PAJARO RIVER WATERSHED
FLOOD PREVENTION AUTHORITY
Phase 4b: Implementation Plan for Soap Lake Floodplain Preservation Project and Watershed Flood Protection Actions

Technical Memorandum No. 4.4.1

Task:	**Rating Curve of San Benito River at Highway 156 Flow Gage**
To:	**PRWFPA Staff Working Group**
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Date:	**March 31, 2005**
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Introduction

This technical memorandum (TM) describes work completed as part of *Task 4.4.1: Rating Curve of San Benito River at Highway 156 Flow Gage* as part of the Pajaro River Watershed Study. This subtask is part of a greater effort in the preparation of a flood forecasting system for the Pajaro River watershed upstream of Chittenden Pass. RMC was tasked with collecting and reviewing existing data and information about the San Benito River at Highway 156 gage, and describing the current condition of the site, current USGS rating curve methodology, update frequency, and accuracy.

Rating Curve Background

A rating curve, as defined by Lindburge (2003), is a plot of quantity flowing versus depth for a natural watercourse. In basic terms, a hydrologic "rating" is the relationship between a water level (stage or gage height) and a water flow (streamflow or discharge) at a cross section of a river. This relationship can be expressed as a graph (curve), an equation, or a table.[1] The development of a stage-discharge relationship is a fundamental task in computing a discharge record.[2]

Often, river stage can be remotely collected from a U. S. Geological Survey (USGS) gage site that is equipped with automatic sensor and transmission (satellite or radio) equipment. With this capability and utilizing an established rating, hydrologists can quickly estimate the streamflow at a particular river cross section. With the installation of many such equipped gages, a hydrologist can monitor flows throughout an entire system simultaneously.[3]

Rating Curve Development

To develop a rating curve, the USGS conducts multiple field visits to a gage site to collect discharge measurements and stage observations. Stream stage (expressed in feet) is the height of the water surface above an established datum where the stage is zero.[4] The zero level is arbitrary, but is usually close to the streambed.[5] Streamflow, often referred to as discharge, is a volume of water flowing past a specific point in a fixed unit of time, and is expressed by the USGS in cubic feet per second (ft^3/s or cfs).[6]

A discharge measurement is calculated perpendicular to the direction of flow along a river cross section using a current meter (for velocity) and a wading rod (for cross-sectional area). This method is the wading method, which can be utilized during wadable flow (low flow/low velocity) periods. Depending on the configuration of the site, high flow measurements are often performed from bridges or cableways. The stage of the

[1] U.S. Geological Survey, 1996, Surface Water Quality Assurance Plan for the California District of the U.S.Geological Survey, U.S. Geological Survey Open-File Report 96-618, 75 p., Accessed February 2005, http://ca.water.usgs.gov/archive/reports/ofr96618/
[2] U.S. Geological Survey, 1996
[3] GeologyProfessor.com, Geology-Dictionary Terms – Rating Curve, Accessed February 2005, www.geologyprofessor.com/geology-dictionary/terms-r.shtml
[4] U.S. Geological Survey, 2003b, HydroHelp: Stream stage and Streamflow, Accessed February 2005, http://ga2.er.usgs.gov/HydroHelp/stageandflow.cfm
[5] U.S. Geological Survey, 2003b
[6] U.S. Geological Survey, 2003b

river is observed from an associated staff gage or pressure transducer. Corresponding discharge and stage are recorded on the flow calculation sheet or datalogger. The collected discharge and stage data can be compiled to develop a rating curve and table.

Although there are no set guidelines as to the number of field measurements needed to develop a rating curve, ideally, the measurements of flow should reflect a suite of measurements taken during a wide range of flow events. Often, this task can be difficult to accomplish due to budget and staffing constraints. Also, measurements of high flow events can be difficult due to safety and accessibility issues. For all of these reasons, rating curves are often developed with fewer than desired stage/discharge measurements.[7]

A lack of high flow measurements can cause significant errors in rating curves at the higher end of the flow spectrum.[8] For stations with this situation (including new stations), step-backwater computations and other indirect theoretical methods can be utilized to guide the development of the shape and slope of the rating curve at the higher end of the flow range.[9] An indirect method utilizing high water marks and hydraulic models can aid in establishing a more reliable higher end to the rating curve until better definitions or direct measurements are made.[10]Such indirect methods require accurate field surveys of high-water marks, and the cross-sectional and longitudinal channel properties.[11]

Once all the necessary flow and stage measurements have been collected in the field, the data are compiled and a scatter plot of the discharge and stage values is created. The measurements of discharge are plotted on the horizontal axis, and the associated stage values are plotted on the vertical axis. A trend line is fit to these points to create the rating curve.[12] It is important to note that significant scatter of the points may exist.[13] As a result, it should be understood that even though the discharge values extrapolated from a rating curve are the most likely discharge value at a given stage, they may differ from the actual observed discharge value if measured in the field.[14] A rating curve allows for discharge values to be estimated for river stages lacking measured streamflow data.

Rating Shifts

Since river systems are dynamic, rating curves aren't static and must be checked and occasionally need to be recalculated, or shifted. Flow and stage measurements are routinely collected by the USGS and are compared to the rating table to determine rating accuracy. River systems change gradually over time or may change abruptly due to

[7] National Oceanic and Atmospheric Administration, 2002, Service Hydrologist Reference Manual - Rating Tables and Curves, Accessed February 2005, http://www.nws.noaa.gov/om/hod/SHManual/SHMan040_rating.htm
[8] National Oceanic and Atmospheric Administration, 2002
[9] U.S. Geological Survey, 1996
[10] U.S. Geological Survey, 2003a, HydroHelp: Determination of peak streamflows, Accessed February 2005, http://ga2.er.usgs.gov/HydroHelp/peakflows.cfm
[11] U.S. Geological Survey, 2003a
[12] National Oceanic and Atmospheric Administration, 2002
[13] National Oceanic and Atmospheric Administration, 2002
[14] National Oceanic and Atmospheric Administration, 2002

extreme high flow or flood events.[15] In either case, various physical parameters of the cross section may change and affect the stage-discharge relationship, which in-turn alters the existing rating for the site. These factors may include changes in channel slope, roughness, and sedimentation at the site.[16] These physical changes can affect the cross-sectional area and velocity at the site, as well as cause backwater effects which may not have existed previously.[17]

When a recalculation is required, adjustments are made to the existing rating. These adjustments are called rating shifts and they are applied to the gage height. A positive shift indicates that the given flow would equal a higher stage than that indicated on the original rating table.[18] For example, if the rating table shows 50 cfs = 6.0 feet, and a shift of +0.2 is required, then 50 cfs = 6.2 feet. The opposite is true for a negative shift. If 50 cfs = 6.0 feet, and a shift of -0.2 is required, then 50 cfs = 5.8 feet. Shifts are not always applied globally, but are applied to subsets of stages in the rating table.[19] It is important to note that shift guidelines govern the necessity for an adjustment to the rating of any gage site. These guidelines may be site-specific, watershed-specific, or even agency wide.

Datum and Gage Height Corrections

Other corrections may be necessary at a gage site that can affect a rating. These corrections are called datum and gage height corrections. [20]

A datum correction is applied to gage-height readings if uplifting or settlement of a staff gage or pressure transducer has occurred.[21] These corrections must be applied to any record of gage height that was made after the datum change occurred. If the timeframe of the datum change is unknown, the change is assumed to have occurred since the previous levels were checked at the site. As a result, the correction amount is evenly applied over that period of time.[22]

A gage height correction is made as a result of a difference in the recording gage and the reference gage. These corrections are applied in the same way as datum corrections. [23] However, as stated above for rating shifts, guidelines exist that govern the necessity for an adjustment to the rating of any gage site. The local USGS Field Office should be consulted for the appropriate guidelines used for a specific site.

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[15] U.S. Geological Survey, 2000, USGS Stream Gaging Poster - What is Stream Gaging and Developing a Rating Curve, Accessed February 2005, http://ny.water.usgs.gov/pubs/posters/streamgagingposter.html
[16] U.S. Geological Survey, 2003b
[17] U.S. Geological Survey, 2003b
[18] National Oceanic and Atmospheric Administration, 2002
[19] National Oceanic and Atmospheric Administration, 2002
[20] This section relies heavily on information gathered from U.S. Geological Survey, 1996
[21] U.S. Geological Survey, 1996
[22] U.S. Geological Survey, 1996
[23] U.S. Geological Survey, 1996

Rating Accuracy

Since stream channels and banks scour and fill, streamgaging is a dynamic process, and gage sites and equipment must be maintained in order to produce accurate ratings. Sediment buildup at a bubbler line orifice can cause errors in the measurement of stage. Vegetation growth on a cross section control can affect computed streamflows.[24] Therefore, the continual maintenance and measurement of all flow ranges is required to ensure the accuracy of any gage. All of these factors can directly affect the accuracy of a rating curve.

The USGS routinely and continuously collects field observations and measurements at their gage sites, makes corrections to rating tables, and maintains station equipment. Various guidelines exist that aid in the determination of the accuracy of a rating curve. The appropriate guidelines for a specific site and the accuracy of any gage data, and associated rating, should be explored with the local USGS Field Office.

San Benito River at Highway 156 Gage

The stream gage investigated for this TM is USGS Stream Gage Number 11158600, San Benito River at Highway 156 near Hollister, California. The primary sources of information for this section were the USGS and the California Department of Water Resources (DWR) Division of Flood Management.

Gage Site Description

The San Benito River at Highway 156 gage is located in San Benito County, just west of the City of Hollister, adjacent to the San Juan Road (old Highway 156) bridge over the San Benito River. This gage is at 260 feet above sea level, and the drainage area for this stream gage is 607 square miles.[25] This site is a real-time USGS stream gaging station. The USGS Field Office in Marina, California, has stewardship of and maintains this gaging station and the associated data.

The gage house for this site, shown in Photos 1 and 2, is located on the downstream side of the San Juan Road Bridge, on the right-bank (northeast bank) of the San Benito River. The gage house remains locked at all times. Through communications with the USGS, it was learned that the gage equipment at this site includes a *Water Log H-350Lite* pressure transducer/bubbler line for stage readings and a *Handar 555* datalogger, which collects, processes, and transmits the gage data via satellite. The USGS has not moved the bubbler line orifice location since the 1998 floods at Highway 156.[26]

[24] Freeman, L., U.S. Geological Survey, Personal communication via email February 2005
[25] U.S. Geological Survey, 2005b, Surface Water Site Inventory, Site No. 11158600, Accessed February 2005, http://waterdata.usgs.gov/nwis/inventory/?site_no=11158600
[26] Freeman, L., 2005

Photo 1: Looking southwest along the downstream face of the San Juan Road bridge over San Benito River. The gage house is located at right center, behind the vegetation.

Photo 2: Gage House for USGS San Benito River at Highway 156.

As seen in Photos 3 through 6, the low flow channel exhibits split flow characteristics and the entire river channel is highly vegetated with much apparent sediment flux. [Note:

These photos were taken the morning of February 18, 2005, when the gage height was 5.75 feet and streamflow was 252 cfs.] In the immediate vicinity of the bridge, homes and constructed ponds are located on the upper right, overbank floodplain and industrial operations (automotive and lumber) occupy the upper left overbank floodplain.

Photo 3: Looking upstream along San Benito River from San Juan Road Bridge

Photo 4: Looking downstream at the San Benito River from San Juan Road Bridge

Photo 5: Looking northeast along the upstream face of the San Juan Road bridge at San Benito River.

Photo 6: Looking downstream at the San Benito River from San Juan Road Bridge.

Rating Curve

The most recent USGS rating for the San Benito River at Highway 156 gage is called Rating 29. Since Rating 29 was originally developed, it has been shift-adjusted and the current rating curve (as of February 15, 2005) is illustrated in Figure 1.

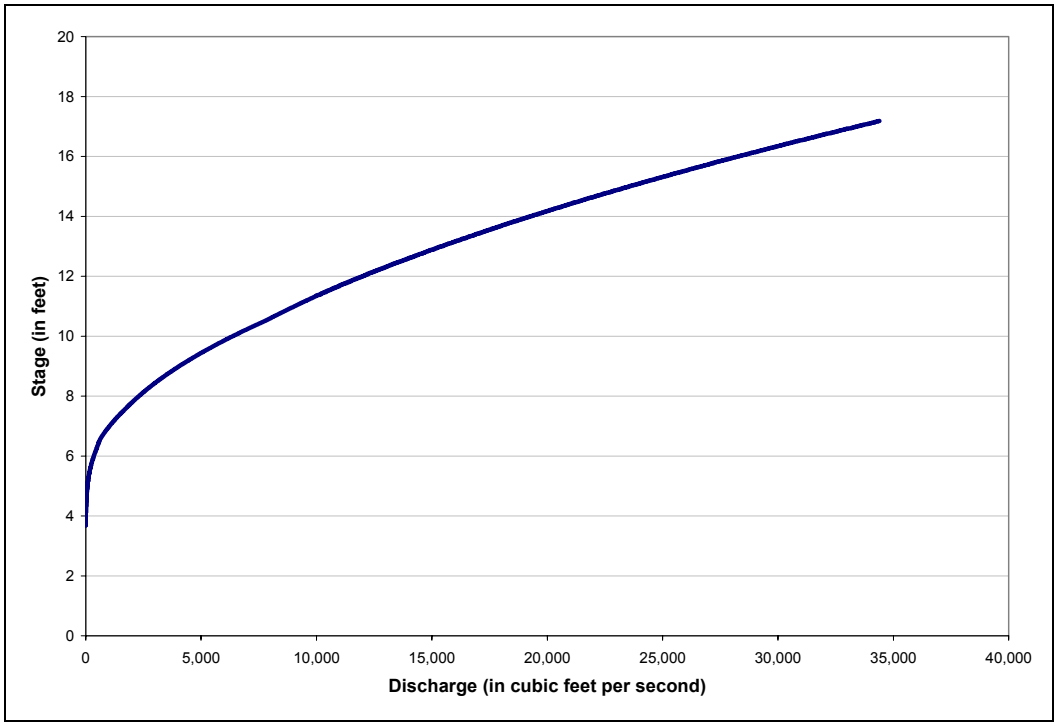

Figure 1: Shift-adjusted rating curve for the San Benito River at Highway 156 gage (as of February 15, 2005)[27]

Table 1 below shows the February 15, 2005, shift-adjusted rating table with stage increments in tenths-of-a-foot for the San Benito River at Highway 156 gage. [Note: Rating 29 was again shift-adjusted by the USGS on Monday, February 21, 2005.] This table may be revised often through the course of a water year, as multiple measurements are conducted and adjustments are necessary.

[27]Data Source: U.S. Geological Survey, 2005a, Real-Time Surface Water Site Inventory, Site No. 11158600, Accessed February 2005, http://waterdata.usgs.gov/nwis/uv?site_no=11158600

Table 1: Shift-Adjusted Rating Table 29 for San Benito River at Highway 156 Gage (As of February 15, 2005)[28]

	Discharge (in ft^3/sec)									
Stage (feet)	**0.0**	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**	**0.7**	**0.8**	**0.9**
3	--	--	--	--	--	--	--	0	0	1
4	2	4	7	11	17	22	28	36	45	55
5	69	86	102	124	148	172	202	231	268	309
6	348	397	450	490	539	591	653	738	828	925
7	1030	1140	1250	1370	1490	1620	1750	1880	2020	2160
8	2300	2450	2610	2770	2940	3110	3290	3470	3660	3850
9	4050	4260	4470	4690	4910	5140	5370	5610	5860	6110
10	6370	6630	6900	7170	7460	7740	8000	8260	5820	8780
11	9050	9320	9590	9870	10200	10400	10700	11000	11400	11700
12	12000	12300	12600	13000	13300	13700	14000	14300	14700	15100
13	15400	15800	16200	16500	16900	17300	17700	18100	18500	18900
14	19300	19700	20100	20500	20900	21400	21800	22200	22700	23100
15	23600	24000	24500	24900	25400	25900	26300	26800	27300	27800
16	28300	28800	29300	29800	30300	30800	31300	31800	32400	32900
17	33400	34000								

The original USGS Rating 29 was developed from twenty-two measurements (calibration points) of observed stage and measured streamflow collected in water year[29] (WY) 2002 through WY 2004, and these data are attached in Appendix A. Also included for review in Appendix A are previous USGS calibration data sheets supporting Ratings 19-28, developed for WY 1986 through WY 2001.

Since its development, Rating 29 has been shift-adjusted many times. Evidence of the most recent shifts can be seen in the shift-adjusted rating tables calculated and posted by the USGS on February 15 and 21, 2005. These tables are attached in Appendix B. The column in each table labeled "SHIFT" indicates the latest adjustments applied to various ranges of stage for Rating 29. In these tables, asterisks appear next to those records that indicate an original calibration point used for the development of Rating 29.

For forecasting purposes, the California Department of Water Resources (DWR) Division of Flood Management utilizes the latest USGS rating information, and updates their rating tables within the California Data Exchange Center (CDEC) within 24-48 hours. Two examples of DWR rating tables for this gage site are included in Appendix B. The stage values in these tables reflect the shift-adjusted rating posted by the USGS on February 15, 2005. Depending on the amount and detail of rating information desired,

[28] Source: California Department of Water Resources, Division of Flood Management, California Data Exchange Center, 2005, Rating Table: San Benito River at HWY 156 near Hollister [SBH], Accessed February 2005, http://cdec.water.ca.gov/rtables/SBH1.html

[29] A water year starts on October 1 and ends September 30. The year noted is the calendar year at the end of the water year.

the DWR offers the shift-adjusted rating information in two formats - with stage units in tenths-of-a-foot or hundredths-of-a-foot.

The most recent rating tables, whether from the USGS or DWR, are accessible on-line through both organizations. Due to the DWR rating table update delay, the USGS should be considered the authoritative source for rating curve updates.

Even though the rating information is publicly available, users need to be aware of the curve's dynamic nature. The USGS posts the following warning with each updated rating table:

"WARNING: The stage-discharge rating provided in this file should be considered provisional and subject to change. Stage-discharge ratings change over time as the channel features that control the relation between stage and discharge vary. Users are cautioned to consider carefully the applicability of this rating before using it for decisions that concern personal or public safety or operational consequences."[30]

Rating Update Frequency and Accuracy

The USGS Field Office in Marina, California, maintains the San Benito River at Highway 156 gage site. The USGS stated that this gage is working accurately and the data retrieved from the site are reliable.[31] They also stated that rating curves are updated as needed and there is no set schedule for updating a rating for any station they operate. [32]

As stated by the USGS, if they observe a definite trend, i.e. flow measurements at a gage site not falling in a balanced manner on or around an existing rating, the USGS will most likely develop a new rating for that site.[33] The USGS also stated that there exists no hard policy for rating changes at a site and that it's a matter of experience as to when a new rating is needed.[34]

For the San Benito River at Highway 156 gage, the USGS stated that higher flow measurements recorded this water year indicate that a new rating is needed. The USGS anticipates the development of a new rating (Rating 30) prior to finalizing WY 2005.[35]

Conclusions

Establishing a rating is a fundamental task in computing a discharge record. A rating is useful for quick dissemination of discharge at a stream gage site and also provides a useful tool for hydrologists when monitoring multiple gaging stations simultaneously.

[30] U.S. Geological Survey, 2005a
[31] Freeman, L., 2005
[32] Freeman, L., 2005
[33] Freeman, L., 2005
[34] Freeman, L., 2005
[35] Freeman, L., 2005

In order to establish a rating, or a stage-discharge relationship, at a stream gaging site, multiple discharge measurements with the associated stage observations must be collected. The paired data of discharge with stage are considered calibration points for the development of a stream gage rating. Ideally, the suite of measurements used to calibrate a rating will comprise a range of flows for the river system. However, high flow measurements are not always possible to measure. Indirect methods can be used to estimate calibration points for the higher end of the rating curve until new, more accurate information becomes available.

To develop a rating curve, the measured calibration points are plotted on a scatter plot and a trend line, or rating curve, is drawn. Utilizing the new rating curve, streamflows can be estimated for all ranges of stage, even if field-measured flow records do not exist for various values of gage height. Often, ratings need to be adjusted due changes in the stream channel characteristics as a result of long-term alterations or abrupt events such as floods. These adjustments are called shift-adjustments. Other adjustments that may be necessary at a gage site are datum and gage height corrections.

USGS gage number 11158600, San Benito River at Highway 156, is located near Hollister, California. It is equipped with a pressure transducer and a datalogger with satellite transmission capabilities. The stream channel through this stretch of the San Benito River is highly vegetated, with homes, constructed ponds, and local industry (automotive and lumber) on its upper, overbank floodplain.

Rating 29 is the most recently developed rating for this gage site. It was originally developed using measurements from water years 2002-2004. Since its development, Rating 29 has experienced many shift-adjustments as new measurements are recorded. As of the date of this TM, the most recent shift adjustments made to Rating 29 occurred on February 15 and 21, 2005.

In the current water year, the USGS has conducted measurements on higher flows at the San Benito River at Highway 156 gage site, and these measurements indicate that a new rating is needed. Therefore, the USGS anticipates the development of a new rating (Rating 30) prior to finalizing WY 2005.

According to the local USGS, this gage is operating accurately and the data retrieved from the site are reliable. The USGS routinely collects field observations and measurements at their gage sites, makes corrections to rating tables, and maintains station equipment to ensure accurate rating curves and stage measurements.

References

California Department of Water Resources, Division of Flood Management, California Data Exchange Center, 2005, Rating Table: San Benito River at HWY 156 near Hollister [SBH], Accessed February 2005, http://cdec.water.ca.gov/rtables/SBH1.html

GeologyProfessor.com, Geology-Dictionary Terms – Rating Curve, Accessed February 2005, www.geologyprofessor.com/geology-dictionary/terms-r.shtml

Lindeburg, M.R., 2003, Civil Engineering Reference Manual for the PE Exam, 9th ed., Glossary, G-12 p.

National Oceanic and Atmospheric Administration, 2002, Service Hydrologist Reference Manual - Rating Tables and Curves, Accessed February 2005, http://www.nws.noaa.gov/om/hod/SHManual/SHMan040_rating.htm

U.S. Geological Survey, 1996, Surface Water Quality Assurance Plan for the California District of the U.S.Geological Survey, U.S. Geological Survey Open-File Report 96-618, 75 p., Accessed February 2005, http://ca.water.usgs.gov/archive/reports/ofr96618/

U.S. Geological Survey, 2000, USGS Stream Gaging Poster - What is Stream Gaging and Developing a Rating Curve, Accessed February 2005, http://ny.water.usgs.gov/pubs/posters/streamgagingposter.html

U.S. Geological Survey, 2003a, HydroHelp: Determination of peak streamflows, Accessed February 2005, http://ga2.er.usgs.gov/HydroHelp/peakflows.cfm

U.S. Geological Survey, 2003b, HydroHelp: Stream stage and Streamflow, Accessed February 2005, http://ga2.er.usgs.gov/HydroHelp/stageandflow.cfm

U.S. Geological Survey, 2005a, Real-Time Surface Water Site Inventory, Site No. 11158600, Accessed February 2005, http://waterdata.usgs.gov/nwis/uv?site_no=11158600

U.S. Geological Survey, 2005b, Surface Water Site Inventory, Site No. 11158600, Accessed February 2005, http://waterdata.usgs.gov/nwis/inventory/?site_no=11158600

APPENDIX A

CALIBRATION DATA
FOR RATING 29
AND PREVIOUS RATINGS 19-28

Source:
U. S. Geological Survey

1 U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-19 09:18 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0029 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by trhiett on 04-17-2002 @ 03:30:15 PDT, Updated by trhiett on 03-20-2003 @ 09:40:28 PST
Remarks: Similar to rtg 28 abv 7.90'

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs
3.68	0	3.90	.8	4.04	2.45	4.21	7	5.60	450	10.80	10500
3.73	.1	3.93	1	4.09	3.6	4.24	8	6.30	1050	16.48	34500
3.78	.25	3.97	1.4	4.14	4.9	4.40	16.5	6.80	1650		
3.84	.48	4.00	1.78	4.18	6	4.70	49.5	9.80	7800		

LOG OFFSETS

Breakpoints:		---	---
Offsets:	3.80	---	---

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
0029	10-01-2001 @ 00:00:00 PDT	09-30-2004 @ 23:59:59 PDT	A	RATING 29 STRTS WITH 2002 WY AND SUPERCEDES RATING 27. RATING 28 WAS NEVER USED.
0029	10-01-2004 @ 00:00:00 PDT	-----	W	RATING 29 STRTS WITH 2002 WY AND SUPERCEDES RATING 27. RATING 28 WAS NEVER USED.

1 U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-19 09:18 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0028 TYPE: stage-discharge EXPANSION: logarithmic STATUS: working
Created by trhiett on 04-03-2002 @ 07:00:35 PST, Updated by trhiett on 03-20-2003 @ 09:32:56 PST
Remarks: RATING DEVELOPED FOR PRELIMINARY COMPUTATIONS. WAS NEVER USED TO COMPUTE PUBLISH

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs
3.13	0	3.43	.9	3.82	20	5.30	600	8.40	4700	16.48	34500
3.27	.1	3.47	1.5	3.90	29	5.80	1000	10.30	9200		
3.33	.15	3.50	2.15	4.10	60	6.20	1400	11.70	13500		
3.36	.25	3.64	7	4.50	175	6.70	1950	12.40	15500		
3.40	.58	3.75	14	4.90	350	7.30	2800	13.30	19000		

LOG OFFSETS

Breakpoints:		---	---
Offsets:	3.30	---	---

1 U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-19 09:17 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0027 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by trhiett on 01-09-2002 @ 03:21:46 PST, Updated by trhiett on 01-09-2002 @ 03:21:46 PST
Remarks:

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs
3.19	0	3.25	.38	3.31	1.05	3.42	3.4	3.55	8	3.80	21.2
3.21	.1	3.27	.57	3.35	1.75	3.45	4.2	3.60	10	3.90	28.5
3.23	.22	3.29	.78	3.38	2.4	3.50	5.87	3.70	15	16.48	34500

LOG OFFSETS
Breakpoints: --- ---
Offsets: 2.90 --- ---

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
0027	10-01-1999 @ 00:01:00 PDT	09-30-2000 @ 23:59:59 PDT	A	
0027	10-01-2000 @ 00:00:00 PDT	09-30-2001 @ 23:59:59 PDT	W	USED ONLY FOR 2001 WY COMPUTATIONS. NEXT RATING IN USE IS RATING 2

.

1 U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-19 09:16 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0026 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jbudlong on 07-03-2000 @ 05:05:24 PDT, Updated by jbudlong on 07-03-2000 @ 05:05:24 PDT
Remarks:

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs
3.68	0	4.03	4	4.35	66	5.30	620	7.70	6000	16.48	34500
3.74	.03	4.05	5.5	4.45	100	5.60	940	8.50	8400		
3.86	.3	4.10	18	4.60	165	5.95	1450	9.00	10000		
3.90	.6	4.20	27	4.70	215	6.30	2100	10.20	14000		
3.94	1.1	4.25	38	4.90	320	6.60	2900	11.80	19000		
3.98	2	4.30	51	5.10	450	7.10	4300	14.50	28000		

LOG OFFSETS

Breakpoints:		---	---
Offsets:	0.00	---	---

1 U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-19 09:15 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0025 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by lfreeman on 06-09-1999 @ 14:42:08 PDT, Updated by lfreeman on 06-09-1999 @ 14:42:08 PDT
Remarks:

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs
0.68	0	1.03	4	1.35	66	2.30	620	4.70	6000	13.48	34500
0.74	.03	1.05	5.5	1.45	100	2.60	940	5.50	8400		
0.86	.3	1.10	18	1.60	165	2.95	1450	6.00	10000		
0.90	.6	1.20	27	1.70	215	3.30	2100	7.20	14000		
0.94	1.1	1.25	38	1.90	320	3.60	2900	8.80	19000		
0.98	2	1.30	51	2.10	450	4.10	4300	11.50	28000		

LOG OFFSETS

Breakpoints: --- ---
Offsets: 0.00 --- ---

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
0025	02-03-1998 @ 07:00:00 PST	10-01-1999 @ 00:00:59 PDT	A	

1 U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-19 09:15 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0024 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by lfreeman on 06-09-1999 @ 14:41:53 PDT, Updated by lfreeman on 06-09-1999 @ 14:41:53 PDT
Remarks:

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs
0.30	0	0.50	1.4	1.50	62	1.80	110	13.00	15600		
0.40	.5	0.60	2.9	1.70	93	2.00	145				

LOG OFFSETS

Breakpoints:		---	---
Offsets:	0.00	---	---

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
0024	10-01-1995 @ 00:01:00 PDT	02-03-1998 @ 06:59:59 PST	A	

1 U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-19 09:13 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0023 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by jbudlong on 02-15-2001 @ 04:29:24 PST, Updated by jbudlong on 02-15-2001 @ 04:29:24 PST
Remarks: SAME AS RATING 22 FROM 4.50 FT, BUT WAS NEVER USED

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs	UNSP	Discharge, cfs
1.53	0	1.85	6.4	2.50	36	3.80	200	5.80	1300	9.80	5700
1.56	.41	1.90	7.9	2.65	46.4	4.00	250	6.20	1630	10.80	7180
1.60	1.01	2.00	11.3	2.80	58.1	4.20	310	6.60	2000	11.80	8750
1.65	1.87	2.10	15.1	3.00	77	4.50	430	7.00	2390	12.80	10500
1.70	2.8	2.20	19.5	3.20	99.5	4.80	590	7.50	2900	13.80	12400
1.75	3.88	2.30	24.4	3.40	127	5.10	780	8.00	3450	14.80	14300
1.80	5.04	2.40	29.9	3.60	161	5.40	990	8.80	4400	15.80	16400

	LOG OFFSETS		
Breakpoints:	---	---	
Offsets:	1.50	---	---

1 U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-19 09:13 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0022 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by trhiett on 01-09-2002 @ 03:22:19 PST, Updated by trhiett on 01-09-2002 @ 03:22:19 PST
Remarks:

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs
1.80	0	2.20	.7	2.60	2.7	3.50	90	4.30	340		
2.00	.2	2.40	1.5	2.80	5	3.80	170	13.80	18600		

LOG OFFSETS

Breakpoints:		---	---	---
Offsets:	1.80	---	---	---

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
0022	10-01-1994 @ 00:01:00 PDT	10-01-1995 @ 00:00:59 PDT	A	

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-19 09:09 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0021 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by lfreeman on 06-09-1999 @ 14:41:29 PDT, Updated by lfreeman on 06-09-1999 @ 14:41:29 PDT
Remarks: SAME AS RATING 20 ABOVE 7.2 GHT

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs
1.90	0	2.15	3.5	2.40	13.5	3.20	120	4.70	694	8.20	4150
1.93	.3	2.19	4.42	2.50	20.5	3.40	167	5.00	875		
1.96	.6	2.23	5.55	2.60	29	3.60	222	5.40	1145		
2.00	1.1	2.27	7.05	2.70	39.5	3.80	288	5.80	1450		
2.05	1.79	2.30	8.3	2.80	51.8	4.10	400	7.20	2850		
2.10	2.55	2.32	9.2	3.00	82	4.40	530	7.60	3340		

LOG OFFSETS

Breakpoints: --- ---
Offsets: 1.80 --- ---

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
0021	11-01-1990 @ 00:15:00 PST	10-01-1994 @ 00:00:59 PDT	A	

U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-19 07:44 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0020 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by lfreeman on 06-09-1999 @ 14:41:17 PDT, Updated by lfreeman on 06-09-1999 @ 14:41:17 PDT
Remarks: SAME AS RATING #18 ABOVE 2.8'.

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs
2.00	0	2.16	.6	2.40	2.51	2.95	24.4	4.50	460	6.80	2390
2.02	.05	2.19	.76	2.45	3.25	3.10	39.8	4.80	630	7.20	2840
2.04	.108	2.22	.932	2.50	4.15	3.30	65	5.10	825	7.60	3340
2.06	.176	2.25	1.12	2.55	5.2	3.50	100	5.40	1050	8.20	4150
2.08	.25	2.28	1.34	2.60	6.55	3.70	148	5.70	1300		
2.10	.33	2.31	1.58	2.70	9.9	3.95	222	6.00	1570		
2.13	.46	2.35	1.96	2.80	14.4	4.20	319	6.40	1950		

LOG OFFSETS

Breakpoints: --- ---
Offsets: 1.80 --- ---

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
0020	10-01-1987 @ 00:15:00 PDT	11-01-1990 @ 00:14:59 PST	A	

1 U.S. DEPARTMENT OF THE INTERIOR - U.S. GEOLOGICAL SURVEY - WATER RESOURCES

STATION NUMBER 11158600 SAN BENITO R A HWY 156 NR HOLLISTER CA SOURCE AGENCY USGS STATE 06 COUNTY 069
LATITUDE 365107 LONGITUDE 1212544 NAD27 DRAINAGE AREA 607 CONTRIBUTING DRAINAGE AREA DATUM
Date Processed: 2005-01-18 14:59 By tchaltom
Rating for Discharge, IN cfs
RATING ID: 0019 TYPE: stage-discharge EXPANSION: logarithmic STATUS: approved
Created by lfreeman on 06-09-1999 @ 14:41:05 PDT, Updated by lfreeman on 06-09-1999 @ 14:41:05 PDT
Remarks:

BASED ON _____ DISCHARGE MEASUREMENTS, NOS _____, AND _____, AND IS _____ WELL DEFINED BETWEEN _____ AND _____ CFS
COMP BY _____ DATE _____ CHK. BY _____ DATE _____

Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs	Gage height, feet	Dis-charge, cfs
0.86	.21	1.00	2	1.25	6.8	1.75	26.4	2.90	160	5.60	1350
0.88	.43	1.04	2.63	1.32	8.6	1.90	35.9	3.30	251	6.60	2200
0.91	.77	1.08	3.3	1.40	11	2.10	51	3.70	370	7.60	3340
0.94	1.16	1.13	4.23	1.50	14.5	2.30	71	4.20	555	8.20	4150
0.97	1.57	1.18	5.25	1.60	18.7	2.60	109	4.80	845		

LOG OFFSETS

Breakpoints:		---	---
Offsets:	0.80	---	---

Rating Type: Rating Type: stage-discharge

ID	Starting Date	Ending Date	A	Comments
0019	03-15-1986 @ 19:45:00 PST	10-01-1987 @ 00:14:59 PDT	A	

APPENDIX B

RATING TABLES

Sources:
U. S. Geological Survey
California Department of Water Resources, Division of Flood Management

```
# //UNITED STATES GEOLOGICAL SURVEY       http://water.usgs.gov/
# //NATIONAL WATER INFORMATION SYSTEM
http://water.usgs.gov/data.html
# //DATA ARE PROVISIONAL AND SUBJECT TO CHANGE UNTIL PUBLISHED BY USGS
# //RETRIEVED: 2005-02-15 18:38:18
#
# The stage-discharge rating provided in this file should be considered
# provisional and subject to change. Stage-discharge ratings change
over
# time as the channel features that control the relation between stage
and
# discharge vary. Users are cautioned to consider carefully the
# applicability of this rating before using it for decisions that
concern
# personal or public safety or operational consequences.
#
# //FILE TYPE="NWIS RATING"
# //DATABASE NUMBER=1  DESCRIPTION=" Standard data base for this site."
# //STATION AGENCY="USGS " NUMBER="11158600       " TIME_ZONE="PST"
DST_FLAG=Y
# //STATION NAME="SAN BENITO R A HWY 156 NR HOLLISTER CA"
# //DD NUMBER="   1" LABEL="Discharge, in cfs"
# //PARAMETER CODE="00060"
# //RATING SHIFTED="20050215180000 PST"
# //RATING ID="0029" TYPE="STGQ" NAME="stage-discharge"
# //RATING REMARKS="Similar to rtg 28 abv 7.90'"
# //RATING EXPANSION="logarithmic"
# //RATING OFFSET1=3.80
# //RATING_INDEP ROUNDING="2223456782" PARAMETER="Gage height IN feet"
# //RATING_DEP ROUNDING="2222233332" PARAMETER="Discharge IN cfs"
# //RATING_DATETIME BEGIN=20011001000000 BZONE=PDT END=20040930235959
EZONE=PDT
# //RATING_DATETIME BEGIN=20041001000000 BZONE=PDT END=23821230160000
EZONE=PST
INDEP   SHIFT   DEP     STOR
16N     16N     16N     1S
3.68    0.00    0.00    *
3.69    0.00    0.02
3.70    0.00    0.04
3.71    0.00    0.06
3.72    0.00    0.08
3.73    0.00    0.10    *
3.74    0.00    0.13
3.75    0.00    0.16
3.76    0.00    0.19
3.77    0.00    0.22
3.78    0.00    0.25    *
3.79    0.00    0.29
3.80    0.00    0.33
3.81    0.00    0.36
3.82    0.00    0.40
3.83    0.00    0.44
3.84    0.00    0.48    *
3.85    0.00    0.54
3.86    0.00    0.60
3.87    0.00    0.66
3.88    0.00    0.71
```

3.89	0.00	0.75	
3.90	0.00	0.80	*
3.91	0.00	0.87	
3.92	0.00	0.93	
3.93	0.00	1.00	*
3.94	0.00	1.1	
3.95	0.00	1.2	
3.96	0.00	1.3	
3.97	0.00	1.4	*
3.98	0.00	1.5	
3.99	0.00	1.7	
4.00	0.00	1.8	*
4.01	0.00	1.9	
4.02	0.00	2.1	
4.03	0.00	2.3	
4.04	0.00	2.5	*
4.05	0.00	2.7	
4.06	0.00	2.9	
4.07	0.00	3.1	
4.08	0.00	3.4	
4.09	0.00	3.6	*
4.10	0.00	3.8	
4.11	0.00	4.1	
4.12	0.00	4.4	
4.13	0.00	4.6	
4.14	0.00	4.9	*
4.15	0.00	5.2	
4.16	0.00	5.4	
4.17	0.00	5.7	
4.18	0.00	6.0	*
4.19	0.00	6.3	
4.20	0.00	6.7	
4.21	0.00	7.0	*
4.22	0.00	7.3	
4.23	0.00	7.7	
4.24	0.00	8.0	*
4.25	0.00	8.4	
4.26	0.00	8.9	
4.27	0.00	9.3	
4.28	0.00	9.8	
4.29	0.00	10	
4.30	0.00	11	
4.31	0.00	11	
4.32	0.00	12	
4.33	0.00	12	
4.34	0.00	13	
4.35	0.00	13	
4.36	0.00	14	
4.37	0.00	15	
4.38	0.00	15	
4.39	0.00	16	
4.40	0.00	17	*
4.41	0.00	17	
4.42	-0.01	17	
4.43	-0.01	18	
4.44	-0.01	19	
4.45	-0.02	19	

4.46	-0.02	20	
4.47	-0.02	20	
4.48	-0.03	20	
4.49	-0.03	21	
4.50	-0.03	22	
4.51	-0.04	22	
4.52	-0.04	23	
4.53	-0.04	24	
4.54	-0.05	24	
4.55	-0.05	25	
4.56	-0.05	26	
4.57	-0.06	26	
4.58	-0.06	27	
4.59	-0.06	28	
4.60	-0.07	28	
4.61	-0.07	29	
4.62	-0.07	30	
4.63	-0.08	30	
4.64	-0.08	31	
4.65	-0.08	32	
4.66	-0.09	32	
4.67	-0.09	34	
4.68	-0.09	35	
4.69	-0.10	35	
4.70	-0.10	36	*
4.71	-0.10	37	
4.72	-0.11	37	
4.73	-0.11	38	
4.74	-0.11	40	
4.75	-0.12	40	
4.76	-0.12	41	
4.77	-0.12	42	
4.78	-0.13	42	
4.79	-0.13	44	
4.80	-0.13	45	
4.81	-0.14	45	
4.82	-0.14	47	
4.83	-0.14	48	
4.84	-0.15	48	
4.85	-0.15	50	
4.86	-0.15	51	
4.87	-0.16	51	
4.88	-0.16	53	
4.89	-0.16	55	
4.90	-0.17	55	
4.91	-0.17	57	
4.92	-0.17	59	
4.93	-0.18	59	
4.94	-0.18	61	
4.95	-0.18	63	
4.96	-0.19	63	
4.97	-0.19	65	
4.98	-0.19	67	
4.99	-0.20	67	
5.00	-0.20	69	
5.01	-0.20	71	
5.02	-0.21	71	

5.03	-0.21	74
5.04	-0.21	76
5.05	-0.22	76
5.06	-0.22	78
5.07	-0.22	81
5.08	-0.23	81
5.09	-0.23	83
5.10	-0.23	86
5.11	-0.24	86
5.12	-0.24	88
5.13	-0.24	91
5.14	-0.25	91
5.15	-0.25	94
5.16	-0.25	97
5.17	-0.26	97
5.18	-0.26	99
5.19	-0.26	102
5.20	-0.27	102
5.21	-0.27	105
5.22	-0.27	108
5.23	-0.28	108
5.24	-0.28	111
5.25	-0.28	114
5.26	-0.29	114
5.27	-0.29	117
5.28	-0.29	120
5.29	-0.30	120
5.30	-0.30	124
5.31	-0.30	127
5.32	-0.31	127
5.33	-0.31	130
5.34	-0.31	134
5.35	-0.32	134
5.36	-0.32	137
5.37	-0.32	141
5.38	-0.33	141
5.39	-0.33	145
5.40	-0.33	148
5.41	-0.34	148
5.42	-0.34	152
5.43	-0.34	156
5.44	-0.35	156
5.45	-0.35	160
5.46	-0.35	164
5.47	-0.36	164
5.48	-0.36	168
5.49	-0.37	168
5.50	-0.37	172
5.51	-0.37	176
5.52	-0.38	176
5.53	-0.38	180
5.54	-0.38	184
5.55	-0.39	184
5.56	-0.39	189
5.57	-0.39	193
5.58	-0.40	193
5.59	-0.40	198

5.60	-0.40	202	*
5.61	-0.41	202	
5.62	-0.41	207	
5.63	-0.41	211	
5.64	-0.42	211	
5.65	-0.42	216	
5.66	-0.42	221	
5.67	-0.43	221	
5.68	-0.43	226	
5.69	-0.43	231	
5.70	-0.44	231	
5.71	-0.44	236	
5.72	-0.44	241	
5.73	-0.45	241	
5.74	-0.45	247	
5.75	-0.45	252	
5.76	-0.46	252	
5.77	-0.46	257	
5.78	-0.46	263	
5.79	-0.47	263	
5.80	-0.47	268	
5.81	-0.47	274	
5.82	-0.48	274	
5.83	-0.48	280	
5.84	-0.48	285	
5.85	-0.49	285	
5.86	-0.49	291	
5.87	-0.49	297	
5.88	-0.50	297	
5.89	-0.50	303	
5.90	-0.50	309	
5.91	-0.51	309	
5.92	-0.51	315	
5.93	-0.51	322	
5.94	-0.52	322	
5.95	-0.52	328	
5.96	-0.52	335	
5.97	-0.53	335	
5.98	-0.53	341	
5.99	-0.53	348	
6.00	-0.54	348	
6.01	-0.54	354	
6.02	-0.54	361	
6.03	-0.55	361	
6.04	-0.55	368	
6.05	-0.55	375	
6.06	-0.56	375	
6.07	-0.56	382	
6.08	-0.56	389	
6.09	-0.57	389	
6.10	-0.57	397	
6.11	-0.57	404	
6.12	-0.58	404	
6.13	-0.58	411	
6.14	-0.58	419	
6.15	-0.59	419	
6.16	-0.59	427	

6.17	-0.59	434	
6.18	-0.60	434	
6.19	-0.60	442	
6.20	-0.60	450	
6.21	-0.61	450	
6.22	-0.61	457	
6.23	-0.61	463	
6.24	-0.62	463	
6.25	-0.62	470	
6.26	-0.62	476	
6.27	-0.63	476	
6.28	-0.63	483	
6.29	-0.63	490	
6.30	-0.64	490	*
6.31	-0.64	497	
6.32	-0.64	503	
6.33	-0.65	503	
6.34	-0.65	510	
6.35	-0.65	517	
6.36	-0.66	517	
6.37	-0.66	524	
6.38	-0.66	532	
6.39	-0.67	532	
6.40	-0.67	539	
6.41	-0.67	546	
6.42	-0.68	546	
6.43	-0.68	553	
6.44	-0.68	561	
6.45	-0.69	561	
6.46	-0.69	568	
6.47	-0.69	575	
6.48	-0.70	575	
6.49	-0.70	583	
6.50	-0.70	591	
6.51	-0.71	591	
6.52	-0.71	598	
6.53	-0.71	606	
6.54	-0.72	606	
6.55	-0.72	614	
6.56	-0.72	622	
6.57	-0.72	629	
6.58	-0.72	637	
6.59	-0.72	645	
6.60	-0.72	653	
6.61	-0.72	662	
6.62	-0.72	670	
6.63	-0.72	678	
6.64	-0.72	686	
6.65	-0.72	695	
6.66	-0.72	703	
6.67	-0.72	712	
6.68	-0.72	720	
6.69	-0.72	729	
6.70	-0.72	738	
6.71	-0.72	746	
6.72	-0.72	755	
6.73	-0.72	764	

6.74	-0.72	773	
6.75	-0.72	782	
6.76	-0.72	791	
6.77	-0.72	800	
6.78	-0.72	809	
6.79	-0.72	819	
6.80	-0.72	828	*
6.81	-0.72	837	
6.82	-0.72	847	
6.83	-0.72	856	
6.84	-0.72	866	
6.85	-0.72	876	
6.86	-0.72	885	
6.87	-0.72	895	
6.88	-0.72	905	
6.89	-0.72	915	
6.90	-0.72	925	
6.91	-0.72	935	
6.92	-0.72	945	
6.93	-0.72	955	
6.94	-0.72	966	
6.95	-0.72	976	
6.96	-0.72	986	
6.97	-0.72	997	
6.98	-0.72	1010	
6.99	-0.72	1020	
7.00	-0.72	1030	
7.01	-0.72	1040	
7.02	-0.72	1050	
7.03	-0.72	1060	
7.04	-0.72	1070	
7.05	-0.72	1080	
7.06	-0.72	1090	
7.07	-0.72	1100	
7.08	-0.72	1110	
7.09	-0.72	1120	
7.10	-0.72	1140	
7.11	-0.72	1150	
7.12	-0.72	1160	
7.13	-0.72	1170	
7.14	-0.72	1180	
7.15	-0.72	1190	
7.16	-0.72	1200	
7.17	-0.72	1210	
7.18	-0.72	1220	
7.19	-0.72	1240	
7.20	-0.72	1250	
7.21	-0.72	1260	
7.22	-0.72	1270	
7.23	-0.72	1280	
7.24	-0.72	1290	
7.25	-0.72	1310	
7.26	-0.72	1320	
7.27	-0.72	1330	
7.28	-0.72	1340	
7.29	-0.72	1350	
7.30	-0.72	1370	

7.31	-0.72	1380
7.32	-0.72	1390
7.33	-0.72	1400
7.34	-0.72	1420
7.35	-0.72	1430
7.36	-0.72	1440
7.37	-0.72	1450
7.38	-0.72	1470
7.39	-0.72	1480
7.40	-0.72	1490
7.41	-0.72	1500
7.42	-0.72	1520
7.43	-0.72	1530
7.44	-0.72	1540
7.45	-0.72	1560
7.46	-0.72	1570
7.47	-0.72	1580
7.48	-0.72	1600
7.49	-0.72	1610
7.50	-0.72	1620
7.51	-0.72	1640
7.52	-0.72	1650
7.53	-0.72	1660
7.54	-0.72	1670
7.55	-0.72	1690
7.56	-0.72	1700
7.57	-0.72	1710
7.58	-0.72	1720
7.59	-0.72	1740
7.60	-0.72	1750
7.61	-0.72	1760
7.62	-0.72	1780
7.63	-0.72	1790
7.64	-0.72	1800
7.65	-0.72	1810
7.66	-0.72	1830
7.67	-0.72	1840
7.68	-0.72	1850
7.69	-0.72	1870
7.70	-0.72	1880
7.71	-0.72	1890
7.72	-0.72	1910
7.73	-0.72	1920
7.74	-0.72	1930
7.75	-0.72	1950
7.76	-0.72	1960
7.77	-0.72	1970
7.78	-0.72	1990
7.79	-0.72	2000
7.80	-0.72	2020
7.81	-0.72	2030
7.82	-0.72	2040
7.83	-0.72	2060
7.84	-0.72	2070
7.85	-0.72	2080
7.86	-0.72	2100
7.87	-0.72	2110

7.88	-0.72	2130
7.89	-0.72	2140
7.90	-0.72	2160
7.91	-0.72	2170
7.92	-0.72	2180
7.93	-0.72	2200
7.94	-0.72	2210
7.95	-0.72	2230
7.96	-0.72	2240
7.97	-0.72	2260
7.98	-0.72	2270
7.99	-0.72	2290
8.00	-0.72	2300
8.01	-0.72	2320
8.02	-0.72	2330
8.03	-0.72	2350
8.04	-0.72	2360
8.05	-0.72	2380
8.06	-0.72	2390
8.07	-0.72	2410
8.08	-0.72	2420
8.09	-0.72	2440
8.10	-0.72	2450
8.11	-0.72	2470
8.12	-0.72	2480
8.13	-0.72	2500
8.14	-0.72	2510
8.15	-0.72	2530
8.16	-0.72	2550
8.17	-0.72	2560
8.18	-0.72	2580
8.19	-0.72	2590
8.20	-0.72	2610
8.21	-0.72	2620
8.22	-0.72	2640
8.23	-0.72	2660
8.24	-0.72	2670
8.25	-0.72	2690
8.26	-0.72	2700
8.27	-0.72	2720
8.28	-0.72	2740
8.29	-0.72	2750
8.30	-0.72	2770
8.31	-0.72	2790
8.32	-0.72	2800
8.33	-0.72	2820
8.34	-0.72	2840
8.35	-0.72	2850
8.36	-0.72	2870
8.37	-0.72	2890
8.38	-0.72	2900
8.39	-0.72	2920
8.40	-0.72	2940
8.41	-0.72	2950
8.42	-0.72	2970
8.43	-0.72	2990
8.44	-0.72	3000

8.45	-0.72	3020
8.46	-0.72	3040
8.47	-0.72	3060
8.48	-0.72	3070
8.49	-0.72	3090
8.50	-0.72	3110
8.51	-0.72	3130
8.52	-0.72	3140
8.53	-0.72	3160
8.54	-0.72	3180
8.55	-0.72	3200
8.56	-0.72	3220
8.57	-0.72	3230
8.58	-0.72	3250
8.59	-0.72	3270
8.60	-0.72	3290
8.61	-0.72	3300
8.62	-0.72	3320
8.63	-0.72	3340
8.64	-0.72	3360
8.65	-0.72	3380
8.66	-0.72	3400
8.67	-0.72	3410
8.68	-0.72	3430
8.69	-0.72	3450
8.70	-0.72	3470
8.71	-0.72	3490
8.72	-0.72	3510
8.73	-0.72	3530
8.74	-0.72	3540
8.75	-0.72	3560
8.76	-0.72	3580
8.77	-0.72	3600
8.78	-0.72	3620
8.79	-0.72	3640
8.80	-0.72	3660
8.81	-0.72	3680
8.82	-0.72	3700
8.83	-0.72	3720
8.84	-0.72	3740
8.85	-0.72	3760
8.86	-0.72	3770
8.87	-0.72	3790
8.88	-0.72	3810
8.89	-0.72	3830
8.90	-0.72	3850
8.91	-0.72	3870
8.92	-0.72	3890
8.93	-0.72	3910
8.94	-0.72	3930
8.95	-0.72	3950
8.96	-0.72	3970
8.97	-0.72	3990
8.98	-0.72	4010
8.99	-0.72	4030
9.00	-0.72	4050
9.01	-0.72	4070

9.02	-0.72	4090
9.03	-0.72	4110
9.04	-0.72	4130
9.05	-0.72	4160
9.06	-0.72	4180
9.07	-0.72	4200
9.08	-0.72	4220
9.09	-0.72	4240
9.10	-0.72	4260
9.11	-0.72	4280
9.12	-0.72	4300
9.13	-0.72	4320
9.14	-0.72	4340
9.15	-0.72	4360
9.16	-0.72	4380
9.17	-0.72	4410
9.18	-0.72	4430
9.19	-0.72	4450
9.20	-0.72	4470
9.21	-0.72	4490
9.22	-0.72	4510
9.23	-0.72	4530
9.24	-0.72	4560
9.25	-0.72	4580
9.26	-0.72	4600
9.27	-0.72	4620
9.28	-0.72	4640
9.29	-0.72	4660
9.30	-0.72	4690
9.31	-0.72	4710
9.32	-0.72	4730
9.33	-0.72	4750
9.34	-0.72	4780
9.35	-0.72	4800
9.36	-0.72	4820
9.37	-0.72	4840
9.38	-0.72	4860
9.39	-0.72	4890
9.40	-0.72	4910
9.41	-0.72	4930
9.42	-0.72	4950
9.43	-0.72	4980
9.44	-0.72	5000
9.45	-0.72	5020
9.46	-0.72	5050
9.47	-0.72	5070
9.48	-0.72	5090
9.49	-0.72	5110
9.50	-0.72	5140
9.51	-0.72	5160
9.52	-0.72	5180
9.53	-0.72	5210
9.54	-0.72	5230
9.55	-0.72	5250
9.56	-0.72	5280
9.57	-0.72	5300
9.58	-0.72	5320

9.59	-0.72	5350	
9.60	-0.72	5370	
9.61	-0.72	5400	
9.62	-0.72	5420	
9.63	-0.72	5440	
9.64	-0.72	5470	
9.65	-0.72	5490	
9.66	-0.72	5520	
9.67	-0.72	5540	
9.68	-0.72	5560	
9.69	-0.72	5590	
9.70	-0.72	5610	
9.71	-0.72	5640	
9.72	-0.72	5660	
9.73	-0.72	5680	
9.74	-0.72	5710	
9.75	-0.72	5730	
9.76	-0.72	5760	
9.77	-0.72	5780	
9.78	-0.72	5810	
9.79	-0.72	5830	
9.80	-0.72	5860	*
9.81	-0.72	5880	
9.82	-0.72	5910	
9.83	-0.72	5930	
9.84	-0.72	5960	
9.85	-0.72	5980	
9.86	-0.72	6010	
9.87	-0.72	6030	
9.88	-0.72	6060	
9.89	-0.72	6080	
9.90	-0.72	6110	
9.91	-0.72	6130	
9.92	-0.72	6160	
9.93	-0.72	6190	
9.94	-0.72	6210	
9.95	-0.72	6240	
9.96	-0.72	6260	
9.97	-0.72	6290	
9.98	-0.72	6310	
9.99	-0.72	6340	
10.00	-0.72	6370	
10.01	-0.72	6390	
10.02	-0.72	6420	
10.03	-0.72	6440	
10.04	-0.72	6470	
10.05	-0.72	6500	
10.06	-0.72	6520	
10.07	-0.72	6550	
10.08	-0.72	6580	
10.09	-0.72	6600	
10.10	-0.72	6630	
10.11	-0.72	6660	
10.12	-0.72	6680	
10.13	-0.72	6710	
10.14	-0.72	6740	
10.15	-0.72	6760	

10.16	-0.72	6790
10.17	-0.72	6820
10.18	-0.72	6840
10.19	-0.72	6870
10.20	-0.72	6900
10.21	-0.72	6930
10.22	-0.72	6950
10.23	-0.72	6980
10.24	-0.72	7010
10.25	-0.72	7040
10.26	-0.72	7060
10.27	-0.72	7090
10.28	-0.72	7120
10.29	-0.72	7150
10.30	-0.72	7170
10.31	-0.72	7200
10.32	-0.72	7230
10.33	-0.72	7260
10.34	-0.72	7290
10.35	-0.72	7310
10.36	-0.72	7340
10.37	-0.72	7370
10.38	-0.72	7400
10.39	-0.72	7430
10.40	-0.72	7460
10.41	-0.72	7480
10.42	-0.72	7510
10.43	-0.72	7540
10.44	-0.72	7570
10.45	-0.72	7600
10.46	-0.72	7630
10.47	-0.72	7660
10.48	-0.72	7680
10.49	-0.72	7710
10.50	-0.72	7740
10.51	-0.72	7770
10.52	-0.72	7800
10.53	-0.72	7830
10.54	-0.72	7850
10.55	-0.72	7880
10.56	-0.72	7900
10.57	-0.72	7930
10.58	-0.72	7950
10.59	-0.72	7980
10.60	-0.72	8000
10.61	-0.72	8030
10.62	-0.72	8050
10.63	-0.72	8080
10.64	-0.72	8100
10.65	-0.72	8130
10.66	-0.72	8160
10.67	-0.72	8180
10.68	-0.72	8210
10.69	-0.72	8230
10.70	-0.72	8260
10.71	-0.72	8280
10.72	-0.72	8310

10.73	-0.72	8340	
10.74	-0.72	8360	
10.75	-0.72	8390	
10.76	-0.72	8410	
10.77	-0.72	8440	
10.78	-0.72	8470	
10.79	-0.72	8490	
10.80	-0.72	8520	*
10.81	-0.72	8540	
10.82	-0.72	8570	
10.83	-0.72	8600	
10.84	-0.72	8620	
10.85	-0.72	8650	
10.86	-0.72	8680	
10.87	-0.72	8700	
10.88	-0.72	8730	
10.89	-0.72	8750	
10.90	-0.72	8780	
10.91	-0.72	8810	
10.92	-0.72	8830	
10.93	-0.72	8860	
10.94	-0.72	8890	
10.95	-0.72	8910	
10.96	-0.72	8940	
10.97	-0.72	8970	
10.98	-0.72	8990	
10.99	-0.72	9020	
11.00	-0.72	9050	
11.01	-0.72	9080	
11.02	-0.72	9100	
11.03	-0.72	9130	
11.04	-0.72	9160	
11.05	-0.72	9180	
11.06	-0.72	9210	
11.07	-0.72	9240	
11.08	-0.72	9260	
11.09	-0.72	9290	
11.10	-0.72	9320	
11.11	-0.72	9350	
11.12	-0.72	9370	
11.13	-0.72	9400	
11.14	-0.72	9430	
11.15	-0.72	9460	
11.16	-0.72	9480	
11.17	-0.72	9510	
11.18	-0.72	9540	
11.19	-0.72	9570	
11.20	-0.72	9590	
11.21	-0.72	9620	
11.22	-0.72	9650	
11.23	-0.72	9680	
11.24	-0.72	9710	
11.25	-0.72	9730	
11.26	-0.72	9760	
11.27	-0.72	9790	
11.28	-0.72	9820	
11.29	-0.72	9850	

11.30	-0.72	9870
11.31	-0.72	9900
11.32	-0.72	9930
11.33	-0.72	9960
11.34	-0.72	9990
11.35	-0.72	10000
11.36	-0.72	10000
11.37	-0.72	10100
11.38	-0.72	10100
11.39	-0.72	10100
11.40	-0.72	10200
11.41	-0.72	10200
11.42	-0.72	10200
11.43	-0.72	10200
11.44	-0.72	10300
11.45	-0.72	10300
11.46	-0.72	10300
11.47	-0.72	10400
11.48	-0.72	10400
11.49	-0.72	10400
11.50	-0.72	10400
11.51	-0.72	10500
11.52	-0.72	10500
11.53	-0.72	10500
11.54	-0.72	10600
11.55	-0.72	10600
11.56	-0.72	10600
11.57	-0.72	10700
11.58	-0.72	10700
11.59	-0.72	10700
11.60	-0.72	10700
11.61	-0.72	10800
11.62	-0.72	10800
11.63	-0.72	10800
11.64	-0.72	10900
11.65	-0.72	10900
11.66	-0.72	10900
11.67	-0.72	11000
11.68	-0.72	11000
11.69	-0.72	11000
11.70	-0.72	11000
11.71	-0.72	11100
11.72	-0.72	11100
11.73	-0.72	11100
11.74	-0.72	11200
11.75	-0.72	11200
11.76	-0.72	11200
11.77	-0.72	11300
11.78	-0.72	11300
11.79	-0.72	11300
11.80	-0.72	11400
11.81	-0.72	11400
11.82	-0.72	11400
11.83	-0.72	11500
11.84	-0.72	11500
11.85	-0.72	11500
11.86	-0.72	11500

11.87	-0.72	11600
11.88	-0.72	11600
11.89	-0.72	11600
11.90	-0.72	11700
11.91	-0.72	11700
11.92	-0.72	11700
11.93	-0.72	11800
11.94	-0.72	11800
11.95	-0.72	11800
11.96	-0.72	11900
11.97	-0.72	11900
11.98	-0.72	11900
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# //UNITED STATES GEOLOGICAL SURVEY       http://water.usgs.gov/
# //NATIONAL WATER INFORMATION SYSTEM     http://water.usgs.gov/data.html
# //DATA ARE PROVISIONAL AND SUBJECT TO CHANGE UNTIL PUBLISHED BY USGS
# //RETRIEVED: 2005-02-21 18:38:16
#
# The stage-discharge rating provided in this file should be considered
# provisional and subject to change. Stage-discharge ratings change over
# time as the channel features that control the relation between stage and
# discharge vary. Users are cautioned to consider carefully the
# applicability of this rating before using it for decisions that concern
# personal or public safety or operational consequences.
#
# //FILE TYPE="NWIS RATING"
# //DATABASE NUMBER=1  DESCRIPTION=" Standard data base for this site."
# //STATION AGENCY="USGS " NUMBER="11158600       " TIME_ZONE="PST" DST_FLAG=Y
# //STATION NAME="SAN BENITO R A HWY 156 NR HOLLISTER CA"
# //DD NUMBER="   1" LABEL="Discharge, in cfs"
# //PARAMETER CODE="00060"
# //RATING SHIFTED="20050221180000 PST"
# //RATING ID="0029" TYPE="STGQ" NAME="stage-discharge"
# //RATING REMARKS="Similar to rtg 28 abv 7.90'"
# //RATING EXPANSION="logarithmic"
# //RATING OFFSET1=3.80
# //RATING_INDEP ROUNDING="2223456782" PARAMETER="Gage height IN feet"
# //RATING_DEP ROUNDING="2222233332" PARAMETER="Discharge IN cfs"
# //RATING_DATETIME BEGIN=20011001000000 BZONE=PDT END=20040930235959 EZONE=PDT
# //RATING_DATETIME BEGIN=20041001000000 BZONE=PDT END=23821230160000 EZONE=PST
INDEP SHIFT DEP   STOR
16N   16N   16N   1S
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3.69  0.00  0.02
3.70  0.00  0.04
3.71  0.00  0.06
3.72  0.00  0.08
3.73  0.00  0.10  *
3.74  0.00  0.13
3.75  0.00  0.16
3.76  0.00  0.19
3.77  0.00  0.22
3.78  0.00  0.25  *
3.79  0.00  0.29
3.80  0.00  0.33
3.81  0.00  0.36
3.82  0.00  0.40
3.83  0.00  0.44
3.84  0.00  0.48  *
3.85  0.00  0.54
3.86  0.00  0.60
3.87  0.00  0.66
3.88  0.00  0.71
3.89  0.00  0.75
3.90  0.00  0.80  *
3.91  0.00  0.87
3.92  0.00  0.93
3.93  0.00  1.00  *
3.94  0.00  1.1
3.95  0.00  1.2
3.96  0.00  1.3
```

3.97	0.00	1.4	*
3.98	0.00	1.5	
3.99	0.00	1.7	
4.00	0.00	1.8	*
4.01	0.00	1.9	
4.02	0.00	2.1	
4.03	0.00	2.3	
4.04	0.00	2.5	*
4.05	0.00	2.7	
4.06	0.00	2.9	
4.07	0.00	3.1	
4.08	0.00	3.4	
4.09	0.00	3.6	*
4.10	0.00	3.8	
4.11	0.00	4.1	
4.12	0.00	4.4	
4.13	0.00	4.6	
4.14	0.00	4.9	*
4.15	0.00	5.2	
4.16	0.00	5.4	
4.17	0.00	5.7	
4.18	0.00	6.0	*
4.19	0.00	6.3	
4.20	0.00	6.7	
4.21	0.00	7.0	*
4.22	0.00	7.3	
4.23	0.00	7.7	
4.24	0.00	8.0	*
4.25	0.00	8.4	
4.26	0.00	8.9	
4.27	0.00	9.3	
4.28	0.00	9.8	
4.29	0.00	10	
4.30	0.00	11	
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4.32	0.00	12	
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4.34	0.00	13	
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4.37	0.00	15	
4.38	0.00	15	
4.39	0.00	16	
4.40	0.00	17	*
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4.69	-0.10	35	
4.70	-0.10	36	*
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4.89	-0.16	55	
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Rating Table: SAN BENITO R AT HWY 156 NEAR HOLLISTER [SBH]

Last Revision: 02/16/2005

River Basin: SAN BENITO R **Elevation (ft):** 260

Rating Table Number: 29.0 **Curve:** USGSRATE **Scale Offset:** 0.00

Discharge in CFS										
Stage (feet)	**.0**	**.1**	**.2**	**.3**	**.4**	**.5**	**.6**	**.7**	**.8**	**.9**
3	---	---	---	---	---	---	---	0	0	1
4	2	4	7	11	17	22	28	36	45	55
5	69	86	102	124	148	172	202	231	268	309
6	348	397	450	490	539	591	653	738	828	925
7	1030	1140	1250	1370	1490	1620	1750	1880	2020	2160
8	2300	2450	2610	2770	2940	3110	3290	3470	3660	3850
9	4050	4260	4470	4690	4910	5140	5370	5610	5860	6110
10	6370	6630	6900	7170	7460	7740	8000	8260	8520	8780
11	9050	9320	9590	9870	10200	10400	10700	11000	11400	11700
12	12000	12300	12600	13000	13300	13700	14000	14300	14700	15100
13	15400	15800	16200	16500	16900	17300	17700	18100	18500	18900
14	19300	19700	20100	20500	20900	21400	21800	22200	22700	23100
15	23600	24000	24500	24900	25400	25900	26300	26800	27300	27800
16	28300	28800	29300	29800	30300	30800	31300	31800	32400	32900
Stage (feet)	**.0**	**.1**	**.2**	**.3**	**.4**	**.5**	**.6**	**.7**	**.8**	**.9**
17	33400	34000								

Real-Time Data | *Group of Real-Time Stations* | *Daily Data* | *Group of Daily Stations*
Monthly Data | *Historical Data* | *Custom Graph Plotter* | *Text Reports*

Rating Table: SAN BENITO R AT HWY 156 NEAR HOLLISTER [SBH]

Last Revision: 02/16/2005

River Basin: SAN BENITO R **Elevation (ft):** 260

Rating Table Number: 29.0 **Curve:** USGSRATE **Scale Offset:** 0.00

Discharge in CFS										
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
3.6	---	---	---	---	---	---	---	---	0	0
3.7	0	0	0	0	0	0	0	0	0	0
3.8	0	0	0	0	0	1	1	1	1	1
3.9	1	1	1	1	1	1	1	1	2	2
4.0	2	2	2	2	3	3	3	3	3	4
4.1	4	4	4	5	5	5	5	6	6	6
4.2	7	7	7	8	8	8	9	9	10	10
4.3	11	11	12	12	13	13	14	15	15	16
4.4	17	17	17	18	19	19	20	20	20	21
4.5	22	22	23	24	24	25	26	26	27	28
4.6	28	29	30	30	31	32	32	34	35	35
4.7	36	37	37	38	40	40	41	42	42	44
4.8	45	45	47	48	48	50	51	51	53	55
4.9	55	57	59	59	61	63	63	65	67	67
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
5.0	69	71	71	74	76	76	78	81	81	83
5.1	86	86	88	91	91	94	97	97	99	102
5.2	102	105	108	108	111	114	114	117	120	120
5.3	124	127	127	130	134	134	137	141	141	145
5.4	148	148	152	156	156	160	164	164	168	168
5.5	172	176	176	180	184	184	189	193	193	198
5.6	202	202	207	211	211	216	221	221	226	231
5.7	231	236	241	241	247	252	252	257	263	263
5.8	268	274	274	280	285	285	291	297	297	303
5.9	309	309	315	322	322	328	335	335	341	348
6.0	348	354	361	361	368	375	375	382	389	389
6.1	397	404	404	411	419	419	427	434	434	442
6.2	450	450	457	463	463	470	476	476	483	490
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
6.3	490	497	503	503	510	517	517	524	532	532
6.4	539	546	546	553	561	561	568	575	575	583
6.5	591	591	598	606	606	614	622	629	637	645
6.6	653	662	670	678	686	695	703	712	720	729
6.7	738	746	755	764	773	782	791	800	809	819
6.8	828	837	847	856	866	876	885	895	905	915
6.9	925	935	945	955	966	976	986	997	1010	1020
7.0	1030	1040	1050	1060	1070	1080	1090	1100	1110	1120
7.1	1140	1150	1160	1170	1180	1190	1200	1210	1220	1240
7.2	1250	1260	1270	1280	1290	1310	1320	1330	1340	1350
7.3	1370	1380	1390	1400	1420	1430	1440	1450	1470	1480

7.4	1490	1500	1520	1530	1540	1560	1570	1580	1600	1610
7.5	1620	1640	1650	1660	1670	1690	1700	1710	1720	1740
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
7.6	1750	1760	1780	1790	1800	1810	1830	1840	1850	1870
7.7	1880	1890	1910	1920	1930	1950	1960	1970	1990	2000
7.8	2020	2030	2040	2060	2070	2080	2100	2110	2130	2140
7.9	2160	2170	2180	2200	2210	2230	2240	2260	2270	2290
8.0	2300	2320	2330	2350	2360	2380	2390	2410	2420	2440
8.1	2450	2470	2480	2500	2510	2530	2550	2560	2580	2590
8.2	2610	2620	2640	2660	2670	2690	2700	2720	2740	2750
8.3	2770	2790	2800	2820	2840	2850	2870	2890	2900	2920
8.4	2940	2950	2970	2990	3000	3020	3040	3060	3070	3090
8.5	3110	3130	3140	3160	3180	3200	3220	3230	3250	3270
8.6	3290	3300	3320	3340	3360	3380	3400	3410	3430	3450
8.7	3470	3490	3510	3530	3540	3560	3580	3600	3620	3640
8.8	3660	3680	3700	3720	3740	3760	3770	3790	3810	3830
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
8.9	3850	3870	3890	3910	3930	3950	3970	3990	4010	4030
9.0	4050	4070	4090	4110	4130	4160	4180	4200	4220	4240
9.1	4260	4280	4300	4320	4340	4360	4380	4410	4430	4450
9.2	4470	4490	4510	4530	4560	4580	4600	4620	4640	4660
9.3	4690	4710	4730	4750	4780	4800	4820	4840	4860	4890
9.4	4910	4930	4950	4980	5000	5020	5050	5070	5090	5110
9.5	5140	5160	5180	5210	5230	5250	5280	5300	5320	5350
9.6	5370	5400	5420	5440	5470	5490	5520	5540	5560	5590
9.7	5610	5640	5660	5680	5710	5730	5760	5780	5810	5830
9.8	5860	5880	5910	5930	5960	5980	6010	6030	6060	6080
9.9	6110	6130	6160	6190	6210	6240	6260	6290	6310	6340
10.0	6370	6390	6420	6440	6470	6500	6520	6550	6580	6600
10.1	6630	6660	6680	6710	6740	6760	6790	6820	6840	6870
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
10.2	6900	6930	6950	6980	7010	7040	7060	7090	7120	7150
10.3	7170	7200	7230	7260	7290	7310	7340	7370	7400	7430
10.4	7460	7480	7510	7540	7570	7600	7630	7660	7680	7710
10.5	7740	7770	7800	7830	7850	7880	7900	7930	7950	7980
10.6	8000	8030	8050	8080	8100	8130	8160	8180	8210	8230
10.7	8260	8280	8310	8340	8360	8390	8410	8440	8470	8490
10.8	8520	8540	8570	8600	8620	8650	8680	8700	8730	8750
10.9	8780	8810	8830	8860	8890	8910	8940	8970	8990	9020
11.0	9050	9080	9100	9130	9160	9180	9210	9240	9260	9290
11.1	9320	9350	9370	9400	9430	9460	9480	9510	9540	9570
11.2	9590	9620	9650	9680	9710	9730	9760	9790	9820	9850
11.3	9870	9900	9930	9960	9990	10000	10000	10100	10100	10100
11.4	10200	10200	10200	10200	10300	10300	10300	10400	10400	10400
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
11.5	10400	10500	10500	10500	10600	10600	10600	10700	10700	10700
11.6	10700	10800	10800	10800	10900	10900	10900	11000	11000	11000
11.7	11000	11100	11100	11100	11200	11200	11200	11300	11300	11300
11.8	11400	11400	11400	11500	11500	11500	11500	11600	11600	11600
11.9	11700	11700	11700	11800	11800	11800	11900	11900	11900	12000
12.0	12000	12000	12100	12100	12100	12200	12200	12200	12200	12300

12.1	12300	12300	12400	12400	12400	12500	12500	12500	12600	12600
12.2	12600	12700	12700	12700	12800	12800	12800	12900	12900	12900
12.3	13000	13000	13000	13100	13100	13100	13200	13200	13200	13300
12.4	13300	13300	13400	13400	13400	13500	13500	13500	13600	13600
12.5	13700	13700	13700	13800	13800	13800	13900	13900	13900	14000
12.6	14000	14000	14100	14100	14100	14200	14200	14200	14300	14300
12.7	14300	14400	14400	14400	14500	14500	14600	14600	14600	14700
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
12.8	14700	14700	14800	14800	14800	14900	14900	14900	15000	15000
12.9	15100	15100	15100	15200	15200	15200	15300	15300	15300	15400
13.0	15400	15500	15500	15500	15600	15600	15600	15700	15700	15700
13.1	15800	15800	15900	15900	15900	16000	16000	16000	16100	16100
13.2	16200	16200	16200	16300	16300	16300	16400	16400	16500	16500
13.3	16500	16600	16600	16600	16700	16700	16800	16800	16800	16900
13.4	16900	16900	17000	17000	17100	17100	17100	17200	17200	17300
13.5	17300	17300	17400	17400	17400	17500	17500	17600	17600	17600
13.6	17700	17700	17800	17800	17800	17900	17900	18000	18000	18000
13.7	18100	18100	18100	18200	18200	18300	18300	18300	18400	18400
13.8	18500	18500	18500	18600	18600	18700	18700	18700	18800	18800
13.9	18900	18900	18900	19000	19000	19100	19100	19200	19200	19200
14.0	19300	19300	19400	19400	19400	19500	19500	19600	19600	19600
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
14.1	19700	19700	19800	19800	19800	19900	19900	20000	20000	20100
14.2	20100	20100	20200	20200	20300	20300	20300	20400	20400	20500
14.3	20500	20600	20600	20600	20700	20700	20800	20800	20900	20900
14.4	20900	21000	21000	21100	21100	21100	21200	21200	21300	21300
14.5	21400	21400	21400	21500	21500	21600	21600	21700	21700	21700
14.6	21800	21800	21900	21900	22000	22000	22100	22100	22100	22200
14.7	22200	22300	22300	22400	22400	22400	22500	22500	22600	22600
14.8	22700	22700	22800	22800	22800	22900	22900	23000	23000	23100
14.9	23100	23200	23200	23200	23300	23300	23400	23400	23500	23500
15.0	23600	23600	23600	23700	23700	23800	23800	23900	23900	24000
15.1	24000	24100	24100	24100	24200	24200	24300	24300	24400	24400
15.2	24500	24500	24600	24600	24700	24700	24700	24800	24800	24900
15.3	24900	25000	25000	25100	25100	25200	25200	25300	25300	25300
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
15.4	25400	25400	25500	25500	25600	25600	25700	25700	25800	25800
15.5	25900	25900	26000	26000	26100	26100	26100	26200	26200	26300
15.6	26300	26400	26400	26500	26500	26600	26600	26700	26700	26800
15.7	26800	26900	26900	27000	27000	27100	27100	27200	27200	27200
15.8	27300	27300	27400	27400	27500	27500	27600	27600	27700	27700
15.9	27800	27800	27900	27900	28000	28000	28100	28100	28200	28200
16.0	28300	28300	28400	28400	28500	28500	28600	28600	28700	28700
16.1	28800	28800	28900	28900	29000	29000	29100	29100	29200	29200
16.2	29300	29300	29400	29400	29500	29500	29600	29600	29700	29700
16.3	29800	29800	29900	29900	30000	30000	30100	30100	30200	30200
16.4	30300	30300	30400	30400	30500	30500	30600	30600	30700	30700
16.5	30800	30800	30900	30900	31000	31100	31100	31200	31200	31300
16.6	31300	31400	31400	31500	31500	31600	31600	31700	31700	31800
Stage (feet)	**.00**	**.01**	**.02**	**.03**	**.04**	**.05**	**.06**	**.07**	**.08**	**.09**
16.7	31800	31900	31900	32000	32000	32100	32100	32200	32300	32300

16.8	32400	32400	32500	32500	32600	32600	32700	32700	32800	32800
16.9	32900	32900	33000	33000	33100	33200	33200	33300	33300	33400
17.0	33400	33500	33500	33600	33600	33700	33700	33800	33900	33900
17.1	34000	34000	34100	34100	34200	34200	34300	34300	34400	34400

Real-Time Data | *Group of Real-Time Stations* | *Daily Data* | *Group of Daily Stations*
Monthly Data | *Historical Data* | *Custom Graph Plotter* | *Text Reports*

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