El Dorado Irrigation District

Watershed Sanitary Survey Update 2018

Jenkinson Lake and Middle Fork Cosumnes River Watersheds

July 2018
TABLE OF CONTENTS

SECTION 1 – INTRODUCTION ............................................................................................................ 1-1
1.1 Previous Studies/Existing Documents ......................................................................................... 1-1
1.2 Regulations ................................................................................................................................. 1-2
1.3 Report Organization .................................................................................................................. 1-4

SECTION 2 – DESCRIPTION OF WATERSHEDS ........................................................................ 2-1
2.1 Natural Setting and Characteristics of each Watershed ............................................................. 2-1
   2.1.1 Jenkinson Lake Watershed .................................................................................................... 2-1
      Topography .............................................................................................................................. 2-1
      Soils ...................................................................................................................................... 2-4
      Hydrology ............................................................................................................................... 2-4
   2.1.2 Middle Fork Cosumnes River Watershed ......................................................................... 2-7
      Topography .............................................................................................................................. 2-7
      Soils ...................................................................................................................................... 2-7
      Hydrology ............................................................................................................................... 2-8
   2.1.3 Common Characteristics of Both Watersheds ..................................................................... 2-9
      Geology .................................................................................................................................. 2-9
      Wildlife .................................................................................................................................. 2-10
      Vegetation ............................................................................................................................... 2-10
   2.2 Land Use and Ownership ......................................................................................................... 2-12
      2.2.1 Land Ownership ............................................................................................................. 2-12
      2.2.2 Population Centers/Major Towns ..................................................................................... 2-12
      2.2.3 Land Use ......................................................................................................................... 2-12
         Jenkinson Lake Recreation Area Use .................................................................................. 2-17

SECTION 3 – DESCRIPTION OF WATER SUPPLY SYSTEMS .................................................... 3-1
3.1 History of the Water Supply Systems ......................................................................................... 3-1
3.2 Jenkinson Lake (Reservoir A) Water Supply Facilities ............................................................ 3-1
   3.2.1 Reservoir A Water Treatment Plant ..................................................................................... 3-1
   3.2.2 Reservoir A Distribution System ......................................................................................... 3-2
3.3 Outingdale Water Supply Facilities ........................................................................................ 3-3
   3.3.1 Outingdale Water Treatment Plant ..................................................................................... 3-3
   3.3.2 Outingdale Distribution System ......................................................................................... 3-3

SECTION 4 – SOURCE WATER QUALITY .................................................................................. 4-1
4.1 Bacteriological Water Quality ................................................................................................... 4-1
   4.1.1 Jenkinson Lake Bacteriological Water Quality .................................................................. 4-1
   4.1.2 Middle Fork Cosumnes River Bacteriological Water Quality .............................................. 4-3
4.2 Turbidity .................................................................................................................................. 4-4
   4.2.1 Jenkinson Lake Turbidity ..................................................................................................... 4-4
   4.2.2 Middle Fork Cosumnes River Turbidity ............................................................................ 4-6
4.3 Total Organic Carbon (TOC) ................................................................................................. 4-7
   4.3.1 Jenkinson Lake TOC ........................................................................................................... 4-7
   4.3.2 Middle Fork Cosumnes River TOC .................................................................................... 4-8

SECTION 5 – POTENTIAL SOURCES OF CONTAMINATION .................................................... 5-1
5.1 Timber Harvesting ...................................................................................................................... 5-2
5.2 Forest Fires ............................................................................................................................... 5-4
5.3 Mines ......................................................................................................................... 5-6
5.4 GeoTracker Results .................................................................................................... 5-6

SECTION 6 – WATERSHED MANAGEMENT AND RECOMMENDATIONS ............. 6-1
6.1 Watershed Management Strategy ............................................................................. 6-1
6.1.1 Regional Collaboration ......................................................................................... 6-2
6.2 Recommendations ..................................................................................................... 6-2

SECTION 7 – REFERENCES ............................................................................................. 7-1

LIST OF APPENDICES
Appendix A: Watershed Soil Surveys
Appendix B: Timber Harvest Plan Review Process and Notices of Intent from 2013 to 2017
Appendix C: Hazel Creek Mine Waste Discharge Requirements and Revised Monitoring and Reporting Program (Order No. 98-153)

LIST OF FIGURES
Figure 1-1: Watershed Sanitary Survey Areas ................................................................. 1-3
Figure 2-1: Watersheds Map ......................................................................................... 2-3
Figure 2-2: Precipitation at Jenkinson Lake (2013-2017) .............................................. 2-5
Figure 2-3: Monthly Camp Creek Diversions (2013-2017) ............................................ 2-6
Figure 2-4: Precipitation near Middle Fork Cosumnes River Watershed (2013-2017) ...... 2-9
Figure 2-5: Plant Communities in El Dorado County ..................................................... 2-11
Figure 2-6: Federally-Owned Lands in El Dorado County ............................................. 2-13
Figure 2-7: Population Density in El Dorado County (2017) .......................................... 2-14
Figure 2-8: Population Density within Jenkinson Lake Watershed (2017) ....................... 2-15
Figure 2-9: Land Use in El Dorado County ................................................................. 2-16
Figure 2-10: Jenkinson Lake Recreation Area Visitors (2013-2017) .............................. 2-17
Figure 2-11: Jenkinson Lake Recreation Area Map ...................................................... 2-18
Figure 3-1: Jenkinson Lake WTP Process Flow Diagram ............................................. 3-2
Figure 4-1: Jenkinson Lake Turbidity at Reservoir A WTP Intake .................................. 4-5
Figure 4-2: Middle Fork Cosumnes River Turbidity at Outingdale WTP Intake ......... 4-6
Figure 4-3: Average Monthly Total Organic Carbon (2013-2017) ............................... 4-9
Figure 5-1: Timber Harvesting Locations (2013-2017) .............................................. 5-3
Figure 5-2: El Dorado County Fire Fuel Ranking ......................................................... 5-5
LIST OF TABLES

Table 2-1: Tributaries to Jenkinson Lake ................................................................. 2-2
Table 2-2: Monthly Precipitation Data at Jenkinson Lake (2013-2017) .................. 2-4
Table 2-3: Monthly Camp Creek Diversions to Jenkinson Lake (2013-2017) .......... 2-6
Table 2-4: Tributaries to the Middle Fork Cosumnes River .................................... 2-7
Table 2-5: Monthly Precipitation Data at Fiddletown Dexter Ranch Station (2013-2017) .... 2-8
Table 2-6: Jenkinson Lake (Sly Park) Recreational Area Statistics (2013-2017) .... 2-17
Table 4-1: Jenkinson Lake WTP Average Monthly Total Coliform (2013-2017) ... 4-2
Table 4-2: Jenkinson Lake WTP Average Monthly E. Coli (2013-2017) ................. 4-2
Table 4-3: Outingdale WTP Monthly Total Coliform (2013-2017) ......................... 4-3
Table 4-4: Outingdale WTP Monthly E. Coli (2013-2017) ........................................ 4-4
Table 4-5: Reservoir A WTP Influent and Effluent Turbidities (2013-2017) ........... 4-5
Table 4-6: Outingdale WTP Influent and Effluent Turbidities (2013-2017) .............. 4-7
Table 4-7: Jenkinson Lake WTP Intake Monthly TOC (2013-2017) ......................... 4-8
Table 4-8: Outingdale WTP Intake Monthly TOC (2013-2017) ............................. 4-8
Table 5-1: Watershed Timber Harvesting Activities (2013-2017) ......................... 5-2
Table 5-2: Watershed Forest Fires (2013-2017) ..................................................... 5-4
SECTION 1 – INTRODUCTION

The El Dorado Irrigation District (District, EID) completed the original Watershed Sanitary Survey (WSS) in August 1996 with a revision to the original WSS in October 1996 (which, for all intents and purposes is considered the final version of the 1996 WSS) and a comprehensive update in 2001. Since the 2001 update, the District has filed statements of “no change” with the California Department of Public Health (CDPH, now the State Water Resources Control Board [SWRCB]) in lieu of report updates as there have been no significant changes to the watershed. In 2014, HydroScience Engineers prepared a 2013 Updated Watershed Sanitary Survey that addressed the Jenkinson Lake and Middle Fork Cosumnes River watersheds, which are the watersheds for the Reservoir A and Outingdale water treatment plants (WTPs), respectively. Figure 1-1 shows El Dorado County and the watersheds included in this sanitary survey.

This 2018 WSS update is intended to build upon the existing watershed surveys completed to date, as was the scope of the 2013 WSS update, and not intended to duplicate the information provided in previous versions. The 2018 WSS update includes the years 2013 through, and including, 2017.

This report will provide updated data and information, as it is available and applicable. As such, the previous WSS’s and those documents included with the WSS’s are incorporated by reference and described below.

1.1 Previous Studies/Existing Documents

The following list provides a brief description of the reports that were previously completed. These documents and the attachments are incorporated by reference.

- **Sanitary Watershed Survey for Reservoir One, Reservoir A, Outingdale Water Treatment Plants (October 1996, Revision 1):** This document served as the original WSS developed to meet the Title 22 requirement as detailed above. The document was a comprehensive survey of the three watersheds including the Jenkinson Lake Watershed, the Middle Fork Cosumnes River Watershed, and the El Dorado Irrigation District Canal Watershed. The Watershed Survey was conducted in accordance with the California Code of Regulations Title 22, Section 64665 and followed the suggested format detailed in the 1993 Watershed Survey Guidance Manual prepared by the American Water Works Association, California-Nevada Section.

- **Watershed Sanitary Survey Update and Source Water Assessment for Reservoir A, One, and Outingdale Water Treatment Plants (February 2001):** This document served as the five year update to the original WSS completed in 1996 and covered the Jenkinson Lake Watershed, the Middle Fork Cosumnes River Watershed, and the El Dorado Irrigation District Canal Watershed. This document was not intended to duplicate the data provided in the 1996 WSS and instead provided new and updated data as well as a vulnerability analysis of the three watersheds in accordance with the Source Water Assessment Program.
• **Watershed Sanitary Survey Update 2013, Jenkinson Lake and Middle Fork Cosumnes River Watersheds (February 2014):** This document served as the five year update to the 2013 WSS completed in 2014 and covered the Jenkinson Lake Watershed, and the Middle Fork Cosumnes River Watershed. This document was not intended to duplicate the data provided in prior WSS updates, but was intended to provide updated data and information, as it was available and applicable.

### 1.2 Regulations

Per SWRCB Title 22 Regulations, the District is required to provide a WSS Update at least every five years. The regulatory requirement is detailed in the California Code of Regulations, Title 22, Section 64665, as follows:

**Article 7. Sanitary Surveys**

**§64665. Watershed Requirements.**

(a) All suppliers shall have a sanitary survey of their watershed(s) completed at least every five years. The first survey shall be completed by January 1, 1996.

(b) A report of the survey shall be submitted to the Department not later than 60 days following completion of the survey.

(c) The survey and report shall include physical and hydrogeological description of the watershed, a summary of source water quality monitoring data, a description of activities and sources of contamination, a description of any significant changes that have occurred since the last survey which could affect the quality of the source water, a description of watershed control and management practices, an evaluation of the system's ability to meet requirements of this chapter, and recommendations for corrective actions.

**§64665.5. Additional Requirements.**

A supplier shall comply with the sanitary survey requirements specified in section 64650(f)(1).

**§64650. General Requirements.**

(f) A supplier shall comply with the following provisions of 40 Code of Federal Regulation as they appear in the:

1. **Long Term 2 Enhanced Surface Water Treatment Rule published in 71 Federal Register 654 (January 5, 2006), which is incorporated by reference…**
1.3 Report Organization

This report includes the following sections:

- Section 1 – Introduction
- Section 2 – Description of Watersheds
- Section 3 – Description of Water Supply Systems
- Section 4 – Source Water Quality
- Section 5 – Potential Sources of Contamination
- Section 6 – Watershed Management and Recommendations
- Section 7 – References
SECTION 2 – DESCRIPTION OF WATERSHEDS

The Jenkinson Lake and Middle Fork Cosumnes River watersheds are largely unchanged. Both watersheds are located within El Dorado County and share many of the same natural features and characteristics such as common geology, vegetation, habitat, and wildlife. However, they also have some very distinct characteristics, such as topography, soils, and hydrology. Land use and ownership also varies between the two watersheds. Individual and common characteristics are discussed in further detail in the following sections.

2.1 Natural Setting and Characteristics of each Watershed

Provided is a brief description of the individual watersheds and the natural characteristics specific to each watershed. These descriptions are based on the information provided in the 1996 WSS, as well as updated information, as available.

2.1.1 Jenkinson Lake Watershed

Jenkinson Lake is a manmade reservoir bounded by two dams. Construction began in 1951 by the U.S. Bureau of Reclamation. By 1954, the reservoir began to store water and has up to 41,000 acre feet of storage capacity. The main Sly Park Dam is 190 feet high and 760 feet long. The saddle dam is 130 feet high and 600 feet long. Hazel Creek and Sly Park Creek flow into the upper end of the lake and exits below the dam emptying into Sly Park Creek and subsequently to Camp Creek further downstream. There is also a 2,855 foot long diversion tunnel, seven feet in diameter from Camp Creek to upper Sly Park Creek.

The Reservoir A Water Treatment Plant is supplied from Sly Park Dam through a 48-inch diameter pipeline that extends for about two miles to the plant. The pipeline has a single intake near the bottom of Jenkinson Lake. Flow in the pipeline is regulated by a hydraulically operated, 24-inch square slide gate located in an all-weather building adjacent to the dam. Intake protection facilities include fencing and log boom that surrounds the dam and protects the intake pipe. The treatment plant is an approved alternative providing direct filtration and disinfection, with a flow range from 8 MGD to 56 MGD.

The watershed area includes Sly Park Creek and the Cold Canyon tributary of Sly Park Creek as well as Hazel Creek, which both drain naturally to Jenkinson Lake. There are also a number of seasonal drainages into the Lake. The watershed area is approximately 16.5 square miles. Figure 2-1 delineates the Jenkinson Lake watershed area.

Topography

The Jenkinson Lake Watershed ranges in elevation from approximately 3,400 feet at the Lake to 5,600 feet at the upper end of Cold Canyon. The watershed is encompassed by the southern slope of the Iron Mountain Ridge and the northern slope of the Baltic Ridge. The slopes adjacent to Sly Park Creek and North Sly Park Creek are relatively steep and rocky outcrops, while the vast majority of the watershed has mild to moderate slopes. Table 2-1 provides the minimum and maximum elevations of the watershed tributaries.
Table 2-1: Tributaries to Jenkinson Lake

<table>
<thead>
<tr>
<th>Creek Name</th>
<th>Minimum Elevation (feet)</th>
<th>Maximum Elevation (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sly Park Creek</td>
<td>3,600</td>
<td>5,400</td>
</tr>
<tr>
<td>North Sly Park Creek</td>
<td>3,920</td>
<td>5,120</td>
</tr>
<tr>
<td>Hazel Creek</td>
<td>3,560</td>
<td>4,560</td>
</tr>
</tbody>
</table>

Source: EID, 1996 Watershed Sanitary Survey
Soils

Updated soils information was collected from the USDA Natural Resources Conservation Service through the Web Soil Survey – National Cooperative Soil Survey. Recently prepared surveys in the area include the El Dorado Area Version 9 (September 13, 2017) and El Dorado National Forest Area Version 10 (September 11, 2017) surveys.

The most common soil series in the region include Cohasset, Josephine, Mariposa, McCarthy and McCarthy-Ledmount, Chaix-Pilliken, Jocal, and Waca. All of these soils occur in the region in quantities greater than 2% by area. The details of the soil surveys for the area of interest are included in Appendix A.

In general, these soils have a relatively high water-holding capacity due to greater soil depth (40 to 60 inches) and finer textured subsoils. The Josephine and Mariposa series tend to be shallower (15 to 30 inches). The most common soil types found at elevations above 4,500 feet are the McCarthy and Ledmount series, developed on volcanic rocks. These soils are moderately deep (24 to 36 inches) with coarse texture throughout, except for the Ledmount series, which tends to be shallow (less than 20 inches).

Hydrology

The District monitors the flow operations at Jenkinson Lake on a daily basis. Surface water elevation, storage volume, releases, spills, diversions, evaporation, and precipitation are monitored and documented. Table 2-2 provides a summary of precipitation at the reservoir from 2013 through 2017. Figure 2-2 provides the annual precipitation and graphically depicts the wettest and driest quarters from 2013 to 2017.

Table 2-2: Monthly Precipitation Data at Jenkinson Lake (2013-2017)

<table>
<thead>
<tr>
<th>Month</th>
<th>2013 (inches)</th>
<th>2014 (inches)</th>
<th>2015 (inches)</th>
<th>2016 (inches)</th>
<th>2017 (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>0.56</td>
<td>1.46</td>
<td>0.06</td>
<td>13.54</td>
<td>24.55</td>
</tr>
<tr>
<td>February</td>
<td>0.92</td>
<td>13.58</td>
<td>7.54</td>
<td>5.44</td>
<td>21.85</td>
</tr>
<tr>
<td>March</td>
<td>2.39</td>
<td>7.33</td>
<td>0.92</td>
<td>13.36</td>
<td>5.85</td>
</tr>
<tr>
<td>April</td>
<td>2.66</td>
<td>4.16</td>
<td>3.05</td>
<td>4.16</td>
<td>7.47</td>
</tr>
<tr>
<td>May</td>
<td>1.28</td>
<td>0.17</td>
<td>0.87</td>
<td>0.99</td>
<td>0.38</td>
</tr>
<tr>
<td>June</td>
<td>1.57</td>
<td>0.00</td>
<td>0.75</td>
<td>0.00</td>
<td>0.75</td>
</tr>
<tr>
<td>July</td>
<td>0.00</td>
<td>0.03</td>
<td>0.05</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>August</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>September</td>
<td>2.40</td>
<td>0.94</td>
<td>0.03</td>
<td>0.00</td>
<td>0.34</td>
</tr>
<tr>
<td>October</td>
<td>0.08</td>
<td>0.95</td>
<td>4.69</td>
<td>13.12</td>
<td>0.64</td>
</tr>
<tr>
<td>November</td>
<td>1.80</td>
<td>4.34</td>
<td>5.72</td>
<td>5.71</td>
<td>9.27</td>
</tr>
<tr>
<td>December</td>
<td>0.02</td>
<td>10.75</td>
<td>13.55</td>
<td>9.60</td>
<td>1.01</td>
</tr>
<tr>
<td>Total</td>
<td>13.68</td>
<td>43.71</td>
<td>37.23</td>
<td>65.92</td>
<td>72.11</td>
</tr>
</tbody>
</table>

Precipitation at Jenkinson Lake occurs predominantly from October through April with the driest months from May through September. In the past five years, 2013 was the driest year and 2017 was the wettest.

Camp Creek is tributary to the Middle Fork Cosumnes River; however, a diversion tunnel from Camp Creek to Sly Park Creek is used to divert flow in order to supplement the reservoir.

Table 2-3 provides the monthly diversion data collected by the District. In the last five years, overall diversions peaked in 2016 and were the lowest in 2013, which coincide with the wet and dry years. Diversions occur primarily in the wetter months when streamflow is expected to be higher due to rainfall and snowmelt, from December through June.

Figure 2-3 presents the diversions from Camp Creek to Sly Park Creek.
Table 2-3: Monthly Camp Creek Diversions to Jenkinson Lake (2013-2017)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>2004.47</td>
<td>73.49</td>
<td>421.06</td>
<td>5935.43</td>
<td>1757.98</td>
</tr>
<tr>
<td>February</td>
<td>1583.86</td>
<td>1826.88</td>
<td>3726.28</td>
<td>5774.56</td>
<td>0.00</td>
</tr>
<tr>
<td>March</td>
<td>1113.22</td>
<td>2924.57</td>
<td>582</td>
<td>9407</td>
<td>0.00</td>
</tr>
<tr>
<td>April</td>
<td>1885.45</td>
<td>2415.63</td>
<td>496.55</td>
<td>1369.81</td>
<td>0.00</td>
</tr>
<tr>
<td>May</td>
<td>1087.02</td>
<td>1082.36</td>
<td>384.64</td>
<td>2224.5</td>
<td>1395.63</td>
</tr>
<tr>
<td>June</td>
<td>309.03</td>
<td>160.45</td>
<td>92.23</td>
<td>787.81</td>
<td>1875.24</td>
</tr>
<tr>
<td>July</td>
<td>84.66</td>
<td>2.58</td>
<td>1.55</td>
<td>233.74</td>
<td>697.82</td>
</tr>
<tr>
<td>August</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>56.31</td>
<td>461.18</td>
</tr>
<tr>
<td>September</td>
<td>0.00</td>
<td>16.50</td>
<td>0.00</td>
<td>0.00</td>
<td>297.19</td>
</tr>
<tr>
<td>October</td>
<td>5.95</td>
<td>9.78</td>
<td>86.74</td>
<td>550.68</td>
<td>329.42</td>
</tr>
<tr>
<td>November</td>
<td>39.31</td>
<td>161.26</td>
<td>228.26</td>
<td>964.77</td>
<td>1200.26</td>
</tr>
<tr>
<td>December</td>
<td>49.15</td>
<td>1005.3</td>
<td>1809.75</td>
<td>8130.17</td>
<td>668.44</td>
</tr>
<tr>
<td>Total</td>
<td>8162.12</td>
<td>9678.8</td>
<td>7829.06</td>
<td>35434.78</td>
<td>8683.16</td>
</tr>
</tbody>
</table>


Figure 2-3: Monthly Camp Creek Diversions (2013-2017)

2.1.2 Middle Fork Cosumnes River Watershed

The Middle Fork Cosumnes River descends from the Anderson Canyon in the east to the confluence with the South Fork Cosumnes River. The Outingdale WTP is located along the Middle Fork Cosumnes River in the community of Outingdale, east of the point of confluence, upstream of where Spanish Creek meets the Middle Fork Cosumnes River.

With the Outingdale WTP located upstream of the South Fork Cosumnes River point of confluence, the watershed area for the WTP is smaller, and contained within, the Middle Fork Cosumnes River watershed, up to the vicinity of the WTP intake structure. For the purpose of this description, the entire watershed was reviewed. Figure 2-1 delineates the Middle Fork Cosumnes River watershed area.

Topography

The Middle Fork Cosumnes River Watershed ranges in elevation from approximately 1,600 feet in the North Fork Cosumnes River Canyon to 7,200 feet at the upper end of the Anderson Ridge. The watershed is encompassed by the southern slope of Plummer Ridge; all of Cat Creek Ridge, Big Mountain Ridge, and Gold Note Ridge; and the northern slopes of Peddlar Hill and Barney Ridge. The slopes adjacent to the river and some of the creeks can be relatively steep with rocky outcrops, while the vast majority of the watershed has mild to moderate slopes. Table 2-1 provides the minimum and maximum elevations of the watershed tributaries.

Table 2-4: Tributaries to the Middle Fork Cosumnes River

<table>
<thead>
<tr>
<th>Creek Name</th>
<th>Minimum Elevations (feet)</th>
<th>Maximum Elevations (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dogtown Creek</td>
<td>2,880</td>
<td>5,280</td>
</tr>
<tr>
<td>Sopiago Creek</td>
<td>2,720</td>
<td>4,320</td>
</tr>
<tr>
<td>Middle Dry Creek</td>
<td>3,760</td>
<td>5,200</td>
</tr>
<tr>
<td>McKinney Creek</td>
<td>4,400</td>
<td>5,600</td>
</tr>
<tr>
<td>Shingle Mill Creek</td>
<td>4,320</td>
<td>6,000</td>
</tr>
<tr>
<td>Prothro Creek</td>
<td>3,560</td>
<td>6,160</td>
</tr>
<tr>
<td>Mehren Creek</td>
<td>5,040</td>
<td>5,920</td>
</tr>
<tr>
<td>Peddlar Creek</td>
<td>5,280</td>
<td>6,400</td>
</tr>
</tbody>
</table>

Source: EID, 1996 Watershed Sanitary Survey

Soils

Updated soils information was collected from the USDA Natural Resources Conservation Service through the Web Soil Survey – National Cooperative Soil Survey. Recently prepared surveys in the area include the El Dorado Area Version 9 (September 11, 2017) and El Dorado National Forest Area Version 10 (September 11, 2017) surveys. The details of the soil surveys for the area of interest are included in Appendix A.

The most common soil series in the region include Cohasset-McCarthy, Holland, Mariposa, McCarthy and McCarthy-Ledmount, Chaix and Chaix-Pilliken, Waca and Waca-Windy, and Lithic Xerumbrepts. All of these soils occur in the region in quantities greater than 2% by area.
In general, these soils have a relatively high water-holding capacity due to greater soil depth (40 to 60 inches) and finer textured subsoils. The Josephine and Mariposa series tend to be shallower (15 to 30 inches). The most common soil types found at elevations above 4,500 feet are the McCarthy and Ledmount series, developed on volcanic rocks and Chaix and Pilliken, developed on granitic rocks. These soils are moderately deep (24 to 36 inches) with coarse texture throughout, except for the Ledmount series, which tends to be shallow (less than 20 inches).

### Hydrology

Monthly precipitation data collected at the Fiddletown Dexter Ranch Station (Western Regional Climate Center, Station Number 043038-5) is provided in Table 2-5. The Fiddletown Dexter Ranch Station is located just minutes southeast of Aukum and the Middle Fork Cosumnes River Watershed. It is the nearest active weather station that could be located at the time of this WSS. No active station could be located within the watershed.

**Table 2-5: Monthly Precipitation Data at Fiddletown Dexter Ranch Station (2013-2017)**

<table>
<thead>
<tr>
<th>Month</th>
<th>2013 (inches)</th>
<th>2014 (inches)</th>
<th>2015 (inches)</th>
<th>2016 (inches)</th>
<th>2017 (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>1.33</td>
<td>1.15</td>
<td>0.00</td>
<td>9.29</td>
<td>20.25</td>
</tr>
<tr>
<td>February</td>
<td>0.81</td>
<td>9.75</td>
<td>6.84</td>
<td>1.80</td>
<td>16.35</td>
</tr>
<tr>
<td>March</td>
<td>2.89</td>
<td>5.46</td>
<td>1.04</td>
<td>9.46</td>
<td>4.48</td>
</tr>
<tr>
<td>April</td>
<td>1.16</td>
<td>2.98</td>
<td>3.76</td>
<td>3.47</td>
<td>6.05</td>
</tr>
<tr>
<td>May</td>
<td>0.93</td>
<td>0.30</td>
<td>0.75</td>
<td>0.57</td>
<td>0.46</td>
</tr>
<tr>
<td>June</td>
<td>0.40</td>
<td>0.00</td>
<td>0.06</td>
<td>0.00</td>
<td>0.13</td>
</tr>
<tr>
<td>July</td>
<td>0.00</td>
<td>0.00</td>
<td>0.06</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>August</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.07</td>
<td>0.00</td>
</tr>
<tr>
<td>September</td>
<td>1.28</td>
<td>0.93</td>
<td>0.01</td>
<td>0.00</td>
<td>0.06</td>
</tr>
<tr>
<td>October</td>
<td>0.00</td>
<td>0.82</td>
<td>1.77</td>
<td>10.01</td>
<td>0.48</td>
</tr>
<tr>
<td>November</td>
<td>1.47</td>
<td>2.89</td>
<td>5.04</td>
<td>3.56</td>
<td>8.27</td>
</tr>
<tr>
<td>December</td>
<td>0.51</td>
<td>9.97</td>
<td>8.43</td>
<td>5.74</td>
<td>0.83</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10.78</strong></td>
<td><strong>34.25</strong></td>
<td><strong>27.76</strong></td>
<td><strong>43.97</strong></td>
<td><strong>57.36</strong></td>
</tr>
</tbody>
</table>

Source: Western Regional Climate Center, http://www.wrcc.dri.edu/, Fiddletown Dexter Ranch Station 043038-5

Precipitation at the Fiddletown Dexter Ranch Station occurs predominantly from October through May with the driest months from June through September. In the past five years, 2013 was the driest year and 2017 was the wettest. **Figure 2-4** provides the annual precipitation and graphically depicts the wettest and driest quarters from 2013 to 2017.
2.1.3 Common Characteristics of Both Watersheds

Provided is a brief description of the common characteristics shared by both watersheds. The information provided in the 1996 WSS is unchanged; however additional information and detail has been provided as available.

**Geology**

Geologic formations within the watershed consist primarily of Cenozoic-age and to a lesser extent Paleozoic formations with a few isolated areas of Mesozoic formations. The three types of geologic formations include the Valley Springs Formation, the Mehrten’s Formation, and the Shoo Fly formation of the Calaveras Complex. The Valley Springs and Mehrten’s Formations are several hundred feet in depth along the western slope of the Sierra Nevada range and are a result of deposited ash and mudflows from Cenozoic Era volcanic eruptions. The Shoo Fly formation is indicative of an ancient fault zone.

Shallow unconfined groundwater aquifers occur within streamside alluvium and deeper confined groundwater aquifers within bedrock. Gold is the major mineral deposit in the watershed. There are few and relatively inactive fault lines within the region.

Potential for earthquake-related and volcanic geologic hazards appear minimal. Landslides are the most significant potential geologic hazard in the region, particularly along the steeper embankments of the creeks.
Wildlife

The eastern portion of both watersheds is located within the Eldorado National Forest (ENF). The ENF is home to a very diverse variety of species due to the diversity in climate, elevation, soil, and water. There are as many as 243 species of animals including mammals, birds, reptiles, fish, and amphibians (www.inaturalist.org/places/eldorado-national-forest iNaturalist).

There are a number of large and small mammals in the ENF. The California mule deer is one of the more common species. Bear and mountain lion are also found in the Forest. Small mammals include bobcat, coyote, weasel, raccoon, jack rabbit, porcupine, California ground squirrel, marmot, cottontail rabbit, gray squirrel, and Sierra pocket gopher.

The bald eagle, an endangered species, has been found in the ENF during the winter months and sightings of the peregrine falcon have been observed during the summer nesting period. Sensitive species include Sierra Nevada red foxes, pine martens, fishers, spotted owls, great gray owls, goshawks, and willow flycatchers. Other bird species include blue grouse, band-tailed pigeon, mountain quail, mourning dove, and an occasional wild turkey. Raptor species are golden eagle, red-tailed hawk, sharp-shinned hawk, and great horned owl. Turkey vultures are also common seasonally.

Over 100 species of song birds are found in the ENF. Some of the more commonly seen species are mountain chickadee, Stellar's jay, Clark's nutcracker, pygmy nuthatch, robin, red shafted flicker, myrtle warbler, fox sparrow, rufous-sided towhee, Oregon junco, white-crowned sparrow, yellow-bellied sapsucker, white-headed woodpecker, and acorn woodpecker.

Vegetation

Vegetation provides natural protection against erosion within a watershed as well as habitat for wildlife. The Jenkinson Lake Watershed is covered predominantly by Sierran Mixed Conifer. Within the region of the recreational area, closer to the lake and the lower elevations, there is a mixture of Ponderosa Pine, Montane and mixed Chaparral, Aspen, Douglas Fir, as well as some annual grassland. There is also Red Fir, White Fir and Jeffrey Pine at the higher elevations. Figure 2-5 shows El Dorado County and the various plant communities that thrive within the watersheds and the County.

The Middle Fork Cosumnes Watershed is also covered predominantly by Sierran Mixed Conifer as well as Montane Hardwood. Within the region of the lower elevations, there is a broad mixture of species including Ponderosa Pine, Montane and mixed Chaparral, Montane Hardwood, Aspen, Douglas Fir, Sagebrush, as well as some annual grassland. There is also Red Fir, White Fir and Jeffrey Pine at the higher elevations.
FIGURE 2-5
EL DORADO IRRIGATION DISTRICT
WATERSHED SANITARY SURVEY UPDATE
PLANT COMMUNITIES IN EL DORADO COUNTY
2.2 Land Use and Ownership

Land use and land ownership within the watersheds have remained essentially unchanged since the first WSS conducted in 1996. The descriptions of the land uses are discussed in detail in the 1996 WSS and are incorporated by reference. The watersheds are designated primarily as Forest/Recreational and Upland Agricultural Zones. Provided below are brief descriptions of the land uses and updated data regarding the watersheds, as available.

2.2.1 Land Ownership

Land ownership in the watersheds is a mix of federal, public, and private lands. For the Jenkinson Lake watershed, the District owns and operates the recreational facilities while the remaining watershed is U.S. Forest Service, U.S. Bureau of Reclamation as well as small and large private landowners like Georgia Pacific and Sierra Pacific Corporations.

The Middle Fork Cosumnes River watershed is also owned primarily by the U.S. Forest Service with a mix of small and large private landowners; the same as the Jenkinson Lake watershed: Georgia Pacific and Sierra Pacific Corporations. Figure 2-6 provides a map of the County and identifies all federally-owned land within the County.

2.2.2 Population Centers/Major Towns

The watersheds are generally rural. Figure 2-7 and Figure 2-7 provides population density map for the County and Jenkinson Lake watershed, respectively. The more densely populated regions of the County are generally to the west of Highway 49 and along Highway 50. Pollock Pines is the most densely populated town near Jenkinson Lake and is located just north and east of the watershed. The watershed population ranges as high as 101 to 1,000 people per square mile near the lake to as little as 100 persons or less.

The Middle Fork Cosumnes River watershed is sparsely populated. Outingdale is likely one of the more densely populated areas within the watershed, though still a community that is quite small. Population within the watershed is consistently at 100 persons or less per square mile.

2.2.3 Land Use

As depicted in Figure 2-6, a large percentage of the watersheds are federally-owned land. Those areas are generally National Forest. Areas listed in gray are not federally-owned land. Other land use in the County is presented in Figure 2-9. Land use within the watersheds includes:

- Agricultural Lands;
- Natural Resources;
- Open Space;
- Public Facilities; and
- Rural Residential and Low Density Residential

Specific recreational uses include the Jenkinson Lake Recreation Area, discussed below.
FIGURE 2-8
EL DORADO IRRIGATION DISTRICT
WATERSHED SANITARY SURVEY UPDATE
POPULATION DENSITY WITHIN JENKINSON LAKE WATERSHED (2017)
FIGURE 2-9
EL DORADO IRRIGATION DISTRICT
WATERSHED SANITARY SURVEY UPDATE
LAND USE IN EL DORADO COUNTY
Jenkinson Lake Recreation Area Use

The Sly Park Recreational Area is operated by District staff. The area includes thirteen campgrounds, which consist of nearly 200 campsites. The area is open for recreational use including body contact sports, boating, and fishing. The campground is equipped with a variety of facilities including camp sites; boat ramps; a marina; ADA accessible areas, day use areas and parking; toilets; and hiking, biking, and equestrian trails. District staff has documented usage of the facilities over time and the data is summarized in Table 2-6 for the last five years.

Table 2-6: Jenkinson Lake (Sly Park) Recreational Area Statistics (2013-2017)

<table>
<thead>
<tr>
<th>Visitor Type</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boat Use</td>
<td>54,980</td>
<td>33,606</td>
<td>29,239</td>
<td>37,843</td>
<td>372,014</td>
</tr>
<tr>
<td>Overnight Campers</td>
<td>92,598</td>
<td>92,830</td>
<td>94,558</td>
<td>114,812</td>
<td>118,965</td>
</tr>
<tr>
<td>Day Use</td>
<td>457,738</td>
<td>263,305</td>
<td>270,227</td>
<td>516,117</td>
<td>567,741</td>
</tr>
<tr>
<td>Total Number of Visitors</td>
<td>605,316</td>
<td>389,741</td>
<td>394,024</td>
<td>668,772</td>
<td>723,910</td>
</tr>
</tbody>
</table>


The number of visitors has generally been increasing over time and day use has been increasing in popularity, although the impact of the drought from 2013 to 2015 is evident in boating and day use. Boat use has been more sporadic, peaking in 2013, though slightly increasing, likely due to low reservoir levels. Figure 2-10 shows the number of boaters versus the total number of visitors annually. A map of the Jenkinson Lake Recreation Area is provided in Figure 2-11.

Figure 2-10: Jenkinson Lake Recreation Area Visitors (2013-2017)

SECTION 3 – DESCRIPTION OF WATER SUPPLY SYSTEMS

The following sections discuss the Reservoir A and Outingdale WTPs and distribution facilities.

3.1 History of the Water Supply Systems

The history of the water supply systems is described in the first WSS conducted in 1996 as well as the updated WSS conducted in 2001. Those documents are incorporated by reference. Provided below are brief descriptions of the current water supply and distribution facilities.

3.2 Jenkinson Lake (Reservoir A) Water Supply Facilities

Jenkinson Lake is supplied by Sly Park Creek, Hazel Creek, and Camp Creek via a diversion tunnel. This water supply is treated at the Reservoir A WTP and distributed to the Sly Park Hills, Pleasant Oak Main, and Camino Conduit systems. The following sections provide a description of the water treatment and treated water supply facilities.

3.2.1 Reservoir A Water Treatment Plant

The Reservoir A WTP was originally constructed in 1974 and treats water stored in Jenkinson Lake. The WTP has a T5 classification, as such, requires that the chief operator maintain a minimum T5 level of certification. Modifications have been made to the system over time to improve treatment and meet SWRCB requirements. The current WTP process flow diagram is depicted in Figure 3-1. There are no changes in the process compared to that listed in the 2014 report.

The WTP is an in-line direct filtration plant with disinfection. Treatment processes include chemical addition (polymer and chlorine) with rapid mixing, twelve-cell dual-media gravity filtration using anthracite and filter sand, followed by a chlorine contact basin clearwell and additional chlorination. For the period of this WSS, chlorine gas was stored in one-ton gas cylinders; the facility converted to sodium hypochlorite at the end of 2013. Lime and orthophosphate (corrosion inhibitor) are also added at the clearwell. A sodium hydroxide feed system replaced the lime feed system at the end of 2013. Filter backwash is directed to an equalization basin and pumped to settling/drying beds, decanted, then returned to the influent. Treated water is sent to Reservoir A prior to distribution, except for a small volume, which is distributed directly to a higher elevation pressure zone (Sly Park Hills).

The WTP has a 56 MGD production capacity. However, the water production is limited by the annual supply that is available for diversion, which is 23,000 AFY (or 21 MGD). The maximum daily volume is limited to twice that amount, to 42 MGD. The District’s annual water right is for 33,400 AFY, which equates to a maximum day production capacity of approximately 60 MGD. The outlet works at Sly Park Dam have a discharge capacity of 80 MGD.
3.2.2 Reservoir A Distribution System

Reservoir A is a concrete, covered storage tank with a 2.3 MG capacity. It has a screened roof vent and overflow with a sealed access hatch. Water from Reservoir A is routed to either the Camino Conduit and/or the Pleasant Oak Main (POM), which is dictated by system demands. A small amount of water is supplied to the Sly Park Hills Pressure Zone to serve customers at higher elevations.

Water transmitted via the Camino Conduit is routed to Reservoirs 2 and 2A of the Reservoir 1 subsystem; and water transmitted via the POM is conveyed to Reservoirs B and C. From Reservoir C, water is routed to Reservoir 7A and 7B, where it enters the Diamond Springs Main (DSM). From the DSM, water is further conveyed to Reservoir 9. From Reservoir 9, the DSM conveys water through the Diamond Springs/El Dorado, Logtown, Shingle Springs, and Cameron Park service zones, terminating at Reservoir 12 east of Cameron Park.

The Reservoir 1 subsystem and DSM of the Reservoir A subsystem are connected by the Lateral 8.0 South and Highway 49 Intertie, of the respective systems. DSM Lateral 3.6 North extends northwest serving commercial areas along Missouri Flat Road. During low demand times (October – April) Reservoir A WTP serves the entire main (0910001) distribution system.

The distribution system has a D5 classification and requires that the chief operator maintain a minimum D5 level of certification.
3.3 Outingdale Water Supply Facilities

The Outingdale system is a satellite distribution system that is served by a small WTP on the banks of the Middle Fork Cosumnes River. Raw water is collected from the Middle Fork Cosumnes River, treated, and distributed to Outingdale customers. The following sections provide a description of the water treatment and treated water supply facilities.

3.3.1 Outingdale Water Treatment Plant

The Outingdale WTP is a 100 gpm system that serves a small satellite water system. The treatment system is a U.S. Filter Trident Microfloc packaged treatment plant consisting of an upflow clarifier and multi-media filter with anthracite coal. Raw water is collected via a flexible rubber hose with an inlet screen and three split case pumps that draw from the Middle Fork Cosumnes River. The system implements a polymer coagulant, soda ash for pH adjustment, and pre- and post- chlorination using sodium hypochlorite. The backwash system is either initiated manually or triggered by headloss or time; there is a waste tank, return pumps, and filter to waste (FTW). Decanted backwash water is pumped from the holding tank to the WTP headworks.

3.3.2 Outingdale Distribution System

The Outingdale distribution system consists of two treated water storage tanks and a distribution network. Both water storage tanks are bolted steel. The Lower Tank is located at the Outingdale WTP and the Upper Tank is located at the higher elevation zone. Both tanks are equipped with screened roof vents and overflows as well as sealed access hatches. The Upper Tank has an 80,000 gallon capacity and the Lower Tank has a 60,000 gallon capacity.

The distribution system is divided into the Upper and Lower Zones, which are further divided in the Zones 1 and 2, resulting in four zones. Each of the zones operates within 75 to 100 psi. The high service pump station transmits water from the WTP to the Upper Tank and the Upper Booster Station, which is located at the Upper Tank, pumps water to the Upper Zone 2. The Lower Booster Station pumps water from Lower Zone 1 to Lower Zone 2.

The distribution system consists of 4- to 6-inch pipelines. Pipeline materials are primarily PVC with some asbestos cement pipe (ACP), which is replaced on an as-needed basis. No water quality issues have been associated with the ACP.

The distribution system has a D1 classification and requires that the chief operator maintain a minimum D1 level of certification.
SECTION 4 – SOURCE WATER QUALITY

The source water quality provides an indication of whether there are impacts to the source from potentially contaminating activities within the watershed. The District collects water quality data for a handful of constituents in order to identify issues or possible trending that may be associated with seasons, weather, or watershed activity.

4.1 Bacteriological Water Quality

The District collects total coliform and Escherichia coli (E. coli) samples at minimum, on a monthly basis. Coliform are naturally present in the environment and, in and of themselves, are not harmful to humans but they are used as an indicator organism for the potential presence of microbial contamination. E. coli is directly related to the presence of fecal pathogens. The presence of E. coli indicates that the water may be contaminated with human or animal wastes. E. coli can cause short-term gastrointestinal upset such as diarrhea, cramps, nausea, headaches, or other symptoms.

4.1.1 Jenkinson Lake Bacteriological Water Quality

During the winter months, the District collects one sample per month on average of each organism and during the spring and summer months, samples are collected more frequently. The requirement for bacteriological monitoring of source water is dictated by California Health and Safety Code Section 115842(a)(2), which states:

**Article 1. Recreational Use of Reservoirs**

**§115842. (Sly Park Reservoir)**

(a) Recreational activity in which there is bodily contact with the water by any participant is allowed in the Sly Park Reservoir provided that all of the following conditions are satisfied:

(1) The water shall receive complete water treatment, including coagulation, flocculation, sedimentation, filtration, and disinfection; or alternative treatment that complies with all applicable department regulations and requirements. Such treatment shall, at a minimum, comply with all state laws and department regulations and all federal laws and regulations, including, but not limited to, the federal Environmental Protection Agency Long-Term 2 Enhanced Surface Water Treatment regulations. Nothing in this division shall limit the state or the department from imposing more stringent treatment standards than those required by federal law.

(2) The El Dorado Irrigation District conducts a monitoring program for E. coli, bacteria and giardia, and cryptosporidium organisms at various reservoir locations and at a frequency determined by the department.

(3) The reservoir is operated in compliance with regulations of the department.

Table 4-1 and Table 4-2 provide a summary of the water quality results, indicating the highest value collected during any month from 2013 to 2017.
Table 4-1: Jenkinson Lake WTP Average Monthly Total Coliform (2013-2017)

<table>
<thead>
<tr>
<th>Month</th>
<th>2013 (MPN/100mL)</th>
<th>2014 (MPN/100mL)</th>
<th>2015 (MPN/100mL)</th>
<th>2016 (MPN/100mL)</th>
<th>2017 (MPN/100mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>7.4</td>
<td>12</td>
<td>280</td>
<td>50</td>
<td>47</td>
</tr>
<tr>
<td>February</td>
<td>2</td>
<td>40</td>
<td>16</td>
<td>24</td>
<td>28</td>
</tr>
<tr>
<td>March</td>
<td>7.5</td>
<td>7.5</td>
<td>5</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>April</td>
<td>7.56</td>
<td>5.75</td>
<td>26.75</td>
<td>37.5</td>
<td>6</td>
</tr>
<tr>
<td>May</td>
<td>6.625</td>
<td>30.25</td>
<td>138.25</td>
<td>826</td>
<td>14.4</td>
</tr>
<tr>
<td>June</td>
<td>10.4</td>
<td>34.6</td>
<td>21.2</td>
<td>23.75</td>
<td>12.75</td>
</tr>
<tr>
<td>July</td>
<td>20.6</td>
<td>28</td>
<td>33.5</td>
<td>27</td>
<td>18.8</td>
</tr>
<tr>
<td>August</td>
<td>243.7</td>
<td>47.2</td>
<td>50.75</td>
<td>34.8</td>
<td>20.2</td>
</tr>
<tr>
<td>September</td>
<td>109.1</td>
<td>27.5</td>
<td>30.4</td>
<td>29</td>
<td>24.75</td>
</tr>
<tr>
<td>October</td>
<td>9.8</td>
<td>23</td>
<td>20</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>November</td>
<td>11</td>
<td>23</td>
<td>27</td>
<td>26</td>
<td>7</td>
</tr>
<tr>
<td>December</td>
<td>33</td>
<td>23</td>
<td>110</td>
<td>12</td>
<td>36</td>
</tr>
<tr>
<td>Max Month</td>
<td>August</td>
<td>August</td>
<td>January</td>
<td>May</td>
<td>January</td>
</tr>
</tbody>
</table>


Total Coliform levels tend to be higher during the summer months, which can be attributed to higher recreational activity levels in the summertime as well as water stagnation and associated bacteriological growth.

Table 4-2: Jenkinson Lake WTP Average Monthly E. Coli (2013-2017)

<table>
<thead>
<tr>
<th>Month</th>
<th>2013 (MPN/100mL)</th>
<th>2014 (MPN/100mL)</th>
<th>2015 (MPN/100mL)</th>
<th>2016 (MPN/100mL)</th>
<th>2017 (MPN/100mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>February</td>
<td>&lt;1</td>
<td>1</td>
<td>&lt;1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>March</td>
<td>&lt;1</td>
<td>2</td>
<td>&lt;1</td>
<td>1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>April</td>
<td>1.33</td>
<td>1</td>
<td>4</td>
<td>4</td>
<td>1.33</td>
</tr>
<tr>
<td>May</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>June</td>
<td>&lt;1</td>
<td>1</td>
<td>1</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>July</td>
<td>1</td>
<td>&lt;1</td>
<td>1</td>
<td>1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>August</td>
<td>&lt;1</td>
<td>1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>September</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>&lt;1</td>
<td>2</td>
<td>&lt;1</td>
</tr>
<tr>
<td>October</td>
<td>1</td>
<td>&lt;1</td>
<td>1</td>
<td>&lt;1</td>
<td>&lt;1</td>
</tr>
<tr>
<td>November</td>
<td>&lt;1</td>
<td>8</td>
<td>7</td>
<td>&lt;1</td>
<td>1</td>
</tr>
<tr>
<td>December</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Max Month</td>
<td>December</td>
<td>November</td>
<td>November</td>
<td>Apr/Dec</td>
<td>December</td>
</tr>
</tbody>
</table>


E. coli detections are relatively few and appear to peak in the winter months. This may be due to precipitation events and animal feces getting transported into the Lake via runoff.
In addition to total coliform and E. coli, the District monitors for specific pathogens including Giardia and Cryptosporidium. Both pathogens are known to cause symptoms related to gastrointestinal illness such as nausea, cramps, diarrhea, vomiting, and associated headaches. The District typically collects samples in the late spring through summer up to three times. Samples are collected in the swimming area as well as near the intake to the WTP. Neither pathogen has been detected in samples collected from 2013 through 2017.

4.1.2 Middle Fork Cosumnes River Bacteriological Water Quality

The District collects total coliform and E. coli samples on a monthly basis upstream of the intake to the Outingdale WTP. During the spring and summer months, samples may be collected weekly. For the 12 month period beginning in October 2017 and ending in September 2018, the District has and will collect biweekly samples consistent with the monitoring requirements for the 2nd round LT2 for small water systems. Table 4-3 and Table 4-4 provide a summary of the water quality results, indicating the highest value collected during any month from 2013 to 2017.

Table 4-3: Outingdale WTP Monthly Total Coliform (2013-2017)

<table>
<thead>
<tr>
<th>Month</th>
<th>2013 (MPN/100mL)</th>
<th>2014 (MPN/100mL)</th>
<th>2015 (MPN/100mL)</th>
<th>2016 (MPN/100mL)</th>
<th>2017 (MPN/100mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>326</td>
<td>140</td>
<td>2</td>
<td>460</td>
<td>870</td>
</tr>
<tr>
<td>February</td>
<td>54</td>
<td>520</td>
<td>610</td>
<td>250</td>
<td>330</td>
</tr>
<tr>
<td>March</td>
<td>145</td>
<td>260</td>
<td>280</td>
<td>650</td>
<td>120</td>
</tr>
<tr>
<td>April</td>
<td>197</td>
<td>330</td>
<td>1,100</td>
<td>1,200</td>
<td>210</td>
</tr>
<tr>
<td>May</td>
<td>2,420</td>
<td>980</td>
<td>2,000</td>
<td>1,600</td>
<td>340</td>
</tr>
<tr>
<td>June</td>
<td>4,884</td>
<td>&gt;2,419.6</td>
<td>1,300</td>
<td>2,000</td>
<td>730</td>
</tr>
<tr>
<td>July</td>
<td>&gt;2,419.6</td>
<td>&gt;2,419.6</td>
<td>580</td>
<td>2,600</td>
<td>&gt;2,419.6</td>
</tr>
<tr>
<td>August</td>
<td>3,872</td>
<td>1,900</td>
<td>1,400</td>
<td>3,200</td>
<td>&gt;2,419.6</td>
</tr>
<tr>
<td>September</td>
<td>3,448</td>
<td>11,700</td>
<td>3,800</td>
<td>1,500</td>
<td>3,200</td>
</tr>
<tr>
<td>October</td>
<td>1,354</td>
<td>1,163.33</td>
<td>6,166.67</td>
<td>870</td>
<td>1,015</td>
</tr>
<tr>
<td>November</td>
<td>230</td>
<td>390</td>
<td>980</td>
<td>1,000</td>
<td>655</td>
</tr>
<tr>
<td>December</td>
<td>79</td>
<td>370</td>
<td>920</td>
<td>1,200</td>
<td>350</td>
</tr>
<tr>
<td>Max Month</td>
<td>June</td>
<td>September</td>
<td>October</td>
<td>August</td>
<td>September</td>
</tr>
</tbody>
</table>


Total Coliform levels tend to be higher during the summer months, which can be attributed to higher recreational activity levels in the summertime as well as water stagnation and associated bacteriological growth.
Table 4-4: Outingdale WTP Monthly E. Coli (2013-2017)

<table>
<thead>
<tr>
<th>Month</th>
<th>2013 (MPN/100mL)</th>
<th>2014 (MPN/100mL)</th>
<th>2015 (MPN/100mL)</th>
<th>2016 (MPN/100mL)</th>
<th>2017 (MPN/100mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>11</td>
<td>11</td>
<td>&lt;1</td>
<td>12</td>
<td>24</td>
</tr>
<tr>
<td>February</td>
<td>&lt;1</td>
<td>13</td>
<td>26</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>March</td>
<td>9</td>
<td>7</td>
<td>2</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>April</td>
<td>6</td>
<td>10</td>
<td>3</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>May</td>
<td>14</td>
<td>15</td>
<td>330</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>June</td>
<td>85</td>
<td>550</td>
<td>66</td>
<td>330</td>
<td>47</td>
</tr>
<tr>
<td>July</td>
<td>32</td>
<td>33</td>
<td>180</td>
<td>200</td>
<td>63</td>
</tr>
<tr>
<td>August</td>
<td>10</td>
<td>200</td>
<td>3</td>
<td>100</td>
<td>45</td>
</tr>
<tr>
<td>September</td>
<td>31</td>
<td>310</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>October</td>
<td>30</td>
<td>105</td>
<td>306.67</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>November</td>
<td>7</td>
<td>5.2</td>
<td>30</td>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td>December</td>
<td>23</td>
<td>32</td>
<td>29</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Max Month</td>
<td>June</td>
<td>June</td>
<td>May</td>
<td>June</td>
<td>September</td>
</tr>
</tbody>
</table>


E. coli detections appear to peak in the winter months. This may be due to precipitation events and wildlife activity along the river.

4.2 Turbidity

Turbidity has no health effects but it is monitored because it is a good indicator of water quality. It is a measure of the clarity of water and is monitored to determine the effectiveness of filtration. High levels of turbidity can interfere with disinfection and provide a medium for microbial growth and may indicate the presence of disease-causing organisms. These organisms may include bacteria, viruses, and parasites that can cause gastrointestinal illness.

4.2.1 Jenkinson Lake Turbidity

The level of turbidity is monitored at the intake as well as after filtration to determine the effectiveness of treatment. In general, source water turbidity samples collected at the treatment plant intake indicate that turbidity levels are generally under 10 Nephelometric Turbidity Units (NTU). Occasional spikes can be associated with turbulence related to wet weather events and additional loading of suspended materials from erosion.

Figure 4-1 provides a visual representation of the source water turbidity based on average monthly data. Turbidity levels tend to peak more in the winter months and are relatively stable during the summer months, which can be associated with wet weather and increased loading from the tributary waterways (i.e. Sly Park Creek, Hazel Creek, etc.).
Influent and effluent (treated water) turbidity levels are provided in **Table 4-5**. Filtration at the Reservoir A WTP effectively reduces turbidity to less than 0.3 NTU at least 95% of the time, consistently achieving water quality goals.

**Table 4-5: Reservoir A WTP Influent and Effluent Turbidities (2013-2017)**

<table>
<thead>
<tr>
<th>Month</th>
<th>2013 (NTU)</th>
<th>2014 (NTU)</th>
<th>2015 (NTU)</th>
<th>2016 (NTU)</th>
<th>2017 (NTU)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Influent</td>
<td>Effluent</td>
<td>Influent</td>
<td>Effluent</td>
<td>Influent</td>
</tr>
<tr>
<td>January</td>
<td>2.4</td>
<td>0.022</td>
<td>5.1</td>
<td>0.028</td>
<td>3.9</td>
</tr>
<tr>
<td>February</td>
<td>2.2</td>
<td>0.025</td>
<td>4.5</td>
<td>0.030</td>
<td>5.0</td>
</tr>
<tr>
<td>March</td>
<td>5.2</td>
<td>0.025</td>
<td>3.5</td>
<td>0.023</td>
<td>5.6</td>
</tr>
<tr>
<td>April</td>
<td>8.9</td>
<td>0.040</td>
<td>8.6</td>
<td>0.023</td>
<td>4.2</td>
</tr>
<tr>
<td>May</td>
<td>3.9</td>
<td>0.063</td>
<td>4.9</td>
<td>0.050</td>
<td>Offline</td>
</tr>
<tr>
<td>June</td>
<td>5.4</td>
<td>0.046</td>
<td>6.0</td>
<td>0.058</td>
<td>Offline</td>
</tr>
<tr>
<td>July</td>
<td>5.9</td>
<td>0.050</td>
<td>3.2</td>
<td>0.059</td>
<td>Missing</td>
</tr>
<tr>
<td>August</td>
<td>10.2</td>
<td>0.050</td>
<td>5.0</td>
<td>0.055</td>
<td>2.0</td>
</tr>
<tr>
<td>September</td>
<td>7.2</td>
<td>0.039</td>
<td>6.2</td>
<td>0.050</td>
<td>Offline</td>
</tr>
<tr>
<td>October</td>
<td>6.4</td>
<td>0.053</td>
<td>7.1</td>
<td>0.060</td>
<td>1.4</td>
</tr>
<tr>
<td>November</td>
<td>6.9</td>
<td>0.036</td>
<td>8.6</td>
<td>0.060</td>
<td>2.0</td>
</tr>
<tr>
<td>December</td>
<td>3.2</td>
<td>0.028</td>
<td>8.1</td>
<td>0.052</td>
<td>2.7</td>
</tr>
</tbody>
</table>

4.2.2 Middle Fork Cosumnes River Turbidity

The level of turbidity is monitored within the Middle Fork Cosumnes River at the Outingdale WTP intake as well as after filtration to determine the effectiveness of treatment. In general, source water turbidity samples collected at the treatment plant intake indicate that turbidity levels are generally less than 10 NTU. Occasional spikes can be associated with turbulence related to wet weather events and additional loading of suspended materials from erosion.

Figure 4-2 provides a visual representation of the source water turbidity based on average monthly data. Turbidity levels tend to peak more in the winter months and are relatively stable during the summer months, which can be associated with wet weather and increased turbulence and loading from upstream tributary waterways to the Middle Fork Cosumnes River.

![Middle Fork Cosumnes River Turbidity at Outingdale WTP Intake](source)

Influent and effluent (treated water) turbidity levels are provided in Table 4-6. Filtration at the Outingdale WTP effectively reduces turbidity to less than 0.3 NTU at least 95% of the time, consistently achieving water quality goals.
Table 4-6: Outingdale WTP Influent and Effluent Turbidities (2013-2017)

<table>
<thead>
<tr>
<th>Month</th>
<th>2013 (NTU)</th>
<th>2014 (NTU)</th>
<th>2015 (NTU)</th>
<th>2016 (NTU)</th>
<th>2017 (NTU)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Influent</td>
<td>Effluent</td>
<td>Influent</td>
<td>Effluent</td>
<td>Influent</td>
</tr>
<tr>
<td>January</td>
<td>3.7</td>
<td>0.047</td>
<td>4.0</td>
<td>0.030</td>
<td>9.9</td>
</tr>
<tr>
<td>February</td>
<td>2.8</td>
<td>0.041</td>
<td>6.0</td>
<td>0.057</td>
<td>10.0</td>
</tr>
<tr>
<td>March</td>
<td>3.2</td>
<td>0.037</td>
<td>5.7</td>
<td>0.032</td>
<td>5.6</td>
</tr>
<tr>
<td>April</td>
<td>4.4</td>
<td>0.037</td>
<td>5.8</td>
<td>0.020</td>
<td>4.2</td>
</tr>
<tr>
<td>May</td>
<td>5.5</td>
<td>0.038</td>
<td>4.7</td>
<td>0.048</td>
<td>Offline</td>
</tr>
<tr>
<td>June</td>
<td>4.6</td>
<td>0.066</td>
<td>4.8</td>
<td>0.045</td>
<td>Offline</td>
</tr>
<tr>
<td>July</td>
<td>3.1</td>
<td>0.10</td>
<td>4.1</td>
<td>0.046</td>
<td>2.0</td>
</tr>
<tr>
<td>August</td>
<td>4.4</td>
<td>0.086</td>
<td>5.1</td>
<td>0.032</td>
<td>3.4</td>
</tr>
<tr>
<td>September</td>
<td>4.9</td>
<td>0.088</td>
<td>4.1</td>
<td>0.038</td>
<td>Offline</td>
</tr>
<tr>
<td>October</td>
<td>11.5</td>
<td>0.075</td>
<td>3.5</td>
<td>0.028</td>
<td>1.4</td>
</tr>
<tr>
<td>November</td>
<td>4.0</td>
<td>0.062</td>
<td>8.1</td>
<td>0.113</td>
<td>2.0</td>
</tr>
<tr>
<td>December</td>
<td>3.8</td>
<td>0.046</td>
<td>8.9</td>
<td>0.104</td>
<td>2.7</td>
</tr>
</tbody>
</table>


4.3 Total Organic Carbon (TOC)

The presence of organic matter in source water can provide a medium for the formation of disinfection byproducts during the treatment disinfection process. Disinfection byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the regulated maximum contaminant level (MCL) can lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.

Figure 4-3 presents the average monthly TOC levels from 2013 to 2017 for both Jenkinson Lake and the Middle Fork Cosumnes River and is provided at the end of this discussion.

4.3.1 Jenkinson Lake TOC

Monthly TOC levels at the Jenkinson Lake WTP intake is provided in Table 4-7. TOC levels were generally higher in 2016 and 2017 while levels in 2013 were relatively consistent and below 1.5 mg/l.

As can be seen in Figure 4-3, TOC levels at Jenkinson Lake are relatively constant with a mild seasonal pattern, peaking in the winter.
Table 4-7: Jenkinson Lake WTP Intake Monthly TOC (2013-2017)

<table>
<thead>
<tr>
<th>Month</th>
<th>2013 (mg/L)</th>
<th>2014 (mg/L)</th>
<th>2015 (mg/L)</th>
<th>2016 (mg/L)</th>
<th>2017 (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>1.2</td>
<td>1.3</td>
<td>1.3</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>February</td>
<td>1.4</td>
<td>1.5</td>
<td>1.7</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>March</td>
<td>1.1</td>
<td>1.8</td>
<td>1.4</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>April</td>
<td>1.2</td>
<td>1.7</td>
<td>1.8</td>
<td>1.5</td>
<td>1.2</td>
</tr>
<tr>
<td>May</td>
<td>N/A</td>
<td>1.6</td>
<td>1.5</td>
<td>1.2</td>
<td>1.3</td>
</tr>
<tr>
<td>June</td>
<td>N/A</td>
<td>1.4</td>
<td>1.4</td>
<td>1.2</td>
<td>1.4</td>
</tr>
<tr>
<td>July</td>
<td>0.8</td>
<td>1.4</td>
<td>1.6</td>
<td>1.7</td>
<td>1.3</td>
</tr>
<tr>
<td>August</td>
<td>1.1</td>
<td>1.3</td>
<td>1.6</td>
<td>1.4</td>
<td>1.2</td>
</tr>
<tr>
<td>September</td>
<td>0.6</td>
<td>1.3</td>
<td>1.4</td>
<td>1.4</td>
<td>1.1</td>
</tr>
<tr>
<td>October</td>
<td>0.7</td>
<td>1.2</td>
<td>1.6</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>November</td>
<td>1.1</td>
<td>1.2</td>
<td>1.5</td>
<td>1.4</td>
<td>1.1</td>
</tr>
<tr>
<td>December</td>
<td>1.3</td>
<td>1.4</td>
<td>1.5</td>
<td>1.5</td>
<td>1.9</td>
</tr>
</tbody>
</table>


4.3.2 Middle Fork Cosumnes River TOC

Monthly TOC levels at the Outingdale WTP intake is provided in Table 4-8. TOC levels at a Middle Fork Cosumnes River are relatively constant through the summertime with peaking in the winter months, as high as 2.7 mg/L in 2015.

Table 4-8: Outingdale WTP Intake Monthly TOC (2013-2017)

<table>
<thead>
<tr>
<th>Month</th>
<th>2013 (mg/L)</th>
<th>2014 (mg/L)</th>
<th>2015 (mg/L)</th>
<th>2016 (mg/L)</th>
<th>2017 (mg/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>0.86</td>
<td>0.54</td>
<td>1.0</td>
<td>1.5</td>
<td>0.98</td>
</tr>
<tr>
<td>February</td>
<td>0.62</td>
<td>2.3</td>
<td>2.7</td>
<td>1.3</td>
<td>1.0</td>
</tr>
<tr>
<td>March</td>
<td>0.72</td>
<td>1.5</td>
<td>0.67</td>
<td>1.2</td>
<td>0.89</td>
</tr>
<tr>
<td>April</td>
<td>0.81</td>
<td>1.3</td>
<td>0.96</td>
<td>1.1</td>
<td>0.82</td>
</tr>
<tr>
<td>May</td>
<td>0.6</td>
<td>0.9</td>
<td>N/A</td>
<td>0.98</td>
<td>0.84</td>
</tr>
<tr>
<td>June</td>
<td>0.54</td>
<td>0.84</td>
<td>N/A</td>
<td>0.85</td>
<td>0.75</td>
</tr>
<tr>
<td>July</td>
<td>0.52</td>
<td>0.95</td>
<td>N/A</td>
<td>0.77</td>
<td>0.79</td>
</tr>
<tr>
<td>August</td>
<td>0.82</td>
<td>1.1</td>
<td>1.6</td>
<td>0.81</td>
<td>0.71</td>
</tr>
<tr>
<td>September</td>
<td>N/A</td>
<td>N/A</td>
<td>1.7</td>
<td>0.68</td>
<td>0.7</td>
</tr>
<tr>
<td>October</td>
<td>0.46</td>
<td>0.78</td>
<td>1.6</td>
<td>0.7</td>
<td>0.61</td>
</tr>
<tr>
<td>November</td>
<td>0.74</td>
<td>1.0</td>
<td>1.7</td>
<td>1.3</td>
<td>0.92</td>
</tr>
<tr>
<td>December</td>
<td>0.9</td>
<td>2.2</td>
<td>1.1</td>
<td>1.4</td>
<td>0.93</td>
</tr>
</tbody>
</table>

The data is presented in **Figure 4-3**. TOC levels are generally higher in the Jenkinson Lake than in Middle Fork Cosumnes River.

**Figure 4-3: Average Monthly Total Organic Carbon in a 5 Year Span (2013-2017)**

SECTION 5 – POTENTIAL SOURCES OF CONTAMINATION

There are a number of potential contamination sources; some that are direct, and some that are indirect. Direct sources are those that are in direct contact with the water supply, such as through body contact recreation, or may impact the water supply due to malfunction or leakage, such as in nearby septic systems.

An indirect source may be a source that is, in itself, not contaminating, but can become a source as a result of a weather event or other natural disaster. The types of potential contamination sources have remained the same since the 1996 WSS, 2001, and 2013 Updates and are as follows:

- **Wastewater contaminants**: These are result of contamination from septic or wastewater systems.
- **Stormwater Runoff**: This is generally associated with runoff from urbanized areas after storm events.
- **Timber Harvest**: Activities related to clearing timber can be a potential source of contamination, as well as the potential for erosion in cleared areas.
- **Grazing and Non-grazing animals**: Domestic and wild animals can be a source of bacteriological contamination to a water supply.
- **Pesticide Application**: Pesticide application in the area is generally implemented for residential use, timber harvest management, and agricultural use and can be entrained in stormwater and drainage channels.
- **Forest Fires**: Firefighting activities as well as erosion and landslide associated with soil instability can be a potential source of contamination.
- **Mining**: A majority of mining has been abandoned though mine tailings can still be a potential source of contamination.
- **Solid and Hazardous Waste**: Illegal dumping is a pervasive issue in wilderness areas and can be difficult to control.
- **Recreational activities**: Body contact and recreational boating activities in a drinking water supply can be a potential source of bacteriological and fuel contamination.
- **Natural Disasters**: Natural disasters such as flooding, can occur with little notice and can wreak havoc on a water supply system by causing overflows from impacted wastewater systems, landslides and excessive sedimentation, and damage to water supply facilities; directly and indirectly affecting water quality.

Much of the discussion in the 1996, 2001, and 2013 WSS Reports remain unchanged; as such, the discussion is not duplicated in this report as those reports are incorporated by reference. The following discussion provides information about activities or events from 2013 to 2017 that had the potential to affect water quality and include timber harvesting, forest fires; and mining.
5.1 Timber Harvesting

Timber harvesting is an ongoing activity within El Dorado County. The act of timber harvesting as well as the potential for erosion after harvesting can impact watershed receiving waters. Timber harvesting activities require heavy equipment and access, which can have potential impacts to receiving waters due to increased potential for erosion and by modifying natural drainage patterns. These can lead to increased siltation of the receiving waters and can also affect local vegetation and habitats. If the region is not properly protected from erosion after harvesting, subsequent precipitation has the potential to cause further and more severe erosion. Water quality impacts may include an increase in suspended solids as well as nutrient loading and possible eutrophication.

Timber harvesting (or logging) on privately-owned lands is an activity that is regulated and monitored by the California Department of Forestry & Fire Protection (CAL FIRE). The laws regulating timber harvesting were enacted in 1973 in the Forest Practice Act. The laws are intended to protect wildlife, their habitat, and receiving waters. In general, the laws apply to all landowners from small parcels, to ranchers with hundreds of acres, and larger timber corporations that own thousands of acres. CAL FIRE ensures that all private landowners adhere to the law.

As part of the harvesting process, the landowner must prepare and submit a Timber Harvesting Plan (THP) which details what timber will be harvested, how it will be harvested, and the measures that will be implemented to mitigate impacts to the environment. A description of the THP review process is included in Appendix B. Table 5-1 provides a list of the Notices of Intent (NOIs) that were prepared and submitted for timber harvesting within the watersheds from 2013 to 2017.

Table 5-1: Watershed Timber Harvesting Activities (2013-2017)

<table>
<thead>
<tr>
<th>Notice of Intent</th>
<th>Year</th>
<th>Acres</th>
<th>Owner</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>THP 4-13-015 ELD</td>
<td>2013</td>
<td>161</td>
<td>Brian Oneto</td>
<td>North South Road approx. 14 miles east of Omo Ranch, CA</td>
</tr>
<tr>
<td>THP 4-13-018 ELD</td>
<td>2013</td>
<td>52</td>
<td>Brent Fox, Jeremy Chandler, Brian Grasso</td>
<td>Approx 1-2 miles west of community of Omo Ranch, CA</td>
</tr>
<tr>
<td>THP 4-13-019 ELD</td>
<td>2013</td>
<td>20</td>
<td>Heinrich Properties</td>
<td>1.0 miles southeast of Pollock Pines, CA</td>
</tr>
<tr>
<td>THP 4-13-028 ELD</td>
<td>2013</td>
<td>92</td>
<td>Derek &amp; Douglas Durwood</td>
<td>Approx 2.3 miles North of Grizzly Flats, CA</td>
</tr>
<tr>
<td>THP 4-14-001 ELD</td>
<td>2014</td>
<td>41</td>
<td>Rays Nutting</td>
<td>3.2 miles northwest of Grizzly Flat, CA</td>
</tr>
<tr>
<td>THP 4-14-017 ELD</td>
<td>2014</td>
<td>167</td>
<td>Gary E. Gould</td>
<td>3 miles southeast of Grizzly Flats</td>
</tr>
<tr>
<td>THP 4-16-003 ELD</td>
<td>2016</td>
<td>272</td>
<td>JJD Properties</td>
<td>2 miles west of Jenkinson Lake</td>
</tr>
<tr>
<td>THP 4-16-006 ELD</td>
<td>2016</td>
<td>185</td>
<td>Baldwin Revocable Trust</td>
<td>Approx 2 miles southeast of Omo Ranch, CA</td>
</tr>
<tr>
<td>THP 4-17-001 ELD</td>
<td>2017</td>
<td>706</td>
<td>Brent Fox</td>
<td>Adjacent to the community of Omo Ranch, CA on Omo Ranch Road</td>
</tr>
<tr>
<td>THP 4-17-008 ELD</td>
<td>2017</td>
<td>69</td>
<td>Brent Fox</td>
<td>Approx 0.75 miles South, South-East of Omo Ranch, CA</td>
</tr>
</tbody>
</table>

Source: http://www.thpblog.org/– note that no THPs for 2015 were recorded. http://www.calfire.ca.gov/ResourceManagement/THPStatusUpload/THPStatusTable

Notes:
1. Copies of NOIs are provided in Appendix B.

The locations of the timber harvesting activities are depicted in Figure 5-1.
5.2 Forest Fires

Forest fires are generally a seasonal hazard and a notable one considering the amount of available fuel in the watersheds. The causes can be various and can be natural, accidental, or deliberate in nature. There is potential for both direct and indirect pathways for forest fires to affect the water supply.

Direct pathways would be the direct application of fire retardants or the direct contamination from burned materials from the fire as well as airborne material deposits such as ash. Indirect pathways for contamination are generally associated with the aftermath of the fire. Soils in areas affected by fire can become unstable contributing to erosion and even landslide. Lack of vegetation/canopy can also affect water temperature. Table 5-2 provides a list of recent forest fires that occurred within or near the two watersheds. Figure 5-2 presents the fuel ranking throughout El Dorado County.

Table 5-2: Watershed Forest Fires (2013-2017)

<table>
<thead>
<tr>
<th>Fire</th>
<th>Date</th>
<th>Acres Burned</th>
<th>JLW</th>
<th>MFCW</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bible Fire</td>
<td>July 2014</td>
<td>30</td>
<td>x</td>
<td></td>
<td>Off Mt Aukum Rd, Somerset</td>
</tr>
<tr>
<td>Sand Fire</td>
<td>July 2014</td>
<td>4,240</td>
<td></td>
<td>x</td>
<td>East of Highway 49, 5 miles north of Plymouth</td>
</tr>
<tr>
<td>King Fire</td>
<td>September 2014</td>
<td>97,717</td>
<td>x</td>
<td></td>
<td>Near Pollock Pines</td>
</tr>
<tr>
<td>Aukum Fire</td>
<td>June 2016</td>
<td>25</td>
<td></td>
<td>x</td>
<td>Off Mount Aukum Road &amp; Grizzly Flat Road</td>
</tr>
</tbody>
</table>

Source: CAL FIRE, [www.cdfdata.fire.ca.gov](http://www.cdfdata.fire.ca.gov), incident information

Notes:
1. JLW = Jenkinson Lake Watershed
2. MFCW = Middle Fork Cosumnes River Watershed

From the results shown in Table 5-2, it is noted that the King Fire occurred near the Jenkinson Lake Watershed; however it was not located within the watershed boundary. The King Fire occurred north of Hwy 50, few miles north of the watershed. It is possible that ash from the fire may have deposited to areas within the watershed boundary, but it is not expected to have had a significant impact on water quality.
5.3 Mines

This region of California has been known for gold mining. There are a number of abandoned mines, as described in the 1996 WSS. The Hazel Creek Mine site was closed in 1998 and is being monitored by the owner, Sierra Pacific Industries.

The Hazel Creek Mine is located approximately one mile south of Highway 50 along Hazel Creek, 15 miles east of Placerville. The mine discharges mine tailings to six unlined ponds located along Hazel Creek. The tailings consist of iron and lead. The mine was reactivated in 1984 by Mineral Strategies, Inc. who was operating the tailings mine and ponds under Waste Discharge Requirements Order No. 83-002. Mineral Strategies, Inc. later went bankrupt and abandoned the mine. In 1988 Georgia Pacific acquired ownership of the site and later acquired the mineral rights in 1995. In March 1997 the site was conveyed to Sierra Pacific Industries, which is the current site owner.

When the Hazel Creek Mine was officially closed on July 7, 1998, the Central Valley Regional Water Quality Control Board (Regional Board) issued Waste Discharge Requirements (WDR) for the site (Order No. 98-153). As part of that permit, which is included as Appendix C, Sierra Pacific Industries was required to remove the wastes and construct a new waste management unit above the 100-year peak stream flow. In addition, the WDR prescribed monitoring and reporting requirements until such time that the Regional Board determines that the wastes remaining at the site no longer pose a threat to water quality.

In September 2007, the Regional Board revised the monitoring and reporting program to eliminate water quality sampling and reduced the requirement to visual monitoring and reporting. The basis of this change is due to there being no detected or observed impacts to the water quality of Hazel Creek. A copy of the revised monitoring and reporting program is also included as Appendix C.

5.4 GeoTracker Results

GeoTracker is the SWRCB data management system for sites that impact, or have the potential to impact ground water quality in California. GeoTracker contains records for sites that require cleanup, such as Site Cleanup Program sites, Department of Defense sites, and Leaking Underground Storage Tank (LUST) sites. GeoTracker also contains records for various unregulated projects as well as permitted facilities including: irrigated lands, oil and gas production, operating permitted USTs, and land disposal sites.

Based on these criteria, four sites near or within the Jenkinson Lake Watershed and five sites near or within the Middle Fork Cosumnes River Watershed were identified. Among the nine sites, two were active and regulated by the Regional Board. The seven other sites were closed with no further action required. Regulation by the Regional Board reduces and mitigates risks to the groundwater quality of both watersheds.
SECTION 6 – WATERSHED MANAGEMENT AND RECOMMENDATIONS

There are no significant improvements that can be made to the management and protection of the watershed that have not already been identified and recommended in the 1996, 2001, and 2013 WSS Reports. In general the overarching goals have been identified as follows (1996 WSS):

- Reduction of the potential for wildfires, landslides, or other natural disasters
- Reduction of bacteriological contamination of multi-use waters by septic systems, animal grazing, or recreational use
- Reduction of the potential for hazardous chemical release to multi-use waters caused by car highway accidents, poor disposal practices, pesticide spray programs, or domestic yard
- Protection of water supplies from effects of urbanization, especially urban stormwater contamination

6.1 Watershed Management Strategy

Having identified the goals, the proposed control measures were detailed as follows. These are discussed in detail in the 1996 WSS:

- **Buffer Zones**: Developing buffer zones along the watercourse can be an effective way to protect the receiving waters;
- **Land Acquisition**: Acquiring land within the watershed can help to prevent the types of activities that may contribute to water source contamination by limiting the amount of available land on which those activities can occur;
- **Public Participation and Education**: Public outreach and education is a very effective way to protect the watershed by alerting the public to the types of activities that can pollute the watersheds and water supply;
- **Density Restrictions**: Urbanization can lead to higher levels of stormwater runoff and indirectly affect source water quality;
- **Septic System Restrictions**: El Dorado County Environmental Health implements a program for evaluating and regulating septic system construction and use. Continued implementation will continue to provide protection for water supply sources;
- **Stormwater Management**: El Dorado County Environmental Health and the Regional Water Quality Control Board are responsible for implementing and regulating stormwater management through municipal stormwater permits. Continued regulation and monitoring of municipal stormwater programs will continue to provide receiving water and water supply protection;
- **Grazing Restrictions**: Implementing livestock restrictions will continue to protect the watershed from excessive bacterial loading from domestic livestock;
- **Timber Harvest Management**: The California Department of Forestry & Fire Protection is responsible for continued regulation of timber harvesting through the timber harvesting plan review process, which is intended to protect wildlife habitat and receiving waters from potential impacts of timber harvesting;
• **Watershed Surveillance and Monitoring**: Effective watershed management is coupled with continued monitoring and surveillance to identify potential sources of contamination as they occur and to identify any trending.

6.1.1 **Regional Collaboration**

The District is an active member of the Cosumnes, American, Bear & Yuba (CABY) Integrated Regional Water Management Plan (IRWMP), which is a collaborative planning effort comprised of more than 30 regional organizations. Members represent water supply, conservation, recreation, agriculture, federal and local government, and community interests.

The purpose of the planning effort is to collaborate among and involve a diverse group of stakeholders and bring funding into the region for projects that improve water quality, water quantity, and environmental quality. The CABY guiding principles are as follows:

- Achieve the consumptive, environmental, power and recreational requirements of our region in a balanced manner.
- Encourage implementation of water management policies in support of CABY goals and objectives.
- Manage and protect our resources in the face of climate change and variability through water policy, monitoring, assessment, restoration, and infrastructure development and operations.
- Address the increase in population and demand through water and watershed management.
- Inform and educate our current and future generations on the value and methods of a watershed approach and water management consistent with CABY goals and objectives.
- Build and maintain constructive relationships with multiple stakeholders and the public to foster collaboration and communication in our region.
- Engage elected officials within the CABY region through an advisory council about CABY activities that may affect their constituents.
- Build organizational and community capacity to aid in achieving our vision in the watersheds of the CABY region.

6.2 **Recommendations**

There have been no significant changes to the watersheds or the types of activities within the watersheds that would create a new or increased potential for source water contamination.

It is recommended that the District continue to implement current watershed management, source water protection, and water quality monitoring programs in order to continue to meet source water and drinking water quality goals.

It is also recommended that the District continue to be active participants of the CABY IRWMP to assure that there is communication among other stakeholders within the watersheds.
SECTION 7 – REFERENCES


El Dorado Irrigation District – Water Quality Division, Sanitary Watershed Survey for Reservoir One, Reservoir A, Outingdale Water Treatment Facilities – Revision 1, October 1996.


Starn, Jean E., Historical Land Use in the Watershed of the Middle Fork Cosumnes River – El Dorado Irrigation District.


APPENDIX A
El Dorado Irrigation District
Watershed Sanitary Survey Update 2018
Watershed Soil Surveys
The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Dorado Area, California
Survey Area Data: Version 9, Sep 13, 2017

Soil Survey Area: Eldorado National Forest Area, California, Parts of Alpine, Amador, El Dorado, and Placer Counties
Survey Area Data: Version 10, Sep 11, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
### Map Unit Legend

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>101pc</td>
<td>Aiken loam, 9 to 15 percent slopes, low precip, MLRA 22A</td>
<td>0.1</td>
<td>0.0%</td>
</tr>
<tr>
<td>AaF</td>
<td>Acidic rock land</td>
<td>233.6</td>
<td>0.6%</td>
</tr>
<tr>
<td>AfD</td>
<td>Aiken loam, 15 to 30 percent slopes</td>
<td>204.1</td>
<td>0.5%</td>
</tr>
<tr>
<td>AgD</td>
<td>Aiken cobbly loam, 3 to 30 percent slopes</td>
<td>123.7</td>
<td>0.3%</td>
</tr>
<tr>
<td>CmC</td>
<td>Cohasset loam, shoulders, 3 to 20 percent slopes, dry, MLRA 22A</td>
<td>417.2</td>
<td>1.0%</td>
</tr>
<tr>
<td>CmD</td>
<td>Cohasset loam, backslopes, 10 to 30 percent slopes, dry, MLRA 22A</td>
<td>604.1</td>
<td>1.5%</td>
</tr>
<tr>
<td>CoC</td>
<td>Cohasset cobbly loam, 3 to 15 percent slopes</td>
<td>214.0</td>
<td>0.5%</td>
</tr>
<tr>
<td>CoE</td>
<td>Cohasset cobbly loam, 15 to 50 percent slopes</td>
<td>1,189.5</td>
<td>3.0%</td>
</tr>
<tr>
<td>CrE</td>
<td>Crozier cobbly loam, 9 to 50 percent slopes</td>
<td>567.3</td>
<td>1.4%</td>
</tr>
<tr>
<td>DmD</td>
<td>Diamond Springs gravelly sandy loam, grayish subsoil variant, 9 to 30 percent slopes</td>
<td>22.9</td>
<td>0.1%</td>
</tr>
<tr>
<td>DmE</td>
<td>Diamond Springs gravelly sandy loam, grayish subsoil variant, 30 to 50 percent slopes</td>
<td>23.9</td>
<td>0.1%</td>
</tr>
<tr>
<td>HgC</td>
<td>Holland coarse sandy loam, 9 to 15 percent slopes</td>
<td>49.1</td>
<td>0.1%</td>
</tr>
<tr>
<td>HkE</td>
<td>Holland very rocky coarse sandy loam, 15 to 50 percent slopes</td>
<td>198.8</td>
<td>0.5%</td>
</tr>
<tr>
<td>ImE</td>
<td>Iron Mountain very rocky sandy loam, 3 to 50 percent slopes</td>
<td>784.2</td>
<td>2.0%</td>
</tr>
<tr>
<td>JrC</td>
<td>Josephine gravelly loam, 9 to 15 percent slopes</td>
<td>194.7</td>
<td>0.5%</td>
</tr>
<tr>
<td>JrD</td>
<td>Josephine gravelly loam, 15 to 30 percent slopes</td>
<td>1,780.8</td>
<td>4.4%</td>
</tr>
<tr>
<td>JsE</td>
<td>Josephine very rocky loam, 15 to 50 percent slopes</td>
<td>2,088.9</td>
<td>5.2%</td>
</tr>
<tr>
<td>JtC</td>
<td>Josephine silt loam, 5 to 15 percent slopes</td>
<td>0.1</td>
<td>0.0%</td>
</tr>
<tr>
<td>JtD</td>
<td>Josephine silt loam, 15 to 30 percent slopes</td>
<td>397.5</td>
<td>1.0%</td>
</tr>
<tr>
<td>Map Unit Symbol</td>
<td>Map Unit Name</td>
<td>Acres in AOI</td>
<td>Percent of AOI</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>---------------</td>
</tr>
<tr>
<td>JuE</td>
<td>Josephine very rocky silt loam, 9 to 50 percent slopes</td>
<td>234.7</td>
<td>0.6%</td>
</tr>
<tr>
<td>JuF</td>
<td>Josephine very rocky silt loam, 50 to 70 percent slopes</td>
<td>782.8</td>
<td>1.9%</td>
</tr>
<tr>
<td>JvD</td>
<td>Josephine-Mariposa gravelly loams, 15 to 30 percent slopes</td>
<td>293.2</td>
<td>0.7%</td>
</tr>
<tr>
<td>MaD</td>
<td>Mariposa gravelly silt loam, 3 to 30 percent slopes</td>
<td>16.6</td>
<td>0.0%</td>
</tr>
<tr>
<td>MbE</td>
<td>Mariposa very rocky silt loam, 3 to 50 percent slopes</td>
<td>761.8</td>
<td>1.9%</td>
</tr>
<tr>
<td>MbF</td>
<td>Mariposa very rocky silt loam, 50 to 70 percent slopes</td>
<td>2,391.1</td>
<td>5.9%</td>
</tr>
<tr>
<td>McE</td>
<td>Mariposa-Josephine very rocky loams, 15 to 50 percent slopes</td>
<td>2,338.4</td>
<td>5.8%</td>
</tr>
<tr>
<td>McF</td>
<td>Mariposa-Josephine very rocky loams, 30 to 70 percent slopes</td>
<td>279.1</td>
<td>0.7%</td>
</tr>
<tr>
<td>MhE</td>
<td>McCarthy cobbly loam, 9 to 50 percent slopes</td>
<td>2,428.7</td>
<td>6.0%</td>
</tr>
<tr>
<td>MnF</td>
<td>Metamorphic rock land</td>
<td>655.1</td>
<td>1.6%</td>
</tr>
<tr>
<td>MpB</td>
<td>Mixed alluvial land</td>
<td>26.7</td>
<td>0.1%</td>
</tr>
<tr>
<td>MrC</td>
<td>Musick sandy loam, 9 to 15 percent slopes</td>
<td>6.4</td>
<td>0.0%</td>
</tr>
<tr>
<td>PrD</td>
<td>Placer diggings</td>
<td>130.2</td>
<td>0.3%</td>
</tr>
<tr>
<td>SkC</td>
<td>Sites loam, 9 to 15 percent slopes</td>
<td>55.3</td>
<td>0.1%</td>
</tr>
<tr>
<td>SkD</td>
<td>Sites loam, 15 to 30 percent slopes</td>
<td>55.9</td>
<td>0.1%</td>
</tr>
<tr>
<td>SkE</td>
<td>Sites loam, 30 to 50 percent slopes</td>
<td>26.1</td>
<td>0.1%</td>
</tr>
<tr>
<td>TaD</td>
<td>Tailings</td>
<td>5.0</td>
<td>0.0%</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
<td>633.2</td>
<td>1.6%</td>
</tr>
<tr>
<td>WaB</td>
<td>Wet alluvial land</td>
<td>20.7</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>Subtotals for Soil Survey Area</strong></td>
<td></td>
<td><strong>20,235.6</strong></td>
<td><strong>50.3%</strong></td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>40,212.3</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>107</td>
<td>Chaix-Pilliken coarse sandy loam, 5 to 30 percent slopes complex</td>
<td>833.4</td>
<td>2.1%</td>
</tr>
<tr>
<td>108</td>
<td>Chaix-Pilliken coarse sandy loams, 30 to 75 percent slopes complex</td>
<td>540.9</td>
<td>1.3%</td>
</tr>
<tr>
<td>Map Unit Symbol</td>
<td>Map Unit Name</td>
<td>Acres in AOI</td>
<td>Percent of AOI</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>112</td>
<td>Cohasset-McCarthy association, 2 to 30 percent slopes</td>
<td>279.3</td>
<td>0.7%</td>
</tr>
<tr>
<td>113</td>
<td>Cohasset-McCarthy association, 30 to 50 percent slopes</td>
<td>104.9</td>
<td>0.3%</td>
</tr>
<tr>
<td>116</td>
<td>Crozier-Cohasset loams, 5 to 30 percent slopes complex</td>
<td>359.8</td>
<td>0.9%</td>
</tr>
<tr>
<td>117</td>
<td>Crozier-Cohasset loams, 30 to 50 percent slopes complex</td>
<td>443.5</td>
<td>1.1%</td>
</tr>
<tr>
<td>118</td>
<td>Crozier-McCarthy complex, 5 to 30 percent slopes</td>
<td>713.1</td>
<td>1.8%</td>
</tr>
<tr>
<td>119</td>
<td>Crozier-McCarthy complex, 30 to 50 percent slopes</td>
<td>361.3</td>
<td>0.9%</td>
</tr>
<tr>
<td>150</td>
<td>Jocal loam, 5 to 30 percent slopes</td>
<td>1,034.0</td>
<td>2.6%</td>
</tr>
<tr>
<td>151</td>
<td>Jocal loam, 30 to 50 percent slopes</td>
<td>190.9</td>
<td>0.5%</td>
</tr>
<tr>
<td>159</td>
<td>Ledmount-Rock outcrop association, 2 to 30 percent slopes</td>
<td>300.4</td>
<td>0.7%</td>
</tr>
<tr>
<td>160</td>
<td>Ledmount-Rock outcrop association, 30 to 75 percent slopes</td>
<td>58.9</td>
<td>0.1%</td>
</tr>
<tr>
<td>162</td>
<td>Lithic Cryumbrepts-Waca association, 5 to 30 percent slopes</td>
<td>288.3</td>
<td>0.7%</td>
</tr>
<tr>
<td>164</td>
<td>Lithic Xerumbrepts-Rock outcrop complex, 15 to 75 percent slopes</td>
<td>392.4</td>
<td>1.0%</td>
</tr>
<tr>
<td>165</td>
<td>Lumberly gravelly coarse sandy loam, 5 to 30 percent slopes</td>
<td>416.6</td>
<td>1.0%</td>
</tr>
<tr>
<td>166</td>
<td>Lumberly gravelly coarse sandy loam, 30 to 50 percent slopes</td>
<td>290.6</td>
<td>0.7%</td>
</tr>
<tr>
<td>170</td>
<td>Mariposa-Jocal complex, 30 to 75 percent slopes, Central Low Montane, MLRA 22A</td>
<td>352.5</td>
<td>0.9%</td>
</tr>
<tr>
<td>175</td>
<td>McCarthy gravelly sandy loam, 2 to 30 percent slopes</td>
<td>6,391.3</td>
<td>15.9%</td>
</tr>
<tr>
<td>176</td>
<td>McCarthy gravelly sandy loam, 30 to 50 percent slopes</td>
<td>617.2</td>
<td>1.5%</td>
</tr>
<tr>
<td>177</td>
<td>McCarthy-Ledmount association, 2 to 30 percent slopes</td>
<td>3,693.9</td>
<td>9.2%</td>
</tr>
<tr>
<td>178</td>
<td>McCarthy-Ledmount association, 30 to 75 percent slopes</td>
<td>393.7</td>
<td>1.0%</td>
</tr>
<tr>
<td>Map Unit Symbol</td>
<td>Map Unit Name</td>
<td>Acres in AOI</td>
<td>Percent of AOI</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>211</td>
<td>Waca cobbly sandy loam, 5 to 30 percent slopes</td>
<td>998.4</td>
<td>2.5%</td>
</tr>
<tr>
<td>212</td>
<td>Waca cobbly sandy loam, 30 to 50 percent slopes</td>
<td>221.0</td>
<td>0.5%</td>
</tr>
<tr>
<td>216</td>
<td>Waca-Windy complex, 5 to 30 percent slopes</td>
<td>575.7</td>
<td>1.4%</td>
</tr>
<tr>
<td>217</td>
<td>Waca-Windy complex, 30 to 50 percent slopes</td>
<td>124.8</td>
<td>0.3%</td>
</tr>
<tr>
<td><strong>Subtotals for Soil Survey Area</strong></td>
<td></td>
<td><strong>19,976.7</strong></td>
<td><strong>49.7%</strong></td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>40,212.3</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>
The soil surveys that comprise your AOI were mapped at scales ranging from 1:20,000 to 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Amador Area, California
Survey Area Data: Version 10, Sep 8, 2017

Soil Survey Area: El Dorado Area, California
Survey Area Data: Version 9, Sep 13, 2017

Soil Survey Area: Eldorado National Forest Area, California, Parts of Alpine, Amador, El Dorado, and Placer Counties
Survey Area Data: Version 10, Sep 11, 2017

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.
### Map Unit Legend

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>ArD</td>
<td>Auburn silt loam, moderately deep, 16 to 31 percent slopes</td>
<td>0.0</td>
<td>0.0%</td>
</tr>
<tr>
<td>IsE</td>
<td>Iron Mountain very stony loam, 9 to 51 percent slopes</td>
<td>0.2</td>
<td>0.0%</td>
</tr>
<tr>
<td>Mn</td>
<td>Mine tailings and Riverwash</td>
<td>0.1</td>
<td>0.0%</td>
</tr>
<tr>
<td>SkF</td>
<td>Sierra very rocky coarse sandy loam, 51 to 71 percent slopes</td>
<td>0.0</td>
<td>0.0%</td>
</tr>
<tr>
<td>SmE</td>
<td>Sierra very rocky coarse sandy loam, moderately deep, 31 to 51 percent slopes</td>
<td>0.0</td>
<td>0.0%</td>
</tr>
<tr>
<td>SoE</td>
<td>Sites loam, moderately deep, 31 to 51 percent slopes</td>
<td>0.0</td>
<td>0.0%</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
<td>0.2</td>
<td>0.0%</td>
</tr>
<tr>
<td>WcE</td>
<td>Windy cobbly sandy loam, 16 to 51 percent slopes</td>
<td>3.5</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

**Subtotals for Soil Survey Area**

|                  | 4.5 | 0.0% |

**Totals for Area of Interest**

|                  | 85,867.2 | 100.0% |

<table>
<thead>
<tr>
<th>Map Unit Symbol</th>
<th>Map Unit Name</th>
<th>Acres in AOI</th>
<th>Percent of AOI</th>
</tr>
</thead>
<tbody>
<tr>
<td>101pc</td>
<td>Aiken loam, 9 to 15 percent slopes, low precip, MLRA 22A</td>
<td>313.0</td>
<td>0.4%</td>
</tr>
<tr>
<td>AaF</td>
<td>Acidic rock land</td>
<td>1,758.8</td>
<td>2.0%</td>
</tr>
<tr>
<td>AcC</td>
<td>Ahwahnee coarse sandy loam, 9 to 15 percent slopes</td>
<td>68.1</td>
<td>0.1%</td>
</tr>
<tr>
<td>AdD</td>
<td>Ahwahnee very rocky coarse sandy loam, 9 to 30 percent slopes</td>
<td>632.8</td>
<td>0.7%</td>
</tr>
<tr>
<td>AdE</td>
<td>Ahwahnee very rocky coarse sandy loam, 30 to 50 percent slopes</td>
<td>1,544.7</td>
<td>1.8%</td>
</tr>
<tr>
<td>AfB</td>
<td>Aiken loam, 3 to 9 percent slopes</td>
<td>175.4</td>
<td>0.2%</td>
</tr>
<tr>
<td>AfD</td>
<td>Aiken loam, 15 to 30 percent slopes</td>
<td>349.4</td>
<td>0.4%</td>
</tr>
<tr>
<td>AoB</td>
<td>Argononaut loam, seeped variant</td>
<td>132.0</td>
<td>0.2%</td>
</tr>
<tr>
<td>ArC</td>
<td>Auberry coarse sandy loam, 9 to 15 percent slopes</td>
<td>192.4</td>
<td>0.2%</td>
</tr>
<tr>
<td>Map Unit Symbol</td>
<td>Map Unit Name</td>
<td>Acres in AOI</td>
<td>Percent of AOI</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>ArD</td>
<td>Auberry coarse sandy loam, 15 to 30 percent slopes</td>
<td>3.9</td>
<td>0.0%</td>
</tr>
<tr>
<td>AsC</td>
<td>Auberry rocky coarse sandy loam, 5 to 15 percent slopes</td>
<td>475.4</td>
<td>0.6%</td>
</tr>
<tr>
<td>AtD</td>
<td>Auberry very rocky coarse sandy loam, 15 to 30 percent slopes</td>
<td>526.8</td>
<td>0.6%</td>
</tr>
<tr>
<td>AtE</td>
<td>Auberry very rocky coarse sandy loam, 30 to 50 percent slopes</td>
<td>137.4</td>
<td>0.2%</td>
</tr>
<tr>
<td>AxD</td>
<td>Auburn very rocky silt loam, 2 to 30 percent slopes</td>
<td>34.9</td>
<td>0.0%</td>
</tr>
<tr>
<td>AxE</td>
<td>Auburn very rocky silt loam, 30 to 50 percent slopes</td>
<td>47.4</td>
<td>0.1%</td>
</tr>
<tr>
<td>AyF</td>
<td>Auburn extremely rocky silt loam, 3 to 70 percent slopes</td>
<td>10.7</td>
<td>0.0%</td>
</tr>
<tr>
<td>CcE</td>
<td>Chaix very rocky coarse sandy loam, 9 to 50 percent slopes</td>
<td>2,474.8</td>
<td>2.9%</td>
</tr>
<tr>
<td>CcF</td>
<td>Chaix very rocky coarse sandy loam, 50 to 70 percent slopes</td>
<td>602.2</td>
<td>0.7%</td>
</tr>
<tr>
<td>ChE</td>
<td>Chawanakee very rocky coarse sandy loam, 9 to 50 percent slopes</td>
<td>923.9</td>
<td>1.1%</td>
</tr>
<tr>
<td>CkD</td>
<td>Cohasset sandy loam, 9 to 30 percent slopes</td>
<td>438.3</td>
<td>0.5%</td>
</tr>
<tr>
<td>CIE</td>
<td>Cohasset cobbly sandy loam, 9 to 50 percent slopes</td>
<td>791.0</td>
<td>0.9%</td>
</tr>
<tr>
<td>CmB</td>
<td>Cohasset loam, summits, 2 to 20 percent slopes, dry, MLRA 22A</td>
<td>91.3</td>
<td>0.1%</td>
</tr>
<tr>
<td>CmC</td>
<td>Cohasset loam, shoulders, 3 to 20 percent slopes, dry, MLRA 22A</td>
<td>68.5</td>
<td>0.1%</td>
</tr>
<tr>
<td>CmD</td>
<td>Cohasset loam, backslopes, 10 to 30 percent slopes, dry, MLRA 22A</td>
<td>360.8</td>
<td>0.4%</td>
</tr>
<tr>
<td>CoC</td>
<td>Cohasset cobbly loam, 3 to 15 percent slopes</td>
<td>158.3</td>
<td>0.2%</td>
</tr>
<tr>
<td>CoE</td>
<td>Cohasset cobbly loam, 15 to 50 percent slopes</td>
<td>709.9</td>
<td>0.8%</td>
</tr>
<tr>
<td>CrE</td>
<td>Crozier cobbly loam, 9 to 50 percent slopes</td>
<td>85.9</td>
<td>0.1%</td>
</tr>
<tr>
<td>DmD</td>
<td>Diamond Springs gravelly sandy loam, grayish subsoil variant, 9 to 30 percent slopes</td>
<td>21.6</td>
<td>0.0%</td>
</tr>
<tr>
<td>Map Unit Symbol</td>
<td>Map Unit Name</td>
<td>Acres in AOI</td>
<td>Percent of AOI</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>DmE</td>
<td>Diamond Springs gravelly sandy loam, grayish subsoil variant, 30 to 50 percent slopes</td>
<td>30.4</td>
<td>0.0%</td>
</tr>
<tr>
<td>GuF</td>
<td>Gullied land</td>
<td>2,215.7</td>
<td>2.6%</td>
</tr>
<tr>
<td>HgB</td>
<td>Holland coarse sandy loam, 5 to 9 percent slopes</td>
<td>229.3</td>
<td>0.3%</td>
</tr>
<tr>
<td>HgC</td>
<td>Holland coarse sandy loam, 9 to 15 percent slopes</td>
<td>2,397.8</td>
<td>2.8%</td>
</tr>
<tr>
<td>HgD</td>
<td>Holland coarse sandy loam, 15 to 30 percent slopes</td>
<td>1,334.4</td>
<td>1.6%</td>
</tr>
<tr>
<td>HhC</td>
<td>Holland rocky coarse sandy loam, 5 to 15 percent slopes</td>
<td>298.1</td>
<td>0.3%</td>
</tr>
<tr>
<td>HkE</td>
<td>Holland very rocky coarse sandy loam, 15 to 50 percent slopes</td>
<td>2,614.8</td>
<td>3.0%</td>
</tr>
<tr>
<td>HkF</td>
<td>Holland very rocky coarse sandy loam, 50 to 70 percent slopes</td>
<td>71.5</td>
<td>0.1%</td>
</tr>
<tr>
<td>HtE</td>
<td>Hotaw very rocky coarse sandy loam, 15 to 50 percent slopes</td>
<td>681.3</td>
<td>0.8%</td>
</tr>
<tr>
<td>ImE</td>
<td>Iron Mountain very rocky sandy loam, 3 to 50 percent slopes</td>
<td>272.6</td>
<td>0.3%</td>
</tr>
<tr>
<td>JrC</td>
<td>Josephine gravelly loam, 9 to 15 percent slopes</td>
<td>179.9</td>
<td>0.2%</td>
</tr>
<tr>
<td>JrD</td>
<td>Josephine gravelly loam, 15 to 30 percent slopes</td>
<td>325.7</td>
<td>0.4%</td>
</tr>
<tr>
<td>JsE</td>
<td>Josephine very rocky loam, 15 to 50 percent slopes</td>
<td>728.9</td>
<td>0.8%</td>
</tr>
<tr>
<td>JtC</td>
<td>Josephine silt loam, 5 to 15 percent slopes</td>
<td>63.4</td>
<td>0.1%</td>
</tr>
<tr>
<td>JtD</td>
<td>Josephine silt loam, 15 to 30 percent slopes</td>
<td>177.0</td>
<td>0.2%</td>
</tr>
<tr>
<td>JuE</td>
<td>Josephine very rocky silt loam, 9 to 50 percent slopes</td>
<td>1,104.7</td>
<td>1.3%</td>
</tr>
<tr>
<td>JuF</td>
<td>Josephine very rocky silt loam, 50 to 70 percent slopes</td>
<td>926.3</td>
<td>1.1%</td>
</tr>
<tr>
<td>LaB</td>
<td>Loamy alluvial land</td>
<td>113.8</td>
<td>0.1%</td>
</tr>
<tr>
<td>MbE</td>
<td>Mariposa very rocky silt loam, 3 to 50 percent slopes</td>
<td>229.9</td>
<td>0.3%</td>
</tr>
<tr>
<td>MbF</td>
<td>Mariposa very rocky silt loam, 50 to 70 percent slopes</td>
<td>2,560.7</td>
<td>3.0%</td>
</tr>
<tr>
<td>McE</td>
<td>Mariposa-Josephine very rocky loams, 15 to 50 percent slopes</td>
<td>55.6</td>
<td>0.1%</td>
</tr>
<tr>
<td>Map Unit Symbol</td>
<td>Map Unit Name</td>
<td>Acres in AOI</td>
<td>Percent of AOI</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>McF</td>
<td>Mariposa-Josephine very rocky loams, 50 to 70 percent slopes</td>
<td>824.6</td>
<td>1.0%</td>
</tr>
<tr>
<td>MhE</td>
<td>McCarthy cobbly loam, 9 to 50 percent slopes</td>
<td>953.2</td>
<td>1.1%</td>
</tr>
<tr>
<td>MmF</td>
<td>Metamorphic rock land</td>
<td>596.5</td>
<td>0.7%</td>
</tr>
<tr>
<td>MrC</td>
<td>Musick sandy loam, 9 to 15 percent slopes</td>
<td>301.4</td>
<td>0.4%</td>
</tr>
<tr>
<td>MrD</td>
<td>Musick sandy loam, 15 to 30 percent slopes</td>
<td>316.2</td>
<td>0.4%</td>
</tr>
<tr>
<td>MsC</td>
<td>Musick rocky sandy loam, 5 to 15 percent slopes</td>
<td>218.1</td>
<td>0.3%</td>
</tr>
<tr>
<td>MtE</td>
<td>Musick very rocky sandy loam, 15 to 50 percent slopes</td>
<td>837.4</td>
<td>1.0%</td>
</tr>
<tr>
<td>PrD</td>
<td>Placer diggings</td>
<td>480.2</td>
<td>0.6%</td>
</tr>
<tr>
<td>Qu</td>
<td>Quarries</td>
<td>39.2</td>
<td>0.0%</td>
</tr>
<tr>
<td>SbB</td>
<td>Shaver coarse sandy loam, 5 to 9 percent slopes</td>
<td>313.6</td>
<td>0.4%</td>
</tr>
<tr>
<td>SbC</td>
<td>Shaver coarse sandy loam, 9 to 15 percent slopes</td>
<td>1,452.2</td>
<td>1.7%</td>
</tr>
<tr>
<td>SbD</td>
<td>Shaver coarse sandy loam, 15 to 30 percent slopes</td>
<td>1,139.7</td>
<td>1.3%</td>
</tr>
<tr>
<td>ScC</td>
<td>Shaver rocky coarse sandy loam, 5 to 15 percent slopes</td>
<td>408.9</td>
<td>0.5%</td>
</tr>
<tr>
<td>SdE</td>
<td>Shaver very rocky coarse sandy loam, 15 to 50 percent</td>
<td>1,421.4</td>
<td>1.7%</td>
</tr>
<tr>
<td>Sic2</td>
<td>Sierra sandy loam, 9 to 15 percent slopes, eroded</td>
<td>102.9</td>
<td>0.1%</td>
</tr>
<tr>
<td>Sfd2</td>
<td>Sierra sandy loam, 15 to 30 percent slopes, eroded</td>
<td>153.4</td>
<td>0.2%</td>
</tr>
<tr>
<td>SgC</td>
<td>Sierra rocky sandy loam, 5 to 15 percent slopes</td>
<td>271.0</td>
<td>0.3%</td>
</tr>
<tr>
<td>ShD</td>
<td>Sierra very rocky sandy loam, 15 to 30 percent slopes</td>
<td>344.5</td>
<td>0.4%</td>
</tr>
<tr>
<td>ShE</td>
<td>Sierra very rocky sandy loam, 30 to 50 percent slopes</td>
<td>336.8</td>
<td>0.4%</td>
</tr>
<tr>
<td>SkC</td>
<td>Sites loam, 9 to 15 percent slopes</td>
<td>135.5</td>
<td>0.2%</td>
</tr>
<tr>
<td>SkD</td>
<td>Sites loam, 15 to 30 percent slopes</td>
<td>644.5</td>
<td>0.8%</td>
</tr>
<tr>
<td>SkE</td>
<td>Sites loam, 30 to 50 percent slopes</td>
<td>230.4</td>
<td>0.3%</td>
</tr>
<tr>
<td>SrE</td>
<td>Sites very rocky loam, 15 to 50 percent slopes</td>
<td>37.7</td>
<td>0.0%</td>
</tr>
<tr>
<td>TaD</td>
<td>Tailings</td>
<td>23.2</td>
<td>0.0%</td>
</tr>
<tr>
<td>W</td>
<td>Water</td>
<td>333.7</td>
<td>0.4%</td>
</tr>
<tr>
<td>Map Unit Symbol</td>
<td>Map Unit Name</td>
<td>Acres in AOI</td>
<td>Percent of AOI</td>
</tr>
<tr>
<td>-----------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>WaB</td>
<td>Wet alluvial land</td>
<td>118.1</td>
<td>0.1%</td>
</tr>
<tr>
<td>WhiE</td>
<td>Whiterock gravelly silt loam, 3 to 50 percent slopes</td>
<td>16.9</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Subtotals for Soil Survey Area</strong></td>
<td></td>
<td><strong>41,792.2</strong></td>
<td><strong>48.7%</strong></td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>85,867.2</strong></td>
<td><strong>100.0%</strong></td>
</tr>
<tr>
<td>Map Unit Symbol</td>
<td>Map Unit Name</td>
<td>Acres in AOI</td>
<td>Percent of AOI</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------</td>
<td>--------------</td>
<td>----------------</td>
</tr>
<tr>
<td>177</td>
<td>McCarthy-Ledmount association, 2 to 30 percent slopes</td>
<td>4,768.6</td>
<td>5.6%</td>
</tr>
<tr>
<td>178</td>
<td>McCarthy-Ledmount association, 30 to 75 percent slopes</td>
<td>111.3</td>
<td>0.1%</td>
</tr>
<tr>
<td>211</td>
<td>Waca cobbly sandy loam, 5 to 30 percent slopes</td>
<td>2,549.8</td>
<td>3.0%</td>
</tr>
<tr>
<td>212</td>
<td>Waca cobbly sandy loam, 30 to 50 percent slopes</td>
<td>1,089.8</td>
<td>1.3%</td>
</tr>
<tr>
<td>216</td>
<td>Waca-Windy complex, 5 to 30 percent slopes</td>
<td>1,694.1</td>
<td>2.0%</td>
</tr>
<tr>
<td>217</td>
<td>Waca-Windy complex, 30 to 50 percent slopes</td>
<td>93.5</td>
<td>0.1%</td>
</tr>
<tr>
<td><strong>Subtotals for Soil Survey Area</strong></td>
<td></td>
<td><strong>44,070.6</strong></td>
<td><strong>51.3%</strong></td>
</tr>
<tr>
<td><strong>Totals for Area of Interest</strong></td>
<td></td>
<td><strong>85,867.2</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>
APPENDIX B
El Dorado Irrigation District
Watershed Sanitary Survey Update 2018
The California Department of Forestry and Fire Protection (CDF) enforces the laws that regulate logging on privately-owned lands in California. These laws are found in the Forest Practice Act which was enacted in 1973 to ensure that logging is done in a manner that will also preserve and protect our fish, wildlife, forests, and streams. Additional rules enacted by the State Board of Forestry and Fire Protection are also enforced to protect these resources.

CDF ensures that private landowners abide by these laws when harvesting trees. Although there are specific exemptions in some cases, compliance with the Forest Practice Act and Board rules apply to all commercial harvesting operations for landowners of small parcels, to ranchers owning hundreds of acres, and large timber companies with thousands of acres.

The Timber Harvesting Plan (THP) is the environmental review document submitted by a landowner to CDF outlining what timber he or she wants to harvest, how it will be harvested, and the steps that will be taken to prevent damage to the environment. THPs are prepared by Registered Professional Foresters (RPFs) who are licensed to prepare these comprehensive, detailed plans. THPs can range from about 100 pages to more than 500 pages.

CDF does not have the authority to deny a THP that is in compliance with state and federal rules and laws simply because the logging plan is unpopular with the public. The Department reviews and approves between 500 and 1400 THPs each year. A THP that does not comply with all forestry and environmental regulations is returned to the RPF. It is only approved after the RPF and landowner agree to make the changes necessary to ensure compliance with all laws. CDF follows-up on approved THPs with site inspections and can shutdown operations, cite or fine Registered Professional Foresters, Licensed Timber Operators (LTOs), and landowners if illegal operations are found.

**The Timber Harvesting Plan Review Process**

When a THP is submitted to a CDF administrative unit the following process takes place:

**Within 10 days of receipt:**
- The THP is assigned a number.
- Copies are distributed to all state and federal reviewing agencies.
- A *Notice of Intent* is sent to landowners within 300 feet of the THP, the office of the county clerk within the THP county, and the local CDF unit headquarters.
- A *Notice of Submission* is sent to anyone who has requested notification in writing.
- A first review of the THP is done by a multi-agency team that includes CDF, the California Department of Fish and Game, the California Regional Water Quality Control Board, the California Geological Survey and other agencies as needed. This first review is meant to assess whether the THP is complete, accurate and in proper order. Any incomplete applications are returned to the Registered Professional Forester (RPF) who prepared the THP. The RPF must answer any questions raised by the review team about completeness of the THP, and revise the THP before it is processed any further.
- Once all review team concerns are clarified and the THP is deemed complete, it is officially “filed”. A Notice of Filing is sent to the person who submitted the THP, the office of the County Clerk and to anyone who has requested notification in writing.

The public may submit to CDF comments concerning a filed THP once the plan is submitted. Comments will be accepted by the Department in writing or via e-mail up until the close of business on the designated final date for public comment. The public shall be informed as to where they may send their e-mail comments on all public notices and postings. All comments regarding plans shall be in writing and shall be addressed to the Director at the regional office where the plan is filed. CDF responds in writing to public comment that raises significant environmental issues.
Addresses for written comments to CDF facilities can be found at CDF Contacts

The names of the assigned e-mail mailboxes for electronic comments are as follows:

Santa Rosa - santarosapubliccomment@fire.ca.gov
Redding - reddingpubliccomment@fire.ca.gov
Riverside - riversidepubliccomment@fire.ca.gov
Fresno - fresnopubliccomment@fire.ca.gov

Public comments pertaining to CEQA documents, normally reviewed by the Environmental Coordinator in Sacramento, should be sent to: sacramentopubliccomment@fire.ca.gov.

E-mail Comment Requirements and Limitations

• Incoming e-mail messages will not be accepted by the system if they exceed 6 megabytes in size.
• Incoming e-mails with virus-laden attachments will be scanned and rejected by the CDF virus wall.
• Undecipherable e-mail messages shall be discarded.
• It is the responsibility of the sender to provide the Department with clear and complete messages when providing public comment through our e-mail system.
• Hypertext e-mail links to other web pages or publications shall not be deemed the equivalent of written comment.
• Not all comment formats may be compatible with current CDF software.
• Obscene, threatening, or offensive comments may be reported to CDF Law Enforcement Staff.

Within 10 days of the Notice of Filing:

• The review team may conduct a Pre-Harvest Inspection (PHI) to examine the proposed logging site. More than 95 percent of all plans receive a PHI.

Within 20 days of the Pre-Harvest Inspection:

• A second meeting is held by the review team to discuss the Pre-Harvest Inspection reports and to finalize any recommendations or changes needed for the THP.

30 days after the Pre-harvest Inspection:

• The public comment period ends. Frequently, however, the public comment period is extended to allow time for all agencies involved in the THP process to complete their reviews, or for additional study of a specific THP issue.

Following the Review Team’s final recommendation:

• The final recommendations are sent to the Registered Professional Forester for response. After the RPF’s response is received, and the public comment period closes, the THP goes to the CDF Director, or the Director’s representative, who has 15 working days to approve or deny the THP. The Director considers all Board of Forestry and Fire Protection rules, the review team’s recommendations, and any public comment that was submitted concerning the proposed timber operation before making a decision to approve or deny the THP. CDF prepares and sends or e-mails a written response to each person or group who submitted public comment on a THP.

Once a THP is approved:

• CDF Unit Forest Practice Inspectors periodically inspect the logging operation to ensure compliance with the approved THP and all laws and regulations.
• Any violations are promptly acted upon. Enforcement actions range from violation notices requiring corrective actions, assessment of civil fines, and criminal proceedings through the court system. Action may also be taken against the license of the timber operator and/or the RPF on the operation.
• When a THP operation has been completed, the timber owner has the responsibility for submitting a completion report to CDF. CDF then inspects the area to certify that all rules were followed.
• The landowner must restock (replant) the area according to the Forest Practice Rules requirements. A stocking report must be filed with CDF to certify that these requirements were met. If the landowner fails to restock the land, CDF may hire a contractor to do the work and bill the landowner.
NOTICE OF INTENT TO HARVEST TIMBER

A Timber Harvesting Plan (Plan) or Amendment has been submitted to the California Department of Forestry & Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4582.7, you may submit written public comments on the Plan or Amendment for CAL FIRE to consider.

This notice applies to (select one below):

- ☑ New Timber Harvesting Plan
- ☐ Amendment to an Approved Timber Harvesting Plan

### Applicant Information

(Timberland Owner(s), Registered Professional Forester who prepared the plan and Plan Submitter should match those listed in the plan or amendment.)

1. The name(s) of the Timberland Owner(s) where timber operations are to occur: **Brian Oneto, Rux Oneto, Ed Oneto**

2. Registered Professional Forester who prepared the plan or amendment: **Ronald S. Hutchinson, RPF #2952**

   Registered Professional Forester Phone (optional): **530-559-1243**

3. The name of the Plan or Amendment Submitter: **Brian Oneto**

### Project Summary

(County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the plan or amendment.)

4. Location of the proposed timber operation (county, legal description, approximate direction & approximate distance of the timber operation from the nearest community or well-known landmark):

   - El Dorado County, Portion of Section 4, T8N, R14E, MDB&M. The project is located along North South Road approximately 14 miles east of the community of Omo Ranch, California.

5. The name of, and distance from, the nearest perennial stream and major watercourse flowing through or downstream from the timber operation:

   - Middle Dry Creek flows through the THP boundary.

6. Acres proposed to be harvested: **161**

7. The regeneration methods and intermediate treatments to be used:

   - Shelterwood Removal, Group Selection

8. ☑ Yes ☐ No Is there a known overhead power line, except lines from transformers to service panels, within the plan area?

### Public Information

The estimated earliest possible date CAL FIRE will review the proposed timber operation is: **JUL 19 2014**

The estimated earliest possible date CAL FIRE may APPROVE the Plan or Amendment is: **JUL 19 2014**

(This date is 15 calendar days from receipt of the Plan or Amendment by CAL FIRE, except in counties for which special rules have been adopted where the earliest date is 45 calendar days after receipt.)

**NOTE:** THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE. Normally, a much longer period of time is available for public comment and preparation of CAL FIRE's responses to public comments. Please check with CAL FIRE, prior to the above listed date, to determine the actual date that the public comment period closes.

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy is 10 cents for each page, $2.50 minimum per request. The cost to obtain a copy of this plan or amendment is: **$6.00**

(response to be completed by CAL FIRE upon receipt of plan).

Questions or concerns regarding this plan should be directed to the CAL FIRE Review Team Office shown below or emailed to **FresnoPublicComment@fire.ca.gov** for incorporation into an Official Response Document. Please include the plan number on all correspondence.

Forest Practice Program Manager
CAL FIRE
1234 East Shaw Avenue
Fresno, CA 93710
(559) 222-3714

Received
**JUN 19 2014**

SOUTHERN REGION HEADQUARTERS
RESOURCE MANAGEMENT

The plan may be viewed online at [ftp://thp.fire.ca.gov/THPLibrary/Sierra_Southern_Region](ftp://thp.fire.ca.gov/THPLibrary/Sierra_Southern_Region)

A map showing the approximate boundary of the THP area, a map legend, and a scale is attached to help in locating where the proposed timber operation is to occur.

For CAL FIRE Use Only

Timber Harvest Plan Number: **413-015/ELD-7**

Date of Receipt: **JUN 19 2014**
Pi Pi THP 4-13-015/ELD-7
General Location Map
T8N, R14E Sections 4, 9, MDB&M
Caldor (1973), USGS 7.5' Quadrangle(s)
NOTICE OF INTENT TO HARVEST TIMBER

A Timber Harvesting Plan (Plan) or Amendment has been submitted to the California Department of Forestry & Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4582.7, you may submit written public comments on the Plan or Amendment for CAL FIRE to consider.

This notice applies to (select one below):

- [ ] New Timber Harvesting Plan
- [ ] Amendment to an Approved Timber Harvesting Plan

**Applicant Information** (Timberland Owner(s), Registered Professional Forester who prepared the plan and Plan Submitter should match those listed in the plan or amendment.)

1. The name(s) of the Timberland Owner(s) where timber operations are to occur: **Brent Fox, Jeremy Chandler, Brian Grasso**
2. Registered Professional Forester who prepared the plan or amendment: **Ronald S. Hutchinson, RPF #2952**
3. Registered Professional Forester Phone (optional): **530-559-1243**
4. The name of the Plan or Amendment Submitter: **Brent Fox**

**Project Summary** (County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the plan or amendment.)

4. Location of the proposed timber operation (county, legal description, approximate direction & approximate distance of the timber operation from the nearest community or well-known landmark):
   
   El Dorado County, Portions of Section 36, T9N, R12E; Section 31, T9N, R13E; Section 6, T8N, R13E, MDB&M. The project is located along Omo Ranch Road and So So Road approximately 1 to 2 miles west of the community of Omo Ranch, California.

5. The name of, and distance from, the nearest perennial stream and major watercourse flowing through or downstream from the timber operation:
   
   An unnamed tributary to Perry Creek originates within the THP boundary and travels south for approximately 500 feet to where it intersects with Perry Creek.

6. Acres proposed to be harvested: **52 Acres**

7. The regeneration methods and intermediate treatments to be used:
   
   **Alternative Prescription**

8. [ ] Yes  [ ] No  Is there a known overhead power line, except lines from transformers to service panels, within the plan area?

**Public Information:** The review times allowed for CAL FIRE to review the proposed timber operation are variable in length, but limited. To ensure CAL FIRE receives your comments please read the following:

The estimated earliest possible date CAL FIRE may APPROVE the Plan or Amendment is: **September 19, 2013**

(This date is 15 calendar days from receipt of the Plan or Amendment by CAL FIRE, except in counties for which special rules have been adopted where the earliest date is 45 calendar days after receipt.)

**NOTE:** THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE. Normally, a much longer period of time is available for public comment and preparation of CAL FIRE’s responses to public comments. Please check with CAL FIRE, prior to the above listed date, to determine the actual date that the public comment period closes.

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy is 10 cents for each page, $2.50 minimum per request. The cost to obtain a copy of this plan or amendment is: **$6.40**

(to be completed by CAL FIRE upon receipt of plan).

Questions or concerns regarding this plan should be directed to the CAL FIRE Review Team Office shown below or emailed to FresnoPublicComment@fire.ca.gov for incorporation into an Official Response Document. Please include the plan number on all correspondence.

Forest Practice Program Manager
CAL FIRE
1234 East Shaw Avenue
Fresno, CA 93710
(559) 222-3714

The plan may be viewed online at ftp://thp.fire.ca.gov/THPLibrary/Sierra_Southern_Region

A map showing the approximate boundary of the THP area, a map legend, and a scale is attached to help visualize where the proposed timber operation is to occur.

Timber Harvest Plan Number: **4-13-018/ELD-8**

For CAL FIRE Use Only

Date of Receipt: **SEP 3 2013**
Slug Gulch Road THP
General Location Map

A portion of: Section 6, T8N, R13E;
Section 31, T9N, R13E;
Section 36, T9N, R12E

MDB&M

El Dorado County
Omo Ranch 7.5 Min. USGS Quadrangle 1973

THP Boundary (52 Acres)

Scale 1" = 2,000Ft. Contour Interval 40Ft.
Public Notice & Names of Adjacent Landowners: Slug Gulch Road THP

Names of adjacent landowners within 300 feet of the plan boundary as obtained from the records at the Placer Title Company, El Dorado County Assessor

Parcel # 095-100-15
Gerald Jones
5050 So So Rd.
Summerset, CA. 95684

Parcel # 095-100-17
William Bandy
P.O. Box 156
Diamond Springs, CA. 95619

Parcel # 095-100-71
Lynda Fithian
3506 Cerveza Way
Rescue, CA. 95672

Parcel # 095-100-72
Peter Alvarez
1050 Allview Ave.
El Sobrante, CA. 95672

Parcel # 095-011-47
Peter Garibaldi
P.O. Box 41
Sutter Creek, CA. 95685

Parcel # 095-011-81, 040-011-35
041-191-031, 041-960-08
Wetsel-Oviatt Lumber Co.
P.O. Box 496014
Redding, CA. 96049

Parcel # 040-011-03
Equity Tr. Co. Custodian Fbo
225 Burns Rd.
Elyria, OH. 44035

Parcel # 041-191-032
Pioneer Fire Protection
P.O. Box 128
Summerset, CA. 95684

Parcel # 040-320-11
Indian Diggings School
337 Placerville Dr.
Placerville, CA. 95667

Parcel # 040-320-12
Charles Hoffman
8287 Stevenson St.
Mokelumne Hill, CA. 95245

Parcel # 040-320-13
Brian Barber
1477 Kingswood Dr.
Roseville, CA. 95678
NOTICE OF INTENT TO HARVEST TIMBER

A Timber Harvesting Plan or an amendment to an existing plan that may be of interest to you has been submitted to the California Department of Forestry & Fire Protection. The Department will be reviewing the proposed timber operation for compliance with various laws and rules. This review requires the addressing of any concerns you may have with what is being proposed. The following briefly describes the proposed timber operation and where and how to get more information.

The review times given to the Department to review the proposed timber operation are variable in length, but limited. To ensure the Department receives your comments please read the following:

The earliest possible date the Department may approve the plan or amendment is: \textbf{Sept 26, 2013.}

\textbf{NOTE: THIS DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE AND CLOSE OF PUBLIC COMMENT.} Normally, a much longer period of time is available for preparation of comments. Please check with the Department, prior to the above listed date, to determine the actual date that the public comment period closes.

The plan or amendment was submitted to the Department on: \textbf{Sept 11, 2013.}

Questions about the proposed timber operation or laws and rules governing timber operations should be directed to:

\textbf{California Department of Forestry & Fire Protection}

\textbf{Forest Practice Program}

\textbf{1234 East Shaw Avenue}

\textbf{Fresno, CA 93710}

\textbf{(559) 222-3714}

\textbf{FresnoPublicComment@fire.ca.gov}

The public may review the plan or amendment at the above Department office or purchase a copy of the plan or amendment. The cost to obtain a copy is 10 cents for each page, $2.50 minimum per request. (To be completed by the Department upon receipt. The cost to obtain a copy of the plan or amendment is: $4.50.)

Information about the plan or amendment follows:

1. Timberland Owner where the timber operation is to occur: \textbf{HEINRICH PROPERTIES A CA LP}

2. Registered Professional Forester who prepared the plan or amendment: \textbf{Robert W. Allen}

3. Name of individual who submitted the plan or amendment: \textbf{Louis Heinrich}

4. Location of the proposed timber operation (county, legal description, approximate direction & approximate distance of the timber operation from the nearest community or well-known landmark):

\textbf{El Dorado County. A portion of Section 6 T10N R13E MDB&M. Approximately 1.0 miles southeast of Pollock Pines, CA.}

5. The name of and distance from the nearest perennial stream and major watercourse flowing through or downstream from the timber operation:

\textbf{North Fork Weber Creek is approximately 1,750 feet downstream and northwest of the western portion of the plan area.}

6. Acres proposed to be harvested: \textbf{20}

7. The regeneration methods and/or intermediate treatments to be used: Seedtree- Seed Step

8. Is there a known overhead power line, except lines from transformers to service panels, within the plan area? \textbf{Yes \_X\_ No _}

A map is attached to help in locating where the proposed timber operation is to occur.

\underline{FOR DEPARTMENT USE ONLY}

\textbf{TIMBER HARVESTING PLAN NO. 4-13-019/ELD-9} \textbf{DATE OF RECEIPT SEP 11 2013}

January 13, 2004 (Sierra)
HEINRICH TIMBER HARVEST PLAN
Pollock Pines and Sly Park, Calif. 7.5' Quad
Sec. 6 T10N R13E MDM

Legend
THP Boundary
Public Road
Permanent Surfaced Private Road
Existing Seasonal Road
Class III Watercourse

Silviculture - (Seed Tree Seed Step)
EHR - Moderate (Entire Area)
Site - I (Entire Area)
Overhead Power Lines
Existing Landing

Scale 1" = 1,000'

Roads, Landing, Watercourse, Overhead Power Lines

THP Map 2
ADJACENT LANDOWNER LIST FOR HEINRICH 20 MODIFIED THP

Gold Ridge Forest Owners
P.O. Box 632
Placerville, CA. 95667
Parcel # 009-590-01

Richard and Linda Van Dyke
2900 Amber Trail
Pollock Pines, CA. 95726
Parcel #042-690-21

Dale and Joan Pohiman
6012 Quartz Dr.
El Dorado, CA. 95623
Parcel # 042-690-18

Pollock Pines Elem. School District
6181 A Pine St.
Pollock Pines, CA. 95726
Parcel # 042-690-23 & 24

Bryan Kwan and Kimber Simmons
4038 Kingswood Trail
Pollock Pines, CA. 95726
Parcel # 042-690-26

Patrick Martin
4105 Pegasus Trail
Pollock Pines, CA. 95726
Parcel # 042-690-13

Patricia Vaccieri
Rogers Liv. Tr.
Doherty Rev. Tr.
Cala Fam. Rev. Tr.
417 7th Ave.
Menlo Park, CA. 94025
Parcel # 042-690-20

Aaron, Nancy, Glen and Deborah Campora
4178 Pegasus Trail
Pollock Pines, CA. 95726
Parcel # 042-690-19

Gerald and Mary Reynolds
P.O. Box 262
Pollock Pines, CA. 95726
Parcel # 009-533-01

Alison Holloway
3014 Amber Trail
Pollock Pines, CA. 95726
Parcel # 009-533-02

Donnan Rev. Tr., Jeff and Dawn
4201 Pegasus Trail
Pollock Pines, CA. 95726
Parcel # 042-690-17

Craig and Kelly Clifford
P.O. Box 1121
Pollock Pines, CA. 95726
Parcel # 042-690-25

Gerald and Rosa Franco
4100 Pegasus Trail
Pollock Pines, CA. 95726
Parcel # 042-690-07

Albert and Cher Williams
4128 Pegasus Trail
Pollock Pines, CA. 95726
Parcel # 042-690-29

Thomas and Patricia Cala
45980 Hidden Valley Ter.
Fremont, CA. 94539
Parcel # 042-690-06

Heinrich 20 modified THP
**NOTICE OF INTENT TO HARVEST TIMBER**

A Timber Harvesting Plan (Plan) or Amendment has been submitted to the California Department of Forestry & Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4562.7, you may submit written public comments on the Plan or Amendment for CAL FIRE to consider.

**This notice applies to (select one below):**

- New Timber Harvesting Plan
- Amendment to an Approved Timber Harvesting Plan

### Applicant Information

<table>
<thead>
<tr>
<th>Timberland Owner(s), Registered Professional Forester who prepared the plan and Plan Submitter should match those listed in the plan or amendment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The name(s) of the Timberland Owner(s) where timber operations are to occur: Derek &amp; Douglas Durward, Clayton Rice, A. Carles</td>
</tr>
<tr>
<td>2. Registered Professional Forester who prepared the plan or amendment: Jim Davies of Jim Davies &amp; Associates</td>
</tr>
<tr>
<td>Registered Professional Forester Phone (optional): (530) 644-3498</td>
</tr>
<tr>
<td>3. The name of the Plan or Amendment Submitter: Jim Davies</td>
</tr>
</tbody>
</table>

### Project Summary

<table>
<thead>
<tr>
<th>County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the plan or amendment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Location of the proposed timber operation (county, legal description, approximate direction &amp; approximate distance of the timber operation from the nearest community or well-known landmark): El Dorado Co., Por. Sec. 34 T10N, R 13 E MDBM, Approx. 2.3 miles North of Grizzly Flats, CA.</td>
</tr>
<tr>
<td>5. The name of, and distance from, the nearest perennial stream and major watercourse flowing through or downstream from the timber operation: An un-named class II watercourse flows through the East portion of the parcel into the North Fork of the Cosumnes River which is approximately ½ mile south of the property boundary.</td>
</tr>
<tr>
<td>6. Acres proposed to be harvested: 92</td>
</tr>
<tr>
<td>7. The regeneration methods and intermediate treatments to be used: Selection, Seed tree removal, shelterwood removal, Alternate prescription closest to a clear cut (APCC)</td>
</tr>
</tbody>
</table>

### Public Information

The review times allowed for CAL FIRE to review the proposed timber operation are variable in length, but limited. To ensure CAL FIRE receives your comments please follow the following:

The estimated earliest possible date CAL FIRE may APPROVE the Plan or Amendment is: **MAY 25 2014**

(This date is 15 calendar days from receipt of the Plan or Amendment by CAL FIRE, except in counties for which special rules have been adopted where the earliest date is 45 calendar days after receipt.)

**NOTE: THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE.** Normally, a much longer period of time is available for public comment and preparation of CAL FIRE's responses to public comments. Please check with CAL FIRE, prior to the above listed date, to determine the actual date that the public comment period closes.

Questions or concerns regarding this plan should be directed to the CAL FIRE Review Team Office shown below. The cost to obtain a copy is $7.30 cents for each page, $2.50 minimum per request. The cost to obtain a copy of this plan or amendment is: $7.30 (to be completed by CAL FIRE upon receipt of plan).

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy of this plan or amendment is: $7.30

Forest Practice Program Manager
CAL FIRE
1234 East Shaw Avenue
Fresno, CA 93710
(559) 222-3714

The plan can be viewed online at ftp://thp.fire.ca.gov/THPLibrary/Sierra_Southern_Region

A map showing the approximate boundary of the THP area, a map legend, and a scale is attached to help in locating where the proposed timber operation is to occur.

---

Timber Harvest Plan Number: 4-13-028/ELD-14

**For CAL FIRE Use Only**

Date of Receipt: APR 25 2014
DURWOOD ET AL. TIMBER HARVEST PLAN
Slypark, Calif. 7.5' Quad
Portion Section 34 T10N R13E MDB&M

Location Map

Legend
Project Boundary
Class I Watercourse
Class II Watercourse
Existing Permanent Public Road

Scale 1" = 2,000'

Big Butte
Middle Butte
Little Butte

NATIONAL FOREST

5-1-2013
NOTICE OF INTENT TO HARVEST TIMBER

A Timber Harvesting Plan (Plan) or Amendment has been submitted to the California Department of Forestry & Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4582.7, you may submit written public comments on the Plan or Amendment for CAL FIRE to consider.

This notice applies to (select one below):

☑ New Timber Harvesting Plan  ☐ Amendment to an Approved Timber Harvesting Plan

Applicant Information (Timberland Owner(s), Registered Professional Forester who prepared the plan and Plan Submitter should match those listed in the plan or amendment.)

1. The name(s) of the Timberland Owner(s) where timber operations are to occur: Raymond and Jennifer Nutting

2. Registered Professional Forester who prepared the plan or amendment: Robert W. Allen

Registered Professional Forester Phone (optional): 

3. The name of the Plan or Amendment Submitter: Raymond Nutting

Project Summary (County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the plan or amendment.)

4. Location of the proposed timber operation (county, legal description, approximate direction & approximate distance of the timber operation from the nearest community or well-known landmark):

El Dorado County. A portion of sec. 32 T10N R13E MDB&M. Approximately 3.2 miles northwest of Grizzly Flat, CA.

5. The name of, and distance from, the nearest perennial stream and major watercourse flowing through or downstream from the timber operation:

Butte Creek is approximately 300 feet down slope from the plan area.

6. Acres proposed to be harvested: 41

7. The regeneration methods and intermediate treatments to be used:

Shelterwood-Removal Step and Clear Cut

8. ☐ Yes  ☑ No Is there a known overhead power line, except lines from transformers to service panels, within the plan area?

Public Information: The review times allowed for CAL FIRE to review the proposed timber operation are variable in length, but limited. To ensure CAL FIRE receives your comments please read the following:

The estimated earliest possible date CAL FIRE may APPROVE the Plan or Amendment is:  

APR 23 2014

The estimated earliest possible date is 45 calendar days after receipt; however, the earliest date is 45 calendar days after receipt.

NOTE: THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE. Normally, a much longer period of time is available for public comment and preparation of CAL FIRE’s responses to public comments. Please check with CAL FIRE prior to the above listed date, to determine the actual date that the public comment period closes.

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy is $2.50 minimum per request. The cost to obtain a copy of this plan or amendment is: $5.90

Forest Practice Program Manager 
CAL FIRE 
1234 East Shaw Avenue 
Fresno, CA 93710 
(559) 222-3714

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below or emailed to FresnoPublicComment@fire.ca.gov for incorporation into an Official Response Document. Please include the plan number on all correspondence.

The plan may be viewed online at ftp://thp.fire.ca.gov/THPLibrary/Sierra_Southern_Region

A map showing the approximate boundary of the THP area, a map legend, and a scale is attached to help in locating where the proposed timber operation is to occur.

Timber Harvest Plan Number: 4-14-001/ELO-1 Date of Receipt: MAR 24 2014
RAYS TIMBER HARVEST PLAN
Sly Park, Calif. 7.5' Quad
NE ¼, NW ¼, Sec. 32 and 3 acres of N ½, SW ¼, Section 32 T10N R13E MDB&M

Legend
Timber Harvest Plan Boundary
Class II Watercourse
Existing Permanent Public Road
Existing Permanent Private Road

Scale 1" = 2,000'

Location Map 1

Revised 11-5-2015
NOTICE OF INTENT TO HARVEST TIMBER

A Timber Harvesting Plan (Plan) or Amendment has been submitted to the California Department of Forestry & Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4582.7, you may submit written public comments on the Plan or Amendment for CAL FIRE to consider.

This notice applies to (select one below):

- [x] New Timber Harvesting Plan
- [ ] Amendment to an Approved Timber Harvesting Plan

**Applicant Information** (Timberland Owner(s), Registered Professional Forester who prepared the plan and Plan Submitter should match those listed in the plan or amendment.)

1. The name(s) of the Timberland Owner(s) where timber operations are to occur: Gary E. and Jane H. Gould, Richard M. and Kathy D. Munoz

2. Registered Professional Forester who prepared the plan or amendment: Richard M. Munoz and Gary E. Gould

   Registered Professional Forester Phone (optional): 530-626-0236

3. The name of the Plan or Amendment Submitter: Gary E. Gould

**Project Summary** (County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the plan or amendment.)

4. Location of the proposed timber operation (county, legal description, approximate direction & approximate distance of the timber operation from the nearest community or well-known landmark):

   The proposed timber operation is located in the E1/2 of the NE1/4 of Section 25, T9N, R13E; and a portion of the N1/2 of the NW1/4 of Section 30; T9N, R14E; Mount Diablo Base and Meridian (El Dorado County). The THP is located approximately 3 miles southeast of Grizzly Flats.

5. The name of, and distance from, the nearest perennial stream and major watercourse flowing through or downstream from the timber operation:

   Clear Creek flows through Timber Harvest Plan area.

6. Acres proposed to be harvested: 167

7. The regeneration methods and intermediate treatments to be used:

   Group Selection, Clear-cut

8. [ ] Yes - [x] No - Is there a known overhead power line, except lines from transformers to service panels, within the plan area?

**Public Information:** The review times allowed for CAL FIRE to review the proposed timber operation are variable in length, but limited. To ensure CAL FIRE receives your comments please read the following:

- [ ] New Timber Harvesting Plan
- [ ] Amendment to an Approved Timber Harvesting Plan

- [x] New Timber Harvesting Plan
- [ ] Amendment to an Approved Timber Harvesting Plan

   The estimated earliest possible date CAL FIRE may APPROVE the Plan or Amendment is: SEP 21 2014

   (This date is 15 calendar days from receipt of the Plan or Amendment by CAL FIRE, except in counties for which special rules have been adopted where the earliest date is 45 calendar days after receipt.)

   **NOTE:** THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE. Normally, a much longer period of time is available for public comment and preparation of CAL FIRE’s responses to public comments. Please check with CAL FIRE, prior to the above listed date, to determine the actual date that the public comment period closes.

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy is $0.00 per page, $2.50 minimum per request. The cost to obtain a copy of this plan or amendment is: $8.30

   (to be completed by CAL FIRE upon receipt of plan).

   Questions or concerns regarding this plan should be directed to the CAL FIRE Review Team Office shown below or emailed to FresnoPublicComment@fire.ca.gov for incorporation into an Official Response Document. Please include your full name and correspondence.

   For CAL FIRE Use Only

   Timber Harvest Plan Number: 4-14-017/ELD

   Date of Receipt: AUG 22 2014
NOTICE OF INTENT TO HARVEST TIMBER

A Timber Harvesting Plan (Plan) or Amendment has been submitted to the California Department of Forestry & Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4582.7, you may submit written public comments on the Plan or Amendment for CAL FIRE to consider.

This notice applies to (select one below):

- ☒ New Timber Harvesting Plan
- ☐ Amendment to an Approved Timber Harvesting Plan

### Applicant Information
(Timberland Owner(s), Registered Professional Forester who prepared the plan and Plan Submitter should match those listed in the plan or amendment.)

1. The name(s) of the Timberland Owner(s) where timber operations are to occur: **JJD Properties LTD**
2. Registered Professional Forester who prepared the plan or amendment: **Ricky Shurtz RPF #3005**
3. The name of the Plan or Amendment Submitter: **Jim Didion**

### Project Summary
(County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the plan or amendment.)

4. Location of the proposed timber operation (county, legal description, approximate direction & approximate distance of the timber operation from the nearest community or well-known landmark): Portions of section 12, Township 10N Range 12E, and portions of section 07, Township 10N Range 13E; all Mount Diablo Base Meridian. The plan area is located within El Dorado County approximately 2 miles South of Pollock Pines, CA at its closest point.

5. The name of, and distance from, the nearest perennial stream and major watercourse flowing through or downstream from the timber operation: The South Fork of Weber Creek and the North Fork of Clear Creek, including unnamed tributaries thereto, flow through the project area.

6. Acres proposed to be harvested: **272**

7. The regeneration methods and intermediate treatments to be used:

   - Shelterwood Removal, Group Selection, Transition, Sanitation Salvage and Commercial Thin.

8. ☐ Yes  ☒ No  Is there a known overhead power line, except lines from transformers to service panels, within the plan area?

### Public Information:
The review times allowed for CAL FIRE to review the proposed timber operation are variable in length, but limited. To ensure CAL FIRE receives your comments please read the following:

The estimated earliest possible date CAL FIRE may APPROVE the Plan or Amendment is: **April 8th, 2016**

(This date is 15 calendar days from receipt of the Plan or Amendment by CAL FIRE, except in counties for which special rules have been adopted where the earliest date is 45 calendar days after receipt.)

NOTE: THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE. Normally, a much longer period of time is available for public comment and preparation of CAL FIRE’s responses to public comments. Please check with CAL FIRE, prior to the above listed date, to determine the actual date that the public comment period closes.

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy is 37 cents for each page, $2.50 minimum per request. The cost to obtain a copy of this plan or amendment is: **$35.89**

To be completed by CAL FIRE upon receipt of plan.

Questions or concerns regarding this plan should be directed to the CAL FIRE Review Team Office shown below or emailed to FresnoPublicComment@fire.ca.gov for incorporation into an Official Response Document. Please include the plan number on all correspondence.

**Forest Practice Program Manager**
CAL FIRE
1234 East Shaw Avenue
Fresno, CA 93710
(559) 222-3714

The plan may be viewed online at ftp://thp.fire.ca.gov/THPLibrary/Sierra_Southern_Region

A map showing the approximate boundary of the THP area, a map legend, and a scale is attached to help in locating where the proposed timber operation is to occur.

Timber Harvest Plan Number: **Y-16-003/ELD**

For CAL FIRE Use Only

**Date of Receipt:** MAR 24 2016

12-08
Didion THP
NOI Map 4-16-003/ELD
Date: 3/22/2016

Project Area
PLSS Boundary

1 inch = 2,000 feet
1:24,000
NOTICE OF INTENT TO HARVEST TIMBER

A Timber Harvesting Plan (Plan) or Amendment has been submitted to the California Department of Forestry & Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4582.7, you may submit written public comments on the Plan or Amendment for CAL FIRE to consider.

This notice applies to (select one below):

- New Timber Harvesting Plan
- Amendment to an Approved Timber Harvesting Plan

**Applicant Information**
(Timberland Owner(s), Registered Professional Forester who prepared the plan and Plan Submitter should match those listed in the plan or amendment.)

1. The name(s) of the Timberland Owner(s) where timber operations are to occur: Baldwin Wetterau Family Revocable Trust, dated March 31, 2011

2. Registered Professional Forester who prepared the plan or amendment: Gary E. Gould

   Registered Professional Forester Phone (optional): 530-626-0236

3. The name of the Plan or Amendment Submitter: Richard Baldwin

**Project Summary**
(County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the plan or amendment.)

4. Location of the proposed timber operation (county, legal description, approximate direction & approximate distance of the timber operation from the nearest community or well-known landmark):

   The proposed timber operation is located in Section 9, T8N, R13E; Mount Diablo Base and Meridian (El Dorado County). The THP is located approximately 2 air miles southeast of Omo Ranch, California.

5. The name of, and distance from, the nearest perennial stream and major watercourse flowing through or downstream from the timber operation:

   Sopilago Creek flows through east side of Timber Harvest Plan area, and Brownsville Creek becomes a perennial stream approximately 1,100 feet northwest of the western Plan boundary.

6. Acres proposed to be harvested: 185

7. The regeneration methods and intermediate treatments to be used:

   Group Selection and Rehabilitation

8. Yes No Is there a known overhead power line, except lines from transformers to service panels, within the plan area?

**Public Information:** The review times allowed for CAL FIRE to review the proposed timber operation are variable in length, but limited. To ensure CAL FIRE receives your comments please read the following:

The estimated earliest possible date CAL FIRE may APPROVE the Plan or Amendment is: FEB 03 2017

(This date is 15 calendar days from receipt of the Plan or Amendment by CAL FIRE, except in counties for which special rules have been adopted where the earliest date is 45 calendar days after receipt.)

NOTE: THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE. Normally, a much longer period of time is available for public comment and preparation of CAL FIRE’s responses to public comments. Please check with CAL FIRE prior to the above listed date, to determine the actual date that the public comment period closes.

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy is 37 cents for each page, $2.50 minimum per request. The cost to obtain a copy of this plan or amendment is: $ 48.47 (to be completed by CAL FIRE upon receipt of plan).

Questions or concerns regarding this plan should be directed to the CAL FIRE Review Team Office shown below or emailed to FresnoPublicComment@fire.ca.gov for incorporation into an Official Response Document. Please include the plan number on all correspondence.

Forest Practice Program Manager
CAL FIRE
1234 East Shaw Avenue
Fresno, CA 93710
(559) 222-3714

The plan may be viewed online at ftp://thp.fire.ca.gov/THPLibrary/Sierra_Southern_Region

A map showing the approximate boundary of the THP area, a map legend, and a scale is attached to help in locating where the proposed timber operation is to occur.

Timber Harvest Plan Number: 4-16-006/ELD

For CAL FIRE Use Only

Date of Receipt: JAN 19 2017
NOTICE OF INTENT TO HARVEST TIMBER

A Timber Harvesting Plan (Plan) or Amendment has been submitted to the California Department of Forestry & Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4562.7, you may submit written public comments on the Plan or Amendment for CAL FIRE to consider.

This notice applies to (select one below):

- ☑ New Timber Harvesting Plan
- ☐ Amendment to an Approved Timber Harvesting Plan

**Applicant Information** (Timberland Owner(s), Registered Professional Forester who prepared the plan and Plan Submitter should match those listed in the plan or amendment.)

1. The name(s) of the Timberland Owner(s) where timber operations are to occur: Brent & Susanne Fox, Greg & Diane Wheeldon, William & Lorene Fox, Kenneth & Lindi Fox, David Fox, John Chandler Trste.

2. Registered Professional Forester who prepared the plan or amendment: Ronald S. Hutchinson, RPF #2952

3. The name of the Plan or Amendment Submitter: Brent Fox

**Project Summary** (County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the plan or amendment.)

4. Location of the proposed timber operation (county, legal description, approximate direction & approximate distance of the timber operation from the nearest community or well-known landmark):
   - Eldorado County, Portion of Section 1, T8N, R12E; Sections 4, 5, 6, 8 & 9, T8N, R13E, MDB&M. Located adjacent to the community of Omo Ranch, California on Omo Ranch Road.

5. The name of, and distance from, the nearest perennial stream and major watercourse flowing through or downstream from the timber operation:
   - Cedar Creek originates within the western unit. Brownsville Creek originates in the eastern unit and flows along the southern boundary of the middle unit.

6. Acres proposed to be harvested: 705

7. The regeneration methods and intermediate treatments to be used:
   - Shelterwood Removal Step, Group Selection, Fuelbreak,

8. ☑ Yes ☐ No Is there a known overhead power line, except lines from transformers to service panels, within the plan area?

**Public Information:** The review times allowed for CAL FIRE to review the proposed timber operation are variable in length, but limited. To ensure CAL FIRE receives your comments please read the following:

The estimated earliest possible date CAL FIRE may APPROVE the Plan or Amendment is: APR 06 2017

(This date is 15 calendar days from receipt of the Plan or Amendment by CAL FIRE, except in counties for which special rules have been adopted where the earliest date is 45 calendar days after receipt.)

NOTE: THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE. Normally, a much longer period of time is available for public comment and preparation of CAL FIRE’s responses to public comments. Please check with CAL FIRE, prior to the above listed date, to determine the actual date that the public comment period closes.

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy is 37 cents for each page, $2.50 minimum per request. The cost to obtain a copy of this plan or amendment is: $ 38.05

(to be completed by CAL FIRE upon receipt of plan).

Questions or concerns regarding this plan should be directed to the CAL FIRE Review Team Office shown below or emailed to FresnoPublicComment@fire.ca.gov for incorporation into an Official Response Document. Please include the plan # and # of correspondence.

Forest Practice Program Manager
CAL FIRE
1234 East Shaw Avenue
Fresno, CA 93710
(559) 222-3714

The plan may be viewed online at ftp://thp.fire.ca.gov/THPLibrary/Sierra_Southern_Region

A map showing the approximate boundary of the THP area, a map legend, and a scale is attached to help in locating where the proposed timber operation is to occur.

Timber Harvest Plan Number: 4-17-001/ELD

For CAL FIRE Use Only

Date of Receipt: MAR 22 2017
Public Notice & Names of Adjacent Landowners: Omo Ranch THP

Names of adjacent landowners within 300 feet of the plan boundary as obtained from the records at the Placer Title Company, El Dorado County Assessor

APN 040-011-011
Barneck Family Living Trust 2015
5439 Oak Hill Rd.
Placerville, CA. 95667

APN 040-011-031
James Nederostek
P.O. Box 53
Hathaway Pines, CA. 95233

APN 040-011-051, 040-270-101; 131
David Rethwisch Tr.
7331 Perry Creek Rd.
Somerset, CA. 95684

APN 040-011-081; 231, 095-030-341; 351
Jules Levaggi Tr. & Suzanne Levaggi Tr.
2801 Pacific Ave.
San Francisco, CA. 94115

APN 040-011-131
Edwin & Kathleen Bochenski
427 W. Highland Ave.
Tracy, CA. 95376

APN 040-011-241, 281
Peter Garbaldi
P.O. Box 41
Sutter Creek, CA. 95685

APN 040-011-261, 040-320-041
Richard Baldwin Tr. & Jeanne Baldwin Tr.
2624 Highland Ave.
Sacramento, CA. 95818

APN 040-011-291; 331; 351; 361, 040-150-021, 040-220-031, 041-191-031, 041-960-081, 095-030-441; 451
Wetsel-Oviatt Lumber Co.
P.O. Box 496014
Redding, CA. 96049

APN 040-015-011
Patrick Baireuther
6111 Omo Ranch Rd.
Somerset, CA. 95684

APN 040-018-021
Joxs Ut. LLC
6720 W 4000 N
Corinne, UT. 84307

APN 040-027-111, 121
James & Karen Gray
25750 Mule Deer Ct.
Pioneer, CA. 95666

APN 040-027-181
Holly Johnston
7355 Slug Gulch Rd.
Somerset, CA. 95684

APN 040-027-221
Mark Vanvoris
4000 Mountain Dew Ln.
Somerset, CA. 95684

APN 040-027-231
Clavies Rose Taylor
P.O. Box 293
El Dorado, CA. 95623

APN 040-027-241
James & Yvonne Koch
P.O. Box 231914
Sacramento, CA. 95823

APN 040-030-021
Dennis & Jaquita Spears
2024 7th St.
Hughson, CA. 95326

APN 040-030-051
Susan Shrumway
6146 Old Mill Rd.
Somerset, CA. 95684

APN 040-030-061
Trinette Marquis
8434 Walerga Rd. #712
Antelope, CA. 95843

APN 040-030-071
Larry & Judith Jennings
6040 Omo Ranch Rd.
Somerset, CA. 95684

APN 040-030-081
Anthony Palmer
6006 Omo Ranch Rd.
Somerset, CA. 95684

APN 040-030-091
Dennis & Lila Palmer
6008 Omo Ranch Rd.
Somerset, CA. 95684

APN 040-030-101
Judith Hammonds
P.O. Box 582
Somerset, CA. 95684

APN 040-030-111
Indian Diggings School District
337 Placerville Dr.
Placerville, CA. 95667

APN 040-030-121
Charles Hoffman
8287 Stevenson St.
Mokelumne Hill, CA. 95245

APN 040-030-131
Brian & Mary Lou Barber
5981 Omo Ranch Rd.
Somerset, CA. 95684

APN 040-030-141
Andrey & Ludmila Timoshek
92 Yacht Ln.
Daly City, CA. 94014

APN 040-041-191-032
Pioneer Fire Protection District
P.O. Box 128
Somerset, CA. 95684
APN 041-191-041
Anthony & Deborah Monoogan
2815 Alhambra Dr.
Cameron Park, CA. 95682

APN 095-030-421
Sierra Pacific Ind. Inc.
P.O. Box 496014
Redding, CA. 96049

APN 041-191-131
El Dorado National Forest
100 Forni Rd.
Placerville, CA. 95667

APN 095-030-431
Bureau of Land Management
2800 Cottage Way
Sacramento, CA. 95825

APN 095-030-401; 411
Paul Schaffer
3196 Lucerne Ct.
Castro Valley, CA. 94546
NOTICE OF INTENT TO HARVEST TIMBER

A Timber Harvesting Plan (Plan) or Amendment has been submitted to the California Department of Forestry & Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4582.7, you may submit written public comments on the Plan or Amendment for CAL FIRE to consider.

This notice applies to (select one below):

- ☑ New Timber Harvesting Plan
- ☐ Amendment to an Approved Timber Harvesting Plan

**Applicant Information** (Timberland Owner(s), Registered Professional Forester who prepared the plan and Plan Submitter should match those listed in the plan or amendment.)

1. The name(s) of the Timberland Owner(s) where timber operations are to occur: **Brent Fox**

2. Registered Professional Forester who prepared the plan or amendment: **Ricky Shurtz RPF #3006**

   Registered Professional Forester Phone (optional): (530) 497-5236

3. The name of the Plan or Amendment Submitter: **Mountain Dew THP**

**Project Summary** (County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the plan or amendment.)

4. Location of the proposed timber operation (county, legal description, approximate direction & approximate distance of the timber operation from the nearest community or well-known landmark): **Portions of sections 5 and 8, Township 8N Range 13E, Mount Diablo Base Meridian. The plan area is located within El Dorado County approximately 0.75 miles South, South-East of Omo Ranch, CA at its closest point.**

5. The name of, and distance from, the nearest perennial stream and major watercourse flowing through or downstream from the timber operation: **The nearest perennial watercourse (Brownsville Creek) flows through the Northern project boundary and makes up a portion of the project boundary. A Class II tributary to Brownsville Creek flows through the Eastern part of the project and makes up a portion of the project boundary.**

6. Acres proposed to be harvested: **69.4**

7. The regeneration methods and intermediate treatments to be used:
   - **Group Selection, Seed Treed Seed Step, and Shelterwood Removal.**

8. ☐ Yes ☑ No Is there a known overhead power line, except lines from transformers to service panels, within the plan area?

**Public Information:** The review times allowed for CAL FIRE to review the proposed timber operation are variable in length, but limited. To ensure CAL FIRE receives your comments please read the following:

The estimated earliest possible date CAL FIRE may APPROVE the Plan or Amendment is: **SEP 13 2017**

(This date is 15 calendar days from receipt of the Plan or Amendment by CAL FIRE, except in counties for which special rules have been adopted where the earliest date is 45 calendar days after receipt.)

**NOTE:** THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE. Normally, a much longer period of time is available for public comment and preparation of CAL FIRE’s responses to public comments. Please check with CAL FIRE, prior to the above listed date, to determine the actual date that the public comment period closes.

The public may review, or purchase a copy of, the Plan or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy is 37 cents for each page, $2.50 minimum per request. The cost to obtain a copy of this plan or amendment is: **$34.41**

(to be completed by CAL FIRE upon receipt of plan).

Questions or concerns regarding this plan should be directed to the CAL FIRE Review Team Office shown below or emailed to FresnoPublicComment@fire.ca.gov for incorporation into an Official Response Document. Please include the plan number on all correspondence.

Forest Practice Program Manager
CAL FIRE
1234 East Shaw Avenue
Fresno, CA 93710
(559) 222-3714

The plan may be viewed online at ftp://thp.fire.ca.gov/THPLibrary/Sierra_Southern_Region

A map showing the approximate boundary of the THP area, a map legend, and a scale is attached to help in locating where the proposed timber operation is to occur.

Timber Harvest Plan Number: **4-17-008/ELD**

For CAL FIRE Use Only

Date of Receipt: **AUG 29 2017**
Adjacent Landowners Within 300 feet

Mark Vanvorsis
4000 Mountain Dew Ln
Somerset, CA 95684

Jules and Suzanne Levaggi
2801 Pacific Ave.
San Francisco, CA 94115

Sierra Pacific Industries
P.O. Box 496014
Redding, CA 96049

Joxs UT LLC
6720 W 4000 N
Corinne, UT 84307

Gregg and Jenifer Henderson
1075 Cassia Way
Sunnyvale, CA 94086

James and Yvonne Koch
P.O. Box 23-1914
Sacramento, CA 95823

David Rethwisch
7331 Perry Creek Road
Somerset, CA 95684

Holly Johnston
7355 Slug Gulch Road
Somerset, CA 95684
APPENDIX C
El Dorado Irrigation District
Watershed Sanitary Survey Update 2018
Order No. 98-153, Waste Discharge Requirements for
Sierra Pacific Industries, Hazel Creek Mine Site
The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. Sierra Pacific Industries, Inc. submitted an application for waste discharge requirements (WDRs) for closure of the Hazel Creek Mine on 7 July 1998. The site is an historic gold mine approximately 15 miles east of Placerville and one mile south of Highway 50 in El Dorado County, as shown on Attachment I, which is incorporated herein and made a part of this Order. The site contains mine tailings discharged to six unlined tailings ponds along Hazel Creek. These WDRs prescribe requirements for closure of the ponds and construction of a new waste management unit so as to eliminate the threat of waste discharge to Hazel Creek.

2. The site covers approximately 132 acres in Section 3, T10N, R13E, MDB&M, as shown in Attachment I. All mining facilities and the mine itself are entirely within the following El Dorado County Assessor's Parcel Numbers: 42-021-02-10, 42-021-03-10, 42-021-05-10, and 42-021-07-10.

3. The mine has been worked several times since the discovery of gold around the turn-of-the-century. The primary productive years for the mine were 1948 through 1959 during which it is estimated to have produced about 70,000 tons of ore. Mineral Strategies, Inc. (MSI) re-activated the mine in 1984 after discovery of new gold deposits, operating the ponds under Waste Discharge Requirements (WDRs) Order No. 83-002. The WDRs were rescinded in 1992 after abandonment of the mine and bankruptcy of the owner.

4. In 1988, Georgia Pacific Corporation (GP) acquired surface ownership of the site and in 1995 acquired the mineral rights at public auction. GP cleared the mine structures and in September, 1995 applied for closure WDRs. GP subsequently withdrew its application for WDRs, however, and in March 1997 conveyed the site to Sierra Pacific Industries, Inc. (SPI). SPI is hereafter referred to as the “Discharger”.

5. Effective 18 July 1997, the water quality regulations for mining wastes formerly contained in Chapter 15, Title 23, California Code of Regulations (CCR), were re-codified into Chapter 7, Subdivision 1, Division 2, Title 27, CCR (Title 27). Chapter 15, Title 23, CCR, therefore, no longer applies to mining wastes.

**DESCRIPTION OF THE SITE**

6. The site includes remnants of historic workings, including the original Hazel Creek Mine adit portal and the foundation of the old stamp mill. Ore from the mine was crushed into fines and run through the shaker to settle out the gold. The waste fines were then discharged in a slurry to the ponds. There are four ponds south of and adjacent to Hazel Creek, and two ponds north of Hazel...
Creek, adjacent to an unnamed seasonal drainage course tributary to Hazel Creek. Since the mine is no longer operating the ponds have dried and are now waste piles. See Attachment II, Site Map which is incorporated herein and made a part of this Order.

7. The site is drained by Hazel Creek, which flows into Jenkinson Lake (the Sly Park Reservoir) one mile west of the site, thence to the Cosumnes River, tributary to the San Joaquin River. The Third Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) states that the existing beneficial uses of Hazel Creek and Jenkinson Lake are municipal and domestic supply, agriculture, recreation, freshwater habitat, spawning and wildlife habitat.

8. The site is within a 100-year floodplain. Flood stage flow approaches 200 cfs. Normal flow of Hazel Creek is one to three cubic feet per second (cfs). There are several natural springs of groundwater in the area which feed into the creek and maintain a minimum flow during most of the dry season. Precipitation in the area averages about 50 inches per year.

9. The depth to groundwater at the site is about 50 to 55 feet below ground surface except where groundwater is perched or there are natural springs. The ground water gradient direction is generally to the southwest. The beneficial uses of the ground water in the Sacramento River Basin are municipal and domestic, agricultural, industrial service, and industrial process supply.

10. The area surrounding the site and the Hazel Creek watershed is forested Sierra foothill terrain which is managed timberland. The site elevation is about 4,000 feet above mean sea level (MSL).

WASTES AND THEIR CLASSIFICATION

11. The tailings contain significant amounts of iron (as iron pyrite) and lead (as galena), which, if left in place, could potentially leach out with storm water into Hazel Creek, or percolate through rock fractures into ground water. Acidic conditions generated by the sulfides in these deposits could accelerate this process. Their location in a flood plain, wind-blown erosion from the ponds, and sloughing of the piles into the creek, also represent a water quality threat.

12. On 22 September 1997, the Executive Officer issued Cleanup and Abatement Order No. 97-712 (C&A), based on a threat to water quality from the unlined tailings ponds. The C&A required the Discharger to obtain a storm water permit, implement interim remedial measures, conduct a site assessment, clean up the wastes, and close the site.

13. As an interim remedial measure, the Discharger installed clay plugs in the three mine portals. The Discharger also implemented best management practices to minimize the exposure of existing wastes to storm water.

14. The results of the site assessment are summarized in the following table:

<table>
<thead>
<tr>
<th>TABLE I: SITE ASSESSMENT RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste Extraction Test (WET) - Lead</td>
</tr>
</tbody>
</table>
The results of the site assessment confirmed earlier sampling which indicated that the mine wastes are mildly acid-generating, producing an average leachate pH of about 5 and an acid-generating potential (AGP) up to 3.9 tons of calcium carbonate per 1,000 tons of tailings. Soluble lead was detected above water quality objectives using the designated level methodology (DLM) and the WET test with de-ionized water.

The discharger has adequately demonstrated through plans for diversionary measures, drainage controls, and vegetative cover that leachate will not form or escape from the closure WMU. Discharge Specification No. 6 exempts the WMU from the need for a prescriptive liner and
leachate collection system pursuant to Section 22470(b) of Title 27, but requires the Discharger to develop a contingency plan for alternative containment in the event the proposed system fails to prevent the formation or escape of leachate from the WMU. Monitoring and Reporting Program No. 98-153 further requires adequate closure and post-closure monitoring of the WMU to confirm that in the event that leachate does form, it does not escape the unit.

20. The Discharger plans to mix the wastes with lime prior to re-consolidation in order to dilute the wastes and neutralize their acid-generating potential. It is anticipated that such treatment will reduce any small quantities of “Group A” wastes that may be present to the “Group B” or “Group C” level. Enough lime will be mixed to achieve a minimum neutralization ratio of 3:1. The treated waste will then be placed in the waste pile in eight-inch lifts. After treatment with lime, the tailings in the closure WMU will be “Group B” and/or “Group C” mining wastes under Title 27.

21. After treatment and re-consolidation of the tailings into the closure WMU, the Discharger plans to install a one-foot thick compacted soil cover, overlain by a one-foot vegetative layer using native materials. Staff has determined that this plan should be adequately protective of water quality.

CEQA AND OTHER REFERENCES

22. The action to adopt WDRs for the facility is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.) as an ongoing project, in accordance with Title 14, CCR, Section 15301.

23. This Order implements:

   a. the Water Quality Control Plan for the Sacramento River Basin and the San Joaquin River Basin, Third Edition, and

   b. the performance goals of Title 27 California Code of Regulations (CCR) Division 2 Subdivision 1, effective 18 July 1997, and subsequent revisions.

24. The Board has notified the Discharger and interested agencies and persons of its intention to revise the WDRs for this facility.

25. In a public hearing, the Board heard and considered all comments pertaining to this facility and discharge.

IT IS HEREBY ORDERED that Sierra Pacific Industries, Inc. (SPI), and its agents, successors and assignees, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

   1. The discharge of ‘hazardous’, ‘designated’, and other solid wastes, as defined in Title 27, except for mining wastes, is prohibited.
2. The discharge of wastes not generated from the Hazel Creek Mine, and its associated adits, shafts, and tunnels, except as necessary for waste treatment and closure, is prohibited.

3. The discharge of mining wastes generated subsequent to 1987 is prohibited.

4. The discharge of Group A or Group B mining wastes, except for those tailings pond wastes which are treated as described in Finding No. 20, is prohibited.

5. The discharge of acid-generating mine wastes, except for those tailings pond wastes which are treated as described in Finding No. 20, is prohibited.

6. The discharge of treated or untreated wastes beyond the limits of WMU No. 1 is prohibited.

7. The discharge of wastes to the former tailings ponds, except Pond No. 1 as re-constructed, is prohibited.

8. The discharge of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids) to a WMU is prohibited.

9. The discharge to a WMU of solid waste containing free liquid or moisture, in excess of the waste’s moisture holding capacity, is prohibited.

10. The discharge of wastes within 100 feet of Hazel Creek, is prohibited.

11. The discharge of mining waste or leachate to surface or groundwater is prohibited.

12. The discharge of waste to ponded water from any source is prohibited.

13. The use or storage of any leaching chemical reagents onsite is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The treatment or disposal of waste shall not cause pollution or a nuisance as defined in the California Water Code, Section 13050.

2. The discharge of wastes shall not cause water quality degradation by allowing a statistically significant increase over background or baseline concentrations as determined in accordance with Monitoring and Reporting Program No. 98-153.

3. Wastes from the tailings ponds shall only be discharged into, and shall be confined to, the closure WMU specifically designed for their containment.

4. Waste disposal in the closure WMU shall be limited to the wastes removed from Tailings Pond Nos. 2 through 6, and the waste formerly in Tailings Pond No. 1.

5. Tailings Pond Nos. 2 through 6 shall be clean closed and graded in accordance with the FCP and site reclamation plan.

WMU Design & Construction

6. Pursuant to Section 22470 (b), the closure WMU, a Group B waste pile, shall be exempt from the prescriptive liner and leachate collection system requirements of Section 22490 (f)
and (g), however, pursuant to Section 22490 (f)(5), the Discharger shall develop a Contingency Plan for alternative waste containment. The plan shall be submitted by 1 October 1998 and shall implemented if there is a failure of treatment or the waste containment system.

7. The final cover of the closure WMU shall be designed and constructed to function with minimum maintenance and consists, at a minimum, of a one-foot thick compacted soil liner, and a one-foot thick vegetative soil layer, as proposed in the FCP.

8. All WMU containment structures shall meet the general criteria set forth in Section 20320 of Title 27.

9. WMU containment structures shall be designed and constructed under the direct supervision of a California registered civil engineer, or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards (except where exempt or approved as an engineered alternative design herein) and performance goals of Title 27 prior to waste discharge.

10. The WMU slopes shall not exceed a horizontal-to-vertical ratio of 1.75:1, without benching, to ensure slope stability. Other areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion.

11. Inundation and washout - The closure WMU shall be designed, constructed, maintained, and operated to prevent inundation or washout due to floods with a 100-year return period.

12. Diversion & Drainage Controls - The WMU shall be designed and constructed with diversion and drainage controls sufficient to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 10-year, 24-hour precipitation conditions.

13. Ponding & Infiltration - The WMU slopes shall not be less than three percent grade to prevent ponding and infiltration.

14. Surface drainage shall not be allowed to contact or percolate through wastes.

C. RECEIVING WATER LIMITATIONS

1. The concentrations of waste constituents, including all monitoring parameters and Constituents of Concern, passing the Points of Compliance in receiving waters shall not exceed the Concentration Limits established as in the “Water Quality Protection Standard” established, pursuant to Monitoring and Reporting Program No. 98-153, which is attached to and made part of this Order.

2. Any disturbance of land shall not increase the turbidity of the receiving waters by more than 20% over immediate upstream levels.

D. PROVISIONS
1. The Discharger shall comply with these WDRs and the attached Monitoring and Reporting Program No. 98-153. The Discharger shall further comply with all applicable provisions of Title 27 not specifically referred to in this Order.

2. In accordance with these WDRs and Cleanup and Abatement Order No. 97-712, the Discharger shall complete WMU construction by 1 September 1998, and complete cleanup and abatement of mining wastes and site closure by 1 October 1999.

3. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated August 1997, which are hereby incorporated into this Order.

4. After closure of the existing ponds and completion of a new WMU, the site shall be reclaimed in accordance with an approved Mining Reclamation Plan, which meets the requirements of the Surface Mining and Reclamation Act of 1975 (SMARA), the annual SMARA reporting requirements of §2207 of the Public Resources Code, and Title 14, CCR, Chapter 8, Subchapter 1, Article 1, as applicable. The reclamation of the mine shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.

5. During reclamation activities, vegetation shall be planted and maintained over the site to prevent erosion and mobilization of wastes. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness. If vegetation is not used to prevent erosion in any part of the site where erosion could potentially threaten water quality, including the area of the former tailings ponds and closure WMU, an engineered alternative shall be submitted to the Board for review and approval prior to closure of the landfill.

6. The closed mine shall be provided with at least two permanent monuments, installed by a licensed land surveyor, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.

7. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of these WDRs, Cleanup and Abatement Order No. 97-712, and/or Title 27.

8. The Discharger shall immediately notify the Board of any flooding equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or of precipitation and drainage control structures.

9. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor surface waters per Monitoring and Reporting Program No. 98-153 throughout the post-closure maintenance period.

10. The post-closure maintenance period shall continue until the Board determines that the wastes remaining at the site no longer threaten water quality.

11. The Discharger shall have the continuing responsibility to assure protection of usable waters from discharged wastes, including leachate, that may be generated and discharged during the
closure, and post-closure maintenance period of the mine and during subsequent use of the property for other purposes.

12. The Discharger shall notify the Board in writing of any proposed change in ownership or responsibility for construction or operation of the site. The Discharger shall also notify the Board of a material change in the character, location, or volume of the waste discharge and of any proposed modification to the closure plans. This notification shall be given 90 days prior to the effective date of the change and shall be accompanied by an amended Report of Waste Discharge and any technical documents that are needed to demonstrate continued compliance with these WDRs.

13. In the event of any change in ownership of this waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Board.

14. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

15. The Board will review this Order periodically and will revise these requirements when necessary.

I GARY M. CARLTON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 24 July 1998.

Original signed by
GARY M. CARLTON, Executive Officer
Compliance with this Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements Order No. 98-153. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements, constitutes noncompliance with the WDRs and with the Water Code, which can result in the imposition of civil monetary liability.

A. REPORTING

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required in the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the WDRs. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Historical and current monitoring data shall be graphed at least once annually. Graphs for the same constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data. A short discussion of the monitoring results, including notations of any water quality violations shall precede the tabular summaries.

Detection monitoring reports shall be submitted **semi-annually** to the Board by the **15th day** of the month following the calendar month in which the samples were taken. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Board.

An **Annual Report** shall be submitted to the Board which summarizes the monitoring results for the prior four quarters and contains both tabular and graphical summaries of the monitoring data. The report shall be submitted to the Board by **31 January** each year.

B. REQUIRED MONITORING REPORTS

1. **Water Quality Protection Standard Report**
   
   Any changes to the water quality protection standard are to be included in the Annual Report.

2. **Detection Monitoring Program**
   
   The Discharger shall submit the results of detection monitoring in accordance with the schedules specified in this Monitoring and Reporting Program. Unless otherwise required, **monitoring reports shall be submitted** to the Board by the **15th day** of the month following the calendar semester in which the samples were taken or observations made.
3. **Annual Report**

The Annual Report shall summarize the monitoring results for the year and, in the event of a release, shall include a discussion of the progress toward re-establishment of compliance with waste discharge requirements and water quality protection standard. The Discharger shall submit the Annual Report as specified in the Standard Provisions and Reporting Requirements.

4. **Constituents-of-Concern (COC) 5 Year Report**

In the absence of a new release, the Discharger shall submit reports of the results of groundwater detection monitoring for the Constituents of Concern every 5 years, or more frequently if required under the evaluation monitoring program. The detection monitoring for the COC Report shall alternate between the Fall and Spring seasons. The COC Report may be combined with a Detection Monitoring Report or an Annual Summary Report having a similar due date.

Each monitoring report shall include a summary and certification of completion of all **Standard Observations** for the mine, for the perimeter of the mine, and for the receiving waters. The standard observations shall be performed on a semi-annual basis and shall include those elements as defined in the Standard Provisions and Reporting Requirements.

C. **OTHER REQUIRED REPORTS**

1. **Notification of Release and Retest**

If the Discharger, through a detection monitoring program, or Board Staff, finds that there is a measurably significant increase in indicator parameter or waste constituents over the water quality protection at or beyond the points of compliance standard (i.e., measurably significant evidence of an exceedence or release), the Discharger shall:

   a. immediately notify Board staff by telephone or fax of the exceedence,
   b. follow up with written notification (or acknowledgment of the Board’s finding) within seven days,
   c. within 30 days of the initial finding, resample for the constituent(s) or parameter(s) at the point where the standard was exceeded,
   d. within 60 days of the initial finding, submit the results of the resampling and statistical analysis, indicating whether or not an exceedence or release was confirmed by the retest.

2. **Amended ROWD - Evaluation Monitoring Program**

Within 30 days upon confirmation of a release or exceedence by retest, the Discharger shall submit an amended Report of Waste Discharge proposing an Evaluation Monitoring Program (EMP), as part of a Joint Technical Document (JTD) per Section 20420 of Title 27. The EMP shall be designed to characterize the release, including its source(s), waste constituents, magnitude, and extent.

3. **Amended ROWD - Corrective Action Program**
Within 120 days upon confirmation of a release or exceedence, the Discharger shall submit an amended Report of Waste Discharge proposing a Corrective Action Program, including a monitoring program, as part of a Joint Technical Document (JTD) per Section 20425 of Title 27.

D. REQUIRED MONITORING PROGRAMS

1. Solid Waste Monitoring Program

The Discharger shall monitor all wastes removed from, or discharged to the mine WMU, throughout the closure period on a monthly basis and report to the Board as follows:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Reporting Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity discharged</td>
<td>cubic yards or tons</td>
<td>Semi-annual</td>
</tr>
<tr>
<td>Type of material discharged</td>
<td>---</td>
<td>Semi-annual</td>
</tr>
<tr>
<td>Source of Material Discharged</td>
<td>---</td>
<td>Semi-annual</td>
</tr>
<tr>
<td>Elevation of discharge</td>
<td>feet &amp; tenths MSL</td>
<td>Semi-annual</td>
</tr>
<tr>
<td>Capacity of mine module remaining</td>
<td>percent</td>
<td>Semi-annual</td>
</tr>
</tbody>
</table>

2. Detection Monitoring - General

The Discharger shall perform Detection Monitoring on all media potentially affected by a release, including surface water, groundwater, and the unsaturated zone. For any given monitored medium, a sufficient number of samples shall be taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Reporting Period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

The Discharger shall use a Board-approved statistical (or non-statistical) procedure to determine whether there has been a measurable (statistically significant) increase in a constituent over the water quality protection standard, as set forth in Section 20415(e)(5) of Title 27.

3. Detection Monitoring - Surface Water

Hazel Creek shall be sampled upstream and downstream of the waste management facility at the locations where the creek enters and leaves the facility boundary. The location where Hazel Creek leaves the boundary constitutes the point of compliance for surface waters. Surface water sampling shall be conducted semi-annually. Surface water sampling may be conducted during storm water sampling events under the general storm water permit. Surface water samples shall be analyzed for the following:

<table>
<thead>
<tr>
<th>Parameter/Constituent</th>
<th>Units</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkalinity</td>
<td>mg/l</td>
<td>semi-annually</td>
</tr>
<tr>
<td>Bicarbonate</td>
<td>mg/l</td>
<td>semi-annually</td>
</tr>
<tr>
<td>Carbonate</td>
<td>mg/l</td>
<td>semi-annually</td>
</tr>
</tbody>
</table>
The Discharger shall determine at each sampling whether there is a statistically significant increase over water quality protection standards for each parameter and constituent analyzed. Adjustments in these assignments may be necessary due to seasonal gradient changes or a determination of spatial variability. If a release is detected at the downstream sampling point, the Discharger shall proceed with an Evaluation Monitoring Program to determine the source(s) and extent of the release.

### E. WATER QUALITY PROTECTION STANDARD

The Water Quality Protection Standard (Standard) consists of the following elements:

- Constituents of Concern;
- Concentration Limits;
- Monitoring Points;
- Points of Compliance; and
- Compliance Period.

Each of these is described as follows:

1. **Constituents of Concern**

   The 'COC list' (list of Constituents of Concern required under Section 20395 Title 27) shall include all Title 22 metals and the monitoring parameters for surface water monitoring listed above. The Discharger shall monitor all COCs every five years under the detection monitoring program, or more frequently as required under evaluation monitoring.

2. **Concentration Limits**
The Concentration Limit for any given Constituent of Concern or Monitoring Parameter in Hazel Creek shall be the background level as measured upstream of the facility. Seasonal concentration limits may need to be developed for each constituent.

3. Monitoring Points

Surface Water - as shown on Attachment B
Storm Water - per General Permit

4. Points of Compliance

Surface Water - same as monitoring points
Storm Water - storm water outfall(s)

5. Compliance Period

The Compliance period is the number of years equal to the active life of the mine facility plus the closure period. Each time the WQPS is exceeded (i.e., a release is discovered), the mine begins a Compliance Period on the date the Board directs the Discharger to begin an Evaluation Monitoring Program. If the Discharger's Corrective Action Program (CAP) has not achieved compliance with the Standard by the scheduled end of the Compliance Period, the Compliance Period is automatically extended until the mine has been in continuous compliance for at least three consecutive years.

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by: ________________ Original signed by ________________
GARY M. CARLTON, Executive Officer

_________________________
24 July 1998
(Date)
The Hazel Creek Mine site is an historic gold mine approximately 15 miles east of Placerville and one mile south of Highway 50 in El Dorado County. The site is on managed timberland owned by Sierra Pacific Industries, Inc. and contains mine tailings discharged to six unlined tailings ponds along Hazel Creek. The tailings contain significant amounts of iron (as iron pyrite) and lead (as galena), which if left in place could potentially leach out with storm water into Hazel Creek, or percolate through rock fractures into ground water. These WDRs prescribe requirements for closure of the ponds and construction of a new waste management unit so as to eliminate the threat to Hazel Creek.

The mine has been worked several times since the discovery of gold around the turn-of-the-century. The primary productive years for the mine were 1948 through 1959 during which it is estimated to have produced about 70,000 tons of ore. Mineral Strategies, Inc. (MSI) re-activated the mine in 1984 after discovery of new gold deposits, operating the ponds under Waste Discharge Requirements (WDRs) Order No. 83-002. The WDRs were rescinded in 1992 after abandonment of the mine and bankruptcy of the owner. In 1988, Georgia Pacific Corporation (GP) acquired surface ownership of the site and in 1995 acquired the mineral rights at public auction. GP cleared the mine structures but in March 1997 conveyed the site to Sierra Pacific Industries, Inc.

In 1997, the Executive Officer issued Cleanup and Abatement Order No. 97-712 (C&A), which required the Discharger to conduct a site assessment, clean up the wastes, and close the site. The results of the site assessment confirmed earlier sampling which indicated that the mine wastes are mildly acid-generating, producing an average leachate pH of about 5 and an acid-generating potential (AGP) up to 3.9 tons of calcium carbonate per 1,000 tons of tailings. Soluble lead was detected above water quality objectives using the designated level methodology (DLM) and the WET test with de-ionized water.

Since the existing tailings ponds are in the flood plain of Hazel Creek, the WDRs prescribe requirements for the removal of wastes from the existing tailings ponds and the construction of a new waste management unit on higher ground. The new WMU will be a Group B Waste Pile under Title 27, constructed from an existing tailings pond (Pond 1). The Discharger plans to mix the wastes with lime prior to re-consolidation in order to dilute the wastes and neutralize their acid-generating potential. After treatment and re-consolidation of the tailings into the closure WMU, the Discharger plans to install a one-foot thick compacted soil cover, overlain by a one-foot vegetative layer using native materials. Staff has determined that this plan should be adequately protective of water quality.

Hazel Creek flows into Jenkinson Lake (the Sly Park Reservoir) one mile west of the site, thence to the Cosumnes River, tributary to the San Joaquin River.
The Hazel Creek Mine was closed in 1999 in accordance with Waste Discharge Requirements (WDRs) Order No. 98-153, Title 27 regulations, and a 1998 Final Closure Plan. As part of closure, tailings piles along Hazel Creek were removed and consolidated into a single closure unit (a closed Group B waste pile under 27 CCR Section 22510(j)) constructed in an adjacent area above the flood plain. The tailings were also treated prior to closure to buffer their mild acid-generating potential (see WDR Findings 14 through 21). Since closure of the mine in 1999, no leachate seeps have been observed from the closure unit, and no impacts to Hazel Creek have been detected in semiannual surface water monitoring conducted by the Discharger under Monitoring and Reporting Program (MRP) No. 98-153.

This revised monitoring and reporting program (MRP) eliminates surface water sampling from the detection monitoring program (DMP), but retains the requirement that the Discharger visually monitor the facility and onsite surface waters for evidence of a release. The revised MRP also retains the requirement of that the Discharger conduct surface water sampling in the event that visual monitoring indicates evidence of a release. The revisions to the MRP are based on the following circumstances:

1. A reduced water quality threat from the wastes as a result of mine closure;
2. The absence of any release involving damage to, or seepage from, the unit since mine closure;
3. The expectation that any potential release from the closure unit would involve drainage or seepage from the cover and would be visually detectable; and
4. The problematic nature of surface water monitoring for detecting a release where there are significant dilution flows.

The MRP revisions are intended to eliminate unnecessary monitoring costs, while ensuring that the detection monitoring program meets Title 27 performance standards (i.e., provides the best assurance of the earliest possible detection of a release from the unit). The revised detection monitoring program herein represents a 27 CCR Section 20080(b) engineered alternative to the Section 20420 prescriptive standards required for a mining unit under Sections 22500 and 20385(a)(1).

This MRP is issued pursuant to California Water Code Section 13267. Compliance with this MRP, and the August 1997 Standard Provisions and Reporting Requirements (SPRR), is ordered by Waste Discharge Requirements Order No. 98-153. Failure to comply with this Program, or with the SPRR, constitutes noncompliance with the WDRs and the Water Code, which can result in the imposition of civil monetary liability.
A. SUMMARY OF REPORTING & MONITORING FREQUENCIES

<table>
<thead>
<tr>
<th>Section</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring:</td>
<td></td>
</tr>
<tr>
<td>C. Detection Monitoring (visual only)</td>
<td></td>
</tr>
<tr>
<td>1. Leachate Seeps</td>
<td>Quarterly</td>
</tr>
<tr>
<td>2. Surface Water</td>
<td>Quarterly</td>
</tr>
<tr>
<td>D. Facility Monitoring</td>
<td></td>
</tr>
<tr>
<td>1. Standard Observations</td>
<td>Quarterly</td>
</tr>
<tr>
<td>2. Regular Maintenance Inspections</td>
<td>Quarterly</td>
</tr>
<tr>
<td>3. After Significant Storm Events</td>
<td>Within 7 Days After Event</td>
</tr>
<tr>
<td>4. Site Winterization</td>
<td>Annually</td>
</tr>
<tr>
<td>Reporting:</td>
<td></td>
</tr>
<tr>
<td>E. 1. Semiannual Report</td>
<td>Semiannually</td>
</tr>
<tr>
<td>2. Annual Monitoring Summary Report</td>
<td>Annually</td>
</tr>
</tbody>
</table>

B. WATER QUALITY PROTECTION STANDARD (Section 20390)

The Water Quality Protection Standard shall consist of all Constituents of Concern, Concentration Limits for each constituent of concern, Monitoring Points, Point of Compliance, and the Compliance Period.

1. Constituents of Concern (Section 20395 of Title 27)

   The constituents of concern (COCs) include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in, or derived from, waste contained in the Unit. The COCs for the facility are listed in Section C.1 herein.

2. Concentration Limits (Section 20400)

   In the event of a release from the unit, the discharger shall develop concentration limits for each affected media, as applicable. Surface water concentration limits shall be based on background monitoring of Hazel Creek immediately upstream of the closure unit, and, if statistically based, shall include historical monitoring data.

   Statistically Based Limits

   For COCs for which at least 10% of the data from background samples equal or exceed their respective MDL, the concentration limit shall be determined as follows:

   a. By either the Tolerance Interval or Prediction Interval statistical procedure applied to background data, and/or

   b. Using an alternative statistical method approved by the Executive Officer in accordance with Section 20415(e)(8)(E).

   Statistical concentration limits shall be updated as necessary to reflect current background conditions and shall take into account any seasonality in the data.
Non-statistically Based Limits
a. For COCs for which less than 10% of the data from background samples equal or exceed their respective MDL, the concentration limit shall be the PQL.

b. In lieu of statistically based limits, concentration limits for COCs in Hazel Creek may be based on upstream monitoring data obtained concurrently with (i.e., during the same sampling event as) down stream monitoring data.

3. Monitoring Points (Section 20405)
In the event of a release from the unit, the discharger shall propose monitoring points for each affected media, as applicable. Surface water monitoring points shall include locations in Hazel Creek immediately upstream and downstream of the closure unit.

4. Point of Compliance (Section 20405)
The point of compliance for groundwater shall be a vertical surface located at the hydraulically down gradient limit of the Unit that extends through the uppermost aquifer underlying the Unit. The point of compliance for surface water shall be the monitoring point in Hazel Creek immediately down gradient of the closure unit.

5. Compliance Period (Section 20410)
The compliance period for each unit shall be the number of years equal to the active life of the unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the unit. The compliance period shall begin anew each time the Discharger confirms a new release from the unit. Since the mine was last re-activated in 1984 and closed in 1999, the compliance period is 15 years (i.e., 14-year active life + 1 year closure period).

C. DETECTION MONITORING
1. Leachate Seeps
The Discharger shall visually monitor the closed mine unit (including toe area) for leachate seeps as part of standard observations. Any leachate seeps observed during these inspections or at any other time shall be sampled and analyzed for the COCs referenced in the following table.

<table>
<thead>
<tr>
<th>Field Parameters</th>
<th>USEPA Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>----</td>
</tr>
<tr>
<td>Specific conductance</td>
<td>----</td>
</tr>
<tr>
<td>Temperature</td>
<td>----</td>
</tr>
<tr>
<td>Turbidity</td>
<td>----</td>
</tr>
</tbody>
</table>

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS
### General Minerals

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Dissolved Solids (TDS)</td>
<td>2540C</td>
</tr>
<tr>
<td>Total Alkalinity</td>
<td>2320B</td>
</tr>
<tr>
<td>Total Hardness</td>
<td>2340B</td>
</tr>
<tr>
<td>Total Organic Carbon (TOC)</td>
<td>415.1</td>
</tr>
</tbody>
</table>

### Major Anions

<table>
<thead>
<tr>
<th>Anion</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicarbonate</td>
<td>2310B</td>
</tr>
<tr>
<td>Chloride</td>
<td>300 (anion scan)</td>
</tr>
<tr>
<td>Nitrate – Nitrogen</td>
<td>300 (anion scan)</td>
</tr>
<tr>
<td>Sulfate</td>
<td>300 (anion scan)</td>
</tr>
</tbody>
</table>

### Major Cations

<table>
<thead>
<tr>
<th>Cation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Magnesium</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Potassium</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Sodium</td>
<td>200.7/6010</td>
</tr>
</tbody>
</table>

### Dissolved Inorganics

1. Samples shall be filtered prior to performing dissolved inorganics analysis.

<table>
<thead>
<tr>
<th>Inorganic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aluminum</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Antimony</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Arsenic</td>
<td>200.9/200.8</td>
</tr>
<tr>
<td>Barium</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Beryllium</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Cadmium</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Chromium</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Hexavalent Chromium</td>
<td>7199/1636</td>
</tr>
<tr>
<td>Cobalt</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Copper</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Cyanide</td>
<td>335.4/9010</td>
</tr>
<tr>
<td>Iron</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Lead</td>
<td>200.9/200.8</td>
</tr>
<tr>
<td>Manganese</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Mercury</td>
<td>7470A</td>
</tr>
<tr>
<td>Molybdenum</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Nickel</td>
<td>200.9/200.8</td>
</tr>
<tr>
<td>Selenium</td>
<td>200.9/200.8</td>
</tr>
<tr>
<td>Silver</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Sulfide</td>
<td>9030</td>
</tr>
<tr>
<td>Sulfide</td>
<td>9030</td>
</tr>
<tr>
<td>Thallium</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Tin</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Vanadium</td>
<td>200.7/6010</td>
</tr>
<tr>
<td>Zinc</td>
<td>200.7/6010</td>
</tr>
</tbody>
</table>
2. **Surface Waters**  
   As part of standard observations, the Discharger shall visually monitor Hazel Creek and all onsite surface drains and wetlands for evidence of a release (e.g., leachate, turbidity).

In the event that physically significant evidence of a release from the unit is observed, the Discharger shall follow applicable **RESPONSE TO RELEASE provisions** of the SPRR, including notification of the release, sampling of all affected media (including Hazel Creek) for COCs, evaluation monitoring, and submission of a preliminary engineering feasibility study (EFS) report.

D. **FACILITY MONITORING**

1. **Standard Observations**  
   Standard Observations shall be performed **quarterly** during both the wet season (October 1 to April 30) and dry season (May 1 to September 30) and shall include those elements identified in Definition 24 of the Standard Provisions. Documentation of Standard Observations shall include field logs, and relevant photographs, which may be kept in electronic form rather than hard copy.

2. **Regular Maintenance Inspections**  
   Landfill facilities shall be inspected **quarterly** to identify the need for maintenance and repairs. Necessary repairs shall be completed within 30 days of each inspection. Field logs of these inspections and documentation of the repairs shall be included in each semiannual monitoring report.

3. **After Storm Events**  
   Within seven days following each significant storm event (i.e. one which produces 2.0 inches or more of precipitation within a 24-hour period, as measured at the Sly Park Station), the Discharger shall inspect the landfill cover and precipitation and drainage facilities for damage. Areas of erosion or sedimentation observed during the inspection(s) shall be flagged and repaired within seven days of identification. If repairs cannot be completed within the seven-day time frame, the Discharger shall notify the Regional Board of such and provide a schedule for completing necessary repairs. Findings and repairs implemented as a result of these inspections shall be included in each semiannual monitoring report. If no inspection was conducted because there was no significant storm event during the semiannual period, the report shall state such fact.

4. **Site Winterization**  
   Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility for the purpose of winterizing the site. The inspection shall identify any damage to the closure unit cover, grade, precipitation and drainage controls, access roads and other closure unit facilities. Any necessary construction, maintenance, or repairs to these facilities shall be completed by **31 October**. The Discharger shall document the
results of the winterization inspection and any repair measures implemented in the Annual Monitoring Summary Report (see Section E.2.b).

Documentation of the results of the above inspections and any repairs implemented shall include field observations, the location of any damage observed (i.e. on a site map), photographs of the damage, and a description of any repairs implemented, including post-repair photographs.

E. REPORTING

1. Semiannual Reports

The Discharger shall report monitoring data and information as required in this Monitoring and Reporting Program and as required under Order No. 98-153 and the August 1997 Standard Provisions and Reporting Requirements (SPRR). Reports shall be submitted semiannually by 31 January and 31 July of each year. Each semiannual monitoring report shall include the following information:

   a. A compliance evaluation summary for the monitoring period, including all applicable information specified in Requirement 2, *Reports to be Filed with the Board, REPORTING REQUIREMENTS, SPRR*;
   
   b. All other required facility monitoring information, including:

      i. The results of monitoring for physical evidence of a release, as specified in Section C herein and in accordance with Requirement 2, *Reports to be Filed with the Board, REPORTING REQUIREMENTS, SPRR*. This information shall include the discharger’s immediate response to any detected seeps, laboratory results of any samples taken, and corrective action measures in progress or planned;

      ii. Documentation and certification of completion of all standard observations, including all field logs and photographs, as specified in Section D.1 herein;

      iii. The results of regular maintenance inspections, as specified in Section D.2 herein; and

      iv. The results of inspections conducted following significant storm events, as specified in Section D.3 herein.

   c. An electronic copy of the report, including transmittal letter, and items referenced in E.1.a and E.1.b above, submitted in PDF format on 3.5-inch floppy disk or compact disk (CD).

2. Annual Monitoring Summary Report

An Annual Monitoring Summary Report (Annual Report) shall also be prepared and submitted by 31 January of each year. The Annual Report shall summarize monitoring results for the prior year and include a discussion of compliance with the WDRs and the Water Quality Protection Standard. At a minimum, the Annual Report shall include the following information:
a. A comprehensive discussion of the compliance record and all other applicable information specified in Requirement 4, *Reports to be Filed with the Board, REPORTING REQUIREMENTS, SPRR*; and

b. The results of winterization inspections and a description of construction, maintenance, and repairs implemented during the year to winterize the site, as specified in Section D.4 herein.

c. A summary of the results of leachate and facility monitoring conducted during the year and as reported in the semiannual reports.

d. An electronic copy of the report, including items referenced in E.2.a through E.2.c above, submitted on electronic disk as described in Section E.1.c.

The Annual Report, including electronic copy, may be included in the Second Semiannual Report submitted by 31 January each year under Section E.1.

Reports that do not comply with the above-required format will be REJECTED and the Discharger shall be deemed to be in noncompliance with the waste discharge requirements.

The semiannual and annual reports shall be submitted to the Board in accordance with the following schedule for the calendar period in which samples were taken or observations made:

<table>
<thead>
<tr>
<th>Report</th>
<th>End of Reporting Period</th>
<th>Date Report Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semiannual</td>
<td>30 June</td>
<td>31 July</td>
</tr>
<tr>
<td>Second Semiannual</td>
<td>31 December</td>
<td>31 January</td>
</tr>
<tr>
<td>Annual Report</td>
<td>31 December</td>
<td>31 January</td>
</tr>
</tbody>
</table>

The transmittal letter accompanying monitoring reports submitted under this Order shall, as required under the Standard Provisions (*Provision 5, General Requirements, REPORTING REQUIREMENTS*), contain a statement by the discharger, or the discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate and complete.

The Discharger shall implement the above monitoring program on the effective date of this Program.

Ordered by: ___________________ original signed by ___________________

PAMELA C. CREEDON, Executive Officer

11 September 2007

(Date)

JDM:9/11/07
January 9, 2018

Mr. John Moody, P.E.
Water Control Engineer
California Regional Water Quality Control Board

Subject: Sierra Pacific Industries
Hazel Creek Mine Site
El Dorado County, California
Monitoring and Reporting Program 98-153
Annual Monitoring Report for 2017

Dear Mr. Moody,

Attached you will find the semi-annual monitoring report for the second half of 2017. Also attached is the Annual Monitoring Report for 2017. I look forward to our future communications regarding this site.

Sincerely,

Michael McKeand
Sierra Pacific Industries Representative
Appointed Discharger for HCM
(530) 644-2311 Ex 207 Cell (530) 391-9316
Table of Contents

Certification Letter..............................................................1
Monitoring Reports..............................................................2
Third Quarter Site Inspection...............................................4
Winterization Activity Report..............................................8
Fourth Quarter Site Inspection...........................................11
2" Rain Event Inspection...................................................15
Compliance Evaluation Summary.......................................19
Annual Compliance Summary...........................................20
January 9, 2018

Mr. John Moody, P.E.
Water Control Engineer
California Regional Water Quality Control Board

Subject: Sierra Pacific Industries
    Hazel Creek Mine Site
    El Dorado County, California
    Monitoring and Reporting Program 98-153
    Annual Monitoring Report for 2017

Dear Mr. Moody,

Sierra Pacific Industries, Inc. has enclosed the semi-annual monitoring for the subject site. Also attached is the Annual Monitoring Report for 2017. The information has been collected by site visit inspections and site improvement visits. The information is then compiled and documented for your viewing. Any questions or concerns you may contact me at my office or my mobile number, which I will provide.

"I certify under penalty of law that I have personally examined, or am familiar with the information submitted in the document and all attachments. Based on my inquiry of the individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Sincerely,

Michael McKeand
Sierra Pacific Industries Representative
Appointed Discharger for HCM
(530) 644-2311 Ex 207 cell (530) 391-9316
Hazel Creek Mine Site  
El Dorado County, California  
Monitoring and Reporting Program 98-153  
2017 Semi-Annual Monitoring Report

On August 13, 2017 site visited for visual monitoring required by quarterly inspection.

1. Roads were dry and hard packed, site is accessible.
2. No leachate observed.
3. Surface water clear with light flow.
4. No sign of run-off to EID water flow bed to the north of the site.
5. No visible signs of run-off to Hazel Creek from south side of site.
6. No sign of notable erosion anywhere on the cap cover deck and side slopes.
7. Some maintenance points to be addressed for winterization.

The site is in good condition with some points of improvement to the site needed for winterization. The site will need twenty to twenty-five straw bales to be spread on the mine cap due to areas of exposed bare ground. The gopher activity has increased showing new mounds. The majority of the activity is centered near the mine cap toe area. The cap will also need any small seedling trees to be removed along with some brush reduction. Additionally, the bench drains to the south and west will be cleared of debris to allow for undisrupted flow. The site remains closed off by barbwire to the east and north. It is further closed off to the public by a thick tree stand to the west, and Hazel Creek to the south.

On October 30, 2017 site visited for visual monitoring required by quarterly inspection.

1. Roads were wet but drivable.
2. No leachate observed.
3. Surface water clear
4. No sign of run-off to EID water flow bed to the north of site.
5. No visible signs of run-off to Hazel Creek to the south of site.
6. No sign of notable erosion anywhere on the cap cover deck and side slopes.

The site is in good condition with the winterization project completed. All work points were addressed during the project and the site looks ready for winter. Hazel Creek is running clear and running at its normal seasonal flow. The stilling basin to the north has no water flow at this point. The road on the north edge is in good shape. I dug out the lead out just below the WMU to accommodate the seasonal run-off. All other observations were normal and in compliance.
On November 22, 2017 site visited for visual monitoring required by a 4.60 inch rain event 11-16-17.

1. Roads were wet but drivable.
2. No leachate observed.
3. Surface water was clear.
4. No sign of run-off to EID water flow bed to the north of the site.
5. No sign of run-off into Hazel Creek to the south.
6. No sign of erosion anywhere on the cap cover deck and side slopes.

The site is in good condition with no points of improvement as they were already addressed prior to inspection. The WMU is in great shape with no notable erosion or rilling on the unit. Hazel Creek to the south has a good seasonal flow. The EID stilling basin has some standing water in it from the recent rains with no run-off from the WMU present. Site maintenance issues addressed include; straw bales spread over mine cap bare dirt areas, small sapling trees cut, bench drains to south and west cleared of debris, and all fencing was mended in accordance with winterization procedures. The rocked road to the north is in great shape with no maintenance conducted. The water bars above and below the mine site are in good working order. All site maintenance issues identified in the previous quarter visit have been addressed. Pictures were taken and added to the report.
Hazel Creek Mine Site  
Sierra Pacific Industries  
Revised Monitoring and Reporting Program  
Order No. 98-153 Facility Monitoring  
Standard Observations: Surface Water

**Quarter: 1 2 3 4**

**Weather Conditions:** clear, dry, and moderate temperature

<table>
<thead>
<tr>
<th>Observation Site: S1</th>
<th>Observation Date: 081317</th>
<th>Observation Time: 1130hrs</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Parameters</th>
<th>None</th>
<th>Moderate</th>
<th>Obvious</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floating/Suspended Materials</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discoloration/Turbidity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td></td>
<td></td>
<td></td>
<td>3CFM</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td></td>
<td></td>
<td></td>
<td>None observed</td>
</tr>
</tbody>
</table>

**Comments:**

<table>
<thead>
<tr>
<th>Observation Site: S2</th>
<th>Observation Date: 081317</th>
<th>Observation Time: 1200hrs</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Parameters</th>
<th>None</th>
<th>Moderate</th>
<th>Obvious</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floating/Suspended Materials</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discoloration/Turbidity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td></td>
<td></td>
<td></td>
<td>0CFM</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td></td>
<td></td>
<td></td>
<td>None Noted</td>
</tr>
</tbody>
</table>

**Comments:**

<table>
<thead>
<tr>
<th>Observation Site: S3</th>
<th>Observation Date: 081317</th>
<th>Observation Time: 1215hrs</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Parameters</th>
<th>None</th>
<th>Moderate</th>
<th>Obvious</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floating/Suspended Materials</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discoloration/Turbidity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td></td>
<td></td>
<td></td>
<td>3CFM</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hazel Creek Mine Site
Sierra Pacific Industries
Revised Monitoring and Reporting Program
Order No. 98-153 Facility Monitoring
WMU Regular Maintenance Inspection

Quarter: 1 2 3 4

Weather Conditions: Clear, dry, moderate conditions

Inspection Date: 08/13/17
Inspection Time: 11:00 hrs

<table>
<thead>
<tr>
<th>WMU Perimeter</th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of Seepage</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Odor</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Erosion</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Exposed Waste</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WMU</th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of Seepage</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Odor</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Erosion</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Exposed Waste</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

"I certify under penalty of law that I have performed the above documented inspection and that the information submitted in this document and all attachments is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Inspection Performed by: [Signature]

Date: 08-13-17
Mine cap toe looking south.

South flank of mine cap.

North flank of mine cap.

Northwest portion of mine cap toe.
Southwest portion of mine cap toe.

S1 observation point.
Hazel Creek Mine Activity Report

October 16, 19, and 23rd 2017

On 10-16 and 10-23-2017, Forester Derek Weatherbee and I conducted maintenance on the Hazel Creek Mine site for the purposes of winterizing the site. All conifer trees on the cap were cut down in accordance with the MRP. The deer brush was cut back to limit growth which will allow other grasses and forbes to become more established on the site. The bench drains were cleared to allow for better control of any moving sediment from the mine cap. Twenty-eight bales of straw were spread on the site covering all bare dirt exposed during the year. This exposed dirt occurs due to animal, rodent and insect activity at the site.

On 10-19-2017, I conducted improvements to the perimeter fence. I also cut back the blackberry that has started to encroach on the bench drain. Over the summer of 2018, I will spray chemical to reduce this intrusion on the proper workings of the bench drain. Grass seed of Forest Mix was also spread to encourage growth of mixed grasses and help with any sediment movement.

I returned to the site on October 30, 2017. I took pictures of the completed work and conducted a quarterly inspection.

The Hazel Creek Mine site has been properly winterized in accordance with MRP 98-153.

Respectfully,

Michael McKeand
Sierra Pacific Industries Representative
Appointed Discharger for HCM
Bench drain on the south flank.

Fresh straw on the mine cap toe.

Bench drain on the south flank.

South flank with straw spread on bare dirt.
Northwest section of the mine cap toe.

North flank of the mine cap.
Hazel Creek Mine Site
Sierra Pacific Industries
Revised Monitoring and Reporting Program
Order No. 98-153 Facility Monitoring
Standard Observations: Surface Water

**Quarter:** _1 2 3 4_

**Weather Conditions:** cloudy, cool, and dry

**Observation Site:** S1
Observation Date: 103017
Observation Time: 1100hrs

<table>
<thead>
<tr>
<th>Parameters</th>
<th>None</th>
<th>Moderate</th>
<th>Obvious</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floating/Suspended Materials</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discoloration/Turbidity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td></td>
<td></td>
<td></td>
<td>3CFM</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td></td>
<td></td>
<td></td>
<td>None observed</td>
</tr>
</tbody>
</table>

**Comments:**

---

**Observation Site:** S2
Observation Date: 103017
Observation Time: 1130hrs

<table>
<thead>
<tr>
<th>Parameters</th>
<th>None</th>
<th>Moderate</th>
<th>Obvious</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floating/Suspended Materials</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discoloration/Turbidity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td></td>
<td></td>
<td></td>
<td>0CFM</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td></td>
<td></td>
<td></td>
<td>None Noted</td>
</tr>
</tbody>
</table>

**Comments:**

---

**Observation Site:** S3
Observation Date: 103017
Observation Time: 1145hrs

<table>
<thead>
<tr>
<th>Parameters</th>
<th>None</th>
<th>Moderate</th>
<th>Obvious</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floating/Suspended Materials</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discoloration/Turbidity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td></td>
<td></td>
<td></td>
<td>4CFM</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hazel Creek Mine Site
Sierra Pacific Industries
Revised Monitoring and Reporting Program
Order No. 98-153 Facility Monitoring
WMU Regular Maintenance Inspection

Quarter: 1 2 3 4

Weather Conditions: Cloudy, cool, and dry

Inspection Date: 103017
Inspection Time: 1115hrs

**WMU Perimeter**

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of Seepage</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Odor</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Erosion</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Exposed Waste</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**WMU**

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of Seepage</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Odor</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Erosion</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence of Exposed Waste</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

“I certify under penalty of law that I have performed the above documented inspection and that the information submitted in this document and all attachments is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.”

Inspection Performed by: **MKE MCKEAN**
Print

Sign

Date 10-30-17
South flank of mine cap.

North flank of mine cap.

Mine cap toe looking southwest.

Mine cap toe looking west.
S2 observation point.
Hazel Creek Mine Site
Sierra Pacific Industries
Revised Monitoring and Reporting Program
Order No. 98-153 Facility Monitoring
Standard Observations: Surface Water

**Quarter: 1 2 3 4**

**Weather Conditions:** cloudy, cool, and dry

**Observation Site:** S1
**Observation Date:** 112217
**Observation Time:** 1230hrs

<table>
<thead>
<tr>
<th>Parameters</th>
<th>None</th>
<th>Moderate</th>
<th>Obvious</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floating/Suspended Materials</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discoloration/Turbidity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td></td>
<td></td>
<td></td>
<td>4CFM</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td></td>
<td></td>
<td></td>
<td>None observed</td>
</tr>
</tbody>
</table>

**Comments:**

**Observation Site:** S2
**Observation Date:** 112217
**Observation Time:** 1400hrs

<table>
<thead>
<tr>
<th>Parameters</th>
<th>None</th>
<th>Moderate</th>
<th>Obvious</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floating/Suspended Materials</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discoloration/Turbidity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td></td>
<td></td>
<td></td>
<td>0CFM</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td></td>
<td></td>
<td></td>
<td>None Noted</td>
</tr>
</tbody>
</table>

**Comments:**

**Observation Site:** S3
**Observation Date:** 112217
**Observation Time:** 1415hrs

<table>
<thead>
<tr>
<th>Parameters</th>
<th>None</th>
<th>Moderate</th>
<th>Obvious</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floating/Suspended Materials</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discoloration/Turbidity</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow Rate</td>
<td></td>
<td></td>
<td></td>
<td>4CFM</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hazel Creek Mine Site
Sierra Pacific Industries
Revised Monitoring and Reporting Program
Order No. 98-153 Facility Monitoring
WMU Regular Maintenance Inspection

Quarter: 1 2 3 4

Weather Conditions: Cloudy, cool, and dry

Inspection Date: 11/22/17
Inspection Time: 1300hrs

**WMU Perimeter**

<table>
<thead>
<tr>
<th>Evidence of Seepage</th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evidence of Odor</th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evidence of Erosion</th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evidence of Exposed Waste</th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**WMU**

<table>
<thead>
<tr>
<th>Evidence of Seepage</th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evidence of Odor</th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evidence of Erosion</th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Evidence of Exposed Waste</th>
<th>None</th>
<th>Other</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

"I certify under penalty of law that I have performed the above documented inspection and that the information submitted in this document and all attachments is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Inspection Performed by: M. McKean
Print

Sign

Date 11-22-17
Mine cap toe looking northwest.

Top of mine cap.

North flank of mine cap.

South flank of mine cap.
Southern portion of mine toe with bench drain.

S2 monitoring point.
Site Summary July thru December

2017

The site is in great condition with good signs of progress and continual improvement. The rain season has started off with below average rainfall which has had little effect on the WMU. The soils have absorbed the rainfall well showing no sign of excess run off creating the movement of sediment. No water channeling on the mine flanks was noted. The road on the north side of the mine has been rocked. This has help to stabilize the road base and prevent any sediment from reaching the adjacent EID stilling basin to the north. The overall condition of the mine cap is excellent with no notable changes to the structure.

I have addressed the following maintenance items to prepare the site for winter. Myself and forester Derek Weatherbee removed all conifer sprouts on the site. We also cut back the deer brush and cleaned the bench drains on the south and west flanks of the mine cap. Straw was spread on the site covering all bare dirt to assist in any erosion issues. The straw used for the site was 28 bales. The fencing around the site was mended in an effort to keep out unwanted activity. The road on the north side adjacent to the mine cap is in great shape with no drainage issues addressed.

While conducting site visits I noticed several deer beds and scat at the top of the cap. Several game trails were also present on the WMU. These trails and other bare ground was covered during the winterization of the mine cap. The fencing around the site is in good order after recent mending was conducted.

All supporting documentation has been attached for your review. I believe the Hazel Creek Mine Site is in compliance with the Waste Discharge Requirements #98-153.

Regards,

[Signature]

Michael McKeand
Sierra Pacific Industries Representative
Appointed Discharger for HCM
Annual Compliance Summary of Site Progress and Condition

2017

The site is in good condition with relatively little maintenance required in 2017. The maintenance issues were addressed in the fall for winterization. Winterization of the site was completed in October. Myself and another forester, Derek Weatherbee, completed the following maintenance items. All conifer saplings were cut at their base to prevent re-sprouting. In addition, I cut back most of the larger brush on the site. The bench drains on the south and west sides were also cleared of growing vegetation and debris. We spread straw bales covering all bare dirt areas and lightly covered areas. This will assist in erosion control efforts on the cap. The road on the north side of the WMU is in great shape with no maintenance needed. The mine cap had an increase in gopher activity this year. I will schedule baiting to occur next spring/summer when activity picks up and the tunneling is fresh. After all work was completed, I conducted a site inspection and determined the site was in compliance.

The forbs and various grasses such as orchard grass, purple lotus, tarweed, and rose clover were present. These grasses and forbs assist in erosion control especially in the spring and fall months when erosion can do its most damage. This has reduced the need for additional types of erosion control methods to be placed at the site. Because of this the site looks more natural and blends well with the surrounding forest. There is evidence of deer visiting the site and bedding near the top of the cap. These areas were treated with straw in an effort to control the movement of soil.
During the year several site visits were conducted and observations were recorded. These inspections noted no leachate observed. The surface water of Hazel Creek was clear with no sign of mining residue or mine cap run off. There is no sign of any run-off into the EID stilling basin to the north or Hazel Creek to the south. The straw added to the site in recent years has proven to be an adequate cover allowing for no water channeling to occur anywhere on the site. If the effectiveness of the straw is limited then further measures will be taken to eliminate the movement of sediment off the cap.

From the above statement and the reporting throughout the year, I believe Sierra Pacific Industries has met and exceeded the written requirements in document 98-153.

"I certify under penalty of law that I have personally examined, or am familiar with the information submitted in the document and all attachments. Based on my inquiry of the individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Regards,

Michael McKeand
Sierra Pacific Industries Representative
Appointed Discharger for HCM