other monitoring report by same people
used Nad83

Monitoring Locations

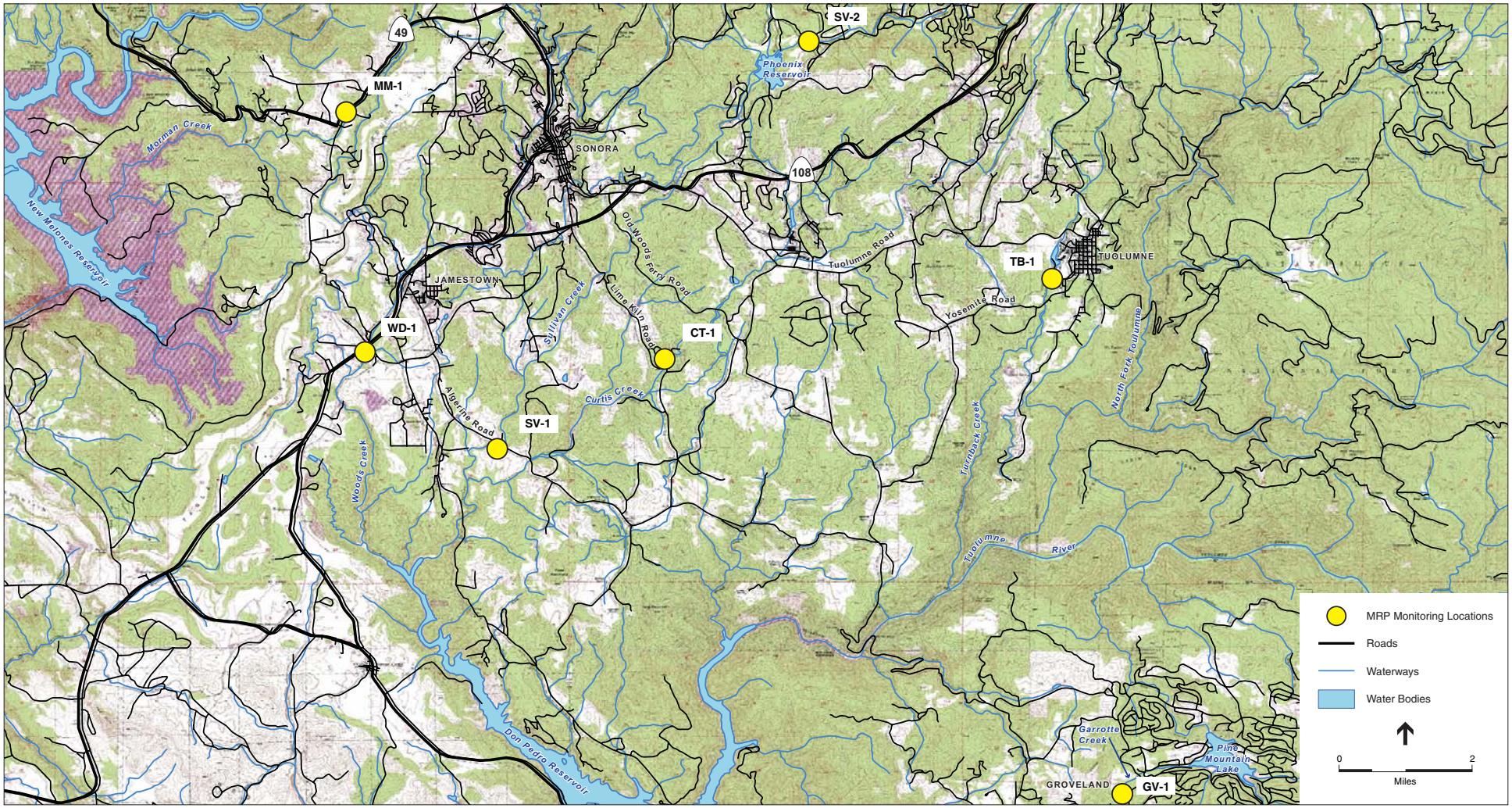
The locations of the seven monitoring sites were chosen to characterize the quality of surface water draining from existing urban and rural centers and areas currently experiencing increased growth pressures (e.g., construction). In addition, the identified waterways may or may not receive runoff from other uses such grazing, small vineyards, rural roadways, and private timber operations. In this context, the selection of the seven sites is primarily based on localized hydrology within each of the selected hydrologic areas and land use considerations upstream of the selected monitoring points based on field investigation, aerial photograph interpretation, and review of the County General Plan Land Use Map. Land use considerations were particularly important in developing the MRP to account for factors that could influence surface water quality within each hydrologic area. In addition, the selection process favored those locations where access is readily available, such as where a public road crosses or intersects the waterbody.

The two phases of the MRP initially utilize a mass (or cumulative) loading approach to determine surface water quality at the seven monitoring locations. This approach is designed to monitor large drainage areas with mixed land use characteristics. ESA, in conjunction with the Tuolumne County Water Quality Committee and consultation with the CVRWQCB, selected the mass loading monitoring site locations. The primary site selection factors included:

- Suitability of the site drainage area to monitor area-wide contributions of storm water pollutant loading;
- Suitability of the site's hydrological characteristics to enable practical measurement of flow and collection of representative storm water samples;
- Safety from traffic and other hazards;
- Potential for development under County jurisdiction within the HA (hence corresponding potential to implement BMPs and increased likelihood of for water quality benefits); and
- Access for retrieving samples and maintaining equipment during storm conditions.

The mass loading sites were selected to directly measure pollutant loads being discharged into water supply sources, namely New Melones and Don Pedro Reservoirs, within the five hydrologic areas under consideration. Monitoring sites are included where flow from up-gradient catchments pass through a single hydrologically ratable point, suitable for measurement and sampling. In most instances, these sites were located upstream of the drainage area discharge point for accessibility and/or to avoid reservoir water level influences.

Six of the monitoring locations are located within the Upper Tuolumne River Watershed; with the fifth located in the Upper Stanislaus River. These surface water features receive a majority of the runoff generated from urban and rural centers within the County's jurisdiction. The monitoring locations along each reach were chosen to provide an indication of cumulative runoff within each sub-watershed unit. These monitoring locations are shown in **Figure 1** and in photographs contained in **Appendix A**.



SOURCE: Tuolumne County, 2004; and ESA, 2005

Tuolumne County WQP Project . 204254

Figure 1

Surface Water Monitoring Locations

Monitoring points within the Tuolumne River Watershed will be limited to specific reaches of Sullivan Creek, Woods Creek, Curtis Creek, Turnback Creek, and Garrotte Creek. These creeks drain directly into Don Pedro Reservoir, with the exception of Garrote Creek, which drains into Big Creek, via Pine Mountain Lake, and then onto the mainstem of the Tuolumne River. Two monitoring locations are proposed along Sullivan Creek with one situated just above Phoenix Lake and the second situated just above the confluence of Curtis Creek on Algerine Road. Monitoring along Garrotte Creek will occur downstream of the town of Groveland. Woods Creek will be monitored downstream of Jamestown. Monitoring along Turnback Creek will occur below Tuolumne City. Photographs and descriptions of the monitoring locations are provided in **Table 1** and **Appendix A**.

TABLE 1 - SAMPLING LOCATIONS

Sample Site Designation (A)	Sample Site Location (Latitude/ Longitude)	Land Uses Assessed	Other Site Information
TB-1	-120 deg 15' 0.0" 37 deg 57' 0.0 "	Rural, Estate, and Low-Density Residential; General Commercial; Timber Production; Light Industrial	The TB-1 monitoring location is accessed by parking near the end of Box Factory Road at the Turnback Creek Bridge. The creek can be accessed at the upstream side of the bridge using caution while descending the bank..
SV-1	-120 deg 24' 0.0" 37 deg 55' 12.0"	Rural, Estate and High and Low-Density Residential; General and Heavy Commercial; Grazing; Heavy and Light Industrial; Business Park	This monitoring location is accessed by parking on the shoulder of Algerine Road at either end of the bridge over Sullivan Creek and proceeding to the downstream side on either end of the bridge. Use caution descending the stream bank below Algerine Road. If necessary, tie a piece of static rope or webbing of sufficient length to the bridge to aid in carrying equipment and supplies down-slope. Use a square knot to avoid knot failure.
SV-2	-120 deg 19' 12.0" 38 deg 0' 36.0"	Rural, Estate and High and Low-Density Residential; General Commercial; Grazing; Timber Production	The SV-2 monitoring location is located just east of Phoenix Lake on Potato Ranch Road. SV-2 can be accessed by parking on the shoulder of Potato Ranch Road, approximately 200 feet north of the bridge. Use caution descending the stream bank above Potato Ranch Road.
MM-1	-120 deg 26' 24.0" 37 deg 59' 24.0"	Rural, Estate and High and Low-Density Residential; General and Heavy Commercial; Light Industrial ; Airport (Mixed Use)	This monitoring location will be accessed by taking State Route 49 north towards New Melones Reservoir. Take a left onto Mormon Creek Road. Proceed to the first bridge and park on the shoulder. Sampling will take place upstream of the bridge along Mormon Creek. This location is readily assessable; however, use caution when descending down to the creek channel.
GV-1	-120 deg 13' 12.0" 37 deg 51' 0.0"	Rural, Estate and High and Low-Density Residential; General and Heavy Commercial; Mixed Use	GV-1 can be accessed by taking State Route 120 east past the town of Groveland. Just past the Groveland Wayside Park, proceed to the left on Ferretti Road. Proceed on Ferretti Road for about 1 mile before, taking a left at the Groveland CSD access road. The access road crosses Garrotte Creek, via a two-lane bridge. Park at either end of the bridge and proceed to the upstream side at either end of the bridge.
WD-1	-120 deg 25' 48.0" 37 deg 56' 24.0"	Rural, Estate and High and Low-Density Residential; General and Heavy Commercial; Grazing; Light Industrial;	The WD-1 monitoring location is accessed just south of Sonora Pass Road (Highway 108). At the intersection of Bell Money Road, proceed to the south approximately 700 feet to the Woods Creek Bridge and park on either side of the bridge. Sampling will take

TABLE 1 - SAMPLING LOCATIONS

Sample Site Designation (A)	Sample Site Location (Latitude/ Longitude)	Land Uses Assessed	Other Site Information
		Business Park	place upstream of the bridge along Woods Creek. This location is readily assessable; however, use caution when descending down to the creek channel.
CT-1	-120 deg 20' 24.0" 37 deg 57' 0.0"	Rural, Estate and High and Low-Density Residential; General and Heavy Commercial; Grazing; Heavy and Light Industrial; Business Park	The CT-1 monitoring location will be accessed from Lime Kiln Road. This location is approximately 1.0 miles south-southeast of Sonora. Sampling at this monitoring location will occur up-stream of the bridge. This location is readily assessable; however, use caution when descending down to the creek channel.

(A) - Ambient Surface Water Sampling Sites – Water samples will be collected and analyzed for constituents list in Table 1.

Monitoring within the Stanislaus River Watershed will be limited to the Copperopolis HA with monitoring focused on the lower reach of Mormon Creek. As illustrated in Figure 1, the monitoring location is situated just upstream of New Melones Reservoir and below the Town of Columbia. Photographs and descriptions of the monitoring locations are provided in **Table 1** and **Appendix A**.

Sampling Constitutes

After determining the locations to be sampled, it is necessary to define the constituents that are potentially present in the water column, especially those that could occur at sufficient concentrations to impair the beneficial uses. In this context, the MRP includes monitoring for a wide range of parameters that could be present in local creeks, based on those land uses present upstream within each hydrologic area, to characterize baseline mass loading conditions.

Table 2 lists water quality parameters important to the applied beneficial uses that may be affected by the variety of the land uses present with the each hydrologic unit. Chemical constituents to be analyzed at each monitoring location are summarized in **Table 2**. Sample containers, preservatives, laboratory methods, and detection limits for each constituent are provided in **Appendix B**. This list may be modified to add and/or remove constituents as data is collected.

The constituents included in the MRP for sampling analysis were selected due to their association with land uses encountered in the hydrologic study areas and importance in assessing the monitored waterbody's potential affect on downstream beneficial uses. Below is brief description of why each of the sampling constituents is included:

Flow. Creeks flows will be recorded with a field meter to provide a correlation between creek velocity and concentrations of other water quality constituents (e.g. turbidity).

pH. Water dissolves mineral substances it contacts, picks up aerosols and dust from the air, receives man-made wastes, and supports photosynthetic organisms, all of which affect pH. The buffering capacity of water, or its ability to resist pH change, is critical to aquatic life,