (SWP) supplies from Devil Canyon Afterbay to Diamond Valley Lake (DVL). To date, eight of nine construction contracts totaling \$542 million have been completed. These completed contracts represent 36.3 miles or 82 percent of the Inland Feeder's length. Remaining program work includes completion of the Arrowhead East and West Tunnels, which are presently under construction by a joint venture of Shea/Kenny.

The completed portion of Inland Feeder has been in service since 2003 via an interconnection that was constructed between the Inland Feeder and San Bernardino Valley Municipal Water District's Foothill Pipeline. This connection allows Metropolitan to convey SWP supplies from the East Branch of the California Aqueduct to the Inland Feeder for delivery to DVL. To date, over 620,000 acre-feet of SWP water have been delivered to DVL through this connection.

Arrowhead Tunnels

Arrowhead East Tunnel (AET) – On May 2, 2008, the contractor completed mining on the AET. During July and early August, the contractor completed dismantling and removing the TBM, trailing gear, and utilities from the tunnel. The tunnel invert continued to be cleaned in preparation for installation of the final steel pipe liner which is scheduled to commence in late August. During pipe installation, the contractor will continue grouting operations, as necessary, to further eliminate water intrusion into the tunnel.

The contractor is attempting to obtain hauling permits through the city of San Bernardino so that pipe stored at Etiwanda Reservoir can be transported to the East Tunnel portal. To date, these permits have not been obtained due to the city's concerns regarding the weight of the haul loads on city streets. The contractor is continuing to pursue this issue and is investigating alternate pipe hauling routes.

Arrowhead West Tunnel (AWT) – During July, the TBM continued mining the final curve portion of this tunnel. Mining conditions remained challenging due to weak ground conditions consisting of completely crushed rock and clay seams. In mid-July, mining was halted for four days to replace a worn TBM screw auger. The TBM advanced 415 feet in July and another 415 feet through August 13. The contractor completed construction activities at the Devil Canyon portal site necessary to receive the TBM upon hole-through.

Program Management

Staff and the U.S. Forest Service continued to coordinate activities related to monitoring and minimizing tunnel water inflows into the Arrowhead East Tunnel in March. Staff continued negotiations with representatives from the San Manuel Band of Mission Indians regarding potential compensation for their activities related to the AET.

Budget and Schedule

Following board authorization of a settlement agreement and contract amendment with the Arrowhead Tunnels contractor in August 2006, staff conducted a complete review of the program budget to estimate the total projected cost to complete the Inland Feeder Program. Based on the revised September 2010 completion date of the Arrowhead Tunnels as presented to the Board in August 2006, the updated total projected cost for the Inland Feeder is estimated to be \$1.139 billion. Total expenditures through July 2008 are \$1.016 billion (see [Attachment 1](#) for the Projected Cost/Expenditures). Staff will continue to report on the status of ongoing discussions with the San Manuel Band of Mission Indians and of litigation with Campus Crusade for Christ. The board-approved budget for the entire program remains at \$1.186 billion. [Attachment 2](#) shows the actual mining progress and cash flow on both tunnels compared to the planned progress and expenditures set forth in the August 2006 contract amendment.

The payments on the contractor’s incentive/risk program are discussed with the Board on a regular basis at the Engineering and Capital Programs Committee meetings. This incentive plan is part of the contract amendment approved by the Board in August 2006. The incentive payment to the contractor for the month of July 2008 is shown in [Attachment 1](#).

Upon completion of construction, environmental mitigation measures will continue along the Arrowhead Tunnels alignment for up to two years in accordance with the program Environmental Impact Report.

Policy

Submitted per request of the Board

Fiscal Impact

Refer to [Attachment 1](#).



Roy L. Wolfe
Manager, Corporate Resources

8/25/2008
Date



Jeffrey Kightlinger
General Manager

8/26/2008
Date

[Attachment 1 – Inland Feeder Program Projected Cost/Expenditures](#)

[Attachment 2 – Arrowhead Tunnels Actual vs. Planned Mining Progress and Actual vs. Planned Cash Flow](#)

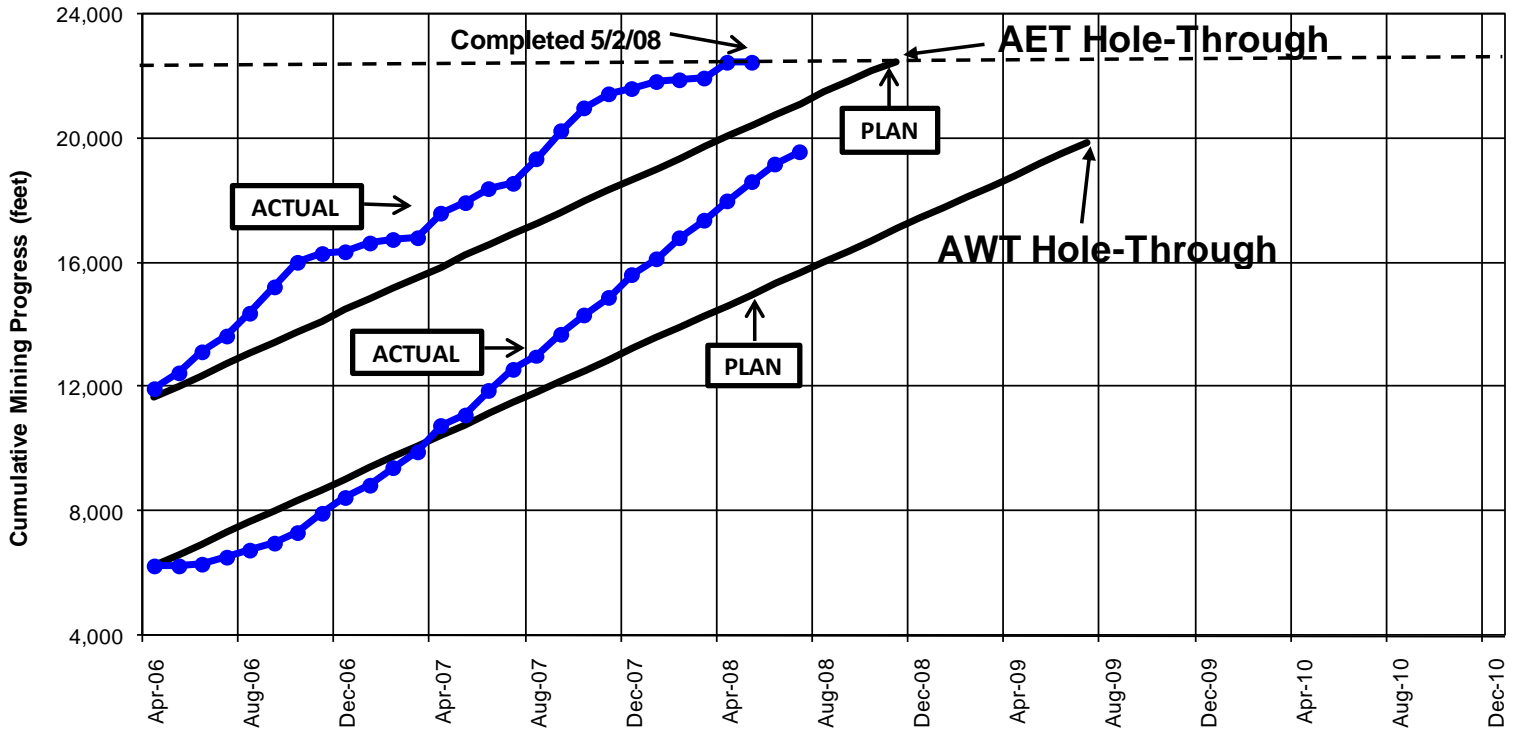
Inland Feeder Program Projected Cost/Expenditures (\$ in Millions)				
	Projected Cost To Complete (Updated July 2008)	Expenditures This Month (July 2008)	Expenditures To Date (July 2008)	% Complete Based on Expenditures (July 2008)
<u>Active Construction</u>				
Arrowhead Tunnels Const. Contract	\$ 397.0	\$ 4.1	\$ 293.1	74%
Construction Inspection and Support	\$ 58.0	\$ 0.9	\$ 47.3	82%
Subtotal, Active Construction	\$ 455.0	\$ 5.0	\$ 340.5	75%
<u>Other Components</u>				
Completed Projects	\$ 578.2	\$ 0.0	\$ 573.8	99%
Others (R/W, Env., Prog. Mgmt.)	\$ 105.4	\$ 0.1	\$ 101.3	95%
Subtotal, Other Components	\$ 683.5	\$ 0.1	\$ 675.1	99%
Expended To Date		\$ 5.1	\$ 1,015.6	86%
Subtotal, All Projects	\$ 1,138.5	← Projected Cost to Complete		
Remaining Budget	\$ 48.0			
Board-Authorized Budget	\$ 1,186.5	← Total Project Budget		
Length of Tunnels Mined Through 8/13/08				
Arrowhead East	22,458 ft	of 22,458 ft	(100%)	
Arrowhead West	19,864 ft	of 19,884 ft	(99%)	
Total	42,322 ft	of 42,342 ft	(99%)	

NOTE: Contractor invoices paid through July 2008 = \$291.0M
 Overall completion = 36.3 of 44.2 miles (82%)

Inland Feeder Program – Arrowhead Tunnels Incentive Plan Payments				
	East/West Tunnels Cumulative Feet Mined	East Tunnel	West Tunnel	Total
June 2006 –May 2008 (Previously Reported)	22,990	\$ 2,484,400	\$ 2,991,193	\$ 5,475,593
June 2008 (3)	440	\$ 100,800	\$ 137,400	\$ 238,200
TOTALS	23,430	\$ 2,585,200	\$ 3,128,593	\$ 5,713,793 (2)

(1): For Arrowhead West Tunnel, incentive program evaluation commenced in June 2006.
 (2): Percent of maximum possible combined incentive: 79% (67% Arrowhead East Tunnel, 92% Arrowhead West Tunnel)
 (3): Incentive Plan based on work performed during contractor monthly pay period from 5/26/08 to 6/25/08 (differs from progress in calendar month).

Arrowhead Tunnels Actual vs. Planned Mining Progress



Arrowhead Tunnels Actual vs. Planned Cash Flow

