ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT, ZONE 7
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ORIGINATING SECTION: FACILITIES ENGINEERING
CONTACT: RHETT ALZONA/JARNAIL CHAHAL

AGENDA DATE: May 15, 2019 **ITEM NO. 18d**

SUBJECT: Capital Projects Status Report

The Facilities Engineering (FE) Section plans, performs and manages design and construction for the majority of the water supply conveyance, production, and delivery projects as well as the flood protection capital projects in the Zone 7 Capital Improvement Program (CIP).

Attached is a table showing the status of key capital projects for which the FE Section is responsible.

Facilities Engineering Project Status Report – May 15, 2019

<table>
<tr><th>Project Name/Purpose</th><th>Scope/Funding Source</th><th>Project Cost and Budget</th><th>Schedule – Target Dates for Completion</th><th>Current Status</th></tr>
<tr>
<td>Project Name:

Chain of Lakes 1 (COL 1) Facility Stabilization

Purpose/Benefits:
• Protecting the building and other assets from ongoing settlement and lateral movement will maintain COL wells reliability and reduce untimely and expensive future repair costs.
• In addition to housing the COL 1 well and electrical systems, the building houses the chemical systems and manifold piping to feed the combined water production from all COL wells (COL 1, COL 2 and COL 5) to the Zone 7 transmission system.</td>
<td>Scope:
• While there has been observed movement of the building and the yard this project will focus on constructing stabilization measures for the building. As part of an adaptive approach, the yard will continue to be monitored for movement to determine future courses of action. Critical yard piping has been relocated to the north portion of the yard where movement is minimal.
• For protection against settlement, micropiles will be constructed inside and around the perimeter of the building then tied to the foundation.
• For protection against lateral movement, large diameter (30”) Cast In Drilled Hole (CIDH) piles will be constructed and tied to the building foundation by steel horizontal tie-beams.

Funding Source:
• 100% from Fund 120 – Renewal/Replacement and System Wide Improvements</td>
<td>Original Total Cost Estimate (2017): $3,400,000

Current Total Estimated Project Cost: $3,400,000

FY 18/19 Budget: $3,100,000
FY 18/19 Expenditures: $290,000

<table>
<tr><th colspan="2">Planning & Design Phase Costs</th></tr>
<tr><td>Budget</td><td>$300,000</td></tr>
<tr><td>% Spent</td><td>97%</td></tr>
<tr><td>% Complete</td><td>100%</td></tr>
</table>

<table>
<tr><th colspan="2">Construction Phase Costs</th></tr>
<tr><td>Budget</td><td>$3,100,000</td></tr>
<tr><td>% Spent</td><td>0%</td></tr>
<tr><td>% Complete</td><td>0%</td></tr>
</table>

Projected Operating Impact:
Maintain water system reliability and reduced untimely future repair costs.</td>
<td>Design:
Completed February 2019

Construction:
February 2020

Closeout:
April 2020</td>
<td>Cal Engineering and Geology (CE&G) was selected through an RFP process to provide planning, design, and construction support services for the project.

Advertisement for bids began in early April. The bid opening was April 30. Approval for this award of contract is planned for the May 2019 Board meeting.</td>
</tr>
</table>

<table>
<tr><th>Project Name/Purpose</th><th>Scope/Funding Source</th><th>Project Cost and Budget</th><th>Schedule – Target Dates for Completion</th><th>Current Status</th></tr>
<tr>
<td>Project Name:

CWS 5 – Turnout Replacement

Purpose/Benefits:
• Improves Revenue Flowmeter Accuracy.
• Proactively replacing this aging water system infrastructure will maintain water system reliability and help to avoid untimely and expensive repairs.
• Improves Worker Safety by re-locating the inlet valve off an arterial street (Jack London Blvd.) subject to frequent traffic.</td>
<td>Scope:
• This turnout is identified in the Asset Management Program (AMP) and verified by condition assessment to be nearing the end of its useful life and in need of replacement.
• Modifies the two existing vaults into one vault to house all major turnout components. Replaces mechanical piping, isolation and control valves, electrical and instrumentation, and installs a new magnetic flowmeter (replacing propeller-type meter).

Funding Source:
• 100% from Fund 120 – Renewal/Replacement and System Wide Improvements</td>
<td>Original Total Cost Estimate (2017): $280,000

Current Total Estimated Project Cost : $700,000

FY 18/19 Budget: $561,000
FY 19/20 Budget: $139,000
(includes adjustments)
FY Expenditures: $78,000

<table>
<tr><th colspan="2">Planning & Design Phase Costs</th></tr>
<tr><td>Budget</td><td>$80,000</td></tr>
<tr><td>% Spent</td><td>98%</td></tr>
<tr><td>% Complete</td><td>100%</td></tr>
</table>

<table>
<tr><th colspan="2">Construction Phase Costs</th></tr>
<tr><td>Budget</td><td>$620,000</td></tr>
<tr><td>% Spent</td><td>0%</td></tr>
<tr><td>% Complete</td><td>0%</td></tr>
</table>

Projected Operating Impact:
Improved revenue and reduced O&M cost due to - accurate metering, improved system reliability, reduced untimely future repair costs, and improved worker safety.</td>
<td>Planning:
Completed Sept. 2018

Design:
Completed April 2019

Construction:
January 2020

Closeout –
March 2020</td>
<td>The bid opening was April 16. Approval for award of contract is planned for May 2019 Zone 7 Board meeting.

Construction schedule was moved out a couple of months to January 2020 to provide Zone 7 with more time to understand and inform the prospective bidders of City of Livermore encroachment permit conditions and change aspects of the design for easier construction sequencing.

Contract approval in the summer will start the submittal review process and procurement of turnout components. Once the components are procured, actual construction will take place sometime during the low demand period in the fall and early winter.</td>
</tr>
</table>

<table>
<tr><th>Project Name/Purpose</th><th>Scope/Funding Source</th><th>Project Cost and Budget</th><th>Schedule – Target Dates for Completion</th><th>Current Status</th></tr>
<tr>
<td>Project Name:

DVWTP Polymer Mixing System Replacement

Purpose/Benefits:
• Replace existing outdated polymer mixing and feed system subject to periodic failure with more reliable and automated system.
• New location is more accessible for maintenance.
• Reliable and modernized equipment is expected to greatly reduce frequency of spills and cleanup of containment area.</td>
<td>Scope:
• This mixing system is identified in the Asset Management Program (AMP) and verified by condition assessment to be nearing the end of its useful life and in need of replacement.
• Replacement includes a dry hopper system with automatic feed into the mixing tank, new chemical feed pumps, piping and appurtenances, and ventilation as well as other items needed to make a complete and functional system.

Funding Source:
• 100% Fund 120 – Renewal/Replacement and System Wide Improvements</td>
<td>Original Total Cost Estimate (pre-2017):$550,000

Current Total –Estimated Project Cost: $550,000

FY 17/18 Budget: $500,000
FY 18/19 Budget: $50,000
FY Expenditures: $44,500

<table>
<tr><th colspan="2">Planning & Design Phase Costs</th></tr>
<tr><td>Budget</td><td>$150,000</td></tr>
<tr><td>% Spent</td><td>30%</td></tr>
<tr><td>% Complete</td><td>30%</td></tr>
</table>

<table>
<tr><th colspan="2">Construction Phase Costs</th></tr>
<tr><td>Budget</td><td>$350,000</td></tr>
<tr><td>% Spent</td><td>0%</td></tr>
<tr><td>% Complete</td><td>0%</td></tr>
</table>

Projected Operating Impact:
Reduced O&M cost due to - easier maintenance, improved system reliability, reduced untimely future repair costs, and improved worker safety.</td>
<td>Planning – September 2017

Design – September 2019

Construction – April 2021

Closeout - May 2021</td>
<td>Staff has reviewed polymer mixing systems and is working on design drawings and specifications.

Due to current planned activities for the DVWTP Ozonation Project and a minimum 6-month factory lead time to order the system once design is completed, construction of the polymer mixing system replacement may need to be deferred into the winter of 2020/21 to avoid conflict while still keeping the current system in service during required periods for needed use operationally.</td>
</tr>
</table>

<table>
<tr><th>Project Name/Purpose</th><th>Scope/Funding Source</th><th>Project Cost and Budget</th><th>Schedule – Target Dates for Completion</th><th>Current Status</th></tr>
<tr>
<td>Project Name:

DVWTP HVAC System Renewal/Replacement

Purpose/Benefits:
• Upgrades outdated Building Control Units (BCUs) for efficiency ease of maintenance as we continue to use existing HVAC system for another five years.
• Improves operational reliability by installing a redundant HVAC unit in the future dedicated SCADA server room.</td>
<td>Scope:
DVWTP HVAC equipment was identified in the AMP for replacement. The results of a condition assessment indicate replacement of the main equipment (boilers, chillers, and HVAC units) can be deferred for five years but replacement of the outdated controls system that is no longer supported, installation of a redundant HVAC unit for the future computer server room, and some minor duct work is still needed for a proper working HVAC system. Scope of current project is:
• Replaces outdated HVAC control units (BCUs).
• Installs a new split system cooling system in the future SCADA server room.

Funding Source:
• 100% from Fund 120 – Renewal/Replacement and System Wide Improvements</td>
<td>Original Total Cost Estimate (2017): $670,000

Current Total Estimated Project Cost : $160,000

FY 18/19 Budget: $100,000
FY 19/20 Budget: $60,000
(includes adjustments)
FY Expenditures: $89,000

<table>
<tr><th colspan="2">Planning & Design Phase Costs</th></tr>
<tr><td>Budget</td><td>$25,000</td></tr>
<tr><td>% Spent</td><td>100%</td></tr>
<tr><td>% Complete</td><td>100%</td></tr>
</table>

<table>
<tr><th colspan="2">Construction Phase Costs</th></tr>
<tr><td>Budget</td><td>$135,000</td></tr>
<tr><td>% Spent</td><td>47%</td></tr>
<tr><td>% Complete</td><td>60%</td></tr>
</table>

Projected Operating Impact:
Significant improvement of temperature control units, resulting in better energy efficiency. Improved operational reliability by installing temperature control in a new dedicated SCADA server room.</td>
<td>Planning:
September 2018

Design:
February 2019

Construction:
June 2019

Closeout –
July 2019</td>
<td>Installation of updated BCUs for the existing HVAC system is complete.

Staff is in the process of soliciting bids for installation of a separate redundant HVAC unit for the server room at the DVWTP.

The existing HVAC system will be reprioritized in the Asset Management Program.</td>
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<table>
<tr><th>Project Name/Purpose</th><th>Scope/Funding Source</th><th>Project Cost and Budget</th><th>Schedule – Target Dates for Completion</th><th>Current Status</th></tr>
<tr>
<td>Project Name:

Dougherty Reservoir Recoating and Rehabilitation Project

Purpose/Benefits:
• The 4MG steel tank was constructed in 1985 and the original coating systems are nearing the end of their useful life
• Proactively replacing this aging water system infrastructure will maintain water system reliability and help to avoid untimely and expensive repairs.</td>
<td>Scope:
• Interior coating will be removed and replaced, exterior coating will be overcoated.
• All submerged metals, piping and appurtenances to be recoated.
• The center column top plate support will be replaced.
• The existing 18-inch combined inlet and outlet valve will be replaced.
• Upgrade or replace safety items such as interior ladder fall restraint and exterior handrails, if needed
• Cathodic protection system will be replaced.

Funding Source:
• 100% from Fund 120 – Renewal/Replacement and System Wide Improvements
• 50/50 cost share with DSRSD</td>
<td>Original Total Cost Estimate (pre-2017): $2,200,000

Current Total –Estimated Project Cost: $3,200,000 (includes adjustments)

FY 18/19 Budget: $50,000
FY 19/20 Budget: $3,000,000
FY Expenditures: $10,000

<table>
<tr><th colspan="2">Planning & Design Phase Costs</th></tr>
<tr><td>Budget</td><td>$300,000</td></tr>
<tr><td>% Spent</td><td>3%</td></tr>
<tr><td>% Complete</td><td>3%</td></tr>
</table>

<table>
<tr><th colspan="2">Construction Phase Costs</th></tr>
<tr><td>Budget</td><td>$2,900,000</td></tr>
<tr><td>% Spent</td><td>0%</td></tr>
<tr><td>% Complete</td><td>0%</td></tr>
</table>

Projected Operating Impact:
Extend life of the reservoir by protecting it from corrosion for water system reliability and help avoid untimely and expensive repairs.</td>
<td>Planning:
Fall/Winter 2018

Design:
August 2019

Construction:
May 2020

Closeout:
July 2020</td>
<td>Staff has begun design of the project. Project budget has been increased to reflect recent exterior and interior tank coating project bids.

Bay Area Coating Consultants (BACC) performed an evaluation of the exterior of the tank. Coating suppliers are performing patch tests to see which coating systems will work best as an overcoat to the existing exterior coating.

Staff is evaluating the antennas on top of the tank (which include our SCADA system) to see if workers can safely work around them while remaining on during construction.</td>
</tr>
</table>

<table>
<tr><th>Project Name/Purpose</th><th>Scope/Funding Source</th><th>Project Cost and Budget</th><th>Schedule – Target Dates for Completion</th><th>Current Status</th></tr>
<tr>
<td>Project Name:

DVWTP Ozonation Project Purpose/Benefits:
• Addition of raw water ozonation to improve treated water quality, reduce taste & odor events, improve downstream plant processes and improve production reliability
• Filter 1-8 rehabilitation, chemical systems replacement, and new plant emergency generator will improve system reliability and reduce future untimely expensive repairs.
• New PWRPA power service in place of PG&E will help provide better power purchase pricing.</td>
<td>Scope:
• Construction of new facilities including an ozone generation building, contactor structure, chemical storage and feed facilities, chlorine contact pipeline, PWRPA power service, and Emergency Generator.
• Also includes filter rehabilitation which was identified as a need in the Asset Management Program (AMP) as well as providing better compatibility with the ozone use.

Funding Source:
• $38M of the construction cost is financed through bonds.
• Remainder of the cost is funded 100% from Fund 120 – Renewal/Replacement and System Wide Improvements</td>
<td>Original Total Cost Estimate (2017): $40,520,000

Current Total Estimated Project Cost : $49,000,000

FY Budget: $45,500,000
FY Expenditures: $18,200,000

Project to Date Expenditures: $21,700,000

<table>
<tr><th colspan="2">Planning & Design Phase Costs</th></tr>
<tr><td>Budget</td><td>$3,500,000</td></tr>
<tr><td>% Spent</td><td>100%</td></tr>
<tr><td>% Complete</td><td>100%</td></tr>
</table>

<table>
<tr><th colspan="2">Construction Phase Costs</th></tr>
<tr><td>Budget</td><td>$45,500,000</td></tr>
<tr><td>% Spent</td><td>36%</td></tr>
<tr><td>% Complete</td><td>40%</td></tr>
</table>

Projected Operating Impact:
Approximately $1.3M net increase in annual operating cost due to addition of ozone treatment. Reduction in untimely repair costs due to upgrade and replacement of aging facilities such as electrical and chemical systems. Improved water system reliability.</td>
<td>Planning:
Completed Summer 2016

Design:
Completed January 2018

Construction:
Ozone System Substantial Completion December 2019; Filter Rehab March 2020

Closeout:
July 2020</td>
<td>The contractor has structurally completed the ozone contactor structure. They continue to install mechanical and electrical equipment inside the structure, which should be complete by summer 2019. The chlorine contact pipeline (CCP) has been completed and backfilling around the pipe is ongoing; it will be placed in service once Del Valle comes back online at the beginning of May 2019. The foundation and floor slab of the ozone generation building has been constructed. The ozone generation building should be structurally complete by the end of June 2019. The new PWRPA electrical service was constructed during winter 2018/19 with PG&E pulling the new service conductors and terminating the old service on 4/9/19.

On April 16, the contractor provided a letter expressing concerns about the compressed schedule to meet substantial completion within the contract timeline. Staff and Zone 7's construction management team cooperatively discussed alternative approaches to completing the remaining critical tasks.</td>
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<tr><th>Project Name/Purpose</th><th>Scope/Funding Source</th><th>Project Cost and Budget</th><th>Schedule – Target Dates for Completion</th><th>Current Status</th></tr>
<tr>
<td>Project Name:

MGDP Concentrate Pipeline Batch Cleaning – Phase 1

Purpose/Benefits:
• Remove scale build-up from inside of the concentrate discharge pipeline that has been building up over the last several years.
• Restore plant capacity which is currently reduced to operating two trains due to concentrate pipeline capacity constraint.</td>
<td>Scope:
• Install two taps and ancillary piping modifications into the concentrate pipeline – one at the plant and one at the pipeline crossing of Tassajara Creek.
• Install pumps and Baker tanks at each location.
• An acid solution will be pumped-surged back and forth through the pipeline to remove scale build-up.
• It may be required to install one or more ARVs.

Funding Source:
• 100% from Fund 120 – Renewal/Replacement and System Wide Improvements</td>
<td>Original Total Cost Estimate: $1,210,000

Current Total Estimated Project Cost: $1,210,000

FY 18/19 Budget: $80,000
FY 19/20 Budget: $1,130,000
FY 18/19 Expenditures: $5,000

<table>
<tr><th colspan="2">Planning & Design Phase 1 Costs</th></tr>
<tr><td>Budget</td><td>$260,000</td></tr>
<tr><td>% Spent</td><td>2%</td></tr>
<tr><td>% Complete</td><td>2%</td></tr>
</table>

<table>
<tr><th colspan="2">Construction Phase 1 Costs</th></tr>
<tr><td>Budget</td><td>$950,000</td></tr>
<tr><td>% Spent</td><td>0%</td></tr>
<tr><td>% Complete</td><td>0%</td></tr>
</table>

Projected Operating Impact: No significant impact on operating costs. Existing pumps should run more effectively against a lower head in pipeline. Restores plant capacity.</td>
<td>Planning:
Completed March 2019

Preliminary Design:
July, 2019

Design:
September, 2019

Bidding & Award Phase:
November, 2019

Construction:
March, 2020

Closeout:
June, 2020</td>
<td>Carollo Engineers was selected to provide design services for the project. They will also provide support services during “construction”. The contract for their services has been sent to Carollo for signature.</td>
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</table>

<table>
<tr><th>Project</th><th>Scope</th><th>Project Cost and Budget</th><th>Schedule – Target Dates for Completion</th><th>Current Status</th></tr>
<tr>
<td>Project Name:

PPWTP Upgrades and Ozonation Project

Purpose/Benefits:
• Add ozone treatment to improve treated water quality and production reliability
• Expand plant production capacity from 12 to 24 MGD to meet water demand and increase production reliability. Provide production redundancy in case of DVWTP shutdowns.
• Increase treated water storage capacity from 2 MG 7 MG to provide operational flexibility and meet daily peaking demands
• Replacing or upgrading many major plant components that are reaching the end of their useful lives will improve plant reliability and also reduce untimely and expensive future repair costs.</td>
<td>Scope:
This project combines two CIP projects, the PPWTP Upgrades Project and the PPWTP Ozonation Project, and consists of:
• Construction of new facilities including an ozone generation building, contactor structures, six filters, chemical storage and feed facilities, a 5 MG treated water storage tank, a pump station, new plant entrance, and new emergency generator
• Demolition of UF facilities and modification of existing clarifiers, wash water recovery ponds, and chemical facilities

Funding Sources:
This project is funded by a combination of water rates, new connection fees, and bonds:
• PPWTP Upgrades Project: $65M split 30% Fund 120, 70% Fund 130
• PPWTP Ozonation Project: $45M split 50% Fund 120, 50% Fund 130; $19M of Fund 120’s share of the PPWTP Ozonation Project’s construction phase is bond financed.</td>
<td>Original Total Cost Estimate (2017): $62,000,000

Current Total Estimated Project Cost: $110,000,000

FY 18/19 Budget: $110,000,000
FY 18/19 Expenditures: $2,600,000

Project to Date Expenditures: $6,900,000

<table>
<tr><th colspan="2">Planning & Design Phase Costs</th></tr>
<tr><td>Budget</td><td>$6,000,000</td></tr>
<tr><td>% Spent</td><td>100%</td></tr>
<tr><td>% Complete</td><td>100%</td></tr>
</table>

<table>
<tr><th colspan="2">Construction Phase Costs</th></tr>
<tr><td>Budget</td><td>$103,400,000</td></tr>
<tr><td>% Spent</td><td>1%</td></tr>
<tr><td>% Complete</td><td>1%</td></tr>
</table>

Projected Operating Cost Impact:
Approximately $1 million net increase in annual operating and maintenance costs to operate ozone system and pump station. Reduction in repair costs due to upgrade and replacement of aging facilities such as filters, UF plant, wash water recovery systems, electrical and chemical systems.</td>
<td>Planning:
Completed May 2017

Design:
Completed November 2018

Construction:
Anticipated Winter 2021/2022

Closeout:
Anticipated Summer 2022</td>
<td>The construction contract was awarded to Overaa, with a bid of $76,139,000, at the February 6th Board meeting. Existing contracts were also amended for Covello for construction management services, CDM Smith for engineering support services, and ESA for environmental support services.

Construction commenced on February 21st. The project groundbreaking ceremony was held on April 10th.

To date, construction activities have included installation of wildlife exclusion fencing around the project site perimeter, preparing the temporary use area for construction trailers, shoring of the treated water pump station excavation area, and off-hauling of soils stockpile.</td>
</tr>
</table>

<table>
<tr><th>Project</th><th>Scope</th><th>Project Cost and Budget</th><th>Schedule – Target Dates for Completion</th><th>Current Status</th></tr>
<tr>
<td>Arroyo Mocho Medeiros-Project – (Arroyo Mocho Floodplain and Riparian Forest Restoration Project at Medeiros Parkway)

Purpose/Benefits:
• Create flood detention/ attenuation along Arroyo Mocho.
• Use of a $500K River Parkways Grant awarded to Zone 7 by the California Natural Resources Agency to cover flood protection benefit, invasive species removal, revegetation, and recreational amenities.
• Design so as not to preclude City of Livermore’s Oak Grove Nature Reserve Master Plan (OGNR).</td>
<td>Scope:
• Lower the Arroyo Mocho bike path and berm to allow flood flows to enter Oak Grove Nature Reserve.
• Targeted invasive species removal throughout Medeiros Reach.
• Revegetation of species native to the area.
• Improvements to existing dirt trails/access roads/fire breaks in Oak Grove Nature Reserve consistent with the OGNR Master Plan.

Funding Source:
This project is funded by a combination of:
• 43% Fund 200 – General Fund Flood Control.
• 57% Fund 210- Flood Protection and Stormwater Drainage DIF.
• $500K grant reimbursement for construction costs.</td>
<td>Original Total Cost Estimate (2015): $6,640,000

Current Total Estimated Project Cost: $2,700,000

FY 18/19 Budget: $400,000
FY 19/20 Budget: $1,400,000
FY 18/19 Expenditures: $246,000

Project to Date Expenditures: $1,300,000

<table>
<tr><th colspan="2">Planning & Design Phase Costs</th></tr>
<tr><td>Budget</td><td>$1,500,000</td></tr>
<tr><td>% Spent</td><td>84%</td></tr>
<tr><td>% Complete</td><td>90%</td></tr>
</table>

<table>
<tr><th colspan="2">Construction Phase Costs</th></tr>
<tr><td>Budget</td><td>$1,200,000</td></tr>
<tr><td>% Spent</td><td>0%</td></tr>
<tr><td>% Complete</td><td>0%</td></tr>
</table>

Projected Operating Impact:
Increased flood detention/attenuation. Small increase in flood control maintenance due to ownership of additional flood control facilities.</td>
<td>Planning:
November 2016

Design:
June 2019

Construction:
November 2020

Closeout:
January 2021</td>
<td>Based on previous public comments, the project was scaled back. While still reconnecting the Arroyo Mocho to the Medeiros Parkway floodplain, excavation of the floodplain for additional flood detention and the associated mitigation work was substantially reduced.

Staff has revised the River Parkways Grant scope with California Natural Resources Agency. Grant funds will allow for improvements to trails in Oak Grove Nature Reserve and invasive plant species removal throughout the reach in addition to lowering the bike trail to allow flood flows into Oak Grove Nature Reserve.

The final CEQA document was adopted at the February Board Meeting. Permit applications were submitted to the resources agencies in March. The design completion is contingent on receiving approved permits by June 2019.</td>
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</table>