

State of California
Seismic Safety Commission

Memo

To: Seismic Safety Commission

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Date: April 26, 2013

Subject: San Francisco Public Utilities Commission Water System Improvement Program
Delays

Background

The State's Water Code requires the Seismic Safety Commission to comment to the Joint Legislative Audit Committee on the public safety implications of delays to SFPUC's Water System's Improvement Program within 90 days of receipt of notice of such delays. We received such a notice on February 25, so the Commission has until May 25th to comment. This will be the sixth review of delays and project deletions.

Summary

Previously undiscovered geologic features along the left abutment of the new Calaveras Dam site have reportedly added 25 months of delay to the project. On Monday, February 25th, Commissioners Peggy Hellweg and Tim Strack along with staff members Bob Anderson and Fred Turner visited the site. The slope of a steep hill on the left abutment will be lowered to increase its stability and reduce the potential for land sliding. At the March SSC meeting, Commissioners Emir Macari and Peggy Hellweg were assigned to generate the attached recommended review comments on the public safety implications for the Commission's consideration at its May meeting.

Staff Recommendation

The staff recommends that the SSC hear from Commissioners Hellweg and Macari, make refinements and adopt the attached recommended comments on the public safety implications of the delays to the dam project, and direct staff to send the comments to the Joint Legislative Audit Committee.



State Of California
SEISMIC SAFETY COMMISSION

GOVERNOR EDMUND G. BROWN, JR.

**Comments on the Significance of Changes in the
 San Francisco Public Utilities Commission's
 Water System Improvement Program (WSIP)
 With Respect to Public Health and Safety**

April 17, 2013 Draft Version 3

Introduction

In 2002 the state enacted the Wholesale Regional Water System Security and Reliability Act (AB 1823, Chapter 841, 2002, Section 73502 of the State Water Code). The Act:

- Required the City and County of San Francisco to adopt a “program of capital improvement projects designed to restore and improve the Bay Area regional water system that are described in the capital improvement program report prepared by the San Francisco Public Utilities Commission (SFPUC) dated February 25, 2002”; and
- Lists nine key improvement projects for the regional water system commonly known as the “Hetch Hetchy” system; and
- States: “If the city adopts a change in the program that deletes one or more projects from the program, or postpones the scheduled completion dates, the city shall promptly furnish a copy of that change and the reasons for that change to the State Department of Health Services and the Seismic Safety Commission;” and
- Requires the Seismic Safety Commission (SSC) to “submit written comments with regard to the significance of that change with respect to public health and safety” within 90 days of receiving a notice of changes to the scope or schedule of the previously proposed 2002 SFPUC Capital Improvement Program (CIP) and subsequent changes.
- Required the SFPUC to produce a Program schedule by 2003 requiring that “projects representing 50 percent of the total program cost be completed on or before 2010 and that projects representing 100 percent of the total program cost be completed on or before 2015.”

On February 25, 2013, the SSC received a notice of changes made by the SFPUC on February 20, 2013. This is the SSC’s sixth review of changes to the Water System Improvement Program. Prior SSC reviews occurred in 2006, 2008, 2010, 2011 and 2012 in response to changes in the Program in late 2005, 2007, 2009, 2011 and 2012.

Scope and Limitations of these Comments

The SSC considered changes to the WSIP that the SFPUC made between June 2012 and February 2013 when generating the comments below. Appendix A lists the planned seismic safety projects and their

schedule changes from the 2002 CIP to the 2013 WSIP including the nine key projects identified in the Act. In addition, the SSC considered construction progress to date.

The SSC’s chairperson directed Commissioners Emir Macari and Peggy Hellweg to work with staff to prepare this report and make a presentation to the SSC at its May 9, 2013 meeting. Appendices B and C list sources of information used during this review.

As required by the Act, the SSC has prepared comments that address schedule delays in the regional WSIP. The Act’s comment period only allows for limited review and comments by SSC staff and commissioners. In addition, although some Commissioners and staff are licensed professionals who are familiar with certain technical aspects of the seismic design of water systems, in their roles of serving the public as Commissioners and staff, they do not perform engineering or other licensed work. Rather, the SSC’s primary mandate is to provide policy advice to the Governor, the Legislature, and the public. Consequently, this effort does not constitute work by licensed professionals on the Commission or its staff. In generating the comments below, the SSC does not assume responsibility for the integrity or reliability of any aspect of the WSIP. The Commission also does not regulate, certify, approve or disapprove of the WSIP or any of its changes.

Notwithstanding the foregoing, in the interest of assisting the SFPUC and serving the public, the SSC has included additional comments and recommendations that it believes are relevant to public health and safety.

The Original Capital Improvement Program in 2002 and Major Changes in 2005

The SFPUC’s water transmission system serves 26 wholesale customers in addition to delivering water to the San Francisco City Distribution Department’s retail system. Together these 27 retail distribution systems (including San Francisco) serve approximately 2.5 million users. In 2002, the seismic upgrade component of the CIP was composed of a collection of projects intended to limit the loss of service to the SFPUC’s wholesale customers following major earthquakes. The 2002 CIP was prepared and evaluated in an intuitive manner without the benefit of specific seismic performance objectives, quantitative analysis of alternatives, or a schedule that allowed for a programmatic environmental impact review (PEIR). The CIP was renamed the Water System Improvement Program and the SFPUC adopted more specific Levels of Service Goals and significant changes to the scope of the program in 2005.

Progress in the Water System Improvement Program as of February 2013

By February 2013, 75 percent of construction and design had been completed for the 46 regional projects currently in the Program.

The most significant change from the June 2012 to the February 2013 schedule was a 25 month delay to the Calaveras Dam.

Of the nine key seismic safety projects listed in State Water Code, all have been delayed significantly with respect to the 2002 schedule:

<u>Seismic Safety Project Referenced in the State Water Code</u>	<u>Scheduled Delay (Months) Relative to 2002 Schedule</u>	<u>Constr. Status*</u>
New Irvington Tunnel	77	In Progress
Crystal Springs to San Andreas Reservoir Transmission Upgrade	33	In Progress
Bay Division Pipelines 1 and 2 Repairs	See BDPL Reliability Upgrade	
Bay Division Pipeline (BDPL) Reliability Upgrade Tunnel	33	In Progress
BDPL Reliability Upgrade Pipeline	8	In Progress
Seismic Upgrade Bay Division Pipelines 3 and 4	56	In Progress

Alameda Siphon #4 Upgrade	34	Completed
New Crystal Springs Bypass Tunnel	34	Completed
Bay Division Pipelines 3 and 4 Crossover/Isolation Valves	10	Completed
Calaveras Dam Projects	111	In Progress

The State Water Code provides that the SFPUC may change projects and schedules in the Water System Improvement Program without outside permission, but that if San Francisco deletes or delays projects, the SSC must be informed. Appendix A presents the adopted changes to the Water System Improvement Program schedule since its original adoption by San Francisco in 2002. The Water System Improvement Program’s overall completion will occur 29 months later than the date estimated in 2002 primarily due to this latest delay.

Comments within the Scope of the Act

1. **Schedule Changes.** The latest delay to completion of the Calaveras Dam primarily impacts water delivery reliability, water supply and sustainability Level of Service goals for the WSIP. The delay also adversely impacts the goal of meeting average-day demands of up to 300 million gallons per day within thirty (30) days after major earthquakes occur in the San Francisco Bay Region. The goal of designing improvements to meet current seismic standards has also been delayed for portions of the Calaveras Dam replacement project.

The SSC briefly consulted with but did not investigate the Department of Water Resources’ Division of Safety of Dams (DSOD) roles and responsibilities in regulating dam safety in the course of this review. The SSC requested an opinion from DSOD regarding the most recent delay. See Appendix B for DSOD’s response.

Revised estimates of completion dates for the projects originally identified as key for seismic safety are expecting cumulative delays from 10 to 111 months, averaging over three years in delays compared to the 2002 schedule. The effect of delays is a forestalling of seismic safety reliability for the regional water system. The additional delays will increase the chance that major earthquakes will occur before critical seismic safety portions of the upgrade are completed.

The SSC notes that the SFPUC has incrementally reported delays in 2005, 2007, 2009, 2011 and 2012 in addition to this latest set of delays.

2. **Project Scope Changes.** In comparing the February 2013 WSIP with the 2011 WSIP there were no projects deleted.

Conclusions and Recommendations

The SFPUC continues to make progress and refinements to its Water System Improvement Program. However, it is significantly behind the goal of 50 percent completion by 2010 and 100 percent by 2015 established in state law in 2002. The SSC recognizes that projects have been added and the scope of the Program has evolved since then. Major schedule delays since 2002 including the most recent delays since 2013 continue to adversely impact the Program with respect to public health and safety should major earthquakes occur before completion of the Program. Although the SFPUC staff has not followed some of the SSC’s previous recommendations, the SSC is pleased to note that the SFPUC staff has taken action on

some past suggestions and has been willing to discuss issues identified by the SSC that are critical in lowering the seismic risk to the Water Delivery System.

Appendix A

Water System Improvement Program

Seismic Reliability Projects and Schedule Comparisons

The San Francisco Public Utilities Commission is undertaking a \$4.6 billion Water System Improvement Program to enhance the Hetch Hetchy water transmission system with an anticipated 2018 completion of seismic projects. The table below summarizes the major seismic reliability projects and compares schedules between the 2002 Program and subsequent changes in 2005, 2009, 2011, 2012 and 2013.

Water System Improvement Program Seismic Projects	Project Closeout Dates Estimated					2002 to 2013 Variance (Months)
	2002	2005	2009	2011	2012&13	
Standby Power Facilities	Nov 2013	Dec 2010	Dec 2010	Dec 2010	Dec 2010	-35
New Irvington Tunnel	Aug 2009	Sep 2013	Dec 2013	Oct 2014	Jan 2016	+77
Alameda Siphon #4 Upgrade**	**	Apr 2011	Jun 2012	Jun 2012	June 2012	+34
Pipeline Repair & Readiness	Sep 2004	Mar 2007	Dec 2008	Apr 2009	Apr 2009	+55
Calaveras Dam Projects	May 2009	June 2012	Dec 2015	Jul 2016	Aug 2018*	+111*
Bay Division Pipelines 3&4 Crossover/ Isolation Valves	N/A	Sep 2008	Sep 2008	Jul 2009	July 2009	+10
Seismic Upgrade Bay Div. Pipelines 3&4	Aug 2010	Oct 2012	Dec 2014	Apr 2015	Apr 2015	+56
Bay Division Pipeline (BDPL) Reliability Upgrade Tunnel	Feb 2013	Jan 2014	Aug 2015	Nov 2015	Nov 2015	+33
BDPL Reliability Upgrade Pipeline	Feb 2013	Jan 2014	Mar 2013	Mar 2013	Oct 2013	+8
Bay Division Pipelines 3 & 4 Crossovers***	Jan 2013	N/A	Sep 2013	May 2013	May 2013	+4
New Crystal Springs Bypass Tunnel	May 2009	Oct 2010	Mar 2012	Mar 2012	Mar 2012	+34
Harry Tracy Water Treatment Plant Short Term Improvements	Nov 2012	Sep 2010	Sep 2010	Jul 2010	July 2010	-27
Harry Tracy Water Treatment Plant Long Term Improvements	Mar 2016	Apr 2014	Jun 2014	Dec 2015	Dec 2015	-3
Capuchino Valve Lot Improvements	Mar 2016	Jul 2009	Aug 2008	Aug 2008	Aug 2008	-91
Crystal Springs to San Andreas Reservoir Transmiss. Upgrade	Jul 2011	Apr 2014	Apr 2014	Apr 2014	Apr 2014	+33
Crystal Springs Pipeline No.2 Replacement	Nov 2015	Apr 2012	Jul 2013	Sep 2013	Sep 2013	-26
San Andreas No.3 Pipeline Installation	Nov 2014	June 2011	May 2012	Nov 2011	Nov 2011	-36
Baden & San Pedro Valve Lot	^	Oct 2011	Aug 2011	Aug 2012	Aug 2012	+10
Sunset Reservoir North Basin	Oct 2014	May 2009	May 2009	Sep 2010	Sep 2010	-49
Peninsula Pipelines Seismic Upgrade	^^		Dec 2014	Jul 2016	July 2016	-
Bay Div Pipelines 1 & 2 Repairs***	Jan 2013	N/A	-		-	-
Overall WSIP Completion	Mar 2016	Jun 2014	Dec 2015	July 2016	Aug 2018*	+29*

Notes: For delays in 2007 please refer to the Seismic Safety Commission's prior reviews in either 2008, 2010, or 2011
 Projects in bold are listed in CA Water Code Section 73502(b) added by AB 1823 (Chapter 841, Statutes of 2002)

* Revised in 2013

** The Alameda Siphon Upgrade is now a separate project that was previously combined with the New Irvington Tunnel.

*** The SFPUC removed these projects from the WSIP since they are not required to achieve the new Levels of Service Goals. Refer to the Bay Division Pipeline Reliability Upgrade Project for BDPL 1 and 2.

^ Completion date established in 2005; ^^ in 2009.

Appendix B

List of Documents Received/Reviewed/Generated

Notice of Changes to Water System Improvement Program, *San Francisco Public Utilities Commission (SFPUC), February 20, 2013.*

DSOD Reply to CSSC Letter April 9, 2013 by Michael Waggoner, Field Engineering Branch Chief.

Letter from CSSC to DSOD April 3, 2013.

Appendix C

Meeting with California Seismic Safety Commission (SSC), its Ad Hoc Committee and SSC Staff

April 3, 2013 Teleconference of Ad Hoc Committee and SSC Staff

May 9, 2013: SSC Hearing, minutes available at www.seismic.ca.gov