# Appendix 2-B Water Quality Assessment

## Regulatory Background

*Federal and State Regulations*

The overarching federal law concerning groundwater quality is the Clean Water Act, passed in 1972, and applicable to surface waters and wetlands. In contrast, the federal Safe Drinking Water Act (SDWA) applies to both surface and groundwater, providing protection to drinking water supplies. Under the SDWA, federal standards were established through the United States Environmental Protection Agency (USEPA), in the form of maximum concentration levels (MCLs). Secondary maximum contaminant levels (SMCLs) have also been established at the federal level; these address esthetics of drinking water sources and are not enforceable. The state of California has its own Safe Drinking Water Act that includes MCLs and SMCLs which are, for select constituents, stricter than those set at the federal level. The California MCLs and SMCLs are codified in Title 22 of the California Code of Regulations (CCR). The standards established under the federal and state Safe Drinking Water Acts are enforced through the State Water Resource Control Board's (SWRCB's) Division of Drinking Water (DDW).

The California Porter-Cologne Water Quality Act, contained in California Water Code Division 7, applies to groundwater and surface waters, designating responsibility for water quality and safe drinking water to the SWRCB and the nine Regional Water Quality Control Boards (RWQCB) in California. The Act requires RWQCBs to develop water quality control plans for the region with defined water quality objectives. These water quality objectives, defined for specific hydrologic regions, protect the quality of surface waters, groundwaters, and associated beneficial uses. The water quality control plan must be approved by both the SWRCB and the USEPA. The Scott Valley Basin is in the North Coast Region and is regulated under the North Coast Regional Water Quality Control Board (Regional Water Board), with water quality objectives detailed in the Water Quality Control Plan for the North Coast Region (Basin Plan)[1] .

The SWRCB's Policy for Water Quality Control For Recycled Water (Recycled Water Policy)[2] , most recently amended in 2018, includes additional requirements to address salt and nutrients. Under this policy, Regional Water Boards are required to assess basins or subbasins within the region where water quality is threatened by salt and nutrients, and where management is required. In basins or subbasins where salt and nutrients are identified as a threat, a salt and nutrient management plan (SNMP) or equivalent management plan is required; this plan can address other constituents in addition to salt and nutrients.

*Water Quality Control Plan for the North Coast Region*

The Water Quality Control Plan for the North Coast Region (Basin Plan) is a regulatory tool used by the North Coast Regional Water Quality Control Board (Regional Water Board) to protect water quality within the North Coast Region. The Basin Plan is adopted by the NCRWQCB and approved by the State Water Resources Control Board; the water quality standards are approved by the United States Environmental Protection Agency (USEPA). Within the Basin Plan, beneficial uses of water, water quality objectives, including an antidegradation policy and plans for implementing protections are included. Table 2-1 of the Basin Plan designates all groundwaters with the beneficial uses of: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Service Supply (IND), and Native American Culture (CUL) with potential beneficial of Industrial Process Supply (PRO) and Aquaculture (AQUA) (California North Coast Regional Water Quality Control Board 2018). For chemical constituents

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[1] North Coast Regional Water Quality Control Board. 2018. "Water Quality Control Plan for the North Coast Region". Available: https://www.waterboards.ca.gov/northcoast/water_issues/programs/basin_plan/}

[2] SWRCB Resolution No. 2018-0057 and "Amendment to the Policy for Water Quality Control For Recycled Water". Available:
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/121118_7_final_amendment_oal.pdf

in waters with MUN beneficial uses, the Basin Plan specifies that no waters are to exceed the maximum contaminant levels (MCL) in Title 22 of the California Code of Regulations (CCR). The Basin Plan also includes numeric water quality constituents, specifically for groundwaters in the Scott Valley hydrologic area. A complete list of constituents, comparison concentrations and sources are listed in Table 2.

Table 2: Comparison concentrations and data sources for constituents used in the water quality assessment

| Full Name | MCL | Units | Source |
|---|---|---|---|
| 2,4-Dichlorophenoxyacetic acid (2,4 D) | 70 | ug/L | Title 22 - Table 64444-A |
| Acetone | 6300 | ug/L | RfD |
| Silver | 100 | ug/L | Title 22 - Table 64449-A |
| Aluminum | 200 | ug/L | Title 22 - Table 64449-A |
| Alachlor | 2 | ug/L | Title 22 - Table 64444-A |
| Aldicarb | 7 | ug/L | HBSL |
| Aldicarb Sulfone | 7 | ug/L | HBSL |
| Aldicarb sulfoxide | 7 | ug/L | HBSL |
| Gross Alpha radioactivity | 15 | pCi/L | Title 22 - Table 64442 |
| Arsenic | 10 | ug/L | Title 22 - Table 64431-A |
| Asbestos | 7 | MFL | Title 22 - Table 64431-A |
| Atrazine | 1 | ug/L | Title 22 - Table 64444-A |
| Azinphos Ethyl | 10 | ug/L | HBSL |
| Guthion (Azinphos Methyl) | 10 | ug/L | HBSL |
| Boron | 0.1 (50% and 90% UL), | mg/L | Basin Plan - Table 3-1 |
| Barium | 1 | mg/L | Title 22 - Table 64431-A |
| Bromodichloromethane (THM) | 80 | ug/L | MCL |
| Beryllium | 4 | ug/L | Title 22 - Table 64431-A |
| Bensulfuron Methyl | 1000 | ug/L | HBSL |
| Gross beta | 50 | pCi/L | MCL-US |
| Alpha-Benzene Hexachloride (Alpha-BHC) | 0.15 | ug/L | CA-Prop65 |
| Beta-Benzene Hexachloride (Beta-BHC) | 0.25 | ug/L | CA-Prop65 |
| Lindane (Gamma-BHC) | 0.2 | ug/L | Title 22 - Table 64444-A |
| Di(2-ethylhexyl)phthalate (DEHP) | 4 | ug/L | Title 22 - Table 64444-A |
| Methyl Bromide (Bromomethane) | 10 | ug/L | US-HAL |
| Bromate | 10 | ug/L | MCL-US |
| Bromacil | 70 | ug/L | US-HAL |
| n-Butylbenzene | 260 | ug/L | NL |
| sec-Butylbenzene | 260 | ug/L | NL |
| tert-Butylbenzene | 260 | ug/L | NL |
| Bentazon | 18 | ug/L | Title 22 - Table 64444-A |
| Benzene | 1 | ug/L | Title 22 - Table 64444-A |
| Benzo(a)pyrene | 0.2 | ug/L | Title 22 - Table 64444-A |
| Toluene | 150 | ug/L | Title 22 - Table 64444-A |
| Cadmium | 5 | ug/L | Title 22 - Table 64431-A |
| Carbon Disulfide | 160 | ug/L | HBSL |
| Chlorate | 800 | ug/L | NAS-HAL |
| Chlordane | 0.1 | ug/L | Title 22 - Table 64444-A |
| Chlorite | 1 | mg/L | MCL-US |
| Chloride | 500 | mg/L | Title 22 - Table 64449-B |

| Full Name | MCL | Units | Source |
|---|---|---|---|
| Chlorobenzene | 70 | ug/L | Title 22 - Table 64444-A |
| 2 Chlorotoluene | 140 | ug/L | US-HAL |
| 4 Chlorotoluene | 140 | ug/L | HBSL |
| Chloropicrin | 12 | ug/L | NAS-HAL |
| Cyanide (CN) | 150 | ug/L | Title 22 - Table 64431-A |
| Total Coliform Bacteria | 0.99 | Count | MCL |
| Chromium | 50 | ug/L | Title 22 - Table 64431-A |
| Chromium, Hexavalent (Cr6) | 20 | ug/L | HBSL |
| Carbofuran | 18 | ug/L | Title 22 - Table 64444-A |
| Carbon Tetrachloride | 0.5 | ug/L | Title 22 - Table 64444-A |
| Copper | 1 | mg/L | Title 22 - Table 64449-A |
| Cyanazine | 0.3 | ug/L | HBSL |
| Cypermethrin | 40 | ug/L | HBSL |
| Dacthal | 70 | ug/L | HBSL |
| Dalapon | 200 | ug/L | Title 22 - Table 64444-A |
| Dibromochloromethane (THM) | 80 | ug/L | MCL |
| 1,2-Dibromo-3-chloropropane (DBCP) | 0.2 | ug/L | Title 22 - Table 64444-A |
| 1,1-Dichloroethane (1,1 DCA) | 5 | ug/L | Title 22 - Table 64444-A |
| 1,2 Dichloroethane (1,2 DCA) | 0.5 | ug/L | Title 22 - Table 64444-A |
| 1,2 Dichlorobenzene (1,2-DCB) | 600 | ug/L | Title 22 - Table 64444-A |
| 1,3-Dichlorobenzene | 600 | ug/L | US-HAL |
| 1,4-Dichlorobenzene (p-DCB) | 5 | ug/L | Title 22 - Table 64444-A |
| 1,1 Dichloroethylene (1,1 DCE) | 6 | ug/L | Title 22 - Table 64444-A |
| cis-1,2 Dichloroethylene | 6 | ug/L | Title 22 - Table 64444-A |
| trans-1,2, Dichloroethylene | 10 | ug/L | Title 22 - Table 64444-A |
| Dichloromethane (Methylene Chloride) | 5 | ug/L | Title 22 - Table 64444-A |
| 1,3 Dichloropropene | 0.5 | ug/L | Title 22 - Table 64444-A |
| 1,2 Dichloropropane (1,2 DCP) | 5 | ug/L | Title 22 - Table 64444-A |
| Dichlorprop | 300 | ug/L | HBSL |
| 4,4’-DDD | 0.1 | ug/L | CA-CPF |
| 4,4’-DDE | 0.1 | ug/L | CA-CPF |
| 4,4’-DDT | 0.1 | ug/L | CA-CPF |
| Deethylatrazine | 50 | ug/L | CA-Prop65 |
| Diazinon | 1.2 | ug/L | HBSL |
| Dicamba | 210 | ug/L | RfD |
| Dichlorvos (DDVP) | 0.4 | ug/L | HBSL |
| Dieldrin | 0.002 | ug/L | HBSL |
| Diesel | 100 | ug/L | US-HAL |
| Dimethoate | 2 | ug/L | HBSL |
| Dinoseb | 7 | ug/L | Title 22 - Table 64444-A |
| 1,4-Dioxane | 1 | ug/L | HBSL |
| Diquat | 20 | ug/L | Title 22 - Table 64444-A |
| Diuron | 2 | ug/L | HBSL |

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| Full Name | MCL | Units | Source |
|---|---|---|---|
| Di(2-ethylhexyl)adipate | 0.4 | mg/L | Title 22 - Table 64444-A |
| Ethylbenzene | 300 | ug/L | Title 22 - Table 64444-A |
| 1,2 Dibromoethane (EDB) | 0.05 | ug/L | Title 22 - Table 64444-A |
| Endosulfan I | 42 | ug/L | RfD |
| Endosulfan II | 42 | ug/L | RfD |
| Endosulfan Sulfate | 42 | ug/L | RfD |
| Endothall | 100 | ug/L | Title 22 - Table 64444-A |
| Endrin | 2 | ug/L | Title 22 - Table 64444-A |
| EPTC | 200 | ug/L | HBSL |
| Ethylene glycol | 14 | mg/L | US-HAL |
| Fluoride | 2 | mg/L | Title 22 - Table 64431-A |
| Trichlorofluoromethane (Freon 11) | 150 | ug/L | Title 22 - Table 64444-A |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113) | 1.2 | mg/L | Title 22 - Table 64444-A |
| Dichlorodifluoromethane | 1 | mg/L | HBSL |
| Fecal Coliform (bacteria) | 0.99 | Count | MCL |
| Iron | 300 | ug/L | Title 22 - Table 64449-A |
| Fenamiphos | 0.7 | ug/L | HBSL |
| Foaming Agents (MBAS) | 0.5 | mg/L | Title 22 - Table 64449-A |
| Fonofos | 10 | ug/L | HBSL |
| Formaldehyde | 100 | ug/L | US-HAL |
| Gasoline | 5 | ug/L | US-HAL |
| Glyphosate (Round-up) | 700 | ug/L | MCL-US |
| Tritium | 20000 | pCi/L | Title 22 - Table 64443 |
| Hexachlorobutadiene | 0.9 | ug/L | HBSL |
| Hexachlorocyclopentadiene | 50 | ug/L | Title 22 - Table 64444-A |
| Hexachlorobenzene (HCB) | 1 | ug/L | MCL-US |
| Heptachlor | 0.01 | ug/L | Title 22 - Table 64444-A |
| Heptachlor Epoxide | 0.01 | ug/L | Title 22 - Table 64444-A |
| Hexazinone | 400 | ug/L | HBSL |
| Mercury | 2 | ug/L | Title 22 - Table 64431-A |
| Octogen (HMX) | 0.35 | mg/L | US-HAL |
| Iodide | 1190 | ug/L | NAS-HAL |
| Isopropylbenzene ( Cumene) | 770 | ug/L | HBSL |
| Iprodione | 0.8 | ug/L | HBSL |
| Kerosene | 100 | ug/L | US-HAL |
| Linuron | 5 | ug/L | HBSL |
| Malathion | 500 | ug/L | HBSL |
| Metalaxyl | 500 | ug/L | HBSL |
| Methomyl | 200 | ug/L | HBSL |
| Metolachlor | 700 | ug/L | HBSL |
| Metribuzin | 90 | ug/L | HBSL |
| Methyl Isobutyl Ketone (MIBK) | 120 | ug/L | NL |

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| Full Name | MCL | Units | Source |
|---|---|---|---|
| Manganese | 50 | ug/L | Title 22 - Table 64449-A |
| Molybdenum | 40 | ug/L | US-HAL |
| Molinate | 20 | ug/L | Title 22 - Table 64444-A |
| MTBE (Methyl-tert-butyl ether) | 5 | ug/L | Title 22 - Table 64449-A |
| Methoxychlor | 30 | ug/L | Title 22 - Table 64444-A |
| Sodium | 50 | mg/L | AL |
| Naled | 10 | ug/L | HBSL |
| Naphthalene | 17 | ug/L | HBSL |
| Napropamide | 800 | ug/L | HBSL |
| Ammonia | 30 | mg/L | US-HAL |
| Nickel | 100 | ug/L | Title 22 - Table 64431-A |
| N-Nitrosodiethylamine (NDEA) | 0.01 | ug/L | CA-CPF |
| N-Nitrosodimethylamine (NDMA) | 0.01 | ug/L | CA-CPF |
| N-Nitrosodi-N-Propylamine (NDPA) | 0.01 | ug/L | CA-CPF |
| Nitrite as N | 1 | mg/L | Title 22 - Table 64431-A |
| Nitrate as N | 10 | mg/L | Title 22 - Table 64431-A |
| Nitrate+Nitrite | 10 | mg/L | Title 22 - Table 64431-A |
| Norflurazon | 10 | ug/L | HBSL |
| Oxamyl | 50 | ug/L | Title 22 - Table 64444-A |
| Oxyfluorfen | 20 | ug/L | HBSL |
| Parathion | 0.02 | ug/L | HBSL |
| Lead | 15 | ug/L | AL |
| n-Propylbenzene (Isocumene) | 260 | ug/L | NL |
| 1,1,2,2 Tetrachloroethane (PCA) | 1 | ug/L | Title 22 - Table 64444-A |
| Perchlorate | 6 | ug/L | Title 22 - Table 64431-A |
| Polychlorinated Biphenyls (PCBs) | 0.5 | ug/L | MCL-US |
| Tetrachloroethene (PCE) | 5 | ug/L | Title 22 - Table 64444-A |
| PCNB | 21 | ug/L | RfD |
| Pentachlorophenol (PCP) | 1 | ug/L | MCL-US |
| Permethrin | 4 | ug/L | HBSL |
| Perfluorooctanoic acid | 5.1 | ng/L | US-HAL |
| Perfluorooctanoic sulfonate | 6.5 | ng/L | NL |
| pH | 7.0-8.0 | -log[H+] | Basin Plan - Table 3-1 |
| Phorate | 4 | ug/L | HBSL |
| Picloram | 0.5 | mg/L | Title 22 - Table 64444-A |
| Prometon | 400 | ug/L | HBSL |
| Prometryn | 300 | ug/L | HBSL |
| Propachlor (2-Chloro-N-isopropylacetanilide) | 90 | ug/L | HBSL |
| Propanil | 6 | ug/L | HBSL |
| Propargite | 1 | ug/L | HBSL |
| Radium 226 | 5 | pCi/L | Title 22 - Table 64442 |
| Radium 228 | 5 | pCi/L | Title 22 - Table 64442 |

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| Full Name | MCL | Units | Source |
|---|---|---|---|
| RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine) | 0.3 | mg/L | US-HAL |
| Radon 222 | 4000 | pCi/L | MCL-US |
| Antimony | 6 | ug/L | Title 22 - Table 64431-A |
| Specific Conductivity | 250 (50% UL), 500 (90% UL) | micromhos | Basin Plan - Table 3-1 |
| Selenium | 50 | ug/L | Title 22 - Table 64431-A |
| Carbaryl (1-naphthyl methylcarbamate) | 40 | ug/L | HBSL |
| 2,4,5-TP (Silvex) | 50 | ug/L | Title 22 - Table 64444-A |
| Simazine | 4 | ug/L | Title 22 - Table 64444-A |
| Sulfate | 500 | mg/L | Title 22 - Table 64449-B |
| Strontium | 4000 | ug/L | US-HAL |
| Strontium 90 | 8 | pCi/L | Title 22 - Table 64443 |
| Styrene | 100 | ug/L | Title 22 - Table 64444-A |
| tert-Butyl alcohol (TBA) | 12 | ug/L | NL |
| Bromoform (THM) | 80 | ug/L | MCL |
| 1,1,1-Trichloroethane | 200 | ug/L | Title 22 - Table 64444-A |
| 1,1,2-Trichloroethane | 5 | ug/L | Title 22 - Table 64444-A |
| 1,2,4- Trichlorobenzene (1,2,4 TCB) | 5 | ug/L | Title 22 - Table 64444-A |
| 2,3,7,8-TCDD | 0.00003 | ug/L | MCL-US |
| Trichloroethene (TCE) | 5 | ug/L | Title 22 - Table 64444-A |
| Chloroform (THM) | 80 | ug/L | MCL |
| 1,2,3-Trichloropropane (1,2,3 TCP) | 0.005 | ug/L | Title 22 - Table 64444-A |
| Total Dissolved Solids | 1000 | mg/L | Title 22 - Table 64449-B |
| tebuthiuron | 1000 | ug/L | HBSL |
| Thiabendazole | 231 | ug/L | HHBP |
| Thiobencarb | 1 | ug/L | Title 22 - Table 64449-A |
| Total Trihalomethanes | 80 | ug/L | MCL-US |
| Thallium | 2 | ug/L | Title 22 - Table 64431-A |
| 1,2,4-Trimethylbenzene | 330 | ug/L | NL |
| 1,3,5-Trimethylbenzene | 330 | ug/L | NL |
| 2,4,6-Trinitrotoluene (TNT) | 1 | ug/L | US-HAL |
| Toxaphene | 3 | ug/L | Title 22 - Table 64444-A |
| Trichlopyr | 400 | ug/L | HBSL |
| Trifluralin | 20 | ug/L | HBSL |
| Uranium | 20 | pCi/L | Title 22 - Table 64442 |
| Vanadium | 50 | ug/L | RfD |
| Vinyl Chloride | 0.5 | ug/L | Title 22 - Table 64444-A |
| Warfarin | 2 | ug/L | HBSL |
| Xylenes (total) | 1750 | ug/L | Title 22 - Table 64444-A |
| Xylene, Isomers m & p | 1750 | ug/L | Title 22 - Table 64444-A |
| Zinc | 5 | mg/L | Title 22 - Table 64449-A |

# Water Quality Assessment

## Data Sources

Water quality data was obtained from several databases and supplemented with data provided by local organizations and community members. The majority of the water quality data used in the assessment was sourced from the SWRCB's Groundwater Ambient Monitoring and Assessment Program (GAMA), a database containing datasets from agencies including the Department of Pesticide Regulation (DPR), Department of Water Resources (DWR), the State Water Board, Lawrence Livermore National Laboratory (LLNL) and the United States Geological Survey (USGS).

The datasets in GAMA with information in Scott Valley Groundwater Basin are:

- **The Public Water System Wells** dataset includes wells regulated by the State Water Board's Division of Drinking Water (DDW). This dataset includes information for active and inactive drinking water sources with 15 or more connections or more than 25 people per day.
- **National Water Information System (NWIS)**, a dataset provided by USGS with samples from water supply wells and reported quarterly to the State Water Board's data management system, GeoTracker.
- **Monitoring wells** regulated by the State Water Board includes wells under different regulatory programs, with data available for download through GeoTracker. There are monitoring wells in Scott Valley Basin for the following programs:
- Leaking Underground Storage Tank (LUST) Cleanup sites
- Department of Toxic Substances Control (DTSC) Cleanup Sites
- **DWR's Water Data Library**, a dataset including groundwater quality and depth data with samples from multiple well types including irrigation, stock, domestic and public supply.

In addition, information was obtained from USEPA Storage and Retrieval Data Warehouse (STORET), accessed through the National Water Quality Monitoring Council's (NWQMC) Water Quality Portal.

## Selection of Numeric Thresholds

Numeric thresholds are used with well data to evaluate groundwater quality. These numeric standards are selected to satisfy all relevant groundwater quality standards and objectives; the general selection approach used is consistent with recommendations by the State Water Board for determination of assessment thresholds for groundwater [Reference]. More than one water quality objective or standard may apply to a constituent and a prioritization process is used to select the numeric threshold value. Where available, the strictest value, of the federal and state regulated water quality standards, and water quality objectives specified in the Basin Plan, is used.

The following sources were used in establishing the numeric thresholds:

i) Basin Plan numeric water quality objectives

Specific groundwater quality objectives are defined in the Basin Plan for specific conductance, nitrate and benzene. These limits are listed in Table 1 below.

ii) State and Federal Maximum Contaminant Levels (MCLs)

MCL-CA: State of California MCLs

MCL-US: Federal MCLs

Per the Basin Plan, groundwaters in the Scott Valley hydrologic area have a designated beneficial use as domestic or municipal water supply (MUN) beneficial use and must not exceed the maximum contaminant levels (MCLs) and secondary maximum contaminant levels (SMCLs) defined in Title 22 of the California Code of Regulations (CCR). The strictest value of the state and federal MCLs and SMCLs is used.

*Table 1: Constituents of interest and associated regulatory thresholds for Scott River Valley Groundwater Basin*

| Constituent | Regulatory Source | Value |
|---|---|---|
| Benzene (ug/L) | Title 22 | 1 ug/L |
| Nitrate as Nitrogen (mg/L) | Title 22 | 10 mg/L |
| Specific Conductivity (mmhos) | Title 22 | 900 mmhos |
| Specific Conductivity (mmhos) | Basin Plan 90% Upper Limit | 500 mmhos |
| Specific Conductivity (mmhos) | Basin Plan 50% Upper Limit | 250 mmhos |

# Calculations

Specific water quality objectives for the Scott Valley hydrologic area groundwaters, as defined in the Basin Plan have specific limits and calculation requirements associated with specific conductance, hardness and boron. Per the Basin Plan, the 50% upper limit and 90% upper limit are defined as follows:

- 50% upper limits represent "the 50 percentile values of the monthly means for a calendar year. 50% or more of the monthly means must be less than or equal to an upper limit and greater"
- 90% upper limits represent "the 90 percentile values for a calendar year. 90% or more of the values must be equal to an upper limit and greater than or equal to a lower limit".

Measurements of specific conductance and boron were organized to enable comparison to the 50% and 90% limits through calculation of monthly means for comparison to the 50% upper limits and organization by calendar year for comparison to the 50% and 90% upper limits.

# Filtering Process

To analyze groundwater quality, several filters were applied for relevance and quality. Though groundwater quality data for the Basin is available from 1952, data was limited to only include information collected in the past 30 years. Restricting the timespan from which data was collected increases confidence in data collection methods and quality of the data and focuses on information that is reflective of current groundwater quality conditions.

Groundwater quality was analyzed through comparison, for each constituent, of well data to the corresponding comparison concentration. Maps were generated for each constituent showing well locations and number of samples and categorizing and displaying data into the following groups:

a) Not detected
b) Detected but below half of the comparison concentration
c) Detected and above half of the comparison concentration
d) Above the comparison concentration

Two iterations of of map generation was conducted with the following scenarios:

1. Data is limited to those collected in the past 30 years only (1990-2020)
2. Data is limited to wells that have more than one data point in the past 30 years (1990-2020)

For the second scenario, where data is limited to wells that have more than one data point in the past 30 years, timeseries are generated for each constituent and well to identify changes over time in groundwater quality at a location.

The following sections contain the maps produced from these analyses.

# Results

# Constituents of Concern (COCs)

Constituents of Concern (COCs) were identified based on visual identification of potential groundwater quality issues using the maps generated in this assessment, identification of common constituents of concern and through discussion with stakeholders. Resulting from this analysis and discussion with stakeholders, the full list of constituents of concern (COCs) were:

1. Nitrate as N
2. Specific Conductivity
3. Benzene

A series of maps for each COC, with water quality data from the past 30 years (1990-2020), show the location of tested wells and whether the maximum concentration ever recorded in that well has violated the MCL. In SCott River Valley, the water quality source database categorized some wells as either municipal or monitoring. Municipal wells are a public supply well related to a city or town. Monitoring wells are used for monitoring groundwater, such as for site cleanup programs or irrigated lands regulatory program.

The maps and associated timeseries for nitrate data in the Basin over the past 30 years are shown below.

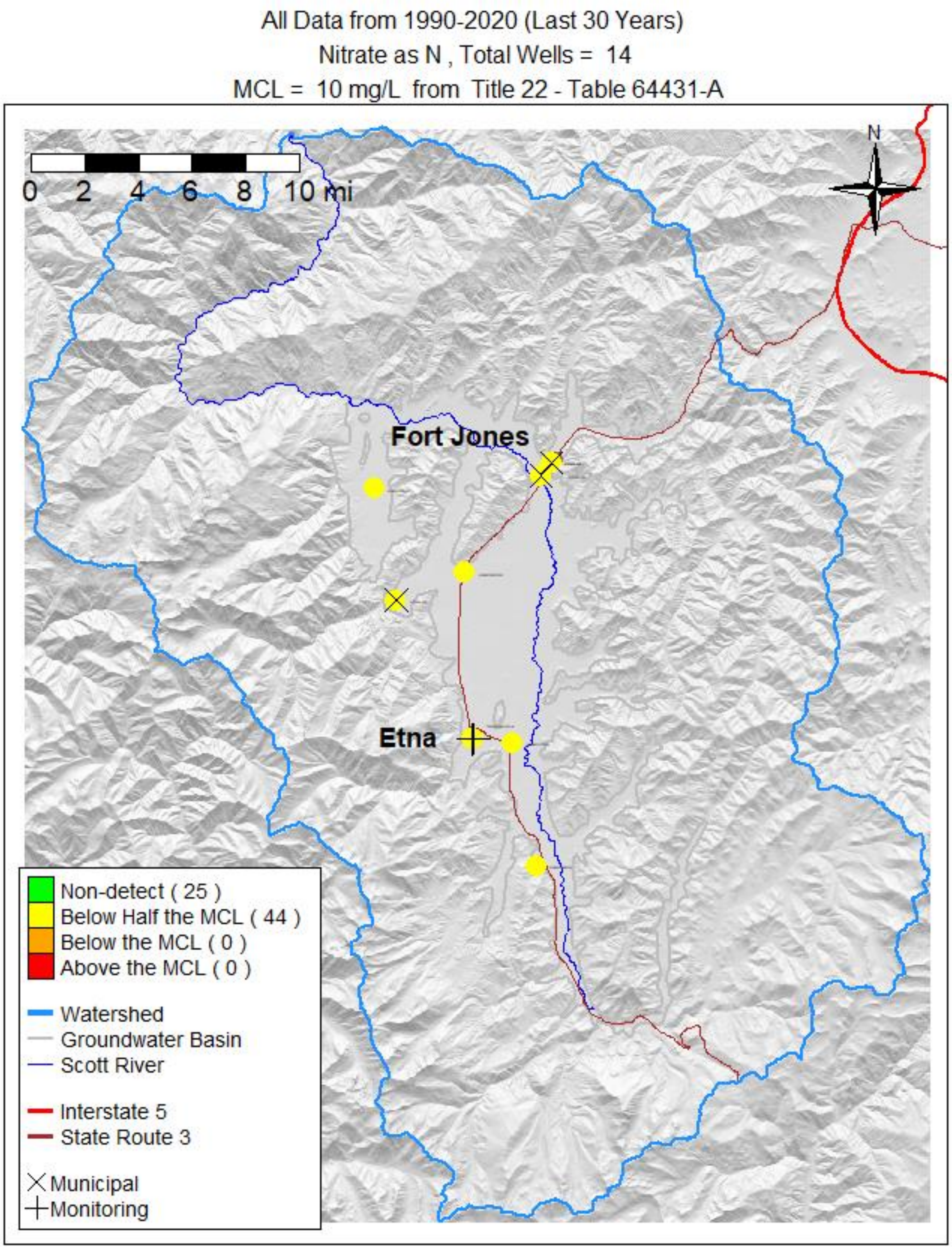


*Figure 1: Well locations and detection magnitudes of nitrate data collected over the past 30 years in the Scott River Valley Groundwater Basin.*

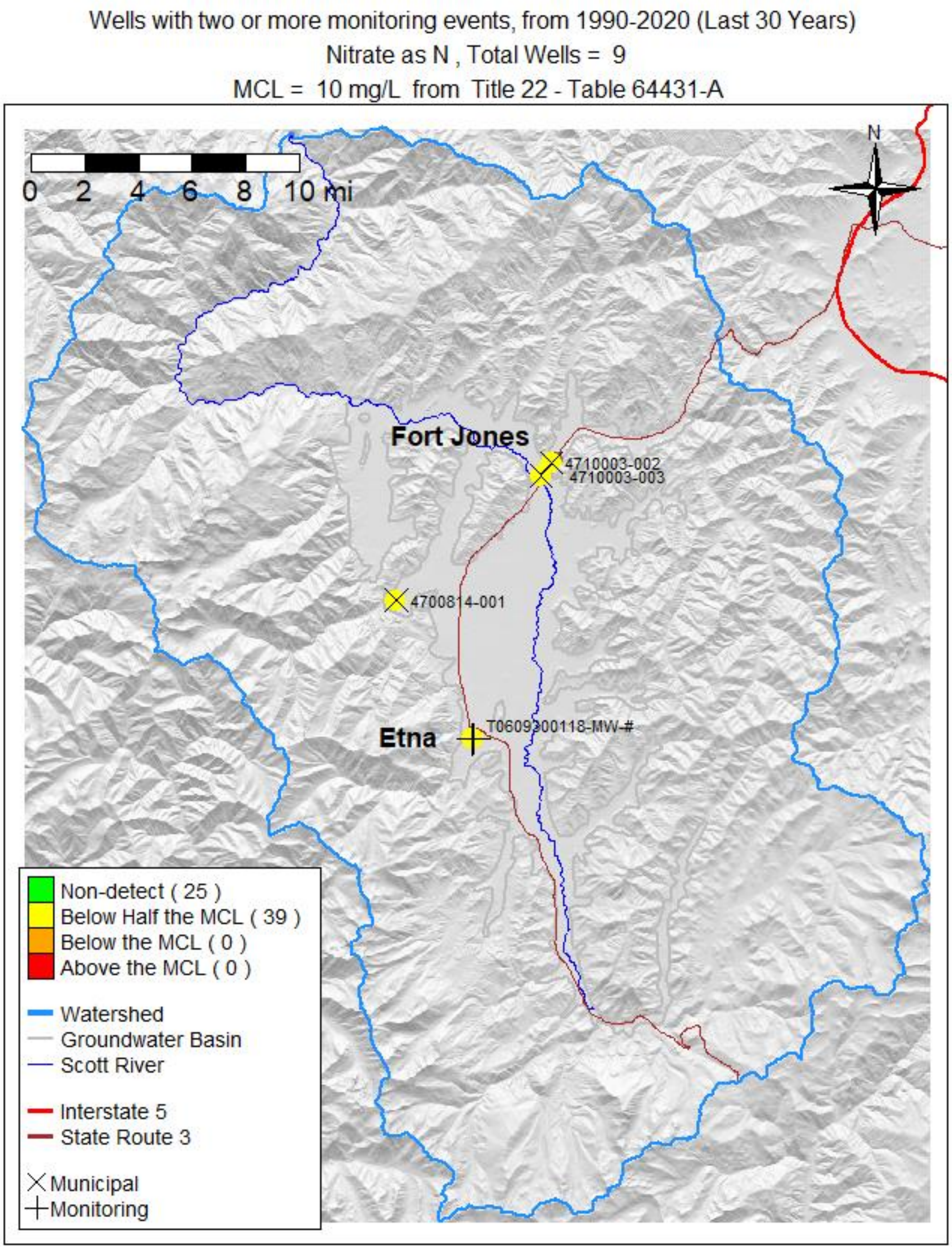


*Figure 2: Well locations and detection magnitudes of nitrate data collected over the past 30 years in the Scott River Valley Groundwater Basin from wells with two or more monitoring events.*

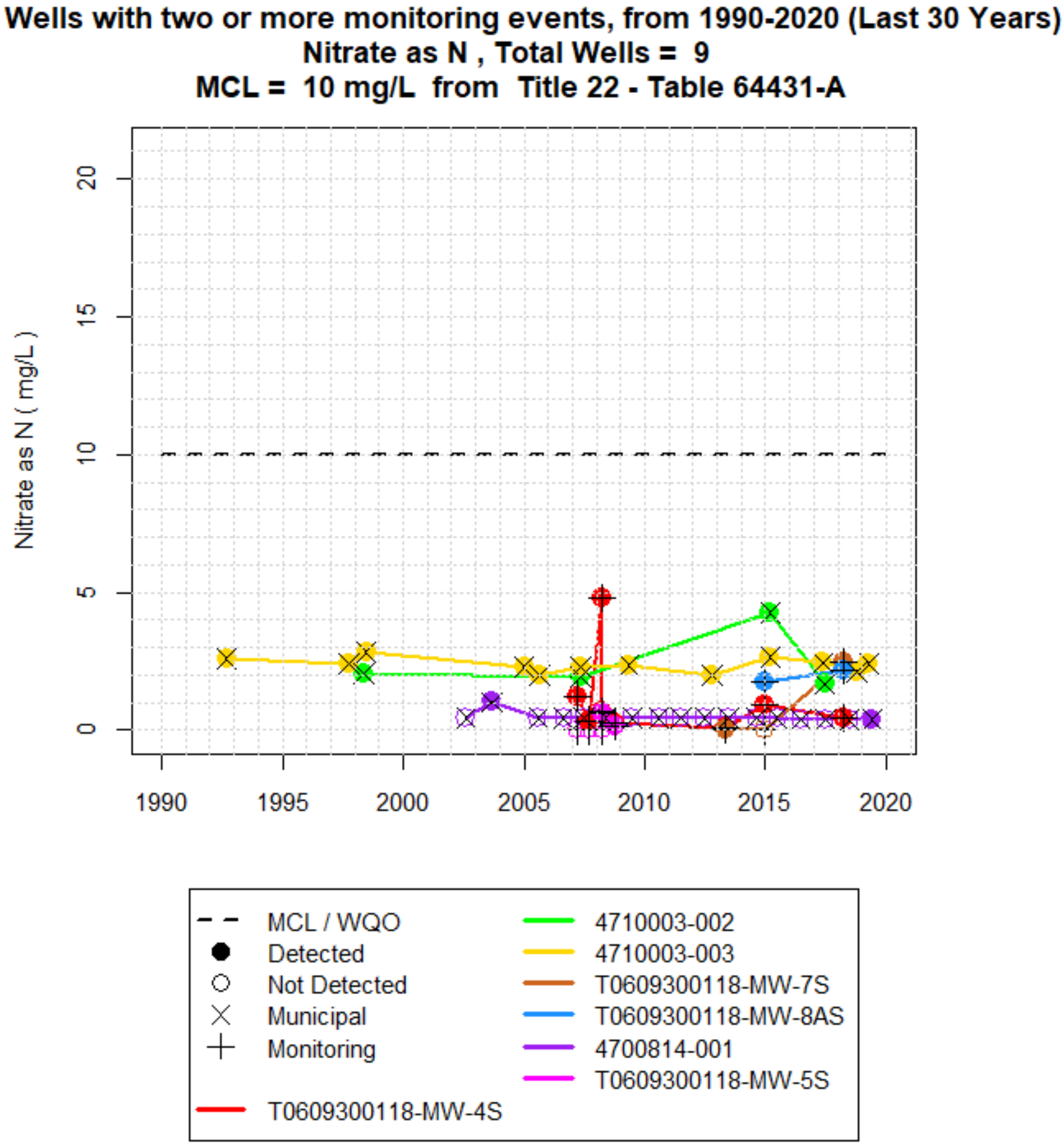


*Figure 3: Timeseries plots of nitrate data collected over the past 30 years in the Scott River Valley Groundwater Basin from wells with two or more monitoring events*

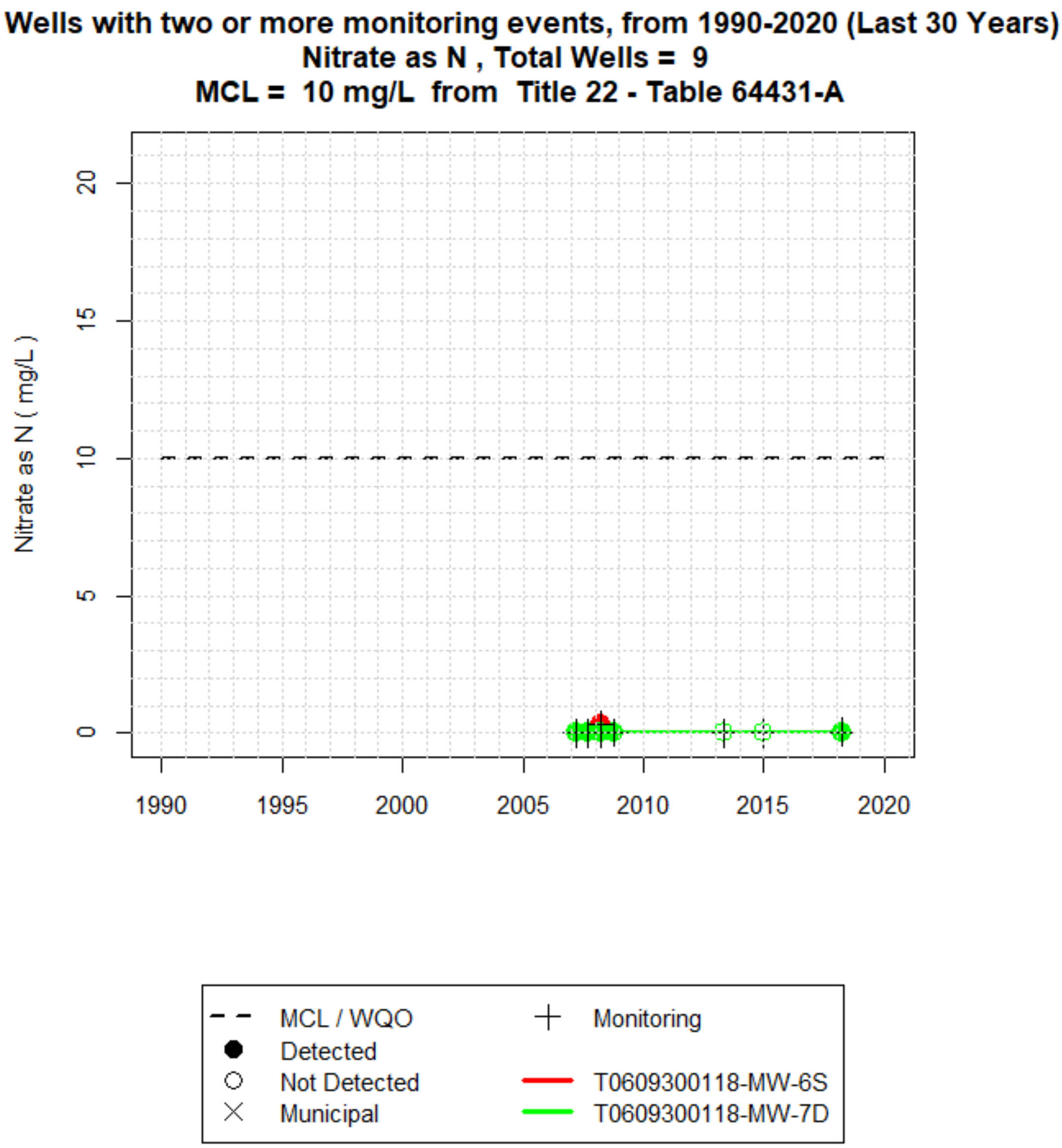


*Figure 4: Timeseries plots of nitrate data collected over the past 30 years in the Scott River Valley Groundwater Basin from wells with two or more monitoring events*

The maps and associated timeseries for specific conductivity data in the basin are shown below.

specific conductivity data are shown in Figure .

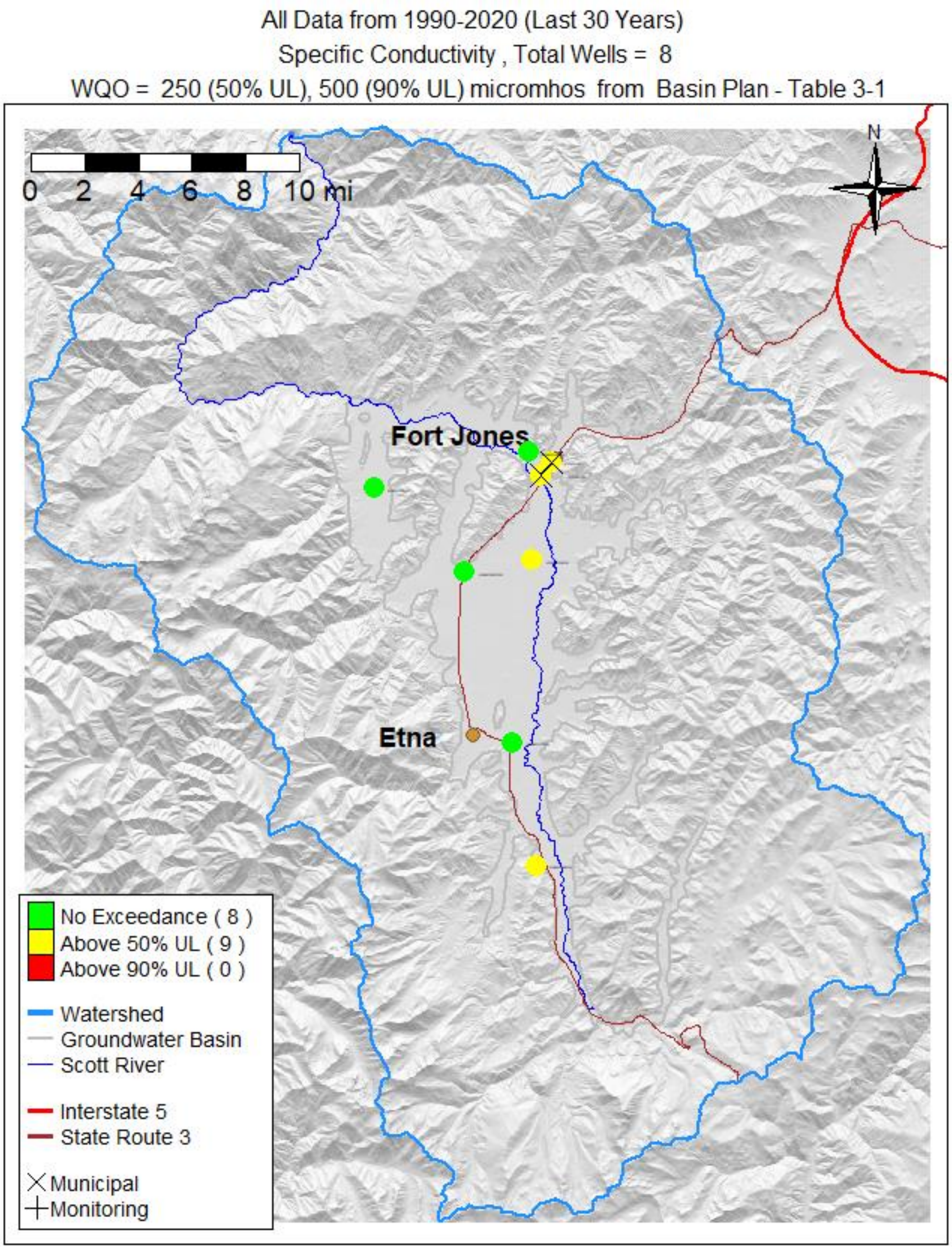


*Figure 5: Well locations and detection magnitudes of specific conductivity data collected over the past 30 years in Scott River Valley Groundwater Basin.*

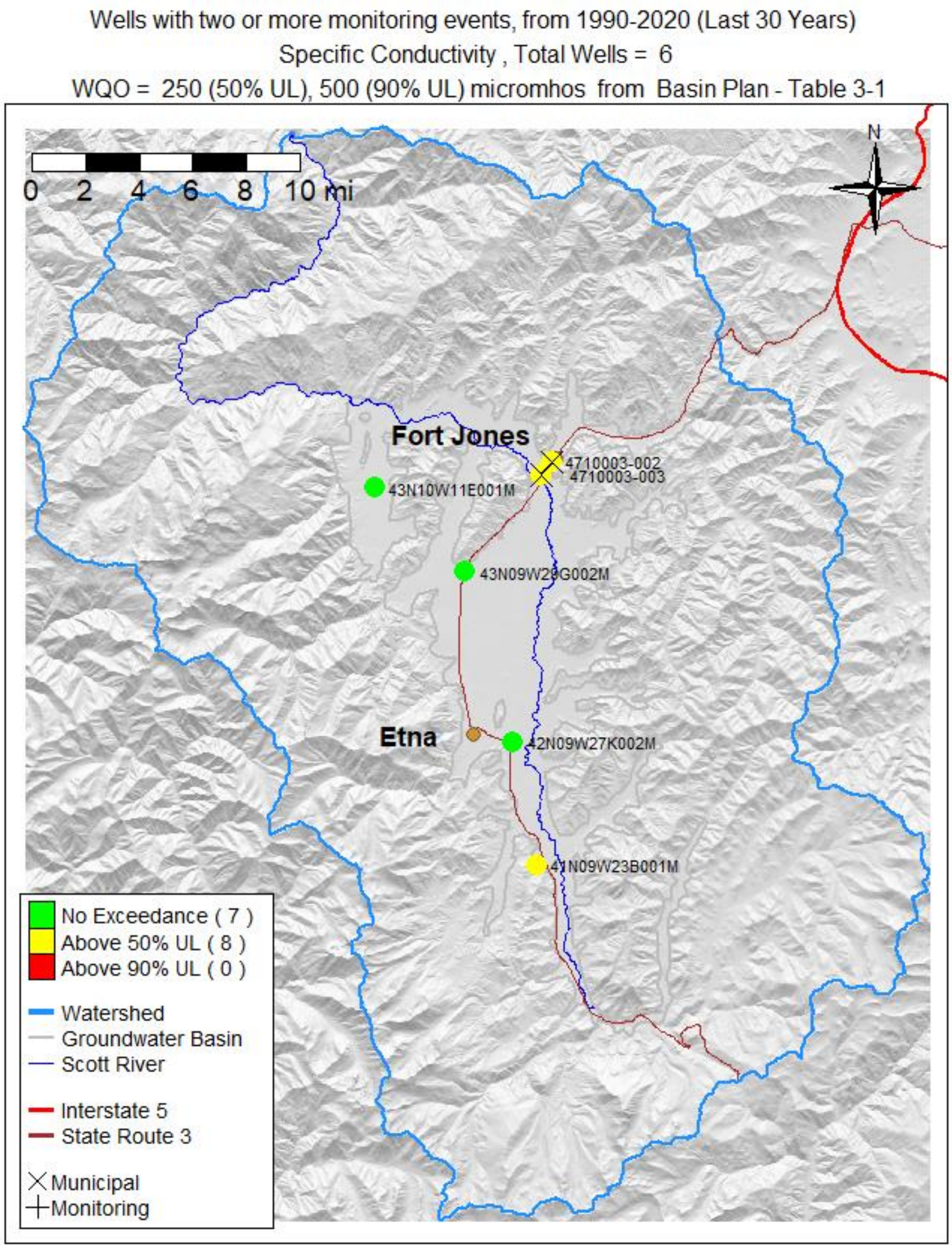


*Figure 6: Well locations and detection magnitudes of specific conductivity data collected over the past 30 years in Scott River Valley Groundwater Basin from wells with two or more monitoring events.*

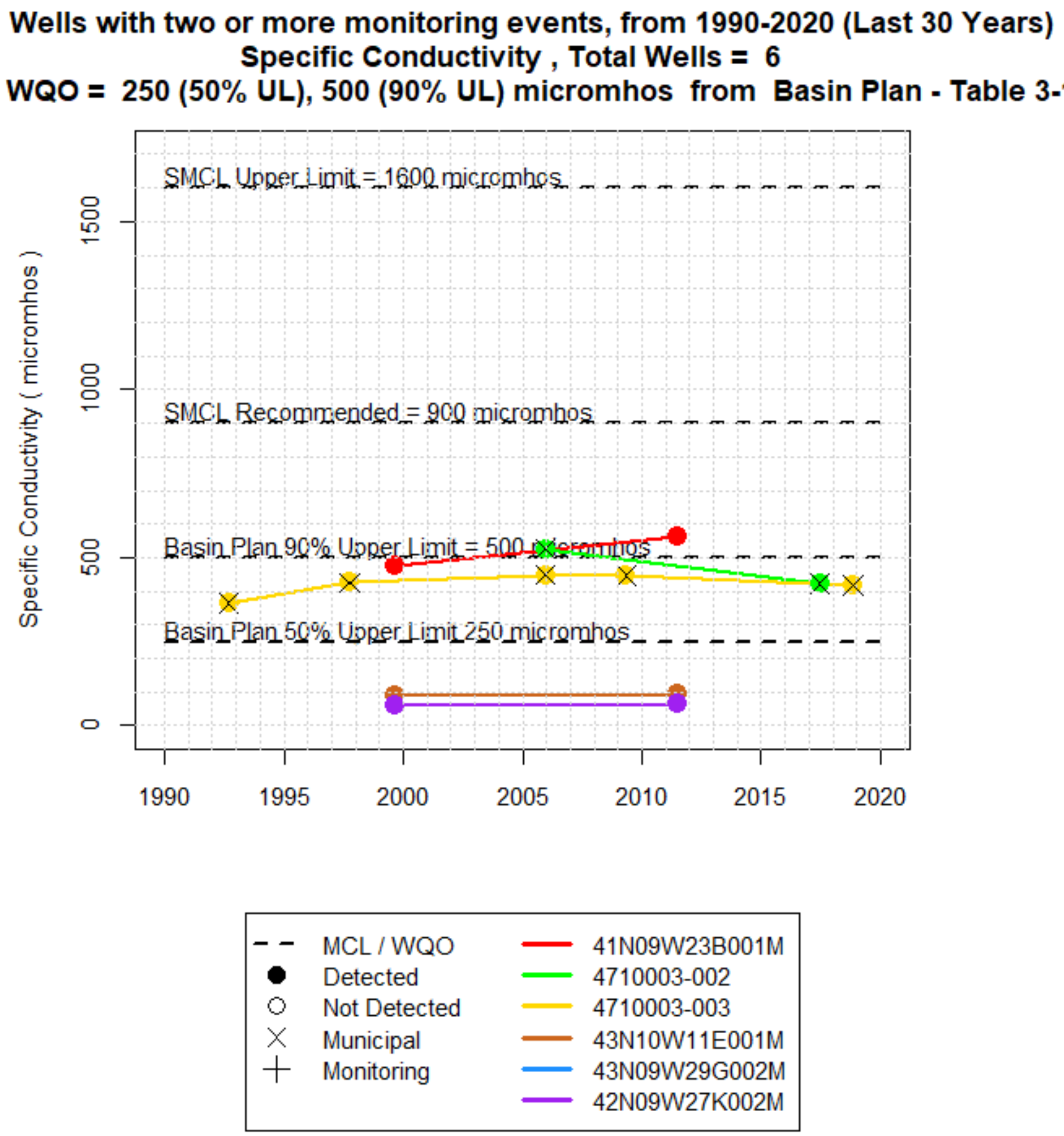


*Figure 7: Timeseries plot of specific conductivity data collected over the past 30 years in Scott River Valley Groundwater Basin from wells with two or more monitoring events.*

The maps and associated timeseries for benzene data in the Basin are shown below.

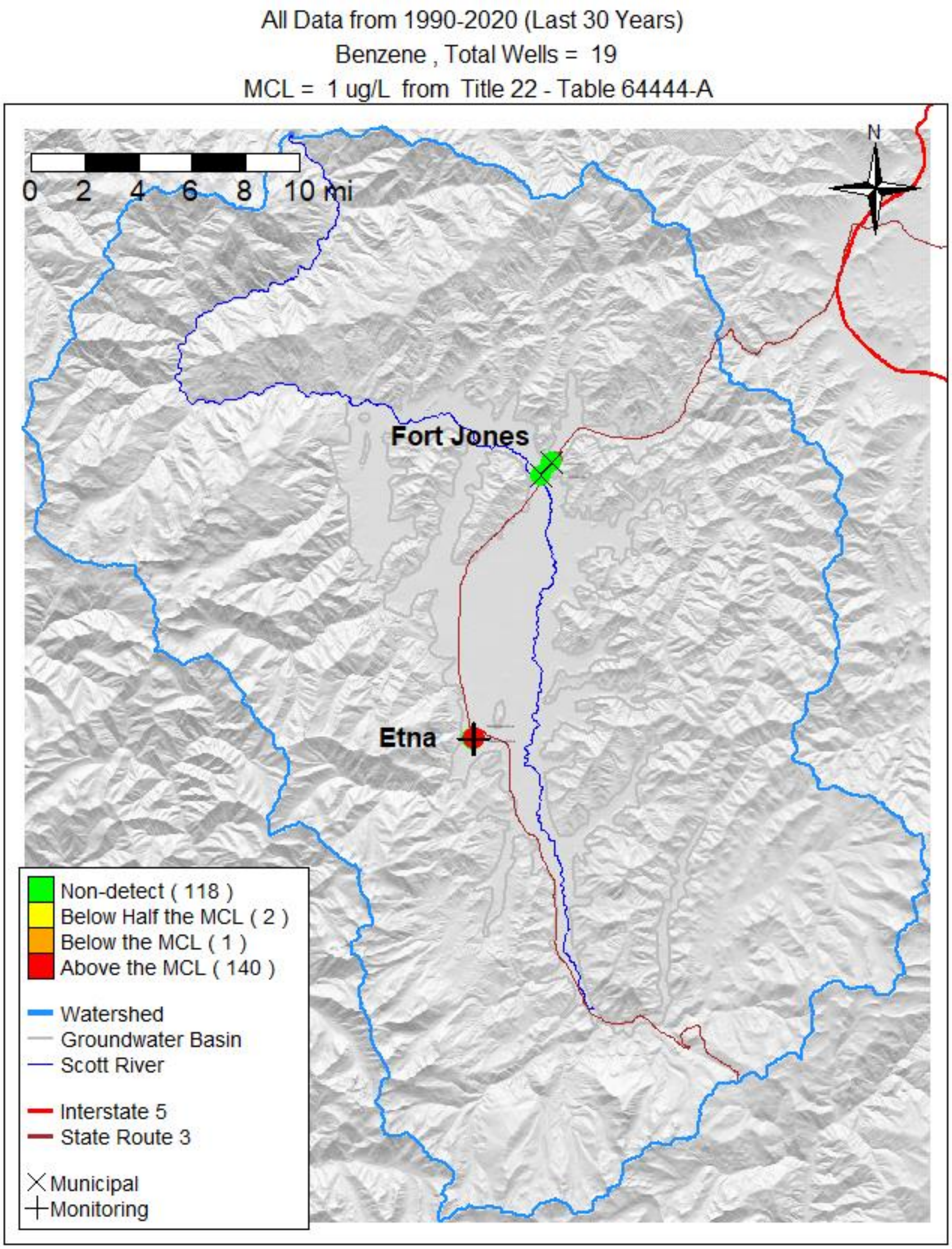


*Figure 8: Well locations and detection magnitudes of benzene data collected over the past 30 years in the Scott River Valley Groundwater Basin.*

Wells with two or more monitoring events, from 1990-2020 (Last 30 Years)
Benzene , Total Wells = 19
MCL = 1 ug/L from Title 22 - Table 64444-A

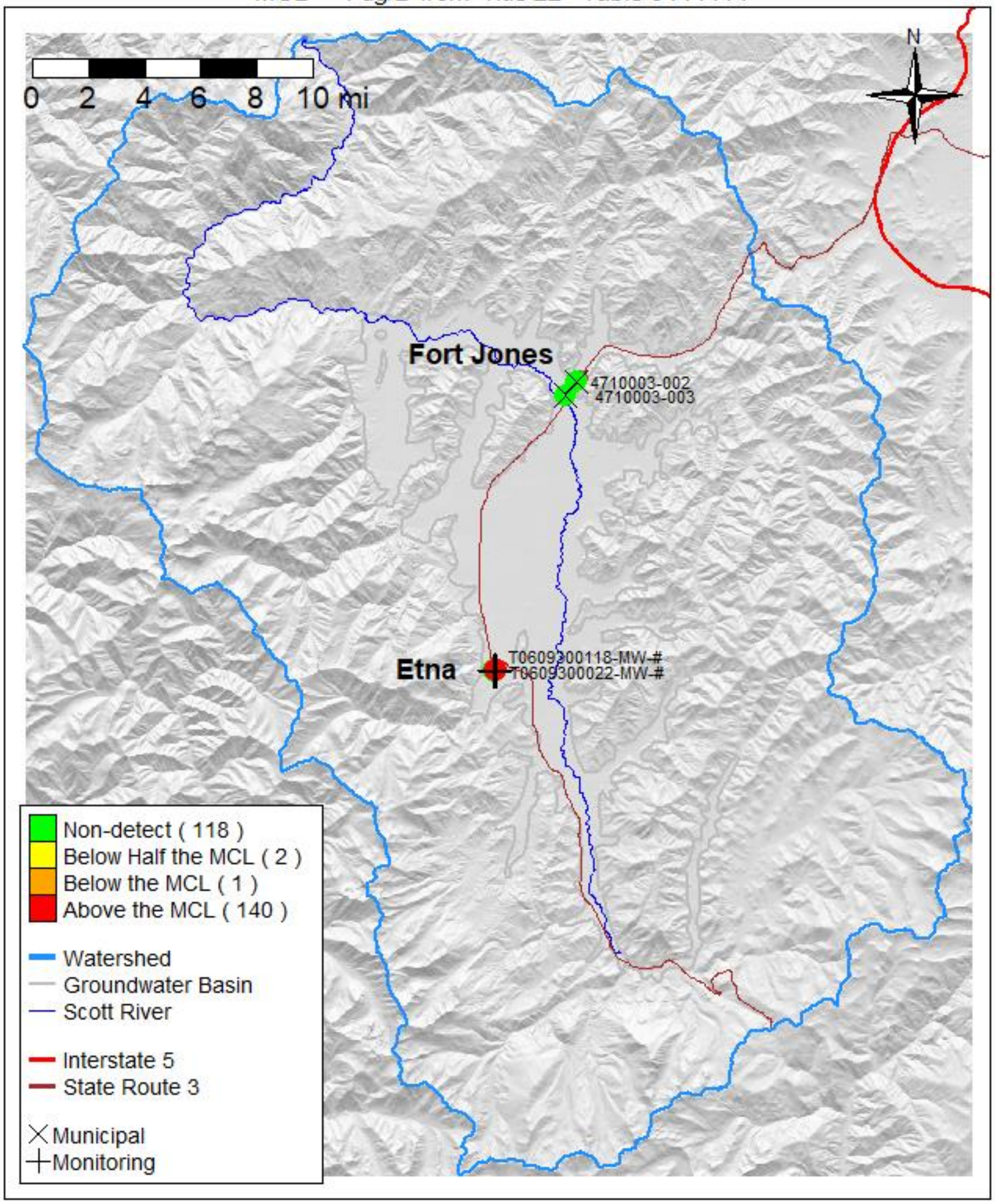


*Figure 9: Well locations and detection magnitudes of benzene data collected over the past 30 years in the Scott River Valley Groundwater Basin for wells with two or more monitoring events.*

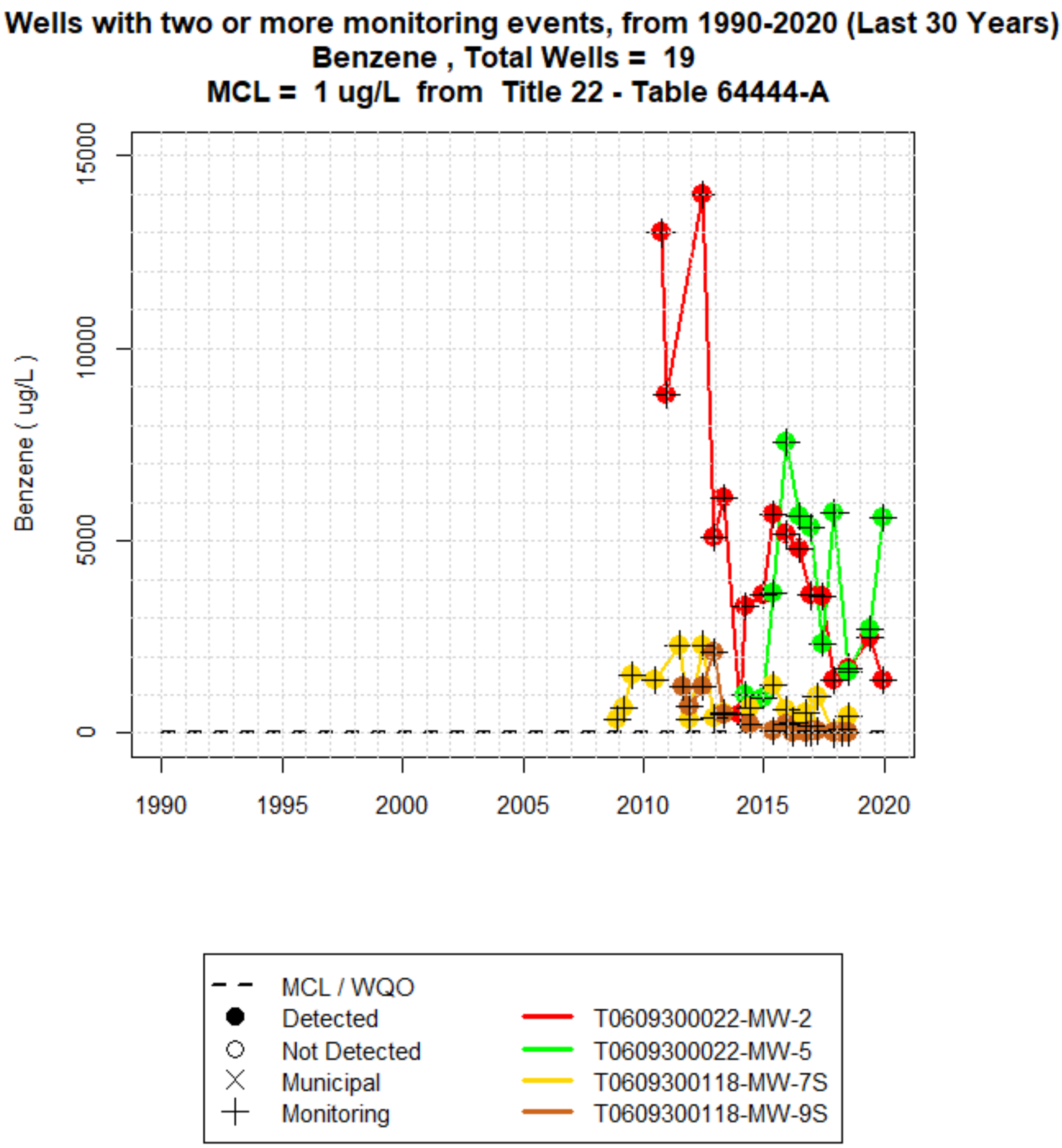


*Figure 10: Timeseries plot of benzene data collected over the past 30 years in the Scott River Valley Groundwater Basin from wells with two or more monitoring events.*

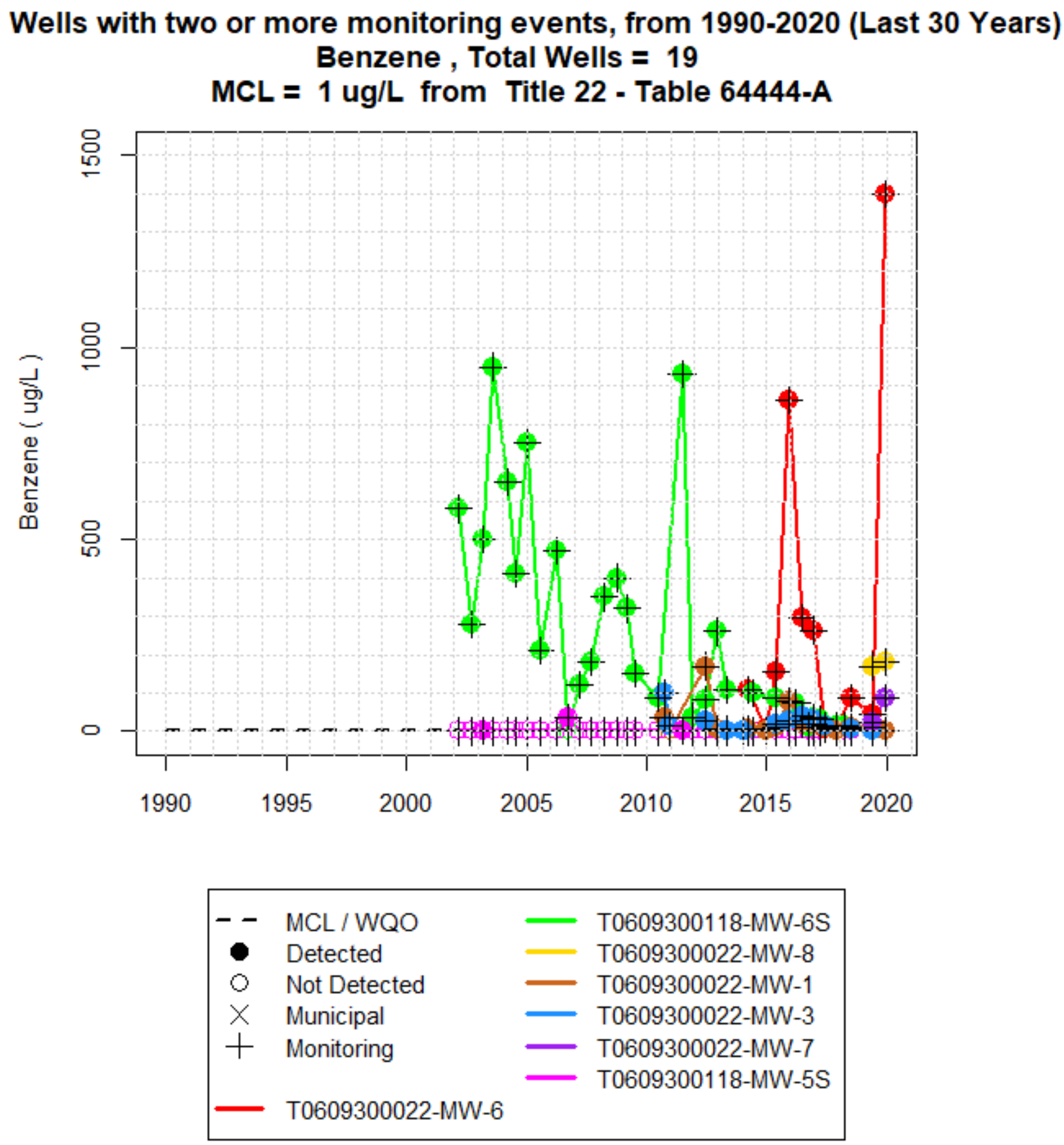


*Figure 11: Timeseries plot of benzene data collected over the past 30 years in the Scott River Valley Groundwater Basin from wells with two or more monitoring events.*

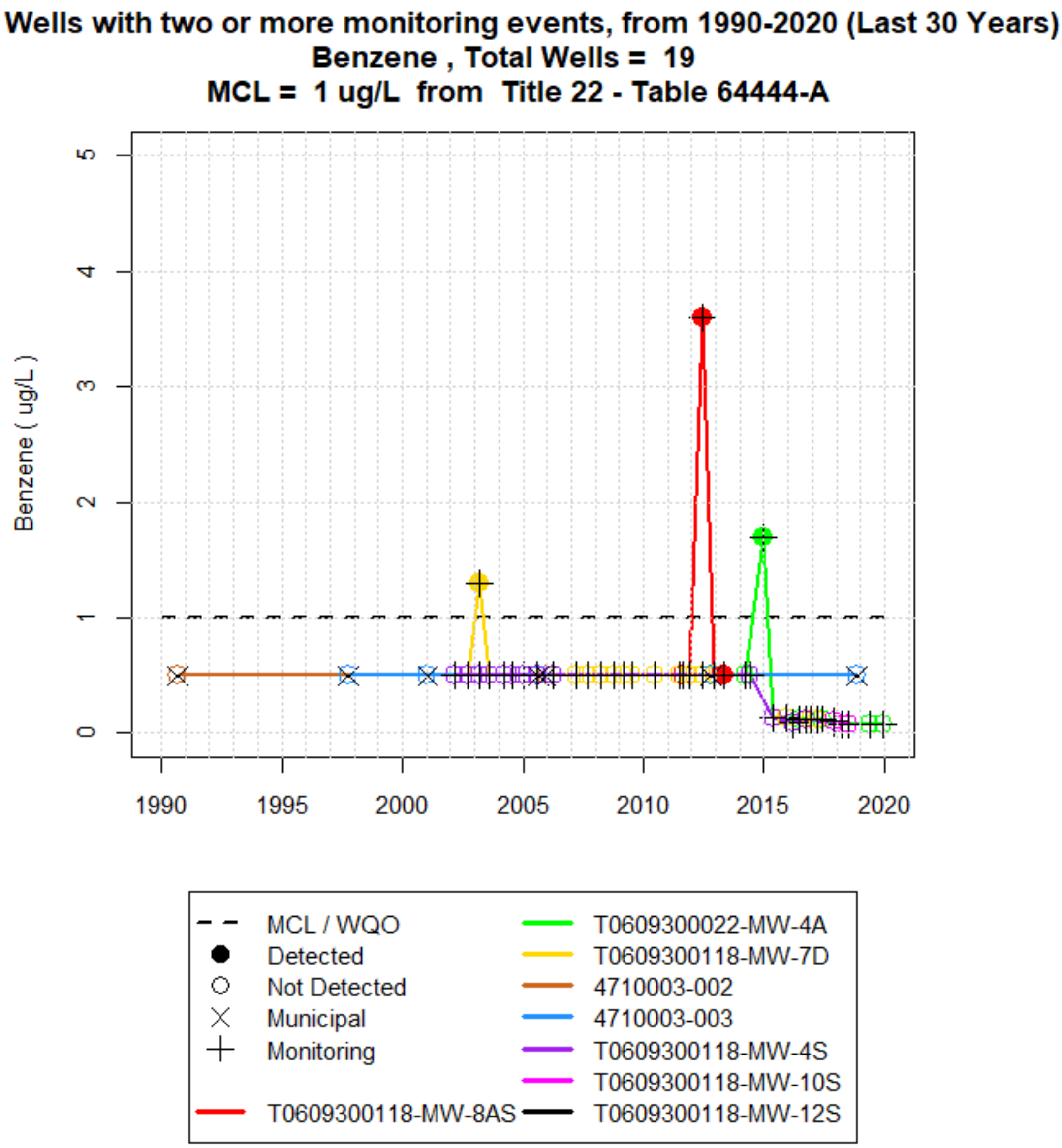


*Figure 12: Timeseries plot of benzene data collected over the past 30 years in the Scott River Valley Groundwater Basin from wells with two or more monitoring events.*