STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY
EDMUND G. BROWN JR., *Governor*

DEPARTMENT OF WATER RESOURCES
SOUTH CENTRAL REGION OFFICE
3374 EAST SHIELDS AVENUE, ROOM 3
FRESNO, CA 93726-6913

December 21, 2016

Mr. Robert Harrington, Water Director
County of Inyo, Water Department
135 South Jackson Street
Independence, California 93526

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Dear Mr. Harrington:

Enclosed is the report of our findings in regard to shallow groundwater conditions reported in an unincorporated part of Inyo County, California in an area referred to as West Bishop.

If you have any questions in regard to the content of this report, please contact Michael McKenzie the Department of Water Resources' South Central Region Office at (559) 230-3308.

Sincerely,

Matthew Owens

Matthew Owens, PG
Engineering Geologist
Groundwater Management Section

Enclosure

cc: C. Michael McKenzie, PG
Senior Engineering Geologist
Groundwater Management Section

EXECUTIVE SUMMARY

A study of shallow groundwater conditions was performed at the request of the County of Inyo for an unincorporated area west of the City of Bishop. The study area consists of three single family custom home neighborhoods that are referred to as Mountain View Road, Carol Lane, and Sunrise Drive. Groundwater levels have historically been observed in the study area as shallow as 2.2 feet as measured in July of 1977. However, shallow groundwater was observed to surface in some areas with saturated soils reported around homes, roads, and other structures beginning in summer 2014 and persisting through fall 2016.

Surface water flowing through the study area originates from two reservoirs in the high Sierra known as Lake Sabrina and South Lake, both of which have flows released seasonally into Bishop Creek. Control structures located one to two miles west of the study area divert the flow from Bishop Creek into the Indian Ditch system and Matlick Ditch. Surface water from the two ditches flows into a network of smaller ditches and ponds that are present in the three neighborhoods. The ditches are owned by the Los Angeles Department of Water and Power (LADWP), but are controlled within the developments by the Bishop Creek Water Association (BCWA). Releases from the upstream reservoirs on Bishop Creek are controlled by Southern California Edison (SCE). Deliveries to the BCWA and pasture lands for irrigation are controlled by LADWP.

Some of the residents in the three neighborhoods have utilized the surface water in these ditches by constructing landscaping ponds as the BCWA bylaws allow. It is the Department of Water Resources' (DWR's) understanding that the ditches and ponds are largely unlined or otherwise lined with a semi-impermeable soil. The potable water supply for the study area comes from a combination of public and private domestic wells. The private domestic wells were reported with average depths of approximately 40 feet deep when the neighborhood was initially developed; however, a review of available well logs show that recently installed domestic wells have been completed at greater depths. The neighborhoods are also connected to a sanitary sewer system which is operated by the Eastern Sierra Community Service District.

The neighborhoods were developed on an alluvial fan and well logs show that subsurface sediments consist primarily of coarse sands, gravels, and intermittent clays. The groundwater aquifer beneath the study area appears to be under unconfined to semi-confined conditions.

The North Fork area of Bishop Creek traverses the Mountain View Road neighborhood. Flow down the creek is largely regulated by SCE. Unnamed smaller drainages traverse through the Carol Lane and Sunrise Drive neighborhoods originating out of the hills to the south. These smaller drainages flow naturally in response to precipitation.

Surface water flows from the streams and ditches into the landscaping ponds. These surface water features have combined to form a recharge system, which has influenced the local water table. The seasonal flow releases, as measured in the surface water gauging station, show a correlation with variations in groundwater levels in which periods of higher surface water flows correspond with higher groundwater levels. However, the relationship is not linear and there are periods of time when higher

groundwater levels have been documented during times when surface water flows have been low. The reason is unknown, but may be due in part to off-season higher precipitation and surface flows from the surrounding hills.

During the fall of 2013, surface water diversions to the ditches were reduced as a result of drought conditions, giving homeowners the opportunity to clean out the ditches and ponds on their properties. According to the residents in the area, a number of homeowners chose to do so. In an interview with a local contractor, up to four feet of fine-grained accumulated sediment was removed from some ponds, exposing the underlying coarse-grained soils. Shallow groundwater conditions were observed after water flows into the ditch system resumed in the spring 2014, and the elevated water levels generally coincided with above-average precipitation amounts that were measured in spring 2014 and the summers of 2015 and 2016. However, it should be noted that overall annual precipitation amounts measured in 2014 and 2015 were below the average of 5.14 inches for the year.

INTRODUCTION

At the request of the County of Inyo, the California Department of Water Resources' (DWR's), South Central Region Office (SCRO) has prepared this report to summarize shallow groundwater conditions reported by homeowners in three residential areas located in unincorporated areas west of Bishop, California (see Figures 1 and 2). The request for assistance by Inyo County was originally sent to the California Office of Emergency Services (OES) in June 2016 and it was subsequently forwarded from OES to DWR on June 27, 2016.

As part of the investigation of shallow groundwater conditions, DWR performed a reconnaissance of the study area with representatives from Inyo County, the Los Angeles Department of Water and Power (LADWP), and the Bishop Creek Water Association (BCWA) on July 6, 2016.

During the assessment, DWR reviewed information supplied by Inyo County, LADWP, and BCWA along with Well Completion Reports (well logs) that were submitted to DWR from the area. DWR also reviewed historical maps and aerial photography to evaluate the conditions of the study area prior to their development, and discussed the conditions of the area with homeowners and with a local drilling contractor.

The following sections of the report discuss the assessment.

REGIONAL SETTING

Bishop is located in northern Owens Valley between the eastern edge of the Sierra Nevada and the White-Inyo Mountains. The area is at an elevation of approximately 4,300 feet above mean sea level and annual precipitation is low due to arid climate conditions. The northern Owens Valley is a tectonically active area of mountain building and uplift of the Sierra Nevada. The topography of the mountains is characterized by the steep eastern face of the Sierra Nevada along with the western face of the White-Inyo Mountains. Streams originating from the Sierra Nevada and White-Inyo carry coarse sediments which are deposited on alluvial fans at the base of the mountains.

Bishop Creek and tributaries flow northeast from the Eastern Sierra Nevada through the City of Bishop and toward the Owens River. It is the predominant drainage emanating from the eastern Sierra for the area, with a constant flow. A number of arroyos are also present to the east of Bishop Creek originating in the hills above Bishop, with measurable surface flows only during periods of high rainfall.

STUDY AREA

The study area consists of three residential neighborhoods reported by Inyo County as experiencing shallow groundwater conditions. The study area is located approximately two miles west and southwest of the City of Bishop. Construction of the three residential areas began in the 1960's and was completed over the next several decades. A few undeveloped lots remain.

Two of the residential areas are adjacent and are referred to as the Carol Lane and Sunrise Drive neighborhoods (Figure 3). The third residential area, Mountain View Road neighborhood (Figure 4), is approximately 1.5 miles northwest of the other two. Carol Lane has the largest number of parcels with 342 parcels, Mountain View Road has 192 parcels, and the Sunrise Drive neighborhood has 173 parcels. Of the three residential areas, the Sunrise Drive neighborhood is known to have the largest parcels.

DATA GATHERING AND FIELD RECONNAISSANCE

Map and Document Review

Some of the background information for the study area was supplied by Inyo County, BCWA, and LADWP including a ditch alignment map, historic topographic maps, and location maps for monitoring wells and gauging stations. Inyo County also provided a 2007 Groundwater Flow Model Report and the 2010 Bishop Local Management Model Report for review. In addition, DWR reviewed street maps, parcel maps, aerial photographs, topographic maps, and searched the well log database for available well information in the study area.

Well Log Review

As part of the investigation, well logs were reviewed since they contain records of drilling, construction, sediments encountered, and depth to bedrock (if encountered). Well logs for the area were searched by township, range, and section corresponding with the study area.

For the area identified as Township 7 South, Range 32 East, Sections 11 and 12, which encompass the Carol Lane and Sunrise residential areas, 106 wells with well logs were identified. Of these, 44 could be located within the Carol Lane and Sunrise Drive areas. The well logs represent new and replacement wells. In these neighborhoods, most of the wells were completed to a depth of 100 to 160 feet with the well logs showing alluvial sediments consisting of clay, sand, and gravel.

The residential area on Mountain View Road is also within Township 7, but in Section 3. In that section, 44 well logs were identified. Of these, 35 could be located within the residential area on Mountain View Road. For the neighborhood, most of the wells were completed to a depth of 150 to 200 feet with the well logs showing alluvial sediments consisting of clay, sand, and gravel. In addition, a pink pumice, pink clay, and tuff were reported on some of the logs at a depth of 175 to 190 feet, and can probably be correlated with the Bishop Tuff.

For all three neighborhoods, the well logs show what appears to be a change in lithology with depth in which three sedimentary layers could be generally identified. The upper sedimentary unit consists largely of sand, gravel, and some boulders. Underlying the upper sand and gravel, a sediment consisting of tan/brown clay and sand was encountered. Underneath this intermediate sediment, a unit of sand and gravel was encountered. Recent wells installed in the study area were generally completed to a depth within the lower sand and gravel sedimentary layer.

Bedrock was not encountered during well drilling for most of the wells. One well log noted fractured granite at a depth of 205 feet.

Although well drillers are experienced with describing soil types encountered, the well log soil descriptions are based on observations reported during drilling, rather than soil sample collection from specific depths and subsequent physical analysis of the soil type. Therefore, the soil type reported on the logs can be imprecise, and vary from one drill rig operator to another. As a result, the well log analysis should be understood with this limitation on interpretation.

WATER SUPPLY AND SEWAGE DISPOSAL

According to Inyo County, water is supplied to most homes through a shallow domestic well on each parcel. Most of the original domestic wells were reported to be approximately 40 feet in depth or less when they were originally drilled and several reportedly went dry during the recent drought. As a result, the shallow domestic wells were replaced with deeper wells.

Homes that are not serviced by an individual domestic well are connected to a community well. Approximately 20 percent of the parcels in the Mountain View Road, 45 percent of parcels in Carol Lane, and 40 percent of parcels in Sunrise Drive neighborhoods are connected to a public supply well by a community services district.

In addition, the three neighborhoods are connected to a community sanitary sewer system which is operated by the Eastern Sierra Community Services District.

PRECIPITATION

Precipitation has been routinely measured at the Bishop Airport from 1944 to mid-2016 (see Appendix A for data). Mean annual precipitation for the area is relatively low at 5.14 inches, and is reflective of the rain shadow effect of the Sierra Nevada. Generally, precipitation falls primarily in the late fall to early winter during the months of November through February, tapering off in March and April, and increasing again in October and November.

Annual measured precipitation in the Sierra Nevada is significantly greater. Precipitation records for Lake Sabrina on Bishop Creek show an average of 17.05 inches. The mountains at higher elevation surrounding the lake are expected to have higher precipitation levels.

SURFACE WATER HYDROLOGY

Lake Sabrina and South Lake reservoirs are located at higher elevations of around 9,000 feet in the Sierra Nevada on the upper reaches of Bishop Creek. Surface water discharge from the reservoirs down Bishop Creek is controlled by SCE. Releases from the reservoirs flow into the main stem of Bishop Creek where

a portion is diverted to shallow irrigation ditches, and the remainder continues to flow to the Owens River, which is approximately four miles northeast of the study area. Discharge is recorded at three gauging stations operated by LADWP and known as Bishop Creek (Station 3324), Matlick Ditch (Station 3064), and North and South Indian Ditch (Station 3187). Figure 5 shows the locations of the three stations and Figures 6 through 8 shows hydrographs of their surface water flow. The Bishop Creek station has a long history of recorded data with records beginning in 1903 to present.

In the study area, there are approximately 180 landscaping ponds, 28 ditches (with small interconnecting channels), and Bishop Creek that contributes to groundwater recharge in the area. The discharge of water and subsequent percolation into the subsurface through unlined ditches and ponds leads to seasonally shallow groundwater conditions as a result of increased surface water flows during the spring and summer months.

Irrigation Ditch System

A shallow irrigation ditch system operated by the Los Angeles Department of Water and Power (LADWP) is present in the three neighborhoods of the study area (Figure 9). Water in the irrigation ditches is diverted by a turnout on Bishop Creek located west and southwest of the study areas. The ditches provide irrigation water to pasture land in areas located predominately to the northeast, east, and southeast of the study area.

Outside of the neighborhoods within the study area, the ditches are owned and operated by LADWP. Within the study area, the ditches are operated by the Bishop Creek Water Association (BCWA). Many of the homeowners in the three residential areas have utilized water in the ditches to create decorative landscaping features. These include construction of ponds and small check gates which divert water from the ditches into the ponds. The County stated that most of the ditches and decorative ponds are unlined or lined with permeable material allowing water to percolate into the subsurface. The irrigation ditches are approximately two-feet wide by two-feet deep and were observed to be unlined throughout the study area.

The North and South Indian Ditch (Indian Ditch) station is located upstream and west of the Carol Lane residential neighborhood near the turnout and directs water from Bishop Creek into the ditch. The North Matlick Ditch station measures water flow in ditches north and west of the residential neighborhood on Mountain View Road.

Flow measured at the Bishop Creek station and the two ditch stations vary depending on the season. Higher flows are measured beginning in spring and peak during the summer. From October 1990 to September 2015, the average flow measured at Bishop Creek station was 5,980 acre-feet per month (AF/M). At the Indian Ditch station, the average flow was 1,684 AF/M, and at the Matlick Ditch station the average flow was 296 AF/M. Surface water flow measured at Matlick and Indian Ditch is approximately 35 percent of the total flow at the Bishop Creek station. The Indian Ditch system has received most of the diversions from Bishop Creek.

GROUNDWATER CONDITIONS

Groundwater is present in unconfined to semi-confined conditions throughout the alluvial aquifer in the Bishop area. Groundwater level data was provided by Inyo County for four monitoring wells near the three residential areas (see Figure 10). Monitoring well T387 is less than one-quarter mile east of the Sunrise Drive neighborhood, T389 is near the northwest corner of the Sunrise Drive neighborhood, T390 is one-half mile north of the Carol Lane neighborhood, and T391 is one-quarter mile north of the Mountain View Road neighborhood. Groundwater levels have been collected from 1973 to the current data period and at intervals ranging from several times per month to a semi-annual basis (spring and fall). There are data gaps during certain periods when water levels were the highest and lowest. The groundwater level data is included in Appendix B.

Hydrographs of groundwater levels from the wells are shown on Figures 11 to 14. Monitoring wells T389, T390, and T391 show similar trends, with water levels lowest in late winter to early spring between the months of February to March, and highest in late summer to early fall from July to October. However, monitoring well T387 does not share a similar pattern, and the data shows a general range of summer highs of 8 feet to winter lows of 16 feet below ground surface (bgs).

Historic high and low groundwater levels from 1973 to current are presented in the table below; measurements represent depth to water from ground surface:

Monitoring Well Number	Historic High	Most Recent High	Historic Low	Most Recent Low
T387	**3.6 feet** (October 1987)	**5.1 feet** (July 2014)	**24.2 feet** (November 1976)	**17.7 feet** (May 2015)
T389	**3.4 feet** (October 1975)	**3.2 feet** (July 2014)	**14.0 feet** (April 1998)	**19.0 feet** (March 2014)
T390	**3.4 feet** (July 1982)	**3.9 feet** (April 2007)	**9.4 feet** (March 1977)	**9.7 feet** (December 2013)
T391	**2.2 feet** (July 1977)	**3.8 feet** (November 2013)	**11.9 feet** (April 2006)	**13.8 feet** (October 2013)

A search of readily available data showed that these four monitoring wells were the only wells with current water level data in and around the immediate study area. There are eight additional wells with current water level data; however, these wells are more than five miles distant from the study area and were not included.

Relationship Between Surface Water and Groundwater

To assess the possible correlation between surface water flow along Bishop Creek and the ditches in the three neighborhoods with changes in groundwater level, data from a period of 1973 to 1983 was reviewed for monitoring wells T387, T389, and T391. This period had monthly groundwater level readings that could be used to correspond with the monthly monitoring at the gauging stations.

The groundwater level hydrograph for monitoring well T387 is shown on Figure 15. Comparing the groundwater levels shown on the hydrograph with the ditch flow measured at gauging station 3187 did not show a correlation between groundwater levels and ditch flow.

Figures 16 and 17 show the discharge along Indian Ditch at gauging station 3187 and groundwater level hydrograph for monitoring wells T389 and T391. Upon review, there appears to be a correlation between ditch flow and groundwater levels in which the increased flow in the ditch corresponds with a rise in groundwater levels.

The groundwater level hydrograph for monitoring well T390 for the period of 1974 to 1985 is shown on Figure 18. During this time period, readings were taken every two months in the monitoring well and were reviewed with the monthly readings taken at the gauging stations. Comparing the groundwater level hydrograph with the hydrograph for gauging station 3187 shows a similar correlation between ditch flow and groundwater levels as observed in T389.

STUDY AREA RECONNAISSANCE

A reconnaissance level survey was performed on July 6, 2016. The survey included an initial briefing of local shallow groundwater conditions with the County of Inyo, LAPWD, and BCWA, stops at several homes that were selected by BCWA representatives, conversations with home owners, observation of soil and shallow groundwater conditions, and a cursory examination of site conditions and surface features such as ditches, ponds, wells, and road conditions. The field reconnaissance team (Field Team) included Inyo County Water Department and Public Works representatives, LADWP representatives, BCWA representatives and DWR personnel. Selected photographs taken during the site reconnaissance are included in Appendix C. An additional windshield survey was performed on July 7, 2016.

The study area observations are further detailed below:

Location 1 – 375 North Mountain View Road

The first stop during the field reconnaissance of the study area was 375 North Mountain View Road. The resident was not at home and instead the next door neighbor, who was familiar with the standing water conditions, escorted the Field Team to the backyard of the property. The neighbor explained that shallow groundwater had infiltrated into the home and into the detached garage, and that standing water had been observed pooling around a newly installed well. In an effort to mitigate the condition, the home owner had installed two sumps to dewater the shallow groundwater (Photos 1 and 2). Two sump pumps were placed in hand dug holes by the property owner in the northwest corner of the parcel, and plumbed with PVC pipe which directs the pumped groundwater back into a landscaping pond at the northwest corner of the property. The pond is connected to the Mason Ditch System (Photo 3).

The bottom of the pond was observed to consist of coarse grained sediments. The pond was also observed to be set at nearly the same grade as the backyard of the property and no evidence of a plastic or

clay liner was observed. According to personnel from the County of Inyo, the property is located in the topographic low of the Mountain View Road neighborhood.

Location 2 – 2342 Sunrise Drive and 2320 Sunrise Drive

The property owners met with the Field Team to discuss the pooling of water in a crawl space beneath the residence located at 2342 Sunrise Drive. General observations of the property and adjacent areas showed the presence of moist soils at the surface and standing water that was visible in sprinkler boxes and hand-dug observation holes that were approximately six inches deep (Photo 4). The property owners stated they believed the issue originated on the adjacent undeveloped property, so with permission from BCWA, the 2342 Sunrise Drive property owner installed a steel culvert on the undeveloped property in the South Indian Ditch channel in an effort to alleviate the standing water and saturated soils (Photo 5).

A landscape pond was also present on the 2342 Sunrise Drive property and located at the south end of the parcel. It was reported to the Field Team that the pond was unlined, and at the time of the visit was full with water. Water from the South Indian ditch nearby is used to keep the pond full (Photo 6). The pond appeared to be set near the same grade as the first floor of the residence.

The property owner directed the Field Team to the residence where standing water was observed in the crawl space beneath the first floor. The property owner installed a sump pump in the crawl space to remove excess water. The pumped water was discharged onto the street through a garden hose (Photo 7). The property owner told the Field Team that the sump pump is operated during the day while the on-site domestic well is set to pump continuously to help alleviate the shallow groundwater the issues. Excess water from the well is pumped through a second garden hose onto Sunrise Drive and allowed to flow into the street.

During the reconnaissance at 2342 Sunrise Drive, the homeowner of 2320 Sunrise Drive arrived, stated that similar issues persisted at his residence as well, and offered a tour to the Field Team. A large pond was located near the south end of the 2320 Sunrise Drive parcel and was not lined according to the homeowner (Photo 8). Standing water conditions in the crawl space beneath the residence were similar to the conditions observed at the 2342 property. The homeowner stated he closed the check gate to stop water from flowing into the pond, a few weeks prior to the visit and that it took about one week for the pond to drain completely. The homeowner stated that there was no change in the amount of water beneath the residence after the pond was empty.

Based on discussions with Inyo County, residents located on the north side of Sunrise Drive have not reported the same standing water and shallow groundwater conditions that have impacted the homes located on the south side of Sunrise Drive, nor have the residents to the south, along Longview Avenue reported any flooding or shallow groundwater issues.

Location 3 – 723 Orinda Drive

The next stop for the Field Team included meeting with three homeowners on Orinda Drive who had been experiencing similar shallow groundwater conditions. The homeowner at 723 Orinda Drive described the surfacing of groundwater in their lawn as slow and nearly continuous, and stated that it does not occur when the ditch system is not distributing water. Stained concrete and dried algae observed on the curb and gutter seemed to indicate previous flowing conditions (Photo 9). However, water was not flowing from the lawn at the time of the reconnaissance. Additionally, the street surface along the trace of sewer lines appeared to have been damaged and settled as a result of shallow groundwater. A small decorative pond was observed in the front yard of the property and was set near the same grade as the residence. Surface soils in the backyard were observed to be moist (Photo 10).

Location 4 – 2824 Sierra Vista Way

This property is located in the northwest corner of the Carol Lane development and currently has six decorative ponds distributed throughout the large lot. Members of the BCWA mentioned the large ponds located in the rear of this parcel were used to observe the amount of time required to completely drain after flow to the ditches was significantly reduced in the fall of 2013 (Photo 11). The time to drain the pond was initially recorded to take approximately 24 hours after flows to the nearby ditches were curtailed. Upon complete drainage, a soil liner was placed in the ponds. Following the placement of the soil liner, the ponds were refilled and flow to the nearby ditches feeding into the pond was cut off once again to check the difference in drain time. The presence of the soil liner reportedly impeded drainage of the pond by an additional 12 hours.

The Sierra Vista Way property is located west of the property that was observed during Location 3 at 723 Orinda Drive. Moist soil conditions at the surface were observed in a vacant lot located between the two properties (Photo 12). The Hall Ditch and the South Indian Ditch traverse through the southern portion of the parcel.

Location 5 – 2742 Carol Lane

Upon arrival at 2742 Carol Lane, water was observed seeping from landscaping areas and lawns and over the street curbs for several homes on both sides of Carol Lane. According to Inyo County's Public Works Department, the high water has damaged the roadway (Photo 13). The property owner stated that the seepage of groundwater increased when the ditch flow increases (Photo 14). Like many other property owners affected, the owner constructed a homemade sump in the landscaping area adjacent to the curb to alleviate the shallow groundwater conditions (Photo 15).

Across Carol Lane to the south, DWR observed landscaped area at a residence with disturbed soil that had been roped off to prevent access. The homeowner at 2742 Carol Lane stated that the roped off area was a

result of a delivery truck sinking into the saturated soils in the landscaping approximately a week prior to the Field Team's visit to the neighborhood.

Location 6 – 2652 Sunset Road

Upon arrival to the property located at 2652 Sunset Road, the homeowner escorted the Field Team around the perimeter of the property pointing out standing water in shallow trenches surrounding the property (Photo 16). The property owner was in the process of installing a French drain system in the trenches to remove excess water to work in conjunction with a couple of sump pumps that were installed a few feet into the ground (Photo 17). The resident stated that issues regarding high groundwater started shortly after water was released into the ditch system in March of 2016. A landscaping pond is located in the southern portion of the parcel. Moist surface soils were also observed on neighboring properties and on lots across the street from the residence (Photo 18).

Location 7 – 2635 Highland Street

The homeowner at 2635 Highland Street stated that standing pools of water were observed in the crawl space beneath the house approximately six weeks after the release of water into the ditch system. Shallow holes were dug into the landscaping by the homeowner who also stated that water levels would fluctuate when the ditch flows were increased or decreased. The homeowner also stated that the wet conditions beneath the residence had provided an environment which resulted in the growth of mold and fungus. The Highland ditch is located at the front of the property near the street and a single landscaping pond is located in the center of the horseshoe-shaped driveway in the front of the residence, which appeared to be set near the same grade as the residence. It is unknown if the pond was lined.

Location 8 – Liner Soil

The Field Team reconnaissance was completed with a stop at a large stockpile of soil located about one mile east of the study area that had been made available to residents for use as pond liner by LADWP (Photo 19). The soil in the stockpile consisted of small river rock, approximately 1/4 inch to 2 inches in diameter, which by visual observation contained approximately 50 percent fine grained soils consisting of silt, clay, or a mixture of both (Photo 20).

Windshield Reconnaissance Observations-

A windshield reconnaissance was conducted in the area by DWR on July 7, 2016, which included visual observations in a two-mile radius around the study area and focused on areas not part of the previous days observations.

A notable observation during the windshield reconnaissance included surface water conditions on the property at 2435 Longview Drive located to the southwest of the homes affected by standing water on Sunrise Drive. DWR observed that the homeowner on Longview Drive had installed a transverse ditch, leading from the North Longview Ditch toward the northern end of the property where the South Indian Ditch is located. This ditch does not appear on any of the ditch alignment maps provided by the BCWA nor LADWP. The flow of water in the transverse ditch appeared to be constant and the terminus was not observed at the time of the field reconnaissance.

FINDINGS

The study area is located in an area of alluvial soils with a shallow water table. Sediments comprising the aquifer are generally coarse and permeable with the exception of an intermediate sediment zone noted on some well logs as containing clay mixed with sand and gravel. Groundwater occurs under unconfined to semi-confined conditions and water levels reported in the monitoring wells from 1973 to the current time range from a high of 2.2 feet in July 1977 to a low of 24.2 feet in November 1976.

Surface water originates in the high Sierra in Lake Sabrina and South Lake. Flow from the reservoirs is released into Bishop Creek and adjusted seasonally to maintain reservoir levels. Bishop Creek flows northeasterly toward the study area and with a major tributary flowing through the Mountain View Road neighborhood. A control structure located one to two miles west of the study area separates the flow from Bishop Creek into the Indian Ditch system and Matlick Ditch, none of which are lined. Surface water from the two ditches flows into a network of smaller ditches that traverse the three neighborhoods comprising the study area. The smaller ditches maintain a number of residential landscape ponds located throughout the study area during periods of higher flow, an unknown number of which are unlined and/or were cleaned out recently during the drought.

The natural and artificial surface water features have combined to form a recharge system which has influenced the local water table. The seasonal releases as measured in the surface water gauging station show a correlation with variations in groundwater levels in which periods of higher surface water flows result in higher groundwater levels. The correlation is not exact as there are periods of time when higher groundwater levels have been noted when surface water flows have been low.

The reason behind higher groundwater levels during periods of time when surface water flows have been below peak levels is unknown. This phenomenon could be due in part to off-season higher precipitation in the surrounding hills resulting in surface flows in the arroyos which intersect the Carol Lane and Sunrise Drive neighborhoods at or near the same time of peak discharge into the ditch system. The charts on Figures 19 and 20 show the monthly groundwater levels measured in wells T387 and T389 from December 2013 to September 2015, with the corresponding flow rate measured in the ditch system and the amount of precipitation received for that month.

DWR also reviewed the groundwater level data for high water level peaks recorded previously to determine if the off-season precipitation conditions had been similar to 2014 and 2015. The groundwater level data for well T389 for the years 1974 to 1975 and 1977 to 1978 were reviewed in comparison to the

flow data at Station 3187 and the annual recorded monthly precipitation amounts, as those years had the most complete record of groundwater elevation data. However, no discernable trend was observed.

Other years of 1982 and 1991 were also reviewed, but groundwater levels collected during those years were either collected every other month or on a semi-annual basis, and the water level data was inconclusive due to a lack of monthly readings.

The groundwater level and surface water flow data sets provided by Inyo County and the BCWA only extended through September 2015. A review of this data through 2016 is recommended in determining whether the trend continues as 1.04 inches of precipitation was measured for April 2016, 0.34 inches in May, and 0.50 inches in June for 2016, which is above the seasonal average for all three months.

LIMITATIONS

It is unknown how many well logs in the DWR database reflect the replacement of domestic wells or new domestic wells that were installed as the neighborhoods were developed over time. In addition, while DWR conducted a well search of the well logs in the database for the three neighborhoods, it is unknown whether the shallow domestic wells were abandoned every time a new deeper well was installed and how many total wells are located in these neighborhoods since DWR does not always receive well completion reports for every well that has been drilled. Since only three abandonment reports were located on file, many of the original shallow domestic wells may still remain.

It is also unknown how much water has been lost as a result of infiltration from the irrigation ditches (starting at the turnout structures for Matlick and Indian Ditch) to the amount arriving for the customers who lease the pastureland to the east and northeast of the neighborhoods. Review of aerial photography shows the amount of water to be sufficient to sustain foliage immediately downgradient of the portions of ditches which traverse through undeveloped properties. Furthermore, BCWA bylaws allow homeowners to use reasonable amounts of the ditch water for landscaping irrigation and to sustain landscaping pond water levels, but those amounts are not individually metered.

Additionally, it is unknown if the number of homeowners reporting issues represents the totality of the problem or if there are additional homeowners unaware of any problems and/or not reporting them.

FIGURES

APPENDICES

Figures

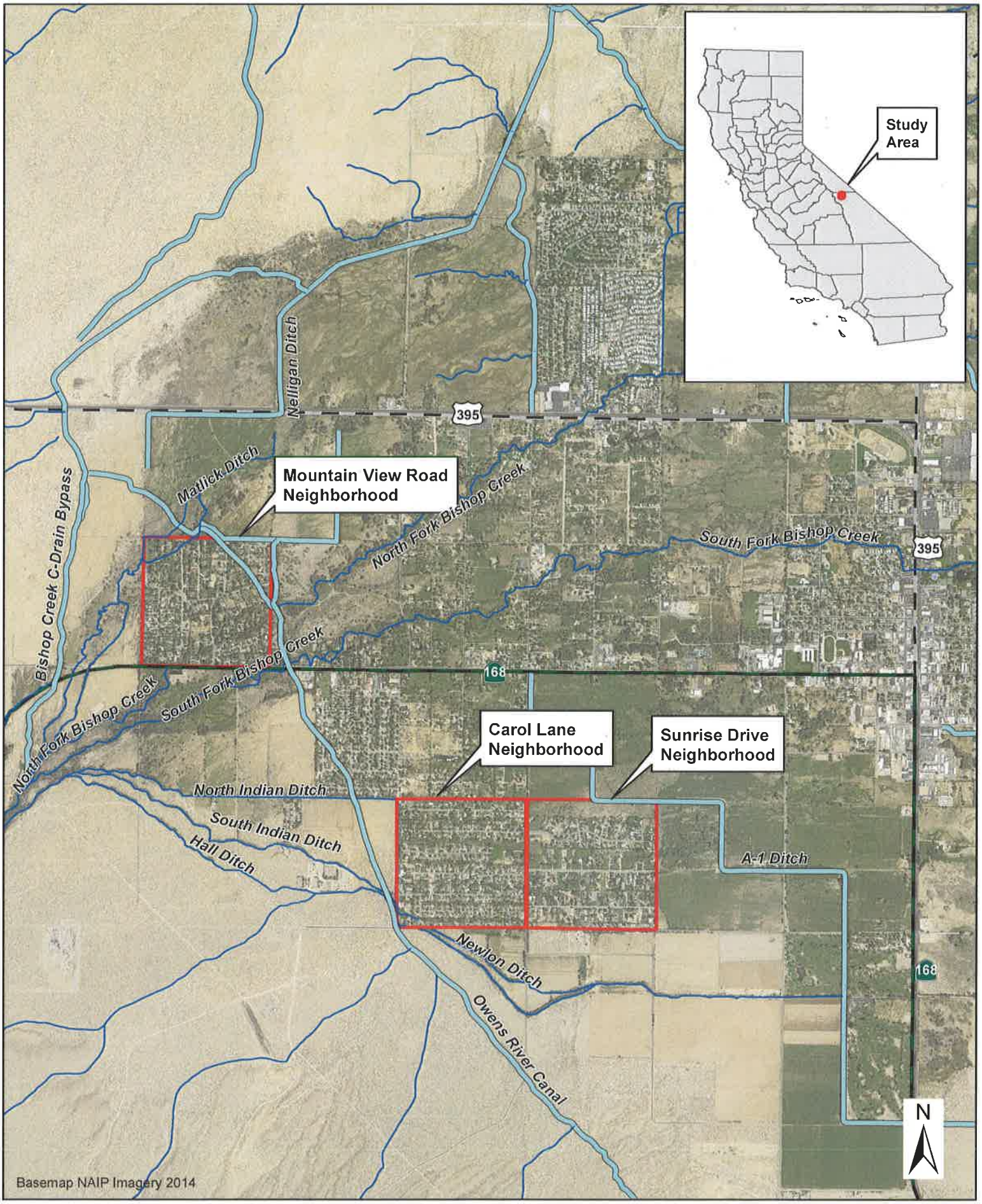


Figure 1. Vicinity Map

0 0.2 0.4 0.8 Miles

1 inch equals 0.48 miles

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 10/27/2016

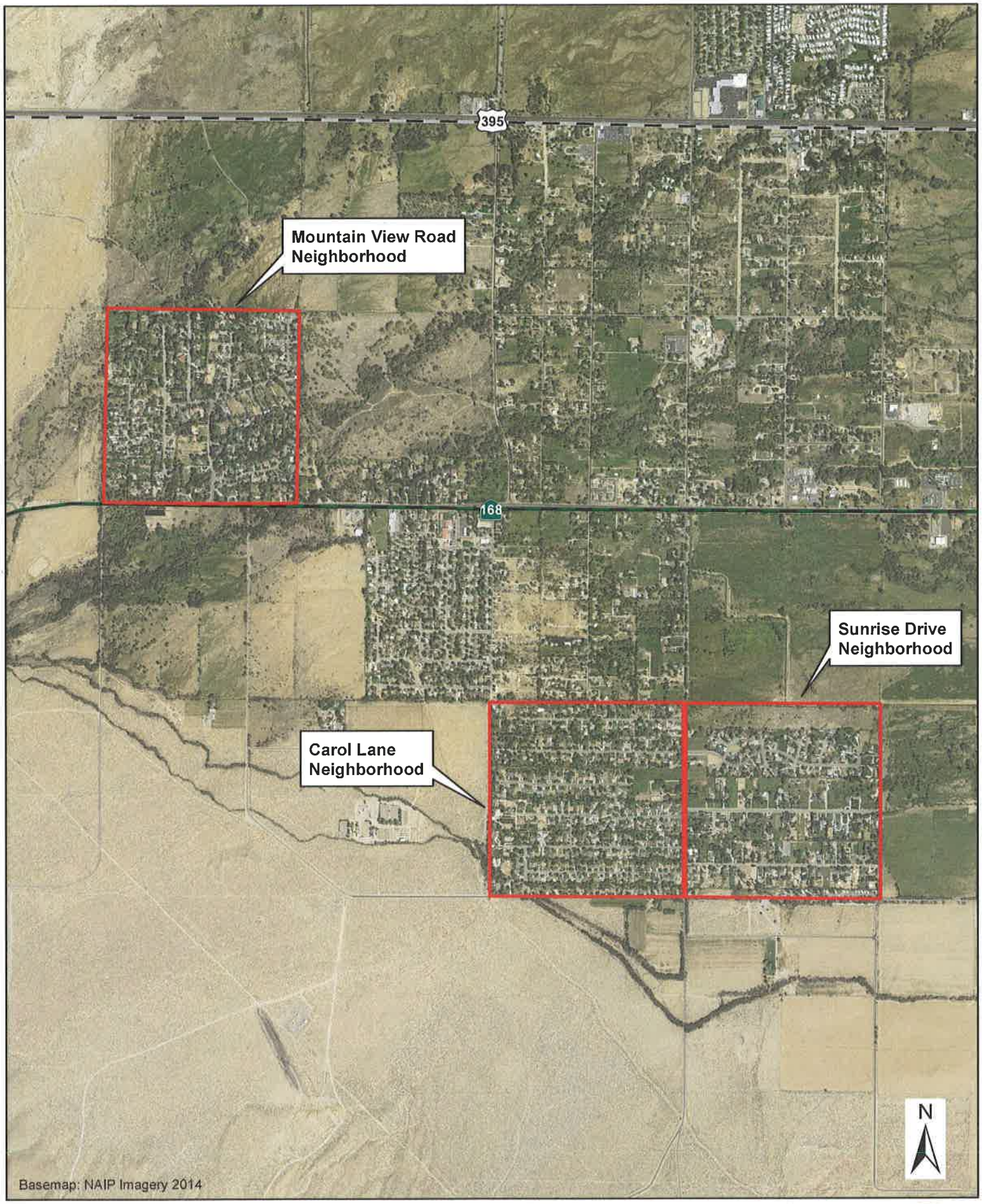


Figure 2. Study Areas

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

0 0.15 0.3 0.6 Miles

1 inch equals 0.32 miles

Date: 10/27/2016

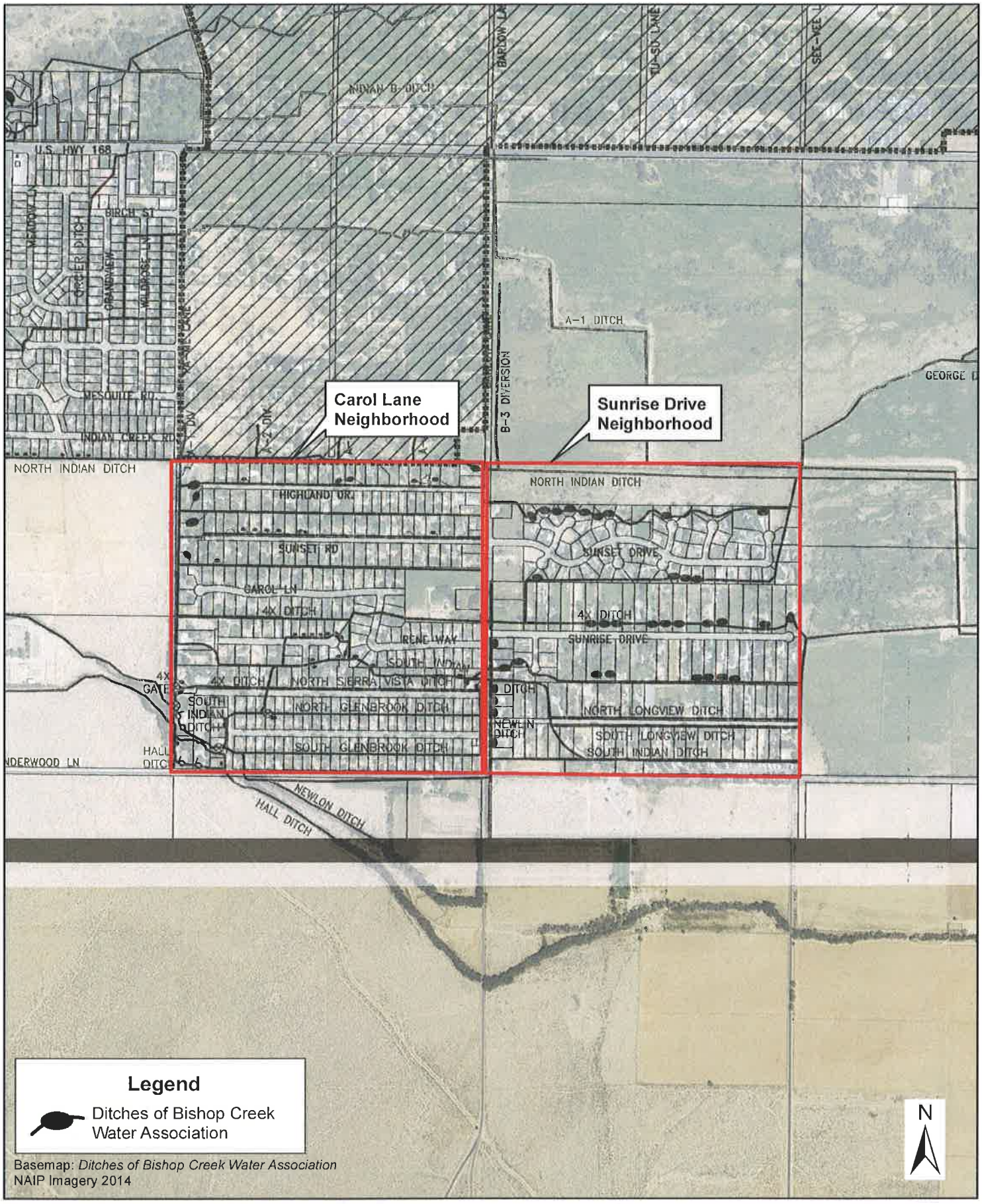


Figure 3. Carol Lane and Sunrise Drive Neighborhoods Parcel, Ditch, and Pond System Alignment

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

0 0.1 0.2 0.4 Miles

1 inch equals 0.2 miles

Date: 10/27/2016

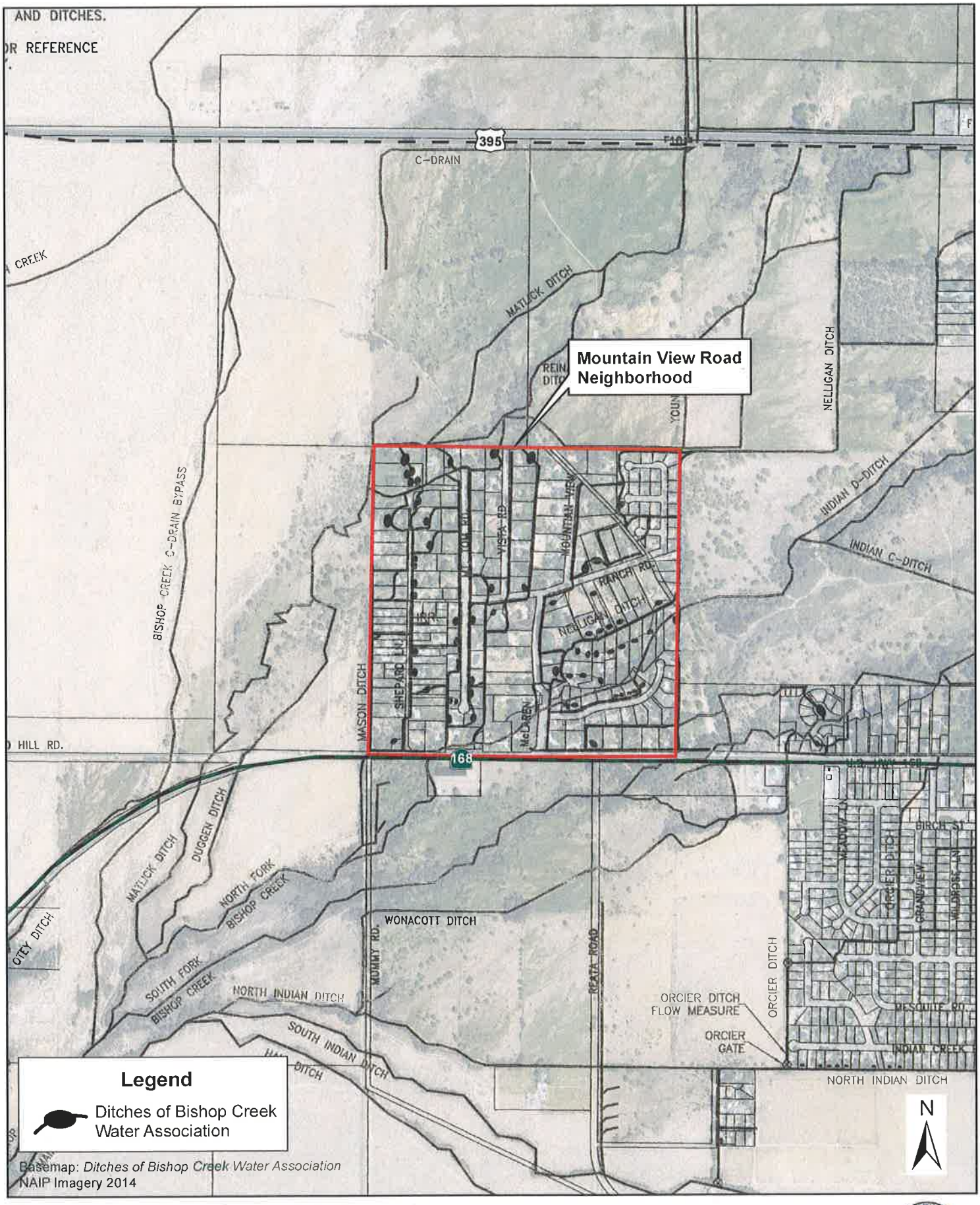


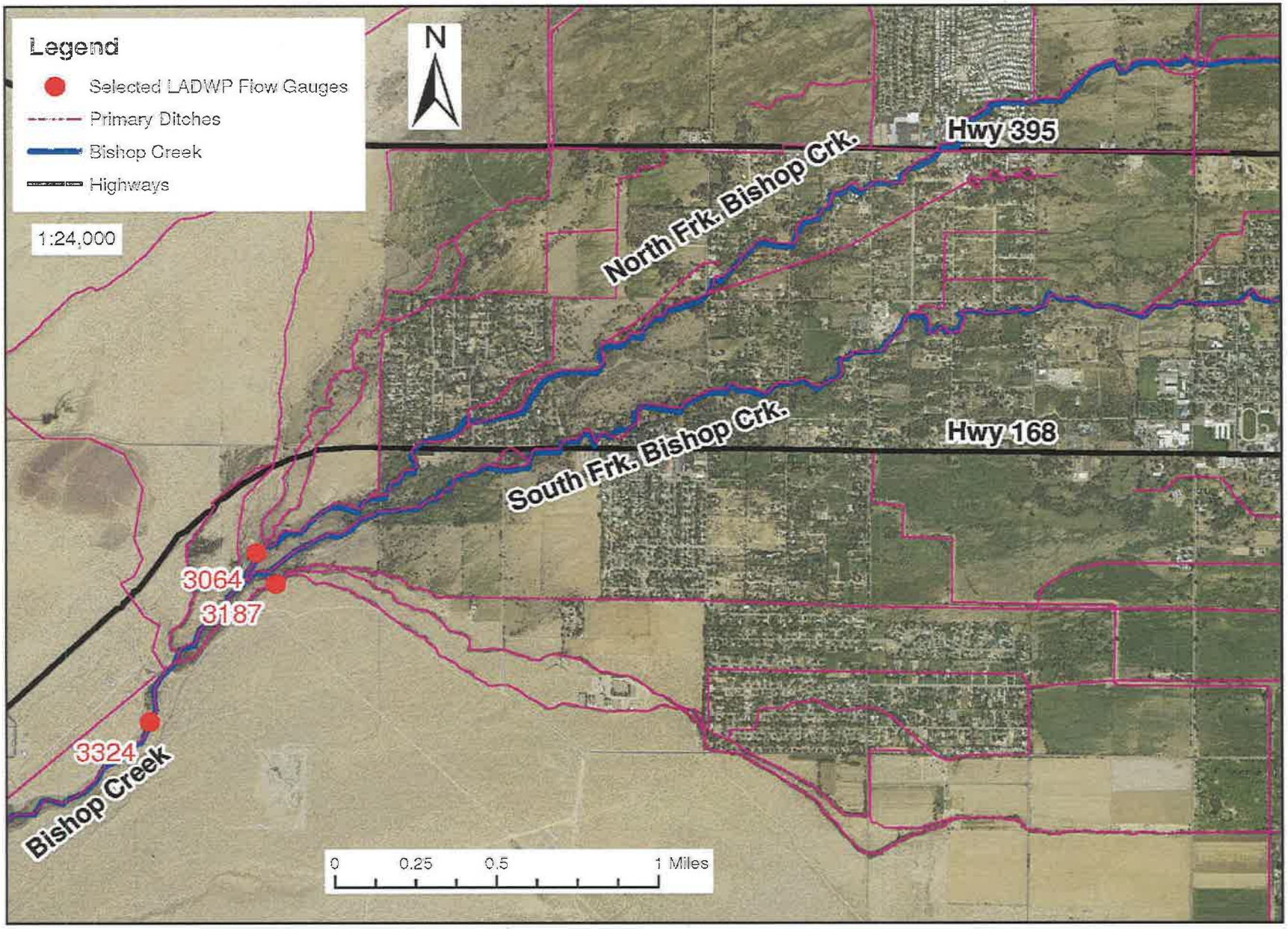
Figure 4. Mountain View Road Neighborhood Parcel, Ditch, and Pond Alignment

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

0 0.1 0.2 0.4 Miles

1 inch equals 0.2 miles

Date: 10/27/2016



Source: Inyo County

Figure 5. Locations of Surface Flow Gauging Stations on Bishop Creek

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 10/27/2016

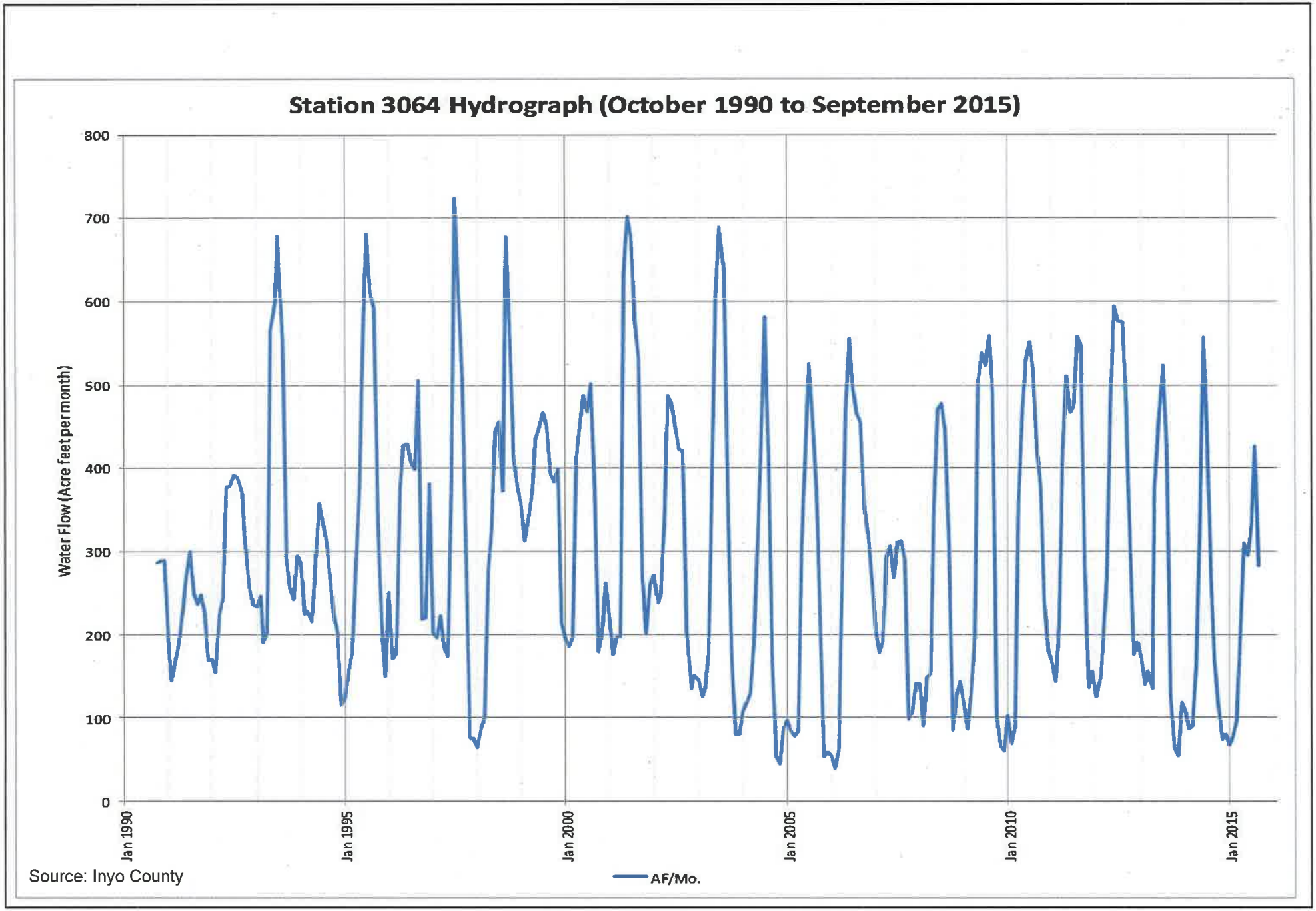


Figure 6. Bishop Creek Surface Water Hydrograph

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 10/27/2016

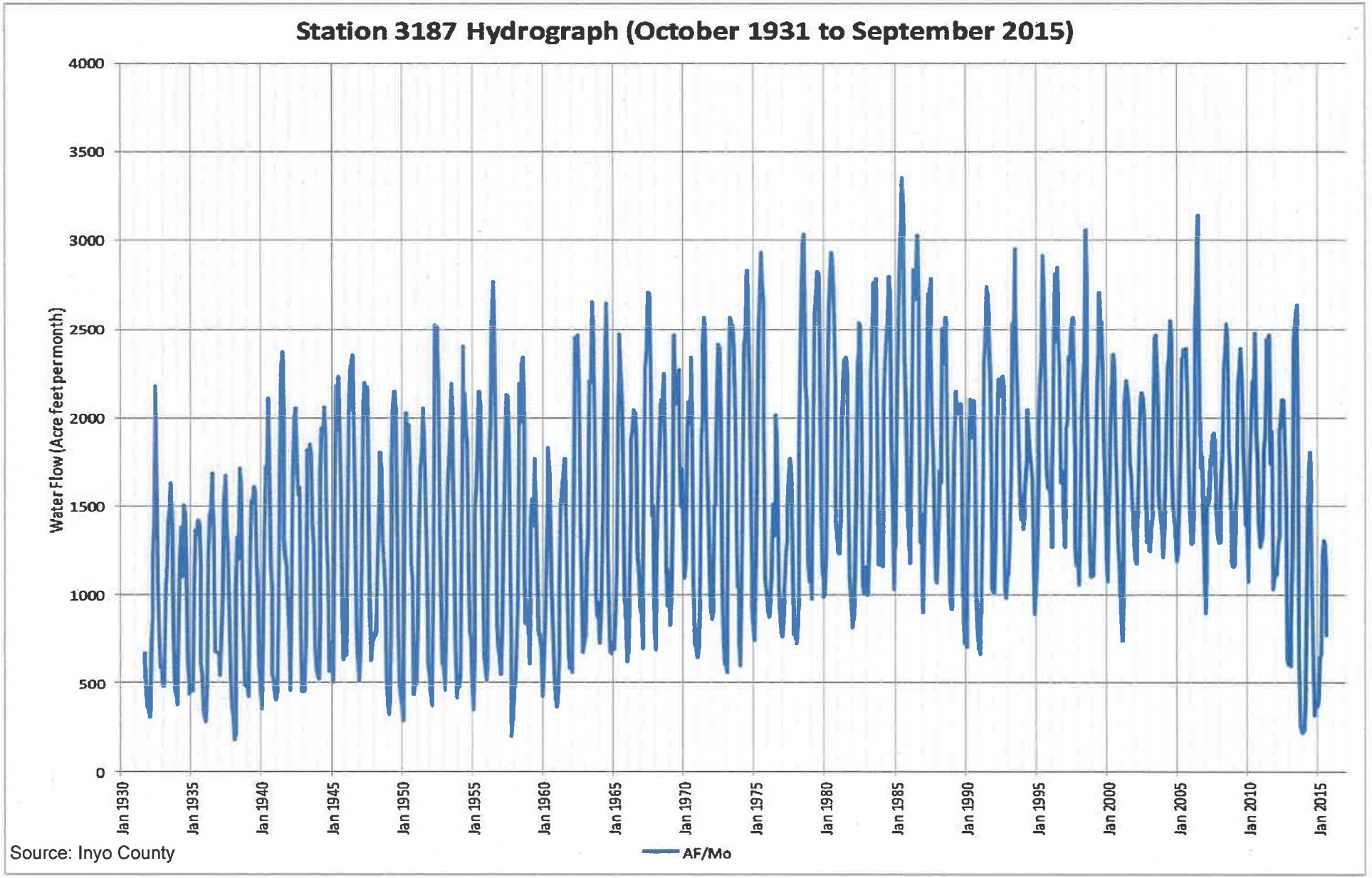


Figure 7. Matlick Ditch Surface Water Hydrographs

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 10/27/2016

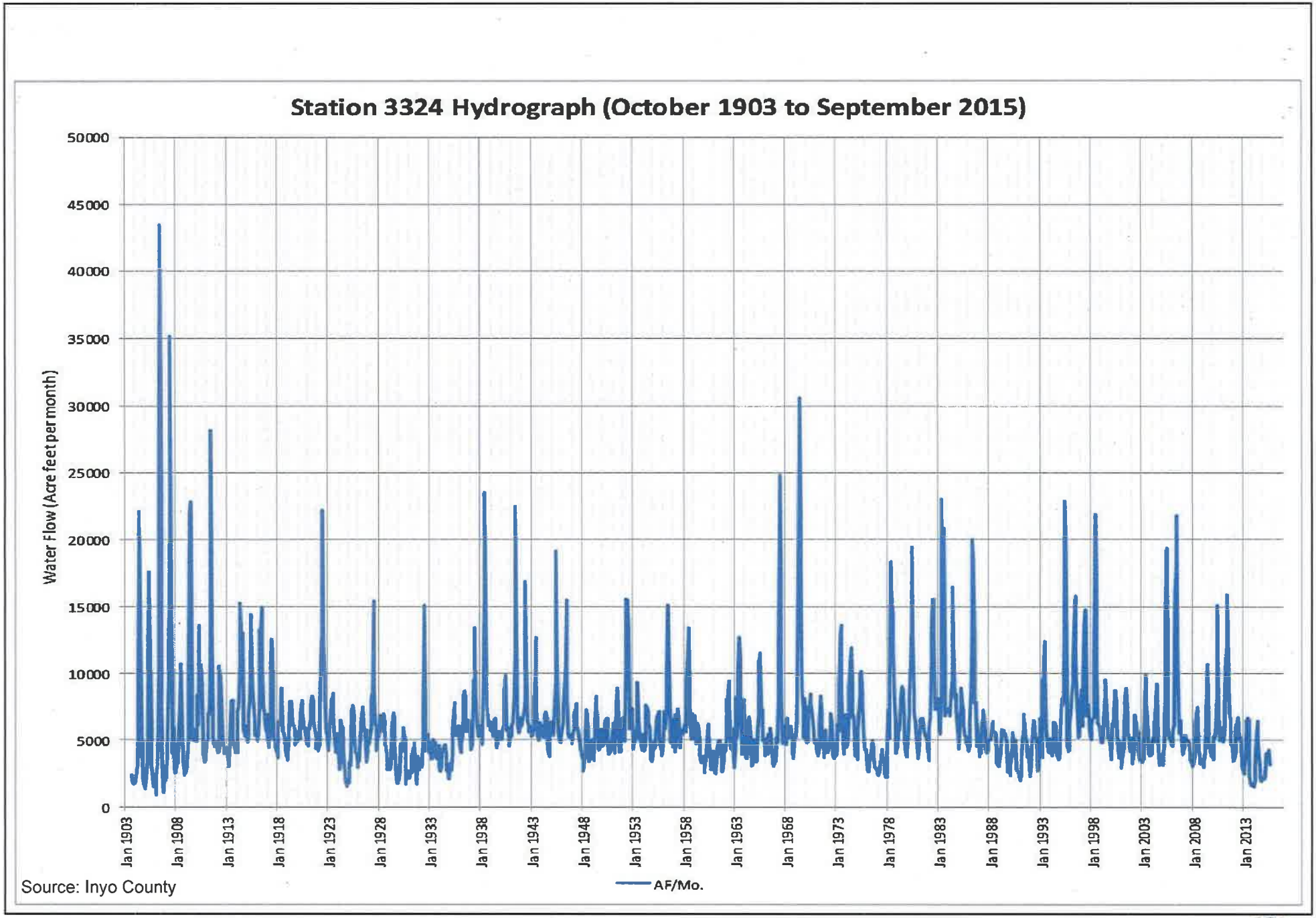


Figure 8. North and South Indian Ditch Surface Water Hydrograph

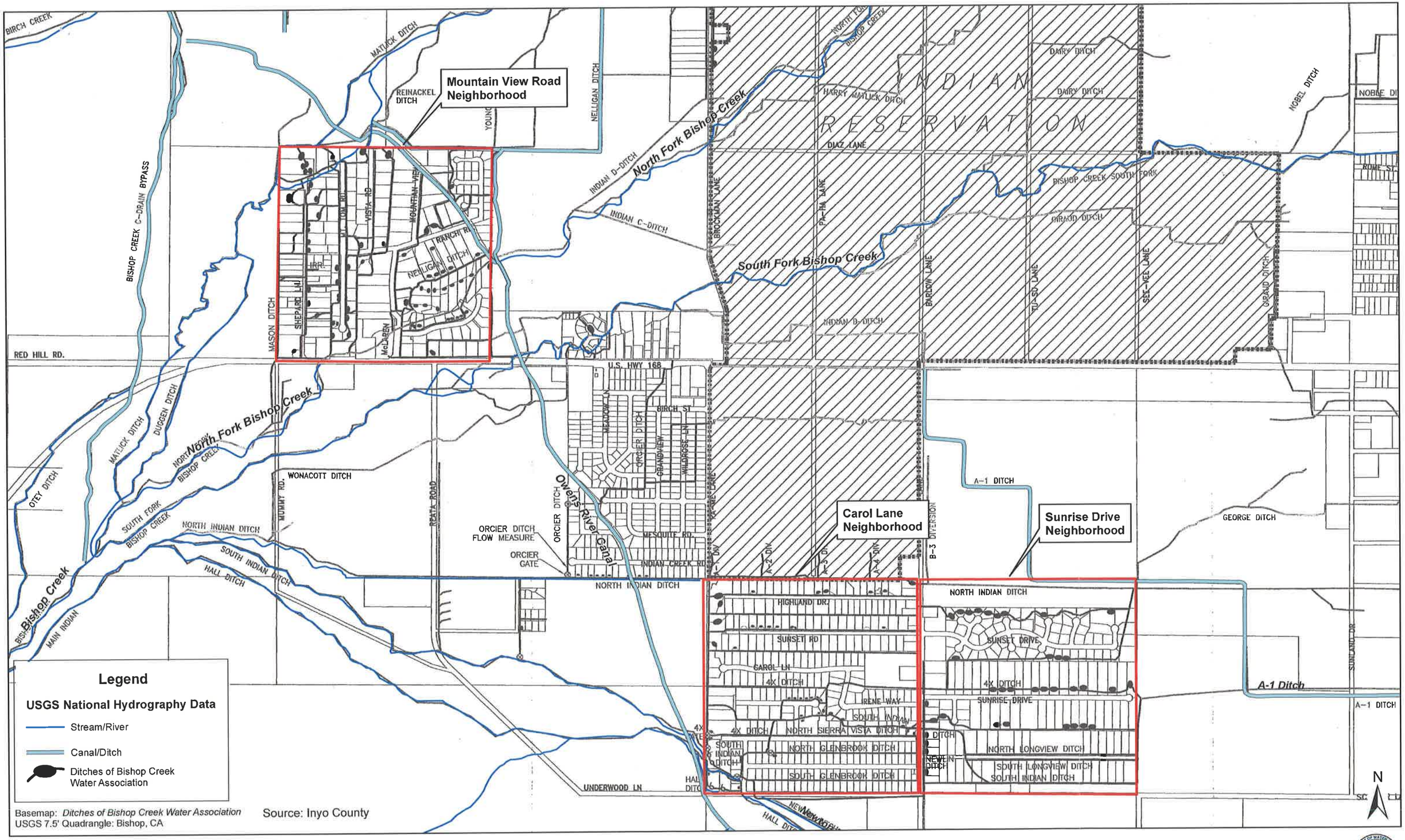


Figure 9. Bishop Creek and Irrigation Ditch System

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

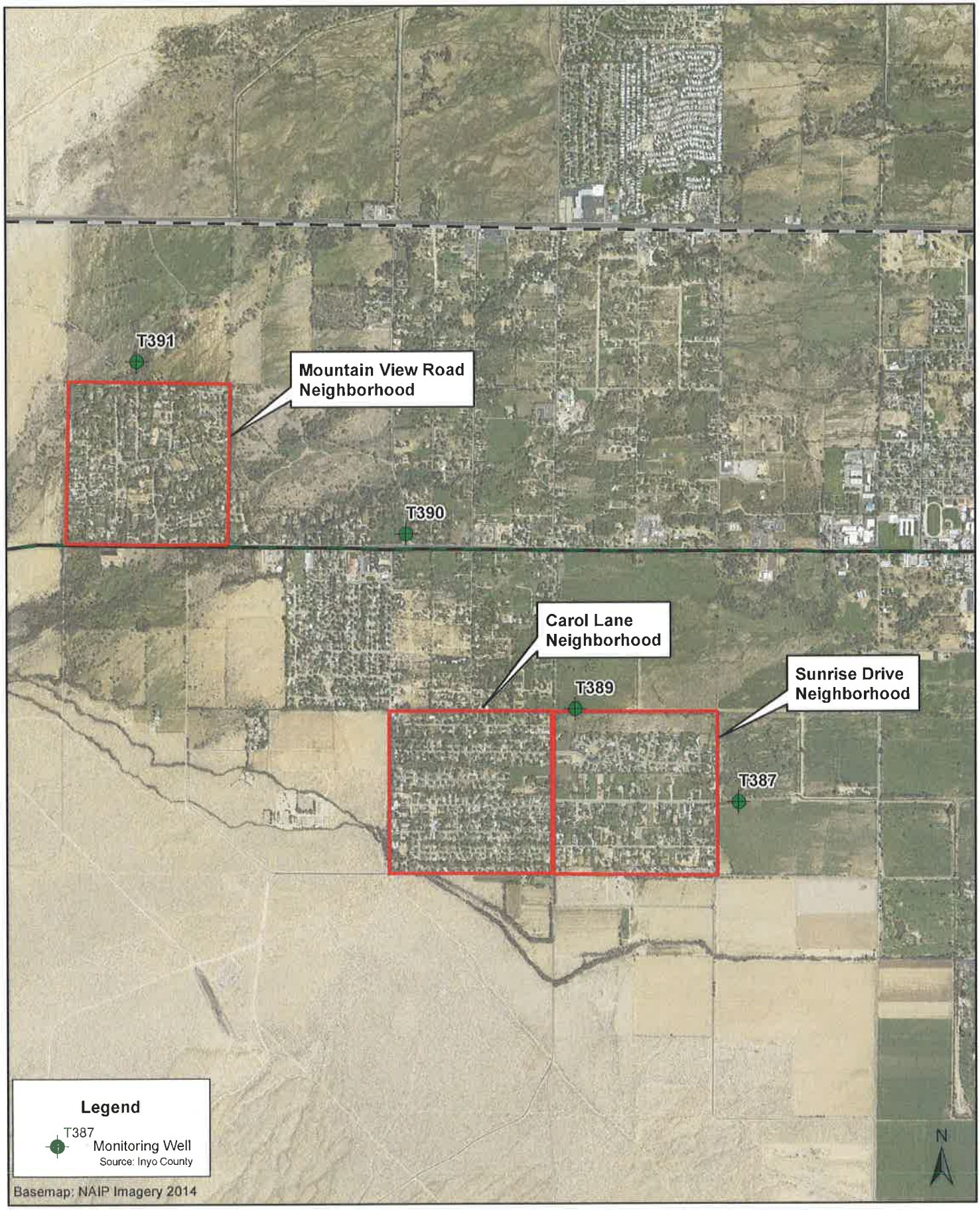


Figure 10. Monitoring Welll Locations for T387, T389, T390, T391

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

0 0.2 0.4 Miles

1 inch equals 0.38 miles

Date: 10/27/2016

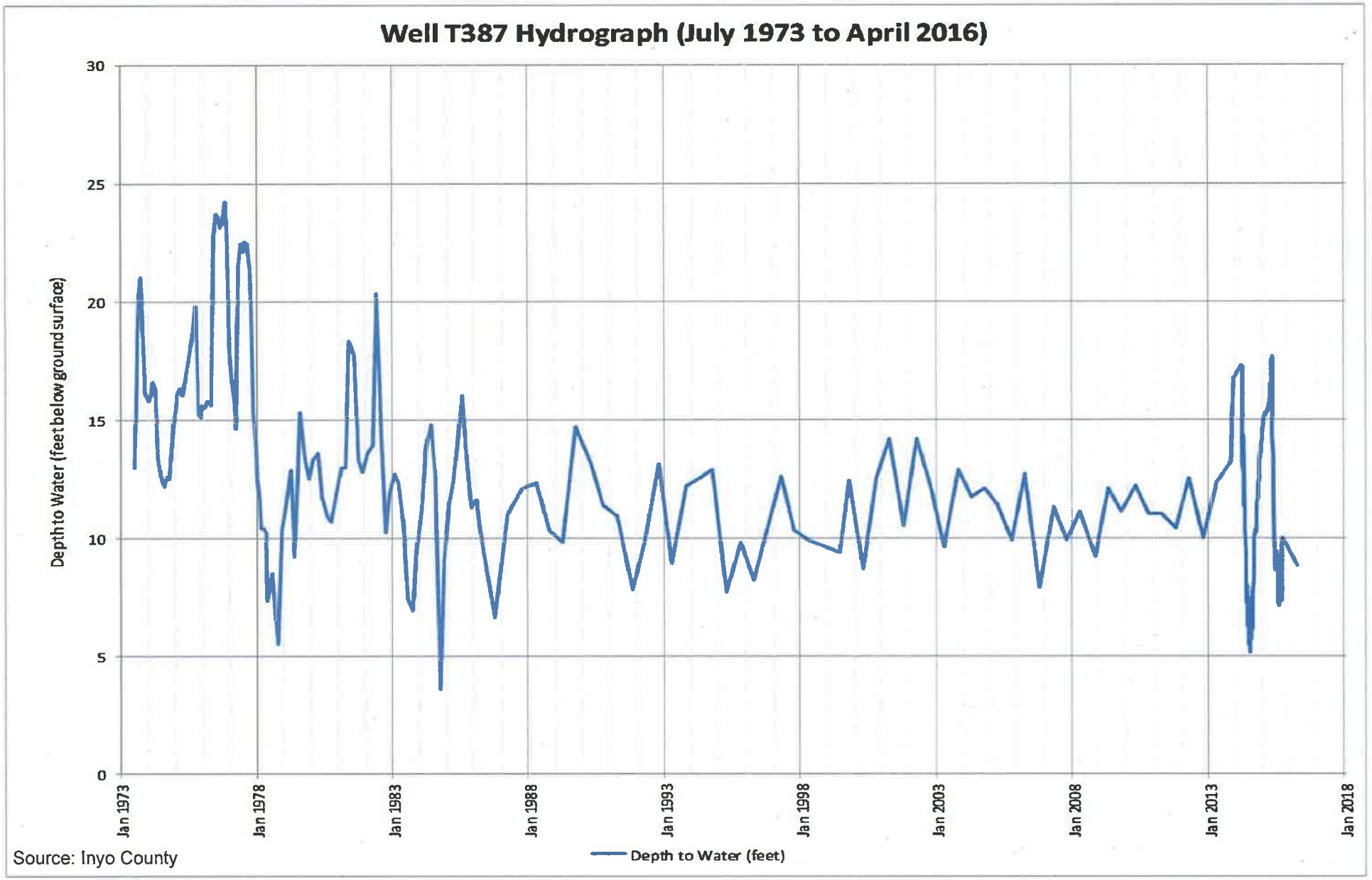


Figure 11. Monitoring Well T387 Groundwater Hydrograph

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 10/27/2016

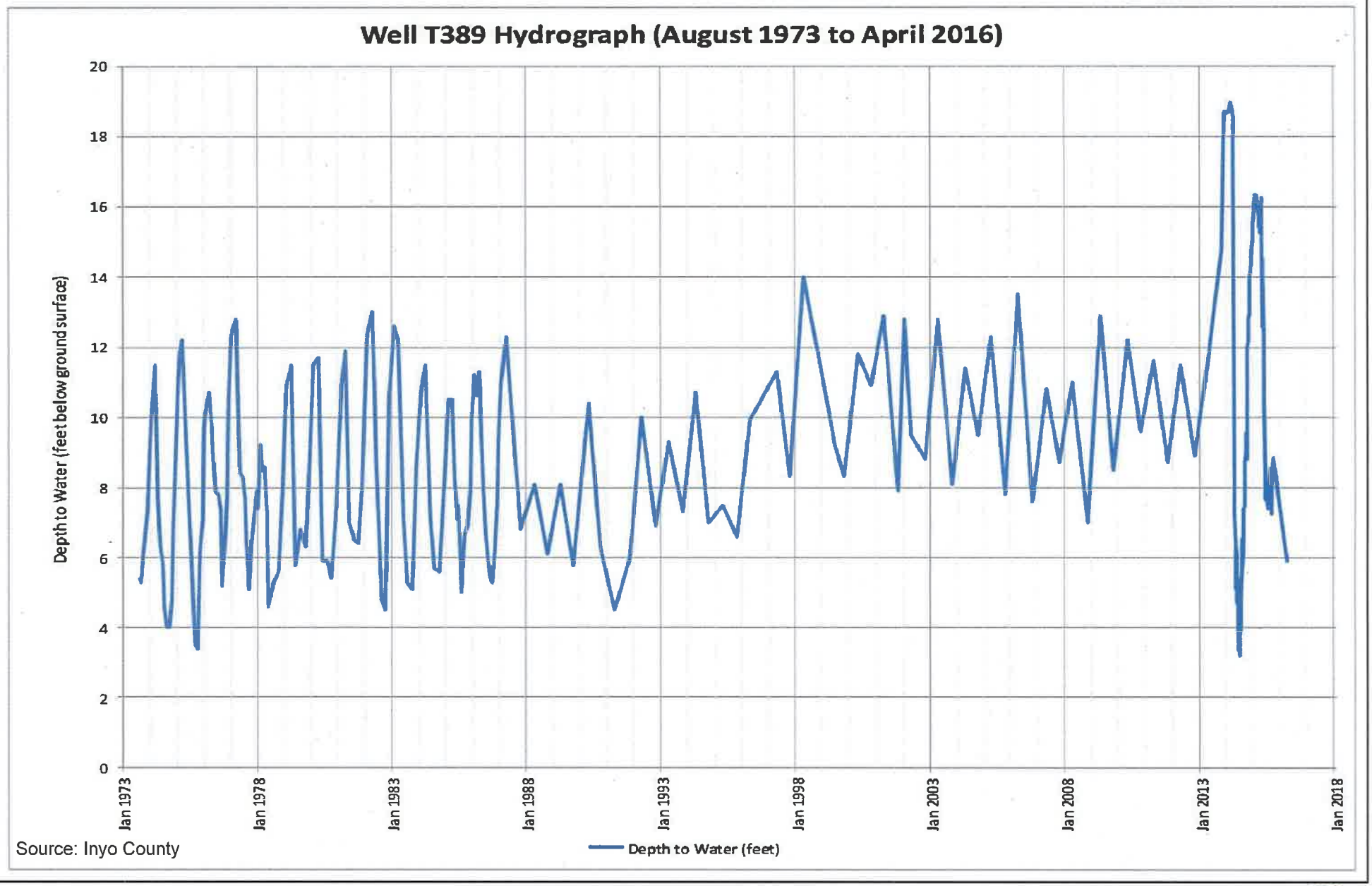


Figure 12. Monitoring Well T389 Groundwater Hydrograph

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 10/27/2016

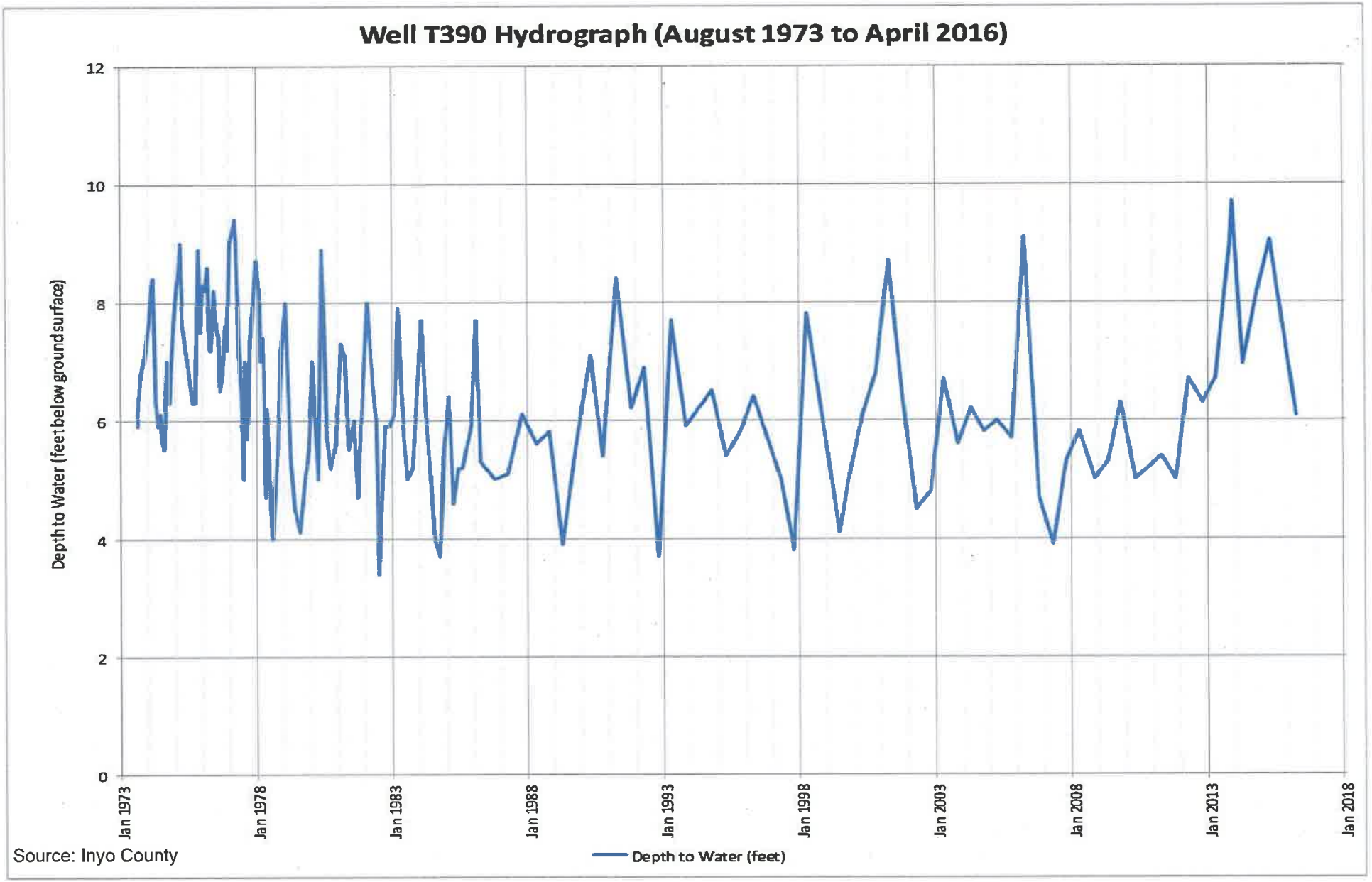


Figure 13. Monitoring Well T390 Groundwater Hydrograph

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 10/27/2016

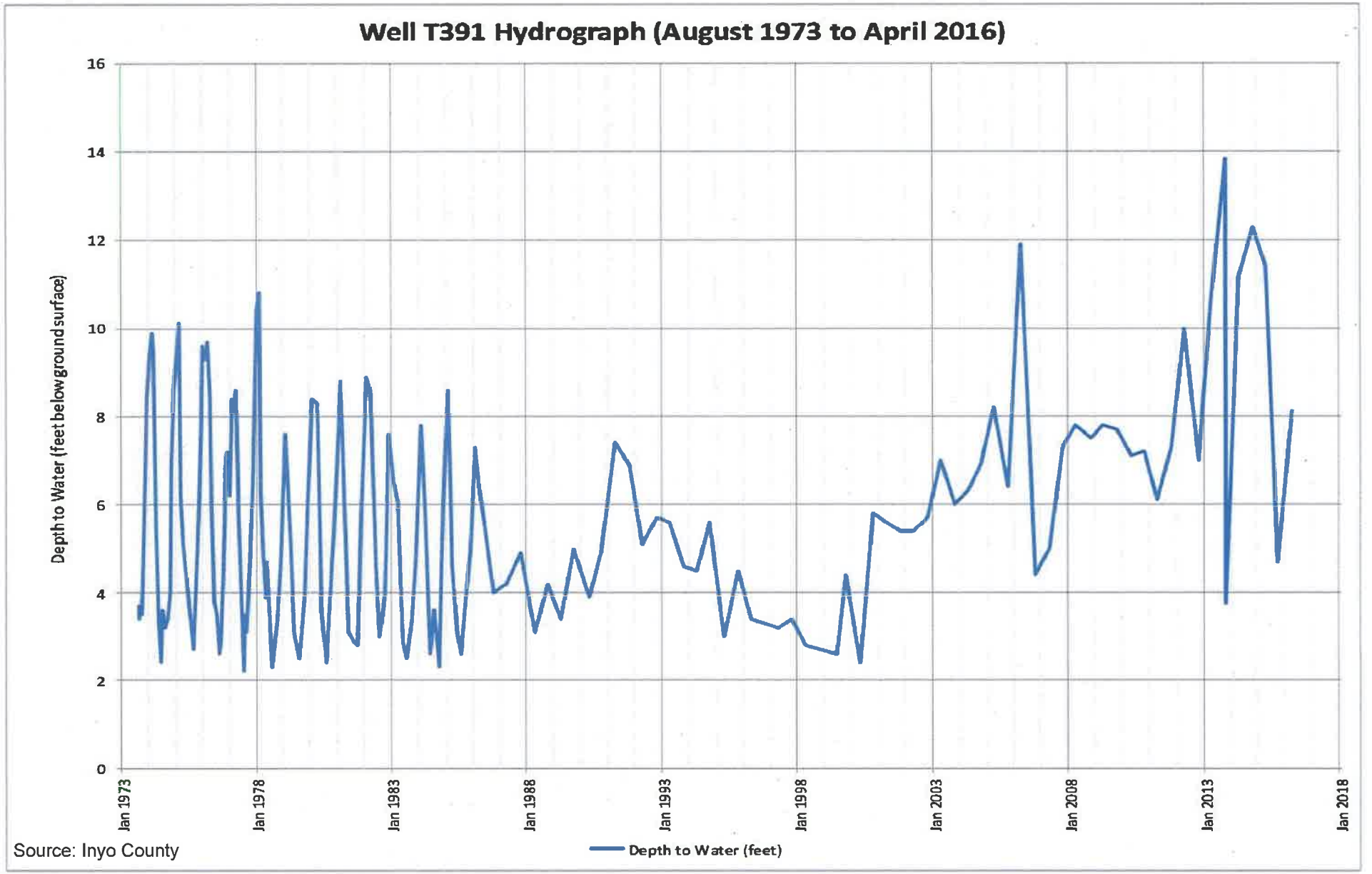
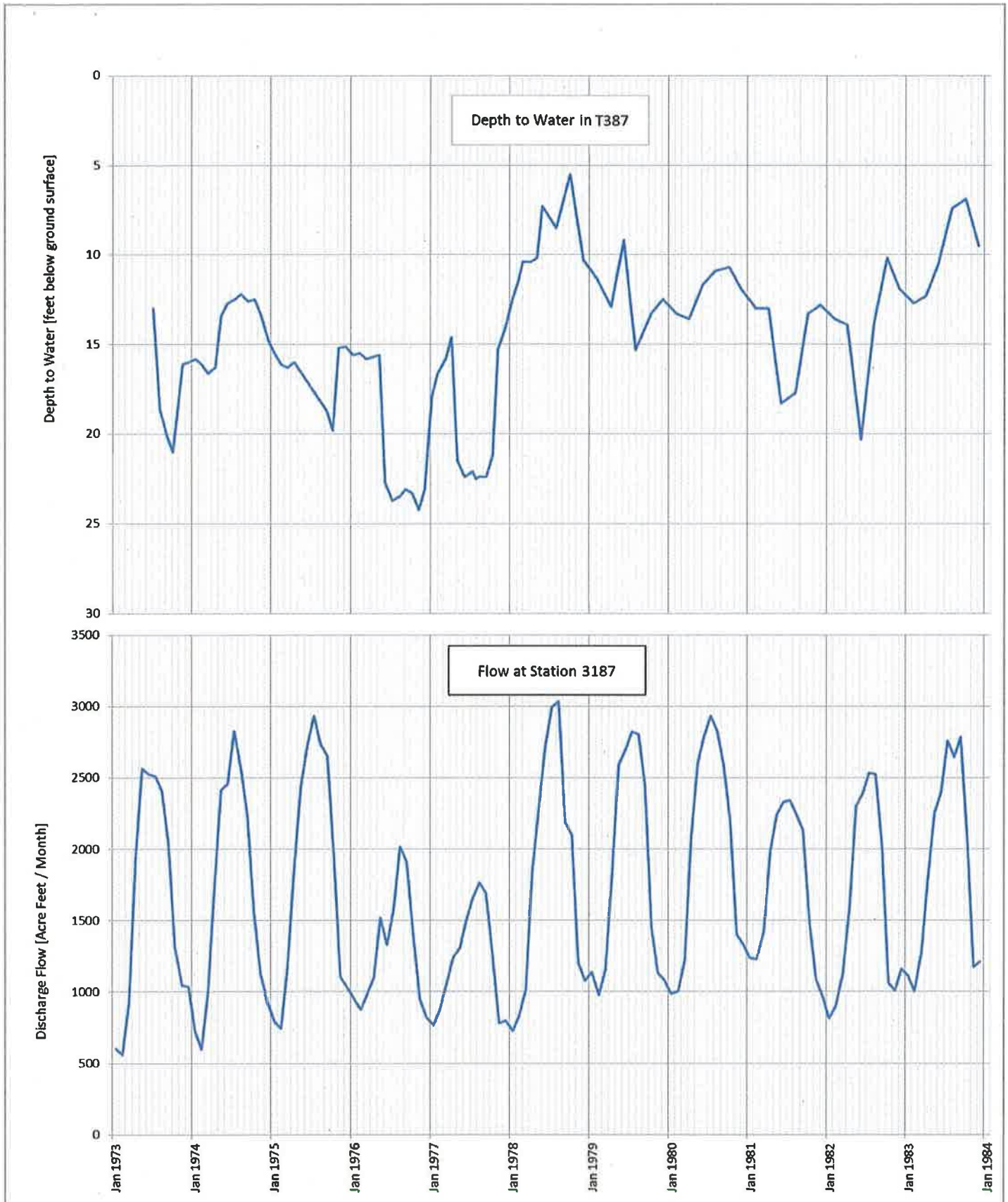


Figure 14. Monitoring Well T391 Groundwater Hydrograph

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 10/27/2016

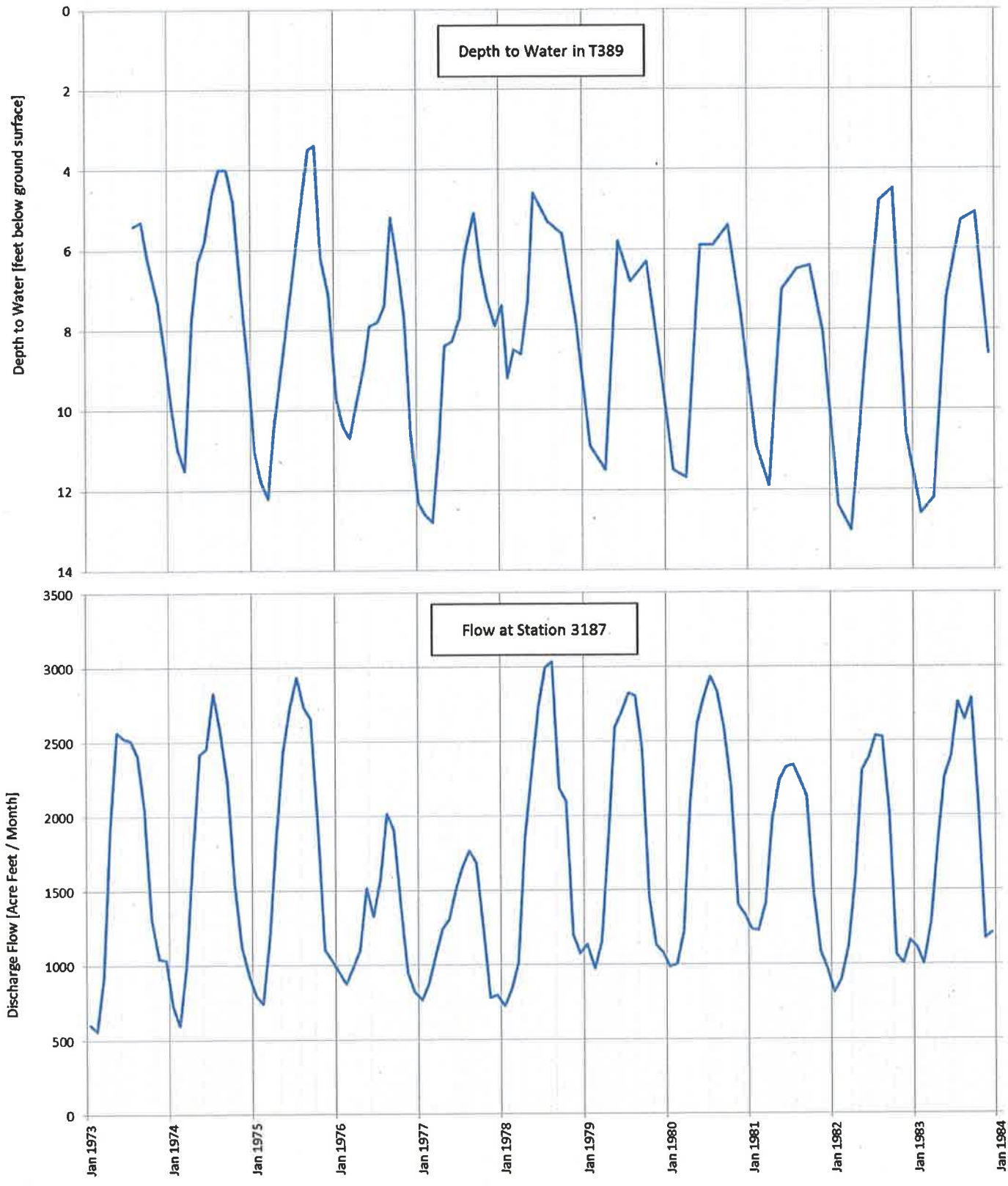


Source: Inyo County

Figure 15. Depth to Groundwater in Monitoring Well T387 [bgs] vs. Flow at Indian Ditch Station 3187 [January 1973 to December 1983]

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 11/3/2016

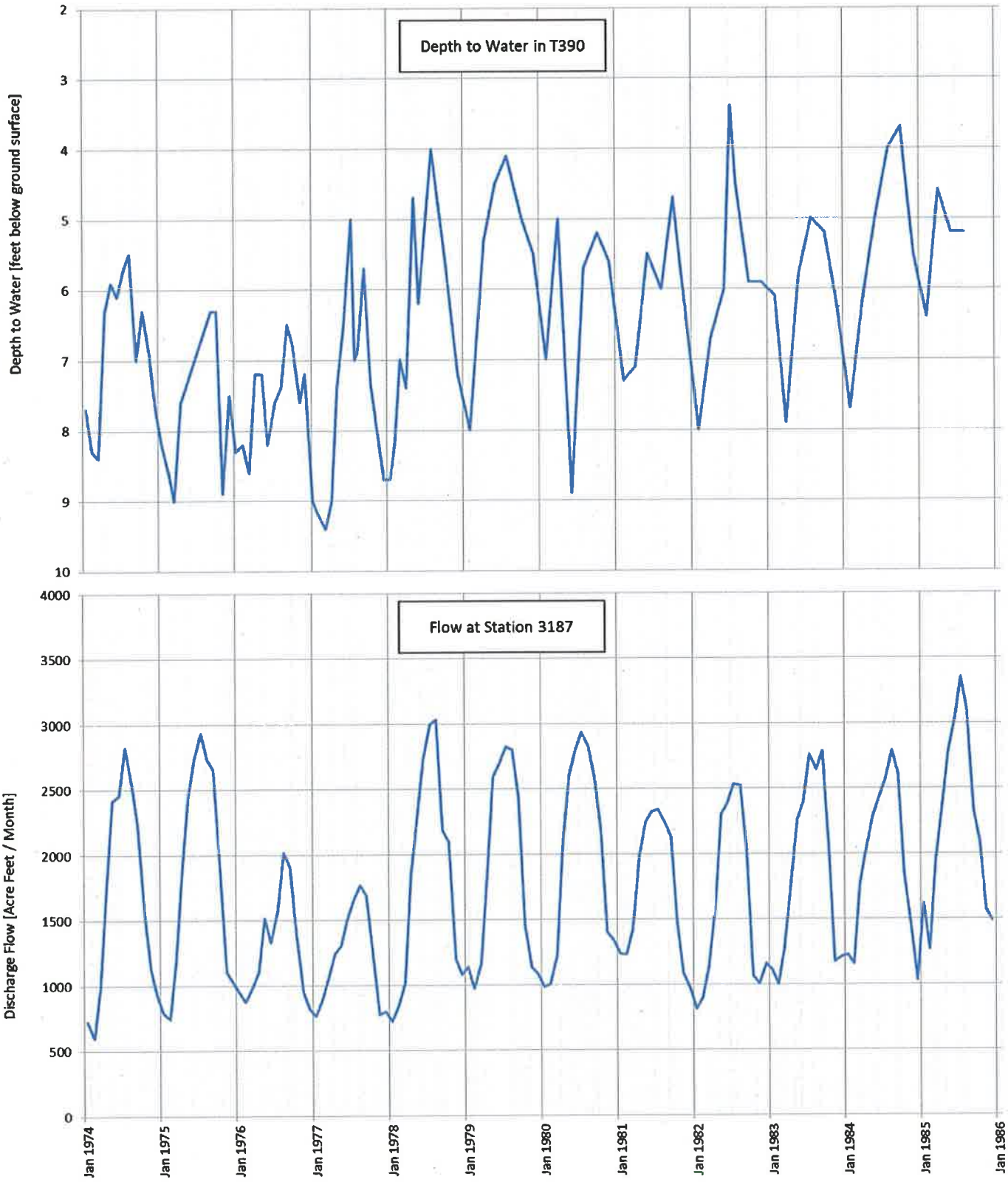


Source: Inyo County

Figure 16. Depth to Groundwater in Monitoring Well T389 [bgs] vs. Flow at Indian Ditch Station 3187 [January 1973 to December 1983]

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 11/3/2016

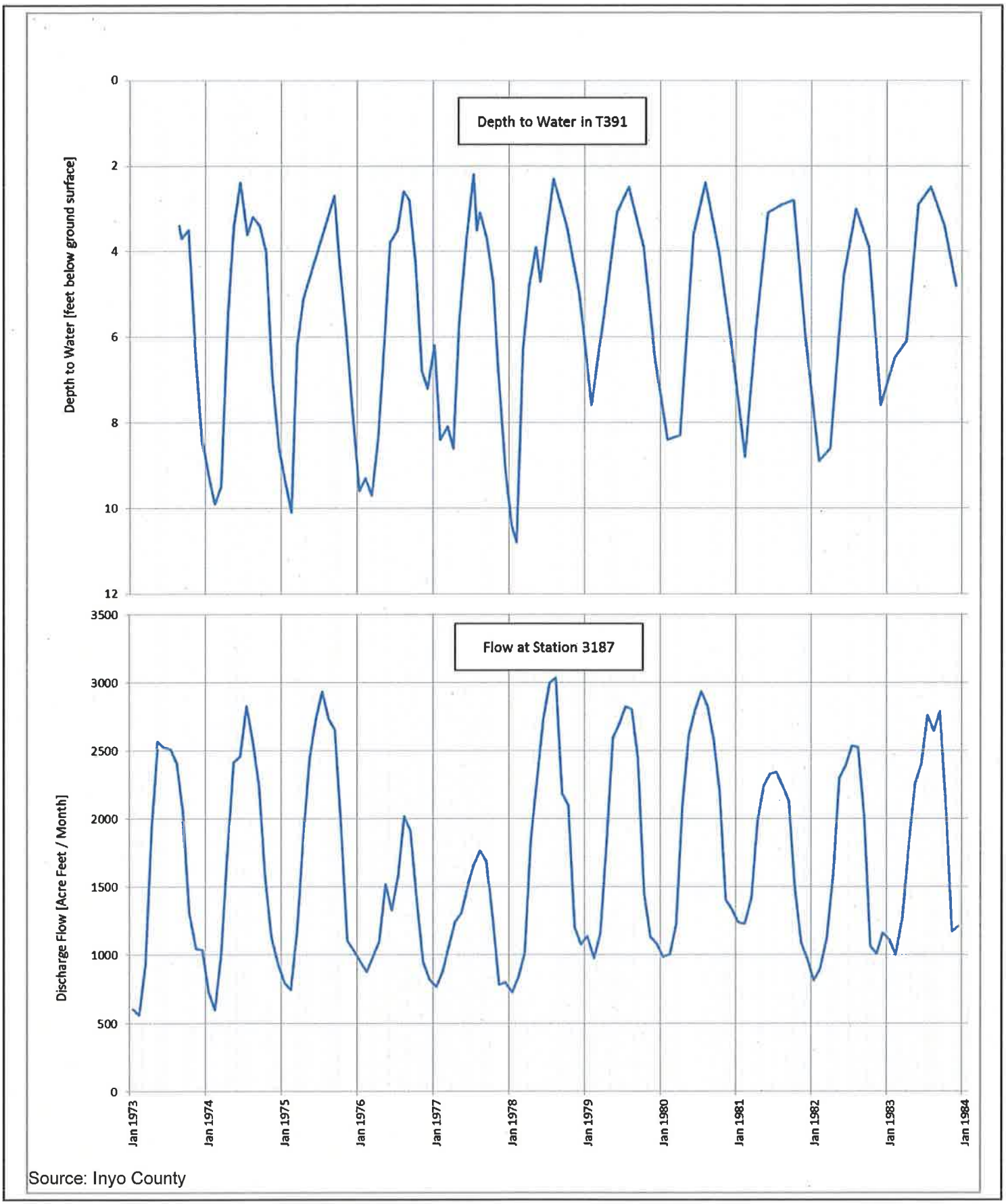


Source: Inyo County

Figure 17. Depth to Groundwater in Monitoring Well T390 [bgs] vs. Flow at Indian Ditch Station 3187 [January 1974 to December 1985]

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 11/3/2016

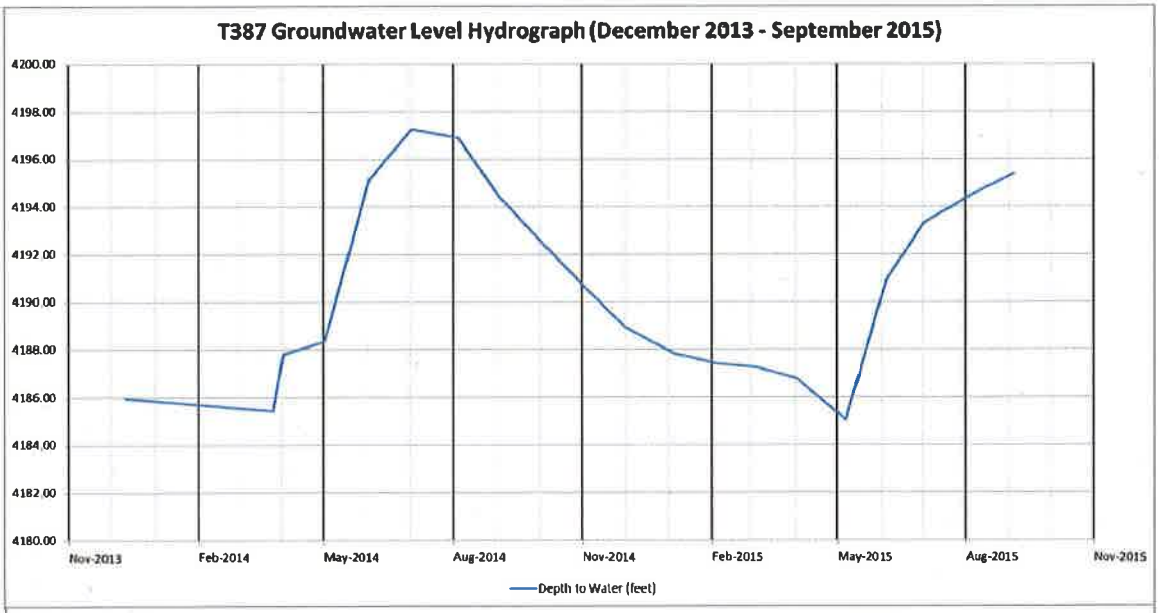


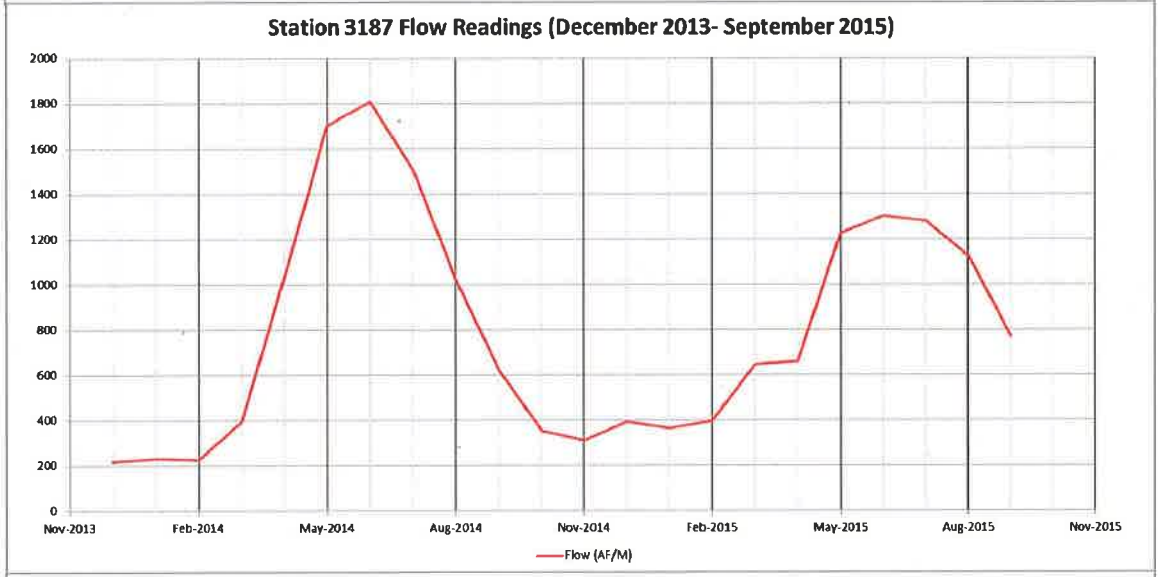
Source: Inyo County

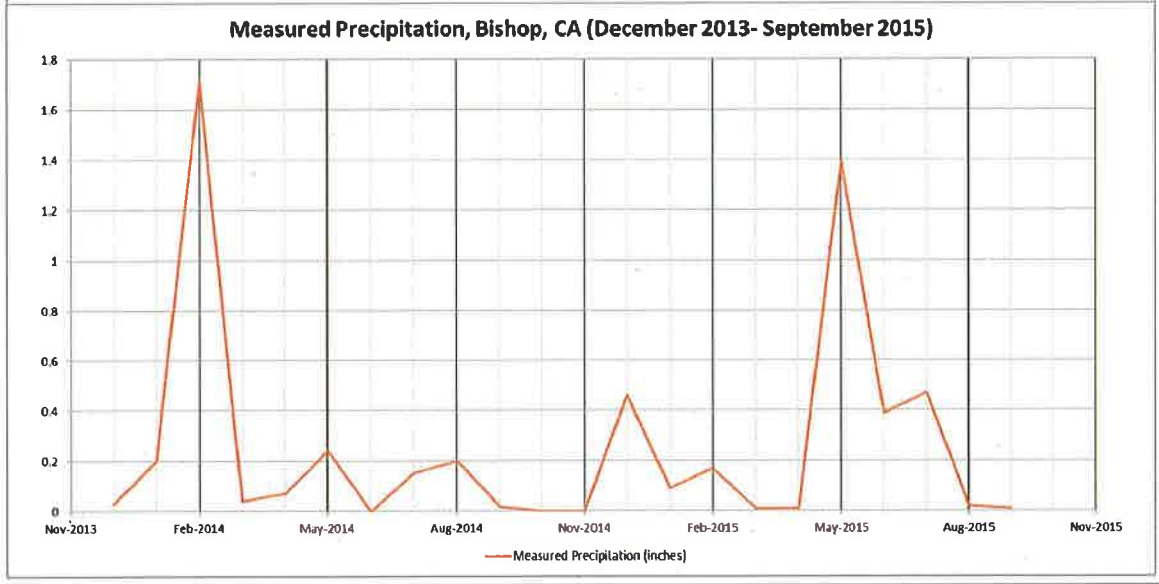
Figure 18. Depth to Groundwater Monitoring Well T391 [bgs] vs. Flow at Indian Ditch Station 3187 [January 1973 to December 1983]

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 11/3/2016





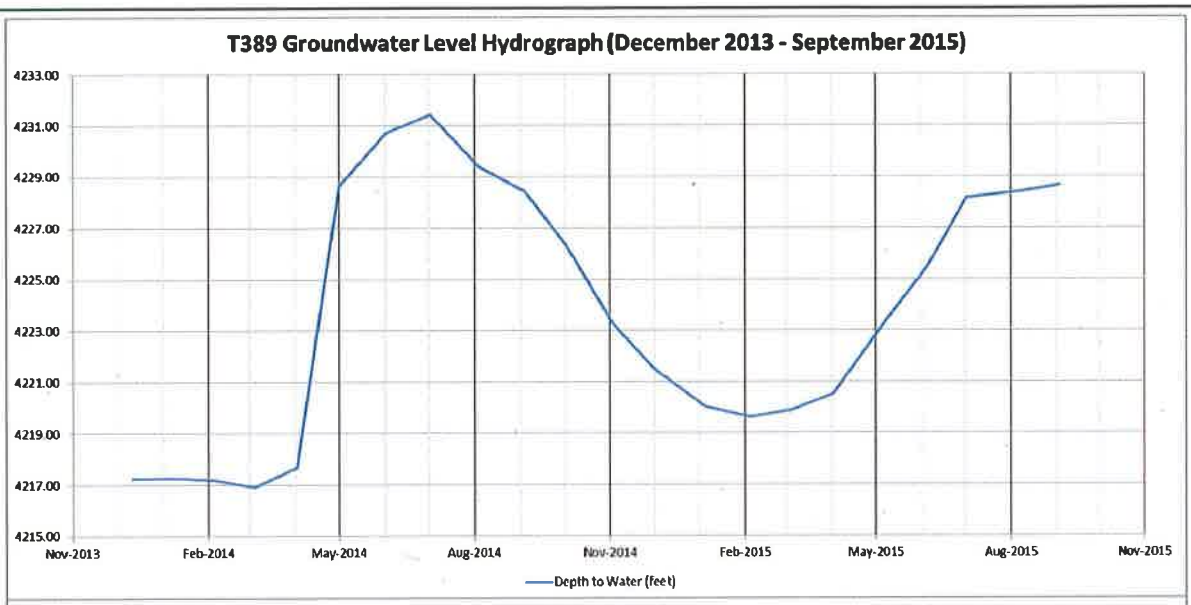


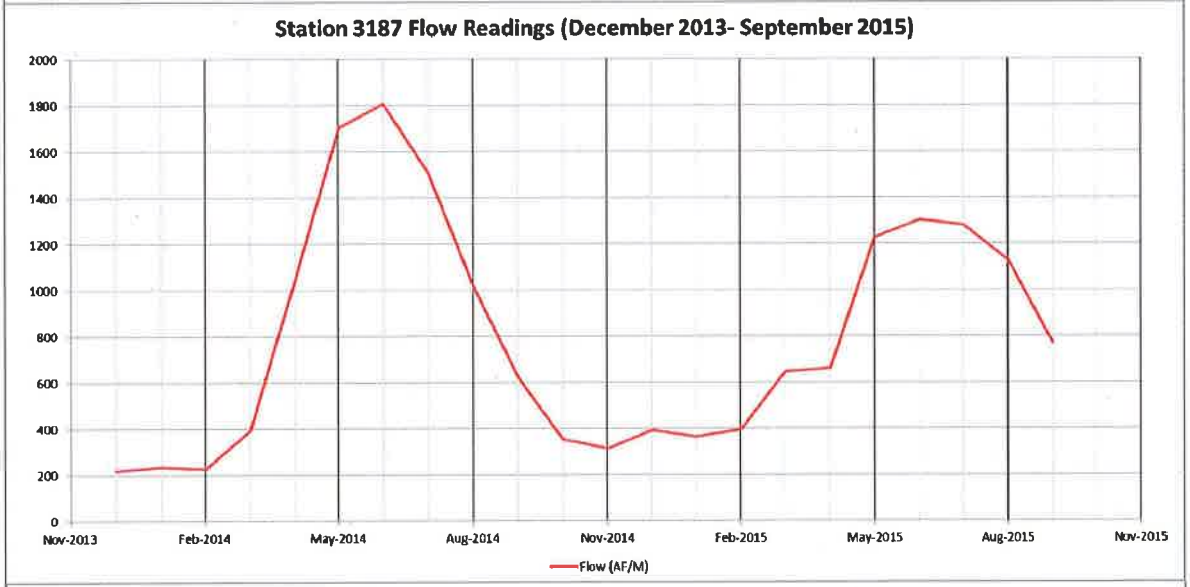
Source:
Inyo County

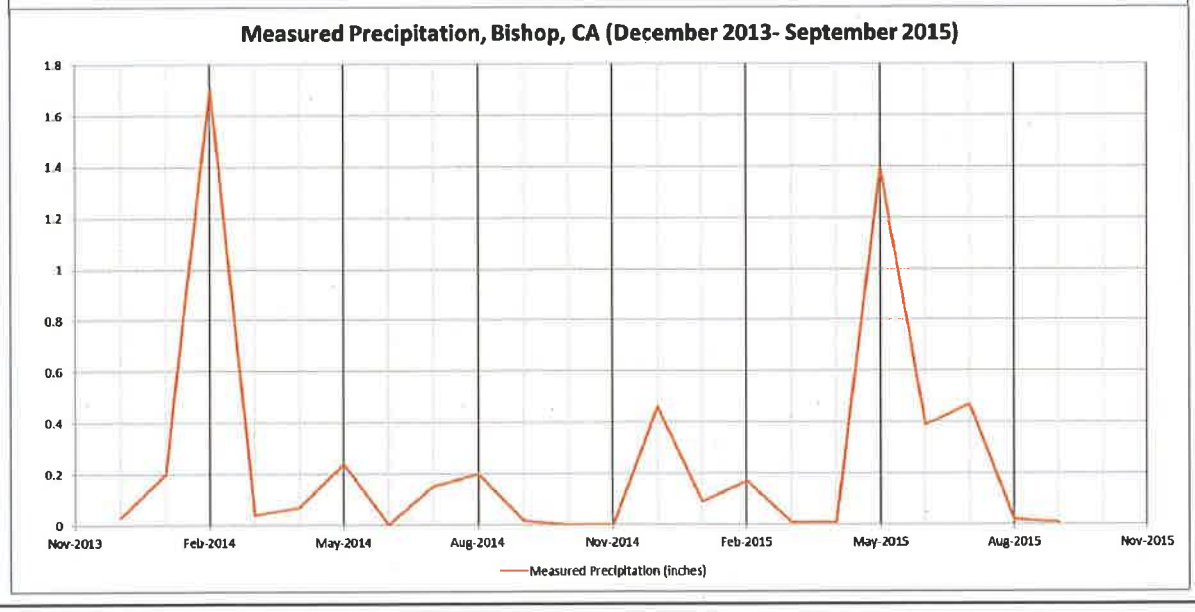
Figure 19. T387 Groundwater Levels, Ditch Flow, and Precipitation (December 2013 - September 2015)

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 10/28/2016







Source:
Inyo County

Figure 20. T389 Groundwater Levels, Ditch Flow, and Precipitation (December 2013 - September 2015)

Shallow Groundwater Conditions in West Bishop: Carol Lane, Sunrise Drive, and Mountain View Road Neighborhoods

Date: 10/28/2016

Appendix A
Precipitation Data

BISHOP AP, CA

Total of Precipitation (Inches)

(040822)

File last updated on November 22, 2016
a = 1 day missing, b = 2 days missing, c = 3 days, ..etc..,
z = 26 or more days missing, A = Accumulations present
Long-term means based on columns; thus, the monthly row may not sum (or average) to the long-term annual value.
MAXIMUM ALLOWABLE NUMBER OF MISSING DAYS : 5
Individual Months not used for annual or monthly statistics if more than 5 days are missing.
Individual Years not used for annual statistics if any month in that year has more than 5 days missing.

YEAR (S)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	ANN
1895	2.60	0.38	0.47	0.18	0.03	0.12	0.12	0.01	0.01	0.19y	-----z	-----z	3.92c
1896	-----z	-----z	-----z	-----z	-----z	-----z	0.61x	-----z	-----z	-----z	-----z	-----z	0.001
1897	-----z	1.67w	-----z	-----z	0.12y	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1898	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1899	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1900	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1901	-----z	-----z	-----z	-----z	1.29y	-----z	-----z	0.93w	-----z	-----z	-----z	-----z	0.001
1902	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1903	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1904	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1905	-----z	1.18y	2.73w	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1906	-----z	-----z	-----z	0.74x	-----z	-----z	-----z	-----z	-----z	-----z	-----z	2.15x	0.001
1907	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1908	-----z	1.65u	-----z	-----z	-----z	-----z	0.08y	-----z	-----z	-----z	-----z	-----z	0.001
1909	3.77x	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	6.08x	0.001
1910	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1911	5.02y	1.66x	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1912	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1913	-----z	2.05y	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.56y	-----z	0.001
1914	9.67s	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1915	-----z	1.69y	-----z	0.69x	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1916	9.51s	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1917	-----z	2.08x	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1918	-----z	2.20u	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1919	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1920	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001

1921	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1922	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1923	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1924	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1925	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1926	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1927	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1928	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1929	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1930	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1931	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1932	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1933	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1934	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1935	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1936	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1937	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1938	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1939	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1940	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1941	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1942	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.001
1943	-----z	-----z	-----z	-----z	-----z	-----z	-----z	-----z	0.14	-----z	-----z	0.53 w	0.14 k
1944	0.34	1.99 t	-----z	0.20	0.05	0.03	0.00	0.00	0.00	0.04	0.51 y	-----z	0.66 d
1945	0.00	5.50 v	0.74 w	0.02	0.35	0.04	0.07	0.22	0.18	2.93	0.11	2.89	6.81 b
1946	0.02	0.18	1.24 f	-----z	0.08 c	0.00	0.591	0.01	0.00	0.43 a	2.18 j	0.87 h	0.72 e
1947	-----z	0.19 y	0.05	0.33 v	0.02	0.02	0.00	0.00	0.00	0.05	0.02 x	-----z	0.14 e
1948	0.00	0.01	0.05	0.56	0.32	0.43	0.00	0.00	0.00	0.23	0.00	0.36	1.96
1949	0.73	0.55	0.29	0.02	0.74	0.00	0.05	0.05	0.00	0.00	1.59	0.06	4.08
1950	0.42	0.65	0.43	0.10	0.00	0.00	0.23	0.02	0.53	0.21	1.81	0.85	5.25
1951	0.25	0.05	0.00	0.33	0.08	0.33	0.07	0.01	0.00	0.24	0.87	4.20	6.43
1952	5.03	0.00	2.05	1.02	0.00	0.03	0.20	0.00	0.09	0.00	0.53	1.15	10.10
1953	0.11	0.00	0.27	0.15	1.17	0.03	0.19	0.03	0.00	0.12	0.38	0.13	2.58
1954	1.68	2.21	1.00	0.00	0.18	0.02	0.16	0.00	0.14	0.00	0.85	0.95	7.19
1955	1.81	0.19	0.00	0.41	0.88	0.00	0.04	0.22	0.14	0.00	0.09	4.02	7.80
1956	1.45	0.00	0.00	2.26	0.34	0.00	0.05	0.00	0.00	0.46	0.00	0.05	4.61
1957	1.61	0.57	0.07	0.41	0.47	0.00	0.01	0.00	0.05	1.58	0.32	1.60	6.69
1958	0.58	0.77	1.46	1.30	0.08	0.14	0.00	0.02	0.10	0.03	0.28	0.00	4.76
1959	0.77	2.53	0.02	0.01	0.18	0.01	0.05	0.01	0.28	0.00	0.00	0.12	3.98
1960	0.18	0.81	0.03	0.01	0.01	0.00	0.19	0.00	0.05	0.17	2.59	0.08	4.12
1961	0.17	0.00	0.11	0.00	0.02	0.16	0.12	0.28	0.00	0.00	0.56	0.82	2.24
1962	0.49	4.96	0.30	0.00	1.30	0.17	0.06	0.00	0.46	0.00	0.00	0.00	7.74
1963	3.22	0.63	0.60	0.33	0.25	0.55	0.00	0.61	0.38	0.08	0.15	0.03	6.83
1964	0.49	0.00	0.03	0.49	0.81	0.00	0.00	0.05	0.00	0.37	0.22	0.24	2.70

1965	0.48	0.02	0.05	0.49	0.02	0.22	0.59	0.61	0.02	0.00	1.90	2.16	6.56
1966	0.00	0.01	0.00	0.00	0.18	0.00	0.00	0.10	0.18	0.00	0.27	5.79	6.53
1967	1.64	0.00	0.50	0.47	0.02	0.00	0.62	0.03	0.26	0.00	0.30	0.52	4.36
1968	0.01	0.03	0.10	0.01	0.01	0.00	0.70	0.39	0.00	0.08	0.01	0.48	1.82
1969	8.93	6.01	0.68	0.11	0.27	0.36	0.31	0.04	0.00	0.02	0.16	0.20	17.09
1970	0.71	0.54	0.05	0.44	0.00	0.04	0.03	0.01	0.00	0.00	1.64	0.22	3.68
1971	0.01	0.11	0.27	0.06	1.04	0.00	0.14	0.13	0.01	0.01	0.04	1.85	3.67
1972	0.00	0.00	0.00	0.00	0.11	0.25	0.04	0.09	0.36	0.90	0.68	0.01	2.44
1973	3.02	1.59	0.32	0.00	0.09	0.14	0.00	0.01	0.00	0.00	1.94	0.60	7.71
1974	1.48	0.00	1.75	0.21	0.33	0.00	0.16	0.00	0.00	0.80	0.00	0.64	5.37
1975	0.00	0.20	0.69	0.20	0.00	0.07	0.00	0.10	1.18	0.09	0.02	0.00	2.55
1976	0.00	1.37	0.05	0.05	0.59	0.17	1.47	0.00	0.94	0.02	0.00	0.00	4.66
1977	0.77	0.22	0.04	0.02	0.60	0.61	0.00	0.51	0.00	0.00	0.05	2.53	5.35
1978	2.68	3.33	1.64	0.22	0.00	0.02	0.02	0.01	0.51	0.18	0.51	0.50	9.62
1979	0.45	0.64	0.49	0.00	0.00	0.00	0.03	0.02	0.25	0.07	0.13	0.57	2.65
1980	1.56	2.72	0.28	0.43	0.10	0.00	0.35	0.00	0.14	0.00	0.08	1.25	6.91
1981	0.65	0.11	0.85	0.68	0.88	0.00	0.00	0.04	0.03	0.09	1.30	0.11	4.74
1982	1.43	0.02	0.50	1.62	0.08	1.29	0.00	0.51	0.74	0.68	0.87	2.67	10.41
1983	1.82	1.29	1.20	0.22	0.00	0.00	0.05	0.64	0.40	0.08	1.31	1.14	8.15
1984	0.00	0.36	0.09	0.02	0.00	0.04	1.04	0.58	0.00	0.16	1.97	0.85	5.11
1985	0.25	0.01	0.06	0.00	0.00	0.67	0.31	0.00	0.34	0.05	0.95	0.55	3.19
1986	0.86	3.04	1.00	0.65	0.00	0.00	0.31	0.06	0.12	0.00	0.03	0.08	6.15
1987	0.42	0.31	0.03	0.04	0.54	0.16	0.18	0.03	0.01	0.13	1.67	0.60	4.12
1988	0.87	0.30	0.07	0.63	0.12	0.23	0.00	0.00	0.50	0.00	0.12	0.68	3.52
1989	0.06	0.12	0.04	0.00	1.04	0.04	0.00	0.01	0.24	0.00	0.26	0.00	1.81
1990	0.95	0.50	0.00	0.56	0.21	0.15	0.26	0.45	0.28	0.00	0.00	0.00	3.36
1991	0.00	0.07	2.94	0.07	0.00	0.02	0.00	0.00	0.21	0.69	0.00	0.58	4.58
1992	0.38	1.31	0.67	0.00	0.06	0.30	0.12	0.06	0.05	0.53	0.00	1.50	4.98
1993	2.03	2.62 b	0.91	0.00	0.04	0.00	0.00	0.00	0.00	0.06	0.12	0.08	5.86
1994	0.04	1.33	0.57	0.03	0.54	0.00	0.00	0.00	1.28	0.24	0.05	0.25	4.33
1995	3.08	0.60	2.28	0.07	0.72	0.20	0.23	0.01	0.00	0.00	0.02	1.06	8.27
1996	0.38	0.30	0.79	0.43	0.02	0.00	0.12	0.00	0.00	0.77	0.78	0.39	3.98
1997	2.26	0.00	0.00	0.00	0.01	0.47	0.23	0.00	0.24	0.00	0.25	0.48	3.94
1998	0.55	5.16	0.85	0.28	0.57	1.31	0.01	0.03	0.28	0.17	0.01	0.06	9.28
1999	1.10	0.41	0.01	0.38	0.08	0.02	0.04	0.19	0.15	0.00	0.02	0.00	2.40
2000	0.30	0.98	0.29	0.45	0.00	0.00	0.00	0.30	0.02	0.25	0.00	0.00	2.59
2001	0.79	1.40	0.37	0.41	0.12	0.00	0.73	0.00	0.00	0.00	1.02	0.21	5.05
2002	0.03	0.00	0.01	0.04	0.00	0.00	0.05	0.00	0.01	0.00	1.68	0.86	2.68
2003	0.04	0.46	0.57	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.30	2.46
2004	0.03	1.34	0.10	0.10	0.00	0.07	0.02	0.01	0.00	1.26	1.13	1.80	5.86
2005	3.78	0.83	1.23	0.00	0.25	0.00	0.02	0.58	0.36	0.28	0.00	2.16	9.49
2006	3.01	0.79	0.18	0.39	0.08	0.06	0.26	0.00	0.00	0.52	0.00	0.05	5.34
2007	0.35	0.12	0.03	0.17	0.00	0.00	0.39	0.17	0.22	0.01	0.03	0.37	1.86
2008	4.82	1.24	0.00	0.00	0.15	0.00	0.15	0.00	0.08	0.00	0.70	0.61	7.75

2009	0.03	0.53	0.04	0.02	0.12	0.58	0.11	0.12	0.01	1.77	0.07	1.30	4.70
2010	1.28	0.39	0.02	0.39	0.00	0.00	0.08	0.00	0.00	1.33	0.28	5.37	9.14
2011	0.02	0.94	1.00	0.04	0.06	0.01	0.08	0.00	0.16	0.74	0.14	0.00	3.19
2012	1.43	0.05	0.29	0.23	0.00	0.00	0.00	0.25	0.00	0.42	0.04	0.77	3.48
2013	0.00	0.00	0.00	0.00	0.47	0.00	0.48	0.16	0.00	0.16	0.03	0.03	1.33
2014	0.20	1.71	0.04	0.07	0.24	0.00	0.15	0.20	0.16	0.00	0.00	0.46	3.23
2015	0.09	0.17	0.01	0.01	1.39	0.39	0.47	0.02	0.01	0.75	0.00	0.06	3.37
2016	1.06	0.06	0.07	1.04	0.34	0.50	0.00	0.00	0.00	0.09	0.00i	-----z	3.16b
Period of Record Statistics													
MEAN	1.07	0.85	0.44	0.27	0.25	0.14	0.16	0.11	0.16	0.28	0.49	0.87	5.14
S.D.	1.48	1.25	0.60	0.40	0.35	0.26	0.26	0.18	0.26	0.50	0.65	1.23	2.72
SKEW	2.72	2.36	1.99	2.69	1.61	2.80	2.80	1.82	2.46	2.99	1.38	2.30	1.49
MAX	8.93	6.01	2.94	2.26	1.39	1.31	1.47	0.64	1.28	2.93	2.59	5.79	17.09
MIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33
YRS	73	71	71	72	74	74	73	74	75	73	69	69	68

Appendix B
Monitoring Well Data

staid	date	ource_nam	rp_elev	gr_elev	dtw	lscdtw	ws_elev
T387	7/5/1973	DWP	4202.67	4200.3	13	10.62988281	4189.669922
T387	8/7/1973	DWP	4202.67	4200.3	18.6	16.22998047	4184.069824
T387	9/7/1973	DWP	4202.67	4200.3	20.1	17.72998047	4182.569824
T387	10/4/1973	DWP	4202.67	4200.3	21	18.62988281	4181.669922
T387	11/19/1973	DWP	4202.67	4200.3	16.1	13.72998047	4186.569824
T387	12/17/1973	DWP	4202.67	4200.3	16	13.62988281	4186.669922
T387	1/18/1974	DWP	4202.67	4200.3	15.8	13.4296875	4186.870117
T387	2/15/1974	DWP	4202.67	4200.3	16.1	13.72998047	4186.569824
T387	3/18/1974	DWP	4202.67	4200.3	16.6	14.22998047	4186.069824
T387	4/19/1974	DWP	4202.67	4200.3	16.3	13.9296875	4186.370117
T387	5/17/1974	DWP	4202.67	4200.3	13.4	11.02978516	4189.27002
T387	6/17/1974	DWP	4202.67	4200.3	12.7	10.33007813	4189.969727
T387	7/19/1974	DWP	4202.67	4200.3	12.5	10.12988281	4190.169922
T387	8/16/1974	DWP	4202.67	4200.3	12.2	9.830078125	4190.469727
T387	9/16/1974	DWP	4202.67	4200.3	12.6	10.22998047	4190.069824
T387	10/18/1974	DWP	4202.67	4200.3	12.5	10.12988281	4190.169922
T387	11/18/1974	DWP	4202.67	4200.3	13.4	11.02978516	4189.27002
T387	12/20/1974	DWP	4202.67	4200.3	14.8	12.4296875	4187.870117
T387	1/17/1975	DWP	4202.67	4200.3	15.5	13.12988281	4187.169922
T387	2/14/1975	DWP	4202.67	4200.3	16.1	13.72998047	4186.569824
T387	3/17/1975	DWP	4202.67	4200.3	16.3	13.9296875	4186.370117
T387	4/18/1975	DWP	4202.67	4200.3	16	13.62988281	4186.669922
T387	9/11/1975	DWP	4202.67	4200.3	18.7	16.33007813	4183.969727
T387	10/9/1975	DWP	4202.67	4200.3	19.8	17.4296875	4182.870117
T387	11/6/1975	DWP	4202.67	4200.3	15.2	12.83007813	4187.469727
T387	12/9/1975	DWP	4202.67	4200.3	15.1	12.72998047	4187.569824
T387	1/9/1976	DWP	4202.67	4200.3	15.6	13.22998047	4187.069824
T387	2/10/1976	DWP	4202.67	4200.3	15.5	13.12988281	4187.169922
T387	3/10/1976	DWP	4202.67	4200.3	15.8	13.4296875	4186.870117
T387	4/9/1976	DWP	4202.67	4200.3	15.7	13.33007813	4186.969727
T387	5/11/1976	DWP	4202.67	4200.3	15.6	13.22998047	4187.069824
T387	6/7/1976	DWP	4202.67	4200.3	22.7	20.33007813	4179.969727
T387	7/8/1976	DWP	4202.67	4200.3	23.7	21.33007813	4178.969727
T387	8/11/1976	DWP	4202.67	4200.3	23.5	21.12988281	4179.169922
T387	9/9/1976	DWP	4202.67	4200.3	23.1	20.72998047	4179.569824
T387	10/7/1976	DWP	4202.67	4200.3	23.3	20.9296875	4179.370117
T387	11/8/1976	DWP	4202.67	4200.3	24.2	21.83007813	4178.469727
T387	12/3/1976	DWP	4202.67	4200.3	23.1	20.72998047	4179.569824
T387	1/7/1977	DWP	4202.67	4200.3	17.9	15.52978516	4184.77002
T387	2/3/1977	DWP	4202.67	4200.3	16.6	14.22998047	4186.069824
T387	3/10/1977	DWP	4202.67	4200.3	15.8	13.4296875	4186.870117
T387	4/8/1977	DWP	4202.67	4200.3	14.6	12.22998047	4188.069824
T387	5/4/1977	DWP	4202.67	4200.3	21.5	19.12988281	4181.169922
T387	6/7/1977	DWP	4202.67	4200.3	22.4	20.02978516	4180.27002
T387	7/13/1977	DWP	4202.67	4200.3	22.1	19.72998047	4180.569824

T387	7/29/1977	DWP	4202.67	4200.3	22.5	20.12988281	4180.169922
T387	8/12/1977	DWP	4202.67	4200.3	22.4	20.02978516	4180.27002
T387	9/13/1977	DWP	4202.67	4200.3	22.4	20.02978516	4180.27002
T387	10/13/1977	DWP	4202.67	4200.3	21.2	18.83007813	4181.469727
T387	11/7/1977	DWP	4202.67	4200.3	15.3	12.9296875	4187.370117
T387	12/14/1977	DWP	4202.67	4200.3	14	11.62988281	4188.669922
T387	1/13/1978	DWP	4202.67	4200.3	12.5	10.12988281	4190.169922
T387	2/6/1978	DWP	4202.67	4200.3	11.6	9.229980469	4191.069824
T387	3/3/1978	DWP	4202.67	4200.3	10.4	8.029785156	4192.27002
T387	4/6/1978	DWP	4202.67	4200.3	10.4	8.029785156	4192.27002
T387	5/9/1978	DWP	4202.67	4200.3	10.2	7.830078125	4192.469727
T387	6/2/1978	DWP	4202.67	4200.3	7.3	4.9296875	4195.370117
T387	8/2/1978	DWP	4202.67	4200.3	8.5	6.129882813	4194.169922
T387	10/6/1978	DWP	4202.67	4200.3	5.5	3.129882813	4197.169922
T387	12/6/1978	DWP	4202.67	4200.3	10.3	7.9296875	4192.370117
T387	2/2/1979	DWP	4202.67	4200.3	11.3	8.9296875	4191.370117
T387	4/12/1979	DWP	4202.67	4200.3	12.9	10.52978516	4189.77002
T387	6/6/1979	DWP	4202.67	4200.3	9.2	6.830078125	4193.469727
T387	8/1/1979	DWP	4202.67	4200.3	15.3	12.9296875	4187.370117
T387	10/11/1979	DWP	4202.67	4200.3	13.3	10.9296875	4189.370117
T387	12/6/1979	DWP	4202.67	4200.3	12.5	10.12988281	4190.169922
T387	2/6/1980	DWP	4202.67	4200.3	13.3	10.9296875	4189.370117
T387	4/4/1980	DWP	4202.67	4200.3	13.6	11.22998047	4189.069824
T387	6/6/1980	DWP	4202.67	4200.3	11.7	9.330078125	4190.969727
T387	8/4/1980	DWP	4202.67	4200.3	10.9	8.529785156	4191.77002
T387	10/7/1980	DWP	4202.67	4200.3	10.7	8.330078125	4191.969727
T387	12/3/1980	DWP	4202.67	4200.3	11.9	9.529785156	4190.77002
T387	2/9/1981	DWP	4202.67	4200.3	13	10.62988281	4189.669922
T387	4/7/1981	DWP	4202.67	4200.3	13	10.62988281	4189.669922
T387	6/4/1981	DWP	4202.67	4200.3	18.3	15.9296875	4184.370117
T387	8/10/1981	DWP	4202.67	4200.3	17.7	15.33007813	4184.969727
T387	10/5/1981	DWP	4202.67	4200.3	13.3	10.9296875	4189.370117
T387	12/2/1981	DWP	4202.67	4200.3	12.8	10.4296875	4189.870117
T387	2/5/1982	DWP	4202.67	4200.3	13.6	11.22998047	4189.069824
T387	4/5/1982	DWP	4202.67	4200.3	13.9	11.52978516	4188.77002
T387	6/8/1982	DWP	4202.67	4200.3	20.3	17.9296875	4182.370117
T387	8/5/1982	DWP	4202.67	4200.3	13.8	11.4296875	4188.870117
T387	10/5/1982	DWP	4202.67	4200.3	10.2	7.830078125	4192.469727
T387	12/3/1982	DWP	4202.67	4200.3	11.9	9.529785156	4190.77002
T387	2/7/1983	DWP	4202.67	4200.3	12.7	10.33007813	4189.969727
T387	4/4/1983	DWP	4202.67	4200.3	12.3	9.9296875	4190.370117
T387	6/2/1983	DWP	4202.67	4200.3	10.5	8.129882813	4192.169922
T387	8/4/1983	DWP	4202.67	4200.3	7.4	5.029785156	4195.27002
T387	10/5/1983	DWP	4202.67	4200.3	6.9	4.529785156	4195.77002
T387	12/6/1983	DWP	4202.67	4200.3	9.5	7.129882813	4193.169922
T387	2/3/1984	DWP	4202.67	4200.3	11.2	8.830078125	4191.469727

T387	4/4/1984	DWP	4202.67	4200.3	13.8	11.4296875	4188.870117
T387	6/5/1984	DWP	4202.67	4200.3	14.8	12.4296875	4187.870117
T387	8/7/1984	DWP	4202.67	4200.3	12.8	10.4296875	4189.870117
T387	10/4/1984	DWP	4202.67	4200.3	3.6	1.229980469	4199.069824
T387	12/5/1984	DWP	4202.67	4200.3	9	6.629882813	4193.669922
T387	2/5/1985	DWP	4202.67	4200.3	11.5	9.129882813	4191.169922
T387	4/3/1985	DWP	4202.67	4200.3	12.3	9.9296875	4190.370117
T387	6/5/1985	DWP	4202.67	4200.3	14.3	11.9296875	4188.370117
T387	8/8/1985	DWP	4202.67	4200.3	16	13.62988281	4186.669922
T387	10/10/1985	DWP	4202.67	4200.3	13	10.62988281	4189.669922
T387	12/4/1985	DWP	4202.67	4200.3	11.3	8.9296875	4191.370117
T387	2/10/1986	DWP	4202.67	4200.3	11.6	9.229980469	4191.069824
T387	4/4/1986	DWP	4202.67	4200.3	10.2	7.830078125	4192.469727
T387	10/15/1986	DWP	4202.67	4200.3	6.6	4.229980469	4196.069824
T387	4/11/1987	DWP	4202.67	4200.3	11	8.629882813	4191.669922
T387	10/17/1987	DWP	4202.67	4200.3	12.1	9.729980469	4190.569824
T387	4/16/1988	DWP	4202.67	4200.3	12.3	9.9296875	4190.370117
T387	10/15/1988	DWP	4202.67	4200.3	10.3	7.9296875	4192.370117
T387	4/8/1989	DWP	4202.67	4200.3	9.8	7.4296875	4192.870117
T387	10/7/1989	DWP	4202.67	4200.3	14.7	12.33007813	4187.969727
T387	4/21/1990	DWP	4202.67	4200.3	13.1	10.72998047	4189.569824
T387	10/3/1990	DWP	4202.67	4200.3	11.4	9.029785156	4191.27002
T387	4/18/1991	DWP	4202.67	4200.3	10.9	8.529785156	4191.77002
T387	10/31/1991	DWP	4202.67	4200.3	7.8	5.4296875	4194.870117
T387	4/20/1992	DWP	4202.67	4200.3	9.8	7.4296875	4192.870117
T387	10/16/1992	DWP	4202.67	4200.3	13.1	10.72998047	4189.569824
T387	4/15/1993	DWP	4202.67	4200.3	8.9	6.529785156	4193.77002
T387	10/27/1993	DWP	4202.67	4200.3	12.2	9.830078125	4190.469727
T387	4/19/1994	DWP	4202.67	4200.3	12.5	10.12988281	4190.169922
T387	10/12/1994	DWP	4202.67	4200.3	12.9	10.52978516	4189.77002
T387	4/26/1995	DWP	4202.67	4200.3	7.7	5.330078125	4194.969727
T387	10/23/1995	DWP	4202.67	4200.3	9.8	7.4296875	4192.870117
T387	4/24/1996	DWP	4202.67	4200.3	8.2	5.830078125	4194.469727
T387	4/19/1997	DWP	4202.67	4200.3	12.6	10.22998047	4190.069824
T387	10/20/1997	DWP	4202.67	4200.3	10.3	7.9296875	4192.370117
T387	4/20/1998	DWP	4202.67	4200.3	9.9	7.529785156	4192.77002
T387	6/16/1999	DWP	4202.67	4200.3	9.4	7.029785156	4193.27002
T387	10/26/1999	DWP	4202.67	4200.3	12.4	10.02978516	4190.27002
T387	4/24/2000	DWP	4202.67	4200.3	8.7	6.330078125	4193.969727
T387	10/30/2000	DWP	4202.67	4200.3	12.5	10.12988281	4190.169922
T387	4/9/2001	DWP	4202.67	4200.3	14.2	11.83007813	4188.469727
T387	10/29/2001	DWP	4202.67	4200.3	10.5	8.129882813	4192.169922
T387	4/25/2002	DWP	4202.67	4200.3	14.2	11.83007813	4188.469727
T387	10/31/2002	DWP	4202.67	4200.3	12.1	9.729980469	4190.569824
T387	4/23/2003	DWP	4202.67	4200.3	9.6	7.229980469	4193.069824
T387	10/30/2003	DWP	4202.67	4200.3	12.9	10.52978516	4189.77002

T387	4/20/2004	DWP	4202.67	4200.3	11.7	9.330078125	4190.969727
T387	10/18/2004	DWP	4202.67	4200.3	12.1	9.729980469	4190.569824
T387	4/12/2005	DWP	4202.67	4200.3	11.4	9.029785156	4191.27002
T387	10/20/2005	DWP	4202.67	4200.3	9.9	7.529785156	4192.77002
T387	4/4/2006	DWP	4202.67	4200.3	12.7	10.33007813	4189.969727
T387	10/20/2006	DWP	4202.67	4200.3	7.9	5.529785156	4194.77002
T387	4/20/2007	DWP	4202.67	4200.3	11.3	8.9296875	4191.370117
T387	10/27/2007	DWP	4202.67	4200.3	9.9	7.529785156	4192.77002
T387	4/18/2008	DWP	4202.67	4200.3	11.1	8.729980469	4191.569824
T387	10/31/2008	DWP	4202.67	4200.3	9.2	6.830078125	4193.469727
T387	4/24/2009	DWP	4202.67	4200.3	12.1	9.729980469	4190.569824
T387	10/26/2009	DWP	4202.67	4200.3	11.1	8.729980469	4191.569824
T387	4/26/2010	DWP	4202.67	4200.3	12.2	9.830078125	4190.469727
T387	10/25/2010	DWP	4202.67	4200.3	11	8.629882813	4191.669922
T387	4/25/2011	DWP	4202.67	4200.3	11	8.629882813	4191.669922
T387	10/19/2011	DWP	4202.67	4200.3	10.4	8.029785156	4192.27002
T387	4/18/2012	DWP	4202.67	4200.3	12.5	10.12988281	4190.169922
T387	10/22/2012	DWP	4202.67	4200.3	10	7.629882813	4192.669922
T387	4/15/2013	DWP	4202.67	4200.3	12.3	9.9296875	4190.370117
T387	10/24/2013	DWP	4202.7	4200.3	13.22	10.81982422	4189.47998
T387	12/11/2013	DWP	4202.7	4200.3	16.73	14.32958984	4185.970215
T387	3/26/2014	DWP	4202.7	4200.3	17.28	14.87939453	4185.42041
T387	3/31/2014	DWP	4202.7	4200.3	17.22	14.81982422	4185.47998
T387	4/2/2014	DWP	4202.7	4200.3	14.9	12.49951172	4187.800293
T387	4/9/2014	DWP	4202.7	4200.3	13.23	10.82958984	4189.470215
T387	4/21/2014	DWP	4202.7	4200.3	12.72	10.31982422	4189.97998
T387	4/22/2014	DWP	4202.7	4200.3	12.09	9.689453125	4190.610352
T387	4/23/2014	DWP	4202.7	4200.3	11.35	8.949707031	4191.350098
T387	4/24/2014	DWP	4202.7	4200.3	12.53	10.12939453	4190.17041
T387	4/28/2014	DWP	4202.7	4200.3	13.68	11.27978516	4189.02002
T387	4/29/2014	DWP	4202.7	4200.3	13.97	11.56982422	4188.72998
T387	4/30/2014	DWP	4202.7	4200.3	14.24	11.83984375	4188.459961
T387	5/1/2014	DWP	4202.7	4200.3	14.35	11.94970703	4188.350098
T387	5/5/2014	DWP	4202.7	4200.3	11.25	8.849609375	4191.450195
T387	5/6/2014	DWP	4202.7	4200.3	11.23	8.829589844	4191.470215
T387	5/7/2014	DWP	4202.7	4200.3	11.05	8.649414063	4191.650391
T387	5/8/2014	DWP	4202.7	4200.3	11.17	8.76953125	4191.530273
T387	5/12/2014	DWP	4202.7	4200.3	10.86	8.459472656	4191.840332
T387	5/13/2014	DWP	4202.7	4200.3	10.83	8.4296875	4191.870117
T387	5/14/2014	DWP	4202.7	4200.3	10.81	8.409667969	4191.890137
T387	5/15/2014	DWP	4202.7	4200.3	10.38	7.979492188	4192.320313
T387	5/19/2014	DWP	4202.7	4200.3	9.34	6.939453125	4193.360352
T387	5/20/2014	DWP	4202.7	4200.3	9.33	6.9296875	4193.370117
T387	5/21/2014	DWP	4202.7	4200.3	9.03	6.629394531	4193.67041
T387	5/22/2014	DWP	4202.7	4200.3	9.01	6.609375	4193.69043
T387	5/27/2014	DWP	4202.7	4200.3	7.39	4.989746094	4195.310059

T387	5/29/2014	DWP	4202.7	4200.3	7.25	4.849609375	4195.450195
T387	6/2/2014	DWP	4202.7	4200.3	7.54	5.139648438	4195.160156
T387	6/9/2014	DWP	4202.7	4200.3	7.97	5.569824219	4194.72998
T387	6/12/2014	DWP	4202.7	4200.3	7.81	5.409667969	4194.890137
T387	6/16/2014	DWP	4202.7	4200.3	6.29	3.889648438	4196.410156
T387	6/19/2014	DWP	4202.7	4200.3	6.89	4.489746094	4195.810059
T387	6/23/2014	DWP	4202.7	4200.3	7.23	4.829589844	4195.470215
T387	6/26/2014	DWP	4202.7	4200.3	7.45	5.049804688	4195.25
T387	6/30/2014	DWP	4202.7	4200.3	6.77	4.369628906	4195.930176
T387	7/2/2014	DWP	4202.7	4200.3	5.44	3.039550781	4197.260254
T387	7/7/2014	DWP	4202.7	4200.3	6.07	3.669433594	4196.630371
T387	7/10/2014	DWP	4202.7	4200.3	6.47	4.069824219	4196.22998
T387	7/14/2014	DWP	4202.7	4200.3	6.12	3.719726563	4196.580078
T387	7/17/2014	DWP	4202.7	4200.3	5.12	2.719726563	4197.580078
T387	7/21/2014	DWP	4202.7	4200.3	6.32	3.919433594	4196.380371
T387	7/28/2014	DWP	4202.7	4200.3	6.96	4.559570313	4195.740234
T387	7/30/2014	DWP	4202.7	4200.3	7.08	4.6796875	4195.620117
T387	8/4/2014	DWP	4202.7	4200.3	5.78	3.379394531	4196.92041
T387	8/7/2014	DWP	4202.7	4200.3	5.67	3.26953125	4197.030273
T387	8/11/2014	DWP	4202.7	4200.3	6.39	3.989746094	4196.310059
T387	8/14/2014	DWP	4202.7	4200.3	6.29	3.889648438	4196.410156
T387	8/18/2014	DWP	4202.7	4200.3	6.12	3.719726563	4196.580078
T387	8/21/2014	DWP	4202.7	4200.3	6.97	4.569824219	4195.72998
T387	8/25/2014	DWP	4202.7	4200.3	7.52	5.119628906	4195.180176
T387	8/28/2014	DWP	4202.7	4200.3	7.65	5.249511719	4195.050293
T387	9/2/2014	DWP	4202.7	4200.3	8.24	5.83984375	4194.459961
T387	9/4/2014	DWP	4202.7	4200.3	8.51	6.109375	4194.19043
T387	9/8/2014	DWP	4202.7	4200.3	9.06	6.659667969	4193.640137
T387	9/11/2014	DWP	4202.7	4200.3	9.39	6.989746094	4193.310059
T387	9/15/2014	DWP	4202.7	4200.3	9.68	7.279785156	4193.02002
T387	9/18/2014	DWP	4202.7	4200.3	9.97	7.569824219	4192.72998
T387	9/22/2014	DWP	4202.7	4200.3	10.34	7.939453125	4192.360352
T387	9/25/2014	DWP	4202.7	4200.3	10.16	7.759765625	4192.540039
T387	9/30/2014	DWP	4202.7	4200.3	10.27	7.869628906	4192.430176
T387	10/2/2014	DWP	4202.7	4200.3	10.16	7.759765625	4192.540039
T387	10/6/2014	DWP	4202.7	4200.3	10.27	7.869628906	4192.430176
T387	10/9/2014	DWP	4202.7	4200.3	10.39	7.989746094	4192.310059
T387	10/14/2014	DWP	4202.7	4200.3	10.8	8.399414063	4191.900391
T387	10/16/2014	DWP	4202.7	4200.3	10.94	8.539550781	4191.760254
T387	10/20/2014	DWP	4202.7	4200.3	11.21	8.809570313	4191.490234
T387	10/23/2014	DWP	4202.7	4200.3	11.44	9.039550781	4191.260254
T387	10/27/2014	DWP	4202.7	4200.3	11.7	9.299804688	4191
T387	10/30/2014	DWP	4202.7	4200.3	11.87	9.469726563	4190.830078
T387	11/3/2014	DWP	4202.7	4200.3	12.09	9.689453125	4190.610352
T387	11/6/2014	DWP	4202.7	4200.3	12.26	9.859375	4190.44043
T387	11/10/2014	DWP	4202.7	4200.3	12.47	10.06982422	4190.22998

T387	11/13/2014	DWP	4202.7	4200.3	12.63	10.22949219	4190.070313
T387	11/17/2014	DWP	4202.7	4200.3	12.92	10.51953125	4189.780273
T387	11/20/2014	DWP	4202.7	4200.3	13.06	10.65966797	4189.640137
T387	11/24/2014	DWP	4202.7	4200.3	13.31	10.90966797	4189.390137
T387	12/1/2014	DWP	4202.7	4200.3	13.74	11.33984375	4188.959961
T387	12/4/2014	DWP	4202.7	4200.3	13.72	11.31982422	4188.97998
T387	12/9/2014	DWP	4202.7	4200.3	13.86	11.45947266	4188.840332
T387	12/16/2014	DWP	4202.7	4200.3	14.24	11.83984375	4188.459961
T387	12/22/2014	DWP	4202.7	4200.3	14.6	12.19970703	4188.100098
T387	12/30/2014	DWP	4202.7	4200.3	14.47	12.06982422	4188.22998
T387	1/5/2015	DWP	4202.7	4200.3	14.87	12.46972656	4187.830078
T387	1/22/2015	DWP	4202.7	4200.3	15.21	12.80957031	4187.490234
T387	1/29/2015	DWP	4202.7	4200.3	15.26	12.859375	4187.44043
T387	2/5/2015	DWP	4202.7	4200.3	15.29	12.88964844	4187.410156
T387	2/12/2015	DWP	4202.7	4200.3	15.24	12.83984375	4187.459961
T387	2/18/2015	DWP	4202.7	4200.3	15.31	12.90966797	4187.390137
T387	2/26/2015	DWP	4202.7	4200.3	15.32	12.91943359	4187.380371
T387	3/5/2015	DWP	4202.7	4200.3	15.45	13.04980469	4187.25
T387	3/12/2015	DWP	4202.7	4200.3	15.3	12.89941406	4187.400391
T387	3/19/2015	DWP	4202.7	4200.3	15.46	13.05957031	4187.240234
T387	3/26/2015	DWP	4202.7	4200.3	15.57	13.16943359	4187.130371
T387	4/2/2015	DWP	4202.7	4200.3	15.92	13.51953125	4186.780273
T387	4/9/2015	DWP	4202.7	4200.3	16.46	14.05957031	4186.240234
T387	4/23/2015	DWP	4202.7	4200.3	15.83	13.4296875	4186.870117
T387	4/30/2015	DWP	4202.7	4200.3	17.5	15.09960938	4185.200195
T387	5/7/2015	DWP	4202.7	4200.3	17.66	15.25976563	4185.040039
T387	5/14/2015	DWP	4202.7	4200.3	15.85	13.44970703	4186.850098
T387	5/21/2015	DWP	4202.7	4200.3	14.29	11.88964844	4188.410156
T387	5/28/2015	DWP	4202.7	4200.3	13.34	10.93945313	4189.360352
T387	6/5/2015	DWP	4202.7	4200.3	11.75	9.349609375	4190.950195
T387	6/11/2015	DWP	4202.7	4200.3	8.73	6.329589844	4193.970215
T387	6/18/2015	DWP	4202.7	4200.3	8.65	6.249511719	4194.050293
T387	6/25/2015	DWP	4202.7	4200.3	9.44	7.039550781	4193.260254
T387	7/2/2015	DWP	4202.7	4200.3	9.37	6.969726563	4193.330078
T387	7/10/2015	DWP	4202.7	4200.3	9.12	6.719726563	4193.580078
T387	7/16/2015	DWP	4202.7	4200.3	9.25	6.849609375	4193.450195
T387	7/23/2015	DWP	4202.7	4200.3	7.22	4.819824219	4195.47998
T387	7/30/2015	DWP	4202.7	4200.3	8.02	5.619628906	4194.680176
T387	8/7/2015	DWP	4202.7	4200.3	8.14	5.739746094	4194.560059
T387	8/13/2015	DWP	4202.7	4200.3	7.08	4.6796875	4195.620117
T387	8/20/2015	DWP	4202.7	4200.3	7.37	4.969726563	4195.330078
T387	8/27/2015	DWP	4202.7	4200.3	8.07	5.669433594	4194.630371
T387	9/4/2015	DWP	4202.7	4200.3	7.3	4.899414063	4195.400391
T387	9/10/2015	DWP	4202.7	4200.3	8.77	6.369628906	4193.930176
T387	9/17/2015	DWP	4202.7	4200.3	9.64	7.239746094	4193.060059
T387	9/24/2015	DWP	4202.7	4200.3	9.98	7.579589844	4192.720215

T387	4/5/2016	InyoIndic	4202.7	4200.3	8.84	6.439453125	4193.860352

staid	date	ource_nam	rp_elev	gr_elev	dtw	lscdtw	ws_elev
T389	8/7/1973	DWP	4235.91	4234.1	5.4	3.58984375	4230.510254
T389	9/7/1973	DWP	4235.91	4234.1	5.3	3.489746094	4230.610352
T389	10/4/1973	DWP	4235.91	4234.1	6.2	4.390136719	4229.709961
T389	11/19/1973	DWP	4235.91	4234.1	7.3	5.489746094	4228.610352
T389	12/17/1973	DWP	4235.91	4234.1	8.4	6.58984375	4227.510254
T389	1/18/1974	DWP	4235.91	4234.1	10	8.189941406	4225.910156
T389	2/15/1974	DWP	4235.91	4234.1	11	9.189941406	4224.910156
T389	3/18/1974	DWP	4235.91	4234.1	11.5	9.689941406	4224.410156
T389	4/19/1974	DWP	4235.91	4234.1	7.7	5.890136719	4228.209961
T389	5/17/1974	DWP	4235.91	4234.1	6.3	4.489746094	4229.610352
T389	6/17/1974	DWP	4235.91	4234.1	5.8	3.989746094	4230.110352
T389	7/19/1974	DWP	4235.91	4234.1	4.6	2.790039063	4231.310059
T389	8/16/1974	DWP	4235.91	4234.1	4	2.189941406	4231.910156
T389	9/16/1974	DWP	4235.91	4234.1	4	2.189941406	4231.910156
T389	10/18/1974	DWP	4235.91	4234.1	4.8	2.989746094	4231.110352
T389	11/18/1974	DWP	4235.91	4234.1	6.9	5.08984375	4229.010254
T389	12/20/1974	DWP	4235.91	4234.1	8.9	7.08984375	4227.010254
T389	1/17/1975	DWP	4235.91	4234.1	11	9.189941406	4224.910156
T389	2/14/1975	DWP	4235.91	4234.1	11.8	9.989746094	4224.110352
T389	3/17/1975	DWP	4235.91	4234.1	12.2	10.39013672	4223.709961
T389	4/18/1975	DWP	4235.91	4234.1	10.3	8.489746094	4225.610352
T389	9/11/1975	DWP	4235.91	4234.1	3.5	1.689941406	4232.410156
T389	10/9/1975	DWP	4235.91	4234.1	3.4	1.58984375	4232.510254
T389	11/6/1975	DWP	4235.91	4234.1	6.2	4.390136719	4229.709961
T389	12/9/1975	DWP	4235.91	4234.1	7.1	5.290039063	4228.810059
T389	1/9/1976	DWP	4235.91	4234.1	9.7	7.890136719	4226.209961
T389	2/10/1976	DWP	4235.91	4234.1	10.4	8.58984375	4225.510254
T389	3/10/1976	DWP	4235.91	4234.1	10.7	8.890136719	4225.209961
T389	4/9/1976	DWP	4235.91	4234.1	9.8	7.989746094	4226.110352
T389	5/12/1976	DWP	4235.91	4234.1	8.9	7.08984375	4227.010254
T389	6/7/1976	DWP	4235.91	4234.1	7.9	6.08984375	4228.010254
T389	7/12/1976	DWP	4235.91	4234.1	7.8	5.989746094	4228.110352
T389	8/11/1976	DWP	4235.91	4234.1	7.4	5.58984375	4228.510254
T389	9/9/1976	DWP	4235.91	4234.1	5.2	3.390136719	4230.709961
T389	10/7/1976	DWP	4235.91	4234.1	6.3	4.489746094	4229.610352
T389	11/8/1976	DWP	4235.91	4234.1	7.7	5.890136719	4228.209961
T389	12/3/1976	DWP	4235.91	4234.1	10.5	8.689941406	4225.410156
T389	1/7/1977	DWP	4235.91	4234.1	12.3	10.48974609	4223.610352
T389	2/3/1977	DWP	4235.91	4234.1	12.6	10.79003906	4223.310059
T389	3/10/1977	DWP	4235.91	4234.1	12.8	10.98974609	4223.110352
T389	4/6/1977	DWP	4235.91	4234.1	11	9.189941406	4224.910156
T389	5/4/1977	DWP	4235.91	4234.1	8.4	6.58984375	4227.510254
T389	6/7/1977	DWP	4235.91	4234.1	8.3	6.489746094	4227.610352
T389	7/13/1977	DWP	4235.91	4234.1	7.7	5.890136719	4228.209961
T389	7/29/1977	DWP	4235.91	4234.1	6.4	4.58984375	4229.510254

T389	8/12/1977	DWP	4235.91	4234.1	5.9	4.08984375	4230.010254
T389	9/13/1977	DWP	4235.91	4234.1	5.1	3.290039063	4230.810059
T389	10/13/1977	DWP	4235.91	4234.1	6.5	4.689941406	4229.410156
T389	11/7/1977	DWP	4235.91	4234.1	7.2	5.390136719	4228.709961
T389	12/14/1977	DWP	4235.91	4234.1	7.9	6.08984375	4228.010254
T389	1/13/1978	DWP	4235.91	4234.1	7.4	5.58984375	4228.510254
T389	2/6/1978	DWP	4235.91	4234.1	9.2	7.390136719	4226.709961
T389	3/6/1978	DWP	4235.91	4234.1	8.5	6.689941406	4227.410156
T389	4/6/1978	DWP	4235.91	4234.1	8.6	6.790039063	4227.310059
T389	5/9/1978	DWP	4235.91	4234.1	7.3	5.489746094	4228.610352
T389	6/2/1978	DWP	4235.91	4234.1	4.6	2.790039063	4231.310059
T389	8/2/1978	DWP	4235.91	4234.1	5.3	3.489746094	4230.610352
T389	10/6/1978	DWP	4235.91	4234.1	5.6	3.790039063	4230.310059
T389	12/6/1978	DWP	4235.91	4234.1	7.8	5.989746094	4228.110352
T389	2/2/1979	DWP	4235.91	4234.1	10.9	9.08984375	4225.010254
T389	4/12/1979	DWP	4235.91	4234.1	11.5	9.689941406	4224.410156
T389	6/6/1979	DWP	4235.91	4234.1	5.8	3.989746094	4230.110352
T389	8/1/1979	DWP	4235.91	4234.1	6.8	4.989746094	4229.110352
T389	10/11/1979	DWP	4235.91	4234.1	6.3	4.489746094	4229.610352
T389	12/6/1979	DWP	4235.91	4234.1	8.6	6.790039063	4227.310059
T389	2/6/1980	DWP	4235.91	4234.1	11.5	9.689941406	4224.410156
T389	4/4/1980	DWP	4235.91	4234.1	11.7	9.890136719	4224.209961
T389	6/6/1980	DWP	4235.91	4234.1	5.9	4.08984375	4230.010254
T389	8/4/1980	DWP	4235.91	4234.1	5.9	4.08984375	4230.010254
T389	10/7/1980	DWP	4235.91	4234.1	5.4	3.58984375	4230.510254
T389	12/3/1980	DWP	4235.91	4234.1	7.5	5.689941406	4228.410156
T389	2/9/1981	DWP	4235.91	4234.1	10.9	9.08984375	4225.010254
T389	4/7/1981	DWP	4235.91	4234.1	11.9	10.08984375	4224.010254
T389	6/4/1981	DWP	4235.91	4234.1	7	5.189941406	4228.910156
T389	8/10/1981	DWP	4235.91	4234.1	6.5	4.689941406	4229.410156
T389	10/5/1981	DWP	4235.91	4234.1	6.4	4.58984375	4229.510254
T389	12/2/1981	DWP	4235.91	4234.1	8.1	6.290039063	4227.810059
T389	2/5/1982	DWP	4235.91	4234.1	12.4	10.58984375	4223.510254
T389	4/5/1982	DWP	4235.91	4234.1	13	11.18994141	4222.910156
T389	6/8/1982	DWP	4235.91	4234.1	8.7	6.890136719	4227.209961
T389	8/5/1982	DWP	4235.91	4234.1	4.8	2.989746094	4231.110352
T389	10/5/1982	DWP	4235.91	4234.1	4.5	2.689941406	4231.410156
T389	12/3/1982	DWP	4235.91	4234.1	10.6	8.790039063	4225.310059
T389	2/7/1983	DWP	4235.91	4234.1	12.6	10.79003906	4223.310059
T389	4/4/1983	DWP	4235.91	4234.1	12.2	10.39013672	4223.709961
T389	6/2/1983	DWP	4235.91	4234.1	7.2	5.390136719	4228.709961
T389	8/4/1983	DWP	4235.91	4234.1	5.3	3.489746094	4230.610352
T389	10/5/1983	DWP	4235.91	4234.1	5.1	3.290039063	4230.810059
T389	12/6/1983	DWP	4235.91	4234.1	8.6	6.790039063	4227.310059
T389	2/3/1984	DWP	4235.91	4234.1	10.8	8.989746094	4225.110352
T389	4/4/1984	DWP	4235.91	4234.1	11.5	9.689941406	4224.410156

T389	6/5/1984	DWP	4235.91	4234.1	7.2	5.390136719	4228.709961
T389	8/7/1984	DWP	4235.91	4234.1	5.7	3.890136719	4230.209961
T389	10/4/1984	DWP	4235.91	4234.1	5.6	3.790039063	4230.310059
T389	12/5/1984	DWP	4235.91	4234.1	7.5	5.689941406	4228.410156
T389	2/5/1985	DWP	4235.91	4234.1	10.5	8.689941406	4225.410156
T389	4/3/1985	DWP	4235.91	4234.1	10.5	8.689941406	4225.410156
T389	5/2/1985	DWP	4235.91	4234.1	8.2	6.390136719	4227.709961
T389	6/3/1985	DWP	4235.91	4234.1	7.1	5.290039063	4228.810059
T389	7/1/1985	DWP	4235.91	4234.1	7.5	5.689941406	4228.410156
T389	8/2/1985	DWP	4235.91	4234.1	5	3.189941406	4230.910156
T389	8/30/1985	DWP	4235.91	4234.1	6.3	4.489746094	4229.610352
T389	9/27/1985	DWP	4235.91	4234.1	6.7	4.890136719	4229.209961
T389	10/28/1985	DWP	4235.91	4234.1	6.9	5.08984375	4229.010254
T389	11/25/1985	DWP	4235.91	4234.1	7.9	6.08984375	4228.010254
T389	12/27/1985	DWP	4235.91	4234.1	9.9	8.08984375	4226.010254
T389	1/27/1986	DWP	4235.91	4234.1	11.2	9.390136719	4224.709961
T389	2/28/1986	DWP	4235.91	4234.1	10.6	8.790039063	4225.310059
T389	3/28/1986	DWP	4235.91	4234.1	11.3	9.489746094	4224.610352
T389	4/28/1986	DWP	4235.91	4234.1	10.2	8.390136719	4225.709961
T389	5/30/1986	DWP	4235.91	4234.1	8	6.189941406	4227.910156
T389	6/27/1986	DWP	4235.91	4234.1	6.7	4.890136719	4229.209961
T389	7/28/1986	DWP	4235.91	4234.1	5.9	4.08984375	4230.010254
T389	8/29/1986	DWP	4235.91	4234.1	5.5	3.689941406	4230.410156
T389	9/29/1986	DWP	4235.91	4234.1	5.3	3.489746094	4230.610352
T389	10/27/1986	DWP	4235.91	4234.1	6.2	4.390136719	4229.709961
T389	11/26/1986	DWP	4235.91	4234.1	7.6	5.790039063	4228.310059
T389	12/26/1986	DWP	4235.91	4234.1	9.4	7.58984375	4226.510254
T389	1/26/1987	DWP	4235.91	4234.1	11	9.189941406	4224.910156
T389	4/11/1987	DWP	4235.91	4234.1	12.3	10.48974609	4223.610352
T389	10/17/1987	DWP	4235.91	4234.1	6.8	4.989746094	4229.110352
T389	4/16/1988	DWP	4235.91	4234.1	8.1	6.290039063	4227.810059
T389	10/15/1988	DWP	4235.91	4234.1	6.1	4.290039063	4229.810059
T389	4/8/1989	DWP	4235.91	4234.1	8.1	6.290039063	4227.810059
T389	10/7/1989	DWP	4235.91	4234.1	5.8	3.989746094	4230.110352
T389	4/21/1990	DWP	4235.91	4234.1	10.4	8.58984375	4225.510254
T389	10/3/1990	DWP	4235.91	4234.1	6.3	4.489746094	4229.610352
T389	4/18/1991	DWP	4235.91	4234.1	4.5	2.689941406	4231.410156
T389	10/31/1991	DWP	4235.91	4234.1	6	4.189941406	4229.910156
T389	4/20/1992	DWP	4235.91	4234.1	10	8.189941406	4225.910156
T389	10/16/1992	DWP	4235.91	4234.1	6.9	5.08984375	4229.010254
T389	4/15/1993	DWP	4235.91	4234.1	9.3	7.489746094	4226.610352
T389	10/27/1993	DWP	4235.91	4234.1	7.3	5.489746094	4228.610352
T389	4/19/1994	DWP	4235.91	4234.1	10.7	8.890136719	4225.209961
T389	10/12/1994	DWP	4235.91	4234.1	7	5.189941406	4228.910156
T389	4/26/1995	DWP	4235.91	4234.1	7.5	5.689941406	4228.410156
T389	10/23/1995	DWP	4235.91	4234.1	6.6	4.790039063	4229.310059

T389	4/24/1996	DWP	4235.91	4234.1	9.9	8.08984375	4226.010254
T389	4/19/1997	DWP	4235.91	4234.1	11.3	9.489746094	4224.610352
T389	10/20/1997	DWP	4235.91	4234.1	8.3	6.489746094	4227.610352
T389	4/20/1998	DWP	4235.91	4234.1	14	12.18994141	4221.910156
T389	6/16/1999	DWP	4235.91	4234.1	9.2	7.390136719	4226.709961
T389	10/26/1999	DWP	4235.91	4234.1	8.3	6.489746094	4227.610352
T389	4/24/2000	DWP	4235.91	4234.1	11.8	9.989746094	4224.110352
T389	10/30/2000	DWP	4235.91	4234.1	10.9	9.08984375	4225.010254
T389	4/9/2001	DWP	4235.91	4234.1	12.9	11.08984375	4223.010254
T389	10/29/2001	DWP	4235.91	4234.1	7.9	6.08984375	4228.010254
T389	1/24/2002	DWP	4235.91	4234.1	12.7	10.89013672	4223.209961
T389	1/25/2002	DWP	4235.91	4234.1	12.8	10.98974609	4223.110352
T389	1/26/2002	DWP	4235.91	4234.1	12.8	10.98974609	4223.110352
T389	4/25/2002	DWP	4235.91	4234.1	9.5	7.689941406	4226.410156
T389	10/31/2002	DWP	4235.91	4234.1	8.8	6.989746094	4227.110352
T389	4/23/2003	DWP	4235.91	4234.1	12.8	10.98974609	4223.110352
T389	10/30/2003	DWP	4235.91	4234.1	8.1	6.290039063	4227.810059
T389	4/20/2004	DWP	4235.91	4234.1	11.4	9.58984375	4224.510254
T389	10/18/2004	DWP	4235.91	4234.1	9.5	7.689941406	4226.410156
T389	4/12/2005	DWP	4235.91	4234.1	12.3	10.48974609	4223.610352
T389	10/20/2005	DWP	4235.91	4234.1	7.8	5.989746094	4228.110352
T389	4/4/2006	DWP	4235.91	4234.1	13.5	11.68994141	4222.410156
T389	10/20/2006	DWP	4235.91	4234.1	7.6	5.790039063	4228.310059
T389	4/20/2007	DWP	4235.91	4234.1	10.8	8.989746094	4225.110352
T389	10/27/2007	DWP	4235.91	4234.1	8.7	6.890136719	4227.209961
T389	4/18/2008	DWP	4235.91	4234.1	11	9.189941406	4224.910156
T389	10/31/2008	DWP	4235.91	4234.1	7	5.189941406	4228.910156
T389	4/24/2009	DWP	4235.91	4234.1	12.9	11.08984375	4223.010254
T389	10/26/2009	DWP	4235.91	4234.1	8.5	6.689941406	4227.410156
T389	4/26/2010	DWP	4235.91	4234.1	12.2	10.39013672	4223.709961
T389	10/25/2010	DWP	4235.91	4234.1	9.6	7.790039063	4226.310059
T389	4/25/2011	DWP	4235.91	4234.1	11.6	9.790039063	4224.310059
T389	10/19/2011	DWP	4235.91	4234.1	8.7	6.890136719	4227.209961
T389	4/18/2012	DWP	4235.91	4234.1	11.5	9.689941406	4224.410156
T389	10/22/2012	DWP	4235.91	4234.1	8.9	7.08984375	4227.010254
T389	4/15/2013	DWP	4235.91	4234.1	11.5	9.689941406	4224.410156
T389	10/24/2013	DWP	4235.9	4234.1	14.73	12.93017578	4221.169922
T389	12/11/2013	DWP	4235.9	4234.1	18.67	16.87011719	4217.22998
T389	12/11/2013	DWP	4235.9	4234.1	18.67	16.87011719	4217.22998
T389	12/12/2013	DWP	4235.9	4234.1	18.69	16.89013672	4217.209961
T389	12/13/2013	DWP	4235.9	4234.1	18.69	16.89013672	4217.209961
T389	12/17/2013	DWP	4235.9	4234.1	18.66	16.86035156	4217.239746
T389	12/19/2013	DWP	4235.9	4234.1	18.64	16.84033203	4217.259766
T389	12/19/2013	DWP	4235.9	4234.1	18.67	16.87011719	4217.22998
T389	1/9/2014	DWP	4235.9	4234.1	18.64	16.84033203	4217.259766
T389	2/4/2014	DWP	4235.9	4234.1	18.71	16.91015625	4217.189941

T389	3/4/2014	DWP	4235.9	4234.1	18.98	17.18017578	4216.919922
T389	3/31/2014	DWP	4235.9	4234.1	18.56	16.76025391	4217.339844
T389	4/2/2014	DWP	4235.9	4234.1	18.22	16.42041016	4217.679688
T389	4/9/2014	DWP	4235.9	4234.1	17.05	15.25	4218.850098
T389	4/21/2014	DWP	4235.9	4234.1	8.22	6.420410156	4227.679688
T389	4/22/2014	DWP	4235.9	4234.1	8.07	6.270019531	4227.830078
T389	4/23/2014	DWP	4235.9	4234.1	8.36	6.560058594	4227.540039
T389	4/24/2014	DWP	4235.9	4234.1	8.54	6.740234375	4227.359863
T389	4/28/2014	DWP	4235.9	4234.1	9.14	7.340332031	4226.759766
T389	4/29/2014	DWP	4235.9	4234.1	7.48	5.680175781	4228.419922
T389	4/30/2014	DWP	4235.9	4234.1	7.72	5.920410156	4228.179688
T389	5/1/2014	DWP	4235.9	4234.1	7.26	5.459960938	4228.640137
T389	5/5/2014	DWP	4235.9	4234.1	6.4	4.600097656	4229.5
T389	5/6/2014	DWP	4235.9	4234.1	6.22	4.420410156	4229.679688
T389	5/7/2014	DWP	4235.9	4234.1	6.15	4.350097656	4229.75
T389	5/8/2014	DWP	4235.9	4234.1	5.15	3.350097656	4230.75
T389	5/12/2014	DWP	4235.9	4234.1	6.12	4.3203125	4229.779785
T389	5/13/2014	DWP	4235.9	4234.1	5.39	3.590332031	4230.509766
T389	5/14/2014	DWP	4235.9	4234.1	6.14	4.340332031	4229.759766
T389	5/15/2014	DWP	4235.9	4234.1	6.34	4.540039063	4229.560059
T389	5/19/2014	DWP	4235.9	4234.1	6.14	4.340332031	4229.759766
T389	5/20/2014	DWP	4235.9	4234.1	4.77	2.970214844	4231.129883
T389	5/21/2014	DWP	4235.9	4234.1	5.57	3.770019531	4230.330078
T389	5/22/2014	DWP	4235.9	4234.1	5.77	3.970214844	4230.129883
T389	5/27/2014	DWP	4235.9	4234.1	6.03	4.229980469	4229.870117
T389	5/29/2014	DWP	4235.9	4234.1	4.68	2.880371094	4231.219727
T389	6/2/2014	DWP	4235.9	4234.1	5.18	3.380371094	4230.719727
T389	6/9/2014	DWP	4235.9	4234.1	4.6	2.800292969	4231.299805
T389	6/12/2014	DWP	4235.9	4234.1	3.36	1.560058594	4232.540039
T389	6/16/2014	DWP	4235.9	4234.1	4.42	2.620117188	4231.47998
T389	6/19/2014	DWP	4235.9	4234.1	3.78	1.979980469	4232.120117
T389	6/23/2014	DWP	4235.9	4234.1	5.39	3.590332031	4230.509766
T389	6/26/2014	DWP	4235.9	4234.1	5.09	3.290039063	4230.810059
T389	6/30/2014	DWP	4235.9	4234.1	4.49	2.690429688	4231.409668
T389	7/2/2014	DWP	4235.9	4234.1	4.49	2.690429688	4231.409668
T389	7/7/2014	DWP	4235.9	4234.1	3.21	1.41015625	4232.689941
T389	7/10/2014	DWP	4235.9	4234.1	3.86	2.060058594	4232.040039
T389	7/14/2014	DWP	4235.9	4234.1	4.17	2.370117188	4231.72998
T389	7/17/2014	DWP	4235.9	4234.1	3.99	2.190429688	4231.909668
T389	7/21/2014	DWP	4235.9	4234.1	4.79	2.990234375	4231.109863
T389	7/28/2014	DWP	4235.9	4234.1	5.79	3.990234375	4230.109863
T389	7/30/2014	DWP	4235.9	4234.1	6.08	4.280273438	4229.819824
T389	8/4/2014	DWP	4235.9	4234.1	6.52	4.720214844	4229.379883
T389	8/7/2014	DWP	4235.9	4234.1	6.25	4.450195313	4229.649902
T389	8/11/2014	DWP	4235.9	4234.1	5.8	4	4230.100098
T389	8/14/2014	DWP	4235.9	4234.1	5.64	3.840332031	4230.259766

T389	8/18/2014	DWP	4235.9	4234.1	6.12	4.3203125	4229.779785
T389	8/18/2014	DWP	4235.9	4234.1	6.23	4.430175781	4229.669922
T389	8/21/2014	DWP	4235.9	4234.1	6.69	4.890136719	4229.209961
T389	8/25/2014	DWP	4235.9	4234.1	7.1	5.300292969	4228.799805
T389	8/28/2014	DWP	4235.9	4234.1	7.27	5.470214844	4228.629883
T389	8/28/2014	DWP	4235.9	4234.1	7.39	5.590332031	4228.509766
T389	9/4/2014	DWP	4235.9	4234.1	7.48	5.680175781	4228.419922
T389	9/8/2014	DWP	4235.9	4234.1	7.86	6.060058594	4228.040039
T389	9/11/2014	DWP	4235.9	4234.1	8.11	6.310058594	4227.790039
T389	9/15/2014	DWP	4235.9	4234.1	8.48	6.680175781	4227.419922
T389	9/18/2014	DWP	4235.9	4234.1	8.71	6.91015625	4227.189941
T389	9/22/2014	DWP	4235.9	4234.1	8.99	7.190429688	4226.909668
T389	9/24/2014	DWP	4235.9	4234.1	9.14	7.340332031	4226.759766
T389	9/25/2014	DWP	4235.9	4234.1	8.92	7.120117188	4226.97998
T389	9/30/2014	DWP	4235.9	4234.1	9.45	7.650390625	4226.449707
T389	10/2/2014	DWP	4235.9	4234.1	9.57	7.770019531	4226.330078
T389	10/6/2014	DWP	4235.9	4234.1	8.82	7.020019531	4227.080078
T389	10/9/2014	DWP	4235.9	4234.1	10.07	8.270019531	4225.830078
T389	10/14/2014	DWP	4235.9	4234.1	10.69	8.890136719	4225.209961
T389	10/16/2014	DWP	4235.9	4234.1	11	9.200195313	4224.899902
T389	10/20/2014	DWP	4235.9	4234.1	11.55	9.75	4224.350098
T389	10/23/2014	DWP	4235.9	4234.1	11.99	10.19042969	4223.909668
T389	10/27/2014	DWP	4235.9	4234.1	12.19	10.39013672	4223.709961
T389	10/30/2014	DWP	4235.9	4234.1	12.39	10.59033203	4223.509766
T389	11/3/2014	DWP	4235.9	4234.1	12.64	10.84033203	4223.259766
T389	11/6/2014	DWP	4235.9	4234.1	12.8	11	4223.100098
T389	11/10/2014	DWP	4235.9	4234.1	12.95	11.15039063	4222.949707
T389	11/13/2014	DWP	4235.9	4234.1	13.11	11.31005859	4222.790039
T389	11/17/2014	DWP	4235.9	4234.1	13.41	11.61035156	4222.489746
T389	11/20/2014	DWP	4235.9	4234.1	13.65	11.85009766	4222.25
T389	11/24/2014	DWP	4235.9	4234.1	14	12.20019531	4221.899902
T389	12/1/2014	DWP	4235.9	4234.1	14.4	12.60009766	4221.5
T389	12/4/2014	DWP	4235.9	4234.1	14.51	12.70996094	4221.390137
T389	12/9/2014	DWP	4235.9	4234.1	14.72	12.92041016	4221.179688
T389	12/16/2014	DWP	4235.9	4234.1	15.1	13.30029297	4220.799805
T389	12/22/2014	DWP	4235.9	4234.1	15.35	13.55029297	4220.549805
T389	12/30/2014	DWP	4235.9	4234.1	15.52	13.72021484	4220.379883
T389	1/5/2015	DWP	4235.9	4234.1	15.87	14.0703125	4220.029785
T389	1/22/2015	DWP	4235.9	4234.1	16.31	14.51025391	4219.589844
T389	1/29/2015	DWP	4235.9	4234.1	16.36	14.56005859	4219.540039
T389	2/5/2015	DWP	4235.9	4234.1	16.27	14.47021484	4219.629883
T389	2/12/2015	DWP	4235.9	4234.1	16.27	14.47021484	4219.629883
T389	2/18/2015	DWP	4235.9	4234.1	16.31	14.51025391	4219.589844
T389	2/26/2015	DWP	4235.9	4234.1	16	14.20019531	4219.899902
T389	3/5/2015	DWP	4235.9	4234.1	15.99	14.19042969	4219.909668
T389	3/12/2015	DWP	4235.9	4234.1	15.91	14.11035156	4219.989746

T389	3/19/2015	DWP	4235.9	4234.1	15.71	13.91015625	4220.189941
T389	3/26/2015	DWP	4235.9	4234.1	15.43	13.63037109	4220.469727
T389	4/2/2015	DWP	4235.9	4234.1	15.38	13.58007813	4220.52002
T389	4/9/2015	DWP	4235.9	4234.1	15.25	13.45019531	4220.649902
T389	4/20/2015	DWP	4235.9	4234.1	15.44	13.64013672	4220.459961
T389	4/23/2015	DWP	4235.9	4234.1	15.58	13.78027344	4220.319824
T389	4/30/2015	DWP	4235.9	4234.1	16.27	14.47021484	4219.629883
T389	5/7/2015	DWP	4235.9	4234.1	12.59	10.79003906	4223.310059
T389	5/14/2015	DWP	4235.9	4234.1	14.54	12.74023438	4221.359863
T389	5/21/2015	DWP	4235.9	4234.1	14.2	12.40039063	4221.699707
T389	5/28/2015	DWP	4235.9	4234.1	12.21	10.41015625	4223.689941
T389	6/5/2015	DWP	4235.9	4234.1	10.45	8.650390625	4225.449707
T389	6/11/2015	DWP	4235.9	4234.1	8.24	6.440429688	4227.659668
T389	6/18/2015	DWP	4235.9	4234.1	7.68	5.880371094	4228.219727
T389	6/25/2015	DWP	4235.9	4234.1	7.61	5.810058594	4228.290039
T389	7/2/2015	DWP	4235.9	4234.1	7.73	5.930175781	4228.169922
T389	7/10/2015	DWP	4235.9	4234.1	7.77	5.970214844	4228.129883
T389	7/16/2015	DWP	4235.9	4234.1	7.39	5.590332031	4228.509766
T389	7/23/2015	DWP	4235.9	4234.1	7.99	6.190429688	4227.909668
T389	7/30/2015	DWP	4235.9	4234.1	7.71	5.91015625	4228.189941
T389	8/7/2015	DWP	4235.9	4234.1	7.51	5.709960938	4228.390137
T389	8/13/2015	DWP	4235.9	4234.1	8.14	6.340332031	4227.759766
T389	8/20/2015	DWP	4235.9	4234.1	8.56	6.760253906	4227.339844
T389	8/27/2015	DWP	4235.9	4234.1	8.56	6.760253906	4227.339844
T389	9/4/2015	DWP	4235.9	4234.1	7.24	5.440429688	4228.659668
T389	9/10/2015	DWP	4235.9	4234.1	8.14	6.340332031	4227.759766
T389	9/17/2015	DWP	4235.9	4234.1	8.23	6.430175781	4227.669922
T389	9/24/2015	DWP	4235.9	4234.1	8.83	7.030273438	4227.069824
T389	4/5/2016	InyoIndic	4235.9	4234.1	5.91	4.110351563	4229.989746

staid	date	urce_nan	rp_elev	gr_elev	dtw	lscdtw	ws_elev
T390	8/7/1973	DWP	4266.81	4265.6	5.9	4.689941406	4260.910156
T390	9/7/1973	DWP	4266.81	4265.6	6.3	5.08984375	4260.510254
T390	10/4/1973	DWP	4266.81	4265.6	6.8	5.58984375	4260.010254
T390	11/19/1973	DWP	4266.81	4265.6	7.1	5.890136719	4259.709961
T390	12/17/1973	DWP	4266.81	4265.6	7.3	6.08984375	4259.510254
T390	1/18/1974	DWP	4266.81	4265.6	7.7	6.490234375	4259.109863
T390	2/15/1974	DWP	4266.81	4265.6	8.3	7.08984375	4258.510254
T390	3/18/1974	DWP	4266.81	4265.6	8.4	7.189941406	4258.410156
T390	4/19/1974	DWP	4266.81	4265.6	6.3	5.08984375	4260.510254
T390	5/17/1974	DWP	4266.81	4265.6	5.9	4.689941406	4260.910156
T390	6/17/1974	DWP	4266.81	4265.6	6.1	4.890136719	4260.709961
T390	7/19/1974	DWP	4266.81	4265.6	5.7	4.490234375	4261.109863
T390	8/16/1974	DWP	4266.81	4265.6	5.5	4.290039063	4261.310059
T390	9/16/1974	DWP	4266.81	4265.6	7	5.790039063	4259.810059
T390	10/18/1974	DWP	4266.81	4265.6	6.3	5.08984375	4260.510254
T390	11/18/1974	DWP	4266.81	4265.6	6.9	5.689941406	4259.910156
T390	12/20/1974	DWP	4266.81	4265.6	7.7	6.490234375	4259.109863
T390	1/17/1975	DWP	4266.81	4265.6	8.2	6.990234375	4258.609863
T390	2/18/1975	DWP	4266.81	4265.6	8.6	7.390136719	4258.209961
T390	3/17/1975	DWP	4266.81	4265.6	9	7.790039063	4257.810059
T390	4/18/1975	DWP	4266.81	4265.6	7.6	6.390136719	4259.209961
T390	9/11/1975	DWP	4266.81	4265.6	6.3	5.08984375	4260.510254
T390	10/9/1975	DWP	4266.81	4265.6	6.3	5.08984375	4260.510254
T390	11/6/1975	DWP	4266.81	4265.6	8.9	7.689941406	4257.910156
T390	12/9/1975	DWP	4266.81	4265.6	7.5	6.290039063	4259.310059
T390	1/9/1976	DWP	4266.81	4265.6	8.3	7.08984375	4258.510254
T390	2/10/1976	DWP	4266.81	4265.6	8.2	6.990234375	4258.609863
T390	3/10/1976	DWP	4266.81	4265.6	8.6	7.390136719	4258.209961
T390	4/9/1976	DWP	4266.81	4265.6	7.2	5.990234375	4259.609863
T390	5/11/1976	DWP	4266.81	4265.6	7.2	5.990234375	4259.609863
T390	6/7/1976	DWP	4266.81	4265.6	8.2	6.990234375	4258.609863
T390	7/12/1976	DWP	4266.81	4265.6	7.6	6.390136719	4259.209961
T390	8/11/1976	DWP	4266.81	4265.6	7.4	6.189941406	4259.410156
T390	9/9/1976	DWP	4266.81	4265.6	6.5	5.290039063	4260.310059
T390	10/7/1976	DWP	4266.81	4265.6	6.8	5.58984375	4260.010254
T390	11/8/1976	DWP	4266.81	4265.6	7.6	6.390136719	4259.209961
T390	12/3/1976	DWP	4266.81	4265.6	7.2	5.990234375	4259.609863
T390	1/7/1977	DWP	4266.81	4265.6	9	7.790039063	4257.810059
T390	2/3/1977	DWP	4266.81	4265.6	9.2	7.990234375	4257.609863
T390	3/10/1977	DWP	4266.81	4265.6	9.4	8.189941406	4257.410156
T390	4/8/1977	DWP	4266.81	4265.6	9	7.790039063	4257.810059
T390	5/4/1977	DWP	4266.81	4265.6	7.4	6.189941406	4259.410156
T390	6/7/1977	DWP	4266.81	4265.6	6.5	5.290039063	4260.310059
T390	7/13/1977	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	7/29/1977	DWP	4266.81	4265.6	7	5.790039063	4259.810059

T390	8/12/1977	DWP	4266.81	4265.6	6.9	5.689941406	4259.910156
T390	9/13/1977	DWP	4266.81	4265.6	5.7	4.490234375	4261.109863
T390	10/13/1977	DWP	4266.81	4265.6	7.3	6.08984375	4259.510254
T390	11/8/1977	DWP	4266.81	4265.6	7.9	6.689941406	4258.910156
T390	12/14/1977	DWP	4266.81	4265.6	8.7	7.490234375	4258.109863
T390	1/13/1978	DWP	4266.81	4265.6	8.7	7.490234375	4258.109863
T390	2/6/1978	DWP	4266.81	4265.6	8.2	6.990234375	4258.609863
T390	3/3/1978	DWP	4266.81	4265.6	7	5.790039063	4259.810059
T390	4/3/1978	DWP	4266.81	4265.6	7.4	6.189941406	4259.410156
T390	5/9/1978	DWP	4266.81	4265.6	4.7	3.490234375	4262.109863
T390	6/2/1978	DWP	4266.81	4265.6	6.2	4.990234375	4260.609863
T390	8/2/1978	DWP	4266.81	4265.6	4	2.790039063	4262.810059
T390	10/6/1978	DWP	4266.81	4265.6	5.5	4.290039063	4261.310059
T390	12/6/1978	DWP	4266.81	4265.6	7.2	5.990234375	4259.609863
T390	2/2/1979	DWP	4266.81	4265.6	8	6.790039063	4258.810059
T390	4/12/1979	DWP	4266.81	4265.6	5.3	4.08984375	4261.510254
T390	6/6/1979	DWP	4266.81	4265.6	4.5	3.290039063	4262.310059
T390	8/1/1979	DWP	4266.81	4265.6	4.1	2.890136719	4262.709961
T390	10/11/1979	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	12/6/1979	DWP	4266.81	4265.6	5.5	4.290039063	4261.310059
T390	2/4/1980	DWP	4266.81	4265.6	7	5.790039063	4259.810059
T390	4/4/1980	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	6/5/1980	DWP	4266.81	4265.6	8.9	7.689941406	4257.910156
T390	8/4/1980	DWP	4266.81	4265.6	5.7	4.490234375	4261.109863
T390	10/7/1980	DWP	4266.81	4265.6	5.2	3.990234375	4261.609863
T390	12/3/1980	DWP	4266.81	4265.6	5.6	4.390136719	4261.209961
T390	2/9/1981	DWP	4266.81	4265.6	7.3	6.08984375	4259.510254
T390	4/7/1981	DWP	4266.81	4265.6	7.1	5.890136719	4259.709961
T390	6/4/1981	DWP	4266.81	4265.6	5.5	4.290039063	4261.310059
T390	8/10/1981	DWP	4266.81	4265.6	6	4.790039063	4260.810059
T390	10/5/1981	DWP	4266.81	4265.6	4.7	3.490234375	4262.109863
T390	12/2/1981	DWP	4266.81	4265.6	6.3	5.08984375	4260.510254
T390	2/5/1982	DWP	4266.81	4265.6	8	6.790039063	4258.810059
T390	4/5/1982	DWP	4266.81	4265.6	6.7	5.490234375	4260.109863
T390	6/7/1982	DWP	4266.81	4265.6	6	4.790039063	4260.810059
T390	7/8/1982	DWP	4266.81	4265.6	3.4	2.189941406	4263.410156
T390	8/5/1982	DWP	4266.81	4265.6	4.5	3.290039063	4262.310059
T390	10/5/1982	DWP	4266.81	4265.6	5.9	4.689941406	4260.910156
T390	12/3/1982	DWP	4266.81	4265.6	5.9	4.689941406	4260.910156
T390	2/7/1983	DWP	4266.81	4265.6	6.1	4.890136719	4260.709961
T390	4/1/1983	DWP	4266.81	4265.6	7.9	6.689941406	4258.910156
T390	6/2/1983	DWP	4266.81	4265.6	5.8	4.58984375	4261.010254
T390	8/2/1983	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	10/5/1983	DWP	4266.81	4265.6	5.2	3.990234375	4261.609863
T390	12/6/1983	DWP	4266.81	4265.6	6.3	5.08984375	4260.510254
T390	2/3/1984	DWP	4266.81	4265.6	7.7	6.490234375	4259.109863

T390	4/4/1984	DWP	4266.81	4265.6	6.2	4.990234375	4260.609863
T390	6/6/1984	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	8/7/1984	DWP	4266.81	4265.6	4	2.790039063	4262.810059
T390	10/4/1984	DWP	4266.81	4265.6	3.7	2.490234375	4263.109863
T390	12/5/1984	DWP	4266.81	4265.6	5.5	4.290039063	4261.310059
T390	2/6/1985	DWP	4266.81	4265.6	6.4	5.189941406	4260.410156
T390	4/3/1985	DWP	4266.81	4265.6	4.6	3.390136719	4262.209961
T390	6/5/1985	DWP	4266.81	4265.6	5.2	3.990234375	4261.609863
T390	8/8/1985	DWP	4266.81	4265.6	5.2	3.990234375	4261.609863
T390	10/10/1985	DWP	4266.81	4265.6	5.6	4.390136719	4261.209961
T390	12/4/1985	DWP	4266.81	4265.6	5.9	4.689941406	4260.910156
T390	2/10/1986	DWP	4266.81	4265.6	7.7	6.490234375	4259.109863
T390	4/3/1986	DWP	4266.81	4265.6	5.3	4.08984375	4261.510254
T390	10/15/1986	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	4/11/1987	DWP	4266.81	4265.6	5.1	3.890136719	4261.709961
T390	10/17/1987	DWP	4266.81	4265.6	6.1	4.890136719	4260.709961
T390	4/16/1988	DWP	4266.81	4265.6	5.6	4.390136719	4261.209961
T390	10/15/1988	DWP	4266.81	4265.6	5.8	4.58984375	4261.010254
T390	4/8/1989	DWP	4266.81	4265.6	3.9	2.689941406	4262.910156
T390	10/7/1989	DWP	4266.81	4265.6	5.5	4.290039063	4261.310059
T390	4/21/1990	DWP	4266.81	4265.6	7.1	5.890136719	4259.709961
T390	10/3/1990	DWP	4266.81	4265.6	5.4	4.189941406	4261.410156
T390	4/18/1991	DWP	4266.81	4265.6	8.4	7.189941406	4258.410156
T390	10/22/1991	DWP	4266.81	4265.6	6.2	4.990234375	4260.609863
T390	4/20/1992	DWP	4266.81	4265.6	6.9	5.689941406	4259.910156
T390	10/16/1992	DWP	4266.81	4265.6	3.7	2.490234375	4263.109863
T390	4/15/1993	DWP	4266.81	4265.6	7.7	6.490234375	4259.109863
T390	10/27/1993	DWP	4266.81	4265.6	5.9	4.689941406	4260.910156
T390	4/19/1994	DWP	4266.81	4265.6	6.2	4.990234375	4260.609863
T390	10/12/1994	DWP	4266.81	4265.6	6.5	5.290039063	4260.310059
T390	4/26/1995	DWP	4266.81	4265.6	5.4	4.189941406	4261.410156
T390	10/23/1995	DWP	4266.81	4265.6	5.8	4.58984375	4261.010254
T390	4/24/1996	DWP	4266.81	4265.6	6.4	5.189941406	4260.410156
T390	4/19/1997	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	10/20/1997	DWP	4266.81	4265.6	3.8	2.58984375	4263.010254
T390	4/16/1998	DWP	4266.81	4265.6	7.8	6.58984375	4259.010254
T390	6/16/1999	DWP	4266.81	4265.6	4.1	2.890136719	4262.709961
T390	10/26/1999	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	4/24/2000	DWP	4266.81	4265.6	6.1	4.890136719	4260.709961
T390	10/30/2000	DWP	4266.81	4265.6	6.8	5.58984375	4260.010254
T390	4/9/2001	DWP	4266.81	4265.6	8.7	7.490234375	4258.109863
T390	10/29/2001	DWP	4266.81	4265.6	6.3	5.08984375	4260.510254
T390	4/25/2002	DWP	4266.81	4265.6	4.5	3.290039063	4262.310059
T390	10/31/2002	DWP	4266.81	4265.6	4.8	3.58984375	4262.010254
T390	4/23/2003	DWP	4266.81	4265.6	6.7	5.490234375	4260.109863
T390	10/30/2003	DWP	4266.81	4265.6	5.6	4.390136719	4261.209961

T390	4/20/2004	DWP	4266.81	4265.6	6.2	4.990234375	4260.609863
T390	10/18/2004	DWP	4266.81	4265.6	5.8	4.58984375	4261.010254
T390	4/12/2005	DWP	4266.81	4265.6	6	4.790039063	4260.810059
T390	10/20/2005	DWP	4266.81	4265.6	5.7	4.490234375	4261.109863
T390	4/4/2006	DWP	4266.81	4265.6	9.1	7.890136719	4257.709961
T390	10/20/2006	DWP	4266.81	4265.6	4.7	3.490234375	4262.109863
T390	4/20/2007	DWP	4266.81	4265.6	3.9	2.689941406	4262.910156
T390	10/27/2007	DWP	4266.81	4265.6	5.3	4.08984375	4261.510254
T390	4/18/2008	DWP	4266.81	4265.6	5.8	4.58984375	4261.010254
T390	10/31/2008	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	4/24/2009	DWP	4266.81	4265.6	5.3	4.08984375	4261.510254
T390	10/26/2009	DWP	4266.81	4265.6	6.3	5.08984375	4260.510254
T390	4/26/2010	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	10/25/2010	DWP	4266.81	4265.6	5.2	3.990234375	4261.609863
T390	4/25/2011	DWP	4266.81	4265.6	5.4	4.189941406	4261.410156
T390	10/19/2011	DWP	4266.81	4265.6	5	3.790039063	4261.810059
T390	4/18/2012	DWP	4266.81	4265.6	6.7	5.490234375	4260.109863
T390	10/22/2012	DWP	4266.81	4265.6	6.3	5.08984375	4260.510254
T390	4/15/2013	DWP	4266.81	4265.6	6.7	5.490234375	4260.109863
T390	10/24/2013	DWP	4266.8	4265.6	8.94	7.740234375	4257.859863
T390	12/11/2013	DWP	4266.8	4265.6	9.7	8.500488281	4257.099609
T390	4/24/2014	DWP	4266.8	4265.6	6.95	5.750488281	4259.849609
T390	10/27/2014	DWP	4266.8	4265.6	8.16	6.960449219	4258.639648
T390	4/20/2015	DWP	4266.8	4265.6	9.05	7.850097656	4257.75
T390	4/5/2016	InyoIndic	4266.8	4265.6	6.07	4.870117188	4260.72998

staid	date	ource_nam	rp_elev	gr_elev	dtw	lscdtw	ws_elev
T391	8/27/1973	DWP	4310.63	4309.5	3.4	2.270019531	4307.22998
T391	9/7/1973	DWP	4310.63	4309.5	3.7	2.5703125	4306.929688
T391	10/10/1973	DWP	4310.63	4309.5	3.5	2.370117188	4307.129883
T391	11/7/1973	DWP	4310.63	4309.5	5.8	4.669921875	4304.830078
T391	12/17/1973	DWP	4310.63	4309.5	8.4	7.270019531	4302.22998
T391	1/18/1974	DWP	4310.63	4309.5	9.3	8.169921875	4301.330078
T391	2/15/1974	DWP	4310.63	4309.5	9.9	8.770019531	4300.72998
T391	3/18/1974	DWP	4310.63	4309.5	9.5	8.370117188	4301.129883
T391	4/19/1974	DWP	4310.63	4309.5	5.4	4.270019531	4305.22998
T391	5/17/1974	DWP	4310.63	4309.5	3.4	2.270019531	4307.22998
T391	6/17/1974	DWP	4310.63	4309.5	2.4	1.270019531	4308.22998
T391	7/19/1974	DWP	4310.63	4309.5	3.6	2.470214844	4307.029785
T391	8/16/1974	DWP	4310.63	4309.5	3.2	2.0703125	4307.429688
T391	9/16/1974	DWP	4310.63	4309.5	3.4	2.270019531	4307.22998
T391	10/18/1974	DWP	4310.63	4309.5	4	2.870117188	4306.629883
T391	11/18/1974	DWP	4310.63	4309.5	6.9	5.770019531	4303.72998
T391	12/20/1974	DWP	4310.63	4309.5	8.6	7.470214844	4302.029785
T391	1/17/1975	DWP	4310.63	4309.5	9.3	8.169921875	4301.330078
T391	2/18/1975	DWP	4310.63	4309.5	10.1	8.970214844	4300.529785
T391	3/17/1975	DWP	4310.63	4309.5	6.2	5.0703125	4304.429688
T391	4/18/1975	DWP	4310.63	4309.5	5.1	3.970214844	4305.529785
T391	9/11/1975	DWP	4310.63	4309.5	2.7	1.5703125	4307.929688
T391	10/6/1975	DWP	4310.63	4309.5	4.2	3.0703125	4306.429688
T391	11/6/1975	DWP	4310.63	4309.5	5.7	4.5703125	4304.929688
T391	12/9/1975	DWP	4310.63	4309.5	7.7	6.5703125	4302.929688
T391	1/9/1976	DWP	4310.63	4309.5	9.6	8.470214844	4301.029785
T391	2/10/1976	DWP	4310.63	4309.5	9.3	8.169921875	4301.330078
T391	3/10/1976	DWP	4310.63	4309.5	9.7	8.5703125	4300.929688
T391	4/9/1976	DWP	4310.63	4309.5	8.4	7.270019531	4302.22998
T391	5/12/1976	DWP	4310.63	4309.5	5.9	4.770019531	4304.72998
T391	6/7/1976	DWP	4310.63	4309.5	3.8	2.669921875	4306.830078
T391	7/12/1976	DWP	4310.63	4309.5	3.5	2.370117188	4307.129883
T391	8/11/1976	DWP	4310.63	4309.5	2.6	1.470214844	4308.029785
T391	9/9/1976	DWP	4310.63	4309.5	2.8	1.669921875	4307.830078
T391	10/7/1976	DWP	4310.63	4309.5	4.3	3.169921875	4306.330078
T391	11/8/1976	DWP	4310.63	4309.5	6.8	5.669921875	4303.830078
T391	12/3/1976	DWP	4310.63	4309.5	7.2	6.0703125	4303.429688
T391	1/7/1977	DWP	4310.63	4309.5	6.2	5.0703125	4304.429688
T391	2/3/1977	DWP	4310.63	4309.5	8.4	7.270019531	4302.22998
T391	3/10/1977	DWP	4310.63	4309.5	8.1	6.970214844	4302.529785
T391	4/8/1977	DWP	4310.63	4309.5	8.6	7.470214844	4302.029785
T391	5/4/1977	DWP	4310.63	4309.5	5.7	4.5703125	4304.929688
T391	6/6/1977	DWP	4310.63	4309.5	3.8	2.669921875	4306.830078
T391	7/13/1977	DWP	4310.63	4309.5	2.2	1.0703125	4308.429688
T391	7/29/1977	DWP	4310.63	4309.5	3.5	2.370117188	4307.129883

T391	8/12/1977	DWP	4310.63	4309.5	3.1	1.970214844	4307.529785
T391	9/13/1977	DWP	4310.63	4309.5	3.7	2.5703125	4306.929688
T391	10/13/1977	DWP	4310.63	4309.5	4.7	3.5703125	4305.929688
T391	11/8/1977	DWP	4310.63	4309.5	6.7	5.5703125	4303.929688
T391	12/14/1977	DWP	4310.63	4309.5	9.1	7.970214844	4301.529785
T391	1/13/1978	DWP	4310.63	4309.5	10.4	9.270019531	4300.22998
T391	2/6/1978	DWP	4310.63	4309.5	10.8	9.669921875	4299.830078
T391	3/7/1978	DWP	4310.63	4309.5	6.3	5.169921875	4304.330078
T391	4/6/1978	DWP	4310.63	4309.5	4.8	3.669921875	4305.830078
T391	5/10/1978	DWP	4310.63	4309.5	3.9	2.770019531	4306.72998
T391	6/2/1978	DWP	4310.63	4309.5	4.7	3.5703125	4305.929688
T391	8/2/1978	DWP	4310.63	4309.5	2.3	1.169921875	4308.330078
T391	10/6/1978	DWP	4310.63	4309.5	3.4	2.270019531	4307.22998
T391	12/6/1978	DWP	4310.63	4309.5	5	3.870117188	4305.629883
T391	2/2/1979	DWP	4310.63	4309.5	7.6	6.470214844	4303.029785
T391	4/12/1979	DWP	4310.63	4309.5	5.2	4.0703125	4305.429688
T391	6/4/1979	DWP	4310.63	4309.5	3.1	1.970214844	4307.529785
T391	8/1/1979	DWP	4310.63	4309.5	2.5	1.370117188	4308.129883
T391	10/11/1979	DWP	4310.63	4309.5	3.9	2.770019531	4306.72998
T391	12/6/1979	DWP	4310.63	4309.5	6.5	5.370117188	4304.129883
T391	2/4/1980	DWP	4310.63	4309.5	8.4	7.270019531	4302.22998
T391	4/3/1980	DWP	4310.63	4309.5	8.3	7.169921875	4302.330078
T391	6/5/1980	DWP	4310.63	4309.5	3.6	2.470214844	4307.029785
T391	8/4/1980	DWP	4310.63	4309.5	2.4	1.270019531	4308.22998
T391	10/7/1980	DWP	4310.63	4309.5	4	2.870117188	4306.629883
T391	12/10/1980	DWP	4310.63	4309.5	6.2	5.0703125	4304.429688
T391	2/13/1981	DWP	4310.63	4309.5	8.8	7.669921875	4301.830078
T391	4/7/1981	DWP	4310.63	4309.5	5.8	4.669921875	4304.830078
T391	6/4/1981	DWP	4310.63	4309.5	3.1	1.970214844	4307.529785
T391	8/10/1981	DWP	4310.63	4309.5	2.9	1.770019531	4307.72998
T391	10/5/1981	DWP	4310.63	4309.5	2.8	1.669921875	4307.830078
T391	12/2/1981	DWP	4310.63	4309.5	6	4.870117188	4304.629883
T391	2/5/1982	DWP	4310.63	4309.5	8.9	7.770019531	4301.72998
T391	4/2/1982	DWP	4310.63	4309.5	8.6	7.470214844	4302.029785
T391	6/3/1982	DWP	4310.63	4309.5	4.6	3.470214844	4306.029785
T391	8/4/1982	DWP	4310.63	4309.5	3	1.870117188	4307.629883
T391	10/5/1982	DWP	4310.63	4309.5	3.9	2.770019531	4306.72998
T391	12/3/1982	DWP	4310.63	4309.5	7.6	6.470214844	4303.029785
T391	2/7/1983	DWP	4310.63	4309.5	6.5	5.370117188	4304.129883
T391	4/4/1983	DWP	4310.63	4309.5	6.1	4.970214844	4304.529785
T391	6/2/1983	DWP	4310.63	4309.5	2.9	1.770019531	4307.72998
T391	8/2/1983	DWP	4310.63	4309.5	2.5	1.370117188	4308.129883
T391	10/5/1983	DWP	4310.63	4309.5	3.4	2.270019531	4307.22998
T391	12/2/1983	DWP	4310.63	4309.5	4.8	3.669921875	4305.830078
T391	2/3/1984	DWP	4310.63	4309.5	7.8	6.669921875	4302.830078
T391	4/4/1984	DWP	4310.63	4309.5	5.9	4.770019531	4304.72998

T391	6/6/1984	DWP	4310.63	4309.5	2.6	1.470214844	4308.029785
T391	8/7/1984	DWP	4310.63	4309.5	3.6	2.470214844	4307.029785
T391	10/4/1984	DWP	4310.63	4309.5	2.3	1.169921875	4308.330078
T391	12/5/1984	DWP	4310.63	4309.5	6	4.870117188	4304.629883
T391	2/6/1985	DWP	4310.63	4309.5	8.6	7.470214844	4302.029785
T391	4/3/1985	DWP	4310.63	4309.5	4.6	3.470214844	4306.029785
T391	6/5/1985	DWP	4310.63	4309.5	3.1	1.970214844	4307.529785
T391	8/8/1985	DWP	4310.63	4309.5	2.6	1.470214844	4308.029785
T391	10/10/1985	DWP	4310.63	4309.5	4	2.870117188	4306.629883
T391	12/5/1985	DWP	4310.63	4309.5	4.9	3.770019531	4305.72998
T391	2/11/1986	DWP	4310.63	4309.5	7.3	6.169921875	4303.330078
T391	4/4/1986	DWP	4310.63	4309.5	6.4	5.270019531	4304.22998
T391	10/15/1986	DWP	4310.63	4309.5	4	2.870117188	4306.629883
T391	4/11/1987	DWP	4310.63	4309.5	4.2	3.0703125	4306.429688
T391	10/17/1987	DWP	4310.63	4309.5	4.9	3.770019531	4305.72998
T391	4/16/1988	DWP	4310.63	4309.5	3.1	1.970214844	4307.529785
T391	10/15/1988	DWP	4310.63	4309.5	4.2	3.0703125	4306.429688
T391	4/8/1989	DWP	4310.63	4309.5	3.4	2.270019531	4307.22998
T391	10/7/1989	DWP	4310.63	4309.5	5	3.870117188	4305.629883
T391	4/21/1990	DWP	4310.63	4309.5	3.9	2.770019531	4306.72998
T391	10/3/1990	DWP	4310.63	4309.5	4.9	3.770019531	4305.72998
T391	4/17/1991	DWP	4310.63	4309.5	7.4	6.270019531	4303.22998
T391	10/22/1991	DWP	4310.63	4309.5	6.9	5.770019531	4303.72998
T391	4/20/1992	DWP	4310.63	4309.5	5.1	3.970214844	4305.529785
T391	10/20/1992	DWP	4310.63	4309.5	5.7	4.5703125	4304.929688
T391	4/15/1993	DWP	4310.63	4309.5	5.6	4.470214844	4305.029785
T391	10/27/1993	DWP	4310.63	4309.5	4.6	3.470214844	4306.029785
T391	4/18/1994	DWP	4310.63	4309.5	4.5	3.370117188	4306.129883
T391	10/12/1994	DWP	4310.63	4309.5	5.6	4.470214844	4305.029785
T391	4/24/1995	DWP	4310.63	4309.5	3	1.870117188	4307.629883
T391	10/23/1995	DWP	4310.63	4309.5	4.5	3.370117188	4306.129883
T391	4/22/1996	DWP	4310.63	4309.5	3.4	2.270019531	4307.22998
T391	4/19/1997	DWP	4310.63	4309.5	3.2	2.0703125	4307.429688
T391	10/20/1997	DWP	4310.63	4309.5	3.4	2.270019531	4307.22998
T391	4/27/1998	DWP	4310.63	4309.5	2.8	1.669921875	4307.830078
T391	6/16/1999	DWP	4310.63	4309.5	2.6	1.470214844	4308.029785
T391	10/25/1999	DWP	4310.63	4309.5	4.4	3.270019531	4306.22998
T391	4/24/2000	DWP	4310.63	4309.5	2.4	1.270019531	4308.22998
T391	10/30/2000	DWP	4310.63	4309.5	5.8	4.669921875	4304.830078
T391	4/9/2001	DWP	4310.63	4309.5	5.6	4.470214844	4305.029785
T391	10/29/2001	DWP	4310.63	4309.5	5.4	4.270019531	4305.22998
T391	4/23/2002	DWP	4310.63	4309.5	5.4	4.270019531	4305.22998
T391	10/31/2002	DWP	4310.63	4309.5	5.7	4.5703125	4304.929688
T391	4/23/2003	DWP	4310.63	4309.5	7	5.870117188	4303.629883
T391	10/30/2003	DWP	4310.63	4309.5	6	4.870117188	4304.629883
T391	4/20/2004	DWP	4310.63	4309.5	6.3	5.169921875	4304.330078

T391	10/18/2004	DWP	4310.63	4309.5	6.9	5.770019531	4303.72998
T391	4/12/2005	DWP	4310.63	4309.5	8.2	7.0703125	4302.429688
T391	10/20/2005	DWP	4310.63	4309.5	6.4	5.270019531	4304.22998
T391	4/4/2006	DWP	4310.63	4309.5	11.9	10.77001953	4298.72998
T391	10/20/2006	DWP	4310.63	4309.5	4.4	3.270019531	4306.22998
T391	4/20/2007	DWP	4310.63	4309.5	5	3.870117188	4305.629883
T391	10/27/2007	DWP	4310.63	4309.5	7.3	6.169921875	4303.330078
T391	4/18/2008	DWP	4310.63	4309.5	7.8	6.669921875	4302.830078
T391	10/31/2008	DWP	4310.63	4309.5	7.5	6.370117188	4303.129883
T391	4/21/2009	DWP	4310.63	4309.5	7.8	6.669921875	4302.830078
T391	10/26/2009	DWP	4310.63	4309.5	7.7	6.5703125	4302.929688
T391	4/26/2010	DWP	4310.63	4309.5	7.1	5.970214844	4303.529785
T391	10/25/2010	DWP	4310.63	4309.5	7.2	6.0703125	4303.429688
T391	4/25/2011	DWP	4310.63	4309.5	6.1	4.970214844	4304.529785
T391	10/19/2011	DWP	4310.63	4309.5	7.3	6.169921875	4303.330078
T391	4/18/2012	DWP	4310.63	4309.5	10	8.870117188	4300.629883
T391	10/22/2012	DWP	4310.63	4309.5	7	5.870117188	4303.629883
T391	4/15/2013	DWP	4310.63	4309.5	10.7	9.5703125	4299.929688
T391	10/24/2013	DWP	4310.6	4309.5	13.82	12.71972656	4296.780273
T391	11/7/2013	DWP	4310.6	4309.5	3.75	2.649902344	4306.850098
T391	4/24/2014	DWP	4310.6	4309.5	11.17	10.06982422	4299.430176
T391	10/27/2014	DWP	4310.6	4309.5	12.28	11.1796875	4298.320313
T391	4/21/2015	DWP	4310.6	4309.5	11.41	10.31005859	4299.189941
T391	9/21/2015	DWP	4310.6	4309.5	4.71	3.609863281	4305.890137
T391	4/5/2016	InyoIndic	4310.6	4309.5	8.11	7.009765625	4302.490234

Appendix C
Photo Pages

Photo 1: View of the sump pump system installed at the 375 Mountain View Road Property. The sump pumps are set to turn on when water levels are too high.

Photo 2: View north of the second sump installed at 375 Mountain View to alleviate standing water at the corner of the detached garage.

Photo 3: View north of the pond and drain system at 375 Mountain View Road. While on site, the sump in photo 1 was constantly running and discharging excess water to the pond.

Photo 4: View of hand dug hole at the 2342 Sunrise residence. The water table is approximately 6 inches below the ground surface.

Photo 5: View west of a corrugated metal pipe installed to enclose the South Indian Ditch on a vacant property adjacent to the west of the residence at 2342 Sunrise Drive. The culvert pipe was installed to mitigate flooding issues along the drainage, but was not successful as evidenced in the photo.

Photo 6: View east of the decorative pond at the 2342 Sunrise residence. The pond is not lined, despite the finished nature of the pond edges. The check gate at the back of the pond cycles pond water back into the South Indian Ditch.

Photo 7: View west at the effluent discharge lines set up at the 2342 Sunrise Drive residence. Note the soil conditions in the landscaping, were moist to wet, despite the outside temperatures ranging around 90 to 95 degrees Fahrenheit during the site visit and several weeks prior.

Photo 8: View west of the landscaping pond at 2320 Sunrise Drive, adjacent to the east of residence experiencing flooding at 2342 Sunrise Drive. The South Indian Ditch check gate for the pond is at the rear of the photo. Like the 2342 property pond, this pond is also unlined and the owner is experiencing flooding issues beneath the home.

Photo 9: View south of the staining on the curb at 723 Orinda Drive as a result of periodic groundwater seepage from the lawn.

Photo 10: View northwest at the small garden maintained in the backyard by the 723 Orinda Drive property owner. No irrigation water was being applied to the garden as the groundwater was too shallow to require it.

Photo 11: View southwest of the one of six decorative ponds at 2842 Sierra Vista Lane. The Orinda Drive properties affected by shallow groundwater are located to the east (downgradient) of this property.

Photo 12: View east of a lot that separates the affected residences on Orinda Drive from the residence on Sierra Vista Lane with the 6 ponds. The rear of the affected residence on Orinda Drive are pictured at the back of the photo.

Photo 13: View east of Carol Lane. Note the heavy damage to the roadway from shallow groundwater conditions and the active groundwater seepage emanating from the landscaping and overtopping the curb.

Photo 14: View southwest at the active groundwater seepage emanating from the landscaping and overtopping the curb of the 2743 Carol Lane property.

Photo 15: View southeast at the homemade sump installed in the landscaping at 2743 Carol Lane to alleviate the shallow groundwater conditions.

Photo 16: View south of the homemade French drain constructed by the homeowner at 2652 Sunset Road to remove standing water from the back yard.

Photo 17: View of the homemade sump constructed by the homeowner at 2652 Sunset Road to alleviate shallow groundwater around the residence.

Photo 18: View north of the soil conditions at the property to the north of 2652 Sunset Road. Note the moist conditions, despite the elevated summer temperatures.

Photo 19: View southwest at the pile of material made available by LADWP to use as a lining material for the decorative ponds in the three neighborhoods.

Photo 20: Close up photo of pond liner material made available for use by LADWP.