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Commissioner : Michael Picker  
Administrative Law Judges : Rafael Lirag  
: Douglas Long  
ORA Witnesses : Jenny Au  
: Daphne Goldberg  
: Alex Lau  
: Susana Nasserie  
: Brian Yu



**ORA**  
OFFICE OF RATEPAYER ADVOCATES



**OFFICE OF RATEPAYER ADVOCATES**  
**CALIFORNIA PUBLIC UTILITIES COMMISSION**

**PUBLIC**  
**REPORT ON PLANT – COMMON PLANT ISSUES &**  
**REGION 2**  
**Golden State Water Company**  
**Test Year 2016 General Rate Case**  
**A.14-07-006**

**San Francisco, California**  
**March 6, 2015**

## MEMORANDUM

1  
2 This Report on Plant – Common Plant Issues and Region 2 for GSWC GRC A.14-07-006 is  
3 prepared by Jenny Au, Daphne Golberg, Alex Lau, Susana Nasserie and Brian Yu of the *Office*  
4 *of Ratepayer Advocates (ORA) - Water Branch*, and under the general supervision of Program &  
5 Project Manager Danilo Sanchez, and Program & Project Supervisor Lisa Bilir. The witnesses’  
6 Statement of Qualifications are in ORA’s Company-Wide Report on the Results of Operations.  
7 Shanna Foley and Kerriann Sheppard serve as ORA legal counsels.

# Report on Plant – Common Plant Issues and Region 2

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# Chapter 1: EXECUTIVE SUMMARY

## A. INTRODUCTION

Chapters 2 through 8 of this report present ORA's analysis and recommendations on common plant issues affecting plant estimates in all 9 of GSWC's ratemaking areas. ORA's recommendations on Region 2 capital budgets are presented in Chapter 9.

## B. KEY RECOMMENDATIONS – COMMON PLANT ISSUES

The following recommendations are based on ORA's examination of capital planning and budgeting issues that affect plant estimates in all ratemaking areas. These recommendations serve as a basis for many of ORA's specific adjustments to GSWC's proposed projects and capital budgets for 2015 through 2017.

### **1. Contingency cost (as % of project cost and blanket budget)**

The Commission should allow no more than 5% in contingency rate (adder) for specific (non-routine) capital projects, and reject GSWC's requested 10%. (Chapter 2)

GSWC should not be allowed to include a 10% contingency budget in its blanket (routine) capital budgets. (Chapter 2)

### **2. Design cost (as % of construction budget)**

For pipeline projects, the Commission should allow a design cost (adder) of no more than 7% of estimated construction budget, instead of GSWC's requested 10% to 12%. (Chapter 2)

### **3. Vehicle Replacements**

The Commission should require GSWC to follow the vehicle replacement criteria and schedule of the California Department of General Services, and adopt ORA's recommended 2015-2017 budget of \$1.14 million instead of GSWC's request of \$2.9 million. (Chapter 3)

### **4. Urban Water Management Plans (UWMPs)**

ORA recommends that the Commission authorize GSWC's request for UWMP preparation projects, but shift the requested funds from 2015 to 2016 to match the expected completion date of these plans. (Chapter 4)

1           **5. Chemical Disinfection Building Replacements**

2 GSWC should not be allowed funds to replace existing buildings which are still in good  
3 condition. In cases where replacement is justified, GSWC should not be allowed funds to  
4 construct expensive concrete masonry units, and should instead construct less expensive  
5 alternatives that can still meet current regulations. (Chapter 4)

6           **6. Pressure Requirements**

7 ORA recommends that the Commission authorize an exemption from the 40-pounds-per-square-  
8 inch minimum pressure requirement contained in GO 103-A while ORA is considering a Motion  
9 to Amend General Order 103-A (GO 103-A) to ensure consistency with the California  
10 Waterworks Standards (California Code of Regulations, Title 22, Chapter 16) and while the  
11 Commission is considering such motion. Doing so will avoid undue rate burdens on GSWC’s  
12 customers and does not adversely impact public health or service quality. (Chapter 5)

13           **7. Pipeline Replacement**

14 ORA reviewed GSWC’s pipeline replacement program and found many inconsistencies in its  
15 analysis and as well as the application of its prioritization process. ORA recommends that  
16 GSWC moves from its emphasis in replacement to a more comprehensive and cost-based  
17 program that would include such tools as pressure management and active leakage control, and  
18 utilize results from the Water Loss Audits to align its resources toward efficient water loss  
19 control program. ORA’s recommendations on GSWC’s pipeline replacement projects are based  
20 on a case-by-case analysis to ensure prudent investment in GSWC’s pipeline infrastructure.  
21 (Chapter 6)

22           **8. Water Loss**

23 ORA recommends that the Commission adopt ORA’s lower estimated Water Loss rates in Ojai  
24 and in Region 2 to reflect a decreasing trend in recent years. (Chapter 7)

25           **9. Water Quality**

26 ORA recommends that the Commission open a second phase of this proceeding to address  
27 customers’ concerns regarding the quality of water in the City of Gardena to ensure that the long-  
28 standing “black water” problem is properly and timely resolved, and to identify and address  
29 operational deficiencies, if any. (Chapter 8)

1 **Chapter 2. CONTINGENCY& DESIGN ADDERS**

2 **A. INTRODUCTION**

3 This chapter addresses the contingency and design cost factors that GSWC uses in developing its  
4 proposed capital budgets in this GRC.

5 **B. DISCUSSION – CONTINGENCY RATES**

6 **1. Prior Commission Decisions Regarding Contingency Adders**

7 In this GRC, GSWC’s projected cost estimates include a 10% **contingency adder**. GSWC  
8 explains that a 10% contingency is necessary because it “is a standard practice in developing cost  
9 estimates.”<sup>1</sup> GSWC’s use of this 10% contingency for its project cost estimate is not consistent  
10 with past Commission decisions regarding contingency rates in GSWC’s capital budgeting  
11 process. The Commission has consistently adopted a 5% contingency rate in previous GSWC  
12 GRCs.

13 In **D.06-01-025** (GSWC<sup>2</sup> Region 3 GRC), the Commission only allowed “a contingency adder  
14 equal to 5%.”<sup>3</sup> In reducing the adder from 10% to 5%, the Commission stated that:

15 Accurate budgeting and cost containment are critical management functions that require  
16 additional attention from SCWC management. We are concerned that the contingency  
17 budget may play a role in “cushioning” SCWC from the consequences of insufficient  
18 attention.<sup>4</sup>

19 In **D.08-01-043** (GSWC Region 1 GRC), the Commission rejected GSWC’s proposed 10%  
20 contingency and adopted ORA’s recommended **5% contingency rate**. This decision made  
21 specific observations regarding contingency in capital budgeting and cost containment:

22 ...a critical management function includes accurately budgeting and pursuing cost  
23 containment. **Under Golden State's proposal, budget overruns are indirectly**

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<sup>1</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 14, lines 20-21.

<sup>2</sup> GSWC was then Southern California Water Company (SCWC).

<sup>3</sup> D.06-01-025, p. 38.

<sup>4</sup> Ibid.

1 **sanctioned. We have supported a 5% contingency rate for Golden State in decisions**  
2 **resolving prior Golden State GRCs.** For instance, in D.06-01-025, we adopted a  
3 contingency rate of 5% for Region III. Accordingly, we adopt a 5% contingency rate in  
4 this proceeding. [Emphasis added.]

5 Despite clear direction from the Commission, GSWC again includes a 10% contingency rate in  
6 its capital budgets. This raises the question as to whether GSWC is incapable of accurately  
7 budgeting and/or containing the costs of its capital projects. It is also concerning that instead of  
8 improving its capital cost planning, budgeting, and containment process, GSWC continues to  
9 disregard the Commission’s decisions on this issue and again asks for a 10% cushion on its  
10 capital budgets.

## 11 2. **10% Contingency Adder to Blanket/Routine Budget Estimates**

12 In the same manner as the 10% adder to specific project costs, GSWC includes a 10% adder in a  
13 form of a “Contingency” line item in its blanket/routine budget. GSWC stated that this budget  
14 item is needed “to account for miscellaneous needs that may come up during the course of the  
15 rate case that were unforeseen.”<sup>5</sup>

16 Blanket project budgets are intended to cover routine items necessary to operate and maintain the  
17 water system, such as replacing non-functional meters, installing services, and purchasing office  
18 furniture and equipment and miscellaneous tools and equipment. GSWC stated that these “costs  
19 generally occur on a regular basis and are fairly consistent in magnitude” and estimated the  
20 budget by escalating the average historical expenditures from the past five years.<sup>6</sup> Since these  
21 items are foreseeable/identified items and GSWC’s budget is based on historical expenditures,  
22 no additional contingency budget should be added to the total blanket/routine budget. Any  
23 unexpected/unforeseen expenditures in the past five years would have been reflected in the  
24 variations in historical data and captured in the averaging process in developing the forecasted  
25 blanket budget estimates for Test Years 2016 and 2017.

26 By adding a contingency budget to its blanket/routine budget, GSWC is expanding its blanket  
27 budget beyond its five-year historical expenditures. Therefore, ORA recommends that the

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<sup>5</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 160, lines 25-27.

<sup>6</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 160, lines 10-14.

1 Commission deny GSWC’s request for a 10% contingency for its Blanket/Routine capital  
2 budgets in all of ratemaking areas.

3 **3. 10% Contingency Adder to Specific Project Cost Estimates**

4 For specific (non-routine) capital projects, GSWC also included a 10% contingency adder when  
5 estimating the cost for these capital projects. In support of this request, GSWC provided a 1995  
6 report from the Association for the Advancement of Cost Engineering (AACE) titled  
7 “Contingency and Capital Cost Estimates.” The report contains general guidance for a range of  
8 various types of Capital Cost Estimates and associated accuracy range. The AACE defines  
9 contingency as follows:

10 A cost element of an estimate to cover a statistical probability of the occurrence of  
11 unforeseeable elements of cost within the defined project scope due to a combination of  
12 uncertainties, intangibles, and unforeseen/highly unlikely occurrences of future events,  
13 based on a management decision to assume certain risks.<sup>7</sup>

14 In its testimony, GSWC pointed to the relationship between contingency and risk, whereby the  
15 higher the contingency afforded the company, the lower the risk of a cost overrun.<sup>8</sup> GSWC also  
16 stated that its contingency budget is not a “slush fund to cover costs associated with inadequate  
17 planning and poor design” but is meant to reduce the risk of “unforeseen occurrences.”<sup>9</sup> The  
18 AACE identified several issues that would have a direct bearing on the contingency, which  
19 include inadequacies in scope, insufficient information, labor, materials, and subcontractors.<sup>10</sup> It  
20 is important to determine which of these factors presents a greater impact to the contingency in  
21 GSWC’s case. Unfortunately, GSWC did not identify or discuss these specific factors to justify  
22 the contingency rate that it seeks.

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<sup>7</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, Attachment 6 - Contingency and Capital Cost Estimates, Zaheer, March 1995, p. 1.

<sup>8</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, pp. 15-16.

<sup>9</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 15, Lines 9 to 15.

<sup>10</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, Attachment 6, pp. 4-5.

1 In its 2009 Cost Estimating and Assessment Guide, the US Government Accountability Office  
2 (GAO) recommends quantifying risk and uncertainty as a cost estimating best practice.<sup>11</sup> The  
3 GAO provided the following explanation regarding the importance of identifying risks in cost  
4 estimates:

5         Since numerous risks can influence the estimate, they should be examined for their  
6         sources of uncertainty and potential effect, and they should be modeled to determine how  
7         they can affect the uncertainty of the cost estimate.<sup>12</sup>

8 GSWC’s reluctance to quantify and evaluate the risks associated with its cost estimates  
9 demonstrates a lack of incentive to control costs. Allowing GSWC a contingency rate of 10%  
10 without the proper showing and justification is simply not reasonable.

11 In addition, GSWC’s detailed budgeting process should presumably already minimize the risks  
12 associated with its cost estimates. GSWC developed its project cost estimates by “using both  
13 commercially published cost data and historical cost records derived from actual GSWC  
14 projects” and escalated the amount by 2.7% per year to arrive at 2013 dollars. GSWC further  
15 escalates those 2013 normalized costs to forecast years (2014-2017 in this case).<sup>13</sup> The company  
16 provided the following explanation of its cost estimates:

17         For the pipeline projects, GSWC developed cost estimates by evaluating historical  
18         pipeline and project bids and recorded costs for projects we have recently completed of  
19         similar scope, location, size, and complexity. GSWC has historical data for pipeline  
20         construction projects that is utilized to project estimated construction costs. Each  
21         pipeline project construction estimate is the compilation of all cost items that represent  
22         the project scope of work, including the estimated labor costs for GSWC engineering and  
23         inspection services.<sup>14</sup>

24         ...

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<sup>11</sup> US GAO Cost Estimating and Assessment Guide, Best Practices for Developing and Managing Capital Program Costs, March 2009, p. 154.

<sup>12</sup> US GAO Cost Estimating and Assessment Guide, Best Practices for Developing and Managing Capital Program Costs, March 2009, p. 159.

<sup>13</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, pp. 11-12.

<sup>14</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 12, lines 18-24.

1 Cost estimates developed by GSWC Planning Department **utilized source data from**  
2 **developed project cost estimates.** GSWC used a **detailed cost estimation**  
3 **methodology** to derive the construction cost estimates.<sup>15</sup> [Emphasis added.]

4 Based on GSWC’s testimony and the information provided in GSWC’s compilations of  
5 historical project costs,<sup>16</sup> it is clear that GSWC has extensive experience in planning and  
6 constructing water operating facilities (meters, pumps, pipelines, wells, etc.). As such, GSWC’s  
7 own staff should have the information and the ability to develop sophisticated cost estimates that  
8 provide an accurate budget for its proposed projects. Thus, a 10% cushion is unnecessary.

9 GSWC’s practice of using historical cost with additional details in its cost estimate worksheets  
10 should help GSWC minimize the “statistical probability of the occurrence of unforeseeable  
11 elements of cost within the defined project scope” as defined by AACE. Any unforeseen events  
12 are more likely a result of “inadequacies in scope” and “insufficient information.” Inadequate  
13 planning and poor design typically lead to “inadequacies in scope” and “insufficient  
14 information.” Under such circumstances, additional funds may be needed to cover cost overruns.  
15 However, a more efficient use of resource would be to correct these issues to control costs  
16 instead of allowing a cushion in the budget estimates to cover inadequate planning. The AACE  
17 recommended several measures to control contingency, including documenting the basis of the  
18 contingency, controlling the changes, forecasting contingency on a regular schedule, and  
19 eliminating the use of contingency to cover design inadequacies and to treat contingency as a  
20 separate fund.<sup>17</sup>

#### 21 4. Summary

22 Contingency budget levels have been a contested issue in prior GSWC GRCs because GSWC  
23 has not been able to justify why it would require a 10% cushion in its capital budgets. In this  
24 GRC, GSWC has not provided any new information showing that it has taken proactive steps to

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<sup>15</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 13, lines 21-23.

<sup>16</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, Attachment 5 - Master Cost Cross Reference Sheet.

<sup>17</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, Attachment 6 to AACE’s Contingency and Capital Cost Estimates, pp. 10-11.

1 control its project costs justifying the need for a 10% contingency. This lack of information  
2 demonstrates that at best, GSWC has little desire to control its project costs or is relying on the  
3 inflated 10% contingency factor to cover its inability to plan, budget, and control its capital  
4 expenditures. At worst, GSWC is using the extra cushion to pad its estimated ratebase to obtain  
5 higher than necessary authorized rates. ORA recommends that the Commission adopt a 5%  
6 contingency rate for capital projects consistent with its prior decisions and 0% contingency for  
7 the blanket/routine budgets as discussed previously.

### 8 **C. DISCUSSION – DESIGN BUDGET RATES**

9 For a number of large projects that GSWC proposes to construct, GSWC estimated both a design  
10 budget in the first year and construction budget in the following year.<sup>18</sup> GSWC estimated the  
11 design budget by multiplying the construction cost by a factor of at least **10% for pipeline**  
12 **projects** and at least **15% for all non-pipeline projects**, regardless of the project size or  
13 complexity.

14 According to GSWC, it typically contracts out the design function for projects that have a  
15 construction budget exceeding \$500,000. When a construction project is contracted out, GSWC  
16 assumes outsourcing the design function and increase the design budget by 20% (or 1.2 times the  
17 design factor of 10%). For example, for a pipeline project with a construction cost estimate over  
18 \$500,000, GSWC's estimates the design cost to be 12% on top of the construction cost instead of  
19 10%. In addition, the design cost is also subject to other adders - approximately 18% for  
20 construction overhead (OH), 10% for contingency, and 2.7% per year for escalation. In many  
21 cases, the design cost of a pipeline project can be as high as 16% of the construction costs. The  
22 following example illustrates the combined effect of all these adders that GSWC used in its  
23 budget estimation:<sup>19</sup>

---

<sup>18</sup> For many projects, these years straddle two rate case cycles.

<sup>19</sup> GSWC's Region 2 Workpapers, Volume 2 of 3, Ratebase Sheet Nos. 197 and 198.

Calculation	Proposed Project	154th St Area Main Replacement in the Southwest System
a	Construction cost (2013 dollars)	\$4,193,000
b = (.12) x a	Design cost by outside consultant	\$503,160 (=12% of \$4,193,000)
c = (.16) x a	Total Design Cost with OH (18%), Contingency (10%), and Annual Escalation (2.7%)	\$670,700 (=16% of \$4,193,000)
d	Total Construction cost with OH (18%), Contingency (10%), and Annual Escalation (2.7%)	\$5,712,200
e = c + d	Total Project Cost	\$6,382,900
(e/a) - 1	% of Mark Up	52% = (\$6,382,900/\$4,193,000) - 1

1 As shown above, the final project cost exceeds the basic construction cost estimate by **52%**.  
2 Although ORA recognizes that the construction cost was estimated based on 2013 construction  
3 data, construction costs should not increase that significantly when considering that the current  
4 inflation rate is running at approximately 2.7% annually. At this level of inflation, a construction  
5 project that cost \$1,000 in 2013 should cost approximately \$1,093 in 2016. Padding extra cost  
6 factors into a project estimate suggests that GSWC does not effectively manage its construction  
7 projects. In order to encourage GSWC to be more efficient in its planning and managing of its  
8 construction projects, ORA recommends that the Commission reduce GSWC's construction  
9 budgets by reducing the design factor (item b shown in the above table) that GSWC used in its  
10 project cost estimation.

11 In Park Water Company's Central Division (Park Water) GRC filings, pipeline project cost  
12 estimates contain a line item for engineering consultation (design). However, Park Water's  
13 average design cost for its pipeline projects is **7%** of the construction cost for 12" DI pipe and  
14 **4%** for 8" DI.<sup>20</sup> GSWC's design cost averages **16%** for all pipeline projects in Region 2, which  
15 is located in the same geographical area as Park Water's Central service area. In their current  
16 respective GRC filings, GSWC is proposing to construct 61 pipeline projects and Park Water is

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<sup>20</sup> See [Appendix CONTINGENCY-A \(Park Water Company's 2015 GRC Application and ORA's Workpapers\)](#) in this report.

1 proposing to construct 23 pipeline projects. It is reasonable to expect GSWC’s costs such as the  
 2 design adder to be lower than Park Water’s cost because GSWC has the cost advantage due to its  
 3 larger size (economies of scale). However, ORA found that GSWC’s costs exceed that of Park  
 4 Water in many aspects as discussed in ORA’s plant testimony for Region 2. For example, the  
 5 data below shows GSWC’s design cost for pipeline projects is over four times that of Park’s for  
 6 8” DI and more than doubles Park’s estimate for 12” DI.

Size and Material	Design Cost as % of Construction Cost		GSWC exceeds Park Water
	GSWC	Park Water	
8" DI	16%	4%	400%
12" DI	16%	7%	229%

7 For pipeline projects, ORA recommends that the design cost factor of a project not exceed 7% of  
 8 the construction budget and the outside contractor design multiplier should be 1.0. A factor of  
 9 1.0 is reasonable because it should not cost ratepayers more for a project designed by an outside  
 10 engineering firm, as GSWC’s engineers are presumably compensated at a rate that is comparable  
 11 to those in the industry. Therefore, the design budget should be kept at 7% of the construction  
 12 budget for pipeline projects whether it is projected to be done by in-house or outside design staff.

13 **D. RECOMMENDATIONS**

14 Based on its analysis presented above regarding contingency and design cost factors, ORA  
 15 recommends that the Commission:

- 16 1) Reject GSWC’s 10% contingency factor and adopt no more than a **5% contingency factor**  
 17 **for specific (non-routine) capital projects and 0% for blanket (routine) capital budgets.**
- 18 2) Reject GSWC’s 10+% design cost factor and adopt no more than a **7% design cost factor** on  
 19 pipeline projects.
- 20 3) Reject GSWC’s 1.2 factor to gross up design cost for outsourced design work for pipeline  
 21 construction.

1 **Chapter 3. VEHICLE REPLACEMENTS**

2 **A. INTRODUCTION**

3 This chapter addresses GSWC’s vehicle replacement policy and project requests for its General  
4 Office and Regions 1 through 3.

5 **B. DISCUSSION**

6 GSWC requests 65 vehicle replacements for its General Office and Regions 1 through 3. The  
7 total cost for these replacements is \$2,897,700 for the 2015-2017 period. GSWC proposes to  
8 replace the vehicles, regardless of type, that are expected to reach 120,000 miles in the forecast  
9 years.<sup>21</sup> ORA disagrees with GSWC’s approach. In D.06-01-025, the Commission adopted the  
10 California Department of General Services’ (DGS) Vehicle Replacement Policy to determine  
11 GSWC’s vehicle replacement schedule. That vehicle replacement policy, last updated on April  
12 22, 2008, is as follows:<sup>22</sup>

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<sup>21</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko regarding Transportation Equipment (Blanket item).

<sup>22</sup> The April 22, 2008 State of California Fleet Handbook - A guide to Fleet, Travel, and Parking Policy, from DGS website: <http://www.documents.dgs.ca.gov/ofa/handbook.pdf>, p. 4. (Accessed on January 16, 2015.)

**Replacement Schedule Criteria**

To assist agencies with determining replacement schedules and budgeting needs for state-owned vehicles, the following schedule for alternative fuel and gasoline fueled vehicles shall be used:

Authorized emergency vehicles as defined in Section 165 of the Vehicle Code, that are equipped with emergency lamps or lights described in Section 25252 of the Vehicle Code	100,000 miles
Sedans, station wagons, vans and light duty trucks or vehicles having a gross vehicle weight rating (GVWR) or 8500 pounds or less	120,000 miles
Heavy duty trucks or vehicles (Class 3 and under) having a gross vehicle weight rating (GVWR) of 8501 pounds or more	150,000 miles
4-wheel drive vehicles	150,000 miles

A state-owned vehicle may be disposed of or replaced when it is determined that it would be cost-effective to do so, regardless of age or mileage. All vehicles being disposed of require a Property Survey Report ([STD. 152](#)). An evaluation will be made by an Inspector of Automotive Equipment to determine whether a vehicle should be disposed of or can be safely and economically continued in service. The decision whether to retain, reutilize, or dispose of any vehicle not meeting the minimum replacement criteria shall be based on an inspection taking into account the following factors:

- Current mechanical condition.
- Previous maintenance and repair record.
- Extent of needed repairs and availability of parts and life expectancy of vehicle after repair.
- Current sale value.
- Cost and availability of replacement unit and accessories.
- Owning agency's ability to replace unit.

Vehicles meeting or exceeding the replacement schedule do not require an inspection.

1  
2 GSWC should follow the DGS criteria in scheduling its vehicle replacements. The DGS policy  
3 does allow for replacement earlier than the DGS replacement mileage, but requires a specific  
4 inspection to establish cost effectiveness. GSWC must demonstrate cost effectiveness if it  
5 wishes to replace vehicles with mileage less than the minimum specified.

6 As mentioned earlier, the Commission already established the vehicle replacement guidelines  
7 and addressed this issue in a prior GSWC GRC. GSWC in its application provides no  
8 justification why the company should be allowed to deviate from those guidelines and the  
9 Commission's prior determination on this issue.

10 **C. RECOMMENDATION**

11 ORA's recommended vehicle replacement budgets, presented in its plant reports, are based on  
12 replacing 4-wheel drive vehicles and heavy-duty trucks having a gross vehicle weight rating  
13 (GVWR) of 8,501 pounds or more at 150,000 miles, and not at 120,000 miles as requested by  
14 GSWC. Many of ORA's adjustments to GSWC's requests are due to this difference in  
15 replacement criteria. For all vehicles, when ORA determines that a vehicle is not expected to  
16 reach its DGS replacement mileage in any of the forecast years, 2015 to 2017, ORA removes the

1 requested dollars from the capital budgets. When the vehicle is expected to reach its replacement  
 2 mileage in the forecast years but not in the year requested by GSWC, ORA moves the requested  
 3 dollars to the year that it is expected to reach the DGS replacement mileage.

4 ORA recommends that the Commission reaffirm its established policy to follow the California  
 5 Department of General Services' vehicle replacement criteria, and adopt ORA's recommended  
 6 adjustments to GSWC's vehicle replacement budgets (part of the Blanket budgets in respective  
 7 ratemaking areas and in General Office). **Tables 3-A through 3-D** below show the vehicle  
 8 replacements recommended by ORA, totaling **\$ 1,137,200** or about \$1.7 million less than  
 9 GSWC's request of **\$2,897,700** for the 2015-2017 period.<sup>23</sup>

10 **Table 3-A: Recommended Vehicle Replacements for Region 1.**

CSA/District	Vehicle #	Vehicle Description	Applicable DGS standard	Mileage as of 2015	Mileage as of 2016	Mileage as of 2017	Qualify for replacement in Year	GSWC Request	ORA Recommendation
<b>REGION 1</b>									
Northern District	#1045	Ford F-Series 3/4 ton SD	150,000	128,788	137,374	145,959	--	\$ 42,800	\$ -
Northern District	#586	Ford F-Series 3/4 ton SD	150,000	125,017	131,268	137,518	--	\$ 44,000	\$ -
Northern District	#500255	Ford Taurus SE	120,000	82,668	110,224	137,780	2017	\$ 37,500	\$ 37,500
Arden-Cordova CSA	#1160	Ford F-Series 3/4 ton SD	150,000	128,550	138,438	148,327	--	\$ 46,450	\$ -
Arden-Cordova CSA	#1204	Ford F-Series 3/4 ton SD	150,000	134,292	145,483	156,674	2017	\$ 46,450	\$ 49,000
Arden-Cordova CSA	#1256	Ford F-Series 3/4 ton SD	150,000	117,562	128,249	138,937	--	\$ 47,700	\$ -
Arden-Cordova CSA	#1241	Ford F-Series 3/4 ton SD	150,000	112,272	122,479	132,685	--	\$ 48,950	\$ -
Arden-Cordova CSA	#1275	Ford F-Series 3/4 ton SD	150,000	111,407	121,535	131,663	--	\$ 48,950	\$ -
Bay Point CSA	#1226	Ford Fusion SE	120,000	125,673	137,097	148,522	2015	\$ 35,700	\$ 35,700
Clearlake CSA	#1211	Ford F-Series 3/4 ton SD	150,000	124,448	134,819	145,190	--	\$ 47,700	\$ -
Coastal District	#500825	4 dr sedan - Chevrolet Impala	120,000	144,000	180,000	216,000	2015	\$ 35,800	\$ 35,800
Coastal District	#70594	Ford Escape SE	120,000	131,880	150,720	169,560	2016	\$ 37,700	\$ 37,700
Los Osos CSA	#2182	4 door sedan	120,000	136,407	153,458	170,508	2015	\$ 29,000	\$ 29,000
Los Osos CSA	#1231	Chevy Silverado w/ util. bed	150,000	119,751	130,637	141,524	--	\$ 48,300	\$ -
Ojai CSA	#1208	Chevy Silverado w/ util. bed	150,000	122,064	132,236	142,408	2015	\$ 48,300	\$ -
Santa Maria CSA	#1230	Chevy Silverado w/ util. bed	150,000	163,399	178,253	193,108	2015	\$ 48,300	\$ 48,300
Santa Maria CSA	#2178	Chevy Silverado w/ util. bed	150,000	121,083	134,537	147,991	--	\$ 49,700	\$ -
Simi Valley CSA	#1171	Chevy Silverado w/ util. bed	150,000	152,406	165,107	177,807	2015	\$ 48,300	\$ 48,300
<b>TOTAL:</b>								<b>\$ 791,600</b>	<b>\$ 321,300</b>

11

<sup>23</sup> ORA calculates mileage estimates based on vehicles recorded mileage and age. For deferrals within the 2015-2017 period, ORA reflects additional years of cost escalation.

1

**Table 3-B: Recommended Vehicle Replacements for Region 2.**

CSA/District	Vehicle #	Vehicle Description	Applicable DGS standard	Mileage as of 2015	Mileage as of 2016	Mileage as of 2017	Qualify for replacement in Year	GSWC Request	ORA Recommendation
<b>REGION 2</b>									
Central District	#2021	3/4 ton SD	150,000	128,590	139,305	150,021	2017	\$ 46,400	\$ 49,000
Central District	#500510	4 door sedan	120,000	133,278	166,598	199,917	2015	\$ 35,600	\$ 35,500
CBE CSA	#2056	3/4 ton SD	150,000	114,750	126,225	137,700	--	\$ 47,700	\$ -
CBE CSA	#2023	3/4 ton SD	150,000	110,400	119,600	128,800	--	\$ 47,700	\$ -
CBW CSA	#1014	3/4 ton SD	150,000	114,891	122,072	129,253	--	\$ 47,700	\$ -
Southwest District	#1101	4 door sedan	120,000	141,239	152,104	162,968	2015	\$ 34,900	\$ 34,900
Southwest District	#2030	4 door sedan	120,000	117,000	127,636	138,272	2016	\$ 35,800	\$ 35,800
Southwest District	#67516	4 door sedan	120,000	103,316	116,231	129,145	2017	\$ 36,800	\$ 36,800
Southwest District	#67668	4 door sedan	120,000	85,667	96,375	107,083	--	\$ 37,700	\$ -
Southwest District	#2163	Ford F-Series 3/4 ton SD	150,000	99,159	111,554	123,948	--	\$ 49,000	\$ -
Southwest CSA	#1030	Ford F-Series 3/4 ton SD	150,000	120,397	127,921	135,446	--	\$ 46,400	\$ -
Southwest CSA	#2192	Ford F-Series 3/4 ton SD	150,000	119,055	133,937	148,818	--	\$ 47,700	\$ -
Southwest CSA	#67497	4 door sedan	120,000	107,428	120,857	134,285	2016	\$ 35,800	\$ 35,800
Southwest CSA	#2044	Ford F-Series 3/4 ton SD	150,000	112,644	123,908	135,173	--	\$ 49,000	\$ -
<b>TOTAL:</b>								<b>\$ 598,200</b>	<b>\$ 227,800</b>

2

1

**Table 3-C: Recommended Vehicle Replacements for Region 3.**

CSA/District	Vehicle #	Vehicle Description	Applicable DGS standard	Mileage as of 2015	Mileage as of 2016	Mileage as of 2017	Qualify for replacement in Year	GSWC Request	ORA Recommendation
<b>REGION 3</b>									
OC District	#1291	4 door sedan	120,000	127,445	141,606	155,766	2015	\$ 35,500	\$ 35,500
OC District	#1305	Ford F-Series 3/4 ton HD	150,000	103,513	116,453	129,392	--	\$ 49,000	\$ -
Placentia CSA	#783	Ford F-Series 3/4 ton HD	150,000	119,003	126,004	133,004	--	\$ 46,450	\$ -
Placentia CSA	#1110	Ford F-Series 3/4 ton HD	150,000	129,354	138,594	147,833	--	\$ 46,450	\$ -
Placentia CSA	#1225	Ford F-Series 3/4 ton HD	150,000	110,562	120,613	130,664	--	\$ 47,700	\$ -
Foothill District	#1227	Ford F-Series 3/4 ton SD	150,000	119,123	129,952	140,781	--	\$ 46,400	\$ -
Foothill District	#70539	4 door sedan	120,000	102,870	120,015	137,160	2016	\$ 29,700	\$ 29,700
Foothill District	#1311	Ford F-Series 3/4 ton SD	150,000	105,460	118,643	131,825	--	\$ 48,950	\$ -
Foothill District	#1314	Ford F-Series 3/4 ton SD	150,000	107,420	120,848	134,275	--	\$ 48,950	\$ -
San Dimas CSA	#1196	Ford F-Series 3/4 ton SD	150,000	105,935	114,763	123,591	--	\$ 48,950	\$ -
San Dimas CSA	#1222	Ford F-Series 3/4 ton SD	150,000	103,772	113,205	122,639	--	\$ 48,950	\$ -
San Gabriel CSA	#1182	Ford F-Series 3/4 ton SD	150,000	100,969	109,383	117,797	--	\$ 48,950	\$ -
San Gabriel CSA	#2128	Ford F-Series 3/4 ton SD	150,000	111,299	123,665	136,032	--	\$ 48,950	\$ -
Mtn Desert Dist.	#70109	Chevy Express Cargo 2500	150,000	132,814	147,571	162,329	2017	\$ 42,200	\$ 43,300
Mtn Desert Dist.	#501377	Ford Escape AWD	150,000	82,318	102,898	123,477	--	\$ 38,700	\$ -
Apple Valley CSA	#69798	Ford F-Series 3/4 ton SD	150,000	166,196	186,971	207,745	2015	\$ 46,400	\$ 46,400
Apple Valley CSA	#70095	Ford F-Series 3/4 ton SD	150,000	125,700	141,413	157,125	2017	\$ 47,700	\$ 49,000
Barstow CSA	#67685	Ford F-Series 1 ton SD	150,000	112,083	124,537	136,991	--	\$ 72,400	\$ -
Barstow CSA	#67491	Ford F-Series 3/4 ton SD	150,000	117,386	130,429	143,471	--	\$ 48,950	\$ -
Barstow CSA	#67490	Ford F-Series 3/4 ton SD	150,000	102,497	113,886	125,274	--	\$ 48,950	\$ -
Calipatria CSA	#67462	Ford F-Series 3/4 ton SD	150,000	144,899	160,999	177,098	2016	\$ 46,450	\$ 47,700
Calipatria CSA	#67464	Ford F-Series 3/4 ton SD	150,000	138,592	153,991	169,391	2016	\$ 46,450	\$ 47,700
Calipatria CSA	#67463	Ford F-Series 3/4 ton SD	150,000	106,930	118,811	130,693	--	\$ 49,000	\$ -
Morongo V. CSA	#1178	Ford F-Series 3/4 ton SD	150,000	186,255	200,582	214,909	2015	\$ 46,400	\$ 46,400
Morongo V. CSA	#500010	Chevy Colorado 1/4 ton SD	120,000	128,223	146,541	164,858	2015	\$ 47,700	\$ 47,700
Morongo V. CSA	#1263	Ford F-Series 3/4 ton SD	150,000	105,645	115,249	124,853	--	\$ 49,000	\$ -
Wrightwood CSA	#2104	Ford F-Series 3/4 ton SD	150,000	101,944	111,212	120,480	--	\$ 49,000	\$ -
<b>TOTAL:</b>								<b>\$ 1,274,200</b>	<b>\$ 393,400</b>

2

3

**Table 3-D: Recommended Vehicle Replacements for General Office.**

CSA/District	Vehicle #	Vehicle Description	Applicable DGS standard	Mileage as of 2015	Mileage as of 2016	Mileage as of 2017	Qualify for replacement in Year	GSWC Request	ORA Recommendation
<b>GO</b>									
GO	#2145	4 dr full sized sedan	120,000	102,285	113,650	125,015	2017	\$ 39,000	\$ 39,000
GO	#2174	4 dr mid-sized p/u	150,000	140,667	158,250	175,833	2016	\$ 39,200	\$ 39,200
GO - Anaheim	#748	Chevy Impala 2LT or similar	120,000	104,267	110,400	116,533	--	\$ 39,000	\$ -
GO - Anaheim	#2154	Ford Taurus or similar	120,000	100,000	112,500	125,000	2017	\$ 39,000	\$ 39,000
GO - Anaheim	#885	Chevy Impala 2LT or similar	120,000	126,530	134,438	142,347	2015	\$ 39,000	\$ 39,000
GO	#70335	4 dr mid-sized sedan	120,000	205,500	239,750	274,000	2015	\$ 38,500	\$ 38,500
<b>TOTAL:</b>								<b>\$ 233,700</b>	<b>\$ 194,700</b>

4

1 **Chapter 4. UWMPs & CHEMICAL DISINFECTION BUILDINGS**

2 **A. INTRODUCTION**

3 This chapter addresses GSWC’s budget requests to update its Urban Water Management Plans  
4 (UWMPs) and to replace/install chemical disinfection buildings in this GRC.

5 **B. URBAN WATER MANAGEMENT PLANS – DISCUSSION &**  
6 **RECOMMENDATION**

7 GSWC requests a total of \$1,235,000 in 2015 to update its Urban Water Management Plans  
8 (UWMPs) for the following 19 water systems (\$65,000 each): Arden Cordova, Bay Point, Ojai,  
9 Santa Maria-Orcutt, Simi Valley, Norwalk, Artesia, Bell-Bell Gardens, Florence-Graham, Culver  
10 City, Southwest, West Orange, Cowan Heights, Placentia-Yorba Linda, Claremont, San Dimas,  
11 South Arcadia, South San Gabriel, and Barstow.

12 Beginning in 1983, the Urban Water Management Planning Act and subsequent Senate Bill 318  
13 require water suppliers with more than 3,000 service connections or water use of more than  
14 3,000 acre-feet per year to submit an UWMP every five years.

15 The California Department of Water Resources is currently developing the Urban Water  
16 Management Plan Guidebook, which is expected to be ready in the summer of 2015.<sup>24</sup> Water  
17 suppliers will use this guidebook to develop individual Urban Water Management Plans, which  
18 will be due in the summer of 2016.

19 **UWMP Recommendation**

20 Because of the above timing, ORA recommends the Commission authorize GSWC’s requested  
21 UWMP projects but with the costs reflected in the capital budgets for 2016, and not the proposed  
22 2015.

---

<sup>24</sup> <http://www.water.ca.gov/urbanwatermanagement/uwmp2015.cfm>

1 **C. CHEMICAL DISINFECTION BUILDING REPLACEMENTS – DISCUSSION**  
2 **AND RECOMMENDATION**

3 GSWC requests \$156,050 in 2016 and \$1,153,350 in 2017 to construct nine chemical  
4 disinfection buildings, listed in **Table 4-A** below.

5 **Table 4-A: GSWC’s Disinfection Building Requests**

<b>Plant Site</b>	<b>CSA</b>	<b>System</b>
Eucalyptus S	anta Maria	Nipomo
Alta Mesa*	Santa Maria	Nipomo
La Serena*	Santa Maria	Nipomo
Osage S	anta Maria	Nipomo
McKinley	Central Basin West	Hollydale
Encinita	San Gabriel Valley	South Arcadia
Persimmon	San Gabriel Valley	South Arcadia
Farna	San Gabriel Valley	South Arcadia
San Gabriel	San Gabriel Valley	South San Gabriel

6 *\* Chemical building replacement is part of a larger project request.*

7 GSWC asserts that its current chemical storage facilities, which vary in construction type  
8 (wooden and prefabricated structures), do not meet the standard guidelines for secondary storage  
9 containment. In support of its request, GSWC provided an excerpt (below) from the Hazardous  
10 Materials Storage Secondary Containment Guidelines (UN-083) prepared by Santa Clara  
11 County, which is based on Code of Federal Regulation (CFR) 40, Section 264.175.<sup>25,26</sup>

12 Secondary containment for a single container (tank) will be 110 percent of the primary  
13 container. Secondary containment for multiple containers will be 150 percent of the  
14 largest container’s volume or 10 percent of the aggregate volumes of all containers,  
15 whichever is greater. The additional size provides a buffer to protect against splashing  
16 and overflow during a prompt release event, such as an earthquake or a tank rupture.

---

<sup>25</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 138.

<sup>26</sup> Unidocs Hazardous Materials Storage Secondary Containment Guidelines (UN-083),  
<http://www.unidocs.org/hazmat/aboveground/un-083.html>

1 A current Department of Homeland Security requirement further requires housing for all  
2 unsheltered hypochlorite solution containers and this housing must be kept locked at all times to  
3 prevent vandalism.<sup>27</sup> The regulations do not require the housing to be constructed from any  
4 specific type of material.

5 According to the current regulations described above, a chemical storage facility needs to satisfy  
6 two requirements: (1) the facility must have secondary containment, and (2) the facility must be  
7 locked. ORA inspected the existing chemical storage facilities during its site inspections and  
8 found that the current facilities meet the above requirements. GSWC currently provides  
9 secondary containment for its chemical storage tanks, as shown in **Figure 4-A** below (black  
10 container circling the chemical vat), and the structures can be locked. ORA’s plant testimony for  
11 Region 2 (McKinley project) discusses the containment issue in more detail.

12 **Figure 4-A: GSWC’s chemical storage facilities**

13 McKinley Plant (wooden structure)



San Gabriel Plant (prefabricated structure)



14  
15 Although GSWC’s chemical storage facilities meet the existing requirements, GSWC proposes  
16 to replace the structures with concrete masonry units (CMU) at the construction cost portion  
17 ranging from \$60,000 to \$129,000 per structure (before contingency, design, overhead and  
18 escalation adders).

---

<sup>27</sup> <http://www.dhs.gov/critical-infrastructure-chemical-security>

1 For projects that ORA recommends replacement,<sup>28</sup> ORA recommends a construction cost of  
2 \$40,000 per replacement project (before contingency, design and escalation adders).<sup>29</sup> This  
3 adjustment is based the (accepted) bid information provided a completed project the Southwest  
4 CSA – Goldmedal. ORA uses the bid price for Item 1 (alternate chemical facilities on site) as a  
5 proxy for the cost of constructing a replacement chemical building of similar type as the  
6 structures at various Class A water utilities’ plant locations, shown in **Figure 4-B** below.

---

<sup>28</sup> Discussion on the conditions and corresponding need for replacement is presented in ORA’s plant testimony for the respective ratemaking area.

<sup>29</sup> GSWC Response to ORA Data Request DG-020, Attachment 1.

1

**Figure 4-B: Chemical buildings from Class A water utilities<sup>30</sup>**

Cal Water – Bakersfield District



Cal Water – Livermore District



Cal Am – Larkfield District



2

3 GSWC's proposal to construct costly CMU structures to house its chemical storage is beyond the  
4 current regulations and an imprudent investment. ORA recommends that the Commission only  
5 allow less expensive chemical storage building alternatives at a lower construction cost of  
6 \$40,000 per building (before contingency, design, overhead and escalation).

---

<sup>30</sup> Photos taken by ORA during GRC field inspections.

1 **Chapter 5: PRESSURE REQUIREMENTS**

2 **A. INTRODUCTION**

3 In this GRC, GSWC requests a number of projects with reference to the pressure requirements  
4 set forth in Section VII.6.A of the Commission’s General Order 103-A (GO 103-A) as the reason  
5 for the project. The following table provides a list of those projects.

6 **Table 5-A: GSWC Requested Projects Referring to GO 103-A Pressure Requirements**

<b>GO 103-A Pressure-related Projects</b>	<b>CSA</b>	<b>Total Project Cost</b>
Coloma WTP, Additional booster	Region 1 -Arden Cordova	\$ 313,400
Bayview Zone, Realign pressure zone	Region 1 - Los Osos	\$ 364,600
Fairview Plant, Boosters, T-main, etc.	Region 1 - Ojai	\$ 1,746,100
Main Zone, Realign pressure zone	Region 1 - Ojai	\$ 993,000
System-wide, Zone realignment study	Region 1 - Santa Maria	\$ 80,400
Rice Ranch Subzone, Install PRV	Region 1 - Santa Maria	\$ 53,100
Hampshire Boosters/Motors	Region 2 - Central Basin West	\$ 929,300
Rangeview,Deerhaven & Overhill Dr, PRVs	Region 3 - Placentia	\$ 413,100
Newport Blvd and Brier Ln, Install PRVs	Region 3 - Placentia	\$ 799,200
<b>TOTAL</b>		<b>\$5,692,200</b>

7  
8 **B. SUMMARY OF RECOMMENDATIONS**

9 ORA recommends that the Commission temporarily authorize an exemption from the minimum  
10 pressure requirement of 40 pounds per square inch (psi) contained in GO 103-A as this will  
11 avoid undue rate burdens on customers and does not adversely impact public health or service  
12 quality in the affected service areas.

13 **C. DISCUSSION**

14 GSWC’s project requests based on GO 103-A’s pressure requirements total over \$5 million in  
15 this GRC. GSWC’s justification for these projects asserts that customers in these zones  
16 “experience pressure below 40 psi during Maximum Day Demand (MDD) conditions – and

1 below 30 psi during Peak Hour Demand (PHD) conditions,” which GSWC states does not meet  
2 the minimum pressure of 40 psi set forth in GO 103-A.<sup>31</sup> Therefore, GSWC asserts that it must  
3 increase booster pump capacity, install mains, and/or conduct studies to provide adequate  
4 pressure to its customers.

5 In September 2009, the Commission adopted GO 103-A as the minimum design and construction  
6 standards for water utilities. GO 103-A adopted the following pressure requirements:<sup>32</sup>

7 6. Pressures

8 A. Variations in Pressure

9 Each potable water distribution system shall be operated in a manner to assure that  
10 the minimum operating pressure at each service connection throughout the  
11 distribution system is **not less than 40 psi** nor more than 125 psi, except that during  
12 periods near PHD the pressure may not be less than 30 psi and that during periods of  
13 hourly minimum demand the pressure may be not more than 150 psi. Subject to the  
14 minimum pressure requirements of 40 psi, variations in pressures under normal  
15 operation shall not exceed 50% of the average operating pressure.

16 The average operating pressure shall be determined by computing the arithmetical  
17 average of at least 24 consecutive hourly pressure readings.

18 B. New Systems

19 Each new distribution system shall be designed to provide a minimum operating  
20 pressure at each service connection of not less than 40 psi during PHD. If a utility  
21 cannot meet this requirement as a result of cost and/or system limitation, the utility  
22 must request an exemption in accordance with Section I.8.A of this General Order.

23 [Emphasis added.]

24 A majority of the changes adopted in GO 103-A are consistent with applicable statutes and  
25 industry standards. For example, GO 103-A’s Section II.(B)(3)(a) refers to the California  
26 Waterworks Standards California Code of Regulations (CCR) Title 22 for source capacity and  
27 the system’s MDD and PHD. Likewise, GO 103-A’s Section III.1.A(2) refers to the California  
28 Waterworks Standards CCR Title 22, Section 64585 for the design and construction of

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<sup>31</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 52.

<sup>32</sup> GO 103-A, Section VII.6.

1 distribution reservoirs. GO 103-A references the California Waterworks Standards as the  
2 requirements for most topics including quantity of water, water quality, and design and  
3 construction standards.

4 Water system operating pressure is an exception. GO 103-A's requirement for the minimum  
5 pressure of 40 psi is not consistent with the requirement set forth in the California Waterworks  
6 Standards. The California Waterworks Standards establishes the following requirements for  
7 system pressure:

8       Each distribution system shall be operated in a manner to assure that the minimum  
9       operating pressure in the water main at the user service line connection throughout the  
10       distribution system is not less than **20 pounds per square inch at all times**. [Emphasis  
11       added]

12       Each new distribution system that **expands the existing system service connections by**  
13       **more than 20 percent** or that may otherwise adversely affect the distribution system  
14       pressure shall be designed to provide a minimum operating pressure throughout the **new**  
15       **distribution system** of not less than 40 pounds per square inch at all times excluding fire  
16       flow.<sup>33</sup> [Emphasis added.]

17 CCR Title 22, Section 64602 only requires minimum pressure of 20 psi at all times. A minimum  
18 pressure of 40 psi is only required for new systems that are to be connected with the existing  
19 system where the service connection is expanded by over 20 percent or has an adverse effect on  
20 the existing system pressure. Thus, under the California Waterworks Standards, a water utility  
21 generally has to meet a minimum system pressure of 20 psi for its existing system.

22 Thus, GO 103-A's pressure requirements are more stringent than the California Waterworks  
23 Standards.<sup>34</sup> Most water utilities not regulated by the Commission are not required to operate  
24 under the GO 103-A standards but are instead subject to the California Waterworks Standards'  
25 pressure requirements of at least 20 psi at all times.<sup>35</sup> Since GO 103-A applies only to the water  
26 utilities (IOUs) operating under the jurisdiction of the Commission, the higher pressure standard  
27 places an undue burden for IOU customers. The ratepayers of other water providers such as city

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<sup>33</sup> Title 22, California Code of Regulations §64602(a)-(b) (Minimum Pressure).

<sup>34</sup> California Waterworks Standards is the Chapter 16 of the Title 22 of California Code of Regulations.

<sup>35</sup> California Waterworks Standards, Section 64602.(a).

1 and municipal water providers and mutual water companies do not have to experience rate  
2 increases due to maintaining the minimum system pressure at 40 psi. California law has found  
3 that a minimum of 20 psi system pressure is sufficient, allowing these other ratepayers the ability  
4 to avoid incurring undue infrastructure upgrade costs to meet the CPUC's higher water pressure  
5 standards.

6 GO 103-A's pressure requirements for new systems also differ from the California Waterworks  
7 Standards. The California Waterworks Standards only require 40 psi for new systems if that new  
8 system meets specific conditions. Specifically, the new system must meet 40 psi only if it is  
9 connected to the existing system and expands the existing system by over 20% of the service  
10 connections, or if the new system has an adverse effect on the existing system. In contrast, GO  
11 103-A requires a new system to have a minimum 40 psi (10 psi over the industry standard  
12 requirement of 30 psi) during PHD, not just during periods of normal demand, regardless of  
13 whether the new system is independent or an expansion to the existing system. Although GO  
14 103-A allows exemptions to the requirements (see GO 103-A Sections I.8 and VII.6.(B)), the  
15 larger Class A IOUs, including GSWC and Cal Water, would rather request multimillion dollar  
16 projects to comply with the requirements than apply for exemptions, because this allows IOUs to  
17 increase their rate base. Case in point is \$1.0 Million Main Zone Realignment Project proposed  
18 in the Ojai CSA to improve pressure for approximately 17 customers.<sup>36</sup> Costs from these multi-  
19 million dollar projects are born by the general ratepayers. In sum, there is no incentive for  
20 GSWC to apply for an exemption even though such exemptions are expressly provided for under  
21 GO 103-A.

22 Currently, the minimum operating pressure requirement contained in GO 103-A is above and  
23 beyond the requirement contained in the California Waterworks Standards and serves as an  
24 impetus for the larger Class A IOUs to propose unneeded infrastructure upgrade projects at the  
25 ratepayers' expense.

26 During the comment period when GO 103 was being revised in 2008, the California Water  
27 Association (CWA) commented that the pressure requirement of 40 psi of the (then proposed)

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<sup>36</sup> See ORA's plant testimony for Ojai in this proceeding.

1 GO 103-A was too stringent.<sup>37</sup> CWA stated that the proposed “**new standards would be**  
2 **substantially more demanding than current practice, especially during fire flow conditions,**  
3 **for which the present design standard is 20 psi.**”<sup>38</sup> [Emphasis added.] CWA also explained  
4 that:

5 Neither the OIR nor the proposed revisions to GO 103 explain why the past practice of  
6 applying this type of standard in terms of average operating pressure over a period of  
7 time, such as 24 hours, has not been adequate. **Nor has the Commission established**  
8 **what the cost would be for implementing the more rigorous proposed standard. Yet**  
9 **it is certain that significant capital expenditures and higher ongoing energy costs**  
10 **would be necessary to maintain consistently higher pressures throughout all water**  
11 **systems.** Absent a thorough study and a careful cost-effectiveness determination, CWA  
12 urges the Commission simply to refer to and incorporate DPH Waterworks Standard  
13 64602 by reference. [Emphasis added.]

14 It is apparent that the minimum pressure requirement contained in GO 103-A has long-term and  
15 far-reaching implications for the ratepayers of GSWC and the larger Class A IOUs. Therefore,  
16 ORA is considering a Motion to Amend GO 103-A to ensure consistency with the California  
17 Waterworks Standards.

18 Specific to GSWC’s request in this GRC, the Commission should authorize an exemption from  
19 the pressure requirements pursuant to Rule I.8. of GO 103-A. GO 103-A expressly states that it  
20 “may be amended to ensure consistency with applicable statutes, Commission orders, and  
21 industry standards.”<sup>39</sup> Moreover, GO 103-A sets forth a specific process whereby utilities can  
22 request exemptions from GO 103-A standards.

23 Exemptions from pressure requirements are particularly sensible given that there are no  
24 anticipated adverse public health impacts or service quality impacts due to this exemption in any  
25 of the affected service areas because GSWC is meeting the accepted industry standard for

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<sup>37</sup> R.07-12-015, Comments of California Water Association.

<sup>38</sup> Ibid, p. 35.

<sup>39</sup> GO 103-A, Section I.8(A).

1 pressure levels. Exemptions would be of “minor importance” and “temporary in nature.”<sup>40</sup>  
2 This will avoid placing undue burdens on GSWC’s customers.

3 **D. CONCLUSION**

4 ORA evaluates and discusses the need for each of the projects proposed by GSWC in its  
5 testimony on plant for the respective ratemaking areas. While ORA is considering a Motion to  
6 Amend GO 103-A to ensure consistency with the California Waterworks Standards, and while  
7 the Commission is considering any such motion, ORA recommends that for the duration of this  
8 rate case, the Commission authorize an exemption from the minimum pressure requirement of 40  
9 psi contained in GO 103-A as this will avoid undue rate burdens on GSWC’s customers and does  
10 not adversely impact public health or service quality in the affected service areas.

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<sup>40</sup> GO 103A, Section I.8(C).

1 **Chapter 6 – PIPELINE REPLACEMENT**

2 **A. INTRODUCTION**

3 This chapter presents ORA’s analysis of GSWC’s Pipeline Replacement Program and pipeline  
4 replacement projects requested in this GRC.

5 **B. SUMMARY OF RECOMMENDATIONS**

6 Due to the many inconsistencies in GSWC’s pipeline replacement analysis and project requests,  
7 ORA determines the need for requested pipeline replacement projects on a case by case basis.  
8 To ensure prudent investment in this important and high cost water infrastructure, ORA  
9 recommends that the Commission consider ORA’s pipeline project specific analysis and adopt  
10 its recommended disallowance/adjustments of GSWC’s requested pipeline projects in the  
11 respective ratemaking areas (see ORA’s plant testimony for Regions 1-3.)

12 **C. DISCUSSION**

13 GSWC is seeking a budget to replace and install new pipelines for all three regions as shown in  
14 **Table 6-A** below. In Region 2, GSWC’s budget for pipeline replacement is more than 67%<sup>41</sup> of  
15 GSWC’s capital budget request for 2015-2017.

16 **Table 6-A: GSWC’s requested pipeline replacement budgets.**<sup>42</sup>

(\$ million)	2015	2016	2017	3-Yr Total
Region 1	\$2.16	\$2.80	\$9.23	\$14.19
Region 2	\$34.01	\$28.08	\$21.95	\$84.04
Region 3	\$6.85	\$4.10	\$9.36	\$20.31
<b>Total</b>	<b>\$43.02</b>	<b>\$34.98</b>	<b>\$40.54</b>	<b>\$118.54</b>

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<sup>41</sup> GSWC Workpaper - 2015 - 2017 Companywide GRC Capital Budget – Region 2: Summary - \$84,040,200 (Distribution Improvements Total, 2015-2017) / \$123,734,100 (Total Capital Budget for Region 2, 2015-2017) = 67.92%.

<sup>42</sup> GSWC’s Workpapers - “2015-17 Budget Project List RI.xlsx,” tab “Reg I Budget Summary,” cells D13, E13, and F13; “2015-17 Budget Project List RII.xlsx,” tab “Reg II Budget Summary,” cells D13, E13, and F13; “2015-17 Budget Project List RIII.xlsx,” tab “Reg III Budget Summary,” cells D13, E13, and F13.

1 GSWC states that it is taking a “proactive approach” to pipeline replacements by implementing a  
2 pipeline management program (PMP).<sup>43</sup> GSWC’s PMP consists of “a risk assessment of existing  
3 systems, KANEW modeling,<sup>44</sup> and pipe replacement prioritization and selection.”<sup>45</sup>

4 GSWC’s proposed replacement lengths in 2015-2017 for each Region are as follows:<sup>46</sup>

- 5 6.46 miles in Region 1
- 6 36.27 miles in Region 2
- 7 13.83 miles in Region 3

### 8 **1. Existing condition of GSWC’s pipelines**

9 In Chapter 1 of the PMP Report, GSWC provides a background on the status of water  
10 distribution system in United States and GSWC’s own system:

11 The historical pattern of pipeline installation in the United States mirrors the overall  
12 population growth and demographic changes that have occurred (i.e., pipelines were  
13 installed during the population booms in the 1890s, the 1920s, and after World Wars I  
14 and II). In Golden State Water Company (GSWC), the pipeline installation boom  
15 corresponds to the boom after World War II (40 to 50 years ago) as well as the  
16 population growth in California in the 1980s.<sup>47</sup>

17 GSWC states that “the pipe types that require the most replacement are Cast Iron (CI), Steel  
18 (STL), and Asbestos Concrete (AC) pipes....”<sup>48</sup> Industry standards for pipeline life expectancy  
19 shows that CI pipes can last between 20 to 110 years, STL pipes 20 to 80 years, and AC pipes 40  
20 to 140 years.<sup>49</sup> The result of the KANEW model shows pipes in Region 1 have a median age of

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<sup>43</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, dated July 2014, p. 31.

<sup>44</sup> Ibid, p. 3-1 – “KANEW is based upon a predictive model developed at Karlsruhe University in Germany by Raimund K. Herz. The KANEW model was developed based upon the Cohort Survival Model, which is used in forecasting natural demographic changes. Cohorts are age classes that decrease in numbers with a particular probability as the members of the class become older (Deb, 1998).”

<sup>45</sup> Ibid.

<sup>46</sup> GSWC’s PMP Report, pp. 5-7 to 5-8, Tables 5.5-5.7.

<sup>47</sup> GSWC’s PMP Report, p. 1-1.

<sup>48</sup> Ibid, p. III.

<sup>49</sup> Ibid, p.4-11, Table 4-11.

1 38.8 years, Region 2 – 47.5 years, and Region 3 – 43 years.<sup>50</sup> Compared to the pipelines that  
2 were installed in other water utilities in the US, GSWC’s pipelines are at least 30 years younger  
3 than the national average.<sup>51</sup>

## 4 2. GSWC’s pipeline replacement analysis

5 According to GSWC, KANEW modeling was used to forecast the length of pipes needed to  
6 sustain service when older pipes start to fail for each system.<sup>52</sup> The model separates existing  
7 pipe inventory by age and material,<sup>53</sup> and compares this data to “user-defined estimates of the  
8 life span for pipes in each category.”<sup>54</sup> GSWC used life expectancy data developed by the  
9 Research Foundation Study based on 100, 50, and 10 percent survival rates for each pipe  
10 material.<sup>55</sup> Each percentage is given a range of lifespans with the lower estimates referred to as  
11 “pessimistic,” and the upper estimates as “optimistic.”<sup>56</sup> GSWC used the 50 percent life  
12 expectancy for all three regions,<sup>57</sup> Region 1’s lifespan range uses the medium assumption,<sup>58</sup>  
13 Region 2 optimistic,<sup>59</sup> and Region 3 also optimistic.<sup>60</sup> The PMP states: “[i]t is important to  
14 remember that within a cohort, when all other factors remain the same, **KANEW considers the**  
15 **age of pipe as the only factor that triggers the need for water pipeline replacement.**”<sup>61</sup>  
16 [Emphasis added.]

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<sup>50</sup> Ibid, p. 6-1.

<sup>51</sup> Pipelines in the US were installed in the 1920s while GSWC’s pipelines were mostly installed in the 1950s.

<sup>52</sup> GSWC’s PMP Report, p. 3-1.

<sup>53</sup> Ibid, p. 4-1.

<sup>54</sup> Ibid, p. 4-10.

<sup>55</sup> Ibid.

<sup>56</sup> Ibid, p. 4-11, Table 4.8.

<sup>57</sup> Ibid, p. 4-11.

<sup>58</sup> Ibid, p. 4-20.

<sup>59</sup> Ibid, p. 4-22.

<sup>60</sup> Ibid, p. 4-25.

<sup>61</sup> Ibid, p. 4-10.

1 GSWC’s KANEW model recommends a total pipe replacement length for each Region in 2015-  
2 2017 as follows:<sup>62</sup>

- 3 13.64 miles in Region 1
- 4 27.77 miles in Region 2
- 5 27.59 miles in Region 3

6 GSWC explained that the actual proposed pipe replacement in this GRC for each system varies  
7 from the KANEW model’s recommendations due to the order of constructability, approval of  
8 design budget in a prior GRC, pavement moratoriums, and balancing of the annual budget for a  
9 given CSA.<sup>63</sup>

10 The water master plan for each water system also contains a list of specific pipeline projects that  
11 GSWC recommends to be replaced and was developed by tracking pipe leaks and breaks, and  
12 input from GSWC’s operations staff. These lists were developed by tracking pipe leaks and  
13 breaks, and input from GSWC’s operations staff. A Total Benefit Score (1-10) is given to those  
14 projects proposed in GSWC’s PMP Report derived from these lists.<sup>64</sup> The company uses four  
15 attributes to derive the Total Benefit Score with the following weighting factor: 1) Risk  
16 Reduction (30%), 2) Hydraulic (16%) and Fire Flow (4%) Deficiencies, 3) Pipe Material Type  
17 and Age (25%), and 4) Leak Frequency (25%).<sup>65</sup> GSWC assigns a score of 1 (negligible), 4  
18 (low), 7 (moderate), and 10 (severe) for each attribute of proposed pipelines.<sup>66</sup> Therefore, if a  
19 pipeline was determined to be “severe” in all four criteria the Total Benefit Score of that pipe  
20 segment will be 10.<sup>67</sup> The following **Table 6-B** is from GSWC’s PMP Report explaining how  
21 the scores are assigned to each attribute.

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62 Ibid, p. 5-6 to 5-7, Tables 5.2-5.4.

63 GSWC Response to ORA Data Request AL7-006, Question 5.e.

64 GSWC’s PMP Report, p. 5-3.

65 GSWC’s PMP Report, Appendix D, Section “Attributes.”

66 Ibid.

67 Total Benefit Score of 10 = (Risk Reduction: score of 10 x 0.3 = 3) + (Hydraulic Deficiency: score of 10 x 0.16 = 1.6) + (Fire Flow Deficiency: 10 x 0.04 = 0.4) + (Pipeline Material/Age: 10 x 0.25 = 2.5) + (Leak Frequency: 10 x 0.25 = 2.5).

1

**Table 6-B: GSWC’s Project Prioritization Scoring Matrix<sup>68</sup>**

Project Attributes					
Attribute	Wt.	Negligible = 1	Low = 4	Moderate = 7	Significant = 10
Risk Reduction	30%	Project in Risk Group 4 (Lowest risk group; Risk Score ranges from 0 to 10)	Project in Risk Group 3 (Risk Score ranges from 10.1 to 20)	Project in Risk Group 2 (Risk Score ranges from 20.1 to 35)	Project in Risk Group 1 (Highest risk group; Risk Score ranges from 35.1 to 100)
Hydraulic Deficiencies	20%	Pressure ≥40 psi at meters, <100 services interrupted, and no impact to fire protection.	Pressure <40 psi but ≥30 psi at meters, ≥100 but <250 services interrupted, and no impact to fire protection.	Pressure <30 psi but ≥ 20 psi at meters, ≥250 but <1000 services interrupted, and no impact to fire protection.	Pressure <20psi at meters, service interruption affecting ≥1000 services, or impact on fire protection. Loss of service to any "critical customer" (e.g., hospital, food manufacturing).
Pipe Material Type/Age	25%	AC: <50 years Cl: <50 years Dl: <50 years PVC: <50 years STEEL/RCP: <20 years Unknown Type: <10 years	AC: 50-79 years Cl: 50-59 years Dl: 50-89 years PVC: 50-79 years STEEL/RCP: 20-39 years Unknown Type: 10-29 years	AC: 80-119 years Cl: 60-79 years Dl: 90-129 years PVC: 80-139 years STEEL/RCP: 40-59 years Unknown Type: 30-49 years	AC: >120 years Cl: >80 years Dl: >130 years PVC: >140 years STEEL/RCP: >60 years Unknown Type: >50 years
Leak Frequency	25%	No pipeline breaks or leaks in the past 5 years.	No pipeline breaks, but 1-5 leaks in the past 5 years.	Two pipeline breaks or 6-10 leaks in the past 5 years.	>2 pipeline breaks or >10 leaks in the past 5 years.
Location of Pipeline (Alley v/s Street)	0%	Not in an alley		In an alley	

2

3 GSWC states that Risk Assessment is the understanding and evaluation of GSWC’s assets to  
 4 balance cost and maintaining level of service in its systems.<sup>69</sup> Risk Reduction is one of four  
 5 criteria used to derive the Total Benefit Scores that help prioritize each of GSWC’s identified  
 6 replacement projects.<sup>70</sup> To determine the Risk Reduction factor, a Risk Score<sup>71</sup> is first assigned  
 7 to each pressure zone in each CSA based on the consequence and likelihood of an asset to fail.<sup>72</sup>  
 8 The consequence score (maximum of 10 points) is determined by assigning one of four factors (1  
 9 = Negligible, 4 = Low, 7 = Moderate, and 10 = Severe), to the following five weighted  
 10 categories: 1) Healthy and Safety (20%), 2) Compliance with regulations (20%), 3) Financial  
 11 impact (15%), 4) Disruption to the community (15%), and 5) Service Delivery (20%).<sup>73</sup>  
 12 Similarly the likelihood score (maximum of 10 points) is determined by assigning one of four

<sup>68</sup> GSWC’s PMP Report, p. 5-4, Table 5.1.

<sup>69</sup> 2014 GRC Risk-Based Asset Management Program, p. 3-3.

<sup>70</sup> 2014 GRC Risk-Based Asset Management Program, p. 3-5, Table 5.1.

<sup>71</sup> Risk Score (Maximum 100 points) = Consequence Score x Likelihood Score.

<sup>72</sup> 2014 GRC Risk-Based Asset Management Program, p. 3-4.

<sup>73</sup> 2014 GRC Risk-Based Asset Management Program, p. 3-5, Table 3.1.

1 factors (1 = Negligible, 4 = Low, 7 = Moderate, and 10 = Severe), to the following four weighted  
2 categories: 1) Physical Condition (60%), 2) Performance (20%), 3) O&M Protocols (5%), 4)  
3 Reliability – Planned maintenance as a % of total maintenance (15%).<sup>74</sup> This Risk Score is  
4 assigned to all pipe segments located in the same pressure zone of each CSA.<sup>75</sup> Using these Risk  
5 Scores, each proposed pipeline segments is then categorized into Risk Groups, with Risk Group  
6 1 having the highest risk and Risk Group 4 having the lowest risk.<sup>76,77</sup> Finally, based on the Risk  
7 Groups, the pipelines will be assigned a Risk Reduction factor.<sup>78</sup> This Risk Reduction factor is  
8 used in GSWC’s analysis to determine the Total Benefit Score of each proposed replacement  
9 project. The discussion below addresses inconsistencies in GSWC’s analysis regarding the Risk  
10 Reduction factor first and then addresses inconsistencies for the other three criteria used in the  
11 KANEW model below.

### 12 **3. Inconsistencies in GSWC’s analysis**

13 GSWC’s KANEW analysis recommends a replacement rate based on the material and age of the  
14 comprehensive pipe inventory in each system.<sup>79</sup> But the pipelines that GSWC proposes to  
15 replace is limited to the lists found in the water master plans of each system; these projects were  
16 generated based on tracking of pipeline leaks and breaks, as well as input from operations staff.  
17 There is a mismatch in the comprehensive sample size used in the KANEW analysis and the  
18 limited number of pipelines that GSWC considered before developing its pipeline replacement  
19 recommendations. Also, the KANEW model’s recommended replacement rates are based solely

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<sup>74</sup> Ibid, Table 3.2.

<sup>75</sup> GSWC Response to ORA Data Request DK4-001, Question 1 a, Spreadsheet “DK4-001 Q.1.a Response – RI”, Tab “Asset Hierarchy & Risk Score”; Region II and III similar.

<sup>76</sup> GSWC’s PMP Report, p. 5-4, Table 5-1.

<sup>77</sup> GSWC’s PMP Report, p. 5-4, Table 5-1; Risk Group 4 = Risk Scores 0-10, Risk Group 3 = Risk Scores 10.1-20, Risk Group 2 = Risk Scores 20.1 to 35, and Risk Group 1 = Risk Scores 35.1 to 100.

<sup>78</sup> GSWC’s PMP Report, p. 5-4, Table 5-1; Risk Reduction Score as an attribute factor of Total Benefit Score as follows: Risk Group 4 = 1 (Negligible), Risk Group 3 = 4 (Low), Risk Group 2 = 7 (Moderate), and Risk Group 1 = 10 (Severe).

<sup>79</sup> Ibid, p. 4-10.

1 on a pipe’s age and material, and do not consider variables such as different manufacturing  
2 processes, loading conditions, soil type, temperature fluctuation, and installation methods.

3 The KANEW model recommends relatively uniform replacement rates (miles per year) for each  
4 system. However, the GRC-proposed replacement rates vary greatly from year to year. For  
5 example, the KANEW analysis recommends a stabilized replacement rate of approximately 9.26  
6 miles per year between 2015 and 2017 for Region 2. However, the GRC-proposed replacement  
7 rates for Region 2 range from 14.89 miles in 2015 to 8.81 miles in 2017. GSWC claims the rate  
8 variations are caused by the order of constructability, approval of design budget in a prior GRC,  
9 pavement moratoriums, and balancing of the annual budget for a given CSA.<sup>80</sup> But with the  
10 large number of main replacement projects proposed for each Region, for example 61 projects  
11 for Region 2,<sup>81</sup> it is hard to believe that projects cannot be allocated to match the relatively flat  
12 replacement rate recommended by the KANEW analysis. This will also help keep yearly capital  
13 budgets more consistent and avoid wide swings in rates for ratepayers.

14 The KANEW analysis categorizes pipeline life expectancies as pessimistic, medium, and  
15 optimistic. The Region 1 analysis uses the medium life expectancy assumption, but both  
16 Regions 2 and 3 use optimistic. ORA inquired about this variation and GSWC responded that:

17           Ideally, GSWC would use the “medium” pipe life assumption for all three Regions, to  
18           offset the variation in replacement rate brought about by utilizing the “optimistic” of  
19           “pessimistic” assumptions.... However, it was determined that the budgets for Regions 2  
20           and 3 would not be able to support the “medium” assumption, and would, in general, best  
21           match the replacement associated with the “optimistic” assumption option (the lowest  
22           replacement rate of the three options).<sup>82</sup>

23 GSWC did not provide any supporting evidence or further explanation as to why the use of the  
24 medium life expectancy is a reasonable assumption for Region 1.

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<sup>80</sup> GSWC Response to ORA Data Request AL7-006, Question 5.e.

<sup>81</sup> 2014 GRC - Capital Testimony of Robert McVicker and Mark Insko dated July 2014, pp. 34-36.

<sup>82</sup> GSWC Response to ORA Data Request AL7-006, Question 7.a.

1 GSWC states that “[t]he proposed projects were prioritized based on the total benefit score.”<sup>83</sup>  
2 However, the use of the total benefit score is not consistent. For example, the “Crandall Ave,  
3 West 40<sup>th</sup> to Davis” project in the Clearlake system was not included as a proposed project in this  
4 GRC. However, this project has a total benefit score of 8.77, which is higher than two of the  
5 four projects proposed.<sup>84</sup> Similar inconsistencies can be found for other projects proposed in the  
6 Bay Point and Ojai systems.

7 Forced Rank. In GSWC’s pipeline prioritization results, there is a column named “FORCED  
8 RANK,” which can change the prioritization order of proposed pipelines to an order that is not  
9 consistent with the Total Benefit Score.<sup>85</sup> ORA inquired about the use of the “Forced Rank”  
10 column and GSWC’s responded that the “column indicates an exception to the ranking order that  
11 otherwise would have resulted from direct use of the Total Benefit Score.”<sup>86</sup> According to  
12 GSWC, these exceptions can be caused by order of constructability, approval of design budget in  
13 a prior GRC, pavement moratoriums, and balancing of the annual budget for a given CSA.<sup>87</sup>  
14 Even if this explanation is reasonable, the actual assignment of forced ranking is inconsistent  
15 because the project rankings may be missing for systems that are prioritized by force ranking.  
16 For example, out of six projects evaluated in the Cordova system, the forced ranking of projects  
17 jumps from three to six, with ranks four and five missing.<sup>88</sup> In the Clearlake system, the  
18 evaluation of a total of six projects, resulted in the ranking jumping from one to four, with two  
19 and three missing.<sup>89</sup>

20 Hydraulic Deficiency Scoring. In its pipeline prioritization scoring matrix, GSWC gives a score  
21 of 10 in “Hydraulic Deficiency” attribute to pipelines with pressure less than 20 psi at meters,  
22 service interruption affecting more than 1,000 services, impact on fire protection, or loss of

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<sup>83</sup> GSWC’s PMP Report, p. 5-5.

<sup>84</sup> GSWC’s PMP Report, Appendix D.

<sup>85</sup> Ibid.

<sup>86</sup> GSWC Response to ORA Data Request AL7-006, Question 2.d.

<sup>87</sup> Ibid, Question 2.b.

<sup>88</sup> GSWC’s PMP Report, Appendix D.

<sup>89</sup> Ibid.

1 service to any “critical customer” such as hospital and food manufacturing.<sup>90</sup> While the  
 2 minimum pressure at meters and fire protection are reasonable criteria, other criteria have more  
 3 to do with the consequences of disrupted service and therefore belong more under the “Risk  
 4 Reduction” attribute.

5 Leak Frequency. GSWC’s scoring is also not consistent with its own Project Prioritization  
 6 Scoring Matrix for Leak Frequency, below:<sup>91</sup>

Project Attributes					
Attribute	Wt.	Negligible = 1	Low = 4	Moderate = 7	Significant = 10
Leak Frequency	25%	No pipeline breaks or leaks in the past 5 years.	No pipeline breaks, but 1-5 leaks in the past 5 years.	Two pipeline breaks or 6-10 leaks in the past 5 years.	>2 pipeline breaks or >10 leaks in the past 5 years.

7  
 8 For example, the West 40<sup>th</sup> St, Hill to Sunset project in Clearlake has only four leaks in the past  
 9 five years, but was assigned a leak frequency score of 7 (moderate), instead of 4 (low).<sup>92</sup>  
 10 Another example is the Cuyama & El Paseo Rd, Sierra to Bristol project in Ojai which has 7  
 11 leaks recorded in the past five years, but was assigned a score of 10 (significant), instead of 7  
 12 (moderate).<sup>93</sup> GSWC provides no explanation for deviating from its own scoring matrix.  
 13 Moreover, the ranking does not take into account the length of the pipe segment, as five leaks in  
 14 200-foot segment can be much more concerning than five leaks in a 4,000-foot segment.  
 15 GSWC’s prioritization process is not as quantitatively-based as it appears to be.

16 **4. Water Loss and Infrastructure Leak Index**

17 GSWC performed Water Loss Audits for each water system using the American Water Works  
 18 Association’s (AWWA) Water Loss Audit Software and submitted the information in the  
 19 application. The results from the Water Loss Audit are crucial for determining if the water loss  
 20 percentage is above or below the AWWA Leak Detection and Accountability Committee’s

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<sup>90</sup> GSWC’s PMP Report, p. 5-4.

<sup>91</sup> Excerpt from Table 5.1 of GSWC’s PMP Report.

<sup>92</sup> GSWC Response to ORA Data Request DK4-001, Question 1 b, spreadsheet “DK4-001 Q.1.b (Pipelines) Attachment 1b.”

<sup>93</sup> GSWC Response to ORA Data Request DK4-001, Question 1 b, spreadsheet “DK4-001 Q.1.b (Pipelines) Attachment 1b.”

1 recommended 10% benchmark.<sup>94</sup> This data can help determine a reasonable level of pipeline  
2 replacements in a given system.

3 The Water Loss Audit provides the Infrastructure Leak Index (ILI) for each system. This  
4 index is a performance indicator developed by the International Water Association Water  
5 Loss Task Force and used by over 50 countries worldwide.<sup>95</sup> The ILI is the ratio of the  
6 Current Annual Real Losses (CARL) to the Unavoidable Annual Real Losses (UARL) in  
7 a water system.<sup>96</sup> The UARL is the minimum expected amount of leakage for a well  
8 managed and well maintain water system.<sup>97</sup> A system with a lower ILI indicates a lower  
9 amount of leakage and a lower amount of real losses for the system.<sup>98</sup> Therefore, an “ILI  
10 close to “1” indicates the system’s real losses are close to the UARL and further  
11 reductions in real water losses might be unattainable or uneconomical.”<sup>99</sup> According to  
12 the World Bank Institute’s grading system, a water system with an ILI of “2” and below  
13 has low leakage losses<sup>100</sup> and is considered to have “world class” leakage management.<sup>101</sup>  
14 The table below provides an international standard of ILI benchmarks and assessment.<sup>102</sup>

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<sup>94</sup> AWWA’s Committee Report: Water Accountability, dated July 1996, p. 109.

<sup>95</sup> “What is the Infrastructure Leakage Index (ILI) and How did Waitakere City Council Manage to Achieve an ILI of 1.0?” by Richard Taylor, Assets and Network Manager, EcoWater, Waitakere City Council.

<sup>96</sup> Water Research Foundation Report #4372a, Real Loss Component Analysis: A Tool for Economic Water Loss Control, p. 17.

<sup>97</sup> Ibid.

<sup>98</sup> AWWA’s Free Water Audit Software, tab “Loss Control Planning.”

<sup>99</sup> Georgia Water System Audits and Water Loss Control Manual, p. 10.

<sup>100</sup> Water Research Foundation Report #4372a, Real Loss Component Analysis: A Tool for Economic Water Loss Control, p. 12.

<sup>101</sup> University of Arizona’s Technology and Research on Infrastructure Leakage Index (ILI) as a Regulatory and Provider Tool by David Michael Delgado, p. 9.

<sup>102</sup> 14 Years Experience of using International Water Association Best Practice Water Balance and Water Loss Performance Indicators in Europe, p. 20.

**Table 11: Sub-Division of World Bank Institute Bands (2010)**

Low and Middle Income Countries	High Income Countries	BAND	General description of Real Loss Management Performance Categories (WBI Band limits for ILI for Low and Middle Income Countries are double those for High Income Countries)
ILI range	ILI range		
Less than 3	< 1.5	A1	Further loss reduction may be uneconomic unless there are shortages; careful analysis needed to identify cost-effective improvement
3 to < 4	1.5 to < 2	A2	
4 to < 6	2 to < 3	B1	Potential for marked improvements; consider pressure management, better active leakage control practices, and better network maintenance
6 to < 8	3 to < 4	B2	
8 to < 12	4 to < 6	C1	Poor leakage record; tolerable only if water is plentiful and cheap; even then, analyze level and nature of leakage and intensify leakage reduction efforts
12 to < 16	6 to < 8	C2	
16 to < 24	8 to <12	D1	Very inefficient use of resources; leakage reduction programs imperative and high priority
24 or more	12 or more	D2	

1  
2 The majority of GSWC’s systems with valid ILI value has an ILI below 2.<sup>103,104</sup> As  
3 shown in the benchmark above (high income countries), for a system with an ILI below  
4 2, a utility should perform careful analysis to identify cost-effective improvement. Even  
5 with an ILI above 2, a utility has a whole host of tools that it should consider including  
6 pressure management, active leakage control practices and network maintenance.  
7 Replacement is not necessarily the preferred course of action. For instance, Tacoma  
8 Water used this maintenance and repair histories along with non-invasive acoustic  
9 condition assessment technology to cut its biennium capital budget by 50%, from \$18  
10 million to \$9 million biennium.<sup>105</sup>

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<sup>103</sup> According to the WaterAudit software definition, if (the length of mains (in miles) times 32) + service connection number is less than 3,000, Unavoidable Annual Real Loss (UARL) calculation is not effective. UARL is needed to calculate ILI since ILI = Current Annual Real Losses (CARL) divided by (UARL). GSWC noted that it did not calculate UARL due to small number of service connections.

<sup>104</sup> GSWC Response to Minimum Data Requirements, Question E.3.

<sup>105</sup> Water Online the Magazine, December 2014 Issue, p. 14 and 16, article titled “Replacing The Right Main At The Right Time” by Ryan Flynn; <http://wateronline.epubxp.com/i/426767/16?roi=echo4-28957012224-54694784-ccfbd87bbf86394efe048abbc62c8f6c&>

1 GSWC should incorporate the ILI into its PMP Report when considering the pipeline  
2 replacement rate for each of its system in the future. The AWWA’s Water Loss Control  
3 Committee created the Water Loss Audit to promote best practices among drinking water  
4 utilities. The results of the Water Loss Audit can be used to help guide a utility to a more  
5 efficient management of resources by identifying water losses and measuring the  
6 effectiveness of water loss control programs. When used correctly, the data from the  
7 Water Loss Audit can provide accurate meaningful performance indicators and  
8 performance benchmarks for water system. GSWC’s current water loss control program  
9 emphasizes mainly on more expensive pipeline replacements instead of less costly  
10 programs such as leak detection, leak repairs, pressure management, and pipeline  
11 rehabilitation. ORA recommends that GSWC utilize the results of the Water Loss Audits  
12 performed for its water systems to align its resources toward efficient water loss control  
13 programs.

#### 14 **D. CONCLUSION**

15 Due to the many inconsistencies in GSWC’s KANEW analysis and project prioritization scoring  
16 process, ORA determined it was necessary to analyze each of the projects proposed on a case-by-  
17 case basis to ensure prudent investment of pipeline infrastructure.

## Chapter 7: WATER LOSS

### A. INTRODUCTION

On October 24, 2014, GSWC submitted Supplemental Testimony to address the Administrative Law Judges' (ALJ) request for information regarding its water usage and water loss management.<sup>106</sup> The Supplemental Testimony is for the most part a summary of the information that GSWC has provided in its GRC filings, including its responses to the Minimum Data Requirements, its Pipeline Management Program, and responses to ORA Data Requests. According to GSWC, it performs annual water audits according to the American Water Works Association (AWWA) M36 Standard Water Audit methodology.<sup>107</sup> GSWC stated that it initiated a system review for water systems with an unaccounted water loss above 8%.<sup>108</sup>

Water loss is water lost through operations plus unaccounted for water due to other causes such as leakage, theft, meter inaccuracies, and data handling errors. GSWC provided the recorded amounts and equivalent rates (in %) of water that its systems used in operations and the unaccounted water for years 2008 through 2013 in Table 4-D in its Report on Results of Operations.

### B. SUMMARY OF RECOMMENDATIONS

**Table 7-A** presents ORA's recommendations for the water loss rates in Regions 1, 2, and 3. The total water loss rate presented is the sum of the rate used in operations and the rate of unaccounted water. For each ratemaking area, both GSWC and ORA apply the water loss rates to Test Year 2016 total estimated sales to arrive at the estimated total water supply requirement. This estimated total water supply requirement (quantity) is then used to calculate estimated Purchased Power, Purchased Water, and Pump Tax expenses. Differences in water loss rate estimates therefore result in differences in those expense estimates for the Test Year 2016. More

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<sup>106</sup> GSWC's Supplemental Testimony of Robert McVicker, dated October 24, 2014.

<sup>107</sup> Ibid, p. 4.

<sup>108</sup> Ibid.

1 specifically, lower water loss rates result in lower estimates for these expenses (see ORA’s  
2 Report on District Operating Expenses).

3 **Table 7-A: Recorded Water Loss Rates**

Region/CSA	Water Loss Rates		
	GSWC	ORA	GSWC exceeds ORA
Arden-Cordova	2.17%	2.17%	0.00%
Bay Point	12.26%	12.26%	0.00%
Clearlake	35.58%	35.58%	0.00%
Los Osos	6.64%	6.64%	0.00%
Santa Maria	10.13%	10.13%	0.00%
Ojai	10.50%	7.03%	3.47%
Simi Valley	4.51%	4.51%	0.00%
Region 2	4.69%	3.91%	0.81%
Region 3	10.99%	10.99%	0.00%

4 **C. DISCUSSION**

5 ORA reviewed the recorded water loss rates and related information presented in GSWC Results  
6 of Operations Reports and workpapers submitted in the July 15, 2014 application filing, and  
7 GSWC Supplemental Testimony on water loss submitted on October 24, 2014.

8 GSWC estimated the water used in operations and unaccounted water rates for Test Year 2016  
9 by averaging the rates for recorded years 2009-2013.

10 **Region 1**

11 Region 1 has seven CSAs. ORA agrees with GSWC’s estimated water loss rates for the Region  
12 1 CSAs except for Ojai. The average water loss from 2009 to 2013 in Ojai was 10.50%, which is  
13 the rate that GSWC projects for the Test Year. As shown in **Table 7-B** below, the water loss  
14 rates in 2012-2013 are much lower than in the prior three years (2009-2011), and as low as half  
15 of the 2009 level. The Test Year 2016 estimate should reflect the significant change in recorded  
16 water loss rates. The global five-year average approach is not appropriate in this instance. ORA  
17 recommends a Test Year 2016 water loss rate of 7.03% which is the average of 2012 and 2013.

1

**Table 7-B: Ojai CSA – Recorded Water Loss**

<b>Year</b>	<b>Ojai CSA Water Loss</b>
2009 14.84%	
2010 10.89%	
2011 12.72%	
2012 6.40%	
2013 7.66%	
<b>2009-2013 Average (GSWC)</b>	<b>10.50%</b>
2009-2011 Average	12.82%
<b>2012-2013 Average (ORA)</b>	<b>7.03%</b>

2 **Region 2**

3 In Region 2, GSWC’s historical water loss rates between 2009 and 2013 are shown in **Table 7-C**  
4 below.

5 **Table 7-C: Region 2 – Recorded Water Loss**

<b>Year</b>	<b>Region 2 Water Loss</b>
2009	6.02%
2010	5.76%
2011	3.77%
2012	5.41%
2013	3.91%
<b>2009-2013 Average (GSWC)</b>	<b>4.97%</b>
<b>2013 (ORA)</b>	<b>3.91%</b>

6 The average water loss from 2009 to 2013 is 4.97%, which is the rate that GSWC projects for the  
7 Test Year. Although the water loss rate fluctuates from year to year, there is a general  
8 downward trend. In fact, as shown in ORA’s discussion on pipeline replacement in its plant  
9 testimony for Region 2, water loss rates have decreased significantly in the past nine years,  
10 having gone from a high of 10.18% in 2005 to a low of 3.91% in 2013. This decrease can be

1 attributed to GSWC's recent pipeline replacement rate, service replacement, leak repairs, and  
2 meter replacement. In this GRC, GSWC is requesting an annual pipeline replacement budget of  
3 \$28.0 million to replace over twelve miles of pipeline per year. In addition, GSWC is continuing  
4 investment in service replacements and leak detection program. Given these infrastructure  
5 investments and programs to reduce water loss and the decreasing water loss trend, ORA  
6 recommends using the most recent available water loss rate of 3.91% (2013) as an estimate for  
7 Test Year 2016.

8 **D. CONCLUSION**

9 GSWC asserts in its Supplemental Testimony on water loss that it has implemented measures to  
10 reduce unaccounted water such as meter testing, mains and service line replacements, old meter  
11 replacements, theft prevention, leak detection and repairs, and system surveys.<sup>109</sup> The amount of  
12 water loss should stabilize or decrease with the implementation of these programs. Therefore,  
13 ORA recommends that the Commission adopt ORA's estimated water loss rates as shown above.

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<sup>109</sup> GSWC Supplemental Testimony of Robert McVicker, p. 3.

1 Chapter 8 – WATER QUALITY

2 A. INTRODUCTION

3 This chapter presents ORA’s analysis and recommendations on water quality for GSWC’s water  
4 systems in Regions 1, 2, and 3. GSWC operates thirteen water systems in Region 1, eight water  
5 systems in Region 2, and seventeen water systems in Region 3, under permits from the State  
6 Water Resources Control Board’s Division of Drinking Water (DDW), formerly the California  
7 Department of Public Health (CDPH). GSWC’s water supply generally comes from  
8 groundwater wells and purchased treated water, while some systems such as Clearlake and  
9 Cordova use treated surface water.

10 Investor-owned water utilities are required to submit information about water quality as part of  
11 each utility’s GRC application.<sup>110</sup> In accordance with these requirements, GSWC submitted  
12 water quality information in its response to the Minimum Data Requirements (MDR). In  
13 developing its recommendation for water quality, ORA reviewed GSWC’s testimony,  
14 application, workpapers, and the most recent DDW inspection reports available for GSWC’s  
15 water systems. ORA also contacted DDW representatives to obtain updates on the agency’s  
16 appraisal of GSWC’s water systems. However, although the assigned ALJ may have requested  
17 an independent report of GSWC’s water quality compliance in accordance to Section II.2.A(7) of  
18 GO 103-A from the Division of Water and Audit (DWA), ORA has not had an opportunity to  
19 review the DWA’s report.

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<sup>110</sup> See D.04-06-018 (adopting revised Rate Case Plan (RCP)); see also D.07-05-062 (adopting changes to the RCP including improved oversight of water quality data through the use of Minimum Data Requirements (MDR) pertaining to water quality that must be completed by the utility as part of its GRC testimony and cost of capital testimony).

1        **B. SUMMARY OF RECOMMENDATIONS**

2        As part of its investigation in this proceeding, ORA contacted the DDW to request information  
3        on GSWC’s water quality compliance. Based on information provided by the DDW in late  
4        2014, GSWC was in compliance with applicable state and federal water quality requirements.<sup>111</sup>

5        However, a recent water quality issue has emerged in the city of Gardena. Gardena customers  
6        have been documenting recent occurrences of black water coming out of their faucets. ORA,  
7        DDW, the Los Angeles County Department of Public Health, and the US EPA, are currently  
8        looking in to the issue and ORA has conducted some preliminary discovery on this issue.

9        However, because this issue has only recently emerged, ORA has not yet been able to gather  
10       sufficient information on causes and remedies for this testimony. ORA therefore recommends  
11       that the Commission open a second phase of this GRC proceeding in order to fully analyze the  
12       occurrences of discolored water in the City of Gardena in the Southwest system in Region 2.

13       **C. DISCUSSION**

14       The following **Table 8-A** lists the water systems in each region with the corresponding  
15       information on the most recent inspection reports available to ORA and citations by the DDW, if  
16       any. Where appropriate, ORA presents discussions on the nature of the DDW citations and on  
17       systems with water quality issues.

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<sup>111</sup> See **Appendix WATER QUALITY-A (List of emails from DDW staff to ORA staff, confirming system compliance)** in this report.

1

**Table 8-A: DDW Reports and Citations**

<b>Region 1</b>			
<b>No</b>	<b>System</b>	<b>DDW Annual Inspection Report Date</b>	<b>DDW Citation</b>
1	Arden	August 2013	None
2	Bay Point	November 2003	None
3	Clearlake	March 2012	None
4	Cordova	October 2013	Total Coliform Rule
5	Edna	December 2011	None
6	Lake Marie	December 2011	None
7	Los Osos	June 2013	None
8	Nipomo	January 2014	None
9	Ojai	June 2011	None
10	Orcutt	August 2011	None
11	Sisquoc	March 2014	None
12	Simi Valley	July 2011	None
13	Tanglewood	December 2011	None

2

<b>Region 2</b>			
<b>No</b>	<b>System</b>	<b>DDW Annual Inspection Report Date</b>	<b>DDW Citation</b>
1	Artesia	September 2013	None
2	Bell Gardens	February 2014	None
3	Culver City	October 2010	None
4	Florence-Graham	December 1997	None
5	Hollydale	May 2011	None
6	Norwalk	July 2013	None
7	Southwest	November 2010	Total Coliform Rule
8	Willowbrook	May 2010	None

3

<b>Region 3</b>			
<b>No</b>	<b>System</b>	<b>DDW Annual Inspection Report Date</b>	<b>DDW Citation</b>
1	Apple Valley North	September 2008	None
2	Apple Valley South	September 2008	None
3	Barstow	August 2010	None
4	Calipatria	June 2011	None
5	Claremont	December 2012	None
6	Cowan Heights	March 2013	None
7	Desert View	February 2014	None
8	Lucerne	November 2010	None
9	Morongo Del Norte	November 2014	None
10	Morongo Del Sur	September 2011	Total Coliform Rule
11	Placentia	January 2014	None
12	San Dimas	March 2012	None
13	South Arcadia	July 2011	None
14	South San Gabriel	December 2012	None
15	West OC	October 2014	None
16	Wrightwood	August 2011	None
17	Yorba Linda	January 2011	None

4

1           **1. Region 1 – Cordova System, Total Coliform Rule**

2           On August 21, 2014, the DDW issued a citation to GSWC’s Cordova system for violations of the  
3           Total Coliform Rule. In July 2014, water samples collected in the Cordova system exceeded the  
4           monthly maximum contaminant level (MCL) for total coliform, a violation of Section 64426.1,  
5           Title 22 of the California Code of Regulation (CCR).<sup>112</sup> A public water system that collects at  
6           least 40 samples per month violates the total coliform MCL when more than 5% of the samples  
7           collected during a month test positive. During the month of July in 2014, 6.7% of the samples in  
8           the Cordova system tested positive for total coliform. According to the DDW, follow-up  
9           samples did not exhibit positive results for total coliform and GSWC has taken follow-up actions  
10          to comply with the Total Coliform Rule.<sup>113</sup>

11           **2. Region 1 – Ojai System, Boil Water Notice**

12          On July 9, 2013, GSWC issued a Boil Water Notice due to a pipeline rupture, which caused  
13          some areas in the system to lose pressure.<sup>114</sup> GSWC notified the DDW of the main break on  
14          Ojai Avenue. The DDW recommended that GSWC issue a Boil Water Notice as a precautionary  
15          measure beginning in the evening of Tuesday, July 9, 2013, when water service was  
16          restored.<sup>115,116</sup> The notice was hand delivered to each affected customer by GSWC field staff.<sup>117</sup>  
17          The Boil Water Notice was lifted on July 11, 2013, after the DDW and GSWC determined the  
18          water to be safe for consumption.

19           **3. Region 2 - Southwest System, Total Coliform Rule**

20          In November 2011, GSWC collected 251 water samples in the Southwest system for testing and  
21          17 samples tested positive for the presence of total coliform. According to Section 64426.1,

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<sup>112</sup> DDW letter to GSWC - Cordova Public Water System (PWS# 3410015) Total Coliform Rule Violation and Citation No. 01-09-14-CIT-003, dated August 21, 2014.

<sup>113</sup> Email from Bruce Berger, DDW’s Sanitary Engineer, to Alex Lau of ORA (October 13, 2014).

<sup>114</sup> E-mail from Jeff Dunsmore, P.E. of DDW to Daphne Goldberg of ORA (February 20, 2015)

<sup>115</sup> Phone call with Patrick Scanlon: VP Operations; Robert Hanford, District Manager; Jenny Darney-Lane, GSWC and Daphne Goldberg and Pat Ma of ORA (August 20, 2014).

<sup>116</sup> Ibid.

<sup>117</sup> E-mail from Jeff Dunsmore, P.E. of DDW to Daphne Goldberg of ORA (February 20, 2015).

1 Title 22 of the CCR,<sup>118</sup> a public water system, which collects at least 40 samples per month  
2 violates the total coliform MCL when more than 5% of the samples collected during a month are  
3 tested positive. In November 2011, 6.8% of samples in the Southwest system tested positive for  
4 total coliform. GSWC also violated CCR, Title 22, Chapter 15, Article 18, Section 64463(b) by  
5 failing to get the DDW’s approval of its public notice prior to distributing or posting, and Section  
6 64465 (a)(2) for failing to include the dates of the violation in its notices to customers.<sup>119</sup>

#### 7 4. Region 2 - Southwest System, Black Water Incident

8 In January 2015, several media outlets reported that residents in the City of Gardena complained  
9 of “black water” from their plumbing fixtures.<sup>120</sup> On January 29, 2015, the City of Gardena’s  
10 Mayor Paul Tanaka, sent a letter to the Consumer Affairs Branch of the CPUC and the US  
11 Environmental Protection Agency (US EPA) regarding the quality of water in the City of  
12 Gardena.<sup>121</sup> Mayor Tanaka indicated that the City has received over 50 complaints in the last  
13 three years and requested the CPUC’s and the US EPA’s assistance in addressing the water  
14 quality issues in the City of Gardena.<sup>122</sup> Although GSWC asserts that its water meets State and  
15 Federal standards, residents in the City of Gardena find the quality of water unacceptable.<sup>123</sup>  
16 In its response to ORA Data Request JA-009 dated February 12, 2015, GSWC indicated that it  
17 received a complaint of “discolored water” from a customer on January 21, 2015, which GSWC

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<sup>118</sup> DDW letter to GSWC - Cordova Public Water System (PWS# 3410015) Total Coliform Rule Violation and Citation No. 01-09-14-CIT-003, dated August 21, 2014

<sup>119</sup> CDPH’s Citation No. 04-16-12C-16, dated December 28, 2012, pp. 3-5.

<sup>120</sup> <http://ktla.com/2015/01/26/gardena-family-disgusted-by-black-foul-smelling-water-coming-from-faucet/>

<http://www.cnn.com/videos/us/2015/01/28/dnt-gardena-residents-complain-of-black-water.ktla>.  
<http://losangeles.cbslocal.com/2015/01/27/water-company-tells-gardena-residents-black-smelly-water-is-fine-to-drink/>.

<sup>121</sup> See **Appendix WATER QUALITY-B (City of Gardena Letter)** in this report.

<sup>122</sup> Ibid.

<sup>123</sup> Information from a meeting held by GSWC on February 12, 2015.  
<http://losangeles.cbslocal.com/2015/01/27/water-company-tells-gardena-residents-black-smelly-water-is-fine-to-drink/>. <http://www.nbclosangeles.com/news/local/Gardena-Residents-Demand-Answers-About-Black-Foul-Smelling-Water-291800371.html>.

1 “resolved.”<sup>124</sup> GSWC further indicated that it does not plan to take further investigative  
2 measures:

3 Our investigation is considered complete. The company was **unable to determine what**  
4 **caused the incident of discolored water** at [the customer’s] residence on January 21,  
5 2015. This was a temporary occurrence. The water currently serving her residence is  
6 clear.<sup>125</sup> [Emphasis added]

7 GSWC indicated that it collected a water sample from the customer’s residence on February 4,  
8 2015, and tested it for the presence of total coliform bacteria and E. coli and the level of chlorine  
9 residual. The results did not indicate the presence of total coliform bacteria or E. coli, and  
10 showed a chlorine residual level of 0.30 milligrams per liter (mg/L). Drinking water standards  
11 require a chlorine residual level above 0.2 mg/L.<sup>126</sup>

12 In its October 2014 Measure to Improve Customer Service Report, GSWC identified several  
13 water quality issues in the Southwest CSA associated with fire flow testing activities, system  
14 disruption due to a new water main tie-in, the presence of biofilm in its distribution system, and  
15 the removal of a well from service.<sup>127</sup> GSWC also identified mitigation measures to address  
16 these issues. The information provided in the October 2014 report is not consistent with  
17 GSWC’s assertion that the recent event of discolored water is “an isolated incident” or its claim  
18 that it was unable to determine what caused the incident of discolored water.

19 On February 11, 2015, the same customer notified GSWC of another occurrence of “black  
20 water” at her residence.<sup>128</sup> On February 12, 2015, GSWC also held a public meeting to discuss  
21 the quality of water in the City of Gardena. Approximately 200 residents and customers of  
22 GSWC attended the public meeting and spoke of the low quality of water provided by GSWC.  
23 GSWC’s records of customer complaints show that there are 28 water quality (color and odor)

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<sup>124</sup> GSWC Response to ORA Data Request, JA-009, Questions 1 and 4.

<sup>125</sup> GSWC Response to ORA Data Request, JA-009, Question 4.

<sup>126</sup> Title 22, Chapter 17, Article 6, subsection 64664 (c)(1) notes 0.2mg/L is lowest.

<sup>127</sup> GSWC’s Measures to Improve Customer Service, January 2014 through June 2014, dated October 2014, pp. 5-6.

<sup>128</sup> Customer’s email to GSWC, dated February 11, 2015.

1 complaints between May 2014 and January 2015.<sup>129</sup> Many residents indicated that they installed  
2 a water filtration system at their residences.<sup>130</sup> The City of Gardena also installed two filter  
3 systems (reverse osmosis) at its facilities.<sup>131</sup>

4 On February 19, 2015, GSWC and DDW met to discuss the water quality issue in the City of  
5 Gardena; an ORA representative was invited and attended the meeting. In that meeting,  
6 GSWC’s Water Quality Manager, Ms. Dawn White, stated that the likely cause of discolored  
7 water in the Gardena area is “**biofilm**” buildup in the distribution system’s pipelines. GSWC has  
8 implemented a unidirectional flushing program in the affected area, and expects it to improve the  
9 quality of water.

10 Although GSWC considered the discolored water discovered at the customer’s residence an  
11 “isolated incident” and considers the matter resolved, Mayor Tanaka’s letter indicates that there  
12 is a long-standing water quality issue in the City of Gardena which has affected many residents.  
13 Moreover, news reports and citizen complaints during the public meeting suggest that this is not  
14 an isolated, one-time incident. Instead, there appears to have been multiple recent instances of  
15 GSWC customers experiencing black water coming out of their taps, as shown in **Figure 8-A**  
16 below.

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<sup>129</sup> GSWC Response to ORA Data Request JA-009, Question 7.

<sup>130</sup> Information from GSWC’s Public Meeting on February 12, 2015.

<sup>131</sup> City of Gardena Mayor Paul Tanaka’s letter to CPUC and USEPA dated January 29, 2015 (included in this report as Appendix WATER QUALITY-B.)

1 **Figure 8-A: Photos from Media Coverage of the Black Water Issue in City of Gardena**



2 *Blackened tap water in Gardena*  
(credit: KTLA5)



3 ORA has also learned that multiple customers have filed complaints with the City of Gardena  
4 and is currently working to obtain those records to gather more information. ORA is also  
5 working with the Commission's Consumer Affairs Branch to obtain records of complaints  
6 regarding black water made to the Commission. ORA recommends that the Commission open a  
7 second phase of this proceeding in order to examine the occurrences of discolored water in the  
8 City of Gardena. GSWC should provide the following information in the second phase of this  
9 proceeding:

- 10 1) The numbers of water quality complaints in the Gardena area received between January  
11 2010 and current.
- 12 2) A map of the water quality complaints received per year for 2010 to 2015.
- 13 3) Records of GSWC's responses to each complaint.
- 14 4) The cause of the black water.
- 15 5) How GSWC resolved the black water occurrence, if resolved.
- 16 6) Information on GSWC's flushing program in the Southwest water system.
- 17 7) Water sampling data collected in the Southwest water system from 2013 to 2015.
- 18 8) Any studies that GSWC has performed regarding black water complaints.

- 1 1. Map of area impacted with black water.
- 2 2. GSWC's customer notification policy regarding water quality.

### 3 **5. Region 3 - Morongo Del Sur System**

4 In September 2011, GSWC collected five water samples in the Morongo Del Sur system and  
5 found two<sup>132</sup> samples exceeding the monthly MCL for total coliform and but did not exhibit  
6 positive results for E. Coli. The DDW issued a citation to GSWC for this incident. According to  
7 the DDW, GSWC increased the chlorine dose at wellheads and turned over the water in Mojave  
8 Tank.<sup>133</sup> GSWC collected two sets of follow-up samples, which exhibited negative results for  
9 total coliform.

10 On February 19 and 26, 2013, GSWC collected five water samples in the Morongo Del Sur  
11 system and found one<sup>134</sup> sample that exceeded the monthly MCL for total coliform and negative  
12 results for E. Coli. The DDW also issued a citation to GSWC for this incident. According to the  
13 DDW, GSWC collected a set of repeat samples and conducted triggered source monitoring at  
14 Yeager Well No. 2 as follow up.<sup>135</sup> The follow-up samples did not indicate a presence of total  
15 coliform.

### 16 **D. CONCLUSION**

17 The DDW indicated that GSWC's water systems in Regions 1, 2, and 3 are in compliance with  
18 drinking water standards as of late 2014. ORA recommends that the Commission open a second  
19 phase of this GRC proceeding to address customers' concerns regarding the quality of water in  
20 the City of Gardena to ensure that the "black water" problem is properly and timely resolved and  
21 to identify and address operational deficiencies (e.g., regarding flushing program and  
22 implementation), if any.

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<sup>132</sup> At Mojave Tank and at Mojave & Hill.

<sup>133</sup> CDPH Citation No. 05-13-11C-024, p. 3, dated November 18, 2011.

<sup>134</sup> At Mojave & Hill NE corner.

<sup>135</sup> CDPH Citation No. 05-13-13C-005, p. 3, dated May 30, 2013.

## Chapter 9: PLANT, REGION 2

### A. INTRODUCTION

This chapter presents ORA’s analyses and recommendations for Plant in Service in GSWC’s Region 2. ORA presents its review and adjustments of GSWC’s plant requests by District Office and Customer Service Areas (CSAs). GSWC’s Region 2 consists of two District Offices – Central and Southwest, and four Customer Service Areas (CSAs) – Central Basin East, Central Basin West, Culver City, and Southwest. There are eight water systems in the four CSAs. In this chapter, ORA presents its review and adjustments of GSWC’s plant requests by District Office and CSA.

### B. SUMMARY OF RECOMMENDATIONS

**Table 9-A** below presents a summary of capital budgets for GSWC’s Region 2 service area. Additional adjustments to on-going or previously authorized projects (“CWIP” projects) are presented near the end of each CSA section. In the following sections, ORA presents its recommended adjustments to GSWC’s budget and specific project requests. Cost estimates also reflect recommendations in ORA’s Common Plant Issues testimony regarding contingency, design cost, vehicle replacement and various other adjustments.

For purposes of comparison, ORA presents its recommended plant estimates using GSWC’s proposed construction overhead factor (17.42%). ORA’s recommendations on capital overhead loading presented in its Report on General Office should be used to develop final authorized project costs.

1

**Table 9-A: Capital Budget Summary – Region 2**

Region 2	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
<b>Central</b>						
District Office	\$ 125,400	\$ 67,600	\$ 36,300	\$ 33,000	\$ 37,200	\$ 82,800
Central Basin East	\$ 4,859,600	\$ 3,547,200	\$ 10,416,600	\$ 4,098,000	\$ 3,248,900	\$ 1,203,000
Central Basin West	\$ 6,997,700	\$ 4,632,500	\$ 6,480,900	\$ 2,990,100	\$ 6,202,400	\$ 3,451,100
Culver City	\$ 8,386,400	\$ 2,491,100	\$ 6,158,400	\$ 4,307,200	\$ 5,101,100	\$ 2,675,300
<b>District Total</b>	<b>\$20,369,100</b>	<b>\$10,738,400</b>	<b>\$23,092,200</b>	<b>\$11,428,300</b>	<b>\$ 14,589,600</b>	<b>\$ 7,412,200</b>
<b>Southwest</b>						
District Office	\$ 71,300	\$ 64,800	\$ 73,200	\$ 66,500	\$ 83,800	\$ 68,300
Southwest	\$ 27,617,400	\$ 13,233,800	\$ 18,500,000	\$ 8,288,500	\$ 19,250,700	\$ 10,001,600
<b>District Total</b>	<b>\$27,688,700</b>	<b>\$13,298,600</b>	<b>\$18,573,200</b>	<b>\$ 8,355,000</b>	<b>\$ 19,334,500</b>	<b>\$10,069,900</b>
<b>REGION II TOTAL</b>	<b>\$48,057,800</b>	<b>\$24,037,000</b>	<b>\$41,665,400</b>	<b>\$19,783,300</b>	<b>\$ 33,924,100</b>	<b>\$17,482,100</b>
<b>3-YEAR TOTAL:</b>					<b>\$123,647,300</b>	<b>\$61,302,400</b>
<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>						<b>\$62,344,900</b>
<b>3-YEAR DIFFERENCE, (GSWC-ORA)/(GSWC):</b>						<b>50%</b>

2

3 **C. RELIABILITY AND AFFORDABILITY**

4 According to GSWC, its capital project requests in this GRC were developed from its Water  
 5 Master Plans and a risk-based asset management approach, with a goal of promoting “water  
 6 infrastructure investment.”<sup>136</sup> Hence, it is not surprising that GSWC often offered “reliability  
 7 improvement” as justification for many of its infrastructure needs without much consideration of  
 8 affordability and cost containment. There is little regard for cost containment because GSWC’s  
 9 goal is to invest in infrastructure to add to ratebase, benefitting its shareholders. Subsequently,  
 10 GSWC imparts little prudence in its infrastructure investment planning. GSWC’s infrastructure  
 11 planning needs to consider cost-benefit for customers as discussed in a recent article published in  
 12 the January 2011 AWWA Journal:

13 A water utility’s asset management plan is an optimization process that attempts to meet  
 14 the competing objectives of cost minimization and reliability maximization. **The goal**  
 15 **cannot be to develop a perfect plan or to achieve 100% reliability for every**  
 16 **customer**. Rather, the goal is to achieve an appropriate level of reliability, given  
 17 regulatory requirements and the needs of the community, in a cost effective manner. In

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<sup>136</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 4, Lines 21 to 24.

1 order to do so, the utility needs to have reliability goals and a way to measure those  
2 goals... Too much money has already been spent on infrastructure improvement in the  
3 water industry without a showing that customer service has improved. We must ensure  
4 that infrastructure management and investments are improving customer service, and we  
5 must have a way to measure that improvement.<sup>137</sup> [Emphasis added.]

6 Even the author of the AWWA article recognized that it is neither affordable nor realistic to  
7 “achieve 100% reliability for every customer” and that it is not acceptable to continue investing  
8 in infrastructure without considering the costs and benefits for customers. Therefore, in  
9 evaluating GSWC’s proposed capital projects and budgets, ORA’s goal is to balance appropriate  
10 levels of reliability and affordability. This results in ORA making adjustments to GSWC’s  
11 requests as discussed below.

#### 12 **D. REGION 2 – PIPELINE REPLACEMENT PROJECTS**

13 ORA provides a general discussion on Pipeline Replacement in the Common Plant Issues  
14 chapter of this report. However, GSWC-proposed pipeline replacements in Region 2 warrant  
15 further discussions because GSWC is requesting to replace more pipelines than recommended by  
16 its own KANEW analysis.<sup>138</sup> ORA finds that the scope and number of replacement projects have  
17 been expanded beyond the stated need and GSWC’s cost estimates for its pipeline replacements  
18 are high when compared to Park Water Company, another Class A water utility operating in the  
19 same general area as GSWC’s Region 2. In this GRC, GSWC requests the following budgets for  
20 its pipeline replacement program in Region 2:

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<sup>137</sup> A Call for Reliability Standards, January 2011 Journal AWWA, by Scott Rubin.

<sup>138</sup> KANEW is a software used to forecast pipeline rehabilitation and replacement needs. See ORA’s testimony on Pipeline Replacements in the Common Plant Issues chapter of this report for more details.

1 **Table 9-B: GSWC-Proposed Pipeline Replacement Budgets – Region 2<sup>139</sup>**

CSA	2015	2016	2017	Total
Central Basin East	\$2,791,800	\$5,752,000	\$1,933,300	\$10,477,100
Central Basin West	\$3,615,300	\$5,011,700	\$3,563,700	\$12,190,700
Culver City	\$4,959,800	\$2,529,400	\$1,834,000	\$9,323,200
Southwest	\$22,646,200	\$14,784,300	\$14,818,700	\$52,249,200
<b>Total</b>	<b>\$34,013,100</b>	<b>\$28,077,400</b>	<b>\$22,149,700</b>	<b>\$84,240,200</b>

2 As shown in **Table 9-C** below, GSWC proposes to install/replace over 36 miles of pipeline in its  
 3 Region 2’s eight water systems between 2015 and 2017. GSWC’s own **KANEW** analysis  
 4 recommends only 28 miles of replacement.<sup>140</sup> GSWC’s proposed rate of replacement (in miles  
 5 of pipeline installed) exceeds its KANEW study’s recommendation by 31%.

6 **Table 9-C: GSWC-proposed vs. KANEW-recommended Pipeline Installation.**

Region 2 Annual Pipeline Installation	KANEW Recommended Replacement (miles)	GSWC's Proposed Installation (miles)	GSWC exceeds KANEW (%)
2015 9.28		14.89	60%
2016 9.26		12.57	36%
2017 9.23		8.81	-5%
<b>Total</b>	<b>27.77</b>	<b>36.27</b>	<b>31%</b>

7 There are approximately 895 miles of pipeline in Region 2.<sup>141</sup> GSWC’s proposed pipeline  
 8 replacement rate in 2015 is 1.7%,<sup>142</sup> while the national average pipeline replacement rate for  
 9 water utilities is approximately 0.5%.<sup>143</sup> ORA’s evaluation of pipeline characteristics such as

<sup>139</sup> GSWC’s Region 2 Workpapers, 2015-2017 Companywide Capital Budget.

<sup>140</sup> GSWC Pipeline Management Program Report, July 2014, pp. 5-6 to 5-7, Tables 5.3 and 5.6.

<sup>141</sup> Ibid, p. 4-3, Table 4-3.

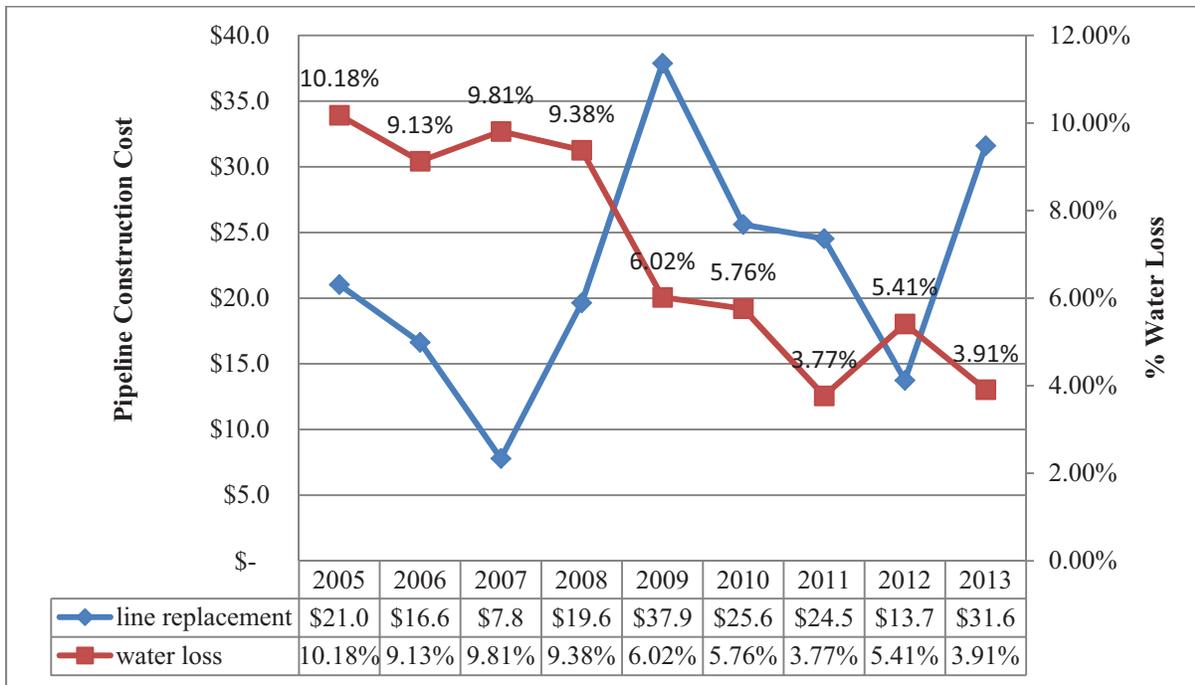
<sup>142</sup> ORA’s calculated the replacement rate by dividing GSWC’s 2015 proposed pipeline replacement by the total miles of pipeline in Region 2 = 14.89 mile/895 miles = 1.7%.

<sup>143</sup> Distribution Infrastructure Management (DIM) by Dan Ellison, p. 78.

1 age, materials, and leak history in Region 2 indicates that such a high replacement rate is not  
 2 needed.

3 In recent years, GSWC has increased the rate of pipeline replacement in Region 2 substantially  
 4 and at a significant cost to ratepayers. This has resulted in a reduction in the rate of water loss to  
 5 less than 4% in the eight water systems, as demonstrated below. Although an increase in  
 6 pipeline replacement is expected to result in a decrease in water loss rates, there is a point of  
 7 diminishing return. That is, there will be a certain amount of water loss that exists in a water  
 8 system that is unaffected by more aggressive pipeline replacements. Therefore, it makes  
 9 economic sense to maintain a balance between an affordable pipeline replacement program and a  
 10 reasonable water loss rate. **Figure 9-A** below shows the relationship between pipeline  
 11 investment costs and water loss rate in Region 2 from 2005 to 2013.

12 **Figure 9-A: Pipeline Construction Costs vs. Water Loss<sup>144</sup>**



13

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<sup>144</sup> Pipeline Construction Costs – GSWC’s Table 4-M and escalated to 2013 using ENR’s CCI factors from Blanket Budget, Water Loss Rate – GSWC’s Table 4-D. GSWC’s 2011 and 2014 GRC filings.

1 As depicted in the graph above, the water loss rate in Region 2 has been decreasing in recent  
2 years to 3.91% in 2013, from a high of 10.18% in 2005. In other words, GSWC’s systems lost  
3 7,286 acre-feet (“AF”) of water in 2005 and only 2,329 AF in 2013.<sup>145</sup> Between 2005 and 2013,  
4 GSWC invested over \$198 million<sup>146</sup> to replace pipelines in Region 2 and reduced the amount of  
5 water loss by 4,957 AF, which has a value of \$2,138 per AF.<sup>147</sup> The total value of water that  
6 GSWC saved is equivalent to \$10.5 million in 2013 through investing over \$198 million in  
7 pipeline replacement between 2005 and 2013.

8 With a median age of 47.5 years<sup>148</sup> and a water loss rate significantly less than the American  
9 Water Works Association’s (AWWA) water loss benchmark of 10%,<sup>149</sup> pipelines in Region 2 are  
10 considered to be in good condition. Region 2’s average water loss rate in the most recent three  
11 recorded years (2011-2013) has been 4.35%. A 4.35% average does not warrant increasing the  
12 pipeline replacement miles beyond the GSWC’s own KANEW recommended miles.

13 Even the AWWA warns that replacing lines that appear to be in good condition with no history  
14 of leaks is not “cost-efficient.” Specifically, AWWA offers the following observation

15 As pipe assets age, they tend to break more frequently. **But it is not cost-effective to**  
16 **replace most pipes before, or even after, the first break.** Like the old family car, it is  
17 cost-efficient for the utilities to endure some number of breaks before funding complete  
18 replacement of their pipes.<sup>150</sup> [Emphasis added.]

19 In addition, the **infrastructure leak indexes (ILI)** for the water systems in Region 2 are below  
20 “2.”<sup>151</sup> The ILI is a performance indicator that measures a water system’s annual real and  
21 unavoids losses, which are provided by GSWC as part of the water loss audit. As discussed in

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<sup>145</sup> GSWC’s Table 4-D. GSWC showed a water loss of 3,174,086 ccf in 2005 and 1,014,666 ccf in 2013. ORA converted the amount to AF by dividing the ccf amount by 435.6.

<sup>146</sup> Sum of pipeline replacement cost from 2005 to 2013 at 2013 dollar.

<sup>147</sup> GSWC’s Response to MDR Question E.4, Value of Conserve Water.

<sup>148</sup> GSWC’s Pipeline Management Program Report, p. ii.

<sup>149</sup> AWWA’s Committee Report: Water Accountability, dated July 1996, p. 109.

<sup>150</sup> Dawn of the Replacement Era by AWWA, dated May 2001, p. 13.

<sup>151</sup> GSWC Response to Minimum Data Request E.3 – Water Loss Audits.

1 ORA’s testimony on Pipeline Replacement (Chapter 6 of this report), an ILI of less than “2” is  
2 indicative of an ideal water system, in terms of water loss. Below, ORA will discuss each  
3 pipeline replacement project for which ORA has a different recommendation than that proposed  
4 by GSWC.

5 **1. Lack of details in bundled projects**

6 Furthermore, in this GRC, GSWC is requesting to replace/install over 36 miles of pipelines with  
7 61 projects. Twenty four pipeline projects have a construction budget of over \$1 million, with  
8 one project budget estimated at over \$9 million. As ORA will demonstrate in its project-specific  
9 discussions, GSWC combines different segments of pipelines with little explanation as to why  
10 they should be combined; this budgeting practice only serves to inflate project scope and cost. In  
11 the vast majority of cases, only some segments of a proposed project require replacement. To  
12 support a *bundled* project, GSWC claims that all the segments of a project need replacement due  
13 to age, leaks history, and hydraulic deficiency. When ORA requested the specific metrics for  
14 each segment of pipeline such as length, number of leaks, and evidence of hydraulic deficiency,  
15 GSWC provided the following response (complete data request and response are in **Appendix**  
16 **REGION 2 PLANT-A** of this report):

17           These drawings show the size, material, and year built for pipes... **The rest of the**  
18 **information requested in Questions 1 through 11 is not readily available** since the  
19 Project Cost Estimate (PCE) was created for each project as a whole.<sup>152,153</sup> [Emphasis  
20 added.]

21 GSWC’s inability and refusal to provide such simple and easily obtainable information such as  
22 the length and leak history of pipeline segments that the company requests to replace call into  
23 question the company's planning and budgeting capacity. If GSWC does not have the  
24 information such as the individual length of each segment that makes up the entire pipeline  
25 project, ORA and the Commission cannot verify or trust that the information provided by the  
26 company for the entire project is accurate. Case in point is a 17,700 feet pipeline replacement

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<sup>152</sup> GSWC Response to ORA Data Request JA-007, Q. 1 through 11.

<sup>153</sup> Questions 1 – 11 from ORA data requests asked for information such as segment lengths, leak history, and Master Plan Recommendation Numbers. See **Appendix REGION 2 PLANT-A (ORA Data Request JA-007)** in this report.

1 project requested by GSWC in the Southwest CSA for \$9.3 million. This \$9.3 million project  
2 has eight pipeline segments spanning 130<sup>th</sup>, 132<sup>nd</sup>, 134<sup>th</sup>, and 135<sup>th</sup> Streets, and Budlong  
3 Avenue.<sup>154</sup> GSWC either cannot or would not provide information regarding the length and leak  
4 history for individual segments of the pipelines that make up the 17,700 feet that it has identified  
5 for replacement.<sup>155</sup> Yet, a key part of GSWC’s project cost estimate is based on the combined  
6 length of the project. In addition, the number of hydrants, services, and valves are based on the  
7 length of the pipeline.<sup>156</sup>

8 Moreover, GSWC’s unwillingness to provide a specific cost estimate and reasons for the  
9 individual segments of the proposed pipeline projects is a strong indication that not all the  
10 segments need to be replaced. GSWC’s practice of *bundling* segments of pipeline together to  
11 increase the project scope and cost is irresponsible and imprudent. Such a practice hides the  
12 replacement of pipelines that are not yet due for replacement, and therefore unnecessarily  
13 increases the costs to ratepayers. Moreover, it takes away resources from infrastructure  
14 investment projects that have demonstrated needs.

15 In short, GSWC has not been forthcoming in its response to ORA’s Data Requests (DR JA-007  
16 dated December 15, 2014 and DR JA-008 dated January 23, 2015). In one Response (to DR JA-  
17 007), GSWC claimed that information such as the individual pipe lengths are “not readily  
18 available,” while stating in another Response (JA-008) that they can be “measured” from a map.  
19 In the latter response, GSWC stated:

20 It was not necessary to do an inspection or survey to calculate the length or the number of  
21 gate valves, hydrants, or services needed for each pipeline. **The pipe lengths were**  
22 **measured in our CAD System Maps.** The number of valves, hydrants, and services  
23 were calculated based on information in Response 2 above.<sup>157</sup> [Emphasis added.]

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<sup>154</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 193.

<sup>155</sup> GSWC Response to ORA Data Request JA-007, Question 7.

<sup>156</sup> GSWC Response to ORA Data Request JA-008, Question 1.

<sup>157</sup> GSWC Response to ORA Data Request JA-008, Question 2.

1 From GSWC’s responses shown above, GSWC has the ability to provide the length of each  
2 pipeline segments to ORA but refused to do so when ORA requested the information in Data  
3 Request JA-007, by stating that the information “is not readily available.”

4 **2. Flawed Unit Cost Calculations for 8” Ductile Iron Pipeline.**

5 In Region 2, GSWC requests to replace a majority of existing pipelines with 8”- and 12”-  
6 diameter ductile iron (DI) pipes. GSWC uses \$104/linear foot (LF) as the unit cost for 8” DI  
7 pipes and \$157 for 12” DI pipes. To estimate the unit cost for 8” DI, GSWC took the annual  
8 average from thirty projects in 2013, eleven projects in 2012, and five projects in 2011 for a total  
9 of forty nine projects, escalated the amount to 2013 base year dollars, and averaged the three  
10 annual amounts once again. The resulting cost estimate is shown below:

11 **Table 9-D: GSWC’s Unit Cost Calculations for 8” Ductile Iron Pipes**

<b>8" DI Completed Projects</b>	<b>Recorded Unit Cost, Escalated to 2013 Dollars</b>
2011 – five projects	\$119
2012 – eleven projects	\$96
2013 – thirty three projects	\$96
<b>3-Year Average</b>	<b>\$104</b>

12 GSWC’s method gives unequal weights to unit costs from projects from different years. For  
13 example, the five projects in year 2011 make up 17% of the total number of projects (five out of  
14 forty nine projects), but receive a 33.3% weight (three-year average) under GSWC’s method.  
15 Thus, GSWC’s calculated average unit cost of \$104 is skewed by the high average unit cost of  
16 \$119 from three project in 2011 projects, and the lower unit costs from 2013 projects receive  
17 disproportionately lower weight. In order to determine the true value of the average unit, ORA  
18 calculates the average of unit costs from all projects from 2011, 2012, and 2013. Similar to  
19 GSWC’s approach, ORA escalates the unit cost for each of the forty nine projects to 2013  
20 dollars, totals those normalized unit costs, and divides the total by forty nine to arrive at a unit  
21 cost of \$98.<sup>158</sup> This method gives equal weight to the unit cost from each project, and therefore,

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<sup>158</sup> See **Appendix REGION 2 PLANT–B (ORA’s Workpaper - 8” DI Unit Cost)** in this report.

1 unlike GSWC’s method, is not skewed by any one year’s average unit cost data. In this GRC,  
 2 GSWC is proposing to install approximately 135,330 feet of 8” DI. GSWC’s overestimation of  
 3 \$6 (\$104 less \$98) in unit cost resulted in over \$1.1 million (in 2013 dollars) of additional cost in  
 4 the proposed budget.<sup>159</sup> This amount when escalated to forecast years’ dollars is even larger –  
 5 approximately \$1.23 million.

6 **3. Excessive Unit Cost for Pipeline Project Installation.**

7 Moreover, GSWC claims that its practice of grouping pipelines together “reduce[s] the overall  
 8 cost.”<sup>160</sup> However, ORA finds that GSWC’s estimated pipeline installation/replacement unit  
 9 cost exceeds that of Park Water Company (“Park”) by 56% for 8” DI and 138% for 12” DI.<sup>161</sup>  
 10 This comparison with Park’s costs is particularly relevant and reasonable given that Park’s water  
 11 system is located in the same geographical area as GSWC’s Region 2. ORA evaluated Park’s  
 12 estimated costs for three 8” DI projects and eight 12” DI projects against GSWC’s thirty-seven  
 13 8” DI and three 12” DI projects proposed for Region 2 in this GRC. To arrive at the installation  
 14 cost per foot, ORA divides the **total project cost** by the length of the project. **Table 9-E** below  
 15 shows the difference in average cost per foot between Park and GSWC.

16 **Table 9-E: Pipeline Installation - Unit Cost Comparison.**<sup>162</sup>

Pipe Size and Material	Average cost per foot		GSWC exceeds Park
	GSWC	Park	
8" DI	\$405	\$259	56%
12" DI	\$628	\$264	138%

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<sup>159</sup> See [Appendix REGION 2 PLANT-C \(ORA’s Workpaper – Total 8” DI length and total cost\)](#) in this report.

<sup>160</sup> GSWC Response to ORA Data Request JA-007, Questions 1 through 11, p. 2: “These pipelines were grouped together in order to reduce the overall cost to the company. One design and bid package in geographical proximity is more cost effective and economical than several.”

<sup>161</sup> See [Appendix CONTINGENCY-A \(ORA’s Workpaper – Park’s Pipeline & GSWC’s Pipeline\)](#) in this report

<sup>162</sup> Ibid.

1 As shown in the table above, on average GSWC estimates \$405 per linear foot to install an 8” DI  
2 pipeline compared to Park’s \$259 per linear foot. In other words, GSWC’s ratepayers would pay  
3 56% more for the same type of infrastructure investment if GSWC’s estimates were adopted.<sup>163</sup>  
4 GSWC’s cost for 8” DI pipeline even exceeds Park’s cost for 12” DI pipeline. In this GRC,  
5 GSWC is proposing to install over \$84 million in pipelines between 2015 and 2017 in Region 2.  
6 If Park was constructing the same total length of pipelines, it would cost Park’s customers \$54  
7 million, or a full \$30 million less. This large cost difference for the same type of pipeline by two  
8 Class A water utilities serving customers in the same geographical location calls into question  
9 the reasonableness of GSWC’s pipeline construction and cost management. ORA recommends  
10 that the Commission investigate the high cost of GSWC’s construction projects and the  
11 company’s effort (or lack thereof) at cost containment.

12 ***4. Unreasonable Inclusion of “Small Project Costs.”***

13 In this GRC, GSWC adds a line item to its cost estimates for some pipeline projects identified as  
14 “small project costs.” ORA evaluated the “small project costs” that GSWC added to these  
15 projects and found that they range from 7% to 43% of the project’s construction cost, with an  
16 average of 31%, as shown in **Table 9-F** below.

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<sup>163</sup> Ibid.

1

**Table 9-F: Small Project Costs<sup>164</sup>**

CSA	Project Description	Length, in ft.	Unit Cost/ft	Small Project Cost	Construction Cost	% of Constr. Cost
Bell/Bell Gardens	Alley n/o Florence Emil to end	200	\$135	\$26,900	\$123,440	22%
Florence/ Graham	Alley w/o Compton Ave, 77th Pl to 78th St	300	\$171	\$51,180	\$184,350	28%
Florence/ Graham	Slauson Ave Alley, Malabar to Pacific	550	\$171	\$93,820	\$239,710	39%
Culver City	Garfield Ave and Huntley Ave	700	\$171	\$119,410	\$315,490	38%
Culver City	Tuller Ave, s/o Venice to Freeway Ramp	300	\$171	\$51,180	\$159,600	32%
Southwest	117th St., Doty Ave to west of Doty ave	350	\$171	\$59,700	\$147,450	40%
Southwest	Imperial Hwy west of Vermont Ave			\$10,000	\$98,300	10%
Southwest	169th St., Gramercy to Western			\$10,000	\$149,400	7%
Southwest	180th St., Denker to Evelyn	650	\$171	\$110,880	\$314,470	35%
Southwest	Alley n/o 163rd St., Main to Ball	500	\$171	\$85,290	\$260,950	33%
Southwest	Broadway, 131st to 135th	550	\$118	\$64,770	\$345,920	19%
Southwest Fay	smith Ave, Rosecrans to 147th			\$10,000	\$110,680	9%
Southwest	Prairie Ave, 119th St to 119th Pl	750	\$171	\$127,940	\$300,770	43%
Southwest	Raymond Ave, Connect Dead Ends	450	\$171	\$76,760	\$204,000	38%
Southwest	Yukon Ave, 102nd to 104th	700	\$171	\$119,410	\$319,910	37%
<b>Total</b>				<b>\$1,017,240</b>	<b>\$3,274,440</b>	<b>31%</b>

2

3 GSWC estimated the “small project cost” by multiplying the length of the project by the  
4 respective unit cost. The unit costs for the projects shown in the table above range from \$118 to  
5 \$171. It is important to note that GSWC’s estimates for the unit cost for this line item are the  
6 result of \$275 less the amount of the unit cost of the pipeline material. For example, with the

<sup>164</sup> GSWC Region 2 Workpapers Volumes 1 to 3, Project Cost Estimates.

1 Bell/Bell Garden project, GSWC proposes to construct 200 feet of 6” DI pipeline in an alley  
2 north of Florence. The unit cost of the 6” DI pipeline is \$140 and the unit cost of the “small  
3 project cost” is \$135 (total unit cost = \$140+\$135 = \$275).<sup>165</sup> Similarly, for an 8” DI project on  
4 Yukon Avenue, the unit cost of the “small project cost” is \$171 and the unit cost of 8” DI is  
5 \$104.<sup>166</sup> Again, the total unit cost is \$275 (=\$171+\$104).

6 This implies that the pipelines in these “small projects” have a total unit cost of \$275 per foot,  
7 regardless of material or pipe size. GSWC provided no support to justify the need to include this  
8 line item cost in its project estimates. In Region 2, the line item summed up to over \$1 million to  
9 the capital budget for the 2015 to 2017 period. With design, contingency, escalation, and  
10 overhead, this \$1 million results in over \$1.45 million for this line item in the capital budget.<sup>167</sup>  
11 GSWC’s padding of its capital budget with this cost is not supported by any testimony or  
12 showing of need. Therefore, ORA recommends that the Commission deny GSWC’s request to  
13 include this line item in its budget estimation.

#### 14 **E. CENTRAL DISTRICT OFFICE**

15 **Table 9-G** below presents a summary of capital budgets for the Region 2 Central District Office.  
16 Differences in ORA’s and GSWC’s estimates are due to ORA’s disallowance of the Contingency  
17 budget and a vehicle replacement as explained in ORA’s Common Plant Issues testimony.

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<sup>165</sup> GSWC Region 2 Workpapers, Volume 2 of 3, sheet 93.

<sup>166</sup> GSWC Region 2 Workpapers, Volume 3 of 3, sheet 248.

<sup>167</sup> See **Appendix REGION 2 PLANT-D (ORA’s Workpaper – Small Project Estimates)** in this report.

1 **Table 9-G: Capital Budget Summary – Region 2 Central District Office**

Central District Office	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
Contingency Budget	\$ 11,400	\$ -	\$ 3,300	\$ -	\$ 3,400	\$ -
<b>Total Contingency Budget</b>	<b>\$ 11,400</b>	<b>\$ -</b>	<b>\$ 3,300</b>	<b>\$ -</b>	<b>\$ 3,400</b>	<b>\$ -</b>
Minor Purification Equipment	\$ 10,300	\$ 10,300	\$ 10,600	\$ 10,600	\$ 10,800	\$ 10,800
Office Furniture and Equipment	\$ 7,600	\$ 7,600	\$ 7,800	\$ 7,800	\$ 8,000	\$ 8,000
Transportation Equipment						
Vehicle #2021	\$ 46,400	\$ -	\$ -	\$ -	\$ -	\$ 49,000
Vehicle #500510	\$ 35,500	\$ 35,500	\$ -	\$ -	\$ -	\$ -
Misc. Tools and Safety Equipment	\$ 14,200	\$ 14,200	\$ 14,600	\$ 14,600	\$ 15,000	\$ 15,000
<b>Total Blanket Budget</b>	<b>\$114,000</b>	<b>\$67,600</b>	<b>\$33,000</b>	<b>\$33,000</b>	<b>\$ 33,800</b>	<b>\$ 82,800</b>
<b>TOTAL CAPITAL BUDGET</b>	<b>\$125,400</b>	<b>\$67,600</b>	<b>\$36,300</b>	<b>\$33,000</b>	<b>\$ 37,200</b>	<b>\$ 82,800</b>
<b>3-YEAR TOTAL:</b>					<b>\$198,900</b>	<b>\$183,400</b>
<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>					<b>\$ 15,500</b>	
<b>3-YEAR TOTAL DIFFERENCE, (GSWC-ORA)/(GSWC):</b>					<b>8%</b>	

2

3 **1. Central District Office - Replace Vehicle #2021 (\$46,400)**

4 GSWC requests \$46,400 for the replacement of Vehicle #2021 (heavy-duty truck) in 2015. For

5 reasons identified in ORA’s testimony on vehicle replacements, this vehicle is expected to reach

6 its replacement mileage in the forecast years but not in the year requested by GSWC. ORA

7 moves the requested dollars to the year that it is expected to reach the DGS replacement mileage,

8 2017.

9 **F. CENTRAL BASIN EAST CSA**

10 The Central Basin East CSA consists of two water systems: Artesia and Norwalk. **Table 9-H**

11 below presents a summary of capital budgets for the Central Basin East CSA in Region 2.

1

Table 9-H: Capital Budget Summary - Central Basin East CSA

CBE CSA	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
<b>Artesia</b>						
Massinger & Hawaiian PLC Upgrd	\$ 23,100	\$ 22,000	\$ 160,900	\$ 153,600	\$ -	\$ -
Centralia Destroy Wells #3 & 4	\$ -	\$ -	\$ 96,300	\$ 92,000	\$ -	\$ -
<b>Norwalk</b>						
Studebaker Well #3 Drill & Equip	\$ 538,900	\$ -	\$ 3,142,400	\$ -	\$ -	\$ -
Norwalk SCADA at CB-23 & CB-35	\$ 305,100	\$ 291,200	\$ -	\$ -	\$ -	\$ -
<b>Total Water Supply</b>	<b>\$ 867,100</b>	<b>\$ 313,200</b>	<b>\$ 3,399,600</b>	<b>\$ 245,600</b>	<b>\$ -</b>	<b>\$ -</b>
Misc Street Improvements	\$ 67,000	\$ 67,000	\$ 70,000	\$ 70,000	\$ 73,000	\$ 73,000
<b>Total Street Improvements</b>	<b>\$ 67,000</b>	<b>\$ 67,000</b>	<b>\$ 70,000</b>	<b>\$ 70,000</b>	<b>\$ 73,000</b>	<b>\$ 73,000</b>
<b>Total Distribution Improvements</b>	<b>\$2,791,800</b>	<b>\$2,254,400</b>	<b>\$ 5,752,000</b>	<b>\$2,661,200</b>	<b>\$ 1,933,300</b>	<b>\$ -</b>
UWMP - Artesia System	\$ 65,000	\$ -	\$ -	\$ 65,000	\$ -	\$ -
UWMP - Norwalk System	\$ 65,000	\$ -	\$ -	\$ 65,000	\$ -	\$ -
<b>Total Miscellaneous</b>	<b>\$ 130,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 130,000</b>	<b>\$ -</b>	<b>\$ -</b>
Contingency Budget	\$ 91,100	\$ -	\$ 108,400	\$ -	\$ 112,600	\$ -
<b>Total Contingency Budget</b>	<b>\$ 91,100</b>	<b>\$ -</b>	<b>\$ 108,400</b>	<b>\$ -</b>	<b>\$ 112,600</b>	<b>\$ -</b>
New Business Funded by GSWC	\$ 2,000	\$ 2,000	\$ 3,000	\$ 3,000	\$ 4,000	\$ 4,000
<b>Total New Business</b>	<b>\$ 2,000</b>	<b>\$ 2,000</b>	<b>\$ 3,000</b>	<b>\$ 3,000</b>	<b>\$ 4,000</b>	<b>\$ 4,000</b>
Meters	\$ 185,700	\$ 185,700	\$ 243,600	\$ 243,600	\$ 361,400	\$ 361,400
Services	\$ 154,500	\$ 154,500	\$ 158,700	\$ 158,700	\$ 162,900	\$ 162,900
Minor Main Repl.	\$ 348,200	\$ 348,200	\$ 357,600	\$ 357,600	\$ 367,300	\$ 367,300
Minor Pumping Plant Equip.	\$ 155,900	\$ 155,900	\$ 160,100	\$ 160,100	\$ 164,400	\$ 164,400
Minor Purification Equip.	\$ 2,000	\$ 2,000	\$ 2,100	\$ 2,100	\$ 2,100	\$ 2,100
Office Furniture and Equip.	\$ 13,300	\$ 13,300	\$ 13,700	\$ 13,700	\$ 14,100	\$ 14,100
Transportation Equipment						
Vehicle #2056	\$ -	\$ -	\$ 47,700	\$ -	\$ -	\$ -
Vehicle #2023	\$ -	\$ -	\$ 47,700	\$ -	\$ -	\$ -
Misc. Tools and Safety Equip.	\$ 42,800	\$ 42,800	\$ 43,900	\$ 43,900	\$ 45,100	\$ 45,100
Additions to General Structure	\$ 8,200	\$ 8,200	\$ 8,500	\$ 8,500	\$ 8,700	\$ 8,700
<b>Total Blanket Budget</b>	<b>\$ 910,600</b>	<b>\$ 910,600</b>	<b>\$ 1,083,600</b>	<b>\$ 988,200</b>	<b>\$ 1,126,000</b>	<b>\$1,126,000</b>
<b>TOTAL CAPITAL BUDGET</b>	<b>\$4,859,600</b>	<b>\$3,547,200</b>	<b>\$10,416,600</b>	<b>\$4,098,000</b>	<b>\$ 3,248,900</b>	<b>\$1,203,000</b>
<b>3-YEAR TOTAL:</b>					<b>\$18,525,100</b>	<b>\$ 8,848,200</b>
<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>						<b>\$ 9,676,900</b>
<b>3-YEAR TOTAL DIFFERENCE, (GSWC-ORA)/(GSWC):</b>						<b>52%</b>

2

### 1. Central Basin East – Replace Vehicles #2021 and 2056 (\$95,400)

GSWC requests \$95,400 for the replacement of Vehicles #2021, and 2056 (heavy-duty trucks) in 2016. For reasons identified in ORA’s testimony on vehicle replacements, ORA removes these vehicle replacements from this GRC’s capital budgets.

### 2. Artesia and Norwalk – Urban Water Management Plans (\$130,000)

GSWC requests \$130,000 in 2015 to update its UWMP for the Artesia and Norwalk systems. ORA does not oppose this request but recommends that the estimated cost be shifted from the 2015 to the 2016 capital budget. ORA’s Common Plant Issues testimony on UWMP provides the basis for the adjusted timeline.

11

1 **3. Central Basin East – Norwalk system, Studebaker Well #3 (\$3,678,900)**

2 GSWC requests \$538,900 in 2015 to design and \$3.14 million in 2016 to drill a new well at the  
3 Studebaker Plant in the Norwalk System. GSWC proposes to replace the lost capacity of the  
4 aging wells in the system with the construction of this well. According to GSWC, a majority of  
5 the wells in the Norwalk System are at least 60 years old and are either approaching or exceeding  
6 their physical life expectancy.<sup>168</sup> GSWC asserts that Well #1 at the Imperial Plant is over 85  
7 years old and has experienced problems with sand/gravel production due to the presence of a  
8 hole in the casing.<sup>169</sup> GSWC’s 2011 Norwalk System Water Master Plan identified Imperial  
9 Well #1, which has a capacity of 700 gallons per minute (gpm), **\*\*BEGIN CONFIDENTIAL\*\***

10 **[REDACTED]**<sup>170</sup> **\*\*END**

11 **CONFIDENTIAL\*\*** According to GSWC, it must replace the lost capacity of 700 gpm with  
12 either a replacement well or with additional purchased water from the Metropolitan Water  
13 District (MWD). GSWC asserts that installing an additional well at the Studebaker Plant will  
14 provide the Norwalk system with a reliable supply of groundwater and will allow GSWC “to  
15 avoid purchasing higher-cost imported water.”<sup>171</sup>

16 GSWC’s Norwalk water system provides water to approximately 9,400 customers with six active  
17 wells and purchased water via two MWD connections with a maximum day demand (MDD) of  
18 4,366 gpm in 2013.<sup>172</sup> **\*\*BEGIN CONFIDENTIAL\*\*** **[REDACTED]**

19 **[REDACTED]**<sup>173</sup> **\*\*END CONFIDENTIAL\*\*** In  
20 2014, GSWC drilled a new well at the Dace Plant with an expected capacity of 1,500 gpm,<sup>174</sup>  
21 increasing the Norwalk system’s total well capacity to 4,690 gpm. In 2013, the Norwalk system

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<sup>168</sup> GSWC Testimony of Robert McVicker and Mark Insko, p. 166, lines 22-26.

<sup>169</sup> Ibid, p. 167, lines 3-11.

<sup>170</sup> GSWC 2011 Norwalk System Water Master Plan, Section 8, p. 8-2, Table 8-1.

<sup>171</sup> GSWC Testimony of Robert McVicker and Mark Insko, p. 167, lines 17-18.

<sup>172</sup> GSWC Response to ORA Data Request, SN2-001, Question 1.

<sup>173</sup> GSWC Response to ORA Supplemental Data Request 7b provides 2013 well capacity and GSWC’s 2011 Norwalk Master Plan Table 2-4 provides MWD connections capacity.

<sup>174</sup> GSWC Response to ORA Supplemental Data Request 13.

1 produced 70% of the needed supply from its active wells and purchased 30% from MWD.<sup>175</sup>  
 2 With a total capacity of 18,140 gpm from its wells and purchased water, there is enough supply  
 3 capacity in the system to meet customers' demand in the Norwalk system.  
 4 Imperial Well #1 was constructed in 1918 with a design capacity of 800 gpm and a current  
 5 capacity of 700 gpm.<sup>176</sup> Although ORA does not dispute the fact that this well is near the end of  
 6 its physical life, it is important to determine how GSWC chose to replace the loss of production  
 7 with the retirement of this well. GSWC asserts that producing water from a new well at the  
 8 Studebaker Plant would save ratepayers approximately \$1,822,690 per year based on the  
 9 calculations seen below.<sup>177</sup>

Purchased Water Cost in Norwalk (\$/Acre-Foot)	\$ 967
Average Pumped Water Cost in Norwalk (\$/Acre-Foot)	\$ 402
<b>Cost Difference (\$/Acre-Foot)</b>	<b>\$ 565</b>
Anticipated Pumping Rate of Studebaker Well #3 (GPM)	2,000
Anticipated Pumping Rate of Studebaker Well #3 (Acre-Feet/Year)	3,226
<b>Total Savings</b>	<b>\$ 565/AF x 3,226 AF/yr</b>
	<b>\$ 1,822,690/yr</b>

10  
 11 GSWC's assessment of the cost savings is overly simplistic. First, GSWC's use of \$402 per AF  
 12 as the cost of pumped water in its analysis is too low and only represents the operating and  
 13 maintenance cost of pumped water. It does not take into account the cost to construct the  
 14 necessary facilities (well, pumps, pipelines, etc.) to produce and distribute water to customers.  
 15 Ratepayers will have to pay for these facilities in rates when GSWC includes the cost of these  
 16 facilities in rate base. At a minimum, the return on required capital investment, depreciation

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<sup>175</sup> GSWC Response to ORA Supplemental Data Request 7b provides 2013 well production information (total 1,520,840 ccf) and Attachment JA-001-1 (a response to ORA's data request) provides 2013 purchased water amount of 638,623 ccf.

<sup>176</sup> GSWC Annual Report, D-1 Plant Facility Index-Region II, 220 Norwalk Tab.

<sup>177</sup> GSWC Response to ORA Data Request JA-001, Question 1b.

1 expense, and taxes need to be considered in the cost of pumped water. Therefore, GSWC over-  
2 stated the cost savings of \$565 per AF. This amount is not as high as GSWC claimed, reducing  
3 the amount of savings.

4 Second, GSWC anticipates that a well drilled at the Studebaker Plant would be able to produce  
5 2,000 gpm of water. It should be noted that this is an anticipated production. There is no  
6 guarantee that the well can produce 2,000 gpm. Case in point is GSWC's proposed Bissell Well  
7 #3 in the Bell Gardens System, for which GSWC had anticipated a total yield of \*\* BEGIN  
8 CONFIDENTIAL\*\* [REDACTED].<sup>178</sup>\*\*END CONFIDENTIAL\*\* However, Bissell Well #3,  
9 completed in 2012, currently produces only 1,700 gpm of water.<sup>179</sup> In this case, the actual well  
10 production is only 70% of the anticipated production. This example demonstrates that the  
11 anticipated production is only an estimate and usually does not reflect the actual production once  
12 the well is completed.

13 Third, with a production of 2,000 gpm, GSWC calculated the annual production at 3,226 acre-  
14 feet. To arrive at this factor, GSWC used the following conversion:

15 
$$2,000 \text{ gallons per minute} / (1 \text{ acre foot per } 325,851 \text{ gallons}) * 60 \text{ minute per hour} * 24$$
  
16 
$$\text{hour per day} * 365 \text{ days per year} = 3,226 \text{ AFY}$$

17 The issue with using this formula is that GSWC assumes that a well with a pumping capacity of  
18 2,000 gpm will produce water at that rate 24 hours a day for 365 days per year. In reality,  
19 production wells are not expected to operate 100% of the time. As discussed in ORA's  
20 testimony on GSWC's Simone Well #2 project request, the company's Clair Well #5 began  
21 operations in 2012 and in 2013 only produced 56% of its full production capacity.

22 GSWC's estimated savings with the construction of a well at the Studebaker Plant of \$1.8  
23 million is overstated, because it is based on understated well construction costs and unrealistic  
24 production values, as described above. Therefore, GSWC's cost benefit analysis provides an  
25 inadequate and unreliable measure of the estimated benefits of constructing a new well. GSWC  
26 bears the burden of proof to show that the projects that the company proposes provide the

---

<sup>178</sup> GSWC Bell/Bell Gardens 2011 Master Plan, Table 2-2.

<sup>179</sup> GSWC Response to Minimum Data Request No. E.13.

1 greatest benefit to customers at the lowest cost, and to do so accurately. In this case, GSWC  
 2 failed to do so. Therefore, ORA recommends that the Commission deny GSWC’s request to  
 3 construct a new well at the Studebaker Plant.

4 **4. Central Basin East - Pipeline Replacements (\$11,477,100)**

5 **Table 9-I** lists GSWC’s requests and ORA’s recommendations on pipeline replacement projects  
 6 and budgets. ORA presents discussions on projects where ORA’s recommendation differs from  
 7 GSWC’s request.

8 **Table 9-I: Central Basin East, Pipeline Replacements**

CBE CSA	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
<b>Artesia</b>						
Alley w/o Arline, 207th to Centralia	\$ -	\$ -	\$ 206,900	\$ 188,400	\$ -	\$ -
Jersey Ave Alley Area Main Repl.	\$ -	\$ -	\$ 223,000	\$ -	\$ 1,933,300	\$ -
Seine Ave Area Main Repl.	\$ 358,100	\$ 35,100	\$ 3,132,800	\$ 527,100	\$ -	\$ -
<b>Norwalk</b>						
Cecilia Ave Area Main Repl.	\$ 426,000	\$ 386,800	\$ -	\$ -	\$ -	\$ -
Hermes St Area Main Repl.	\$ -	\$ -	\$ 2,189,300	\$ 1,945,700	\$ -	\$ -
Metro Center Dr Area Main Repl.	\$ 2,007,700	\$ 1,832,500	\$ -	\$ -	\$ -	\$ -
<b>Total Distribution Improvements</b>	<b>\$2,791,800</b>	<b>\$2,254,400</b>	<b>\$ 5,752,000</b>	<b>\$2,661,200</b>	<b>\$ 1,933,300</b>	<b>\$ -</b>
<b>3-YEAR TOTAL:</b>					<b>\$10,477,100</b>	<b>\$ 4,915,600</b>
<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>						<b>\$ 5,561,500</b>
<b>3-YEAR TOTAL DIFFERENCE, (GSWC-ORA)/(GSWC):</b>						<b>53%</b>

9  
 10 **6. Artesia System - Jersey Avenue, 3,650 feet (\$2.156 million)**

11 GSWC proposes to replace three segments of pipelines with approximately 3,260 feet of 8” DI  
 12 and 390 feet of 12” DI at an estimated cost of \$2.156 million. GSWC asserts that the three  
 13 segments need to be replaced because of the “age and condition.”<sup>180</sup> The existing 6” cast iron  
 14 (CI) pipeline is 77 years old and is located in an alley. GSWC asserts that “meter access is  
 15 difficult and unsafe” because of the pipeline’s alley location.<sup>181</sup> As shown in the figure below,  
 16 the three segments the Jersey Avenue project have a total of only one leak in the past five years,  
 17 and that leak occurred in 2011.

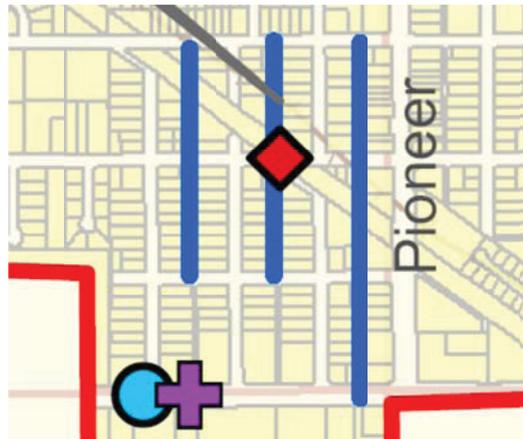
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<sup>180</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Ratebase, p. 55.

<sup>181</sup> Ibid, p. 55.

1

**Figure 9-B: Jersey Avenue Project – Leak Map**



2

3 According to GSWC’s Pipeline Management Program Report, CI pipes can last as long as 85  
 4 years in the Artesia area.<sup>182</sup> Since the pipelines only have one leak in the last five years (2009-  
 5 2013), they do not appear to be deteriorating prematurely. Therefore, it is more reasonable to  
 6 apply a longer life expectancy of 85 years to these pipelines in replacement planning.

7 GSWC is not the only utility with lines in customers’ backyard or alley. Other utilities,  
 8 including electric, gas, and other water utilities, manage to operate with their lines located in  
 9 customers’ backyards and alleys. Although these other utilities share GSWC’s access problems,  
 10 not every utility has a program to relocate their lines because the high cost of such a program  
 11 does not necessarily produce net savings to its ratepayers.

12 In summary, ORA recommends that the Commission deny GSWC’s request to replace these  
 13 pipelines in this GRC because neither their leak history, life expectancy, nor location (in alleys)  
 14 justify replacement at this time.

15 **7. Artesia system - Seine Avenue, 8,100 feet (\$3.49 million)**

16 GSWC proposes to replace eight non-continuous segments of pipelines with approximately  
 17 8,100 feet of 8” DI at an estimated cost of \$3.49 million. GSWC asserts that the eight segments  
 18 of pipelines need to be replaced because of the “leaks, age, and inaccessibility.”<sup>183</sup> The existing

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<sup>182</sup> GSWC’s Pipeline Management Program Report, p. 8-75.

<sup>183</sup> GSWC’s Region 2 Workpapers, Volume 2 of 3, Ratebase, p. 57.

1 pipelines range between 2” and 6” in diameter and are of CI and asbestos cement (AC) materials.  
2 GSWC’s testimony and subsequent response to ORA’s data request contain a discrepancy  
3 between the numbers of leaks. In its testimony, GSWC asserts that these pipelines are old and  
4 have had thirteen leaks in the past five years.<sup>184</sup> However, in a response to ORA’s Data Request,  
5 GSWC stated that there were only 5 leaks between 2009 and 2013.<sup>185</sup> Moreover, ORA  
6 examined the leak map provided by GSWC, shown in the figure below, and found that the eight  
7 pipeline segments had only four leaks in the last five years, not thirteen or five as reported by  
8 GSWC in its testimony and data response, respectively. Moreover, those leaks only occurred in  
9 two of the eight segments - one pipeline segment (Seine Avenue between 183<sup>rd</sup> and 187<sup>th</sup>) had  
10 three leaks and one segment (Ibex Avenue) had one leak in 2009, while the remaining six  
11 segments did not have any leaks in the last five years. A leak from 2011 did not belong to any of  
12 the eight pipeline segments that GSWC proposes to replace.

13

**Figure 9-C: Seine Avenue Project – Leak Map**



14

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<sup>184</sup> Ibid, p. 57.

<sup>185</sup> GSWC Response to ORA Data Request DK4-001.

1 Based upon the leak information shown above, ORA recommends replacement of only one of  
2 the eight segments - Seine Avenue between 183<sup>rd</sup> and 187<sup>th</sup>, which had three leaks in the past  
3 five years. Therefore, ORA adjusted the budget for this project accordingly - to \$562,200.<sup>186</sup>

4 **8. Norwalk system - Hermes Street, 5,670 feet (\$2.189 million)**

5 GSWC proposes to replace seven segments of pipeline with approximately 5,670 feet of 8” DI at  
6 an estimated cost of \$2.189 million. GSWC asserts that the replacement of these pipelines is  
7 necessary because they are located in customers’ backyard.<sup>187</sup> As shown in the figure below,  
8 only one leak occurred in 2009.

9 **Figure 9-D: Hermes Street Project – Leak Map**



10

11 As ORA stated above, replacing backyard mains is a costly program that GSWC has not  
12 demonstrated to produce net savings to its ratepayers. Therefore, ORA recommends that the  
13 Commission deny GSWC’s request for this project.

14 **G. CENTRAL BASIN WEST CSA**

15 The Central Basin East CSA consists of four water systems - Bell-Bell Gardens, Florence-  
16 Graham, Hollydale, and Willowbrook. **Table 9-J** below presents a summary of capital budgets  
17 for the Central Basin West CSA in Region 2.

---

<sup>186</sup> Absent cost estimate from GSWC for individual pipeline segment, ORA based its estimate on the length of each segment. Google map shows the distance for the Seine segment as 1,300 feet. Therefore, ORA adjusted the cost to 1,300 divided by 8,100 times the total cost.

<sup>187</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Ratebase, p. 61.

1

Table 9-J: Capital Budget Summary - Central Basin West CSA

CBW CSA	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
<b>Bell-Bell Gardens</b>						
Bell-Bell Gardens SCADA at CB-3	\$ 152,500	\$ 101,400	\$ -	\$ -	\$ -	\$ -
Bissell Bstrs B & C, upsize piping	\$ 494,400	\$ -	\$ -	\$ -	\$ -	\$ -
Gage Well #1, Priory Well #2, Dstry	\$ 17,100	\$ 16,300	\$ 118,900	\$ 113,500	\$ -	\$ -
<b>Florence-Graham</b>						
Ftrnc-Grhm SCADA at CB-5, 6, 12	\$ 457,500	\$ 436,800	\$ -	\$ -	\$ -	\$ -
Hampshire Tank Roof & Bstrs/Mtrs	\$ 929,300	\$ 886,900	\$ -	\$ -	\$ -	\$ -
Miramonte Wells #1&2, Pmps/Mtrs	\$ -	\$ -	\$ -	\$ -	\$ 1,107,700	\$ 1,057,300
<b>Hollydale</b>						
Coolidge Booster B VFD	\$ -	\$ -	\$ 13,800	\$ 13,200	\$ 95,600	\$ 91,200
McKinley Chem Building & Sump	\$ -	\$ -	\$ 30,200	\$ -	\$ 210,100	\$ -
<b>Willowbrook</b>						
Willowbrook SCADA at CB-51	\$ 152,500	\$ -	\$ -	\$ 104,200	\$ -	\$ -
<b>Total Water Supply</b>	<b>\$2,203,300</b>	<b>\$1,441,400</b>	<b>\$ 162,900</b>	<b>\$ 230,900</b>	<b>\$ 1,413,400</b>	<b>\$ 1,148,500</b>
Misc Street Improvements	\$ 91,000	\$ 91,000	\$ 94,000	\$ 94,000	\$ 97,000	\$ 97,000
<b>Total Street Improvements</b>	<b>\$ 91,000</b>	<b>\$ 91,000</b>	<b>\$ 94,000</b>	<b>\$ 94,000</b>	<b>\$ 97,000</b>	<b>\$ 97,000</b>
<b>Total Distribution Improvement</b>	<b>\$3,615,300</b>	<b>\$2,229,100</b>	<b>\$5,011,700</b>	<b>\$1,480,800</b>	<b>\$ 3,563,700</b>	<b>\$ 1,179,900</b>
UWMP - Bell-Bell Gardens System	\$ 65,000	\$ -	\$ -	\$65,000.00	\$ -	\$ -
UWMP - Florence-Graham System	\$ 65,000	\$ -	\$ -	\$65,000.00	\$ -	\$ -
<b>Total Miscellaneous</b>	<b>\$ 130,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 130,000</b>	<b>\$ -</b>	<b>\$ -</b>
Contingency Budget	\$ 87,100	\$ -	\$ 110,200	\$ -	\$ 102,600	\$ -
<b>Total Contingency Budget</b>	<b>\$ 87,100</b>	<b>\$ -</b>	<b>\$ 110,200</b>	<b>\$ -</b>	<b>\$ 102,600</b>	<b>\$ -</b>
New Business Funded by GSWC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total New Business</b>	<b>\$ -</b>	<b>\$ -</b>				
Meters	\$ 140,300	\$ 140,300	\$ 303,900	\$ 303,900	\$ 254,900	\$ 254,900
Services	\$ 301,900	\$ 301,900	\$ 310,100	\$ 310,100	\$ 318,500	\$ 318,500
Minor Main Repl.	\$ 284,000	\$ 284,000	\$ 291,700	\$ 291,700	\$ 299,500	\$ 299,500
Minor Pumping Plant Equipment	\$ 82,000	\$ 82,000	\$ 84,200	\$ 84,200	\$ 86,500	\$ 86,500
Minor Purification Equipment	\$ 4,100	\$ 4,100	\$ 4,200	\$ 4,200	\$ 4,400	\$ 4,400
Office Furniture and Equip.	\$ 14,800	\$ 14,800	\$ 15,200	\$ 15,200	\$ 15,600	\$ 15,600
Transportation Equipment						
Vehicle #1014	\$ -	\$ -	\$ 47,700	\$ -	\$ -	\$ -
Tools & Safety Equipment	\$ 43,900	\$ 43,900	\$ 45,100	\$ 45,100	\$ 46,300	\$ 46,300
<b>Total Blanket Budget</b>	<b>\$ 871,000</b>	<b>\$ 871,000</b>	<b>\$1,102,100</b>	<b>\$1,054,400</b>	<b>\$ 1,025,700</b>	<b>\$ 1,025,700</b>
<b>TOTAL CAPITAL BUDGET</b>	<b>\$6,997,700</b>	<b>\$4,632,500</b>	<b>\$6,480,900</b>	<b>\$2,990,100</b>	<b>\$ 6,202,400</b>	<b>\$ 3,451,100</b>
<b>3-YEAR TOTAL:</b>					<b>\$ 19,681,000</b>	<b>\$ 11,073,700</b>
<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>						<b>\$ 8,607,300</b>
<b>3-YEAR TOTAL DIFFERENCE, (GSWC-ORA)/(GSWC):</b>						<b>44%</b>

2

### 1. Central Basin West – Replace Vehicle #1014 (\$47,700)

3  
4 GSWC requests \$47,700 for the replacement of Vehicle #1014 (heavy-duty truck) in 2016. For  
5 reasons identified in ORA’s testimony on vehicle replacements, ORA removes this vehicle  
6 replacement from this GRC’s capital budgets.

1           **2. Central Basin West - Bell-Bell Gardens and Florence-Graham systems – Urban**  
2           **Water Management Plan (\$130,000)**

3 GSWC requests \$130,000 in 2015 to update its UWMP for the Bell-Bell Gardens and Florence-  
4 Graham systems. ORA does not oppose this request but recommends that the estimated cost be  
5 shifted from the 2015 to the 2016 capital budget. ORA’s Common Plant Issues testimony on  
6 UWMP provides the basis for the adjusted timeline.

7           **3. Central Basin West – Bell-Bell Gardens system, Bissell Boosters B and C**  
8           **(\$494,400)**

9 GSWC requests \$494,400 in 2015 to replace Booster Pumps B and C at the Bissell Plant with  
10 higher capacity pumps and motors. GSWC asserts that the production from the Bissell Plant is  
11 “limited by the booster pump capacity.” According to GSWC, the wells can produce 3,000 gpm  
12 and the combined capacity of the three booster pumps’ is only 2,200 gpm.<sup>188</sup> Therefore, GSWC  
13 proposes to upgrade the pump and motor for Booster Pump B to 1,200 gpm and those of Booster  
14 Pump C to 1,000 gpm.<sup>189</sup> With this project, GSWC is also requesting a variable frequency drive  
15 (VFD) at Booster C with a motor control center (MCC) and to upsize the effluent lines to 16-  
16 inch ductile iron pipe (DIP).

17 Water at the Bissell Plant is produced from two wells, stored in two reservoirs, and boosted to  
18 distribution. ORA found several inaccuracies and inconsistencies in GSWC’s presentation of  
19 capacity values at this Bissell Plant.

20 First, GSWC asserts in its testimony that the two existing wells at the Bissell Plant produce 3,000  
21 gpm of water - specifically Bissell #2 produces 1,000 gpm and Bissell #3 produces 2,000  
22 gpm.<sup>190</sup> Although Bissell #2 has a design capacity of 2,500 gpm, a liner reduces its capacity to  
23 1,000 gpm. In its response to both the Minimum Data Requirement (MDR) and the  
24 Supplemental Data Requirement (SDR), GSWC stated that the capacity of Bissell #3 is only  
25 1,700 gpm, not 2,000 gpm. Therefore, the total capacity of the two wells at the Bissell Plant is

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<sup>188</sup> GSWC Testimony of Robert McVicker and Mark Insko, p. 179, Lines 10-12.

<sup>189</sup> Ibid, Lines 14-15.

<sup>190</sup> Ibid, Line 9.

1 only 2,700 gpm as shown in **Table 9-K** below, and not 3,000 gpm as claimed in GSWC's  
2 testimony.

3 **Table 9-K. Bissell Plant – Well Capacity**

Wells	Capacity	Source of information
#2	1,000 gpm	GSWC's Region 2 Workpaper Volume 2, p. 76
#3	1,700 gpm	MDR E. 13; SDR 7b
<b>Total</b>	<b>2,700 gpm</b>	

4 Additionally, GSWC asserts that the existing capacity of the booster pump station is 2,200 gpm  
5 in its testimony but shows a capacity of 2,400 gpm in its workpapers.<sup>191</sup> ORA is unable to verify  
6 either of these estimates (2,200 gpm and 2,400 gpm) of booster capacity. GSWC's 2011 Bell-  
7 Bell Gardens Water Master Plan lists the booster capacity at the Bissell Plant at the much higher  
8 figure of **\*\*BEGIN CONFIDENTIAL\*\*** [REDACTED]

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]

[REDACTED]

[REDACTED] **\*\*END CONFIDENTIAL\*\*** Therefore,

12 the booster pump station capacity is not limiting the production of the wells as GSWC claims.

13 Furthermore, GSWC asserts that this project is identified in the 2011 Bell-Bell Gardens System

14 Water Master Plan as a recommended project based on a System Condition Assessment.

15 **\*\*BEGIN CONFIDENTIAL\*\*** [REDACTED]

[REDACTED]

[REDACTED]

17

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<sup>191</sup> GSWC Region 2 Workpapers, Volume 2, p. 76.

1

[Redacted]

2

[Redacted]

[Redacted]

8

[Redacted]

9

[Redacted]

[Redacted]

1

[REDACTED]

[REDACTED] END CONFIDENTIAL\*\*

9 In summary, ORA is unable to confirm GSWC’s assertion that the booster pump capacity at the  
10 Bissell Plant is limiting the well production capacity. In its support for this project, GSWC  
11 relied on an analysis that contained outdated data for well and pump capacities. GSWC at best  
12 failed to perform due diligence, or at worst manipulated data to overstate the need of this project.  
13 Therefore, ORA recommends that the Commission deny GSWC’s request to construct this  
14 project.

15 **4. Central Basin West – Florence Graham system, Hampshire Tank Roof and**  
16 **Boosters Upgrade (\$929,300)**

17 In 2015, GSWC requests \$139,200 to design and \$790,100 to upgrade the three existing pumps  
18 and motors, replace the existing tank roof, and install **Supervisory Control and Data**  
19 **Acquisition** (SCADA) at the Hampshire Plant. GSWC asserts that the northeastern service area  
20 (at elevation of 180 to 192 feet) of the Florence-Graham system experiences low pressure below  
21 40 pounds per square inch (“psi”) during periods of Average Day Demand (ADD), the wooden  
22 roof of the existing 0.25 MG tank has deteriorated, and that there is no SCADA at the plant.<sup>193</sup>

23 In prior GRC applications, GSWC proposed constructing a larger reservoir and a new booster  
24 station for an estimated cost of \$4.4 million (A. 08-07-010) to resolve claimed pressure

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<sup>192</sup> \*\* BEGIN CONFIDENTIAL\*

[REDACTED]

\* END CONFIDENTIAL\*\*

<sup>193</sup> GSWC Testimony of Robert McVicker and Mark Insko, pp. 185-188.

1 deficiency. In D.10-11-035, the Commission agreed with ORA that the reservoir and booster  
2 stations are not needed to address the pressure deficiency in the highest part of the system.<sup>194</sup>

3 In this application, GSWC is scaling down its proposal to provide additional pressure to the  
4 northeastern portion by upgrading the existing booster pumps and motors (in place of its earlier  
5 request for constructing a new 2.0 MG reservoir and booster station). GSWC asserts that  
6 upgrading the existing pumps “will resolve these deficiencies **without the construction of the**  
7 **reservoir.**”<sup>195</sup> [Emphasis added.] This is a much more modest plan than the previous proposal  
8 that would allow GSWC to address the same pressure issues. The existing booster pumps at the  
9 Hampshire Plant are ranked “low” to “fair” in recent pump tests and ORA agrees that they  
10 should be replaced in the near future.

11 GSWC states that the company began the design for this project “with funds from the 2012 rate  
12 case.”<sup>196</sup> GSWC has booked \$48,190 into the 2013 CWIP Budget.<sup>197</sup> Therefore, ORA reduced  
13 the design budget requested by GSWC by \$48,190. ORA recommends that the Commission  
14 approve this project with a budget of \$91,010 for design and \$790,100 for construction.

15 **5. Central Basin West – Hollydale system, McKinley Chemical Building and Sump**  
16 **(\$240,300)**

17 GSWC requests \$30,200 in 2016 to design and \$210,100 in 2017 to construct a replacement  
18 structure to house a sodium hypochlorite tank at the McKinley Plant. GSWC asserts that the  
19 new structure with recessed floors is needed to provide adequate containment for the chlorine  
20 tank, pump, and chemical discharge lines.<sup>198</sup> Sodium hypochlorite is currently stored in an  
21 enclosed fiberglass tank with a secondary tank in a wood structure as shown in the figures below:

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<sup>194</sup> Decision 10-11-035, p. 55.

<sup>195</sup> GSWC Testimony of Robert McVicker and Mark Insko, p. 187, Lines 22-23.

<sup>196</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Ratebase Sheet 82.

<sup>197</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Ratebase Sheet 31, WO# 22800329.

<sup>198</sup> GSWC Testimony of Robert McVicker and Mark Insko, p. 193, Lines 15-23.

1

**Figure 9-E: McKinley Chemical Building**



2

3 In support of its request, GSWC provided an excerpt (below) from the Hazardous Materials  
4 Storage Secondary Containment Guidelines (UN-083) prepared by Santa Clara County, which is  
5 based on Code of Federal Regulation (CFR) 40, Section 264.175.

*Secondary containment for a single container (tank) will be 110 percent of the primary container. Secondary containment for multiple containers will be 150 percent of the largest container's volume or 10 percent of the aggregate volumes of all containers, whichever is greater. The additional size provides a buffer to protect against splashing and overflow during a prompt release event, such as an earthquake or a tank rupture.*

6

7 Note that the excerpt above only specifies containment of **volume from the tank(s)** and does not  
8 specify containment requirements for pump and chemical discharge lines. Secondary  
9 containment of 110% is required for “single container (tank)” and 150% for “multiple  
10 containers.” It is neither necessary nor required to provide secondary containment for pump and  
11 chemical discharge lines because any spills from such appurtenances are less likely to be major.  
12 The current tank already has a secondary containment and is housed in a structure that meets the  
13 Hazardous Material Secondary Containment Guidelines stated above. Therefore, ORA  
14 recommends that the Commission deny GSWC’s request to construct a new chemical storage  
15 structure at the McKinley Plant.

1 **6. Central Basin West– Pipeline Replacements (\$12,190,700)**

2 **Table 9-M** lists GSWC’s requests and ORA’s recommendations for pipeline replacement  
 3 projects and budgets in the Central Basin West CSA. ORA presents discussions where its  
 4 recommendation differs from GSWC’s request.

5 **Table 9-M: Central Basin West – Pipeline Replacements**

CBW CSA	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
<b>Bell-Bell Gardens</b>						
Alley n/o Florence, Emil to end	\$ 184,500	\$ 134,200	\$ -	\$ -	\$ -	\$ -
Gifford Ave. Area Main Repl.	\$ -	\$ -	\$ 274,800	\$ 19,400	\$ 2,382,800	\$ 289,000
Sherman Way, Florence to Gage	\$ 965,400	\$ 246,400	\$ -	\$ -	\$ -	\$ -
<b>Florence-Graham</b>						
82nd St and 89th St	\$ 487,500	\$ 441,200	\$ -	\$ -	\$ -	\$ -
Alley w/c Cmpn Ave, 77th to 78th	\$ -	\$ -	\$ 25,400	\$ 12,100	\$ 265,000	\$ 180,100
Alley w/c Pace Ave, 92nd to 96th	\$ 582,400	\$ 528,500	\$ -	\$ -	\$ -	\$ -
Fir Ave. Area Main Repl	\$ 856,900	\$ 782,100	\$ -	\$ -	\$ -	\$ -
Maie Ave. Area Main Repl.	\$ 147,000	\$ 9,800	\$ 1,286,200	\$ 146,500	--	\$ -
Nadeau St. Area Main Repl.	\$ 159,000	\$ 86,900	\$ 1,391,300	\$ 1,302,800	--	\$ -
Slauson Ave Alley, MIbr to Pacific	\$ -	\$ -	\$ -	\$ -	\$ 378,800	\$ 209,000
<b>Hollydale</b>						
Merkel Ave and N. Somerset Rd	\$ -	\$ -	\$ -	\$ -	\$ 537,100	\$ 501,800
<b>Willowbrook</b>						
Wilmington, El Segundo, & 130th	\$ 232,600	\$ -	\$ 2,034,000	\$ -	--	\$ -
<b>Total Distribution Improvements</b>	<b>\$3,615,300</b>	<b>\$2,229,100</b>	<b>\$5,011,700</b>	<b>\$1,480,800</b>	<b>\$ 3,563,700</b>	<b>\$ 1,179,900</b>
<b>3-YEAR TOTAL:</b>					<b>\$12,190,700</b>	<b>\$ 4,889,800</b>
<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>						<b>\$ 7,300,900</b>
<b>3-YEAR TOTAL DIFFERENCE, (GSWC-ORA)/(GSWC):</b>						<b>60%</b>

6  
 7 **7. Bell/Bell Gardens, Gifford Avenue – 6,950 feet (\$2.66 million)**

8 GSWC proposes to replace five pipeline segments with approximately 6,950 feet of 8” DI at an  
 9 estimated cost of \$2.66 million. GSWC asserts that the five pipeline segments need to be  
 10 replaced to “address water quality issues, hydraulic deficiencies, age, material, and service  
 11 reliability of the existing pipelines.”<sup>199</sup>

12 Regarding GSWC’s “age, material and service reliability” claims, the existing pipelines are 4”  
 13 and 6” CI pipes and are 76 years old with no history of leakage in the last five years (2009-

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<sup>199</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Ratebase, p. 94.

1 2013).<sup>200</sup> These pipelines are still providing a service to customers with no evidence of service  
2 reliability failures.

3 Regarding GSWC’s “water quality issues” claims, the Bell-Bell Gardens Water System did not  
4 receive any citations from the Division of Drinking Water (DDW) for violating any water quality  
5 standards in the last three years. DDW indicated that GSWC’s Bell-Bell Gardens System is in  
6 compliance with all water quality standards.<sup>201</sup> In addition, GSWC’s October 2014 Report on  
7 Customer Service did not identify a water quality issue in the Bell-Bell Gardens system or any  
8 customer complaints regarding water quality from January to June 2014.<sup>202</sup> Therefore, ORA is  
9 unable to verify GSWC’s assertion of water quality issues associated with the existing pipelines  
10 in the Bell-Bell Gardens System.

11 Regarding GSWC’s “hydraulic deficiencies” claims, only two of the five proposed pipeline  
12 segments are needed to address hydraulic deficiencies as recommended in the Water Master Plan  
13 for the Bell-Bell Gardens System. **\*\*BEGIN CONFIDENTIAL\*\***The recommended pipeline  
14 projects identified as Alternative 1.19.0 are:<sup>203</sup>

- 15 1. Replace 130 feet of 4” CI Pipeline on Flora (Randolph St. and alley) with 8” DIP.
- 16 2. Install 600 feet of 8” DI on Randolph St. (between Flora and 10” main on Randolph  
17 St.)**\*\*END CONFIDENTIAL\*\***

18 Therefore, ORA recommends that the Commission approve replacement for only the above two  
19 segments (out of the five proposed) at a cost of \$308,400.<sup>204</sup>

## 20 **8. Bell/Bell Gardens, Sherman Way – 2,400 feet (\$965,400)**

21 GSWC proposes to replace 2,400 feet of an existing 76 year-old CI pipeline with 8” DI pipes at  
22 an estimated cost of \$965,400. GSWC asserts that the existing pipeline needs to be replaced

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<sup>200</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Ratebase, p. 94 and Response to ORA Data Request DK4-001, Leak History.

<sup>201</sup> DDW’s Lolito Bergato email to ORA’s Jenny Au, dated December 12, 2014.

<sup>202</sup> GSWC Measures to Improve Customer Services Report, dated October 1, 2014, p. 27.

<sup>203</sup> GSWC Water Master Plan for Bell/Bell Gardens System, p. 8-3, Table 8-2.

<sup>204</sup> Absent cost estimate information for each pipeline segment from GSWC, ORA based recommended cost on segment lengths (730 ft/6,950 ft times total estimated cost).

1 because of “leaks, material, and age.”<sup>205</sup> The existing 2”, 4”, and 6” cast iron (CI) pipeline is 76  
2 years old and had two leaks in the last five years (2009-2013).<sup>206</sup> A close examination of the  
3 leak data shows that the leaks occurred at 6813 Sherman Way on November 12, 2013, and at  
4 6819 Sherman Way on April 15, 2013. The locations of the leaks indicate that the leaks are  
5 confined to the 6800 blocks of Sherman Way. However, GSWC is proposing to replace over  
6 2,400 feet of pipeline from the 6400 block to the 7100 block of Sherman Way. It is not  
7 necessary for GSWC to replace the entire 2,400 feet of pipeline because the existing pipelines  
8 are made of different segments (pipelines of varying sizes ranging from 2” to 6”).” Therefore,  
9 ORA recommends that the Commission only approve approximately 400 feet of pipeline  
10 replacement on Sherman Way - between Southall Lane and Bell Avenue - at a cost of  
11 \$264,600.<sup>207</sup>

#### 12 **9. Florence-Graham, Maie Avenue – 3,450 feet (\$1.433 million)**

13 GSWC proposes to replace four pipeline segments totaling 3,450 feet at an estimated cost of  
14 \$1.433 million. GSWC asserts that the existing pipelines are recommended to be replaced by the  
15 Water Master Plan’s Conditional Assessment to “address leaks, water quality issues, hydraulic  
16 deficiencies, and age.”<sup>208</sup> GSWC in its workpapers states that the existing 2” steel and 8” CI  
17 pipelines are 78 years old and had three leaks in the past five years.<sup>209</sup> However, GSWC’s Leak  
18 History Worksheet provided in response to ORA’s data request shows that there are no leaks in  
19 these segments between 2009 and 2013.<sup>210</sup> In addition, ORA is only able to verify that two of  
20 the four proposed pipeline segments are needed to address hydraulic deficiencies as  
21 recommended in the Water Master Plan for the Florence Graham System. \*\*BEGIN

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<sup>205</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Ratebase, p. 96.

<sup>206</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Ratebase, p. 96 and GSWC Response to ORA Data Request DK4-001, Leak History.

<sup>207</sup> Absent cost estimate information for each pipeline segment from GSWC, ORA based recommended cost on segment lengths (730 ft/6,950 ft times total estimated cost).

<sup>208</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Ratebase, Sheet 106.

<sup>209</sup> Ibid.

<sup>210</sup> GSWC Response to ORA Data Request DK4-001, Leak History.

1 CONFIDENTIAL\*\* [REDACTED]

[REDACTED]

[REDACTED]

4 [REDACTED] \*\*END CONFIDENTIAL\*\* Yet, GSWC is requesting  
5 3,450 feet of pipeline replacement. ORA recommends that the Commission only approve  
6 replacement of the segment noted above at a cost of \$156,300.<sup>211</sup>

7 **a. Willowbrook, Wilmington, El Segundo, and 190th St – 3,800 feet (\$2.27**  
8 **million)**

9 GSWC proposes to replace 3,800 feet of 4” and 6” CI pipelines at an estimated cost of \$2.27  
10 million. GSWC asserts that the existing pipelines need to be replaced because of “age and  
11 material.”<sup>212</sup> Although the pipelines are 86 years old, they did not have any leaks in the last five  
12 years (2009-2013).<sup>213</sup> Replacing pipelines that have not had any leaks is premature and not cost  
13 efficient. Therefore, ORA recommends that the Commission deny GSWC’s request to replace  
14 these pipelines.

15 **H. CULVER CITY CSA**

16 The Culver City CSA consists of only one water system - Culver City. **Table 9-N** below  
17 presents a summary of capital budgets for the Culver City CSA in Region 2.

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<sup>211</sup> Absent cost estimate information for each pipeline segment from GSWC, ORA based recommended cost on segment lengths (300ft/3,450 ft times total estimated cost).

<sup>212</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Ratebase, Sheet 114.

<sup>213</sup> GSWC Response to ORA Data Request DK4-001, Leak History.

1

Table 9-N: Capital Budget Summary - Culver City CSA

Culver City CSA	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
WB-24, WB-34, Upgd Vault&SCADA	\$ 618,900	\$ -	\$ -	\$ 530,100	\$ -	\$ -
WB-23, Rlct Vault & install SCADA	\$ 593,700	\$ -	\$ -	\$ 582,600		\$ -
Baldwin Hills Booster Station	\$ -	\$ -	\$ 386,900	\$ -	\$ 2,237,100	\$ -
Baldwin Hills Site Drain Pipe	\$ 442,800	\$ 422,700	\$ -	\$ -	\$ -	\$ -
Charmock Plant, dstry Wells #9&#10	\$ 12,000	\$ 11,500	\$ 83,900	\$ 80,100	\$ -	\$ -
Perham Plant Upgrades	\$ 383,900	\$ -	\$ 2,238,300	\$ -	\$ -	\$ -
<b>Total Water Supply</b>	<b>\$2,051,300</b>	<b>\$ 434,200</b>	<b>\$2,709,100</b>	<b>\$1,192,800</b>	<b>\$ 2,237,100</b>	<b>\$ -</b>
Higuera Bridge Pipeline Repl.	\$ 535,100	\$ 510,800	\$ -	\$ -	\$ -	\$ -
Misc Street Improvements	\$ 82,000	\$ 82,000	\$ 85,000	\$ 85,000	\$ 88,000	\$ 88,000
<b>Total Street Improvements</b>	<b>\$ 617,100</b>	<b>\$ 592,800</b>	<b>\$ 85,000</b>	<b>\$ 85,000</b>	<b>\$ 88,000</b>	<b>\$ 88,000</b>
<b>Total Distribution Improvements</b>	<b>\$4,959,800</b>	<b>\$ 833,900</b>	<b>\$2,529,400</b>	<b>\$2,205,400</b>	<b>\$ 1,834,000</b>	<b>\$ 1,730,900</b>
UWMP - Culver System	\$ 65,000	\$ -	\$ -	\$ 65,000	\$ -	\$ -
<b>Total Miscellaneous</b>	<b>\$ 65,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 65,000</b>	<b>\$ -</b>	<b>\$ -</b>
Contingency Budget	\$ 63,000	\$ -	\$ 75,900	\$ -	\$ 85,600	\$ -
<b>Total Contingency Budget</b>	<b>\$ 63,000</b>	<b>\$ -</b>	<b>\$ 75,900</b>	<b>\$ -</b>	<b>\$ 85,600</b>	<b>\$ -</b>
New Business Funded by GSWC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total New Business</b>	<b>\$ -</b>	<b>\$ -</b>				
Meters	\$ 115,100	\$ 115,100	\$ 230,000	\$ 230,000	\$ 313,100	\$ 313,100
Services	\$ 107,900	\$ 107,900	\$ 110,800	\$ 110,800	\$ 113,800	\$ 113,800
Minor Main Repl.	\$ 377,600	\$ 377,600	\$ 387,800	\$ 387,800	\$ 398,200	\$ 398,200
Minor Pumping Plant Equipment	\$ 12,400	\$ 12,400	\$ 12,800	\$ 12,800	\$ 13,100	\$ 13,100
Minor Purification Equipment	\$ 400	\$ 400	\$ 400	\$ 400	\$ 400	\$ 400
Office Furniture and Equip.	\$ 8,300	\$ 8,300	\$ 8,500	\$ 8,500	\$ 8,800	\$ 8,800
Transportation Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Tools & Safety Equipment	\$ 4,500	\$ 4,500	\$ 4,600	\$ 4,600	\$ 4,700	\$ 4,700
Additions to General Structures	\$ 4,000	\$ 4,000	\$ 4,100	\$ 4,100	\$ 4,300	\$ 4,300
<b>Total Blanket Budget</b>	<b>\$ 630,200</b>	<b>\$ 630,200</b>	<b>\$ 759,000</b>	<b>\$ 759,000</b>	<b>\$ 856,400</b>	<b>\$ 856,400</b>
<b>TOTAL CAPITAL BUDGET</b>	<b>\$8,386,400</b>	<b>\$2,491,100</b>	<b>\$6,158,400</b>	<b>\$4,307,200</b>	<b>\$ 5,101,100</b>	<b>\$ 2,675,300</b>
<b>3-YEAR TOTAL:</b>					<b>\$19,645,900</b>	<b>\$ 9,473,600</b>
<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>						<b>\$10,172,300</b>
<b>3-YEAR TOTAL DIFFERENCE, (GSWC-ORA)/(GSWC):</b>						<b>52%</b>

2

### 1. Culver City System – Urban Water Management Plan (\$65,000)

GSWC requests \$65,000 in 2015 to update its UWMP for the Culver City system. ORA does not oppose this request but recommends that the estimated cost be shifted from the 2015 to the 2016 capital budget. ORA’s Common Plant Issues testimony on UWMP provides the basis for the adjusted timeline.

### 2. Culver City, Baldwin Hill Booster Station and Perham Plant Upgrades (\$5.32 million)

In this GRC, GSWC requests *two* projects to serve the Perham/Lenawee Pressure Zone: the Perham Plant Upgrades and Baldwin Hills Booster Station.

### Perham Plant Upgrades (\$2,6 million)

12

1 GSWC requests \$383,900 to design and \$2.238 million to construct upgrades at the Perham Plant  
2 in 2015 and 2016, respectively. GSWC asserts that the four existing booster pumps at the plant  
3 have reached the end of their useful lives and need to be replaced.<sup>214</sup> GSWC proposes to replace  
4 Booster B, upgrade Booster C with a 1,500 gpm pump, and demolish Booster D. GSWC also  
5 plans additional upgrades: installing SCADA, electrical equipment upgrades (transformer, MCC,  
6 PLC, and stationary generator), concrete pads, fencing, site grading, and piping. The combined  
7 project cost is estimated at \$2.6 million. GSWC asserts that the upgrades are necessary to  
8 “maintain a reliable supply for the Culver City System.”<sup>215</sup>

9 The Perham Plant consists of a 0.25 MG tank and four booster pumps. The Perham Plant serves  
10 approximately 193 customers in both the Perham and Lenawee Pressure Zones. The combined  
11 maximum day demand (MDD) for these two zones is 118 gpm in 2013.<sup>216</sup> \*\* BEGIN

12 CONFIDENTIAL\*\* [REDACTED]

[REDACTED]

[REDACTED].<sup>217</sup> \*\* END CONFIDENTIAL\*\* It should be noted that although

15 the MDD for the Perham/Lenawee Zones is 118 gpm, the fire flow requirement for the zone is  
16 1,500 gpm. Therefore, GSWC is operating its system to provide 1,500 gpm to the area.

17 GSWC’s testimony in this rate case filing states that pump test data from 2012 indicates that the  
18 booster pumps rank “Low” to “Fair” based on the pumps’ overall efficiency (A-54.4%, B-  
19 44.25%, C-55.7%, and D-3%).<sup>218</sup> However, GSWC's Response to the Commission’s Minimum  
20 Data Requirements (MDR) in this filing shows a rating of “Good” to “Excellent” for the pumps  
21 in 2012 based on the overall efficiency.<sup>219</sup> Information from these two sources is summarized in  
22 **Table 9-O** below.

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<sup>214</sup> GSWC Testimony of Robert McVicker and Mark Insko, pp. 209-210.

<sup>215</sup> GSWC Testimony of Robert McVicker and Mark Insko, p. 211, lines 7-10.

<sup>216</sup> GSWC Response to ORA Data Request JA-002, Question 2a.

<sup>217</sup> GSWC Culver City Water Master Plan, System Schematic, Figure 2-2 and 2013 Annual Report, Schedule D-1 Plant Facility Index – Region II Metropolitan, Tab 236 – Culver City.

<sup>218</sup> GSWC Testimony of Robert McVicker and Mark Insko, pp. 209-210,

<sup>219</sup> GSWC Response to MDR Question F.8.

1

**Table 9-O: Perham Plant – Pump Efficiency Data**

Booster Pump	Pump Test Overall Efficiency from GSWC Testimony <sup>220</sup>			Pump Test Overall Efficiency from MDR F.8	
	Test #1	Test #2	Test #3	Overall Efficiency	Rating
Booster A – 150 gpm	71.1%	68.9%	54.4% 71	.1%	Excellent
Booster B – 150 gpm		62.2%	44.2% 62	.2%	Excellent
Booster C – 750 gpm	65.5%	55.7% 6		5.5%	Good
Booster D – 1500 gpm	3.0%				

2 Although three tests were performed, GSWC selectively presented in its testimony only the  
3 lowest efficiency results from the tests (see data highlighted in the above table). An examination  
4 of the test conditions between the tests performed shows that the test that yield the highest  
5 efficiency was performed at a discharge pressure that mimics the system’s pressure which is 129  
6 psi.<sup>221</sup> For example, for Booster A, Test #1 was performed with a discharge pressure of 130 psi.  
7 The discharge pressure was 155 psi for Test #2, and 166 psi for Test #3 – both of these discharge  
8 pressure levels are far above the normal operating pressure for these zones. Therefore, the most  
9 valid efficiency test results that should be considered are the ones that were performed under  
10 normal operating conditions - i.e., those reported on GSWC’s MDR Response. Because  
11 Boosters B and C are rated “Excellent” and “Good,” respectively, ORA finds GSWC’s assertion  
12 of the need to replace Boosters B and C unfounded.

13 In addition, GSWC has a history of requesting unnecessary projects at the Perham Plant. This is  
14 the third consecutive GRC that GSWC requests to either upgrade or replace the boosters and  
15 install electrical upgrades. In its last GRC, A.11-07-017, GSWC requested to upgrade all the  
16 booster pumps and the MCC at the Perham Plant and to modify piping at an estimated cost of  
17 \$560,900.<sup>222</sup> GSWC also asserted that replacing the pumps would “maintain a reliable supply

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<sup>220</sup> Attachment CC06 – Perham Boosters Pump Test Data from GSWC Testimony of Robert McVicker and Mark Insko.

<sup>221</sup> Ibid.

<sup>222</sup> GSWC A. 11-07-017 Workpapers, Project Cost Estimates for Perham Upgrades.

1 for the Culver City System.”<sup>223</sup> In that GRC, ORA (then DRA) agreed with the project scope  
 2 and cost and recommended funding for the requested projects. However, GSWC did not  
 3 construct the projects as proposed, and is now, in this GRC, requesting to accomplish the same  
 4 goal with additional scope at an estimated cost of almost four times the budget from the last  
 5 GRC. The additional scope in this GRC, which includes installing fencing and a stationary  
 6 generator and upgrading the electrical services, resulted in a 400% budget increase.

7 GSWC also requested to upgrade the motors for Boosters A and D two rate cases ago, in A.08-  
 8 07-010. In both A.11-07-017 and A.08-07-010, ORA agreed with the scope and recommended  
 9 construction of the proposed projects, and the costs were included in the estimated ratebase used  
 10 to set rates in those two GRCs. However, those funded projects remained incomplete. ORA  
 11 questions GSWC’s commitment to construct these projects and the need of these projects, since  
 12 they have been proposed since 2007, and authorized in two previous GRCs (at a lesser scope but  
 13 for the same reasons) and no progress has been made. **Table 9-P** below shows the history of the  
 14 progressively large- scale projects that GSWC has requested for the Perham Plant.

15 **Table 9-P: Perham Plant – History of Requests to Address Pressure Issues**

<b>Description</b>	<b>A.08-07-010</b>	<b>A.11-07-017</b>	<b>A.14-07-006</b>	
Install Fencing	\$64,989		\$2,622,000	
Regrade Site	\$65,886	\$103,200		
Upgrade MCC	\$72,012	\$243,000		
Install SCADA				
Install PLC		\$317,900		
Upgrade Motors A & D	\$56,224			
Replace Pumps A, B, C & D				
Upgrade Motors B & C				
Install Stationary Generator				
Upgrade Electrical Service				
<b>Total</b>	\$259,111	\$664,100		\$2,622,000
<b>% Increase from previous GRC</b>		<b>256%</b>		<b>395%</b>

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<sup>223</sup> GSWC Prepared Testimony of Ernest Gisler, Adrian Combes, Mark Insko, and Dane Sinagra in A. 11-07-017, p. 244, lines 3-5.

1 Since GSWC is also requesting another project in this GRC to serve the same Perham/Lenawee  
2 Zones, ORA’s recommendation for this project will follow the discussion of the Baldwin Hills  
3 Booster Station.

4 **Baldwin Hills Booster Station (\$2.6 million)**

5 GSWC requests \$386,900 to design and \$2.237 million to construct a new booster station at the  
6 Baldwin Hills Plant in Test Years 2016 and 2017, respectively. GSWC asserts that constructing  
7 a new booster station at the Baldwin Hills Plant to pump water from the Baldwin Hills Reservoir  
8 directly into the Perham Zone (see preceding section on the Perham Plant) will improve the  
9 pressure, water quality, and reliability in the water system.<sup>224</sup> GSWC proposes to install two 200  
10 gpm pumps and one 1,500 gpm pump, MCC, SCADA, and a 3,700 feet pipeline at a total  
11 estimated cost of \$2.624 million. ORA has reviewed each of the issues that GSWC proposes to  
12 address with the construction of this project. In the following subsections, ORA addresses each  
13 of the reasons provided by GSWC as support for this project.

14 *To Improve Pressure:*

15 GSWC asserts that “very low pressures have been observed in the distribution system in these  
16 two (Perham and Lenawee) zones.”<sup>225</sup> ORA is unable to verify GSWC’s assertion of a low  
17 pressure observations because GSWC does “not have pressure survey information for the  
18 Perham and Lenawee Zones.”<sup>226</sup> In lieu of pressure records, GSWC provided records of low-  
19 pressure complaints from customers. In the last ten years (2004 to 2013), GSWC received 25  
20 low-pressure complaints. GSWC determined that thirteen complaints of low pressure were  
21 caused by the customer’s own plumbing and twelve complaints were caused by the system’s  
22 pressure.<sup>227</sup> GSWC’s employees identify the following specific issues contributing to the  
23 system’s low pressure:

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<sup>224</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 205, lines 1-3.

<sup>225</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 204, lines 23-24.

<sup>226</sup> GSWC Response to ORA Data Request JA-002, Question 2d.

<sup>227</sup> GSWC Response to ORA Data Request DG-002.

- Equipment malfunctions at the Perham Booster station;
- Equipment malfunctions at the Wrightcrest Pressure Reducing Station;
- Loss of electrical power resulting in delay to start natural gas engine booster pump;
- Problems resulting from meter change out activities (partially opened curb stop)
- Water outage caused by main break.

1 It is apparent that GSWC has been aware of the issues with equipment malfunctions at the  
2 Perham Booster Station for quite a while and has been proposing projects to rectify the problems  
3 in three GRCs to date. As explained in the preceding section on the Perham Plant, although  
4 ORA supported funding for projects upgrade and replace pumping and electrical equipment in  
5 the last two GRCs and the Commission authorized the requested funding in rates, GSWC  
6 repeatedly elected to not construct these projects. In this GRC, GSWC is again proposing to  
7 upgrade/replace pumps, upgrade electrical equipment, and install a stationary generator at the  
8 Perham Plant. The proposed projects would have addressed the issues associated with  
9 equipment malfunctions and loss of electrical power to minimize the potential loss of pressure in  
10 the system identified by GSWC’s employees as the causes of lack of pressure in the zone. It is  
11 not necessary for GSWC to construct a new booster station at the Baldwin Plant to correct  
12 operation problems identified at the Perham Plant.

13 Additionally, it is unclear how the construction of a new booster station in the Baldwin Hills site  
14 will alleviate or eliminate the effects of low pressure in the system caused by meter change out  
15 activities and water outage due to main breaks. On the contrary, pumping additional water at  
16 higher pressure to the Perham and Lenawee Zones will likely cause more main breaks due to the  
17 increase in pressure.

18 Moreover, although GSWC claims that a new booster station is needed to address a low-pressure  
19 problem in the Perham and Lenawee Zones, the company is unable to provide pressure data to  
20 substantiate a pressure deficiency in the zones. Instead, GSWC was only able to provide 25  
21 customer complaints – most of which it determined were caused by the customer’s plumbing - to  
22 substantiate its claims. ORA’s evaluation of the causes of pressure complaints indicates that

1 GSWC has other options of maintaining adequate pressure for the system – namely, upgrading  
2 and replacing pumping equipment at the Perham Plant as authorized and funded in prior GRCs.  
3 Therefore, ORA found GSWC’s premise to construct a new booster station at the Baldwin Hills  
4 site in order to provide adequate pressure for the Perham and Lenawee Zones unreasonable.

5 To Improve Water Quality

6 GSWC has been experiencing nitrification with the water stored in the Baldwin Hills Reservoirs  
7 and constructed tank mixers in 2012 to rectify the problem.<sup>228</sup> Nitrification typically occurs as a  
8 result of water stagnating in the distribution system or in the reservoirs. There is not enough of a  
9 water turn-over rate in the Baldwin Hills Reservoirs. Currently, there are two 1.0 MG reservoirs  
10 located at the Baldwin Hills Plant, which serves the Main Zone by gravity. Although the MDD  
11 of the Main Zone is 4,180 gpm in 2013,<sup>229</sup> there is \*\* BEGIN CONFIDENTIAL \*\* [REDACTED]  
[REDACTED].<sup>230</sup>\*\* END

13 CONFIDENTIAL\*\* The source of supply exceeds the demand by over four times. There  
14 simply is too much water in the system. According to GSWC, the mixers that GSWC installed  
15 in the Baldwin Hills Reservoirs have not been effective in preventing nitrification,<sup>231</sup> and,  
16 therefore, the construction of the new booster station would allow GSWC to utilize more water  
17 stored in the Baldwin Hills Reservoirs by pumping it up to the Perham and Lenawee Zones and  
18 then allowing it to flow back to the Main Zone. This would allow GSWC to circulate water and  
19 minimize the occurrence of stagnation and nitrification.

20 ORA objects to GSWC’s solution for several reasons. First, ORA questions the reasonableness  
21 and cost effectiveness of pumping water to the higher elevation zones (Perham and Lenawee) so  
22 that the water can flow down to the Main Zone in order to circulate the water. In addition to the

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<sup>228</sup> GSWC Response to MDR D.6 WO 23611133.

<sup>229</sup> GSWC Response to ORA Data Request SN2-001, Question 1 indicates the 2013 MDD for the Culver City System is 4,495 gpm. The 2011 Culver City Master Plan shows that the demand in the Main Zone is 93% of the system’s demand. ORA calculated the 2013 MDD for the Main Zone as 93% of 4,495 gpm, yielding 4,180 gpm.

<sup>230</sup> GSWC 2011 Culver City Master Plan, p. 5-5, Table 5-5.

<sup>231</sup> GSWC Response to ORA Data Request JA-004, Question 3b.

1 substantial investment to construct the booster station, there would be increased costs associated  
2 with increases power consumption from pumping, an incremental cost impact not considered in  
3 GSWC cost analysis. Second, GSWC has the option of \*\* BEGIN CONFIDENTIAL\*\* [REDACTED]

4 [REDACTED]  
5 [REDACTED] <sup>232</sup>\*\* END CONFIDENTIAL\*\* The 2011 estimated cost of installing chlorine  
6 treatment and tank circulation system at both Baldwin reservoirs is \$500,000. Adding a chlorine  
7 system is a less costly alternative to control nitrification in the system than constructing a new  
8 booster station. Therefore, GSWC’s proposal to construct a booster station at the Baldwin Plant  
9 at a cost of \$2.6 million to resolve water quality issues is not reasonable because it ignores the  
10 less costly remedy of installing chlorine treatment.

11 *To Improve Reliability*

12 According to GSWC, the new Baldwin Hills Booster Station is needed to provide a “new source  
13 of supply” to the Perham and Lenawee Zones.<sup>233</sup> GSWC made the following assertions:

- 14 1. According to GSWC, “the Perham and Lenawee Zones currently have only one source of  
15 supply,”<sup>234</sup> namely the Perham Booster Station.
- 16 2. Since the Perham and Lenawee Zones have only one source of supply, GSWC is  
17 proposing to construct a new booster station to meet the Division of Drinking Water’s  
18 (DDW, formerly known as CDPH) requirement to develop a secondary source of supply  
19 to reliably meet system demands.<sup>235</sup>
- 20 3. The 2007 Water Master Plan for the Culver City System “identifies the need for this  
21 booster station.”<sup>236</sup>

22 First, GSWC’s assertion that “the Perham and Lenawee Zones currently have only one source of  
23 supply” is misleading. GSWC neglects to mention the fact that there are two booster pumps at  
24 the Lenawee Booster Pump Station that pump water from the Main Zone to the Perham Zone

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<sup>232</sup> GSWC 2011 Culver City Water Master Plan, p. 7-2, Section 7.6.  
<sup>233</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 206, lines 8-11.  
<sup>234</sup> GSWC Region 2 Workpapers, Volume 2, Sheet No. 128.  
<sup>235</sup> GSWC Responses to ORA Data Requests JA-002, Question 2b, and JA-005, Question 1b.  
<sup>236</sup> GSWC Response to ORA Data Request JA-002, Question 2b.

1 which then flows to the Lenawee Zone through the Wrightcrest and Stoneview PRV. The  
2 combined capacity of the Lenawee booster pumps is \*\*BEGIN CONFIDENTIAL\*\*  
3 **END CONFIDENTIAL**.<sup>237</sup> The Perham Booster Station pumps water from the Main  
4 Zone to the Perham and Lenawee Zones. The Lenawee Booster Station also pumps water from  
5 the Main Zone to the Perham and Lenawee Zones. There are two separate pumping/booster  
6 stations, and hence two separate and independent sources of supply providing water to the  
7 Perham and Lenawee Zones.

8 Second, although GSWC provided a copy of the CDPH/DDW’s discussion of “having two  
9 sources of supply to provide reliability,” the company was not able to provide any evidence that  
10 the discussion is specific to the Perham/Lenawee Zones.<sup>238</sup> As explained by the DDW in the  
11 highlighted portion of the DDW’s input below,<sup>239</sup> when the DDW determines that a system is  
12 unable to provide water at a reliable level, DDW would require the water company to submit a  
13 plan to increase source capacity; otherwise, the DDW cannot make such a requirement.

2. Do you agree that it is a good practice for all community water systems to have the capability to meet Maximum Day demand (“MDD”) with the highest-capacity source off line?

Yes, provided that the system relies primarily on groundwater. If that is the case, then adequate reliability would be to have sufficient sources to meet MDD with the highest capacity well off-line. If the primary source is surface water, then the use of groundwater is a secondary or back-up supply. Again, the goal should be to have sufficient reliability to meet MDD safely. When a system is unable to reliably supply its customers, CDPH requires a plan to increase the system’s source capacity; otherwise, CDPH can not make that a requirement.

14  
15 GSWC did not receive any directive from DDW requiring the company to increase source  
16 capacity in the Perham and Lenawee Zones.<sup>240</sup> DDW has not found a reliability issue in the

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<sup>237</sup> GSWC Culver City Water Master Plan, System Schematic, Figure 2-2 and 2013 Annual Report Schedule D-1 Plant Facility Index – Region II Metropolitan, Tab 236 – Culver City.

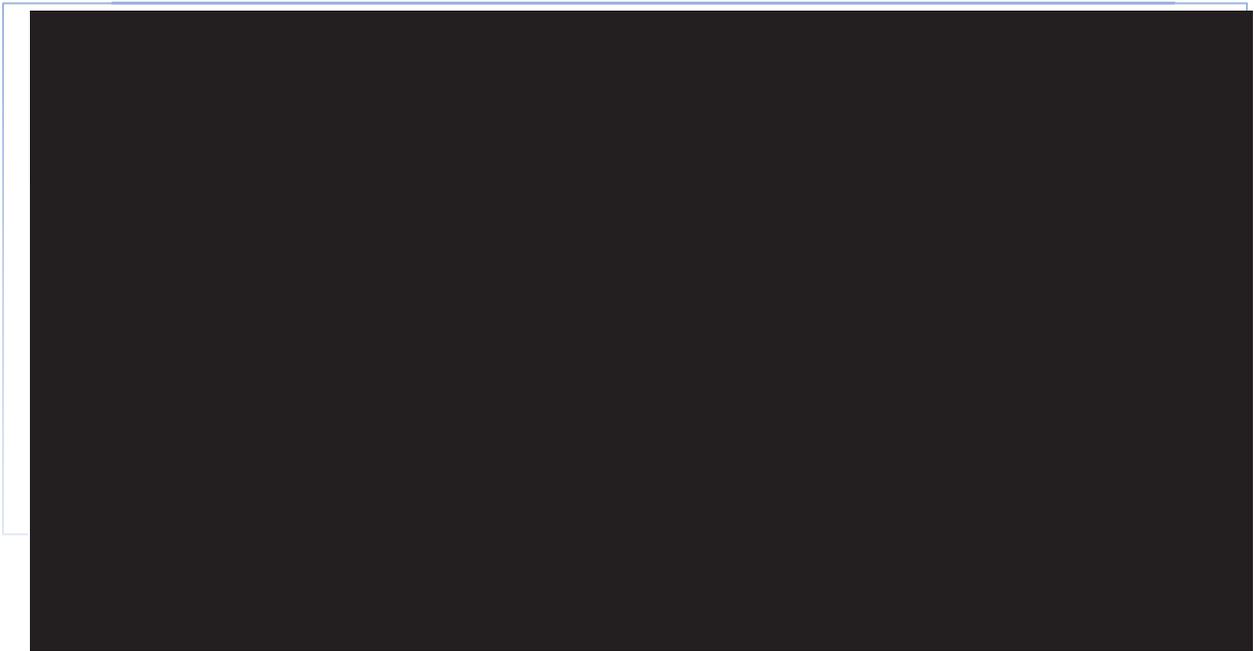
<sup>238</sup> GSWC Response to ORA Data Request JA-005, Question 1b.

<sup>239</sup> GSWC Attachment JA-002-8, CDPH’s Letter to GSWC dated April 6, 2010.

<sup>240</sup> GSWC Response to ORA Data Request JA-005, Question 1c.

1 Culver City system in the Perham and Lenawee Zones to warrant imposing a requirement on  
2 GSWC to increase source capacity.

3 Lastly, GSWC claims that the construction of a booster station was a project recommended in the  
4 2007 Water Master Plan for the Culver City System. GSWC also claims that the 2010 Master  
5 Plan did not consider an emergency/power outage situation and therefore did not identify the  
6 construction of this booster station.<sup>241</sup> It is important to note that the most current Water Master  
7 Plan (dated June 2011) does not identify the construction of a booster station at the Baldwin Hills  
8 Plant as either a short-term or long-term Condition Assessment Project. Therefore, GSWC  
9 wants the Commission to consider information from an outdated Master Plan (2007) rather than  
10 one that has been updated to reflect more current information and recommendations on this water  
11 system. It is also important to consider the following information regarding planning process  
12 and how projects are recommended as shown on pages iii and 8-1 from GSWC's June  
13 2011 Water Master Plan (below). **\*\*BEGIN CONFIDENTIAL\*\***



14

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<sup>241</sup> GSWC Response to ORA Data Request JA-002, Question 2b.



1

2 \*\*END CONFIDENTIAL\*\*

3 As shown above, GSWC’s Master Plans are prepared with the most current data to reflect the  
4 existing system and its conditions at the time of the report. It should be noted that the current  
5 Master Plan considers “recommendations from the previous condition assessments that were not  
6 installed” (see quotation above). It is difficult for ORA to evaluate what changes took place in  
7 the system that no longer necessitate the construction of the Baldwin Hills Booster Station in the  
8 most recent Master Plan. ORA finds GSWC’s explanation that the latest Water Master Plan did  
9 not consider an emergency/power outage situation unlikely and unreasonable, since the June

10 2011 Water Master Plan clearly states \*\*BEGIN CONFIDENTIAL\*\* [redacted]

11 [redacted].<sup>242</sup>\*\*END CONFIDENTIAL\*\* It is reasonable for ORA  
12 and the Commission to assume that the latest Water Master Plan submitted by GSWC presents  
13 the most up to date information and valid recommendations. If that basic assumption on the  
14 Water Master Plans is not valid, then GSWC should be required to explain why to the  
15 Commission.

16 In summary, GSWC requests two overlapping and redundant projects at the Perham and Baldwin  
17 Hills sites for a total sum of \$5.32 million to provide water for approximately 193 customers in  
18 the Perham and Lenawee Zones. The many improvements that GSWC (repeatedly) proposes for

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<sup>242</sup> GSWC 2011 Culver City Master Plan, p. 8-1, Section 8.2.1.

1 the Perham Plant are designed to facilitate a reliable water supply for the Perham and Lenawee  
2 Zones. However, GSWC also seeks to construct a new booster station at the Baldwin Hills Plant  
3 to provide a secondary source of supply for the same 193 customers in the Perham and Lenawee  
4 Zones because GSWC asserts that the Perham Plant does not provide a reliable source of supply.  
5 GSWC even provided the following information to support its request to construct the new  
6 booster station.

The Perham Zone and the Lenawee Zone are currently served by the Perham Booster Pump Station, which consists of four pumps. If one pump fails, the other three pumps could serve these zones. However, the pump station is located near a potential landslide area, and the proximity of the Inglewood-Newport Fault increases the chance for a landslide at the site as a result of seismic activity. Consequently, a supply deficiency would exist if the Perham Booster Pump Station were compromised or destroyed in such an event.

243

7  
8 If the above concerns are true, it is surprising that GSWC has invested and continues to want to  
9 add substantial investments on this supposedly seismically vulnerable site - constructing over  
10 \$1.55 million of improvement since 2007 and proposing another \$2.2 million of improvements  
11 in this GRC.<sup>244</sup>

12 As ORA explained earlier, GSWC has proposed to upgrade/replace booster pumps and electrical  
13 equipment at the Perham Plant in at least three GRCs to improve water delivery to 193 customers  
14 in the Perham/Lenawee Zones. However, GSWC has not constructed these approved projects.  
15 GSWC now wants the Commission to approve a new booster station to also improve water  
16 delivery to the same 193 customers that the previously approved upgrades were supposed to  
17 achieve. The combined cost of these two projects is over \$5.3 million to serve 193 customers  
18 who use 2.3% of the water in the system.<sup>245</sup> ORA recognizes that the 193 customers in these two  
19 zones need to have a reliable source of supply and has recommended approval of the projects

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<sup>243</sup> GSWC Response to JA-002-014, Attachment JA-002-14, 2007 Master Plan Section 7.

<sup>244</sup> GSWC Response to ORA Data Request JA-002, Question 4.

<sup>245</sup> GSWC Response to ORA Data Request JA-002, Question 2a. The 2013 ADD in the Perham/Lenawee Zones is 84 gpm and the 2013 ADD for the Culver City system is 3,586 gpm (GSWC's Response to ORA Data Request SN-001, Question 1). ORA calculated the Perham/Lenawee Zones' demand percentage by the zones' demand by the total system's demand = 84 gpm/3,586 gpm = 2.3%.

1 proposed in the past GRCs. However, as demonstrated above, both of the projects requested in  
 2 this GRC are not needed. Therefore, ORA recommends that the Commission deny GSWC’s  
 3 current GRC’s requests and require that the company provide a more definite and cost effective  
 4 plan to address identified issues in the Perham/Lenawee Zones.

5 **3. Culver City- Pipeline Replacements (\$9,323,200)**

6 **Table 9-Q** lists GSWC’s requests and ORA’s recommendations for pipeline replacement  
 7 projects and budgets in the Culver City CSA. ORA presents discussions where its  
 8 recommendation differs from GSWC’s request.

9 **Table 9-Q: Culver City, Pipeline Replacements**

Culver City CSA	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
College Ave and Matteson Ave	\$ 532,800	\$ -	\$ -	\$ -	\$ -	\$ -
Wesley St. Area Main Repl.	\$ -	\$ -	\$ 211,400	\$ 116,400	\$ 1,834,000	\$ 1,730,900
Garfield Ave and Huntley Ave	\$ 471,800	\$ -	\$ -	\$ -	\$ -	\$ -
Le Bourget Ave. Area Main Repl.	\$ 962,400	\$ -	\$ -	\$ -	\$ -	\$ -
McDonald St. Area Main Repl.	\$ 239,500	\$ 129,800	\$ 2,094,700	\$ 1,946,800	\$ -	\$ -
Tuller Ave, Venice tofrwy Ramp	\$ 21,300	\$ 9,500	\$ 223,300	\$ 142,200	\$ -	\$ -
Culver Blvd. Area Main Repl.	\$ 2,732,000	\$ 694,600	\$ -	\$ -	\$ -	\$ -
<b>Total Distribution Improvements</b>	<b>\$4,959,800</b>	<b>\$ 833,900</b>	<b>\$2,529,400</b>	<b>\$2,205,400</b>	<b>\$ 1,834,000</b>	<b>\$ 1,730,900</b>
<b>3-YEAR TOTAL:</b>					<b>\$ 9,323,200</b>	<b>\$ 4,770,200</b>
<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>					<b>\$ 4,553,000</b>	
<b>3-YEAR TOTAL DIFFERENCE, (GSWC-ORA)/(GSWC):</b>					<b>49%</b>	

10  
 11 **4. Culver City, College Ave & Matteson Ave – 1,100 feet (\$532,800)**

12 GSWC proposes to replace 1,100 feet of 4” CI pipelines on College Avenue and Matteson  
 13 Avenue at an estimated cost of \$532,800. GSWC asserts that these pipelines need to be replaced  
 14 “to address hydraulic deficiencies, material, and age of the existing pipeline.”<sup>246</sup> According to  
 15 GSWC’s PMP Report, CI pipes can last as long as 87 years in the Culver City system.<sup>247</sup> The  
 16 existing pipelines are 77 years old and have no history of leaks in the last five years.<sup>248</sup>  
 17 Furthermore, this project is not identified as a recommended improvement based on a hydraulic

<sup>246</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 138.

<sup>247</sup> GSWC’s PMP Report, p. 8-108.

<sup>248</sup> Ibid, Sheet 138 and GSWC Response to ORA Data Request DK4-001, Leak History.

1 analysis performed as part of the Water Master Plan. In other words, ORA is unable to verify  
2 GSWC’s assertion that this project is needed to “address hydraulic deficiencies.” Because these  
3 factors show inadequate support for replacement, ORA recommends that the Commission deny  
4 GSWC’s request for this project.

5 **5. Culver City, Garfield Ave & Huntley Ave – 700 feet (\$471,800)**

6 GSWC proposes to replace 700 feet of 4” CI pipelines on Garfield Avenue and Huntley Avenue  
7 at an approximate cost of \$471,800. GSWC asserts that these pipelines need to be replaced “to  
8 address leaks and age.”<sup>249</sup> This pipeline is 62 years old with one leak in 2010.<sup>250</sup> According to  
9 GSWC’s PMP Report, CI pipes can last as long as 87 years in the Culver City system.<sup>251</sup> Since  
10 the pipelines only had one leak in the last five years (2009-2013), they do not appear to be  
11 deteriorating prematurely. Therefore, ORA recommends that the Commission deny GSWC’s  
12 request for this project.

13 **6. Culver City, Le Bourget Avenue – 2,600 feet (\$962,400)**

14 GSWC proposes to replace 2,600 feet of 4” and 6” pipelines on Le Bourget Avenue and Revere  
15 Place at an estimated cost of \$962,400. GSWC asserts that these pipelines need to be replaced  
16 “to address leaks and age of the existing pipelines.”<sup>252</sup> The existing pipelines are 79 years old.<sup>253</sup>  
17 Between 2009 and 2013, three leaks occurred at these pipeline segments with two leaks  
18 occurring in 2009 on Revere Place and one leak occurring on Le Bourget Avenue in 2012. The  
19 pipelines’ ages and sporadic occurrences of leaks on these two segments of pipelines indicate  
20 that increased monitoring of these pipelines’ conditions is needed. However, immediate  
21 replacement of these pipelines is unwarranted. Therefore, ORA recommends that the  
22 Commission deny GSWC’s request to replace these two pipelines.

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<sup>249</sup> Ibid, Sheet 142.

<sup>250</sup> Ibid, Sheet 142 and GSWC Response to ORA Data Request DK4-001, Leak History.

<sup>251</sup> GSWC’s PMP Report, p. 8-108.

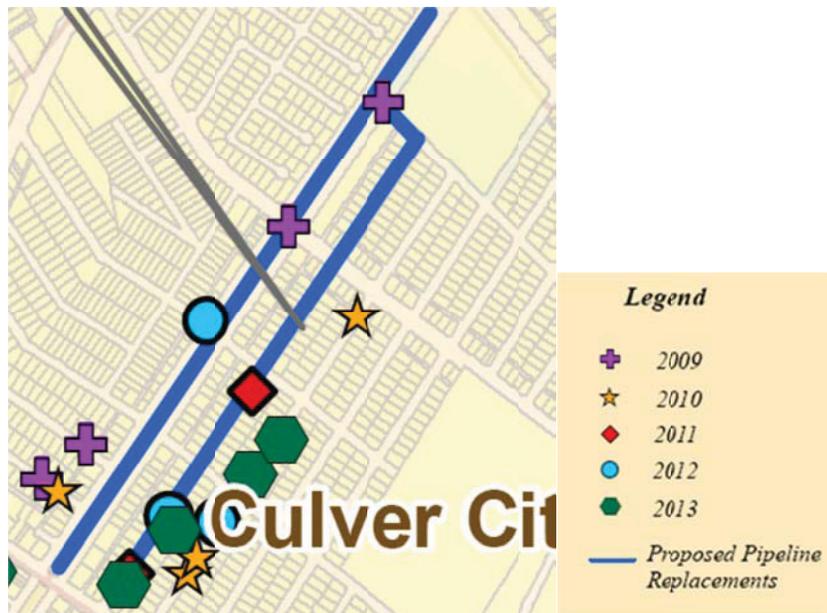
<sup>252</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 144.

<sup>253</sup> Ibid, Sheet 144.

1        **7. Culver City, Culver Blvd, Wagner Street & alley – 7,000 Feet (\$2,732,000)**

2 GSWC proposes to replace 7,000 feet of 4” and 6” pipelines on Culver Boulevard, Wagner  
3 Boulevard, and adjacent alley at an estimated cost of \$2,732,000. GSWC asserts that these  
4 pipelines need to be replaced “to address leaks, age, and material of the existing pipelines.”<sup>254</sup>  
5 The pipelines are 71 years old and have had six leaks between 2009 and 2013.<sup>255</sup> Based on the  
6 leak map shown below, there were three leaks that have occurred at different times on Culver  
7 Boulevard and three leaks on Wagner Boulevard. Over 50% of the lengths of the proposed  
8 replacement pipelines do not have any leaks.

9                    **Figure 9-F: Culver Blvd, Wagner Street & alley Project – Leak Map**



10  
11 Considering the age and sporadic occurrences of leaks, ORA recommends that the Commission  
12 only approve the replacement of a segment of the pipelines on Wagner Street at a cost of  
13 \$694,600.<sup>256</sup>

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<sup>254</sup> Ibid, Sheet 150.

<sup>255</sup> Ibid, Sheet 223.

<sup>256</sup> Absent cost estimate information for each pipeline segment from GSWC, ORA based its recommended cost on segment lengths (1,600ft/7,000 ft times total estimated cost). Google map shows the distance of Wagner Street (from Sepulveda to Huron) as 0.3 mile (or 1,600 feet)

1 **I. SOUTHWEST DISTRICT OFFICE**

2 **Table 9-R** below presents a summary of capital budgets for the Southwest CSA in Region 2.

3 Differences in ORA’s and GSWC’s estimates are due to ORA’s disallowance of the Contingency  
 4 budget as explained in ORA’s Common Plant Issues testimony.

5 **Table 9-R: Capital Budget Summary – Southwest District Office**

Southwest District Office	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
Contingency Budget	\$ 6,500	-	\$ 6,700	-	\$ 15,500	-
<b>Total Contingency Budget</b>	<b>\$ 6,500</b>	<b>\$ -</b>	<b>\$ 6,700</b>	<b>\$ -</b>	<b>\$ 15,500</b>	<b>\$ -</b>
Office Furniture and Equip.	\$ 18,100	\$ 18,100	\$ 18,600	\$ 18,600	\$ 19,100	\$ 19,100
Transportation Equipment						
Vehicle #1101	\$ 34,900	\$ 34,900	\$ -	\$ -	\$ -	\$ -
Vehicle #2030	\$ -	\$ -	\$ 35,800	\$ 35,800	\$ -	\$ -
Vehicle #67516	\$ -	\$ -	\$ -	\$ -	\$ 36,800	\$ 36,800
Tools & Safety Equipment	\$ 11,800	\$ 11,800	\$ 12,100	\$ 12,100	\$ 12,400	\$ 12,400
<b>Total Blanket Budget</b>	<b>\$64,800</b>	<b>\$64,800</b>	<b>\$66,500</b>	<b>\$66,500</b>	<b>\$ 68,300</b>	<b>\$ 68,300</b>
<b>TOTAL CAPITAL BUDGET</b>	<b>\$71,300</b>	<b>\$64,800</b>	<b>\$73,200</b>	<b>\$66,500</b>	<b>\$ 83,800</b>	<b>\$ 68,300</b>
<b>3-YEAR TOTAL:</b>					<b>\$228,300</b>	<b>\$199,600</b>
<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>					<b>\$ 28,700</b>	
<b>3-YEAR TOTAL DIFFERENCE, (GSWC-ORA)/(GSWC):</b>					<b>13%</b>	

6  
 7 **J. SOUTHWEST CSA**

8 The Southwest CSA consists of only one water system - Southwest. **Table 9-S** below presents a  
 9 summary of capital budgets for the Southwest CSA in Region 2.

1

Table 9-S: Capital Budget Summary - Southwest CSA

Southwest CSA	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
Chadron Plant Drainage Connection	\$ -	\$ -	\$ 11,900	\$ 11,300	\$ 82,600	\$ 78,900
Dalton Well #1, Replace MCC	\$ -	\$ -	\$ 17,000	\$ 16,200	\$ 117,800	\$ 112,500
Southwest SCADA at Interconnections	\$ 664,700	\$ -	\$ -	\$ -	\$ -	\$ 671,000
Wadsworth Plant, Destroy East Tank	\$ 11,900	\$ 11,300	\$ 82,500	\$ 78,800	\$ -	\$ -
WB-11, Abandon; WB-15, Upgrade	\$ 702,400	\$ -	\$ -	\$ -	\$ -	\$ 439,100
Yukon, Flex-Tends & Isolation Valve	\$ -	\$ -	\$ -	\$ -	\$ 110,500	\$ 105,500
<b>Total Water Supply</b>	<b>\$ 1,379,000</b>	<b>\$ 11,300</b>	<b>\$ 111,400</b>	<b>\$ 106,300</b>	<b>\$ 310,900</b>	<b>\$ 1,407,000</b>
Misc Street Improvements	\$ 512,000	\$ 512,000	\$ 528,000	\$ 528,000	\$ 544,000	\$ 544,000
<b>Total Street Improvements</b>	<b>\$ 512,000</b>	<b>\$ 512,000</b>	<b>\$ 528,000</b>	<b>\$ 528,000</b>	<b>\$ 544,000</b>	<b>\$ 544,000</b>
<b>Total Distribution Improvements</b>	<b>\$22,646,200</b>	<b>\$10,288,500</b>	<b>\$14,784,300</b>	<b>\$5,113,000</b>	<b>\$14,618,700</b>	<b>\$ 4,938,600</b>
Chadron Plant, Site Remediation 2015	\$ 300,000	\$ -	\$ -	\$ -	\$ -	\$ -
Chadron Plant, Site Remediation 2016	\$ -	\$ -	\$ 300,000	\$ -	\$ -	\$ -
Chadron Plant, Site Remediation 2017	\$ -	\$ -	\$ -	\$ -	\$ 300,000	\$ -
<b>Total Water Quality</b>	<b>\$ 300,000</b>	<b>\$ -</b>	<b>\$ 300,000</b>	<b>\$ -</b>	<b>\$ 300,000</b>	<b>\$ -</b>
UWMP - Southwest System	\$ 65,000	\$ -	\$ -	\$ 65,000	\$ -	\$ -
<b>Total Miscellaneous</b>	<b>\$ 65,000</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 65,000</b>	<b>\$ -</b>	<b>\$ -</b>
Contingency Budget	\$ 246,800	\$ -	\$ 252,400	\$ -	\$ 316,100	\$ -
<b>Total Contingency Budget</b>	<b>\$ 246,800</b>	<b>\$ -</b>	<b>\$ 252,400</b>	<b>\$ -</b>	<b>\$ 316,100</b>	<b>\$ -</b>
New Business Funded by GSWC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total New Business</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
Meters	\$ 295,600	\$ 295,600	\$ 256,700	\$ 256,700	\$ 869,500	\$ 869,500
Services	\$ 253,300	\$ 253,300	\$ 260,100	\$ 260,100	\$ 267,100	\$ 267,100
Minor Main Repl.	\$ 1,718,200	\$ 1,718,200	\$ 1,764,600	\$ 1,764,600	\$ 1,812,200	\$ 1,812,200
Minor Pumping Plant Equipment	\$ 114,300	\$ 114,300	\$ 117,300	\$ 117,300	\$ 120,500	\$ 120,500
Minor Purification Equipment	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300
Office Furniture and Equip.	\$ 22,300	\$ 22,300	\$ 22,900	\$ 22,900	\$ 23,500	\$ 23,500
Transportation Equipment						
Vehicle #1030	\$ 46,400	\$ -	\$ -	\$ -	\$ -	\$ -
Vehicle #2192	\$ -	\$ -	\$ 47,700	\$ -	\$ -	\$ -
Vehicle #67497	\$ -	\$ -	\$ 35,800	\$ 35,800	\$ -	\$ -
Vehicle #2044	\$ -	\$ -	\$ -	\$ -	\$ 49,000	\$ -
Tools & Safety Equipment	\$ 17,000	\$ 17,000	\$ 17,500	\$ 17,500	\$ 17,900	\$ 17,900
<b>Total Blanket Budget</b>	<b>\$ 2,468,400</b>	<b>\$ 2,422,000</b>	<b>\$ 2,523,900</b>	<b>\$2,476,200</b>	<b>\$ 3,161,000</b>	<b>\$ 3,112,000</b>
<b>TOTAL CAPITAL BUDGET</b>	<b>\$27,617,400</b>	<b>\$13,233,800</b>	<b>\$18,500,000</b>	<b>\$8,288,500</b>	<b>\$19,250,700</b>	<b>\$10,001,600</b>
<b>3-YEAR TOTAL:</b>					<b>\$ 65,368,100</b>	<b>\$ 31,523,900</b>
<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>					<b>\$ 33,844,200</b>	
<b>3-YEAR TOTAL DIFFERENCE, (GSWC-ORA)/(GSWC):</b>					<b>52%</b>	

2

### 1. Southwest CSA – Replace Vehicles #1030, 2192, and 2044 (\$143,100)

GSWC requests \$143,100 for the replacement of Vehicles #1030, 2192, and 2044 (heavy-duty trucks) in 2015, 2016, and 2017, respectively. For reasons identified in ORA’s testimony on vehicle replacements, ORA removes these vehicle replacements from this GRC’s capital budgets.

### 2. Southwest CSA – Urban Water Management Plan (\$65,000)

GSWC requests \$65,000 in 2015 to update its UWMP for the Southwest system. ORA does not oppose this request but recommends that the estimated cost be shifted from the 2015 to the 2016

1 capital budget. ORA’s Common Plant Issues testimony on UWMP provides the basis for the  
2 adjusted timeline.

3 **3. Southwest, Abandon WB-11 and Upgrade WB-15 (Total \$702,400 in 2015)**

4 GSWC requests \$702,400 to abandon MWD interconnection vault WB-11 and to upgrade MWD  
5 interconnection vault WB-15 in the Southwest System. GSWC asserts that the WB-11 is a  
6 redundant interconnection, has not been used in many years and should be abandoned to reduce  
7 the maintenance cost. According to GSWC, the vault that houses MWD interconnection WB-15  
8 is located in the street and is not equipped with safety features such as a spring-assisted lid and a  
9 ladder with safety post. Therefore, GSWC is requesting to install safety features at the existing  
10 WB-15 vault. Although ORA does not object to the needs of these two projects, ORA finds that  
11 GSWC over-estimated the costs of both projects. ORA takes issue with a “concrete driveway”  
12 item that GSWC includes in its WB-11 budget. GSWC estimated the cost of this budget line or  
13 work item at \$184,000 (4,000 feet times \$46/foot). Although GSWC describes the work item as  
14 a “concrete driveway,” GSWC is using a unit cost of \$46, which is for “concrete curb and gutter”  
15 work.<sup>257</sup> It is unlikely that GSWC needs to install 4,000 feet of “concrete curb and gutter” in a  
16 vault abandonment project. Since this is a vault abandonment, it is reasonable to conclude that  
17 the concrete work is to restore the surface above the to-be-abandoned vault and no gutter  
18 installation is needed. In a separate MWD interconnection vault relocation project, GSWC’s  
19 estimate for “surface restoration” is \$24,000.<sup>258</sup> Therefore, ORA adjusts the cost of this line item  
20 to \$24,000 and recommends that the Commission only approve \$439,100 for this project.

21 **4. Region 2, MWD Connections, install SCADA (\$2.6 million)**

22 GSWC requests \$2.6 million in 2015 to install SCADA at fifteen MWD interconnections in  
23 Region 2. GSWC asserts that installing SCADA will allow its operators “to monitor and run the  
24 MWD connections efficiently.”<sup>259</sup> According to GSWC, when GSWC draws more water than  
25 MWD’s meter can record or takes water at a fluctuating rate that exceeds 10% of the design

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<sup>257</sup> GSWC Region II Unit Cost Worksheet, Tab 2013, Line 467.

<sup>258</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 127, Line Item #5.

<sup>259</sup> GSWC Testimony of Robert McVicker and Mark Insko, p. 225, Lines 1-2.

1 capacity of the meter, MWD assesses a penalty known as a flow violation, which averages  
2 \$225,500 annually.<sup>260</sup> GSWC went on to state that SCADA will allow GSWC operators to  
3 monitor its flow and control the flow through MWD’s connections and “avoid paying these  
4 penalties.”<sup>261</sup>

5 The main purpose for installing SCADA is to allow GSWC operators greater control of water  
6 flow and subsequently reduce the annual flow violation penalties that GSWC paid to MWD for  
7 the Southwest System. Therefore, ORA recommends that the Commission approve this project  
8 and remove \$252,099<sup>262</sup> from the expenses that the company forecasted in its expense for flow  
9 violation penalties; this adjustment is reflected in ORA’s O&M testimony. The SCADA system  
10 should eliminate the company’s need to pay this penalty in the future, and therefore the expense  
11 is no longer needed.

12 In addition, GSWC estimates the cost of each SCADA system at \$97,637 (2013 dollars). In  
13 2013, GSWC installed SCADA systems at five MWD interconnections with cost ranging from  
14 \$46,365 to \$97,637.<sup>263</sup> GSWC’s estimated cost in this GRC is over 2.1 times the lowest 2013  
15 project cost and is therefore unreasonable. GSWC has already loaded its latest project cost  
16 estimates with a 15% design factor (applicable to estimated construction cost), 3.1% annual  
17 escalation factors, and 10% contingency factor to shield the company from cost uncertainties.  
18 Given these additional loading factors, particularly the contingency factor, there is no reason for  
19 GSWC to use the highest cost as the baseline for its project cost estimates. It is more reasonable  
20 and appropriate to use the average construction cost of \$67,973 from the five projects completed  
21 in 2013 to develop cost estimates for proposed MWD interconnection SCADA projects.

22 Furthermore, GSWC is proposing to install a total of fifteen SCADA systems in this GRC in  
23 2015. ORA recommends that GSWC install five systems per year (2015, 2016, and 2017) to

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<sup>260</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 224, Lines 21-24.

<sup>261</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 224, Lines 24-25.

<sup>262</sup> GSWC Summary of Flow Violations 4 year Average, Attachment SW03 to GSWC Prepared Testimony of Robert McVicker and Mark Insko.

<sup>263</sup> GSWC Region 2 Unit Cost Worksheet, Tab 2013, Line 489.

1 spread the cost of the projects over the three-year rate cycle, which will lessen the impact of an  
2 increase in rate base in the Test Year. ORA’s recommended budget estimates include the  
3 adjustments discussed above.

4 **5. Southwest, Chadron Site Remediation (FP 2471154-02, WO 25003254) (\$2.1**  
5 **million)**

6 GSWC requests \$300,000 per year for years 2015 through 2017 to clean up the contaminated soil  
7 and groundwater caused by a leaking underground storage tank previously operated at the  
8 Chadron Plant. GSWC also included \$671,363 in end of year 2013 “CWIP” Balance and  
9 \$560,266 in the 2015 “CWIP” Budget.<sup>264</sup> In total, GSWC requests over \$2.1 million for site  
10 remediation activities with \$900,000 in its proposed capital budgets and \$1,231,629 in “CWIP.”  
11 GSWC asserts that the company needs \$300,000 per year to continue remedial activities by  
12 “providing free product removal using multi-phase extraction (MPE), in-situ chemical oxidation  
13 (ISCO) remediation, and semi-annual groundwater monitoring, sampling, and reporting.”<sup>265</sup> In  
14 August 2014, Aquilogic, GSWC’s new environmental consultant for this project, “developed a  
15 strategy for site/case closure that is estimated to cost approximately \$1,301,000.”<sup>266</sup> Aquilogic  
16 proposes to conduct a pilot project to inject a surfactant into the ground to dissolve the trapped  
17 contaminant for recovery.<sup>267</sup>

18 GSWC’s predecessor, Southern California Water Company, operated a 6,000-gallon gasoline  
19 underground storage tank and dispenser to fuel vehicles at the Chadron Plant, which it removed  
20 in 1990.<sup>268</sup> The underlying soil and groundwater were found to be impacted with gasoline-  
21 related compounds also known as total petroleum hydrocarbon (TPH). Since the discovery of  
22 TPH contamination at the plant, GSWC has spent over \$4.1 million to assess and clean up the  
23 problem and received \$1.5 million in reimbursements from the State Water Resources Control

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<sup>264</sup> GSWC Region 2 Workpapers, Volume 2 of 3, Sheet 32.

<sup>265</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p 231, lines 1-4.

<sup>266</sup> GSWC Response to ORA Data Request JA-003, Question 4.

<sup>267</sup> Aquilogic’s Surfactant Pilot Test Work Plan, October 2014, p. 4, LAWRQCB’s Geotracker - [http://geotracker.waterboards.ca.gov/esi/uploads/geo\\_report/6745790600/T0603704001.PDF](http://geotracker.waterboards.ca.gov/esi/uploads/geo_report/6745790600/T0603704001.PDF).

<sup>268</sup> GSWC Prepared Testimony of Robert McVicker and Mark Insko, p. 231, lines 7-11.

1 Board (SWRCB) Underground Storage Tank (UST) Cleanup Fund.<sup>269</sup> Between 1998 and 2012,  
2 GSWC employed a variety of remediation technologies at the site including electrokinetic  
3 enhanced bioventing/soil vapor extraction, free product removal, and multiphase extraction.<sup>270</sup>  
4 According to the Los Angeles Regional Water Quality Control Board (LARWQCB), remedial  
5 activities have removed approximately 1,631 gallons of free product and 1.8 million gallons of  
6 contaminated water from the underlying groundwater.<sup>271</sup>

7 The SWRCB recognizes that petroleum releases in the environment have the ability to naturally  
8 attenuate and pose a low threat to human health and the environment. In 2012, the SWRCB  
9 issued a policy for Low-Threat Underground Storage Tank Case Closure (LTCP). SWRCB’s  
10 LTCP policy states the following:

11 The State Water Board also recognizes that the technical and economic resources  
12 available for environmental restoration are limited and that the highest priority for these  
13 resources must be the protection of human health and environmental receptors. Program  
14 experience has demonstrated the ability of remedial technologies to mitigate a substantial  
15 fraction of a petroleum contaminant mass with the investment of a reasonable level of  
16 effort. **Experience has also shown that residual contaminant mass usually remains**  
17 **after the investment of reasonable effort, and that this mass is difficult to completely**  
18 **remove regardless of the level of additional effort and resources invested.**<sup>272</sup>  
19 [Emphasis added.]

20 ORA’s review indicates that GSWC has made a “reasonable level of effort” to clean up the  
21 petroleum impact soil and groundwater at the site with over 16 (1998 to present) years of  
22 remedial activities.<sup>273</sup> The main source of contamination, which was the 6,000-gallon tank, was  
23 removed in 1990 and the level of free product has been reduced to a level that is “not

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<sup>269</sup> GSWC Response to ORA Data Request JA-004, Question 4.

<sup>270</sup> GSWC’s Attachment SW07 to Testimony of Robert McVicker and Mark Insko – Chadron Plant Site Remediation Project Rate Case Memo.

<sup>271</sup> Los Angeles Regional Water Quality Control Board’s October 16, 2014, Letter to Ms. Brandyn Hancocks of GSWC.

<sup>272</sup> See **Appendix REGION 2 PLANT-E (SWRCB’s Low Threat Underground Storage Tank Case Closure Policy)** in this report.

<sup>273</sup> GSWC Response to ORA Data Request JA-003, Question 1.

1 measurable.”<sup>274</sup> GSWC has developed a conceptual site model,<sup>275</sup> which assesses the nature,  
2 extent, and mobility of the release. GSWC has spent \$4.1 million to clean up the contamination  
3 and received approximately \$1.5 million of reimbursement from the UST Cleanup Fund (Fund).  
4 GSWC stated that \$1.5 million is the maximum amount of reimbursement available from the  
5 Fund.<sup>276</sup> The SWRCB administers the Fund “to assist UST owners and operators in meeting  
6 federal financial responsibility requirements and to provide reimbursement to those owners and  
7 operators for the **high** cost of cleaning up unauthorized releases caused by leaking USTs.”<sup>277</sup>  
8 Not only did GSWC exhaust the maximum reimbursable amount available from the UST  
9 Cleanup Fund, GSWC spent another \$2.6 million to clean up the UST release and now wants to  
10 spend another \$2.1 million to remove “residual contaminant mass.” This is going far beyond the  
11 SWRCB’s Low-Threat Underground Storage Tank Closure Policy’s recommendation and is not  
12 a prudent investment with little benefits for the environment. Furthermore, GSWC has the  
13 option to and did not make a written request to the Los Angeles RWQCB for consideration of  
14 closure under the Low-Threat Underground Storage Tank Case Closure Policy.<sup>278</sup>

15 ORA recommends that GSWC make a written request to the Los Angeles RWQCB for case  
16 closure review under the Low-Threat Underground Storage Tank Closure Policy. GSWC even  
17 has the opportunity to appeal to the SWRCB for a review if the Los Angeles RWQCB denies  
18 GSWC’s request for case closure. The SWRCB’s Resolution No. 2012-0062 **allows and**  
19 **encourages** UST owners to appeal any local agency’s denial of a case closure under the Low-  
20 Threat Policy request.<sup>279</sup> At a minimum, GSWC should be required to pursue this option and

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<sup>274</sup> See [Appendix REGION 2 PLANT-F \(SWCRB’s Geotracker LTCP Checklist dated 6/19/2014\)](#) in this report.

<sup>275</sup> GSWC Response to ORA Data Request, JA-003, Question 6.

<sup>276</sup> GSWC Response to ORA Data Request JA-004, Question 4.

<sup>277</sup> See [Appendix REGION 2 PLANT-E \(SWRCB’s Low Threat Underground Storage Tank Case Closure Policy\)](#) in this report.

<sup>278</sup> GSWC Response to ORA Data Request JA-003, Question 5.

<sup>279</sup> [http://www.waterboards.ca.gov/ust/lt\\_cls\\_pley.shtml](http://www.waterboards.ca.gov/ust/lt_cls_pley.shtml). “Resolution No. 2012-0062 **also directs State Water Board staff to review a regulatory agency’s decision when the regulatory agency has denied a request by a responsible party for case closure** pursuant to the Policy, and propose case closure, as appropriate, within six months of the update to GeoTracker indicating closure denial.” [Emphasis added].

1 seek guidance from the above mentioned authorities prior to spending another \$2.1 million for  
2 further studies and cleanup of what is considered “residual contaminant mass.” Ratepayer  
3 funding should not be used for clean-up activities deemed unnecessary by the relevant agencies.  
4 Therefore, ORA recommends that the Commission deny GSWC’s request for additional funds to  
5 clean up the contamination associated with the UST leak and directs the company to pursue a  
6 case closure from the Los Angeles RWQCB and/or the SWRCB.

7 **6. Southwest, Pipeline Replacements (\$52,049,200)**

8 **Table 9-T** lists GSWC’s requests and ORA’s recommendations for pipeline replacement  
9 projects and budgets in the Southwest CSA. ORA presents discussions where its  
10 recommendation differs from GSWC’s request.

1

Table 9-T: Southwest, Pipeline Replacements

Southwest CSA	2015		2016		2017	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
93rd St. Normandie to Budlong	\$ 582,000	\$ 529,100	\$ -	\$ -	\$ -	\$ -
98th St. Area Main Repl.	\$ 1,432,000	\$ 1,274,500	\$ -	\$ -	\$ -	\$ -
112th St. Area Main Repl.	\$ -	\$ -	\$ 4,610,300	\$ 1,410,800	\$ -	\$ -
117th St., Yukon to West of Doty Ave	\$ -	\$ -	\$ -	\$ -	\$ 233,000	\$ 125,500
119th and 122nd	\$ -	\$ -	\$ 862,600	\$ 787,200	\$ -	\$ -
130th St. Area Main Repl.	\$ -	\$ -	\$ 966,900	\$ -	\$ 8,384,700	\$ -
147th St. Area Main Repl.	\$ 438,300	\$ 397,700	\$ -	\$ -	\$ -	\$ -
154th St. Area Main Repl.	\$ 6,382,900	\$ -	\$ -	\$ -	\$ -	\$ -
Imperial Hwy west of Vermont Ave	\$ 147,000	\$ 140,300	\$ -	\$ -	\$ -	\$ -
169th St., Gramercy to Western	\$ 223,600	\$ 207,800	\$ -	\$ -	\$ -	\$ -
180th St., Denker to Evelyn	\$ 470,300	\$ -	\$ -	\$ -	\$ -	\$ -
Alley n/o 163rd St., Main to Ball	\$ 390,400	\$ 239,700	\$ -	\$ -	\$ -	\$ -
Broadway, 131st to 135th	\$ 517,300	\$ -	\$ -	\$ -	\$ -	\$ -
Burin Ave. and Grevillea Ave.	\$ 1,079,700	\$ -	\$ -	\$ -	\$ -	\$ -
Century Blvd., La Cienega to Felton	\$ 944,200	\$ 900,900	\$ -	\$ -	\$ -	\$ -
El Segundo Blvd and Avalon Blvd	\$ 693,000	\$ -	\$ -	\$ -	\$ -	\$ -
El Segundo Blvd. Area Main Repl.	\$ 349,200	\$ -	\$ 3,054,800	\$ -	\$ -	\$ -
El Segundo Blvd., Main to Towne	\$ 982,200	\$ -	\$ -	\$ -	\$ -	\$ -
Electric St, 182nd to Alley w/o Vermont	\$ -	\$ -	\$ 944,300	\$ -	\$ -	\$ -
Faysmith Ave., Rosecrans to 147th	\$ 165,600	\$ 153,800	\$ -	\$ -	\$ -	\$ -
Freeman Ave. Area Main Repl.	\$ 1,482,100	\$ -	\$ -	\$ -	\$ -	\$ -
Gardena Blvd. Area Main Repl.	\$ -	\$ -	\$ 453,700	\$ 252,300	\$ 3,934,100	\$ 3,749,700
Haas Ave and 116th St	\$ -	\$ -	\$ 965,200	\$ -	\$ -	\$ -
Hawthome 250 Zone Connector Pipe	\$ 1,129,700	\$ 1,000,000	\$ -	\$ -	\$ -	\$ -
Larch Ave., Manhattan Beach to Marine	\$ -	\$ -	\$ 131,100	\$ 71,600	\$ 1,137,000	\$ 1,063,400
Lemoli Ave., W 154th to W 152nd	\$ 156,800	\$ 1,077,300	\$ -	\$ -	\$ -	\$ -
Normandie Ave and 159th St	\$ 1,260,800	\$ 1,141,200	\$ -	\$ -	\$ -	\$ -
Spring St. Area Main Repl	\$ 2,266,000	\$ 2,005,800	\$ -	\$ -	\$ -	\$ -
Prairie Ave, 119th St to 119th Pl	\$ 449,900	\$ 418,000	\$ -	\$ -	\$ -	\$ -
Raymond Ave, Connect Dead Ends	\$ 305,100	\$ 172,900	\$ -	\$ -	\$ -	\$ -
Wilton Pl., 129th to 135th	\$ -	\$ -	\$ -	\$ -	\$ 929,900	\$ -
WQ Area 16 Main Repl. Project	\$ 319,600	\$ 172,800	\$ 2,795,400	\$ 2,591,100	\$ -	\$ -
Yukon Ave., 102nd to 104th	\$ 478,500	\$ 456,700	\$ -	\$ -	\$ -	\$ -
<b>Total Distribution Improvements</b>	<b>\$22,646,200</b>	<b>\$10,288,500</b>	<b>\$14,784,300</b>	<b>\$5,113,000</b>	<b>\$14,618,700</b>	<b>\$ 4,938,600</b>
				<b>3-YEAR TOTAL:</b>	<b>\$ 52,049,200</b>	<b>\$ 20,340,100</b>
				<b>3-YEAR TOTAL ADJUSTMENT, GSWC &gt; ORA:</b>		<b>\$ 31,709,100</b>
				<b>3-YEAR TOTAL DIFFERENCE, (GSWC-ORA)/(GSWC):</b>		<b>61%</b>

2

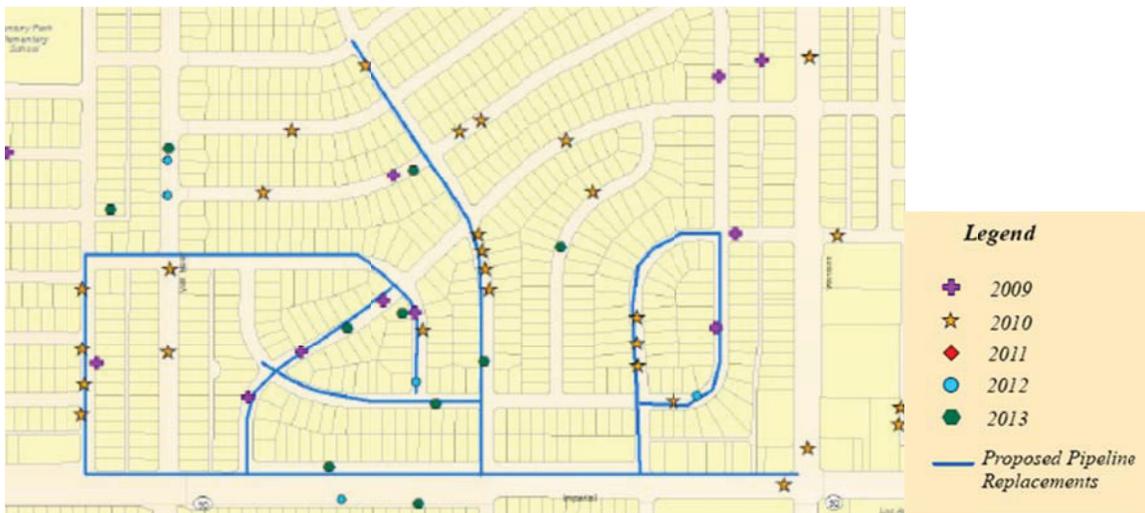
### 7. Southwest, 112th St – 11,900 Feet (\$4,610,300)

GSWC proposes to replace 11,900 feet of numerous segments of pipelines on 112<sup>th</sup> Street, 111<sup>th</sup> Street, Lohengrin Street, Cimarron Street, Spinning Avenue, Haas Avenue, St. Andrews Place, Manhattan Place, Wilton Place, and Imperial Highway at an estimated cost of \$4,610,300.

GSWC asserts that these pipelines need to be replaced “to address leaks, age, and material of the

1 existing pipelines.”<sup>280</sup> The pipelines consist of 4”, 6”, 10”, and 12” CI material and are 67 years  
2 old.<sup>281</sup> According to GSWC’s PMP Report, CI pipes can last as long as 87 years in the  
3 Southwest system.<sup>282</sup> Between 2009 and 2013, thirty eight leaks occurred at these pipeline  
4 segments.<sup>283</sup> As shown on the map below, the leaks are concentrated on some segments of  
5 pipelines while some segments do not have any leaks in the last three years. It is important to  
6 note that a large number of the leaks do not even occur on the pipelines that are proposed for  
7 replacement. Although leaks occurred on a limited segment of pipelines, GSWC lumped all  
8 these pipelines together to increase the scope of the projects to segments that do not warrant  
9 replacement based on age and leak history.

10 **Figure 9-G: 112<sup>th</sup> Street Project – Leak Map**<sup>284</sup>



11  
12 Given the age of these segments being much lower than the anticipated life expectancy as  
13 previously discussed, ORA recommends that the Commission only approve the replacement of

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<sup>280</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 187.

<sup>281</sup> Ibid.

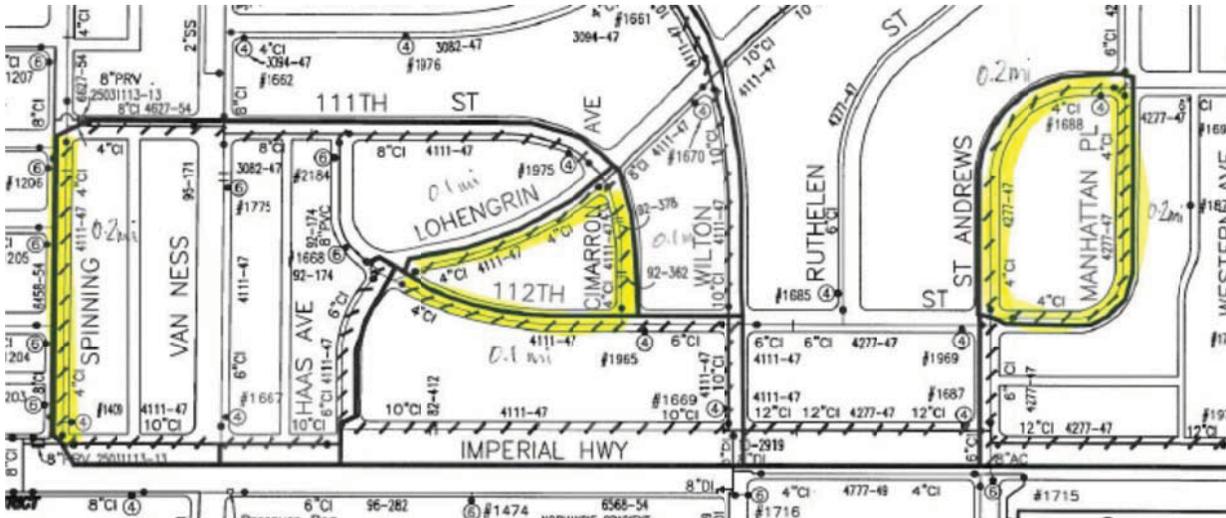
<sup>282</sup> GSWC’s PMP Report, p. 8-112.

<sup>283</sup> Ibid.

<sup>284</sup> GSWC’s Supplemental Testimony of Robert McVicker, Dated October 24, 2014, p. 12.

1 pipeline segments on Lohengrin Street, Cimarron Street, 112<sup>th</sup> Street, Spinning Avenue, St.  
2 Andrews Place, and Manhattan Place as shown in the map below at a cost of \$1.42 million.<sup>285</sup>

3 **Figure 9-H: 112<sup>th</sup> Street Project – ORA’s Recommended Replacement**



4  
5 **8. Southwest, 130<sup>th</sup> St – 17,700 feet (\$9,351,600)**

6 GSWC proposes to replace 17,700 feet of numerous segments of pipelines on 130<sup>th</sup> Street, 132<sup>nd</sup>  
7 Street, 134<sup>th</sup> Street, 135<sup>th</sup> Street, and Western Boulevard at an estimated cost of \$9,351,600.  
8 GSWC asserts that these pipelines need to be replaced “to address leaks, hydraulic deficiencies,  
9 and age of the existing pipelines.”<sup>286</sup> The existing pipelines consist of 6”, 8”, 10”, 12”, and 14”  
10 CI material and are 67 years old.<sup>287</sup> Between 2009 and 2013, 16 leaks occurred at these pipeline  
11 segments with two leaks in 2013. As shown on the map below, the leaks are sporadic on some  
12 segments of pipelines while some segments do not have any leaks in the last five years.

<sup>285</sup> Absent cost estimate information for each pipeline segment from GSWC, ORA based recommended cost on segment lengths (4750 ft/11,900 ft times total estimated cost). Google map shows the distance of six recommended segments as 4,750 ft.

<sup>286</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 193.

<sup>287</sup> Ibid.

1 **Figure 9-I: 130<sup>th</sup> Street Project – Leak Map**



2  
3 GSWC lumped all these pipelines together to increase the scope of the projects to include  
4 segments that do not warrant replacement based on age and leak history. In addition, this project  
5 is not identified as a recommended improvement based on a hydraulic analysis performed as part  
6 of the Water Master Plan and GSWC was unable to provide additional information requested by  
7 ORA regarding this project.<sup>288</sup> As such, ORA is unable to verify GSWC’s assertion that this  
8 project is needed to “address hydraulic deficiencies.” For reasons similar to those regarding  
9 other pipeline replacements discussed above, ORA recommends that the Commission deny  
10 GSWC’s request to replace this pipeline and require that GSWC in the future only group projects  
11 that have similar characteristics in terms of conditions such as leak history.

12 **9. Southwest, 154<sup>th</sup> Street – 20,000 feet (\$6,382,900)**

13 GSWC proposes to replace 20,000 feet of at least ten segments of pipelines at an estimated cost  
14 of \$6,382,900. GSWC asserts that these pipelines need to be replaced “to address leaks, age, and  
15 material of the existing pipelines.”<sup>289</sup> The existing pipelines consist of 4”, 6”, and 8” CI material  
16 and are 63 years old.<sup>290</sup> Between 2011 and 2013, nine leaks occurred at these pipeline segments

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<sup>288</sup> GSWC’s Response to ORA Data Request, JA-007, Question 7.

<sup>289</sup> GSWC’s Region 2 Workpapers, Volume 3 of 3, Sheet 197.

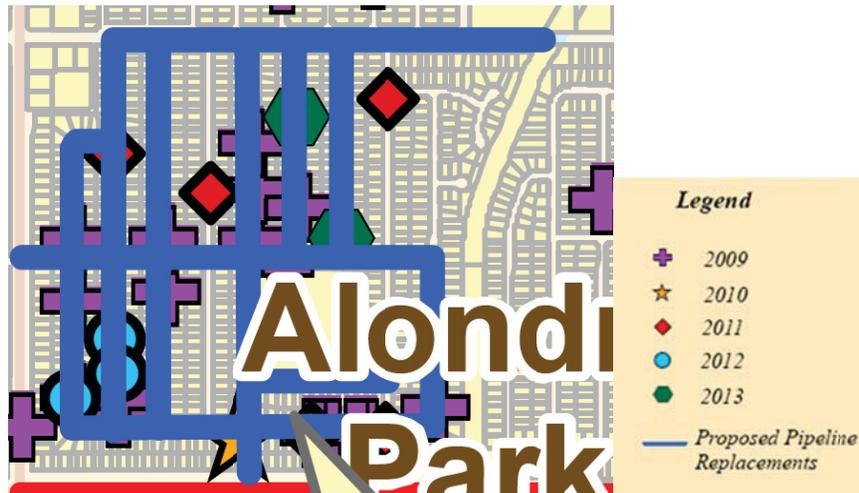
<sup>290</sup> Ibid.

1 with two leaks in 2013.<sup>291</sup> As summarized in the following table and shown on the map below,  
 2 the leaks are sporadic on some segments of pipelines while some segments do not have any leaks  
 3 in the last five years.

4 **Table 9-U: Number of Leaks between 2011 and 2013**

Location	2011	2012	2013
Gerkin Avenue	1	2	
157th Street	2		
Florwood Avenue	1		
Roselle Avenue		1	
Foothill Avenue			1
Kornblum Avenue			1

5 **Figure 9-J: 154<sup>th</sup> Street Project – Leak Map**



6  
 7 In addition, GSWC claimed that “this pipeline replacement is identified in the Conditional  
 8 Assessment Section (Section 8, Table 8-2) of the 2011 Southwest Master Plan” to address  
 9 hydraulic deficiencies.<sup>292</sup> However, GSWC was not able to identify the specific improvement  
 10 number from Table 8-2 for this pipeline replacement.<sup>293</sup> Therefore, ORA is unable to verify the  
 11 hydraulic improvement that GSWC claimed. For reasons similar to those regarding the 130<sup>th</sup>

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<sup>291</sup> GSWC Response to ORA Data Request DK4-001, Leak History.

<sup>292</sup> GSWC’s Region 2 Workpapers, Volume 3 of 3, Sheet 197.

<sup>293</sup> GSWC Response to ORA Data Request JA-007, Question 8.

1 Street project discussed above, ORA recommends that the Commission deny GSWC’s request to  
2 replace this pipeline replacement project.

3 **10. Southwest, 180<sup>th</sup> Street – 650 feet (\$470,300)**

4 GSWC proposes to replace 650 feet of 6” and 8” CI pipelines on 180<sup>th</sup> Street at an approximate  
5 cost of \$470,300. GSWC asserts that this pipeline needs to be replaced “to address leaks and  
6 age.”<sup>294</sup> This pipeline is only 53 years old with no leaks reported in the last five years (2009 to  
7 2013).<sup>295</sup> According to GSWC’s PMP Report, CI pipes can last as long as 87 years in the  
8 Southwest system.<sup>296</sup> Since these pipelines did not have any leaks in the last five year, the do not  
9 appear to be deteriorating prematurely. Therefore, ORA recommends that the Commission deny  
10 GSWC’s request to replace this pipeline.

11 **11. Southwest, Broadway – 550 feet (\$517,300)**

12 GSWC proposes to replace 550 feet of a 6” CI pipeline at an approximate cost of \$517,300.  
13 GSWC asserts that this pipeline needs to be replaced “to address hydraulic deficiencies and  
14 age.”<sup>297</sup> This pipeline is 83 years old with no leaks reported in the last five years (2009 to  
15 2013).<sup>298</sup> According to GSWC’s hydraulic analysis for the Southwest system, headloss is  
16 observed during periods of maximum day demand in this pipeline.<sup>299</sup> The deficiency observed  
17 in this pipeline is identified as Deficiency Number 1.20.0 on Table 6-3 of the Water Master Plan.  
18 However, the Plan did not recommend any improvement to address this deficiency and provided  
19 the following explanation:

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<sup>294</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 203.

<sup>295</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 203 and GSWC Response to ORA Data Request DK4-001, Leak History.

<sup>296</sup> GSWC’s PMP Report, p. 8-122.

<sup>297</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 207.

<sup>298</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 207 and GSWC Response to ORA Data Request DK4-001, Leak History.

<sup>299</sup> GSWC 2011 Master Plan for the Southwest System, p. 6-9, Deficiency 1.20.0.

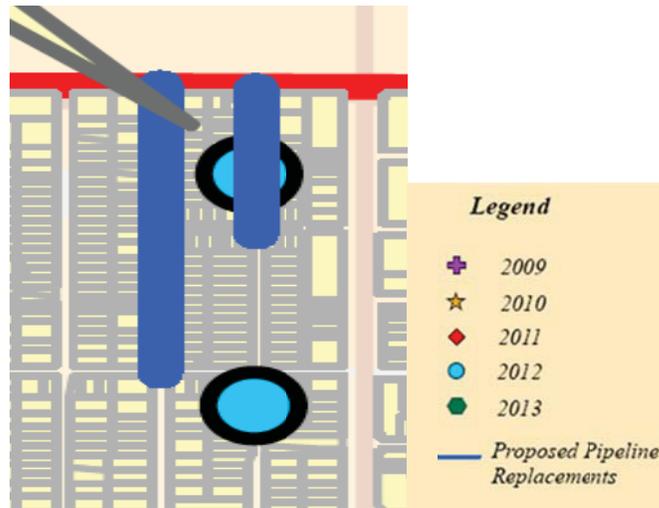
1 Deficiency Nos. 1.16.0-1.52.0  
2 The hydraulic analysis concluded that several additional pipelines were subject to high  
3 rate of headloss and/or velocity, however as there were **no resulting pressure**  
4 **deficiencies, no capital projects were identified.**<sup>300</sup> [Emphasis added].

5 Therefore, ORA recommends that the Commission deny GSWC’s request to replace this  
6 pipeline.

7 **12. Southwest, Burin Avenue and Grevillea Avenue – 1,800 feet (\$1,079,700)**

8 GSWC proposes to replace 1,800 feet of 4” steel and CI pipelines on Burin and Grevillea at an  
9 estimated cost of \$1,079,700. GSWC asserts that these pipelines need to be replaced “to address  
10 hydraulic deficiencies, material, and age.”<sup>301</sup> This project is not included on the list of projects  
11 to improve hydraulic deficiency in Table 8-2 of the Water Master Plan.<sup>302</sup> The pipelines are 87  
12 years old and had one leak in 2012 as shown in the map below.<sup>303</sup>

13 **Figure 9-K: Burin Avenue and Grevillea Avenue Project – Leak Map**



14

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<sup>300</sup> GSWC 2011 Water Master Plan for the Southwest System, pp. 6-11, Description of Deficiency Alternatives.

<sup>301</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 209.

<sup>302</sup> GSWC 2011 Water Master Plan for the Southwest System, Table 8-2.

<sup>303</sup> GSWC Response to ORA Data Request DK4-001, Leak History.

1 The one leak event does not indicate deterioration that requires immediate replacement.  
2 Therefore, ORA recommends that the Commission deny GSWC’s request to replace this  
3 pipeline.

4 **13. Southwest, El Segundo Blvd and Avalon Blvd – 1,200 feet (\$693,000)**

5 GSWC proposes to replace 1,200 feet of 8” CI pipelines on El Segundo and Avalon Boulevards  
6 at an estimated cost of \$693,000. GSWC asserts that these pipelines need to be replaced “to  
7 address leaks in the existing pipelines.”<sup>304</sup> The existing 8” CI pipelines are 61 years old and had  
8 one leak in 2013.<sup>305</sup> Again, given the relative young age of the pipe and the fact that there has  
9 been only one leak in the past five years, replacement is premature. Therefore, ORA  
10 recommends that the Commission deny GSWC’s request to replace this pipeline.

11 **14. Southwest, El Segundo Blvd & 135<sup>th</sup> St – 7,800 ft. (\$3,404,000)**

12 GSWC proposes to replace 2,800 feet of pipelines on El Segundo Boulevard and 5,000 feet of  
13 pipeline on 135<sup>th</sup> Street at an estimated cost of \$3,404,000. GSWC asserts that these pipelines  
14 need to be replaced “to address leaks, age, and material in the existing pipelines.”<sup>306</sup> The  
15 existing pipelines consist of 6” and 8” CI pipelines and are 67 years old.<sup>307</sup> GSWC provided  
16 maps of the proposed projects with the leak information below.<sup>308</sup>

17 El Segundo Blvd. – 2,800 feet. This pipeline had 3 leaks in 2010 in one localized area as shown  
18 in the map below. The pipeline has not experienced any leaks between 2011 and 2013 and is 67  
19 years old; there were three leaks in prior years that appear to have been addressed. According to  
20 GSWC’s PMP Report, CI pipes can last as long as 87 years in the Southwest system.<sup>309</sup> It is not  
21 cost effective to replace this pipeline given its age and lack of leak events in recent years.

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<sup>304</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 213.

<sup>305</sup> GSWC Response to ORA Data Request DK4-001, Leak History.

<sup>306</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 215.

<sup>307</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 215.

<sup>308</sup> GSWC Response to ORA Data Request JA-006, Question 6.

<sup>309</sup> GSWC’s PMP Report, p. 8-122.

1 Therefore, ORA recommends that the Commission deny GSWC’s request to replace this  
2 pipeline.

3 **Figure 9-L: El Segundo Blvd Project – Leak Map**

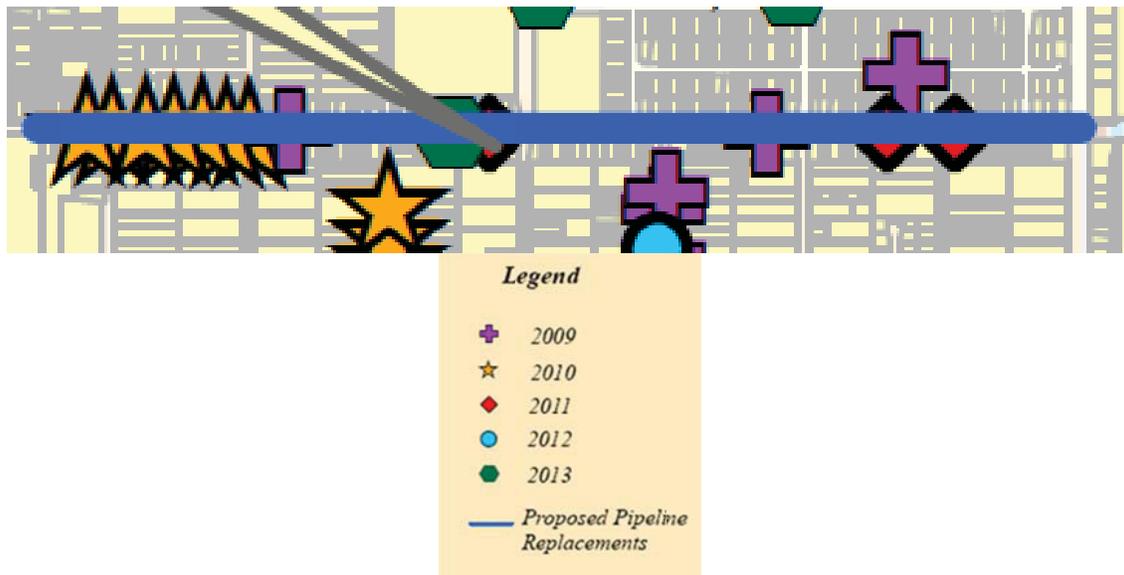


4  
5 135<sup>th</sup> Street – 5,000 feet. Although the map below shows approximately 13 leaks occurring  
6 between 2009 and 2013, GSWC did not provide the leak information for this pipeline in the Leak  
7 Report.<sup>310</sup> As shown in the map, there were a high number of leaks occurring in 2010 in one  
8 segment of the pipeline and no leaks in that segment in recent years. The number of leaks in  
9 recent years has decreased with only one occurring in 2013. The sporadic leak data does not  
10 indicate a pattern of leakage or deterioration that warrants an immediate need for replacement.  
11 Therefore, ORA recommends that the Commission deny GSWC’s request to replace this  
12 pipeline.

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<sup>310</sup> GSWC Response to ORA Data Request DK4-001, Leak History.

1 **Figure 9-M: 135<sup>th</sup> Street Project – Leak Map**



4 **15. Southwest, El Segundo Blvd (Main to Towne) – 1,900 ft (\$982,200)**

5 GSWC proposes to replace 1,900 feet of 8” CI pipeline on El Segundo Boulevard at an estimated  
6 cost of \$982,200. GSWC asserts that this pipeline needs to be replaced “to address hydraulic  
7 deficiencies in the existing pipelines.”<sup>311</sup> However, this project is not identified as a  
8 recommended improvement based on a hydraulic analysis performed as part of the Water Master  
9 Plan. In other words, ORA is unable to verify GSWC’s assertion that this project is needed to  
10 “address hydraulic deficiencies.” Furthermore, the existing 8” CI pipeline is only 56 years old  
11 and had only one leak in 2012.<sup>312</sup> According to GSWC’s PMP Report, CI pipes can last as long  
12 as 87 years in the Southwest system.<sup>313</sup> Therefore, ORA recommends that the Commission deny  
13 GSWC’s request to replace this pipeline.

14 **16. Southwest, Electric Street – 2,950 Feet (\$944,300)**

15 GSWC proposes to replace 2,950 feet of 4” CI pipeline on Electric Street at an estimated cost of  
16 \$944,300. GSWC asserts that this pipeline needs to be replaced “to address leaks, age, and

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<sup>311</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 217.

<sup>312</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 217 and Leak History.

<sup>313</sup> GSWC’s PMP Report, p. 8-122.

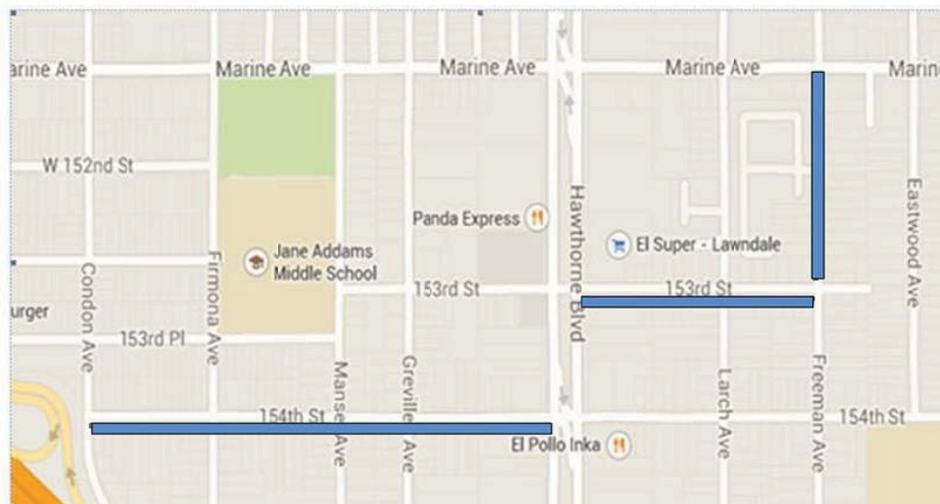
1 material of the existing pipeline.”<sup>314</sup> The existing pipeline is 60 years old and has had no leaks  
2 in the last five years.<sup>315</sup> Both of these factors do not support the need for replacement at this  
3 time. Therefore, ORA recommends that the Commission deny GSWC’s request to replace this  
4 pipeline.

5 **17. Southwest, Freeman Ave, 153<sup>rd</sup> St, and 154<sup>th</sup> St – 3,300 Feet (\$1,482,100)**

6 GSWC proposes to replace 3,300 feet of 4” and 6” pipelines on Freeman Avenue, 153<sup>rd</sup> Street,  
7 and 154<sup>th</sup> Street at an estimated cost of \$1,482,100. GSWC asserts that these pipelines need to  
8 be replaced “to address leaks, age, and material of the existing pipelines.”<sup>316</sup> The pipelines are  
9 68 years old.<sup>317</sup> GSWC provided the following description for the pipeline replacements which  
10 are depicted in the figure (blue lines).

- 11 1. Freeman Avenue – Between 153<sup>rd</sup> and Marine;  
12 2. 154<sup>th</sup> Street – Between Condon and Hawthorne  
13 3. 153<sup>rd</sup> Street – Between Hawthorne and Freeman

14 **Figure 9-N: Freeman Ave, 153<sup>rd</sup> St, and 154<sup>th</sup> St Project – Google**



15

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<sup>314</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 219.

<sup>315</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 219 and Leak History.

<sup>316</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 223.

<sup>317</sup> Ibid.

1 However, GSWC provided the following leak map for this project, which shows only one  
2 pipeline segment.<sup>318</sup>

3 **Figure 9-O: Freeman Ave, 153<sup>rd</sup> St and 154<sup>th</sup> St Project – Leak Map**



4  
5 Although GSWC provided a leak history of nine leaks,<sup>319</sup> two leaks (on Larch Ave) did not even  
6 occur on any of the three subject segments and five leaks occurring in 2009 and 2010 do not  
7 have any location information. In addition, the discrepancies between the information provided  
8 in GSWC's project justification and the leak map made it difficult for ORA to confirm GSWC's  
9 claim. ORA received the following response from GSWC when it requested further clarification  
10 for this project such as the length, material, age, and leak history for each segment of pipeline.<sup>320</sup>

**Responses 1 through 11**

Attachment JA-007-1 includes Scope of Work drawings for the projects in Questions 1 through 11. These drawings show the size, material, and year built for pipes mentioned above. The year built for each pipe is the two-digit number either following or preceding the work order number. For example, pipelines labeled as 4" CI 6274-53 and 4" AC 60-642 are 4-inch Cast Iron and Asbestos Concrete pipes built in 1953 and 1960 respectively.

The rest of the information requested in Questions 1 through 11 is not readily available since the Project Cost Estimate (PCE) was created for each project as a whole.

11  
12 In short, GSWC did not provide the length and leak history for each segment of pipelines for  
13 ORA to confirm the information provided in the project justification. Therefore, ORA  
14 recommends that the Commission deny GSWC's request for this project.

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<sup>318</sup> GSWC Response to ORA Data Request JA-006, Question 6.

<sup>319</sup> GSWC Response to ORA Data Request DK4-001, Leak History.

<sup>320</sup> ORA Data Request, JA-007, Question 10, Freeman Avenue Project.

1           **18. Southwest, Haas Ave & 116th Street – 2,750 Feet (\$966,200)**

2 GSWC proposes to replace 2,750 feet of 6” CI pipelines on Haas Avenue and 116<sup>th</sup> Street at an  
3 estimated cost of \$966,200. GSWC asserts that these pipelines need to be replaced “to address  
4 leaks, age, and material of the existing pipeline.”<sup>321</sup> The existing pipelines are 60 years old and  
5 only had one leak in 2010.<sup>322</sup> Although GSWC identified three leaks that occurred at these two  
6 pipelines, two of the leaks identified cannot be attributed to these pipelines because they are  
7 located at pipeline segments on other streets. According to GSWC’s PMP Report, CI pipes can  
8 last as long as 87 years in the Southwest system.<sup>323</sup> Again, given the relative young age of these  
9 pipelines and the limited leak events in these segments, ORA recommends that the Commission  
10 deny GSWC’s request to replace these pipelines.

11           **19. Southwest, Wilton Place – 2,300 Feet (\$929,900)**

12 GSWC proposes to replace 2,300 feet of 6” and 8” pipelines on Wilton Place at an estimated cost  
13 of \$929,900. GSWC asserts that these pipelines need to be replaced “to address leaks, age, and  
14 material of the existing pipelines.”<sup>324</sup> The pipelines are 59 years old.<sup>325</sup> Although GSWC stated  
15 that there have been 11 leaks in the past five years, there are only three leaks shown on the figure  
16 below.

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<sup>321</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 227.

<sup>322</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 219 and Leak History.

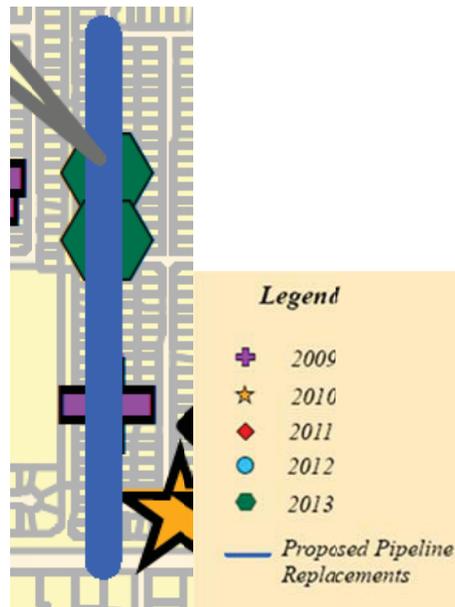
<sup>323</sup> GSWC’s PMP Report, p. 8-122.

<sup>324</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 243.

<sup>325</sup> GSWC Region 2 Workpapers, Volume 3 of 3, Sheet 243.

1

**Figure 9-P: Wilton Place Project – Leak Map**



2

3 Based on the leak map, one leak occurred in 2009 and two leaks occurred in 2013. Given the  
 4 relative young age of the pipeline (59 years old) and sporadic occurrences of leaks, continued  
 5 monitoring but no replacement is warranted. Therefore, ORA recommends that the Commission  
 6 deny GSWC’s request to replace this pipeline.

7 **K. URBAN WATER MANAGEMENT PLAN (UWMPs - \$390,000**

8 GSWC requests \$390,000 in 2015 to update its UWMPs for the Artesia, Norwalk, Bell/Bell  
 9 Gardens, Florence Graham, Culver City, and Southwest water systems. ORA does not oppose  
 10 this request but recommends that the estimated cost be shifted from the 2015 to the 2016 capital  
 11 budget. ORA’s Common Plant Issues testimony on UWMP provides the basis for the adjusted  
 12 timeline.

13 **L. ADDITIONAL ADJUSTMENTS TO REQUESTED CAPITAL EXPENDITURES –**  
 14 **REGION 2**

15 This section addresses projects included as CWIP in GSWC’s Table 4-M, Utility Plant. These  
 16 “CWIP to be closed” amounts in Table 4-M are made up of capital expenditures from projects  
 17 listed in GSWC’s “CWIP” workpapers. In its application, GSWC did not provide detailed  
 18 project description or cost details for these projects. While GSWC labelled these projects as

1 CWIP or Construction Work In Progress, it is not an accurate description for many. As ORA  
 2 discovered, some projects have not started (and therefore cannot be considered “CWIP”), are no  
 3 longer needed, have been cancelled by GSWC, or have changed in scope and schedule  
 4 significantly. ORA makes the following adjustments to reflect its findings.

5 **Table 9-V: ORA adjustments to CWIP – Region 2**

Region 2 Project	2013		2014		2015	
	GSWC	ORA	GSWC	ORA	GSWC	ORA
Chadron Site Remediation	\$671,363 \$	0	--	--	\$560,266	\$0
Truro Well #4 Abandonment	\$2,570,804	\$0	\$1,040,000	\$0 \$	20,000 \$	0
<b>Total CWIP Adjustments</b>	<b>\$3,242,167</b>	<b>\$0</b>	<b>\$1,040,000</b>	<b>\$0</b>	<b>\$580,266</b>	<b>\$0</b>

6 **1. Chadron Site Remediation**

7 As discussed above, ORA removes \$671,363 from the 2013 CWIP budget and \$560,266 from  
 8 the 2015 CWIP budget.

9 **2. Truro Well #4 Abandonment (FP Number 2471454-01, WO 25031233)**

10 In this GRC, GSWC’s Construction Work in Progress (CWIP) Budget includes expenditures  
 11 totaling \$3,630,804 related to the abandonment of Truro Well #4.<sup>326</sup> D.13-05-011 adopted a  
 12 settlement between ORA and GSWC that specified an amount of \$53,700 for the abandonment  
 13 of Truro Well #4.<sup>327</sup> GSWC provided the following information regarding the \$3,630,804  
 14 amount placed in CWIP:<sup>328</sup>

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<sup>326</sup> GSWC Region 2 Workpapers, p. 32.

<sup>327</sup> D.13-05-011, Table 3.4, p. 60.

<sup>328</sup> GSWC Response to ORA Data Request JA-001, Question 3a.

(a): GSWC does not have a scope of work statement that corresponds to the amount shown in CWIP for this project. The original contract issued for this project was to destroy an existing well at the Truro site. During the process of capping that well, contractors experienced an unexpected release of naturally occurring methane gas from the well resulting in a hazardous emergency situation. For approximately two weeks, GSWC, working in conjunction with various local government agencies and a premier well intervention contractor, worked to stem the flow of methane gas so that the destruction of the well could ultimately be completed. A copy of the invoices for this work are provided in response (c) below. For the \$2.7 million of expenditures incurred as of 12/31/2013 shown in the CWIP balance, \$1.76 million was for contractor fees, \$0.59 million was accounting accruals for unbilled charges, \$0.2 million was for labor costs, and \$20,500 was for materials and miscellaneous charges.

1

2 GSWC's original cost estimate for this project is \$55,300 in A.11-07-001 as shown below.

3

**Table 9-W: GSWC's Truro Well Request from A.11-07-011<sup>329</sup>**

Construction Cost Estimate						
Project:	Truro Plant - destroy Well #4			Region	Region II	
Limits:	Truro Plant			District	Southwest	
				System	Southwest	
	Estimate By:	MWI		Approved By:		
	Estimate Date	02/02/11				
Item No	Description	Quantity	Unit	2010 Unit Cost	Cost	Cost
1	Destroy well	1	LS	\$14,590	\$14,590	\$14,590
2	Abandon system tie-in and raze site	1	LS	\$18,520	\$18,520	\$18,520
3						\$0
4						\$0
5						\$0
6						\$0
7						\$0
8						\$0
9						\$0
10						\$0
11						\$0
12						\$0
13						\$0
14						\$0
15						\$0
	Sub total					\$33,110
	Company Direct Expenses (permits, engineering, inspection and District/Regional costs, insurance, tools, taxes and construction services)					\$4,967
	Gross Total					\$38,077
	Budget Total					\$38,100

4

<sup>329</sup> GSWC's Workpapers - Project Cost Estimate for the Truro Well in A.11-07-011.

1 It is important to note that the total construction cost to abandon the well is \$38,100, which  
2 includes expenses of approximately \$5,000. GSWC identified these direct expenses as permits,  
3 engineering, inspection and district/Regional costs, insurance, tools, taxes, and construction  
4 services. GSWC explained in its response to ORA’s inquiry that “the original estimate did not  
5 anticipate the emergency conditions that occurred during process.”<sup>330</sup> The emergency conditions  
6 referenced by GSWC is the release of naturally occurring methane gas, resulting in emergency  
7 mitigation activities at a cost of over 65 times the estimated budget. In an interview with a local  
8 radio station on Southern California Public Radio, GSWC’s Senior Vice President, Regulated  
9 Utilities, Ms. Dennis Kruger, provided the following explanation regarding the Truro Well’s  
10 methane gas release incidence:<sup>331</sup>

11 Q. Is this kind of methane leak common?

12 Kruger: Methane in the area is naturally occurring but it was very unexpected to have a  
13 release of methane in this way while the work was happening with the drinking water  
14 well. So it is a very unique situation...a pocket of methane gas [may have] wiggled  
15 through the out-of-service well, which caused the methane to come to the atmosphere and  
16 the water... to shoot up in the air with the gas. It’s not a common thing and our  
17 emergency response protocol[s] have been effectively addressing the situation.

18 First, note that while GSWC referred to the methane gas encountered as “naturally occurring” in  
19 the area, the company described the release as “unexpected.” ORA finds it surprising that  
20 GSWC did not anticipate the potential of naturally occurring methane to come out of its water  
21 wells in the area in the way described by Ms. Kruger and did not take the necessary precautions  
22 and testing to prevent such occurrence. The Truro Well is located in the City of Hawthorne.  
23 California Water Service Company’s (Cal Water) Rancho Dominguez District is located in the  
24 same area as GSWC’s Southwest CSA and has been detecting methane gas at a majority of its  
25 water wells in the Rancho Dominguez District.<sup>332</sup> Methane detection has been so prevalent at  
26 Cal Water’s wells that the company installed methane treatment systems.<sup>333</sup> GSWC included a

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<sup>330</sup> GSWC Response to ORA Data Request JA-001, Question 3b.

<sup>331</sup> <http://www.scpr.org/news/2013/09/19/39358/q-a-the-challenge-of-fixing-the-hawthorne-methane/>

<sup>332</sup> Calwater’s Testimony of Chet Auckely on Water Quality Issues, p. 18.

<sup>333</sup> Calwater’s Testimony of Chet Auckely on Water Quality Issues, p. 19.

1 design budget in its cost estimation for this well abandonment project. Ratepayers have a  
2 reasonable expectation that GSWC staff who “designed” this project would have recognized that  
3 methane release is a potential risk at the site and specified the necessary detection and protection  
4 safeguards to GSWC staff and its contractor.

5 Second, GSWC presented a cost estimate of \$5,000 in its project budget request that specifies  
6 insurance as a direct expense. Again, ratepayers have a reasonable expectation that GSWC  
7 would use this fund to secure insurance for this construction project. However, GSWC chose not  
8 to file an insurance claim associated with this incident and chose to recover the costs of this  
9 incidence entirely from ratepayers instead by placing the cost of this project in rate base. GSWC  
10 provided the following explanation regarding filing an insurance claim:

11 GSWC did not exhaust the self-insured retention under the general liability policy (for  
12 damages to third parties) issued to the Company in connection with the Truro Well  
13 abandonment. We, therefore, did not recover any costs under the general liability policy  
14 and no other policies issued to the Company were implicated by the expense associated  
15 with Truro.<sup>334</sup>

16 GSWC has filed insurance claims when its pipelines leak and cause damages to its customers  
17 personal properties.<sup>335</sup> It is clear that GSWC retains insurance policies in its operations. Yet, the  
18 company has not filed a claim with its insurance provider, but decided to include the cost in rate  
19 base so it can earn a rate of return. In addition, as found by ORA expense witnesses, GSWC’s  
20 expense forecasts are based on recorded expenses that included substantial expenses related to  
21 the Truro Well incidences, further inflating costs to be recovered from ratepayers in this rate case  
22 (see ORA testimony by Michael Conklin and Josefina Montero).

23 However, GSWC has filed a claim with its contractor’s insurance policy to recover the cost to  
24 mitigate the methane release.

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<sup>334</sup> GSWC Response to ORA Data Request JA-005, Question 2a.

<sup>335</sup> GSWC Response to ORA Data Request JA-007, Question 1c. GSWC provided information regarding vehicle and property damages filed by customers during main breaks. The information shows that GSWC paid the claimants with a “\$200,000 Self Insured retention” for some claims and its “Insurance Company, ACE American, paid direct to the claimants” for some other costs.

1 **\*\*BEGIN CONFIDENTIAL\*\*** [REDACTED]  
 [REDACTED]  
 [REDACTED]  
 [REDACTED]  
 [REDACTED]  
 [REDACTED]  
 [REDACTED] **\*\*END CONFIDENTIAL\*\*** Just  
 7 on the capital expenditures alone (i.e., not including expenses embedded in GSWC’s forecasts),  
 8 GSWC is asking ratepayers to pay nearly \$700,000 (first year) in annual revenue requirement.

9 **Table 9-X: Revenue Requirement from Capital Expenditures associated with the Truro**  
 10 **Well Abandonment Project**

Cost of Truro Well Abandonment	\$3,630,804
Net to Gross multiplier (per GSWC)	1.80828
Rate of Return	8.34%
Revenue Requirement	\$547,564
Depreciation Expense (40 yrs)	\$90,770
<b>Total</b>	<b>\$683,719</b>

11 ORA therefore recommends that the Commission deny GSWC’s request to include the cost of  
 12 this project in its rate base. GSWC should not be allowed to recover the cost from ratepayers  
 13 who already have paid for the design and insurance cost for GSWC to abandon this well and  
 14 should be afforded protections from expenditures resulting from GSWC’s failure to recognize  
 15 and plan for methane gas release during the abandonment process.

16 **M. CONCLUSION**

17 ORA recommends that the Commission adopt ORA’s recommended adjustments presented  
 18 above since they are consistent with the Commission’s Water Action Plan principles for water  
 19 utilities providing safe, high quality water, reliable water supplies, and efficient use of water at  
 20 reasonable rates.

**Appendix CONTINGENCY-A**

**(Park Water Company's 2015 GRC Application & ORA's Workpapers)**

Park - 12" DI	length	engineering	total	engineering w/ 5% admin	5% admin	total w/ admin	total const cost less engineering	% engr of const cost	cost per ft
Shoemaker & Excelsior	2445	\$ 45,000	\$ 543,485	\$ 47,250	\$ 27,174	\$ 570,659	\$ 498,485	9%	\$ 233.40
Wilmington	7975	\$ 75,000	\$ 2,331,366	\$ 78,750	\$ 116,568	\$ 2,447,934	\$ 2,256,366	3%	\$ 306.95
166th & arkansas	1365	\$ 45,000	\$ 370,111	\$ 47,250	\$ 18,506	\$ 388,617	\$ 325,111	15%	\$ 284.70
148th -149th-Wadsworth	3135	\$ 50,000	\$ 730,357	\$ 52,500	\$ 36,518	\$ 766,875	\$ 680,357	8%	\$ 244.62
135th - Main to Avalon	1730	\$ 45,000	\$ 385,914	\$ 47,250	\$ 19,296	\$ 405,210	\$ 340,914	14%	\$ 234.23
Clark - Rosecrans to Faywood	2300	\$ 45,000	\$ 516,707	\$ 47,250	\$ 25,835	\$ 542,542	\$ 471,707	10%	\$ 235.89
Liggett and Rosecrans	2817	\$ 45,000	\$ 583,452	\$ 47,250	\$ 29,173	\$ 612,625	\$ 538,452	9%	\$ 217.47
142nd - Central to Tajauta	2471	\$ 45,000	\$ 633,642	\$ 47,250	\$ 31,682	\$ 665,324	\$ 588,642	8%	\$ 269.25
<b>Total</b>	<b>24238</b>	<b>\$ 395,000</b>	<b>\$ 6,095,034</b>	<b>\$ 414,750</b>		<b>\$ 6,399,785</b>	<b>\$ 5,700,034</b>	<b>7%</b>	<b>\$ 264.04</b>
<b>Park - 8" DI</b>									
Griddley-Lindale-McLaren-Potter	5980	\$ 45,000	\$ 1,396,962	\$ 47,250	\$ 69,848	\$ 1,466,810	\$ 1,351,962	3%	\$ 245.29
Clymar & Caswell	3840	\$ 30,000	\$ 930,022	\$ 31,500	\$ 46,501	\$ 976,523	\$ 900,022	3%	\$ 254.30
McKinley-131st to 134th	1408	\$ 25,000	\$ 446,144	\$ 26,250	\$ 22,307	\$ 468,451	\$ 421,144	6%	\$ 332.71
<b>Total</b>	<b>11228</b>	<b>\$ 100,000</b>	<b>\$ 2,773,128</b>	<b>\$ 105,000</b>		<b>\$ 2,911,784</b>	<b>\$ 2,673,128</b>	<b>4%</b>	<b>\$ 259.33</b>

Pipe Size and Material	Design Cost % of Construction Cost		GSWC exceeds Park
	GSWC	Park	
8" DI	16%	4%	300%
12" DI	16%	7%	129%

Pipe Size and Material	Average cost per foot		GSWC exceeds Park
	GSWC	Park	
8" DI	\$ 405	\$ 259	56%
12" DI	\$ 628	\$ 264	138%

SW - Project - 12" DI	length	Design \$	total const w/o		const w/ OH	total w/ admin	% engr of	ave cost per ft
Broadway, 131st to 135th	550	\$ 46,100	\$ 345,900	\$ 471,200	\$ 125,300	\$ 517,300	13%	\$ 940.55
El Segundo Blvd, Main to Towne	1900	\$ 103,200	\$ 645,200	\$ 879,000	\$ 233,800	\$ 982,200	16%	\$ 516.95
	<b>2450</b>	<b>\$ 149,300</b>	<b>\$ 991,100</b>			<b>\$ 1,499,500</b>	<b>15%</b>	<b>\$ 612.04</b>
SW - 8" DI								
93rd St, Normandie to Budlong	1300	\$ 51,900	\$ 389,100	\$ 530,100	\$ 141,000	\$ 582,000	13%	\$ 447.69
98th St	3650	\$ 150,500	\$ 940,700	\$ 1,281,500	\$ 340,800	\$ 1,432,000	16%	\$ 392.33
1177th St, Doty Ave	350	\$ 21,100	\$ 147,500	\$ 211,900	\$ 64,400	\$ 233,000	14%	\$ 665.71
147th St	1050	\$ 39,100	\$ 293,000	\$ 399,200	\$ 106,200	\$ 438,300	13%	\$ 417.43
154th St	20000	\$ 670,700	\$ 4,193,000	\$ 5,712,200	\$ 1,519,200	\$ 6,382,900	16%	\$ 319.15
180th St	650	\$ 41,900	\$ 314,500	\$ 428,400	\$ 113,900	\$ 470,300	13%	\$ 723.54
Alley n/o 163rd St	500	\$ 34,800	\$ 261,000	\$ 355,600	\$ 94,600	\$ 390,400	13%	\$ 780.80
Burin Ave and Grevillea	1800	\$ 113,400	\$ 709,300	\$ 966,300	\$ 257,000	\$ 1,079,700	16%	\$ 599.83
Electric St, 182nd to Alley w/o Vermont	2950	\$ 99,900	\$ 603,500	\$ 844,400	\$ 240,900	\$ 944,300	17%	\$ 320.10
Freeman Ave	3300	\$ 155,800	\$ 973,600	\$ 1,326,300	\$ 352,700	\$ 1,482,100	16%	\$ 449.12
Haas Ave	2750	\$ 102,200	\$ 616,800	\$ 863,000	\$ 246,200	\$ 965,200	17%	\$ 350.98
Larch Ave	2500	\$ 131,100	\$ 791,300	\$ 1,135,000	\$ 343,700	\$ 1,266,100	17%	\$ 506.44
Spring St	7000	\$ 238,200	\$ 1,488,500	\$ 2,027,800	\$ 539,300	\$ 2,266,000	16%	\$ 323.71
Prarie Ave	750	\$ 40,100	\$ 300,800	\$ 409,800	\$ 109,000	\$ 449,900	13%	\$ 599.87
Raymond Ave	450	\$ 27,200	\$ 204,000	\$ 277,900	\$ 73,900	\$ 305,100	13%	\$ 678.00
Wilton Pl	2300	\$ 99,400	\$ 578,000	\$ 830,500	\$ 252,500	\$ 929,900	17%	\$ 404.30
WQ Area 16	9000	\$ 319,600	\$ 1,998,000	\$ 2,795,400	\$ 797,400	\$ 3,115,000	16%	\$ 346.11
Yukon	700	\$ 42,700	\$ 319,900	\$ 433,800	\$ 113,900	\$ 476,500	13%	\$ 680.71
<b>18 projects</b>	<b>61000</b>	<b>\$ 2,379,600</b>	<b>\$ 15,122,500</b>			<b>\$ 23,208,700</b>	<b>16%</b>	<b>\$ 380.47</b>

CBE - 8" DI	length	Design \$	total const w/o		const w/ OH	total w/ admin	% engr of	ave cost per ft
Alley w/o Arline Ave 209th to Centralia	400	\$ 18,600	\$ 134,600	\$ 188,300	\$ 53,700	\$ 206,900	14%	\$ 517.25
Seine	8100	\$ 358,100	\$ 2,239,200	\$ 3,132,800	\$ 893,600	\$ 3,490,900	16%	\$ 430.98
Cecilia Ave	1000	\$ 38,000	\$ 284,800	\$ 388,000	\$ 103,200	\$ 426,000	13%	\$ 426.00
Hermes	5670	\$ 231,800	\$ 1,399,100	\$ 1,957,500	\$ 558,400	\$ 2,189,300	17%	\$ 386.12
<b>4 projects</b>	<b>15170</b>	<b>\$ 646,500</b>	<b>\$ 4,057,700</b>			<b>\$ 6,313,100</b>	<b>16%</b>	<b>\$ 416.16</b>

CBW - 8" DI	length	Design	total const w/o		const w/ OH	total w/ admin	% engr of	ave cost per ft
Gifford ave	6950	\$ 274,800	\$ 1,658,300	\$ 2,382,800	\$ 274,800	\$ 2,657,600	17%	\$ 382.39
Sherman Way	2400	\$ 101,400	\$ 634,200	\$ 864,400	\$ 101,000	\$ 965,400	16%	\$ 402.25
82nd St	1300	\$ 43,500	\$ 325,900	\$ 444,000	\$ 43,500	\$ 487,500	13%	\$ 375.00
Alley w/o Compton - 77th to 78th	300	\$ 25,400	\$ 184,400	\$ 265,000	\$ 25,400	\$ 290,400	14%	\$ 968.00

Alley w/o Pace - 92nd to 96th	1400	\$	51,900	\$	389,400	\$	530,500	\$	51,900	\$	582,400	13%	\$	416.00
Maie	3450	\$	147,000	\$	919,300	\$	1,286,200	\$	147,000	\$	1,433,200	16%	\$	415.42
Nadeau	2950	\$	159,000	\$	994,400	\$	1,391,300	\$	159,000	\$	1,550,300	16%	\$	525.53
Slauson	550	\$	34,400	\$	239,700	\$	344,400	\$	34,400	\$	378,800	14%	\$	688.73
Wilmington	3800	\$	232,600	\$	1,453,800	\$	2,034,000	\$	232,600	\$	2,266,600	16%	\$	596.47
<b>9 projects</b>	<b>23100</b>	<b>\$</b>	<b>1,070,000</b>	<b>\$</b>	<b>6,799,400</b>	<b>\$</b>	<b>10,612,200</b>	<b>\$</b>	<b>1,070,000</b>	<b>\$</b>	<b>12,782,200</b>	<b>16%</b>	<b>\$</b>	<b>442.26</b>
Fir Ave - 12" DI	1300	\$	90,100	\$	562,900	\$	766,800	\$	90,100	\$	856,900	16%	\$	659.15

CC - 8" DI	length	Design \$	OH	const w/o	OH	const w/ OH	OH	total w/ admin	% engr of const cost	ave cost per ft
College Ave & Matteson Ave	1100	\$ 47,500	\$ 356,200	\$ 485,300	\$ 129,100	\$ 532,800	\$ 129,100	\$ 532,800	13%	\$ 484.36
Garfield Ave & Huntley ave	700	\$ 42,000	\$ 315,500	\$ 429,800	\$ 114,300	\$ 471,800	\$ 114,300	\$ 471,800	13%	\$ 674.00
Le Bourget Ave	2600	\$ 101,100	\$ 632,200	\$ 861,300	\$ 229,100	\$ 962,400	\$ 229,100	\$ 962,400	16%	\$ 370.15
McDonald St	6150	\$ 239,500	\$ 1,497,200	\$ 2,094,700	\$ 597,500	\$ 2,334,200	\$ 597,500	\$ 2,334,200	16%	\$ 379.54
Tuller Ave	300	\$ 21,300	\$ 159,600	\$ 223,300	\$ 63,700	\$ 244,600	\$ 63,700	\$ 244,600	13%	\$ 815.33
Culver Blvd	7000	\$ 287,100	\$ 1,794,700	\$ 2,444,900	\$ 650,200	\$ 2,732,000	\$ 650,200	\$ 2,732,000	16%	\$ 390.29
<b>6 projects</b>	<b>17850</b>	<b>\$ 738,500</b>	<b>\$ 4,755,400</b>	<b>\$ 6,444,900</b>	<b>\$ 1,794,700</b>	<b>\$ 8,239,600</b>	<b>\$ 1,794,700</b>	<b>\$ 8,239,600</b>	<b>16%</b>	<b>\$ 407.72</b>

	cost	length	cost per ft	length - mi
8" DI ( lines 24, 32, 44, 56)	\$ 47,411,800	117,120	\$ 404.81	22.18
12" DI (lines 4 & 46)	\$ 2,356,400	3,750	\$ 628.37	0.71

Region 2 Annual Pipeline Installation - miles	KANEW Recommended Replacement	GSWC's Proposed Installation	GSWC exceeds KANEW
2015	9.28	14.89	60%
2016	9.26	12.57	36%
2017	9.23	8.81	-5%
<b>total</b>	<b>27.77</b>	<b>36.27</b>	<b>31%</b>

**Park Water Company Central Basin Division  
Cost Estimate for 2015 Capital Improvements**

**2015-ME1: Shoemaker & Excelsior**

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$45,000	\$45,000
12" Ductile Iron Pipe	2,445	\$160	\$391,200
Import Material	2,445	\$22	\$53,790
Permit	2,445	\$2.90	\$7,091
Fire hydrants	6	\$7,734	\$46,404
<b>Total</b>			<b>\$543,485</b>
5% admin burden			\$27,174
<b>Grand Total</b>			<b>\$570,659</b>
Main Extension Total with admin burden			\$570,659

Discussion: Install 2,445 lf of 12" transmission main and fire hydrants. Continues previously constructed project that will improve circulation and fire flow capabilities in Bellflower/Norwalk Water system. Also eliminates dead end water mains.

6-c-1

**Park Water Company Central Basin Division  
Cost Estimate for 2015 Capital Improvements**

2015-MR03: Wilmington et al

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$75,000	\$75,000
12" Ductile Iron Pipe	7,975	\$160	\$1,276,000
Import Material	7,975	\$22	\$175,450
Permit	7,975	\$2.90	\$23,128
Services	198	\$1,933	\$382,734
Houselines	169	\$1,446	\$244,374
Fire hydrants	20	\$7,734	\$154,680
<b>Total</b>			<b>\$2,331,366</b>
<b>5% admin burden</b>			<b>\$116,568</b>
<b>Grand Total</b>			<b>\$2,447,934</b>
Cost of Removal Total with admin burden			\$256,593
Main Replacement Total with admin burden			\$2,191,341
<b>Cost of houselines under budget line item Cost of Removal - Mains</b>			

Discussion: Install 7,975 lf of 8" main, services, fire hydrants, and house line. Project will replace 4" cast iron main installed in 1947 in backyards. There has been one leak in this area. Project will improve fire flow and pressure.

**Park Water Company Central Basin Division  
Cost Estimate for 2016 Capital Improvements**

**2016-MR05: Gridley-Lindale-McLaren-Potter**

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$45,000	\$45,000
8" Ductile Iron Pipe	5,980	\$115	\$687,700
Permit	5,980	\$2.92	\$17,462
Services	162	\$1,953	\$316,386
Houselines	162	\$1,461	\$236,682
Fire hydrants	12	\$7,811	\$93,732
<b>Total</b>			\$1,396,962
5% admin burden			\$69,848
<b>Grand Total</b>			\$1,466,810
Cost of Removal Total with admin burden			\$248,516
Main Replacement Total with admin burden			\$1,218,294
Cost of houselines under budget line item Cost of Removal - Mains			

Discussion: Install 5,980 lf of 8" main, services, fire hydrants, and houselines. Project will replace 4" cast iron mains installed in back yards in 1947. Project will improve pressure and fire flow capabilities.

**Park Water Company Central Basin Division  
Cost Estimate for 2017 Capital Improvements**

**2017-MR02: Clymar & Caswell**

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$30,000	\$30,000
8" Ductile Iron Pipe	3,840	\$117	\$449,280
Import Material	3,840	\$22	\$84,480
Permit	3,840	\$2.94	\$11,290
Services	132	\$1,972	\$260,304
Fire hydrants	4	\$7,889	\$31,556
Reconnect ex. Fire hydrants	8	\$7,889	\$63,112
<b>Total</b>			<b>\$930,022</b>
5% admin burden			\$46,501
<b>Grand Total</b>			<b>\$976,523</b>
Main Replacement Total with admin burden			\$976,523

Discussion: Install 3,840 lf of 8" water main, services and fire hydrants. Project replaces cast iron pipelines installed in 1952 and 1953 which to date have had 12 leaks on them.

6-C-26

**Park Water Company Central Basin Division  
 Cost Estimate for 2017 Capital Improvements**

**2017-MR07: McKinley - 131st to 134th**

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$25,000	\$25,000
8" Ductile Iron Pipe	1,408	\$117	\$164,736
Import Material	1,408	\$22	\$30,976
Permit	1,408	\$2.94	\$4,140
Services	79	\$1,972	\$155,788
Houselines	23	\$1,476	\$33,948
Fire hydrants	4	\$7,889	\$31,556
<b>Total</b>			\$446,144
5% admin burden			\$22,307
<b>Grand Total</b>			\$468,451
Cost of Removal Total with admin burden			\$35,645
Main Replacement Total with admin burden			\$432,805
<b>Cost of houseline under budget line item Cost of Removal - Mains</b>			

Discussion: Install 1,408 lf of 8" main, services, fire hydrants, and houselines. Project will replace 4" and 6" cast iron mains installed in backyards in 1946 & 1948. There have been 5 leaks in this area. Project will improve pressure and fire flow availability.

## Park Water Company Central Basin Division Cost Estimate for 2017 Capital Improvements

2017-MR08: 148th - 149th - Wadsworth

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$50,000	\$50,000
12" Ductile Iron Pipe	3,135	\$163	\$511,005
Import Material	3,135	\$22	\$68,970
Permit	3,135	\$2.94	\$9,217
Services	15	\$1,972	\$29,580
Houselines	15	\$1,476	\$22,140
Fire hydrants	5	\$7,889	\$39,445
<b>Total</b>			<b>\$730,357</b>
5% admin burden			\$36,518
<b>Grand Total</b>			<b>\$766,875</b>
Cost of Removal Total with admin burden			\$23,247
Main Replacement Total with admin burden			\$743,628
<b>Cost of houseline under budget line item Cost of Removal - Mains</b>			

Discussion: Install 3,135 lf of 12" main, services, fire hydrants, and houselines. Project will replace 4" cast iron mains installed in 1944. It will connect to the previously installed Rosecrans/Cahita/Cairn project. It will also provide another north-south transmission capacity improving pressure and fire flow capability.

6 c. 38

**Park Water Company Central Basin Division  
Cost Estimate for 2017 Capital Improvements**

**2017-MR09: 135th - Main to Avalon**

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$45,000	\$45,000
12" Ductile Iron Pipe	1,730	\$163	\$281,990
Import Material	1,730	\$22	\$38,060
Permit	1,730	\$2.94	\$5,086
Fire hydrants	2	\$7,889	\$15,778
<b>Total</b>			<b>\$385,914</b>
5% admin burden			\$19,296
<b>Grand Total</b>			<b>\$405,210</b>
Main Replacement Total with admin burden			\$405,210

Discussion: Install 1,730 lf of 12" main and fire hydrants. Project will replace 10" cast iron pipe installed in 1956. Project will improve pressure and fire flow capabilities.

60-40

**Park Water Company Central Basin Division  
Cost Estimate for 2017 Capital Improvements**

**2017-MR10: Clark - Rosecrans to Faywood**

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$45,000	\$45,000
12" Ductile Iron Pipe	2,300	\$163	\$374,900
Import Material	2,300	\$22	\$50,600
Permit	2,300	\$2.94	\$6,762
Fire hydrants	5	\$7,889	\$39,445
<b>Total</b>			<b>\$516,707</b>
5% admin burden			\$25,835
<b>Grand Total</b>			<b>\$542,542</b>
Main Replacement Total			\$542,542

Discussion: Project will install 2,300 lf of 12" main and fire hydrants. Project will continue the north-south transmission capacity in the Bellflower/Norwalk water system improving pressure and fire flow availability.

6-C-42

**Park Water Company Central Basin Division  
Cost Estimate for 2017 Capital Improvements**

**2017-MR11: Liggett and Rosecrans**

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$45,000	\$45,000
12" Ductile Iron Pipe	2,817	\$163	\$459,171
Permit	2,817	\$2.94	\$8,282
Services	8	\$1,972	\$15,776
Fire hydrants	7	\$7,889	\$55,223
<b>Total</b>			<b>\$583,452</b>
5% admin burden			\$29,173
<b>Grand Total</b>			<b>\$612,625</b>
Main Replacement Total with admin burden			\$612,625

iron main installed in 1948 and will continue the east-west transmission main started in the Jersey/Rosecrans/ Gridley project. Project will improve pressure and fire flow capabilities.

6-c-44

**Park Water Company Central Basin Division  
Cost Estimate for 2017 Capital Improvements**

2017-MR12: 142nd - Central to Tajauta

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$45,000	\$45,000
12" Ductile Iron Pipe	2,471	\$163	\$402,773
Import Material	2,471	\$22	\$54,362
Permit	2,471	\$2.94	\$7,265
Services	39	\$1,972.00	\$76,908
Fire hydrants	6	\$7,889	\$47,334
<b>Total</b>			<b>\$633,642</b>
5% admin burden			\$31,682
<b>Grand Total</b>			<b>\$665,324</b>
Main Replacement Total with admin burden			\$665,324

Discussion: Install 2,471 lf of 12" main and fire hydrants. Project will replace 6" main installed in 1953. The new line will improve east-west transmission capacity, pressure, and fire flow capacity.

6-C-46

**Park Water Company Central Basin Division  
 Cost Estimate for 2017 Capital Improvements**

**2017-MR03: 166th & Arkansas**

Item	Quantity	Unit Cost	Cost
Consulting Engineer Services	1	\$45,000	\$45,000
12" Ductile Iron Pipe	1,365	\$163	\$222,495
Permit	1,365	\$2.94	\$4,013
Services	38	\$1,972	\$74,936
Fire hydrants	3	\$7,889	\$23,667
<b>Total</b>			<b>\$370,111</b>
5% admin burden			\$18,506
<b>Grand Total</b>			<b>\$388,617</b>
Main Replacement Total			\$388,617

Discussion: Install 1,365 lf of 12" main, services, and fire hydrants. Project will replace 4" cast iron main that was installed in 1953. Project will improve pressure and fire flow capabilities.

6 C-28

## **Appendix WATER QUALITY-A**

**(List of emails from DDW staff to ORA staff, confirming system compliance)**

Region 1:

**September 29, 2014** email from Jeff Deffmore of Division of Drinking Water (DDW) to ORA's Daphne Goldberg, stating the following systems are in compliance: **Edna Road, Los Osos, Nipomo, Lake Marie, Orcutt, Tanglewood, Ojai and Simi Valley.**

**September 15, 2014** email from Norman Fujimoto of Santa Barbara County Public Health Department to Daphne Goldberg indicating **Sisquoc** system is in compliance.

**October 13, 2014** email from Bruce Berger of DDW to ORA's Alex Lau, stating the following systems are in compliance: **Arden and Cordova.**

**October 13, 2014**, email from Marco Pacheco of DDW to Alex Lau stating the **Bay Point** system is in compliance.

**November 4, 2014**, email from Sherri Miller of DDW to Alex Lau stating the **Clearlake** system is in compliance.

Region 2:

**December 2, 2014**, email from James Willis of DDW to ORA's Jenny Au, confirming the **Southwest** system's compliance with DDW's permit provisions.

**December 11, 2014**, email from Chi Diep of DDW to Jenny Au stating the following systems are in compliance: **Artesia, Bell/Bell Gardens, Florence-Graham, Hollydale, Culver City, Norwalk, and Willowbrook.**

Region 3- Orange County District:

**November 3, 2014** email from Minliang Shih of DDW to ORA's Susana Nasserie, stating the following systems are in compliance: **Placentia, Yorba Linda, Cowan Heights and West OC.**

Region 3- Foothill District:

**October 30, 2014** email from David Lozano of DDW to Susana Nasserie stating the following systems are in compliance: **Claremont, San Dimas and South San Gabriel and South Arcadia.**

Region 3- Mountain Dessert District:

**January 9, 2015**, email from Sean Sterchi of DDW to ORA's Brian Yu, stating the GSWC-**Calipatria** system is in compliance.

**January 9, 2015** email from Sean McCarthy of DDW to Brian Yu stating the following GSWC systems are in compliance: **Barstow, Apple Valley North, Apple Valley South, Lucerne, Morongo Del Sur, and Wrightwood.**

**January 9, 2015** email from Eurich Santiago of San Bernardino County Department of Public Health to Brian Yu stating the following systems are in compliance: **Desert View and Morongo Del Norte.**

**Appendix WATER QUALITY-B**  
**(City of Gardena Letter)**

**PATL K. TANAKA, Mayor**  
TASHA CERDA, Mayor Pro Tem  
RACHEL C. JOHNSON, Councilmember  
DAN MEDINA, Councilmember  
TERRENCE TERPILCH, Councilmember  
1700 WEST 162<sup>ND</sup> STREET / GARDENA, CALIFORNIA 90247-3778 / PHONE (310) 217-9507  
FAX NO: (310) 217-9094 / WEB SITE: WWW.CITYOFGARDENA.CA.US



**OFFICE OF MAYOR PATL K. TANAKA**

January 29, 2015

California Public Utilities Commission

Los Angeles Office

320 West 4<sup>th</sup> Street, Suite 500

Los Angeles, CA 90013

Dear Los Angeles Office of the CPUC:

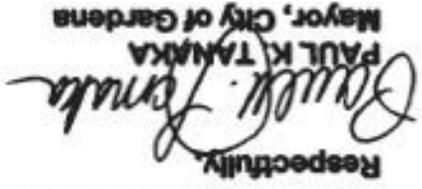
As you may already be aware, the community of Gardena has been "in the news" this week, which began because of video reports by residents being picked up by the media about the poor quality of the water coming into their homes.

Residents and businesses in the City of Gardena receive their water from Golden State Water Company (GSWC) which is a California utility and is a wholly-owned subsidiary of American States Water Co. It is regulated by your agency, as well as by the U.S. Environmental Protection Agency and the California Department of Public Health. The City of Gardena has no authority to regulate the provision of water or GSWC's distribution system.

I'm writing to bring to your attention that, over the last three (3) years, the City has attempted to assist residents and businesses with water quality issues and, during that period, the City has received in excess of fifty (50) complaints regarding water appearance, water odor, and the GSWC hydrant flushing program. Throughout this time, representatives of GSWC have appeared before the City Council to address these concerns, and they have always represented that Gardena's water quality meets State and Federal regulations/standards.

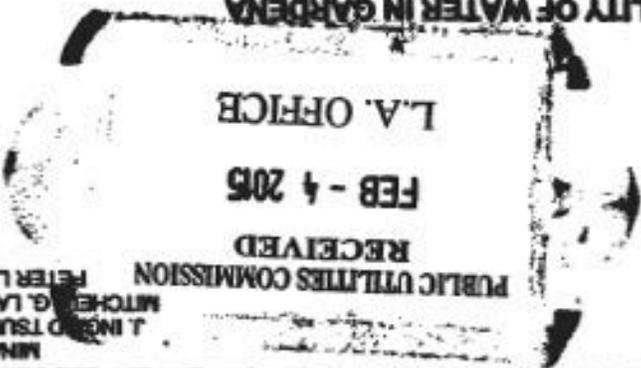
The frequency of complaints and descriptions of various water quality issues have intensified over the last six (6) months. Occasional reports of brown water started over three (3) years ago. This has accelerated into countless current reports of black water coming from the faucets in the homes of Gardena's residents. In fact, reverse osmosis devices have recently been installed in two (2) City of Gardena District Manager of GSWC. Those with water quality concerns are being encouraged to report them directly to Golden State Water Company, but to also keep the City informed so that we can monitor this critical problem.

On behalf of the officials and staff of the City of Gardena, as well as the residents and businesses of our fine community, we are reaching out to you to request your assistance to resolve the unacceptable water quality issues that our citizens and workforce are experiencing. If you require additional information, please feel free to contact City Manager Mitchell Lansdell, phone 310/217-9503.

Respectfully,  
  
PAUL K. TANAKA  
Mayor, City of Gardena

PKT:rw  
c: Gardena City Council Members / City Manager

SUBJECT: CONCERNS REGARDING QUALITY OF WATER IN GARDENA





**CITY OF GARDENA**

**OFFICE OF MAYOR PAUL K. TANAKA**

January 29, 2015

U.S. Environmental Protection Agency

Region 9 Office

75 Hawthorne Street

San Francisco, CA 94105

**SUBJECT: CONCERNS REGARDING QUALITY OF WATER IN GARDENA**

Dear Region 9 Office of the USEPA:

As you may already be aware, the community of Gardena has been "in the news" this week, which began because of video reports by residents being picked up by the media about the poor quality of the water coming into their homes.

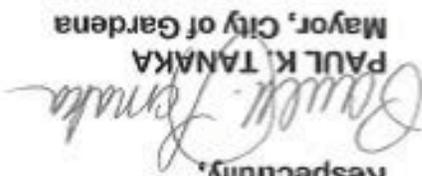
Residents and businesses in the City of Gardena receive their water from Golden State Water Company (GSWC) which is a California utility and is a wholly-owned subsidiary of American States Water Co. It is regulated by your agency, as well as by the California Public Utilities Commission and the California Department of Public Health. The City of Gardena has no authority to regulate the provision of water or GSWC's distribution system.

I'm writing to bring to your attention that, over the last three (3) years, the City has attempted to assist residents and businesses with water quality issues and, during that period, the City has received in excess of fifty (50) complaints regarding water appearance, water odor, and the GSWC hydrant flushing program. Throughout this time, representatives of GSWC have appeared before the City Council to address these concerns, and they have always represented that Gardena's water quality meets State and Federal regulations/standards.

The frequency of complaints and descriptions of various water quality issues have intensified over the last six (6) months. Occasional reports of brown water started over three (3) years ago. This has accelerated into countless current reports of black water coming from the faucets in the homes of Gardena's residents. In fact, reverse osmosis devices have recently been installed in two (2) City of Gardena facilities to address poor water quality. Each complaint to the City has been referred to the Southwest District Manager of GSWC. Those with water quality concerns are being encouraged to report them directly to Golden State Water Company, but to also keep the City informed so that we can monitor this critical problem.

On behalf of the officials and staff of the City of Gardena, as well as the residents and businesses of our fine community, we are reaching out to you to request your assistance to resolve the unacceptable water quality issues that our citizens and workforce are experiencing. If you require additional information, please feel free to contact City Manager Mitchell Lansdell, phone 310/217-9503.

Respectfully,

  
PAUL K. TANAKA  
Mayor, City of Gardena

PKT:rw  
c: Gardena City Council Members / City Manager

1700 WEST 162<sup>ND</sup> STREET / GARDENA, CALIFORNIA 90247-3778 / PHONE (310) 217-9507

FAX NO: (310) 217-9594 / WEB SITE: [www.ci.gardena.ca.us](http://www.ci.gardena.ca.us)

PAUL K. TANAKA, Mayor  
TASHA CERDA, Mayor Pro Tem  
RACHEL C. JOHNSON, Councilmember  
DAN MEDINA, Councilmember  
TERRENCE TERAUCHI, Councilmember

MINA SEMENZA, City Clerk  
J. INGRID TSUKUYAMA, City Treasurer  
MITCHELL G. LANSDELL, City Manager  
PETER L. WALLIN, City Attorney

**Appendix REGION 2 PLANT-A**  
**(ORA Data Request JA-007)**



## ORA

Office of Ratepayer Advocates  
California Public Utilities Commission

505 Van Ness Avenue  
San Francisco, CA 94102  
Phone: (415) 703-2544  
Fax: (415) 703-2057

<http://dra.ca.gov>

### ORA DATA REQUEST A.14-07-006: Golden State Water Company 2016-2018 General Rate Case

**Date: December 8, 2014**

To: **Keith Switzer**  
Vice President, Regulatory Affairs

Phone: (909) 394-3600  
Email: [KSwitzer@gswater.com](mailto:KSwitzer@gswater.com)

**Joseph M. Karp**  
Attorney for GSWC

Phone: (415) 591-1000  
Email: [jkarp@winston.com](mailto:jkarp@winston.com)

From: **Pat Ma, P.E.**  
ORA Project Coordinator

Phone: (415) 703-1559  
Email: [pat.ma@cpuc.ca.gov](mailto:pat.ma@cpuc.ca.gov)

**Jenny Au**  
Analyst

Phone: (213) 620-6502  
Email: [jenny.au@cpuc.ca.gov](mailto:jenny.au@cpuc.ca.gov)

**Shanna Foley**  
Attorney for ORA

Phone: (415) 703-2969  
Email: [shanna.foley@cpuc.ca.gov](mailto:shanna.foley@cpuc.ca.gov)

**Kerriann Sheppard**  
Attorney for ORA

Phone: (415) 703-3942  
Email: [kerriann.sheppard@cpuc.ca.gov](mailto:kerriann.sheppard@cpuc.ca.gov)

**Re: Data Request No. ORA-A.14-07-006: JA-007 (Region 2 Mains)**

**Responses Due: December 15, 2014**

### **INSTRUCTIONS**

You are instructed to answer the following Data Requests in the above-captioned proceeding, with written, verified responses per Public Utilities Code §§ 309.5 and 314, and Rules 1.1 and 10.1 of the California Public Utilities Commission's Rules of Practice and Procedure. Restate the text of each request prior to providing the response. For any questions, email the ORA contact(s) above with a copy to the ORA attorneys.

Each Data Request is continuing in nature. Provide your response as it becomes available, but no later than the due date noted above. If you are unable to provide a response by this date, notify ORA as soon as possible, with a written explanation as to why the response date cannot be met and a best estimate of when the information can be provided. If you acquire additional

information after providing an answer to any request, you must supplement your response following the receipt of such additional information.

Identify the person providing the answer to each data request and his/her contact information. Responses should be provided both in the original electronic format, if available, and in hard copy. (If available in Word format, send the Word document and do not send the information as a PDF file.) All electronic documents submitted in response to this data request should be in readable, downloadable, printable, and searchable formats, unless use of such formats is infeasible. Each page should be numbered. If any of your answers refer to or reflect calculations, provide a copy of the supporting electronic files that were used to derive such calculations, such as Excel-compatible spreadsheets or computer programs, with data and formulas intact and functioning. Documents produced in response to the data requests should be Bates-numbered, and indexed if voluminous. Responses to data requests that refer to or incorporate documents should identify the particular documents referenced by Bates-numbers or Bates-range.

If a request, definition, or an instruction, is unclear, notify ORA as soon as possible. In any event, answer the request to the fullest extent possible, specifying the reason for your inability to answer the remaining portion of the Data Request.

**DEFINITIONS**

Unless the request indicates otherwise, the following definitions are applicable in providing the requested information.

**DATA REQUESTS**

1. Artesia CSA - Seine Avenue Area Main Replacements

Please complete the information shown in the table below for this project:

<b>Artesia - Seine Avenue Mains</b>	<b>existing material and size</b>	<b>Age</b>	<b>length (ft)</b>	<b>Total Leak (2009 to 2013)</b>	<b>Estimated Design Cost</b>	<b>Estimated Construction Cost</b>
Seine Ave (183rd to 187th)						
Elaine Ave (183rd to 187th)						
Grayland Ave. (183rd to 187th)						
Horst Ave. (183rd to 187th)						
Ibex Ave. (183rd to 187th)						
Alley w/o Clarkdale (Ashworth to 183rd)						
Alley w/ Seine Ave (Ashworth to 183rd)						

Alley w/o Devlin (Ashworth to 183rd)						
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2. Gifford Avenue Main Replacement

Please complete the information shown in the table below for this project:

<b>Gifford Ave. Main Replacement</b>	<b>Existing Material and size</b>	<b>Age</b>	<b>length (ft)</b>	<b>Conditional Assesment Alternative Number</b>	<b>Estimated Design Cost</b>	<b>Estimated Construction Cost</b>
Gifford Ave						
Riverside Ave						
Corona Ave						
Flora Ave						
Randolph St						

3. Bell-Bell Gardens – Sherman Way Main Replacement

Please complete the information shown in the table below for this project:

<b>Bell - Sherman Way</b>	<b>existing material and size</b>	<b>Age</b>	<b>length (ft)</b>	<b>Total Leak (2009 to 2013)</b>	<b>Estimated Design Cost</b>	<b>Estimated Construction Cost</b>
Sherman Way (Gage to Bell)						
Sherman Way (Bell to Southall)						
Sherman Way (Southall to Florence)						

4. Florence-Graham – Maie Avenue Main Replacement

Please complete the information shown in the table below for this project:

<b>Florence-Graham - Maie Ave</b>	<b>existing material and size</b>	<b>Age</b>	<b>length (ft)</b>	<b>Conditional Assesment Alternative Number</b>	<b>Estimated Design Cost</b>	<b>Estimated Construction Cost</b>
Maie Ave						
76th st						

76th Pl (Whitsett to Walnut)						
76th Pl (Crocket to Lou Dillon)						

5. Culver City – Culver Boulevard Main Replacement

Please complete the information shown in the table below for this project:

<b>Culver City - Culver Blvd</b>	<b>existing material and size</b>	<b>Age</b>	<b>length (ft)</b>	<b>Proposed pipe size</b>	<b>Estimated Design Cost</b>	<b>Estimated Construction Cost</b>
Culver Blvd (Sepulveda to Huron)						
Culver Blvd (Huron to Overland)						
Wagner St (Sepulveda to Huron)						
Wagner St (Huron to Coombs)						

6. Southwest – 112<sup>th</sup> Street Main Replacement

Please complete the information shown in the table below for this project:

<b>Southwest - 112th Street Mains</b>	<b>existing material and size</b>	<b>Age</b>	<b>length (ft)</b>	<b>total 2009 &amp; 2010 leaks</b>	<b>Conditional Assesment Alternative Number</b>	<b>proposed replacement pipeline size</b>	<b>Estimated Design Cost</b>	<b>Estimated Construction Cost</b>
112th St (between Lohengrin & Cimarron)								
111th St (between Lohengrin & Spinning)								
Lohengrin St (between Imperial & Cimarron)								
Cimarron St (between Lohengrin & 112th St)								
Spinning Ave (between 111th and Imperial)								
Wilton St (between Imperial & Cullivan)								
St. Andrew Pl (between Imperial & Manhattan Pl)								

Manhattan Pl (between 111th & St. Andrews)								
Imperial Hwy (between Spinning & Lohengrin)								
Imperial Hwy (between Lohengrin & Wilton)								
Imperial Hwy (between Wilton & Western)								

7. Southwest – 130<sup>th</sup> Street Main Replacement

Please complete the information shown in the table below for this project:

<b>Southwest - 130th St Mains</b>	<b>existing material and size</b>	<b>Age</b>	<b>length (ft)</b>	<b>total 2009 &amp; 2010 leaks</b>	<b>Conditional Assesment Alternative Number</b>	<b>Estimated Design Cost</b>	<b>Estimated Construction Cost</b>
130th St (between Western & Budlong)							
132nd St (between Western & Budlong)							
134th St (between Western & Budlong)							
135th St (between Western & Budlong)							
Budlong Ave (between El Segundo & 130th)							
Budlong Ave (between 130th & 132nd)							
Budlong Ave (between 132nd & 134th)							
Budlong Ave (between 134th & 135th)							

8. Southwest – 154<sup>th</sup> Street Main Replacement

Please complete the information shown in the table below for this project:

Southwest - 154th St Main Replacements	existing material and size	Age	length (ft)	total 2009 & 2010 leaks	Conditional Assesment Alternative Number	Estimated Design Cost	Estimated Construction Cost
154th St							
Gerkin Ave							
Cordary Ave							
Roselie Ave							
157th St							
Doty Ave							
156th St							
Yukon Ave							
Foothill Ave							
Marine Ave							

9. Southwest – Burin Avenue Main Replacement

Please complete the information shown in the table below for this project:

Southwest - Burin Ave & Grevillea Ave	existing material and size	Age	length (ft)	Conditional Assesment Alternative Number	Estimated Design Cost	Estimated Construction Cost
Burin Ave (between Century and 102nd)						
Grevillea Ave (between Century and 104th)						

10. Southwest – Freeman Avenue Main Replacement

Please complete the information shown in the table below for this project:

Southwest - Freeman Ave	existing material and size	Age	length (ft)	total 2009 & 2010 leaks	Estimated Design Cost	Estimated Construction Cost
Freeman Ave (between 153rd and Marine)						
154th St (between Condon and Hawthorne)						
153rd St (between Hawthorne and Freeman)						

11. Southwest – Gardena Main Replacement

Please complete the information shown in the table below for this project:

<b>Southwest - Gardena Blvd</b>	<b>existing material and size</b>	<b>Age</b>	<b>length (ft)</b>	<b>total 2009 leaks</b>	<b>Proposed pipe size</b>	<b>Estimated Design Cost</b>	<b>Estimated Construction Cost</b>
Gardena Blvd (Figueroa to Vermont)							
Gardena Blvd (Vermont to Berendo)							
Vermont Ave (Gardena to 170th St)							
165 Pl (e/o Berendo)							
Berendo Ave (Gardena to 165th)							
Alley n/o 165th St (Berendo to Vermont)							
New Hampshire Ave (alley n/o 165th to 165th)							

12. Please provide the results of the hydraulic analysis which recommended the construction of the following projects:

- a. Southwest – 130<sup>th</sup> Street Main Replacemnt
- b. Southwest – 147<sup>th</sup> Street Main Replacement
- c. Southwest – Burin Avenue Main Replacement
- d. Southwest – El Segundo Avenue Main Replacement
- e. Southwest – Yukon Avenue Main Replacement
- f. Norwalk – Metro Center Drive Main Replacement
- g. Culver City – College Avenue Main Replacement

---

**END OF REQUEST**



**Golden State**  
Water Company  
A Subsidiary of American States Water Company

December 15, 2014

Ms. Jenny Au  
**CALIFORNIA PUBLIC UTILITIES COMMISSION**  
505 Van Ness Avenue  
San Francisco, CA 94102

Subject: Data Request ORA-A.14-07-006: JA-007  
Due Date: December 15, 2014

Dear Ms. Au,

In response to the above referenced data request, we are pleased to submit the following responses:

**Question 1**

Artesia CSA - Seine Avenue Area Main Replacements

**Question 2**

Gifford Avenue Main Replacement

**Question 3**

Bell-Bell Gardens – Sherman Way Main Replacement

**Question 4**

Florence-Graham – Maie Avenue Main Replacement

**Question 5**

Culver City – Culver Boulevard Main Replacement

**Question 6**

Southwest – 112<sup>th</sup> Street Main Replacement

**Question 7**

Southwest – 130<sup>th</sup> Street Main Replacement

**Question 8**

Southwest – 154<sup>th</sup> Street Main Replacement

**Question 9**

Southwest – Burin Avenue Main Replacement

**Question 10**

Southwest – Freeman Avenue Main Replacement

**Question 11**

Southwest – Gardena Main Replacement

**Responses 1 through 11**

Attachment JA-007-1 includes Scope of Work drawings for the projects in Questions 1 through 11. These drawings show the size, material, and year built for pipes mentioned above. The year built for each pipe is the two-digit number either following or preceding the work order number. For example, pipelines labeled as 4" CI 6274-53 and 4" AC 60-642 are 4-inch Cast Iron and Asbestos Concrete pipes built in 1953 and 1960 respectively.

The rest of the information requested in Questions 1 through 11 is not readily available since the Project Cost Estimate (PCE) was created for each project as a whole.

These pipelines were grouped together in order to reduce the overall cost to the company. One design and bid package in geographical proximity is more cost effective and economical than several. In addition, it reduces the amount of time and the number of times a community will be affected by construction (fewer mobilizations/demobilizations, one contract and contractor to manage, ability to schedule the work continuously, etc.).

Please refer to GSWC's Pipeline Management Program submitted with the GRC application (Testimony, Attachment E) for an explanation of GSWC's pipeline replacement/installation program as part of the company's best practices.

**Question 12**

Please provide the results of the hydraulic analysis which recommended the construction of the following projects:

- a. Southwest – 130<sup>th</sup> Street Main Replacement
- b. Southwest – 147<sup>th</sup> Street Main Replacement
- c. Southwest – Burin Avenue Main Replacement
- d. Southwest – El Segundo Avenue Main Replacement
- e. Southwest – Yukon Avenue Main Replacement
- f. Norwalk – Metro Center Drive Main Replacement
- g. Culver City – College Avenue Main Replacement

**Response 12**

Below is an explanation of hydraulic analysis and deficiencies for the requested projects:

- a. Southwest – 130<sup>th</sup> St Area Main Replacements: The flow in the old cast iron mains is restricted, most likely due to tuberculation, and has resulted in headloss. These pipelines are as old as 67 years old.

CPUC  
JA-007  
December 15, 2014

- b. Southwest – 147<sup>th</sup> St Area Main Replacements: The flow in the old cast iron mains is restricted, most likely due to tuberculation, and has resulted in headloss. These pipelines are as old as 62 years old.
- c. Southwest – Burin Ave and Grevillea Ave: The flow in the old steel and cast iron mains is restricted, most likely due to tuberculation, and has resulted in headloss. These pipelines are as old as 87 years old.
- d. Southwest – El Segundo Blvd Area Main Replacements: The flow in the old cast iron and asbestos concrete mains is restricted, most likely due to tuberculation, and has resulted in headloss. These pipelines are as old as 67 years old.
- e. Southwest – Yukon Ave, 102<sup>nd</sup> to 104<sup>th</sup>: The flow in the old cast iron main is restricted, most likely due to tuberculation, and has resulted in headloss. This pipeline is 63 years old.
- f. Norwalk – Metro Center Dr Area Main Replacements: Pipeline capacity needs to be increased in this area to provide the additional flow to the System from the new well at the Dace plant. The existing pipelines near the Dace Plant are cast iron and are as old as 62 years old.
- g. Culver City – College Ave and Matteson Ave: The flow in the old cast iron main is restricted, most likely due to tuberculation, and has resulted in headloss. This pipeline is 77 years old.

If you have any questions, please do not hesitate to call me at (909) 394-3600, extension 680.

Sincerely yours,



*KS* Keith Switzer  
Vice President – Regulatory Affairs

c: Pat Ma  
Lisa Bilir  
Shanna Foley  
Kerriann Sheppard  
Joseph Karp  
Jenny Darney-Lane  
John Garon





# GIFFORD AVE., RIVERSIDE AVE., CORONA AVE., FLORA AVE., RANDOLPH ST., PINE AVE., REPLACE 4" & 6" CI WITH 8" DIP - 6,950 LF



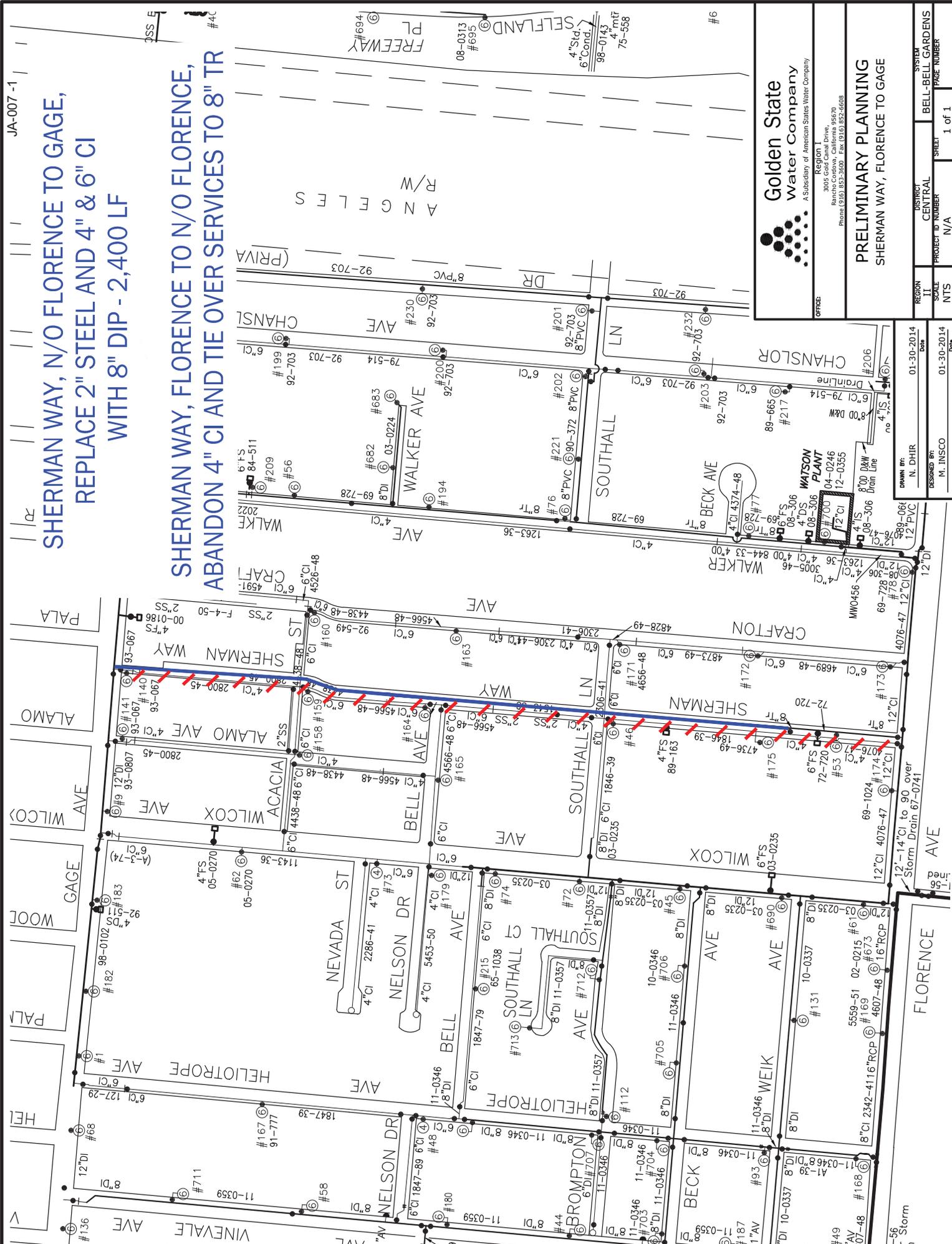
**Golden State Water Company**  
 A Subsidiary of American States Water Company  
 3005 Gold Canal Drive  
 Rancho Cordova, California 95670  
 Phone (916) 853-3600 Fax (916) 852-6608

## PRELIMINARY PLANNING

GIFFORD AVE AREA MAIN REPLACEMENTS

REGION	CENTRAL	DISTRICT	SISTEM
PROJECT NUMBER	NTS	PROJECT ID NUMBER	N/A
SHEET	1 of 1	BELL-BELL GARDENS	PAGE NUMBER

DRAWN BY:	S. RASTEGARPOUR	Date	11-08-2013
DESIGNED BY:	M. TINSICO	Date	11-08-2013



**SHERMAN WAY, N/O FLORENCE TO GAGE,  
REPLACE 2" STEEL AND 4" & 6" CI  
WITH 8" DIP - 2,400 LF**

**SHERMAN WAY, FLORENCE TO N/O FLORENCE,  
ABANDON 4" CI AND TIE OVER SERVICES TO 8" TR**



**Golden State Water Company**  
A Subsidiary of American States Water Company  
Region I  
3005 Gold Canal Drive, #6279  
Brea, CA 92623  
Phone (916) 852-3600 Fax (916) 852-6608

**PRELIMINARY PLANNING**  
SHERMAN WAY, FLORENCE TO GAGE

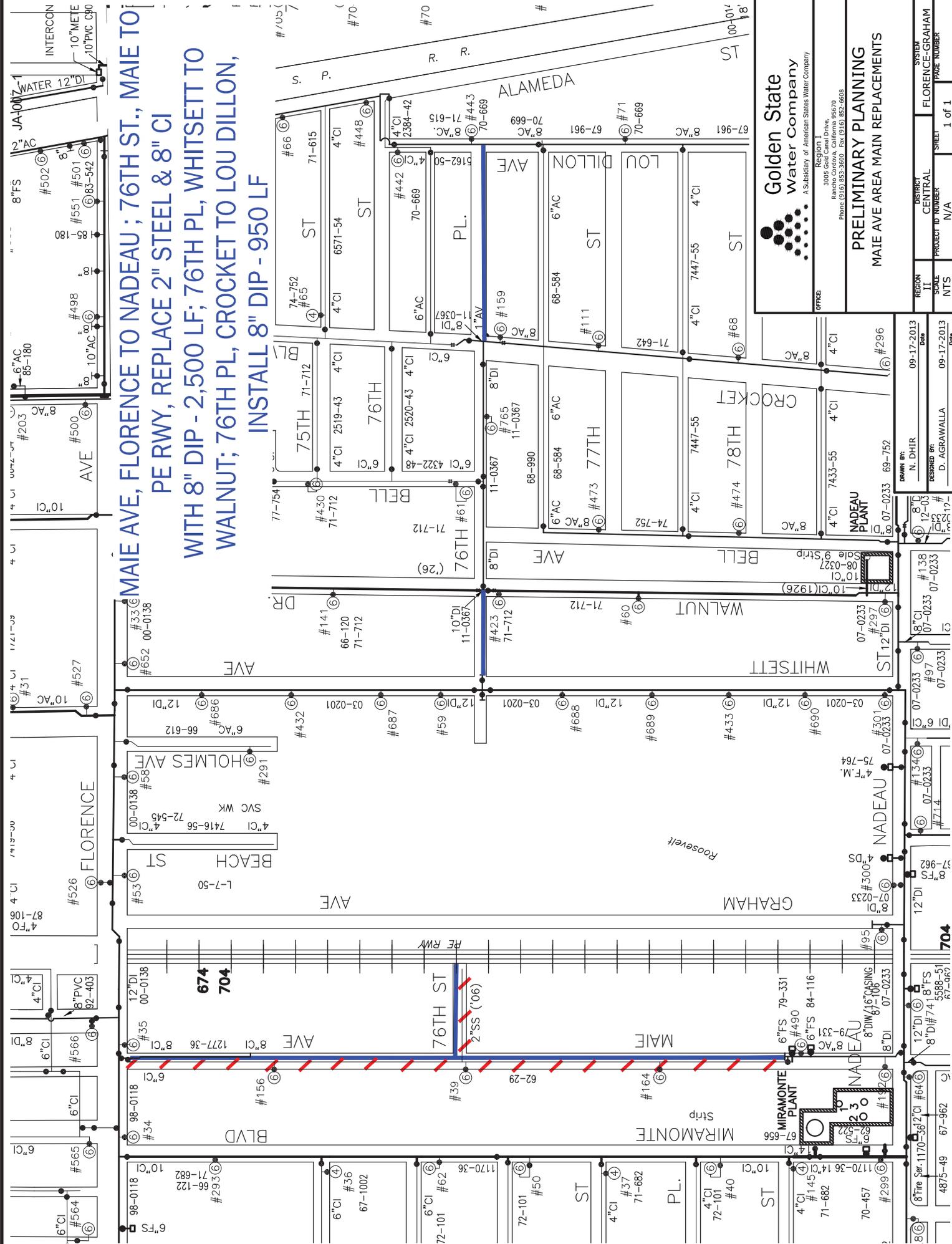
REGION II	DISTRICT CENTRAL	SHEET	SYSTEM BELL-BELL GARDENS
NTS	PROJECT ID NUMBER N/A	1 of 1	PAGE NUMBER

DRAWN BY: N. DHHR	DATE: 01-30-2014
DESIGNED BY: M. INSCO	DATE: 01-30-2014

JA-007-1

3" Storm in

**MAIE AVE, FLORENCE TO NADEAU ; 76TH ST., MAIE TO PERWY, REPLACE 2" STEEL & 8" CI WITH 8" DIP - 2,500 LF; 76TH PL, WHITSETT TO WALNUT; 76TH PL, CROCKET TO LOU DILLON, INSTALL 8" DIP - 950 LF**



**PRELIMINARY PLANNING**  
**MAIE AVE AREA MAIN REPLACEMENTS**

REGION I  
 DISTRICT  
 CENTRAL  
 PROJECT NUMBER  
 N/A

DESIGNED BY  
 D. AGRAWALLA  
 DATE  
 09-17-2013

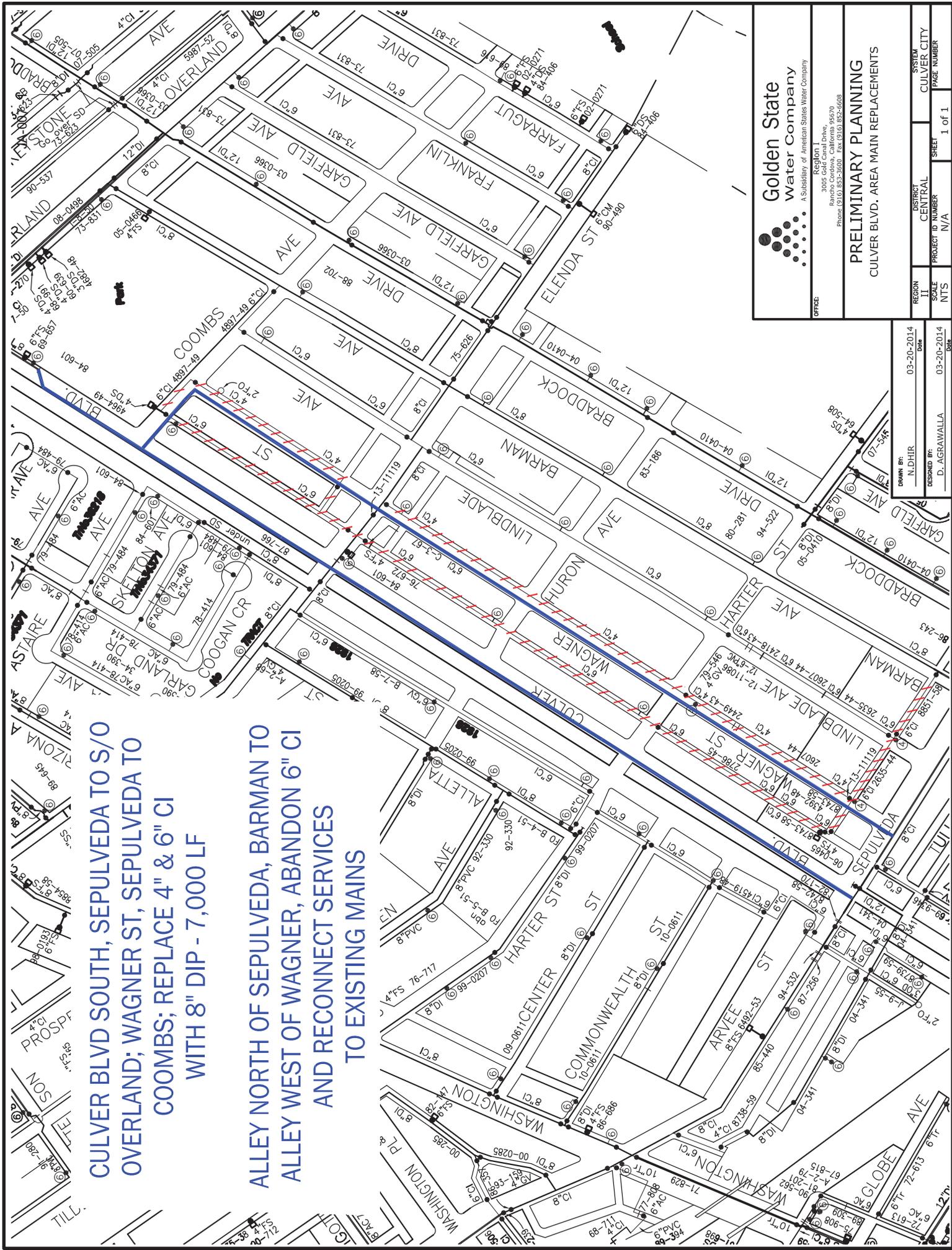
DRAWN BY  
 N. DHIR  
 DATE  
 09-17-2013

SCALE  
 NTS  
 SHEET  
 1 of 1

SYSTEM  
 FLORENCE-GRAHAM  
 PAGE NUMBER

**CULVER BLVD SOUTH, SEPULVEDA TO S/O  
OVERLAND; WAGNER ST, SEPULVEDA TO  
COOMBS; REPLACE 4" & 6" CI  
WITH 8" DIP - 7,000 LF**

**ALLEY NORTH OF SEPULVEDA, BARMAN TO  
ALLEY WEST OF WAGNER, ABANDON 6" CI  
AND RECONNECT SERVICES  
TO EXISTING MAINS**



**Golden State water company**  
A Subsidiary of American States Water Company

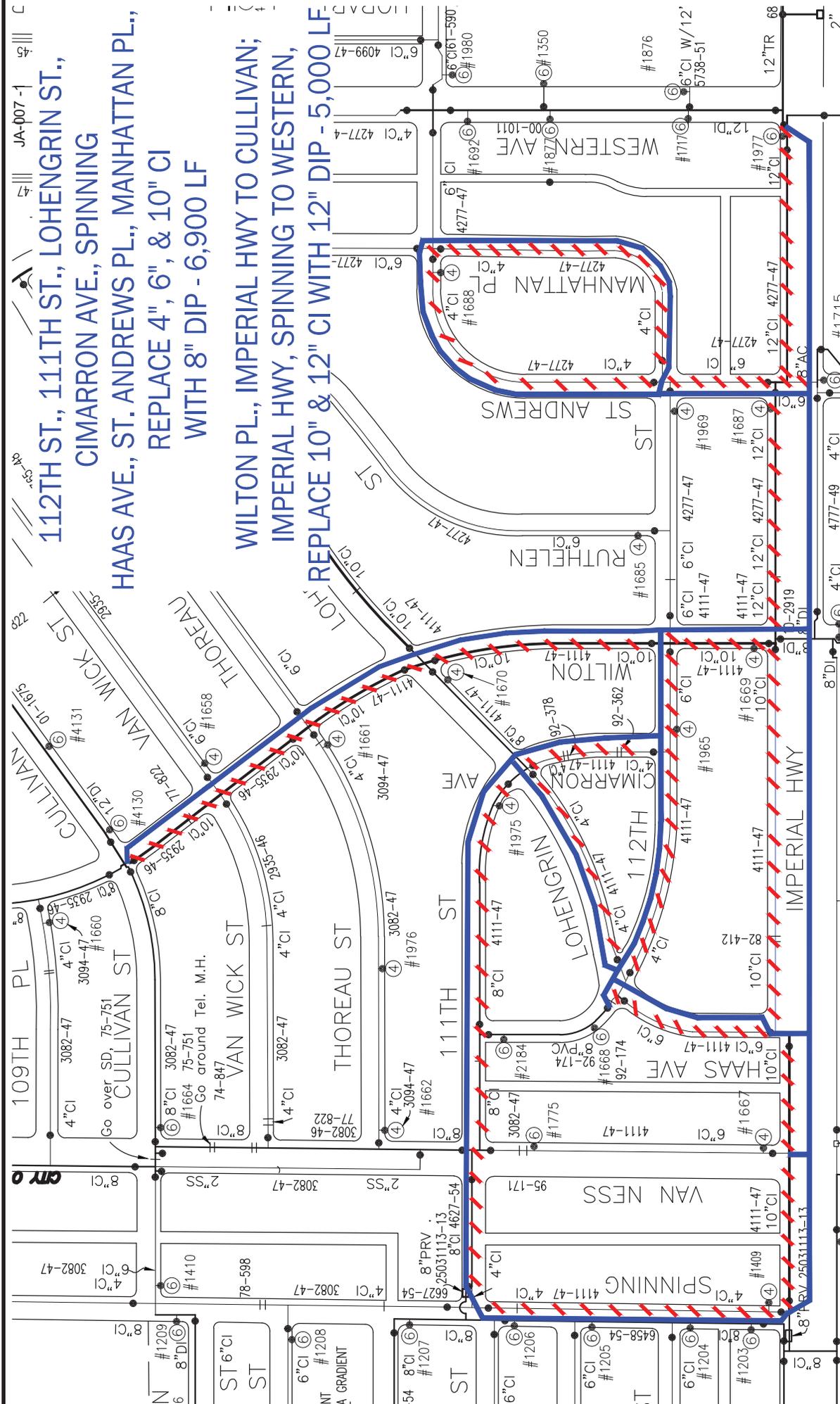
Region I  
3005 Gald Canal Drive,  
Rancho Conejo, California 95970  
Phone: (916) 953-3000 Fax: (916) 953-6008

**PRELIMINARY PLANNING**  
CULVER BLVD. AREA MAIN REPLACEMENTS

OFFICE:	REGION:	DISTRICT:	SYSTEM:
	II	CENTRAL	CULVER CITY
	SCALE:	PROJECT TO NUMBER:	SHEET:
	NTS	N/A	PAGE NUMBER:
			1 of 1

DATE:	03-20-2014
DESIGNED BY:	D. AGRAWALLA
SCALE:	NTS
PROJECT TO NUMBER:	03-20-2014
SHEET:	088
SYSTEM:	CULVER CITY
PAGE NUMBER:	1 of 1

DRAWN BY:	N. DHIR
DATE:	03-20-2014
DESIGNED BY:	D. AGRAWALLA
SCALE:	NTS
PROJECT TO NUMBER:	03-20-2014
SHEET:	088
SYSTEM:	CULVER CITY
PAGE NUMBER:	1 of 1



112TH ST., 111TH ST., LOHENGRIN ST.,  
 CIMARRON AVE., SPINNING  
 HAAS AVE., ST. ANDREWS PL., MANHATTAN PL.,  
 REPLACE 4" 6", & 10" CI  
 WITH 8" DIP - 6,900 LF

WILTON PL., IMPERIAL HWY TO CULLMAN;  
 IMPERIAL HWY, SPINNING TO WESTERN,  
 REPLACE 10" & 12" CI WITH 12" DIP - 5,000 LF



Golden State  
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 3005 Golden State Drive  
 Rancho Cordova, California 95670  
 Phone (916) 853-3600 Fax (916) 852-6608

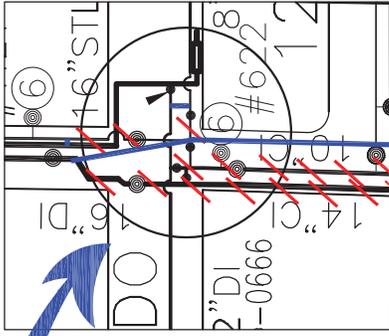
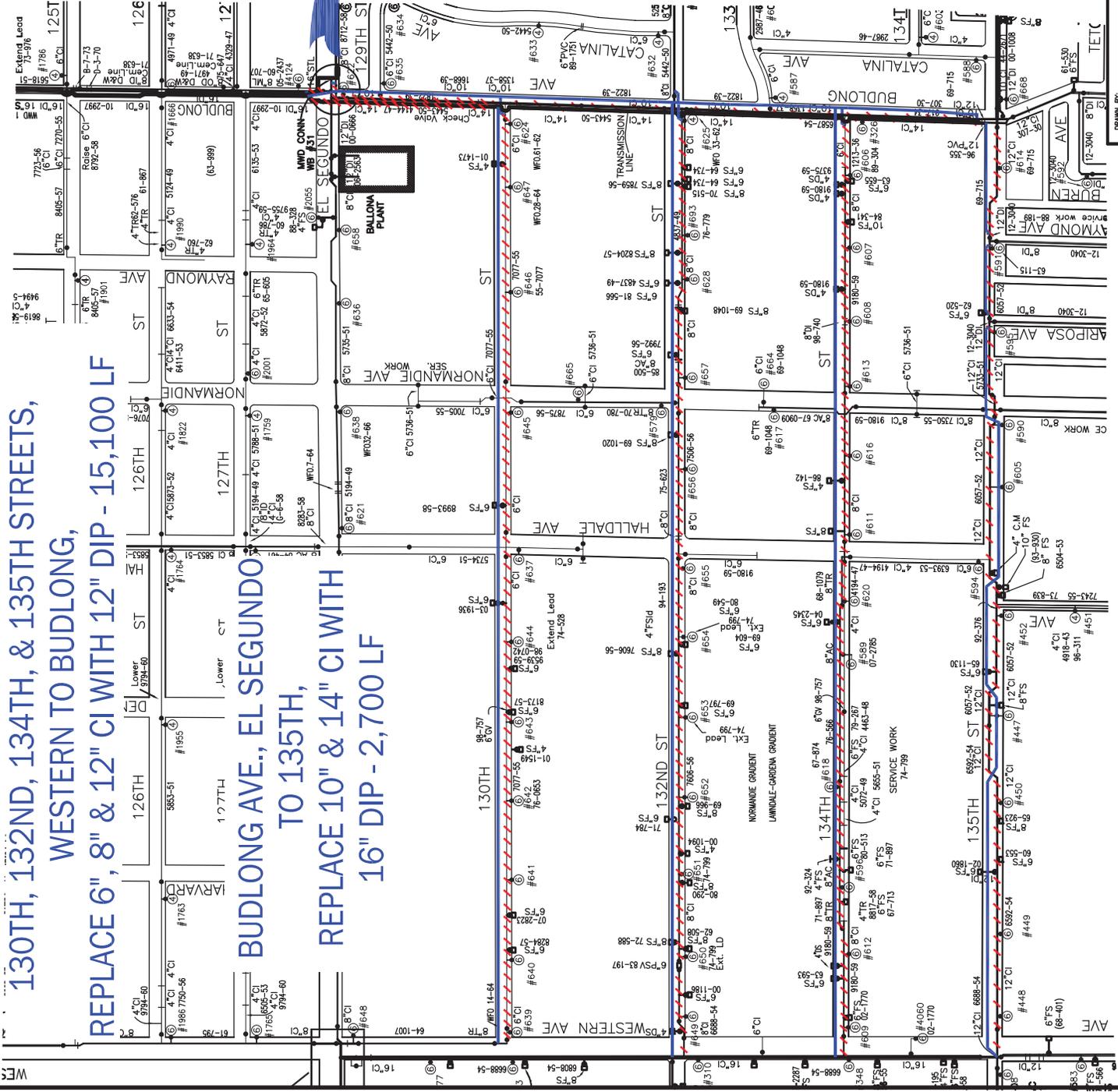
**PRELIMINARY PLANNING**  
 112TH ST. AREA MAIN REPLACEMENTS

REGION	SOUTHWEST	SHEET	1 of 1
PROJECT ID NUMBER	N/A	DATE	01-30-2014
DESIGNED BY	D. AGRAWALLA	DATE	01-30-2014
DRAWN BY	S. RASTEGARPOUR	DATE	01-30-2014

PROJECT ID NUMBER	N/A	DATE	01-30-2014
DESIGNED BY	D. AGRAWALLA	DATE	01-30-2014
DRAWN BY	S. RASTEGARPOUR	DATE	01-30-2014

**130TH, 132ND, 134TH, & 135TH STREETS,  
WESTERN TO BUDLONG,  
REPLACE 6" 8" & 12" CI WITH 12" DIP - 15,100 LF**

**BUDLONG AVE., EL SEGUNDO  
TO 135TH,  
REPLACE 10" & 14" CI WITH  
16" DIP - 2,700 LF**



**Golden State Water Company**  
A Subsidiary of American States Water Company

Region I  
3005 Gold Canal Drive  
Rancho Cordova, California 95670  
Phone (916) 852-2600 Fax (916) 852-5688

OFFICE

**PRELIMINARY PLANNING**  
130TH ST. AREA MAIN REPLACEMENTS

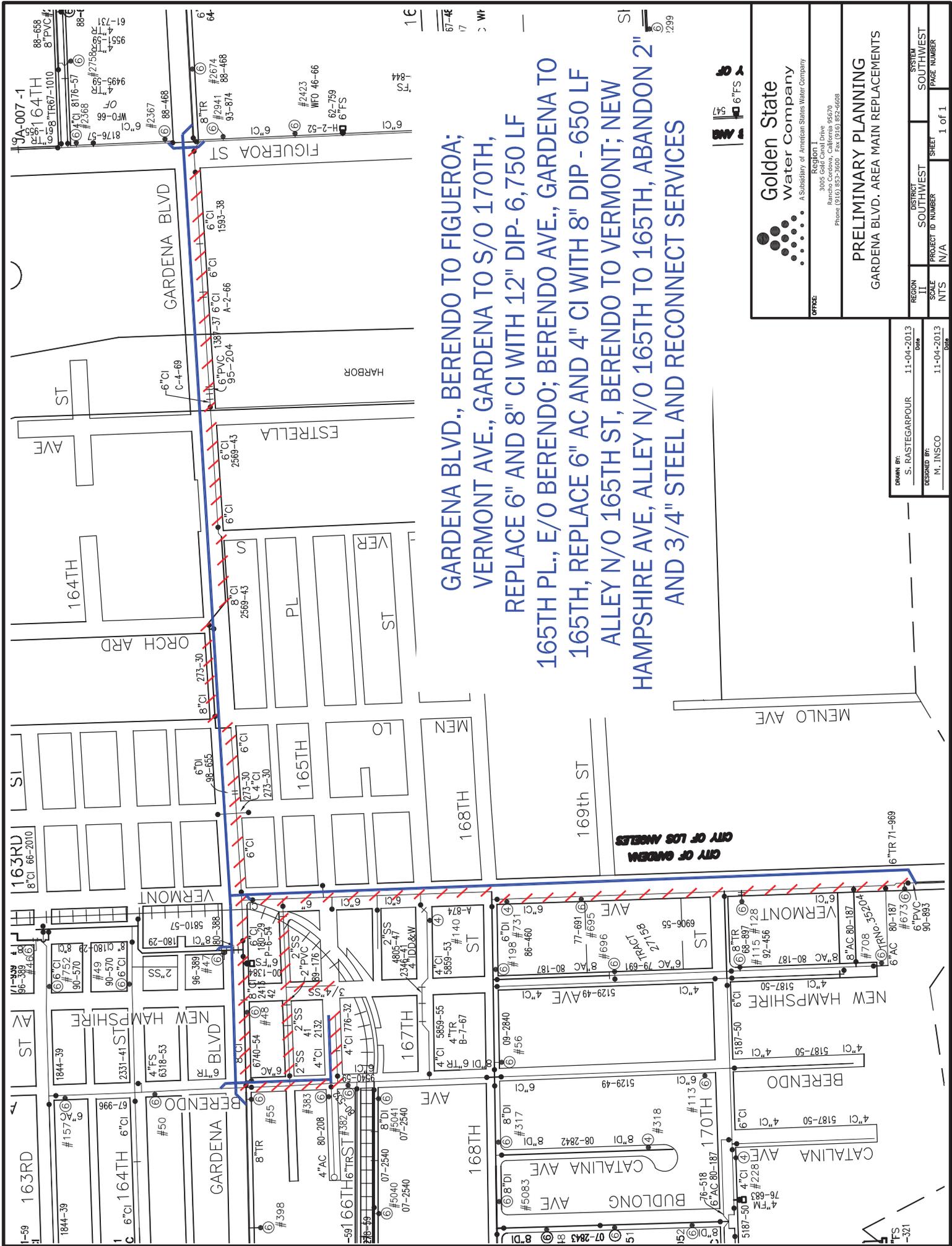
REGION II	DISTRICT	SYSTEM
NTS	SOUTHWEST	SOUTHWEST
PROJECT NUMBER	SHEET	PAGE NUMBER
N/A	1 of 1	1 of 1

DATE: 11-22-2013  
DESIGNED BY: M. INSCO  
DRAWN BY: N. DHIR









**GARDENA BLVD., BERENDO TO FIGUEROA;  
 VERMONT AVE., GARDENA TO S/O 170TH,  
 REPLACE 6" AND 8" CI WITH 12" DIP-6, 750 LF  
 165TH PL, E/O BERENDO; BERENDO AVE., GARDENA TO  
 165TH, REPLACE 6" AC AND 4" CI WITH 8" DIP - 650 LF  
 ALLEY N/O 165TH ST, BERENDO TO VERMONT; NEW  
 HAMPSHIRE AVE, ALLEY N/O 165TH TO 165TH, ABANDON 2"  
 AND 3/4" STEEL AND RECONNECT SERVICES**



**Golden State Water Company**  
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 Rancho Cordova, California 95670  
 Phone (916) 852-3600 Fax (916) 852-5068

**PRELIMINARY PLANNING**  
 GARDENA BLVD. AREA MAIN REPLACEMENTS

REGION II	DISTRICT SOUTHWEST	SYSTEM SOUTHWEST
SCALE NTS	PROJECT ID NUMBER N/A	SHEET 1 of 1
NTS	PAGE NUMBER	

DRAWN BY: S. RASTEGARPOUR	DATE: 11-04-2013
DESIGNED BY: M. INSCO	DATE: 11-04-2013

CITY OF GARDENA  
 6"TR 71-969

**Appendix REGION 2 PLANT-B**  
**(ORA's Workpaper - 8" DI Unit Cost)**

source of data

RII Unit Cost xlsx - Tabs: 2011, 2012, & 2013

escalation rate - blanket worksheet

	2011	esc to 2013	number of data	annual average	
2011 (105.3%)	238	\$ 250.61			
	120	\$ 126.36			
	68	\$ 71.60			
	76	\$ 80.03			
	62	\$ 65.29	5	\$ 118.78	
2012 (102.6%)	98	\$ 100.55			
	52	\$ 53.35			
	59	\$ 60.53			
	64	\$ 65.66			
	89	\$ 91.31			
	104	\$ 106.70			
	104	\$ 106.70			
	150	\$ 153.90			
	90	\$ 92.34			
	104	\$ 106.70			
	120	\$ 123.12	11	\$ 96.44	
2013	107	\$ 107.00			
	98	\$ 98.00			
	75	\$ 75.00			
	62	\$ 62.00			
	165	\$ 165.00			
	85	\$ 85.00			
	55	\$ 55.00			
	80	\$ 80.00			
	65	\$ 65.00			
	97	\$ 97.00			
	58	\$ 58.00			
	88	\$ 88.00			
	72	\$ 72.00			
	65	\$ 65.00			
	87	\$ 87.00			
	92	\$ 92.00			
	113	\$ 113.00			
	88	\$ 88.00			
	160	\$ 160.00			
	190	\$ 190.00			
	88	\$ 88.00			
	135	\$ 135.00			
	84	\$ 84.00			
	85	\$ 85.00			
	63	\$ 63.00			
	96	\$ 96.00			
	50	\$ 50.00			
	118	\$ 118.00			
	55	\$ 55.00			
	155	\$ 155.00			
104	\$ 104.00				
150	\$ 150.00				
	73	\$ 73.00	33	\$ 95.70	
	average	\$ 98.22		103.64	

8" DI unit cost	escalated to 2013 dollar
2011 – 5 projects	\$119
2012 – 11 projects	\$96
2013 - 33 projects	\$96
<b>Average</b>	<b>\$104</b>

**Appendix REGION 2 PLANT-C**

**(ORA's Workpaper – Total 8" DI length and total cost)**

Source GSWC's Workpapers Vols 2 & 3 - Construction Cost Estimate					
system	proj name	length	2015	2016	2017
artesia	arline	400		400	
	Jersey	2260			2260
	Seine	8100		8100	
norwalk	Cecilia	1000	1000		
	Hermes	5670		5670	
bell	Gifford	6950			6950
	Sherman	2400	2400		
F/G	82nd	1300	1300		
	Compton	300			300
	Pace	1400	1400		
	Fir	1300	1300		
	Maie	3450		3450	
	Nadeau	2950		2950	
	Slauson	550			550
	Merkel	800			800
	Wilmington	3800		3800	
CC	College	1100	1100		
	Wesley	2250			2250
	Garfield	700	700		
	Le Bourget	2600	2600		
	McDonald	6150		6150	
	Tuller	300		300	
	Culver City	7000	7000		
SW	93rd	1300	1300		
	98th	3650	3650		
	112th	6900		6900	
	117th	350			350
	147th	1050	1050		
	154th	20000	20000		
	180th	650	650		
	163rd	500	500		
	Burin	1800	1800		
	Century	50	50		
	El Segundo E of Avalon	100	100		
	El Segundo - Roseline	2800		2800	
	Electric	2950		2950	
	Freeman	3300	3300		
	Gardena	650			650
	Haas	2750		2750	
	Larch	2500			2500
	Normandie	1100	1100		
	Spring	7000	7000		
Prairie	750	750			

	Raymond	450	450		
	Wilton	2300			2300
	WQ area 16	9000		9000	
	Yukon	700	700		
total length		135330	61200	55220	18910
cost difference of \$6 (\$104-\$98)		\$ 811,980	\$ 367,200	\$ 331,320	\$ 113,460
escalated to construction year dollar @ 3% per year			\$ 389,562	\$ 362,042	\$ 127,700
design - 10%		\$ 81,198	\$ 38,956	\$ 36,204	\$ 12,770
subtotal		\$ 893,178	\$ 428,519	\$ 398,247	\$ 140,470
OH - 17%		\$ 151,840	\$ 72,848	\$ 67,702	\$ 23,880
contingency -10%		\$ 89,317.8	\$ 42,851.9	\$ 39,824.7	\$ 14,047.0
total impact		<b>\$ 1,134,336</b>	<b>\$ 544,219</b>	<b>\$ 505,773</b>	<b>\$ 178,397</b>
					<b>\$ 1,228,389</b>

**Appendix REGION 2 PLANT-D**  
**(ORA's Workpaper – Small Project Estimates)**



**Appendix REGION 2 PLANT-E**

**(SWRCB's Low Threat Underground Storage Tank Case Closure Policy)**

## Low-Threat Underground Storage Tank Case Closure Policy

### Preamble

The State Water Resources Control Board (State Water Board) administers the petroleum UST (Underground Storage Tank) Cleanup Program, which was enacted by the Legislature in 1984 to protect health, safety and the environment. The State Water Board also administers the petroleum UST Cleanup Fund (Fund), which was enacted by the Legislature in 1989 to assist UST owners and operators in meeting federal financial responsibility requirements and to provide reimbursement to those owners and operators for the high cost of cleaning up unauthorized releases caused by leaking USTs.

The State Water Board believes it is in the best interest of the people of the State that unauthorized releases be prevented and cleaned up to the extent practicable in a manner that protects human health, safety and the environment. The State Water Board also recognizes that the technical and economic resources available for environmental restoration are limited, and that the highest priority for these resources must be the protection of human health and environmental receptors. Program experience has demonstrated the ability of remedial technologies to mitigate a substantial fraction of a petroleum contaminant mass with the investment of a reasonable level of effort. Experience has also shown that residual contaminant mass usually remains after the investment of reasonable effort, and that this mass is difficult to completely remove regardless of the level of additional effort and resources invested.

It has been well-documented in the literature and through experience at individual UST release sites that petroleum fuels naturally attenuate in the environment through adsorption, dispersion, dilution, volatilization, and biological degradation. This natural attenuation slows and limits the migration of dissolved petroleum plumes in groundwater. The biodegradation of petroleum, in particular, distinguishes petroleum products from other hazardous substances commonly found at commercial and industrial sites.

The characteristics of UST releases and the California UST Program have been studied extensively, with individual works including:

- a. Lawrence Livermore National Laboratory report (1995)
- b. SB1764 Committee report (1996)
- c. UST Cleanup Program Task Force report (2010)
- d. Cleanup Fund Task Force report (2010)
- e. Cleanup Fund audit (2010)
- f. State Water Resources Control Board site closure orders
- g. State Water Resources Control Board Resolution 2009-0081

In general, these efforts have recognized that many petroleum release cases pose a low threat to human health and the environment. Some of these studies also recommended establishing "low-threat" closure criteria in order to maximize the benefits to the people of the State of California through judicious application of available resources.

The purpose of this policy is to establish consistent statewide case closure criteria for low-threat petroleum UST sites. The policy is consistent with existing statutes, regulations, State Water Board precedential decisions, policies and resolutions, and is intended to provide clear direction to responsible parties, their service providers, and regulatory agencies. The policy seeks to increase UST cleanup process efficiency. A benefit of improved efficiency is the preservation of limited resources for mitigation of releases posing a greater threat to human and environmental health.

This policy is based in part upon the knowledge and experience gained from the last 25 years of investigating and remediating unauthorized releases of petroleum from USTs. While this policy does not specifically address other petroleum release scenarios such as pipelines or above ground storage tanks, if a particular site with a different petroleum release scenario exhibits attributes similar to those which this policy addresses, the criteria for closure evaluation of these non-UST sites should be similar to those in this policy.

This policy is a state policy for water quality control and applies to all petroleum UST sites subject to Chapter 6.7 of Division 20 of the Health and Safety Code and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations. The term “regulatory agencies” in this policy means the State Water Board, Regional Water Quality Control Boards (Regional Water Boards) and local agencies authorized to implement Health and Safety Code section 25296.10. Unless expressly provided in this policy, the terms in this policy shall have the same definitions provided in Chapter 6.7 of Division 20 of the Health and Safety Code and Chapter 16 of Division 3 of Title 23 of the California Code of Regulations.

#### **Criteria for Low-Threat Case Closure**

In the absence of unique attributes of a case or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents, cases that meet the general and media-specific criteria described in this policy pose a low threat to human health, safety or the environment and are appropriate for closure pursuant to Health and Safety Code section 25296.10. Cases that meet the criteria in this policy do not require further corrective action and shall be issued a uniform closure letter consistent with Health and Safety Code section 25296.10. Annually, or at the request of the responsible party or party conducting the corrective action, the regulatory agency shall conduct a review to determine whether the site meets the criteria contained in this policy.

It is important to emphasize that the criteria described in this policy do not attempt to describe the conditions at all low-threat petroleum UST sites in the State. The regulatory agency shall issue a closure letter for a case that does not meet these criteria if the regulatory agency determines the site to be low-threat based upon a site specific analysis.

This policy recognizes that some petroleum-release sites may possess unique attributes and that some site specific conditions may make case closure under this policy inappropriate, despite the satisfaction of the stated criteria in this policy. It is impossible to completely capture those sets of attributes that may render a site ineligible for closure based on this low-threat policy. This policy relies on the regulatory agency’s use of the conceptual site model to identify the special attributes that would require specific attention prior to the application of low-threat criteria. In these cases, it is the regulatory agency’s responsibility to identify the conditions that make closure under the policy inappropriate.

## **General Criteria**

General criteria that must be satisfied by all candidate sites are listed as follows:

- a. The unauthorized release is located within the service area of a public water system;
- b. The unauthorized release consists only of petroleum;
- c. The unauthorized ("primary") release from the UST system has been stopped;
- d. Free product has been removed to the maximum extent practicable;
- e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed;
- f. Secondary source has been removed to the extent practicable;
- g. Soil or groundwater has been tested for methyl tert-butyl ether (MTBE) and results reported in accordance with Health and Safety Code section 25296.15; and
- h. Nuisance as defined by Water Code section 13050 does not exist at the site.

### ***a. The unauthorized release is located within the service area of a public water system***

This policy is protective of existing water supply wells. New water supply wells are unlikely to be installed in the shallow groundwater near former UST release sites. However, it is difficult to predict, on a statewide basis, where new wells will be installed, particularly in rural areas that are undergoing new development. This policy is limited to areas with available public water systems to reduce the likelihood that new wells in developing areas will be inadvertently impacted by residual petroleum in groundwater. Case closure outside of areas with a public water system should be evaluated based upon the fundamental principles in this policy and a site specific evaluation of developing water supplies in the area. For purposes of this policy, a public water system is a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

### ***b. The unauthorized release consists only of petroleum***

For the purposes of this policy, petroleum is defined as crude oil, or any fraction thereof, which is liquid at standard conditions of temperature and pressure, which means 60 degrees Fahrenheit and 14.7 pounds per square inch absolute, including the following substances: motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents and used oils, including any additives and blending agents such as oxygenates contained in the formulation of the substances.

### ***c. The unauthorized release has been stopped***

The tank, pipe, or other appurtenant structure that released petroleum into the environment (i.e. the primary source) has been removed, repaired or replaced. It is not the intent of this policy to allow sites with ongoing leaks from the UST system to qualify for low-threat closure.

### ***d. Free product has been removed to the maximum extent practicable***

At petroleum unauthorized release sites where investigations indicate the presence of free product, free product shall be removed to the maximum extent practicable. In meeting the requirements of this section:

- (a) Free product shall be removed in a manner that minimizes the spread of the unauthorized release into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges or disposes of recovery byproducts in compliance with applicable laws;

- (b) Abatement of free product migration shall be used as a minimum objective for the design of any free product removal system; and
- (c) Flammable products shall be stored for disposal in a safe and competent manner to prevent fires or explosions.

***e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed***

The Conceptual Site Model (CSM) is a fundamental element of a comprehensive site investigation. The CSM establishes the source and attributes of the unauthorized release, describes all affected media (including soil, groundwater, and soil vapor as appropriate), describes local geology, hydrogeology and other physical site characteristics that affect contaminant environmental transport and fate, and identifies all confirmed and potential contaminant receptors (including water supply wells, surface water bodies, structures and their inhabitants). The CSM is relied upon by practitioners as a guide for investigative design and data collection. Petroleum release sites in California occur in a wide variety of hydrogeologic settings. As a result, contaminant fate and transport and mechanisms by which receptors may be impacted by contaminants vary greatly from location to location. Therefore, the CSM is unique to each individual release site. All relevant site characteristics identified by the CSM shall be assessed and supported by data so that the nature, extent and mobility of the release have been established to determine conformance with applicable criteria in this policy. The supporting data and analysis used to develop the CSM are not required to be contained in a single report and may be contained in multiple reports submitted to the regulatory agency over a period of time.

***f. Secondary source has been removed to the extent practicable***

“Secondary source” is defined as petroleum-impacted soil or groundwater located at or immediately beneath the point of release from the primary source. Unless site attributes prevent secondary source removal (e.g. physical or infrastructural constraints exist whose removal or relocation would be technically or economically infeasible), petroleum-release sites are required to undergo secondary source removal to the extent practicable as described herein. “To the extent practicable” means implementing a cost-effective corrective action which removes or destroys-in-place the most readily recoverable fraction of source-area mass. It is expected that most secondary mass removal efforts will be completed in one year or less. Following removal or destruction of the secondary source, additional removal or active remedial actions shall not be required by regulatory agencies unless (1) necessary to abate a demonstrated threat to human health or (2) the groundwater plume does not meet the definition of low threat as described in this policy.

***g. Soil and groundwater have been tested for MTBE and results reported in accordance with Health and Safety Code section 25296.15***

Health and Safety Code section 25296.15 prohibits closing a UST case unless the soil, groundwater, or both, as applicable have been tested for MTBE and the results of that testing are known to the Regional Water Board. The exception to this requirement is where a regulatory agency determines that the UST that leaked has only contained diesel or jet fuel. Before closing a UST case pursuant to this policy, the requirements of section 25296.15, if applicable, shall be satisfied.

***h. Nuisance as defined by Water Code section 13050 does not exist at the site***

Water Code section 13050 defines "nuisance" as anything which meets all of the following requirements:

- (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
- (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
- (3) Occurs during, or as a result of, the treatment or disposal of wastes.

For the purpose of this policy, waste means a petroleum release.

**Media-Specific Criteria**

Releases from USTs can impact human health and the environment through contact with any or all of the following contaminated media: groundwater, surface water, soil, and soil vapor. Although this contact can occur through ingestion, dermal contact, or inhalation of the various media, the most common drivers of health risk are ingestion of groundwater from drinking water wells, inhalation of vapors accumulated in buildings, contact with near surface contaminated soil, and inhalation of vapors in the outdoor environment. To simplify implementation, these media and pathways have been evaluated and the most common exposure scenarios have been combined into three media-specific criteria:

1. Groundwater
2. Vapor Intrusion to Indoor Air
3. Direct Contact and Outdoor Air Exposure

Candidate sites must satisfy all three of these media-specific criteria as described below.

***1. Groundwater***

This policy describes criteria on which to base a determination that threats to existing and anticipated beneficial uses of groundwater have been mitigated or are de minimis, including cases that have not affected groundwater.

[State Water Board Resolution 92-49, Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304](#) is a state policy for water quality control and applies to petroleum UST cases. Resolution 92-49 directs that water affected by an unauthorized release attain either background water quality or the best water quality that is reasonable if background water quality cannot be restored. Any alternative level of water quality less stringent than background must be consistent with the maximum benefit to the people of the state, not unreasonably affect current and anticipated beneficial use of affected water, and not result in water quality less than that prescribed in the water quality control plan for the basin within which the site is located. Resolution No. 92-49 does not require that the requisite level of water quality be met at the time of case closure; it specifies compliance with cleanup goals and objectives within a reasonable time frame.

Water quality control plans (Basin Plans) generally establish "background" water quality as a restorative endpoint. This policy recognizes the regulatory authority of the Basin Plans but underscores the flexibility contained in Resolution 92-49.

It is a fundamental tenet of this low-threat closure policy that if the closure criteria described in this policy are satisfied at a petroleum unauthorized release site, attaining background water quality is not feasible, establishing an alternate level of water quality not to exceed that prescribed in the applicable Basin Plan is appropriate, and that water quality objectives will be attained through natural attenuation within a reasonable time, prior to the expected need for use of any affected groundwater.

If groundwater with a designated beneficial use is affected by an unauthorized release, to satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed below. A plume that is “stable or decreasing” is a contaminant mass that has expanded to its maximum extent: the distance from the release where attenuation exceeds migration.

### **Groundwater-Specific Criteria**

- (1) a. The contaminant plume that exceeds water quality objectives is less than 100 feet in length.
  - b. There is no free product.
  - c. The nearest existing water supply well or surface water body is greater than 250 feet from the defined plume boundary.
- (2) a. The contaminant plume that exceeds water quality objectives is less than 250 feet in length.
  - b. There is no free product.
  - c. The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary.
  - d. The dissolved concentration of benzene is less than 3,000 micrograms per liter ( $\mu\text{g/l}$ ), and the dissolved concentration of MTBE is less than 1,000  $\mu\text{g/l}$ .
- (3) a. The contaminant plume that exceeds water quality objectives is less than 250 feet in length.
  - b. Free product has been removed to the maximum extent practicable, may still be present below the site where the release originated, but does not extend off-site.
  - c. The plume has been stable or decreasing for a minimum of five years.
  - d. The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary.
  - e. The property owner is willing to accept a land use restriction if the regulatory agency requires a land use restriction as a condition of closure.
- (4) a. The contaminant plume that exceeds water quality objectives is less than 1,000 feet in length.
  - b. There is no free product.
  - c. The nearest existing water supply well or surface water body is greater than 1,000 feet from the defined plume boundary.
  - d. The dissolved concentration of benzene is less than 1,000  $\mu\text{g/l}$ , and the dissolved concentration of MTBE is less than 1,000  $\mu\text{g/l}$ .
- (5) a. The regulatory agency determines, based on an analysis of site specific conditions that under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives will be achieved within a reasonable time frame.

### ***Sites with Releases That Have Not Affected Groundwater***

Sites with soil that does not contain sufficient mobile constituents [leachate, vapors, or light non-aqueous-phase liquids (LNAPL)] to cause groundwater to exceed the groundwater criteria in this policy shall be considered low-threat sites for the groundwater medium. Provided the general criteria and criteria for other media are also met, those sites are eligible for case closure.

For older releases, the absence of current groundwater impact is often a good indication that residual concentrations present in the soil are not a source for groundwater pollution.

### ***2. Petroleum Vapor Intrusion to Indoor Air***

Exposure to petroleum vapors migrating from soil or groundwater to indoor air may pose unacceptable human health risks. This policy describes conditions, including bioattenuation zones, which if met will assure that exposure to petroleum vapors in indoor air will not pose unacceptable health risks. In many petroleum release cases, potential human exposures to vapors are mitigated by bioattenuation processes as vapors migrate toward the ground surface. For the purposes of this section, the term “bioattenuation zone” means an area of soil with conditions that support biodegradation of petroleum hydrocarbon vapors.

The low-threat vapor-intrusion criteria described below apply to sites where the release originated and impacted or potentially impacted adjacent parcels when: (1) existing buildings are occupied or may be reasonably expected to be occupied in the future, or (2) buildings for human occupancy are reasonably expected to be constructed in the future. Appendices 1 through 4 (attached) illustrate four potential exposure scenarios and describe characteristics and criteria associated with each scenario. Petroleum release sites shall satisfy the media-specific criteria for petroleum vapor intrusion to indoor air and be considered low-threat for the vapor-intrusion-to-indoor-air pathway if:

- a. Site-specific conditions at the release site satisfy all of the characteristics and criteria of scenarios 1 through 3 as applicable, or all of the characteristics and criteria of scenario 4 as applicable; or
- b. A site-specific risk assessment for the vapor intrusion pathway is conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency; or
- c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health.

Exception: Exposures to petroleum vapors associated with historical fuel system releases are comparatively insignificant relative to exposures from small surface spills and fugitive vapor releases that typically occur at active fueling facilities. Therefore, satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk.

### 3. Direct Contact and Outdoor Air Exposure

This policy describes conditions where direct contact with contaminated soil or inhalation of contaminants volatilized to outdoor air poses a low threat to human health. Release sites where human exposure may occur satisfy the media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if they meet any of the following:

- a. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs). The concentration limits for 0 to 5 feet bgs protect from ingestion of soil, dermal contact with soil, and inhalation of volatile soil emissions and inhalation of particulate emissions. The 5 to 10 feet bgs concentration limits protect from inhalation of volatile soil emissions. Both the 0 to 5 feet bgs concentration limits and the 5 to 10 feet bgs concentration limits for the appropriate site classification (Residential or Commercial/Industrial) shall be satisfied. In addition, if exposure to construction workers or utility trench workers are reasonably anticipated, the concentration limits for Utility Worker shall also be satisfied; or
- b. Maximum concentrations of petroleum constituents in soil are less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health; or
- c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health.

**Table 1**  
Concentrations of Petroleum Constituents in Soil That Will Have No Significant Risk of Adversely Affecting Human Health

Chemical	Residential		Commercial/ Industrial		Utility Worker
	0 to 5 feet bgs mg/kg	Volatilization to outdoor air (5 to 10 feet bgs) mg/kg	0 to 5 feet bgs mg/kg	Volatilization to outdoor air (5 to 10 feet bgs) mg/kg	0 to 10 feet bgs mg/kg
<b>Benzene</b>	1.9	2.8	8.2	12	14
<b>Ethylbenzene</b>	21	32	89	134	314
<b>Naphthalene</b>	9.7	9.7	45	45	219
<b>PAH<sup>1</sup></b>	0.063	NA	0.68	NA	4.5

Notes:

1. Based on the seven carcinogenic poly-aromatic hydrocarbons (PAHs) as benzo(a)pyrene toxicity equivalent [BaPe]. Sampling and analysis for PAH is only necessary where soil is affected by either waste oil or Bunker C fuel.
2. The area of impacted soil where a particular exposure occurs is 25 by 25 meters (approximately 82 by 82 feet) or less.
3. NA = not applicable
4. mg/kg = milligrams per kilogram

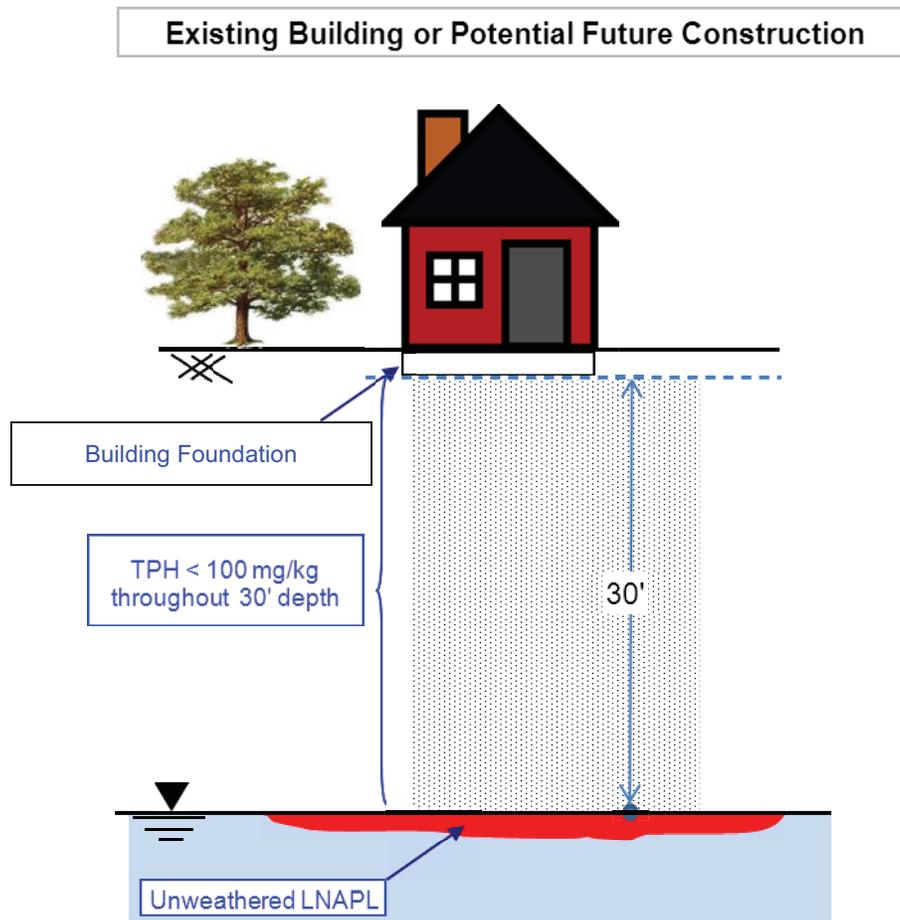
### **Low-Threat Case Closure**

Cases that meet the general and media-specific criteria established in this policy pose a low threat to human health, safety and the environment and satisfy the case-closure requirements of Health and Safety Code section 25296.10, and case closure is consistent with State Water Board Resolution 92-49 that requires that cleanup goals and objectives be met within a reasonable time frame. If the case has been determined by the regulatory agency to meet the criteria in this policy, the regulatory agency shall notify responsible parties that they are eligible for case closure and that the following items, if applicable, shall be completed prior to the issuance of a uniform closure letter specified in Health and Safety Code section 25296.10. After completion of these items, and unless the regulatory agency revises its determination based on comments received on the proposed case closure, the regulatory agency shall issue a uniform closure letter within 30 days from the end of the comment period.

- a. Notification Requirements – Municipal and county water districts, water replenishment districts, special act districts with groundwater management authority, agencies with authority to issue building permits for land affected by the petroleum release, owners and occupants of the property impacted by the petroleum release, and the owners and occupants of all parcels adjacent to the impacted property shall be notified of the proposed case closure and provided a 60 day period to comment. The regulatory agency shall consider any comments received when determining if the case should be closed or if site specific conditions warrant otherwise.
- b. Monitoring Well Destruction – All wells and borings installed for the purpose of investigating, remediating, or monitoring the unauthorized release shall be properly destroyed prior to case closure unless a property owner certifies that they will keep and maintain the wells or borings in accordance with applicable local or state requirements.
- c. Waste Removal – All waste piles, drums, debris and other investigation or remediation derived materials shall be removed from the site and properly managed in accordance with regulatory agency requirements.

## Appendix 1 Scenario 1: Unweathered\* LNAPL in Groundwater

### Required Characteristics of the Bioattenuation Zone



#### Required Characteristics of the Bioattenuation Zone:

1. The bioattenuation zone shall be a continuous zone that provides a separation of at least 30 feet vertically between the LNAPL in groundwater and the foundation of existing or potential buildings; and
2. Total TPH (TPH-g and TPH-d combined) are less than 100 mg/kg throughout the entire depth of the bioattenuation zone.

TPH = total petroleum hydrocarbons

TPH-g = total petroleum hydrocarbons as gasoline

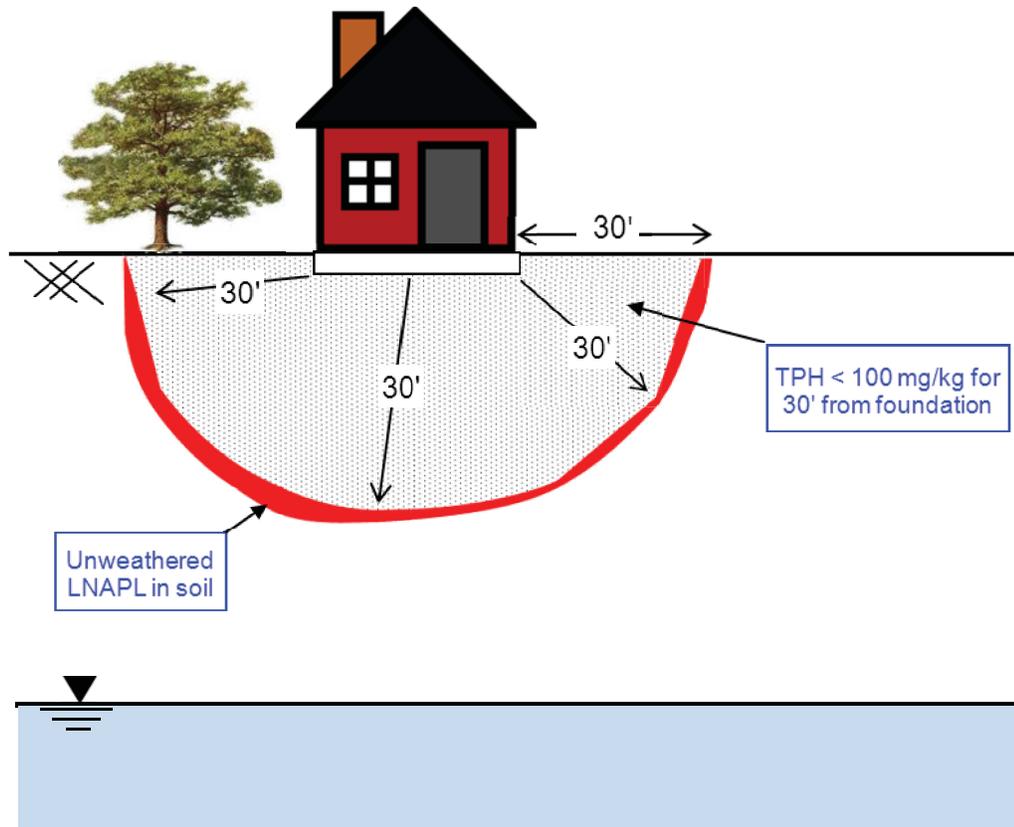
TPH-d = total petroleum hydrocarbons as diesel

\*As used in this context, unweathered LNAPL is generally understood to mean petroleum product that has not been subjected to significant volatilization or solubilization, and therefore has not lost a significant portion of its volatile or soluble constituents (e.g., comparable to recently dispensed fuel).

## Appendix 2 Scenario 2: Unweathered\* LNAPL in Soil

### Required Characteristics of the Bioattenuation Zone

#### Existing Building or Potential Future Construction



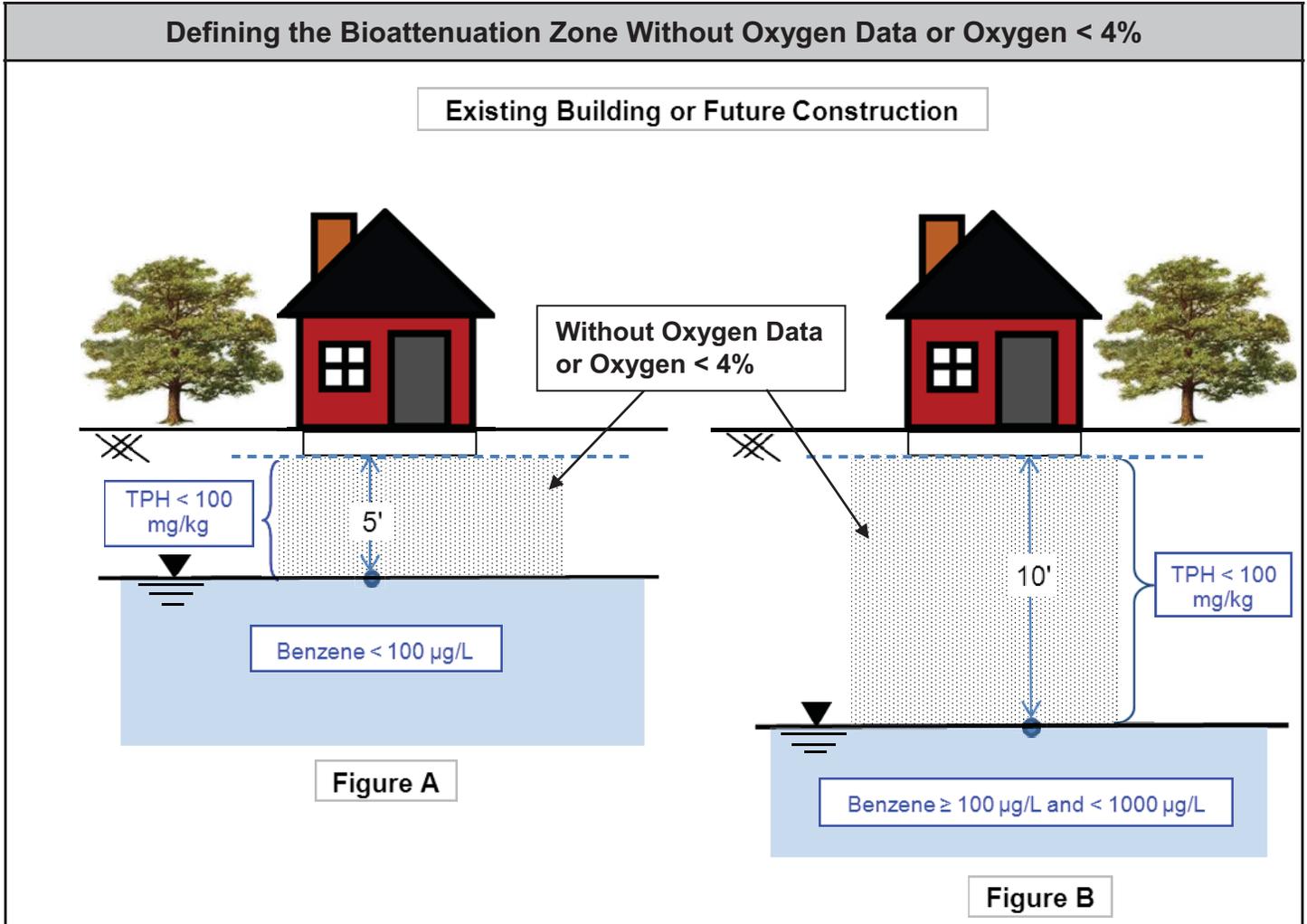
#### Required Characteristics of the Bioattenuation Zone:

1. The bioattenuation zone shall be a continuous zone that provides a separation of at least 30 feet both laterally and vertically between the LNAPL in soil and the foundation of existing or potential buildings, and
2. Total TPH (TPH-g and TPH-d combined) are less than 100 mg/kg throughout the entire lateral and vertical extent of the bioattenuation zone.

\*As used in this context, unweathered LNAPL is generally understood to mean petroleum product that has not been subjected to significant volatilization or solubilization, and therefore has not lost a significant portion of its volatile or soluble constituents (e.g., comparable to recently dispensed fuel).

### Appendix 3

## Scenario 3 - Dissolved Phase Benzene Concentrations in Groundwater (Low concentration groundwater scenarios with or without oxygen data) (1 of 2)



### Required Characteristics of Bioattenuation Zone for Sites Without Oxygen Data or Where Oxygen is < 4%

Figure A: 1) Where benzene concentrations are less than 100 µg/L, the bioattenuation zone:

- a) Shall be a continuous zone that provides a separation of at least 5 feet vertically between the dissolved phase Benzene and the foundation of existing or potential buildings; and
- b) Contain Total TPH (TPH-g and TPH-d combined) less than 100 mg/kg throughout the entire depth of the bioattenuation zone.

Figure B: 1) Where benzene concentrations are equal to or greater than 100 µg/L but less than 1000 µg/L, the bioattenuation zone:

- a) Shall be a continuous zone that provides a separation of at least 10 feet vertically between the dissolved phase Benzene and the foundation of existing or potential buildings; and
- b) Contain Total TPH (TPH-g and TPH-d combined) less than 100 mg/kg throughout the entire depth of the bioattenuation zone.

### Appendix 3

## Scenario 3 - Dissolved Phase Benzene Concentrations in Groundwater (Low concentration groundwater scenarios with or without oxygen data)

(2 of 2)

### Defining the Bioattenuation Zone With Oxygen $\geq 4\%$

Existing Building or Future Construction

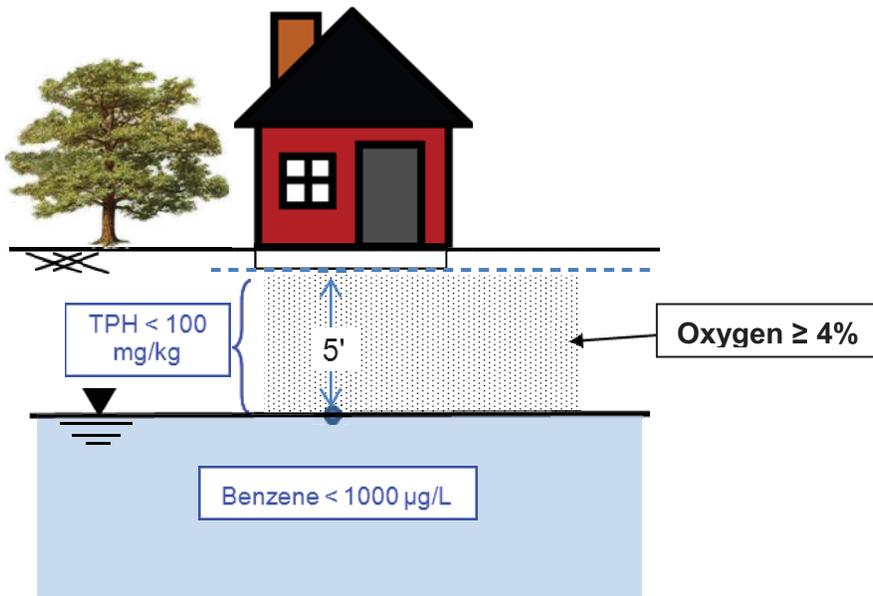


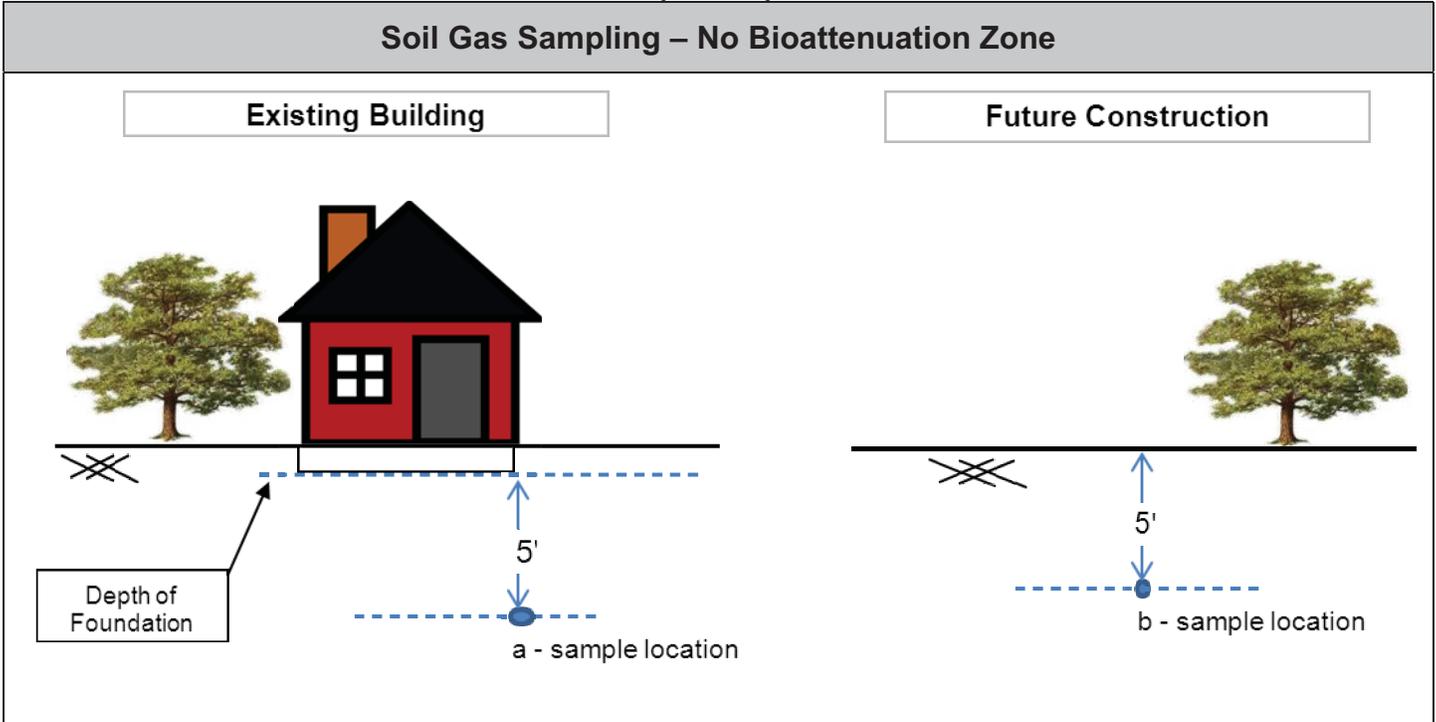
Figure C

### Required Characteristics of Bioattenuation Zone for Sites With Oxygen $\geq 4\%$

Where benzene concentrations are less than 1000  $\mu\text{g/L}$ , the bioattenuation zone:

1. Shall be a continuous zone that provides a separation of least 5 feet vertically between the dissolved phase Benzene and the foundation of existing or potential buildings; and
2. Contain Total TPH (TPH-g and TPH-d combined) less than 100 mg/kg throughout the entire depth of the bioattenuation zone.

## Appendix 4 Scenario 4 - Direct Measurement of Soil Gas Concentrations (1 of 2)



The criteria in the table below apply unless the requirements for a bioattenuation zone, established below, are satisfied.

When applying the criteria below, the soil gas sample must be obtained from the following locations:

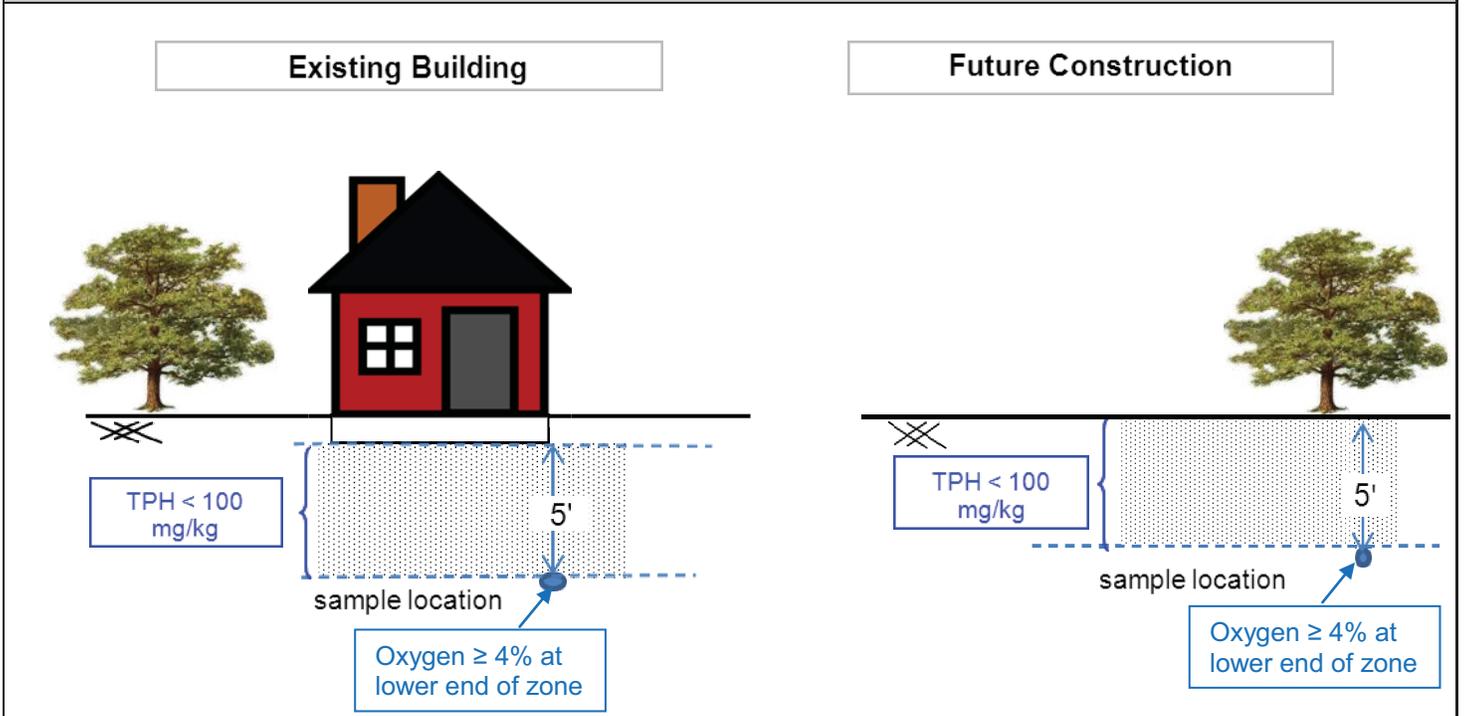
- a. Beneath or adjacent to an existing building: The soil gas sample shall be collected at least five feet below the bottom of the building foundation.
- b. Future construction: The soil gas sample shall be collected from at least five feet below ground surface.

Soil Gas Criteria ( $\mu\text{g}/\text{m}^3$ )		
	No Bioattenuation Zone*	
	Residential	Commercial
Constituent	Soil Gas Concentration ( $\mu\text{g}/\text{m}^3$ )	
Benzene	< 85	< 280
Ethylbenzene	<1,100	<3,600
Naphthalene	< 93	< 310

\*For the no bioattenuation zone, the screening criteria are same as the California Human Health Screening Levels (CHHSLs) with engineered fill below sub-slab.

## Appendix 4 Scenario 4 - Direct Measurement of Soil Gas Concentrations (2 of 2)

### Soil Gas Sampling – With Bioattenuation Zone



The criteria in the table below apply if the following requirements for a bioattenuation zone are satisfied:

1. There is a minimum of five vertical feet of soil between the soil vapor measurement and the foundation of an existing building or ground surface of future construction.
2. TPH (TPHg + TPHd) is less than 100 mg/kg (measured in at least two depths within the five-foot zone.)
3. Oxygen is greater than or equal to four percent measured at the bottom of the five-foot zone.

#### Soil Gas Criteria ( $\mu\text{g}/\text{m}^3$ )

	With Bioattenuation Zone**	
	Residential	Commercial
Constituent	Soil Gas Concentration ( $\mu\text{g}/\text{m}^3$ )	
Benzene	< 85,000	< 280,000
Ethylbenzene	< 1,100,000	< 3,600,000
Naphthalene	< 93,000	< 310,000

\*\*A 1000-fold bioattenuation of petroleum vapors is assumed for the bioattenuation zone.

**Appendix REGION 2 PLANT-F**

**(SWCRB's Geotracker LTCP Checklist dated 6/19/2014)**

**CHADRON PLANT (T0603704001) - (MAP)**

14401 CHADRON AVE S  
 HAWTHORNE, CA 90250  
 LOS ANGELES COUNTY  
 LUST CLEANUP SITE  
[PRINTABLE CASE SUMMARY](#)

CLEANUP OVERSIGHT AGENCIES  
 LOS ANGELES RWQCB (REGION 4) (LEAD) - CASE #: 142808  
 CASEWORKER: JIMMIE WOO  
 LOS ANGELES COUNTY  
 CASEWORKER: JOHN AIWUJO  
 CUF Claim #: 10449  
 CUF Priority Assigned: C  
 CUF Amount Paid: \$1,495,000

[SIGN UP FOR EMAIL ALERTS](#)

**LTCP CHECKLIST AS OF 6/19/2014**

[VIEW PATH TO CLOSURE PLAN](#)

[BACK TO CASE SUMMARY](#)

General Criteria - <i>The site satisfies the policy general criteria</i>	NO
a. Is the unauthorized release located within the service area of a public water system? Name of Water System : <b>Golden State Water Company</b>	YES
b. The unauthorized release consists only of petroleum (info).	YES
c. The unauthorized ("primary") release from the UST system has been stopped.	YES
d. Free product has been removed to the maximum extent practicable (info). Free Product Remaining: <b>Not Measurable (Sheen)</b> Removal Methods Tried : <b>OTHER - Multi-phase extraction</b>	NO
e. A conceptual site model that assesses the nature, extent, and mobility of the release has been developed (info).	YES
f. Secondary source has been removed to the extent practicable (info). Impediment to Removing Secondary Source: - Other - Proposing chemical oxidation	NO
g. Soil or groundwater has been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15.	YES
h. Does a nuisance exist, as defined by Water Code section 13050.	NO