

**Update of the  
Historical Benefits  
Analysis (HBA)  
Hydrologic Investigation in  
the  
Arroyo Seco Cone Area**

**FINAL  
Technical Memorandum**

**February 2000**

Prepared for the

**Monterey County Water  
Resources Agency**



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February 15, 2000

Monterey County Water Resources Agency  
893 Blanco Circle  
Salinas, CA. 93901

Attn: Gene Taylor

Dear Gene:

It is my pleasure to submit to you the Final Technical Memorandum on the "Update of the HBA Hydrologic Investigation in the Arroyo Seco Cone Area".

The memorandum documents the work on estimation of the Reliz Creek watershed surface flow contributions, estimation of the maximum recharge rate and thus a revised estimate of the hydraulic conductivity of the streambed material for the Arroyo Seco, and re-evaluation of the hydrologic benefits of the operations of the reservoirs during the historical period. The memorandum, also presents a section on the scope and accuracy of the application of the Salinas Valley Integrated Ground and Surface water Model (SVIGSM) for various studies in the Valley.

The report concludes that the hydrologic benefit received in the Arroyo Seco Cone area as a result of the historical operations of the Nacimiento and San Antonio reservoirs is approximately 0.4 feet less than the previous estimate (April 1998). The report also concludes that the current updates made to the SVIGSM have not resulted in significant changes in hydrologic benefits in other areas of the Valley compared to the April 1998 HBA report.

It has certainly been a pleasure working with you and your staff on this exciting project, and I look forward to be of further assistance to the Agency.

Please do not hesitate to contact me, if you have any questions.

Sincerely Yours,

S. Ali Taghavi, Ph.D., PE

Principal

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The purpose of this Technical Memorandum is to document the work performed for an update of the Historical Benefits Analysis (HBA) based upon additional hydrologic investigations in the Arroyo Seco Cone area.

## **Introduction**

The Monterey County Water Resources Agency (MCWRA) conducted a unique planning study to determine the benefits of operation of Nacimiento and San Antonio reservoirs during the historical period 1949 to 1994. This study, named the Historical Benefits Analysis (HBA) attempted to estimate the historical benefits of the operation of the reservoirs from hydrologic (water supply), flood control, and economic viewpoints. The hydrologic benefits were estimated, primarily, based on average annual changes in ground water levels during the historical period of operation of reservoirs. The impact of these changes on water supply facilities, such as production wells was also evaluated.

The hydrologic benefits were evaluated using the Salinas Valley Integrated Ground and Surface water Model (SVIGSM). To prepare the SVIGSM for the HBA study, the hydrologic database, and land and water use data were extended back to 1949, followed by a model recalibration for the 1949-94 period. The HBA study was conducted in 1997-98, and the final report was published in April 1998.

After the completion of the HBA final report, questions were raised by property owners in the Arroyo Seco Cone area regarding the accuracy of recharge to the ground water basin in the Cone area contributed by Salinas River flows. This coalition of property owners was of the opinion that the Arroyo Seco was the primary source of recharge to the Cone, and the recharge from Salinas River has little or no effect on the ground water basin in the Cone area. Since the April 1998 HBA study concluded that there are up to 5.9 feet of average annual benefits as higher ground water levels in the Arroyo Seco Cone area, as a result of the operation of Nacimiento and San Antonio reservoirs, the Coalition requested a re-evaluation of the distribution of benefits in the Cone based on new hydrogeologic information received after the April 1998 study was completed.

In subsequent meetings between the Agency staff and technical representatives hired by the property owners, it was decided that additional data outside the SVIGSM modeling period could be used to refine estimates of the Arroyo Seco maximum recharge rate and streambed hydraulic conductivity. Further, it was agreed that an estimate of flow from Reliz Creek, a tributary to the Arroyo Seco, should be added to surface water flow entering the Cone area. When quantified, this additional flow could have the effect of increasing recharge rate, and therefore, support the need to revise streambed characteristics contained in the model. Since changes in ground water level are partially dependent on the streamflow and stream-aquifer interaction, the accuracy of these characteristics are significant factors.

The purpose of this project was to first develop an estimate of runoff from Reliz Creek and re-evaluate the rate of recharge within the Arroyo Seco channel. Then, if the new information

supported revisions, an update of the hydrologic investigation of the historic benefits would be performed. The project included the following tasks:

Task 1- Data Analysis and Reliz Creek Streamflow Estimation

Task 2- SVIGSM Geologic Verification

Task 3- SVIGSM Refinements

Task 4- HBA Hydrologic Analysis

Tasks 5 and 6- Documentation and project coordination

This Technical Memorandum is organized in the order of the Tasks.

### **Section 1- Reliz Creek Runoff Estimation**

Reliz Creek is a tributary to the Arroyo Seco. The Creek has intermittent flows, mostly in wet years, with a small baseflow component during the spring months. In order to estimate the Arroyo Seco recharge rate to the ground water system an estimation of the daily flows of Reliz Creek, a major component in the stream balance of the Arroyo Seco, was performed. This flow was estimated where Reliz Creek enters the Arroyo Seco Cone near the Elm Street crossing. The confluence of the Arroyo Seco and Reliz Creek is approximately 3 miles downstream of the Elm Street Crossing. Reliz Creek enters the Arroyo Seco Cone at the Elm Street Crossing, but then meanders approximately parallel to the Arroyo Seco until converging near the Thorne Road crossing. Since there are no gaging stations in the Reliz Creek watershed, a rainfall runoff numerical model was developed to simulate the daily runoff generated in the watershed.

A one-day field trip was conducted on June 1, 1999, to observe and note the Reliz Creek watershed physical characteristics and flow regime. The team consisted of Mr. Howard Franklin and Mr. Dennis Lebow of MCWRA and Dr. Ali Taghavi, Consultant to the Agency. Following notes were made on the field trip:

- The upper watershed, generally appears to be steep with granite outcrops rising nearly vertical to the watershed boundary. The middle and lower reaches of the watershed are characterized by a slightly wider channel and overbank area with steep slopes near the watershed boundaries. Throughout the watershed are geologic outcrops of granite and shale, which suggest very little subsurface storage capacity.
- High flashy winter rainfall is common. Although, there are no rain gaging stations in the watershed, the Arroyo Seco near Greenfield precipitation gage (upper bridge on the Arroyo Seco) is a good representation of the rainfall patterns in the Reliz Creek watershed.
- The shallow soil zone does not lend itself to significant underflows in the watershed. The subsurface storage capacity in the watershed is, thus, very limited. This hydrologic characteristic is represented in the vegetation cover of the watershed. Tree density is

sparse throughout, with generally shallow rooted shrubs and phreatophytic vegetation along the creek channel.

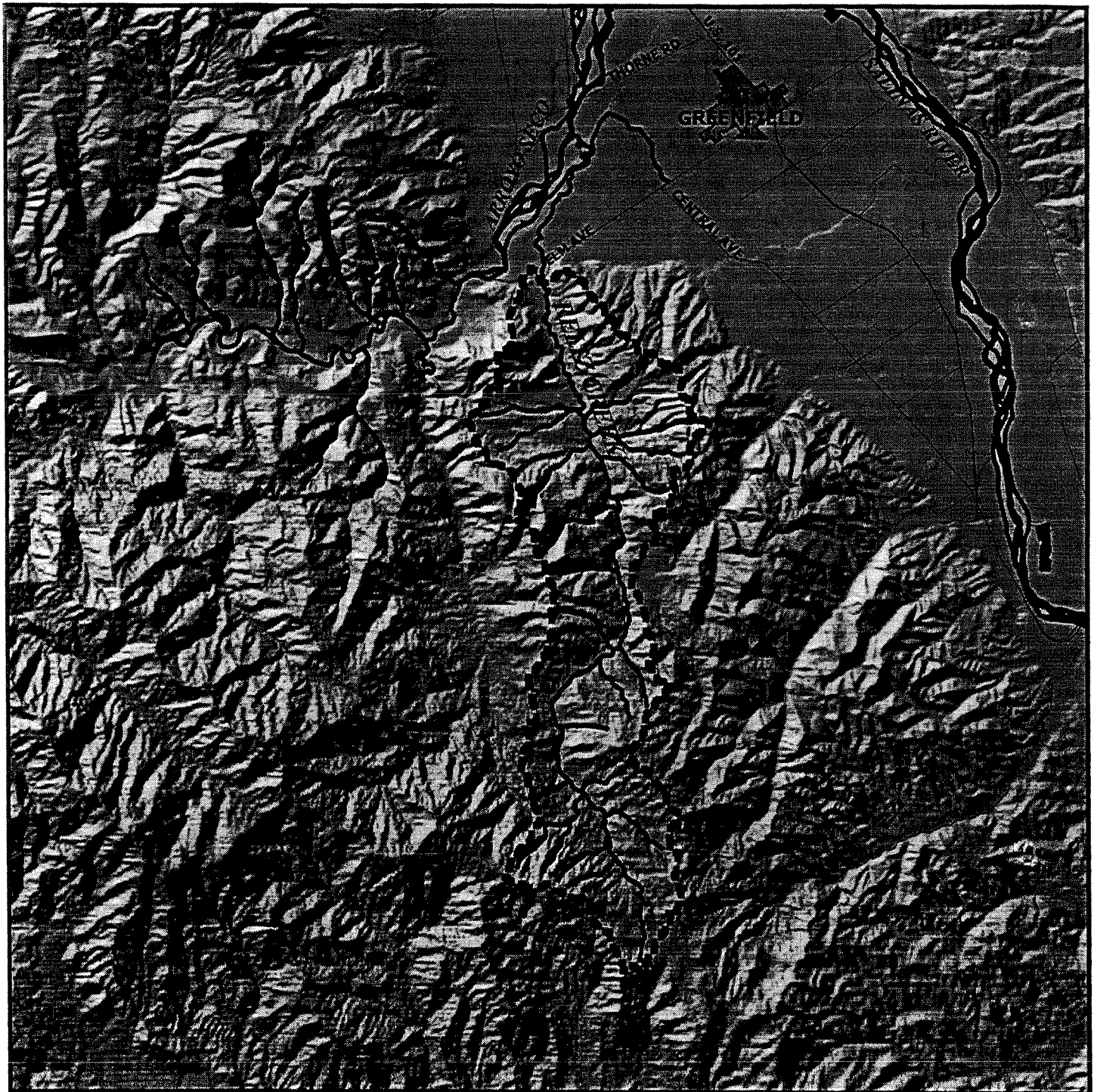
- The length of Reliz Creek was either driven by or walked. The surface flow on the day of the field trip was estimated to be approximately 5-10 CFS at the higher reaches, and approximately 1-2 CFS at the middle to lower reaches of the watershed. Flow disappears in some reaches, becoming subsurface base flow. There was no surface flow at the Elm Street crossing on the day of field trip.
- Flow duration and channel depths were estimated through conversations with local residents and high-flow marks on trees and banks.

### **Reliz Creek Physical Characteristics**

Reliz Creek watershed is located in the southwest of the Arroyo Seco Cone area. The watershed area is approximately 24 square miles. Average land elevation in the watershed is 1,390 feet (MSL), and ranges from 420 feet to 4,720 feet. Average annual rainfall in the watershed is estimated to be approximately 22.5 inches with a range of 14 to 35 inches per year. Figure 1 shows the location of Reliz Creek Watershed.





The watershed land use is primarily native vegetation, with some development as ranches for raising cattle. Observations taken during the June field trip indicate that the land cover is approximately 60 percent native vegetation and grassland, and 40 percent trees and other vegetation.

Some of the physical characteristics of the watershed and Reliz Creek are quantified in Tables 1 and 2.



## Reliz Creek Watershed

### LEGEND

-  Incorporated Areas
-  Roads
-  Rivers/Creeks
-  Reliz Creek Watershed Boundary



**Monterey County  
Water Resources Agency**

Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.

**Figure 1**

**Table 1**  
**Physical Characteristics of Reliz Watershed**

Watershed Characteristic	Value
Watershed Area	23.68 square miles
Watershed Perimeter	40.97 miles
Mean Watershed Slope	18.1 %
Minimum Watershed Slope	0%
Maximum Watershed Slope	54.1%
Mean Watershed Elevation	1390.8 ft.
Minimum Watershed Elevation	423.2 ft.
Maximum Watershed Elevation	4724.0 ft.
Total Creek Length	15.9 miles (83,697 ft.)
Average Channel Slope	5.1%
Upper Reach Channel Slope	9.0%
Upper Reach Length	14,259.7 ft.
Middle Reach Channel Slope	1.5%
Middle Reach Length	33,172.8 ft.
Lower Reach Channel Slope	0.1%
Lower Reach Length	36,264.7 ft.

**Source:** MCWRA GIS watershed modeling using data from USGS Digital Elevation Models (DEM's).

**Table 2**  
**Reliz Creek Watershed Hydrologic Soil Type Distribution**

Hydrologic Soil Group	Area (acres)	Description
A	27	High infiltration rates. Soils are deep, well drained to excessively drained sands and gravels.
B	1,058	Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
C	6,633	Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.
D	7,438	Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

**Source:** Developed from MCWRA GIS watershed modeling tools, using the United States Department of Agriculture (Natural Resources Conservation Service) National Soil Survey Center's Soil Survey Geographic (SSURGO) Data Base for Monterey County.



## Rainfall-Runoff Model Development

A FORTRAN model was developed to simulate the daily runoff from rainfall in Reliz Creek watershed. This model was based on the small watershed routine in the Salinas Valley Integrated Groundwater and Surface Water Model (SVIGSM), and was used independent of the SVIGSM. The model estimates direct surface runoff and ground water subsurface flow for specified watershed characteristics. The method used to simulate direct runoff is similar to the soil moisture accounting component of the SVIGSM. This method is discussed in the SVIGSM Users' Manual (Montgomery Watson, 1995). In general, the rainfall runoff is simulated based on:

- Effective rainfall;
- Hydrologic soil types;
- Predominant land use in the watershed;
- Field capacity, total porosity, and root zone depth of predominant vegetation coverage; and
- Initial soil moisture conditions.

For more details and explanation of the governing equations, the reader is referred to the SVIGSM Users' Manual.

The simulated deep percolation is accumulated as ground water storage. The outflow from the ground water storage is in two parts, a subsurface component and an interflow component, which contributes to the surface runoff from the watershed. The subsurface component is represented as:

$$Q_{wg} = K_{wg} \cdot S \quad (1a)$$

The interflow component is represented as:

$$Q_{ws} = K_{ws} \cdot (S - S_{min}) \quad (1b)$$

Where

$Q_{wg}$	=	subsurface component of watershed outflow, ( $L^3/T$ );
$Q_{ws}$	=	surface component of watershed outflow, ( $L^3/T$ );
$K_{wg}$	=	subsurface flow recession coefficient;
$K_{ws}$	=	surface runoff recession coefficient;
$S$	=	groundwater storage volume underlying the watershed ( $L^3$ );
$S_{min}$	=	minimum threshold groundwater storage, ( $L^3$ ).

Determination of separate estimates for surface and subsurface contributions are important because the SVIGSM surface flows generally discharge from the watershed in the same time step (1 day). The subsurface flows, on the other hand, generally go to storage and the subsurface discharge from the watershed would be subject to storage effects and the corresponding time lags, which may sometime be more than one time step.

Appropriate physical and hydrologic data was incorporated into the Reliz Creek watershed model. The model output is a daily estimate of the surface and subsurface runoff during the period of simulation. The simulation period is October 1994 to September 1998.

There are no gaging stations in the Reliz watershed that can be used for model calibration. Therefore, field observations and interviews with local residents were used to document estimated flows with corresponding high-flow marks observed in the channel. These flows were used as a means of verifying the range of model simulation results. In addition, the MCWRA has conducted a field study to estimate the high flow during the 1998 runoff season. This study, to which MCWRA associated a potential 20 percent error, estimated an instantaneous peak flow of 1,842 CFS and a mean daily discharge of 1,100 CFS for February 3, 1998. This runoff is generated as a result of a storm that started on January 28, 1998 and lasted through February 3, 1998, with approximately 2.70 inches of rain falling over the Reliz Creek watershed on February 2, 1998. The instantaneous peak flow on the Arroyo Seco and in most coastal streams occurred during the early morning of February 3, 1998. It is assumed that the peak flow on Reliz Creek occurred on February 3<sup>rd</sup> also, even though the highest daily rainfall occurred before mid-night on February 2, 1998. Because the Reliz model responds to precipitation on a daily time step, the runoff model shows the highest Reliz flows on February 2, 1998. It is apparent that the daily time step used in the model results in some potential, although insignificant, error in the simulation results. A smaller time step, such as hourly or 15-minute would have more closely tracked the storm. However, the objective of the study to evaluate long-term changes in ground water levels in the area, does not support the use of a smaller time step. Appendix A provides documentation of the MCWRA study.

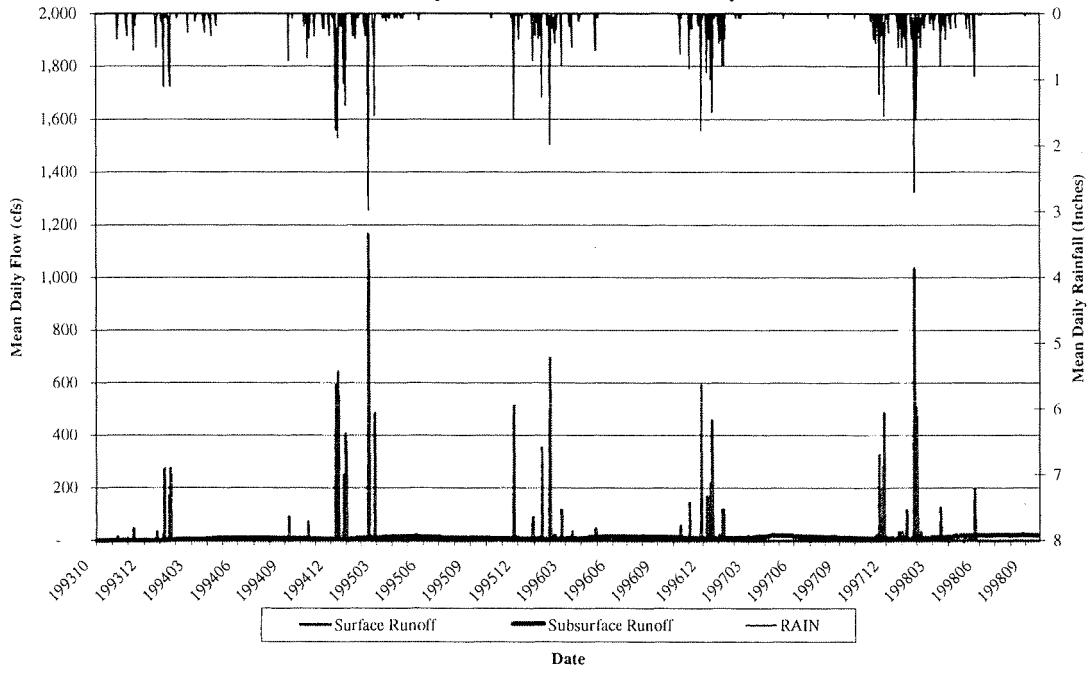
The model parameters were adjusted to obtain a reasonable simulation of the low and high flows. Based on this effort, the model simulated a mean daily flow of 1,035 CFS as a result of the February 2, 1998 rainfall. This estimate is compatible to the 1,100 CFS mean daily flow estimate that is reported by the MCWRA.

### **Estimation of Daily Runoff**

The Reliz watershed model was used to simulate the daily runoff from the watershed during the period October 1994 to September 1998. The average daily runoff during the period of simulation was estimated to be 9 CFS with a maximum daily discharge of 1,166 CFS on March 10, 1995. Figure 2 shows the hydrograph of simulated Reliz Creek watershed daily runoff along with estimated average daily rainfall in the Reliz watershed.

As noted earlier, the Reliz watershed runoff model is a computer program that simulates the daily runoff from rainfall in the Reliz Creek watershed. This model was based on the small watershed routine in the Salinas Valley Integrated Groundwater and Surface Water Model (SVIGSM), and was used independent of the SVIGSM. Reliz Creek watershed model code, input and output data sets are presented in Appendix B.

Figure 2  
RELIZ CREEK WATERSHED  
Estimated Daily Rainfall and Simulated Daily Runoff



## Section 2- Arroyo Seco Recharge Rate Estimation

In order to estimate the recharge rate from the Arroyo Seco a water balance approach was used. This approach, similar to that used by the Salinas Valley Coalition (SVC) technical representatives, uses the daily streamflow at upstream (Arroyo Seco near Soledad) and downstream (Arroyo Seco at the Lower Bridge) gaging stations, and estimates the Arroyo Seco recharge rate based on the difference between the daily gage records. The original approach used by the SVC did not account for the contributions from Reliz Creek. The current approach uses the surface runoff contributions from Reliz Creek watershed to properly account for all major water balance components in this reach of the Arroyo Seco.

The water balance equation used is:

$$\text{Recharge Rate} = Q_{US} - Q_{DS} + Q_{RL} - Q_{div} + Q_{Ret}$$

Where:

$Q_{US}$  = Daily upstream flows at Arroyo Seco near Soledad gage, in CFS.

$Q_{DS}$  = Daily downstream flows at Arroyo Seco at Lower Bridge gage, in cfs;

$Q_{RL}$  = Daily estimate of Reliz Creek runoff, in cfs;

$Q_{div}$  = Daily estimate of surface water diversions by Clark Colony; in cfs;

$Q_{Ret}$  = Daily estimate of return flows to the Arroyo Seco from Clark Colony diversion, in CFS.

Sources of data for the water balance equation are as follows:

$Q_{US}$  : Flow records from gaging station;

$Q_{DS}$  : Flow records from gaging station;

$Q_{RL}$  : Simulated flows from the Reliz Creek watershed model;

$Q_{div}$  : Monthly diversion records obtained from the Salinas Valley Coalition; and

$Q_{Ret}$  : Daily estimate of return flows to the Arroyo Seco from Clark colony diversion (Due to the specific types of irrigation and water practices in the area, it is assumed that surface return flows and tail water from the fields back to Arroyo Seco is small enough to be negligible).

The technical representatives of the SVC programmed a simpler version of this formula in a Microsoft® Excel spreadsheet (RECHARGE.XLS) (Hydrologic Consultants, Inc, 1998). This spreadsheet was updated to use additional hydrologic record, as well as the contributions from Reliz Creek watershed. In addition, updates and corrections were made to some of the existing data in the spreadsheet, as follows:

- Updated the provisional data for the Arroyo Seco streamflows at Soledad.

- Adjusted the Clark Colony diversion data (originally supplied by the SVC) to ensure that the estimated daily diversion rates do not exceed available streamflows as recorded by the Arroyo Seco at Soledad gaging station.

Appendix C shows a printout of the Excel Spreadsheet main data sheet.

Based on the revised method, as explained above, the daily average recharge rate from Arroyo Seco to the ground water basin is estimated as 100 CFS, with minimum of 0.5 CFS and maximum of 2,609 CFS. This wide range of recharge rate is due to:

1. Range of flows at the Arroyo Seco near Soledad gage;
2. Range of contributions from Reliz Creek watershed;
3. Recharge rate in the overbank conditions during high flows as opposed to recharge rate within the channel bed.

The table presented in Appendix C shows that during the 1994-1998 period, the Arroyo Seco mean daily flows near Soledad (Arroyo Seco nr Soledad) range from zero to approximately 16,000 CFS. During the same period, the corresponding flows at the Lower Bridge gage (Arroyo Seco Bl Reliz C nr Soledad) range from zero to approximately 17,000 cfs. There have been other high flows estimated and recorded in the recent time scale. These are individual estimated events that are documented in the report "Hydrogeologic Investigation of Arroyo Seco Cone" prepared for MCWRA in April 1994 by Staal, Gardner, and Dunne, Inc. The range of the high flows included in the Staal, Gardner, and Dunne report are within the range recorded in the current investigation. Appendix F of the Staal, Gardner, and Dunne report is reprinted in this report as Appendix D

In a long-term water supply planning study, the average recharge rate would have ordinarily been used. However, to estimate the maximum recharge rate that can conceivably occur within the Arroyo Seco channel, while having statistical significance, the flow with an exceedance probability of one percent is used. Figure 3 shows the flow frequency curve for Arroyo Seco streamflows near Soledad. Based on this flow-frequency curve, the one percent exceedance daily flow is estimated as 3,100 cfs. In other words, during the hydrologic period of October 1994 to September 1998, there is one percent chance that the daily mean flows would equal or exceed 3,100 CFS. Figure 4 shows the relationship between the observed streamflows for the Arroyo Seco near Soledad and the estimated Arroyo Seco recharge rate as calculated based on the foregoing discussion. A 2<sup>nd</sup> degree polynomial curve is fit to this relationship. Based on the best fit curve, the Arroyo Seco recharge rate corresponding to the estimated daily flow rate of 3,100 CFS is approximately 330 CFS. Although, this recharge rate is based on daily flows during the October 1994 to September 1998 period, it is assumed that this rate would approximate the long-term maximum recharge rate from the Arroyo Seco. It is noteworthy that this four year period contains some of the highest flows encountered on the Arroyo Seco and contains the only gaged flow at the lower station (Arroyo Seco at the Lower Bridge).

## Recharge Rate and Hydraulic Conductivity Results

A stage-discharge-wetted perimeter relationship (the same as that used by the SV Coalition) was assumed to estimate the width of the channel and corresponding streambed hydraulic conductivity,  $K_b$ . This wetted perimeter relationship is also compatible to that used in the SVIGSM for the Arroyo Seco. Figure 5 shows the relationship between recharge rate and the resulting streambed hydraulic conductivity,  $K_b$ . Based on Figure 5, the maximum recharge rate of 330 CFS is attainable by having a streambed hydraulic conductivity in the range of 4-6 feet per day. The 4-6 feet per day hydraulic conductivity has therefore been used in the SVIGSM for this update on the Arroyo Seco Cone. The SVIGSM dynamically calculates the river stage based on the streamflow rates. At each time step, the river stage is used in conjunction with the groundwater levels at the corresponding location to develop a hydraulic gradient. The model, then uses this hydraulic gradient along with the streambed hydraulic conductivity to calculate the recharge rate for the specific location and time step. For more detailed explanation on the SVIGSM simulation of stream-aquifer interaction, refer to the SVIGSM Users' Manual

Figure 3  
Arroyo Seco River and Reliz Creek  
Flow Exceedance Curve

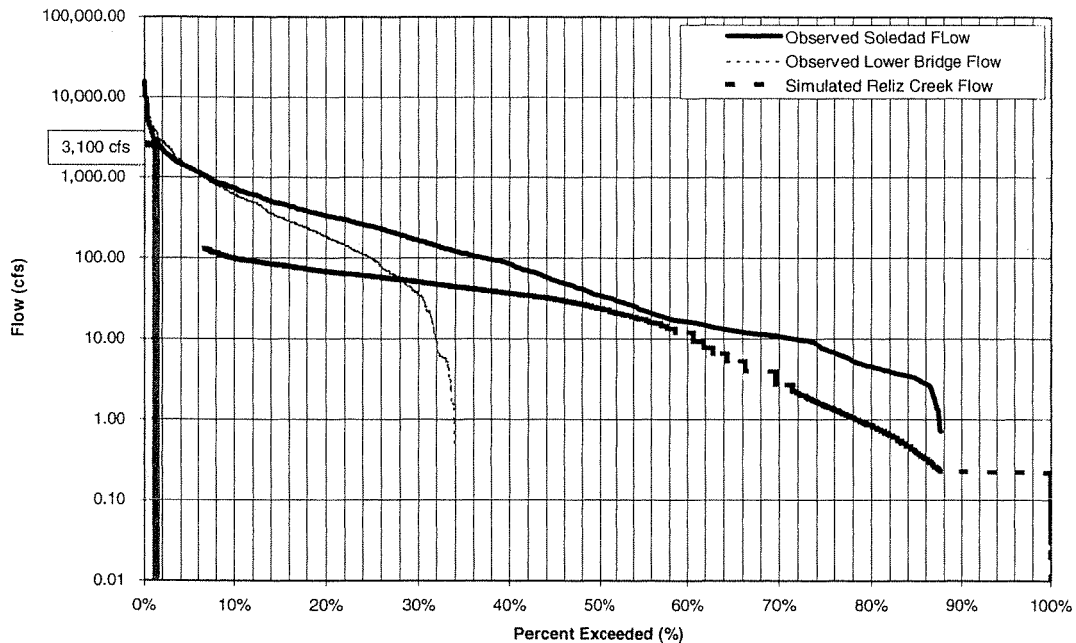


Figure 4  
 Scatterplot of Observed Arroyo Seco Flow near Soledad and  
 Estimated Arroyo Seco River Recharge Rate

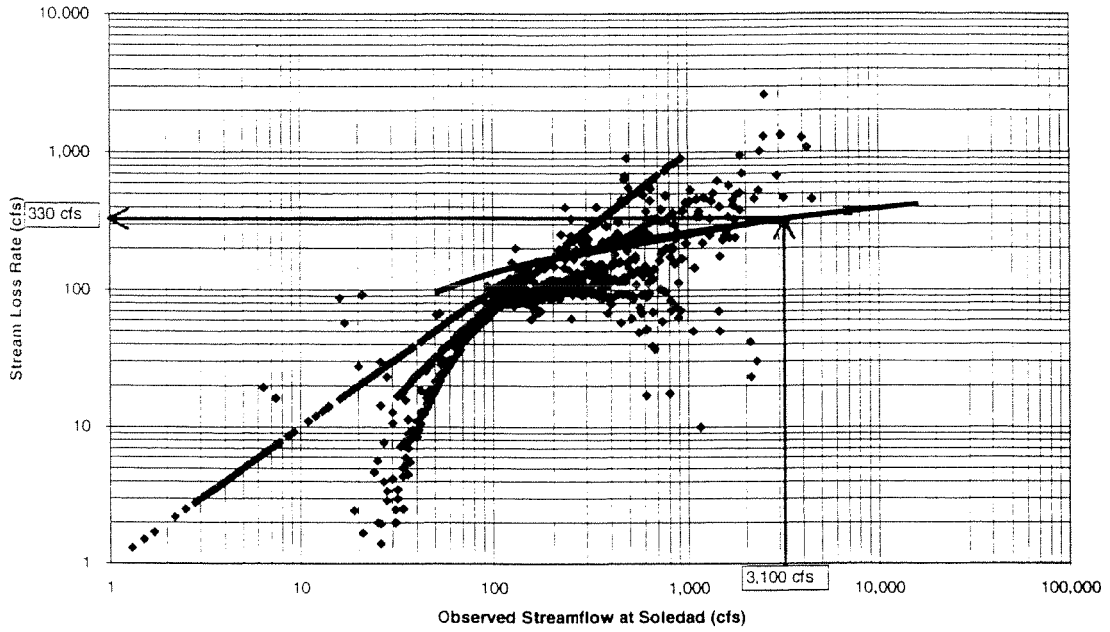
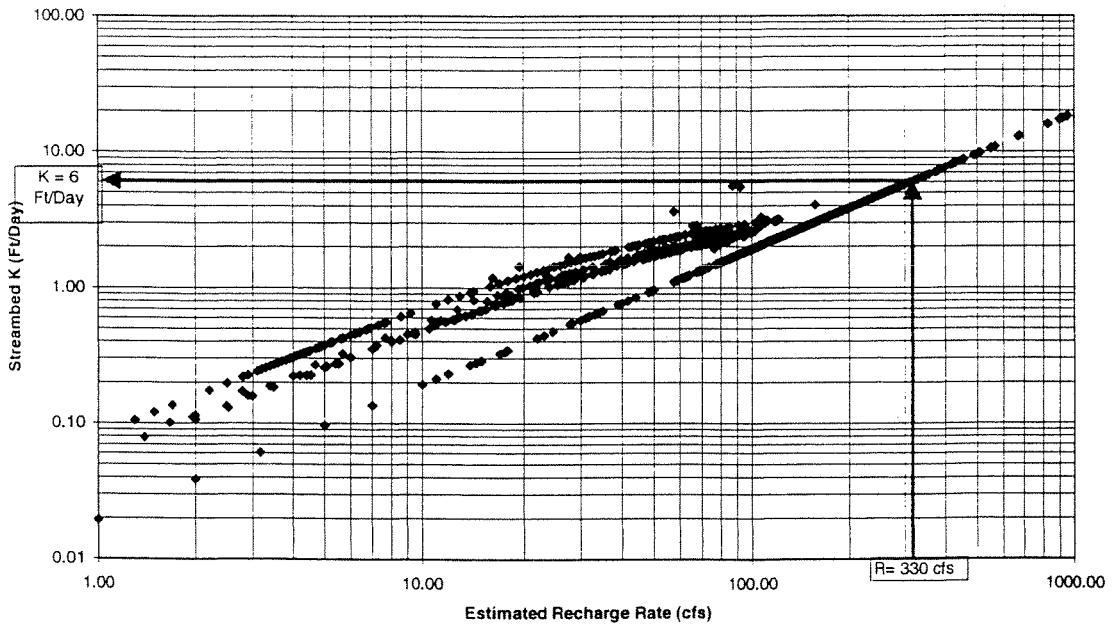


Figure 5  
 Scatterplot of Estimated Arroyo Seco Recharge Rate and  
 Apparent Arroyo Seco River Streambed Hydraulic Conductivity



### **Section 3- Historical Benefits Analysis (HBA)**

The SVIGSM was used to determine the hydrologic impacts of the Historical Benefits Analysis from the operations of the Nacimiento and San Antonio reservoirs. The estimates of the recharge rate and corresponding streambed hydraulic conductivity for the Arroyo Seco were revised to reflect the new estimates of the Arroyo Seco recharge rates, as estimated by the water balance process explained in Section 2 of this Technical Memorandum. With significant revisions to a major recharge source such as the Arroyo Seco, the hydrologic investigation of the HBA also requires updating. This update is limited to the estimate of the long-term average annual changes in ground water levels. No analysis of the impacts to the water supply wells, flood control, and economic benefits are considered.

Before revision of the hydrologic impacts, a verification of the geologic conditions in the Arroyo Seco, as well as recalibration of the SVIGSM were performed.

#### **SVIGSM Conceptual Geology in Arroyo Seco Cone Area**

The SVIGSM geologic stratification is based on a number of geologic reports and investigations that have been conducted up through the development of the model in 1995. Task 2 of the scope of work of this project requires a comparison of the geologic stratification of the SVIGSM in the Arroyo Seco area with the geologic cross-sections presented in the Arroyo Seco hydrogeologic Investigation, prepared for the MCWRA in April 1994, by Staal, Gardner, and Dunne, Inc.

To perform such an analysis, two representative cross-sections, a north-south and a west-east, are selected from the report. The cross-sections most compatible in location to those in the SVIGSM are 5-5' and D5-D5'. The locations of these cross-sections are shown in Figure 6, and the cross-section profiles are shown in Figures 7A and 7B. A comparative set of cross-sections is produced from the geologic database in the SVIGSM. These are called S5-S5' (approximately corresponding to 5-5') and SD5-SD5' (approximately corresponding to D5-D5'), and are shown in Figures 8A and 8B.

A comparison of the sets of north-south cross-sections indicates that an alluvial gravel formation exists from ground surface to approximately a depth of 250-300 feet below surface. The cross-section shows that a thick clay deposit of approximately 100-150 feet underlies the gravel deposits. However, the sand and sandy clay indicators in the well logs show that the clay is not as thick, and may have a thickness of about 50 feet. The D5-D5' cross-section does not go deep enough to present the second aquifer layer. In comparison, the SD5-SD5' SVIGSM cross-section shows the layer 1 aquifer with a thickness of approximately 200-250 feet and is underlain by an aquitard of approximately 20-50 feet thick.

The west-east cross-section 5-5' shows a thick gravel deposit approximately 300 feet at the surface. The thickness of this water-bearing deposit does not change significantly from Arroyo Seco Road to the Arroyo Seco. The deposit thins out to about 220 feet thick towards Salinas River. Clay and sandy-clay material with thickness of approximately 80-250 feet underlie the



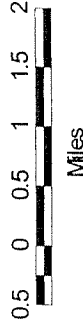
water-bearing deposit throughout the cross-section. A second layer of gravel deposit is present starting at depth of 400 feet below ground surface. In comparison, the S5-S5' cross-section in SVIGSM shows the aquifer layer 1 with thickness of 250-300 feet in the west, and thinning out to a thickness of 150-200 feet as it crosses the Salinas River. Although the clay deposit in SVIGSM, representing the aquitard underlying the layer 1, is not as thick as shown in cross-section 5-5', the aquifer layer 2 has approximately same thickness as that in cross-section 5-5' (50-200 feet). The cross-section 5-5' is not deep enough to show the third aquifer layer.

The data and information available from the 1994 Arroyo Seco Hydrogeologic Investigation indicates that the geologic stratification of the SVIGSM is reasonably representing the conceptual geology of the Arroyo Seco Cone area. In general, the thickness of the aquifer material in the SVIGSM is similar to those represented in the well log cross-sections. The aquitards may not be represented as thick as those shown in the well log cross-sections. However, the effect of this difference on subsurface flow is accounted for by adjusting the aquitard vertical permeability parameters in the model.

Figure 6

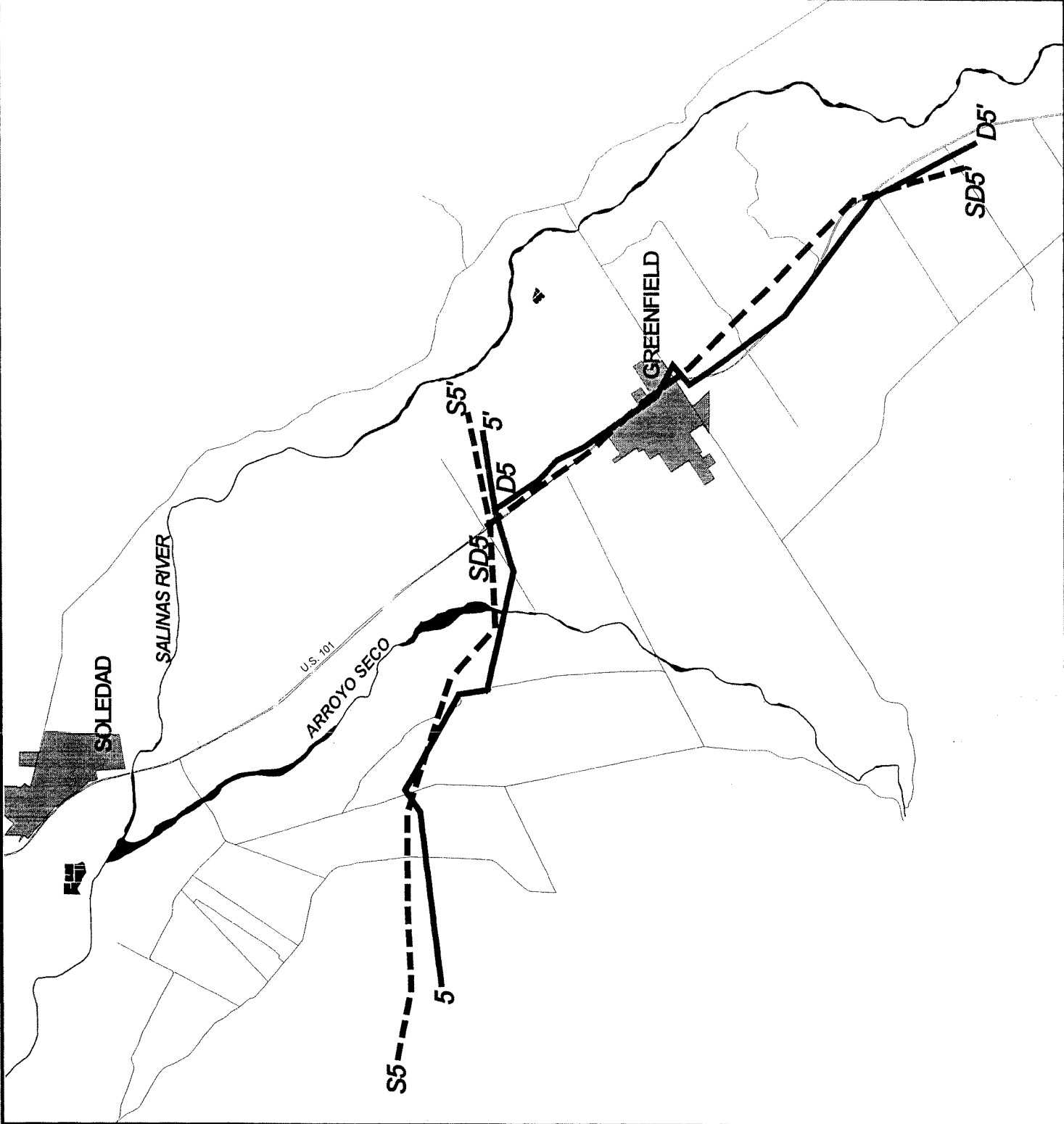
Comparison of Geographic Stratification Arroyo Seco Cone Area - Cross Section Locations

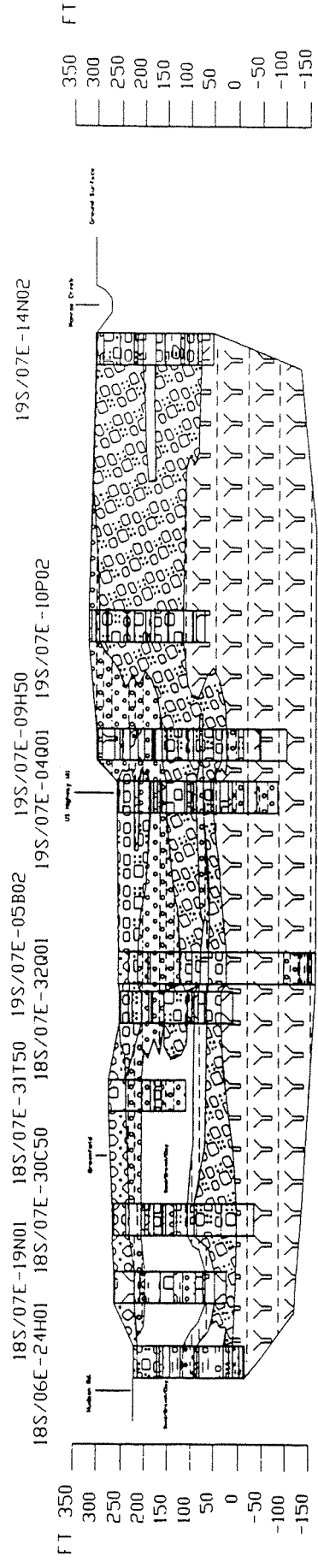
- Legend
- SVGSM Cross Section Lines
  - Staal et.al. Cross Section Lines
  - Major Roads
  - Cities
  - Water Channels & Bodies



Monterey County  
Water Resources Agency  
Source: SVGSM (August 1999)  
Staal et.al. (April 1994)

Note: The scale and configuration of all information shown herein are approximate and are not intended as a guide for design or survey work.





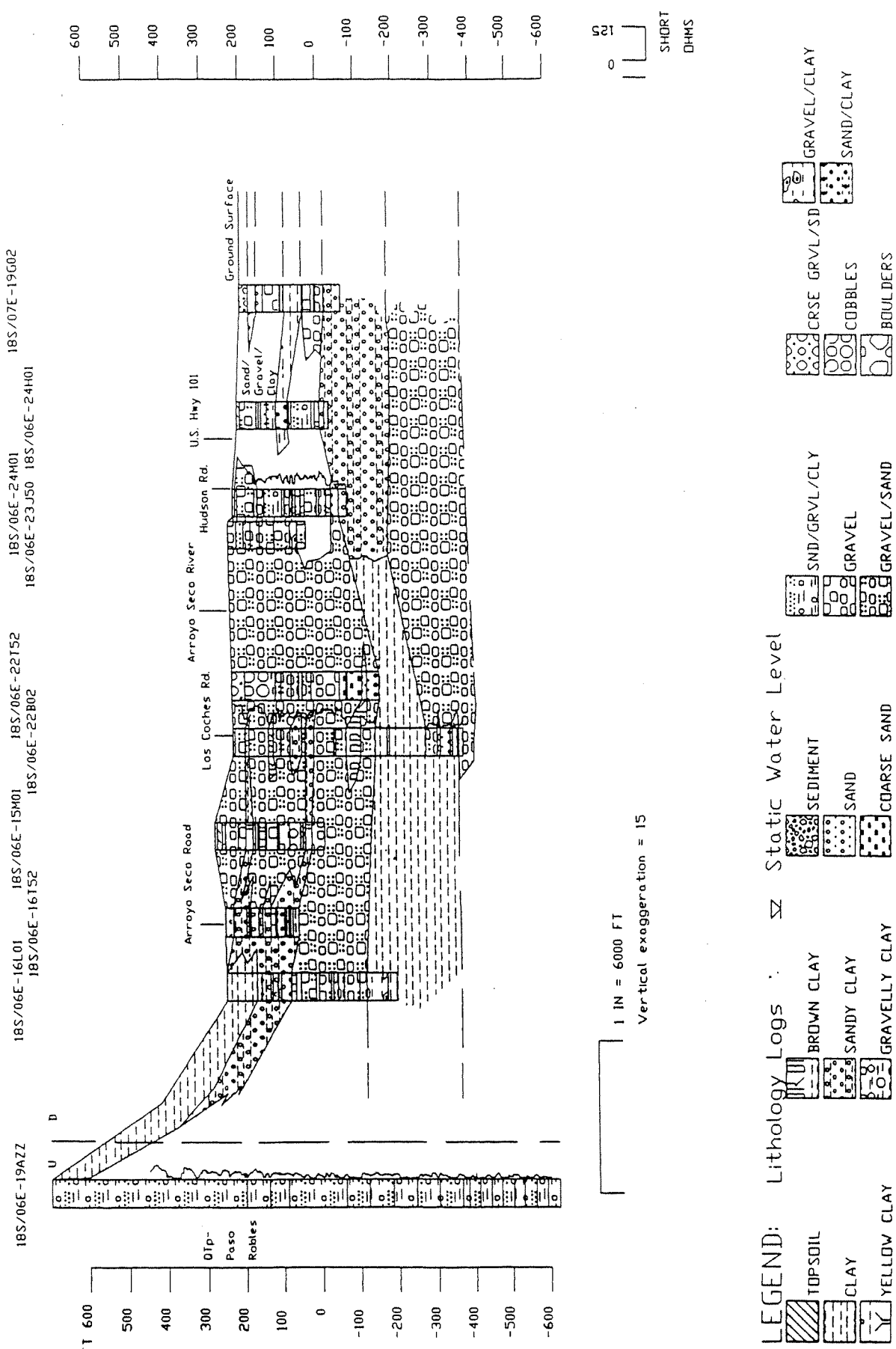
1 IN = 7000 FT  
 Vertical exaggeration = 20

- LEGEND: Lithology Logs**
- TOPSOIL
  - BLUE CLAY
  - CLAY
  - YELLOW CLAY
  - GRVEL/CLAY
  - SAND/CLAY

- Static Water Level**
- GRVELLY CLAY
  - SEDIMENT
  - SAND
  - SND/GRVL/CLY
  - GRAVEL
  - GRAVEL/SAND

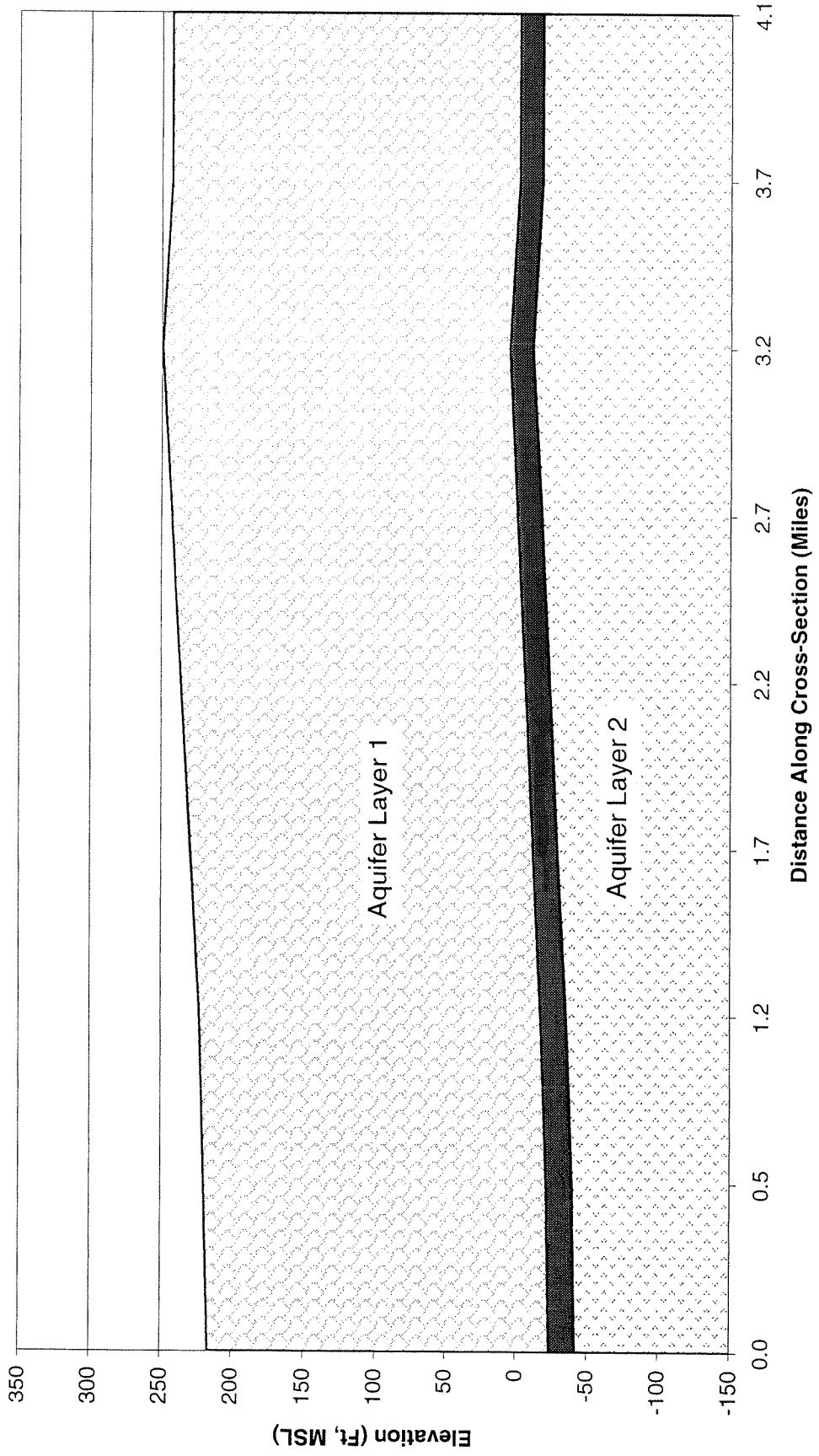
- CRSE GRVL/SD
- COBBLES
- BOULDERS

**Figure 7A**  
**HYDROGEOLOGIC CROSS-SECTION D5-D5'**

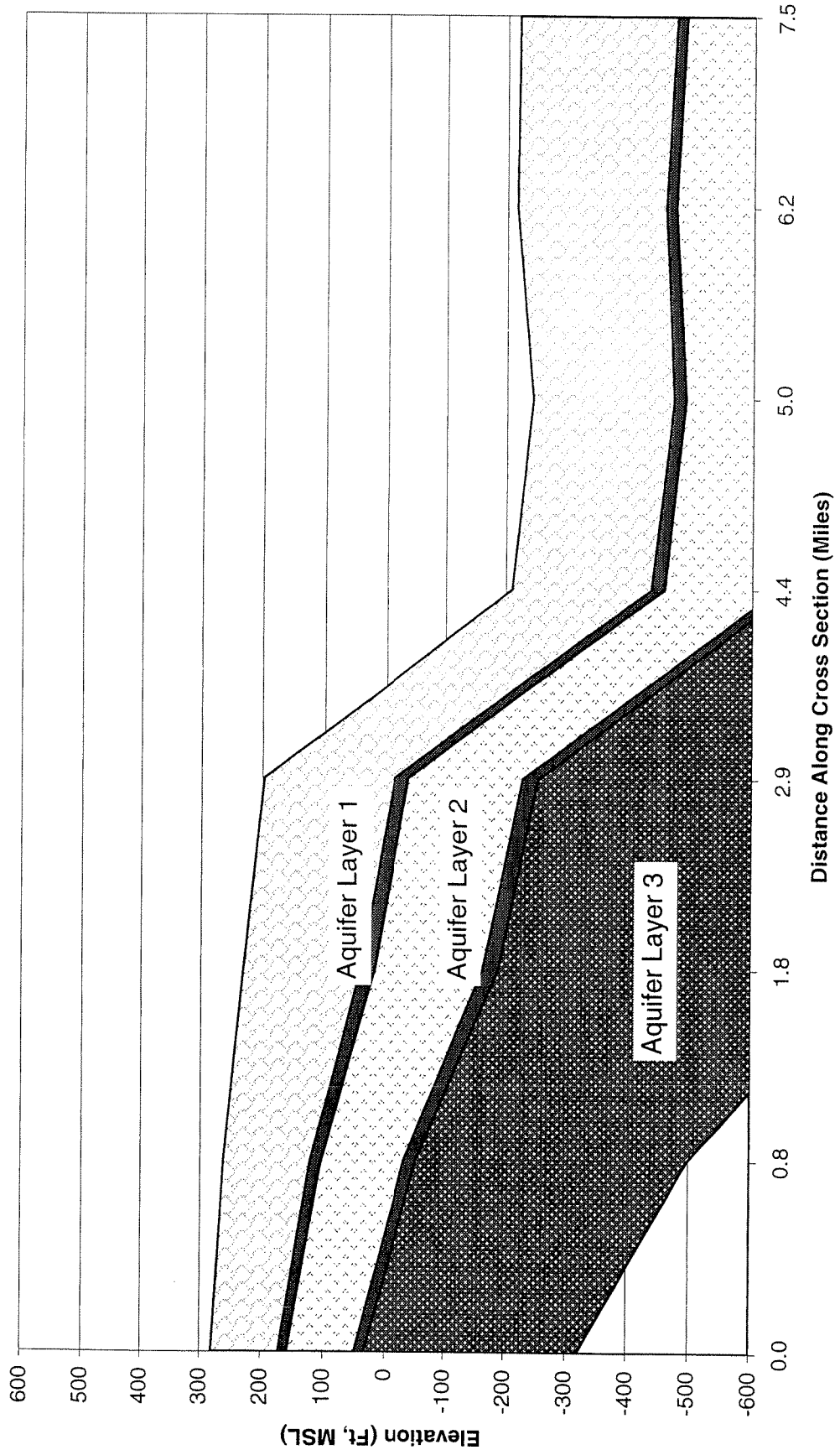


**Figure 7B**  
**HYDROGEOLOGIC CROSS-SECTION 5-5'**

**Figure 8A**  
**Arroyo Seco SVIGSM Update**  
**(Cross-Section SD5-SD5', North-South)**



**Figure 8B**  
**Arroyo Seco SVIGSM Update**  
**(Cross-Section S5-S5', West-East)**



### SVIGSM Re-calibration

As part of the HBA study, the SVIGSM was calibrated for the hydrologic period 1949 to 1994. The revised estimates of the streambed hydraulic conductivity of the Arroyo Seco were incorporated in the model. The streambed hydraulic conductivities (4-6 feet per day) was assigned to the stream nodes in descending order based on the streambed depositional environment. The model dynamically simulates the stream-aquifer interaction and corresponding recharge rates for the Arroyo Seco based on formulas that use the hydraulic conductivity and hydraulic gradient between stream stage and ground water levels on a daily basis. Due to changes in the Arroyo Seco recharge rate between the previous HBA efforts (April 1998) and this project, the SVIGSM aquifer hydraulic parameters were also modified in the Arroyo Seco Cone area to obtain a reasonable calibration result. The revised hydraulic parameters are presented in Table 3.

The model simulation results were compared against hydrograph of observed ground water level at the calibration wells. Appendix E shows the hydrograph for calibration wells 65 – 73 located in the Arroyo Seco Cone area.

In addition, to gain confidence in the model simulation results of the stream-aquifer interaction, a scatterplot of Salinas River simulated and observed gains are presented in Appendix E. These scatterplots are very similar to those presented in the April 1998 HBA report, and verify that the model calibration results are reasonable.

An analysis of model simulation results indicated that no significant changes were observed in the model calibration in other areas of the Valley. However, the changes in the Arroyo Seco recharge rate and model calibration have some impacts on the hydrologic benefits received in the Arroyo Seco Cone area that will be discussed in the next section

Parameter	Layer	April 1998 HBA			Present Study		
		Average	Minimum	Maximum	Average	Minimum	Maximum
Hydraulic Conductivity (Ft/Day)	1	200	90	280	80	40	100
	2	80	40	100	70	20	90
Transmissivity (GPD/Ft)	1	300,000	135,000	420,000	120,000	60,000	150,000
	2	120,000	60,000	150,000	105,000	30,000	135,000
Specific Yield	1	$2 \times 10^{-3}$	$2 \times 10^{-3}$	$2 \times 10^{-3}$	$2 \times 10^{-3}$	$2 \times 10^{-3}$	$2 \times 10^{-3}$
Storage Coefficient	2	$10 \times 10^{-6}$	$5 \times 10^{-6}$	$15 \times 10^{-6}$	$10 \times 10^{-6}$	$5 \times 10^{-6}$	$15 \times 10^{-6}$

### **Estimation of Hydrologic Benefits**

After recalibration of the model, the SVIGSM was used to perform the HBA analysis for the model simulations of the ground water conditions “with” and “without” reservoir operations during the historical period 1958-94. Table 4 shows the summary of the average annual changes in ground water levels in each Economic Study Unit (ESU). The values shown in Table 4 represent weighted average annual ground water levels. The weights used for averaging are both temporal (based on monthly irrigation patterns) and spatial (based on relative ground water pumping that occurs at each node). Given the non-uniform geographic distribution of ground water pumping in the Salinas Valley, this method of averaging represents a more realistic subarea-wide average. Based on this table, the average annual hydrologic benefits in the Arroyo Seco Cone area (ESU 8A) is approximately 5.5 Feet. This table also indicates that there are some minor changes in the level of benefits in the other ESUs outside the Arroyo Seco cone. These values ranged from -0.5 feet to 0.6 feet. However, no significant changes are observed in the ESUs upstream from the Arroyo Seco confluence with the Salinas River. Table 5 shows a comparison of the estimates of hydrologic benefits made in April 1998 and those based on this update and revised study. Note that the level of hydrologic benefits in the Arroyo Seco Cone area is approximately 0.4 feet less, with very small changes in other areas of the Valley.

Figures 9 and 10 present the average annual valley-wide water balance in the ground water aquifer during the 1958-94 hydrologic period, for the historical simulation scenario and that for the conditions with no upstream regulation (no reservoir case). These Figures indicate that the average annual deep percolation is approximately 219 TAF/Yr and the average annual recharge from streams is approximately 257 TAF/Yr (respectively, 2 TAF/Yr less and 2 TAF/Yr more than the April 1998 estimate). The historical rate of change in fresh ground water storage is estimated at -22 TAF/Yr (compared to -19 TAF/Yr in the April 1998 estimate) during the period of 1958-94, while the average annual rate of seawater intrusion is estimated at 11 TAF/Yr (similar to the April 1998 estimate). Under the no-reservoir conditions, the average annual change in fresh ground water storage is estimated at -43 TAF/Yr (compared to -45 TAF/Yr in the April 1998 estimate).

Figures 11 and 12 show similar water balance diagrams for each model subarea. A comparison of these figures and those presented in the April 1998 HBA report shows that the historical stream recharge in the Upper Valley and the Forebay area have been impacted by the refinements in the model. The average annual stream recharge in the Upper Valley is simulated to be 91 TAF/Yr (approximately 1 TAF/Yr less than the April 1998 report), while that in the Forebay area is 98 TAF/Yr (approximately 3 TAF/Yr more than the April 1998 report). The changes in the stream recharge under the no-reservoir conditions are also in the same order of magnitude as the historical.

In general, while the April 1998 report estimated that the rate of change in fresh ground water storage in the Forebay area was improved by 5 TAF/Yr as a result of the operation of reservoirs, the current study results in an 6 TAF/Yr improvement in the rate of change in the fresh ground water storage in the Forebay area.



Figure 13 shows the geographic distribution of the benefits throughout the Valley, based on the revised and updated study.

**Table 4**  
**SALINAS VALLEY HISTORICAL BENEFITS ANALYSIS**  
**REGIONAL GROUND WATER LEVELS BY HYDROLOGIC SUBAREA AND ECONOMIC STUDY UNITS**  
**WITH AND WITHOUT RESERVOIR SIMULATION**  
**(AVERAGE 1958-1994)**

Simulation	Economic Study Unit											Hydrologic Subarea					
	1	2	3	4	5	6	7	8A	8B	9	10	11	Pressure	East Side	Forebay	Upper Valley	
Ground Water Levels (ft, msl)																	
<b>With Reservoir</b>	-10.0	-10.4	-12.2	N/A	60.6	61.7	121.9	206.4	193.4	298.5	437.9	N/A	15.4	18.5	168.2	327.7	
<b>Without Reservoir</b>	-14.6	-24.7	-29.2	N/A	33.2	38.0	105.1	200.9	187.5	289.1	435.6	N/A	-1.3	0.4	158.0	319.8	
<b>Difference (ft)</b>	4.6	14.3	17.0	N/A	27.4	23.7	16.8	5.5	5.9	9.4	2.3	N/A	16.7	18.1	10.2	7.9	

**Table 5**  
**Impact of Historical Operations of Reservoirs on Ground Water Levels**  
**(Average Annual for 1958-94)**  
**Increase in Regional Average Annual Ground Water Levels**  
**with and Without Reservoirs (feet)**

April 1998 vs. December 1999 SVIGSM/HBA

ESU	Average Increase SVIGSM/HBA April 1998	Average Increase SVIGSM/HBA December 1999	Difference (Additional Benefits)*	Geographic Area
1	4.5	4.6	0.1	Pressure North
2	14.2	14.3	0.1	Eastside Central
3	16.9	17.0	0.1	Pressure Central
4	N/A	N/A	N/A	Fort Ord/Torro
5	26.9	27.4	0.5	Pressure South/Forebay North
6	23.3	23.7	0.4	Eastside South/Forebay North
7	16.0	16.8	0.8	Forebay Central
8A	5.9	5.5	-0.4	Arroyo Seco Cone
8B	6.4	5.9	-0.5	Forebay South/Upper Valley North
9	9.7	9.4	-0.3	Upper Valley Central
10	2.3	2.3	0.0	Upper Valley South
11	N/A	N/A	N/A	Eastside/North County

\*Notes:

"+" benefits means ESU average annual rise in ground water levels was greater in the December 1999 modeling analysis.

"-" benefits means ESU average annual rise in ground water levels was less in the December 1999 modeling analysis.

Figure 9

**Average Annual Ground Water Balance for the Salinas Valley  
Water Years 1958-1994  
Historical Simulation**  
(Values Rounded to Nearest Thousands of Acre-Feet)

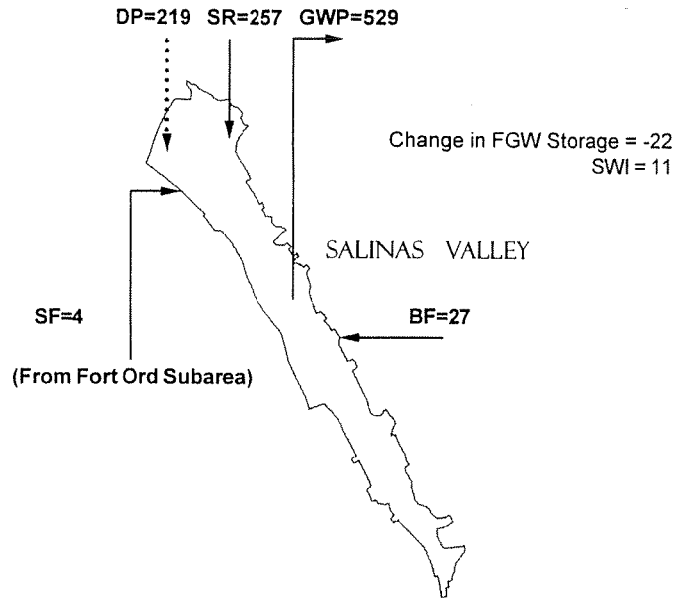
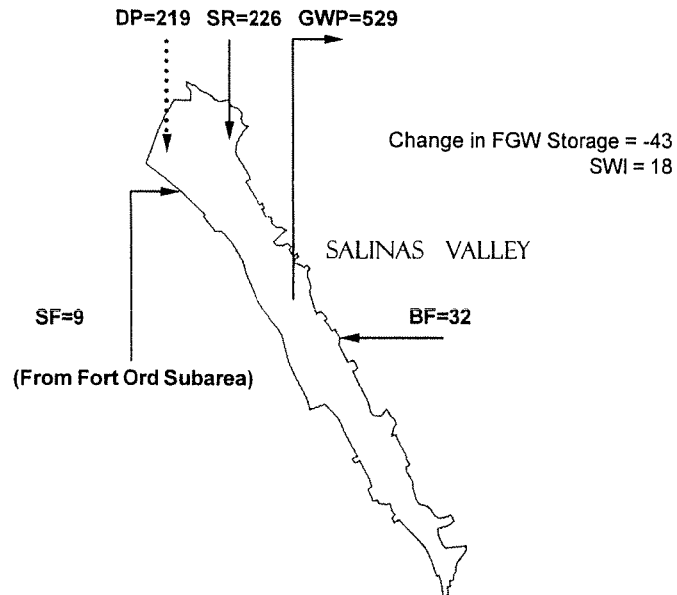


Figure 10

**Average Annual Ground Water Balance for the Salinas Valley  
Water Years 1958-1994  
Without Reservoir Simulation**  
(Values Rounded to Nearest Thousands of Acre-Feet)

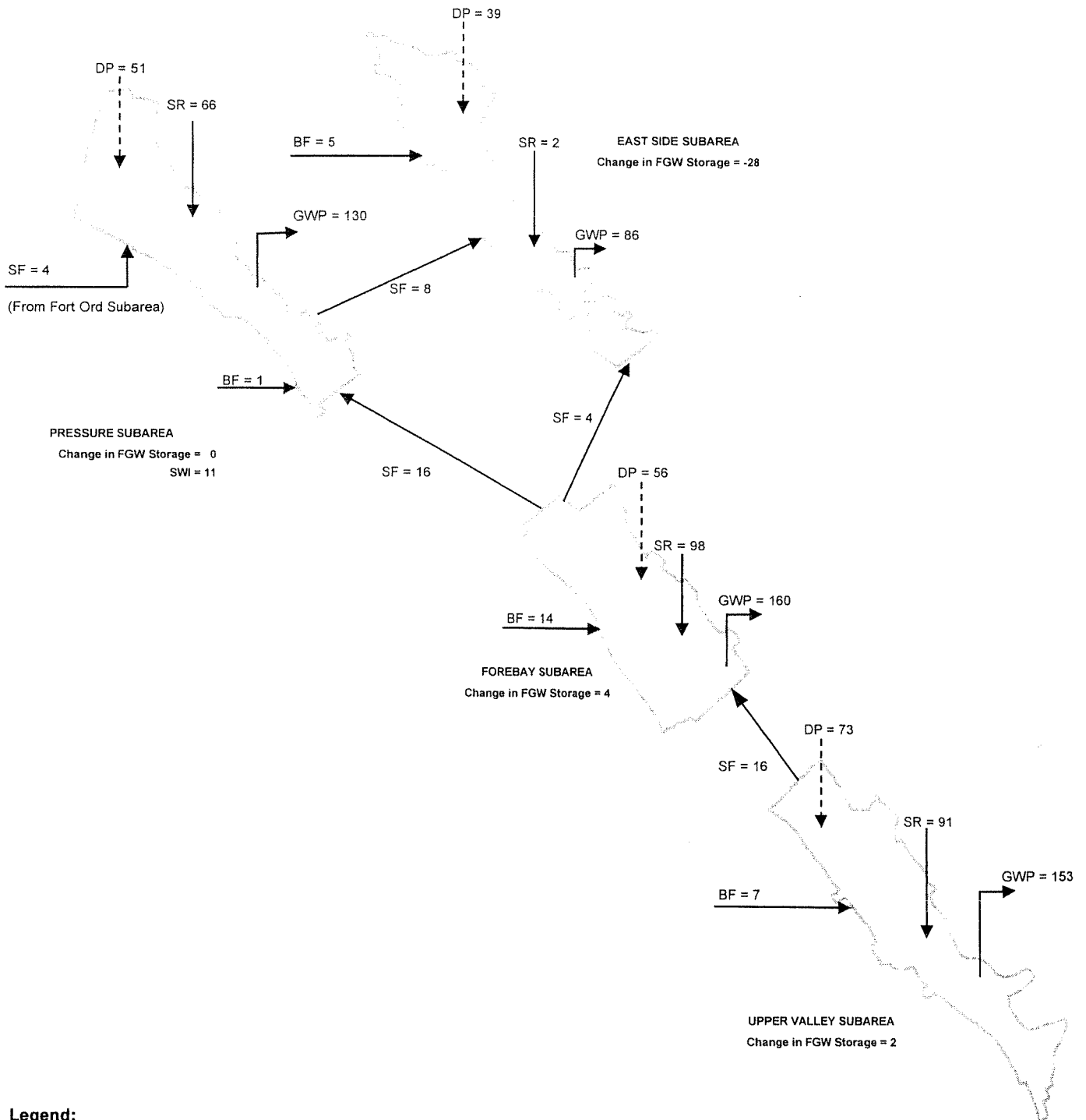


**Legend:**

FGW	Fresh Ground Water	GWP	Ground Water Pumping
BF	Boundary Flow	SF	Subsurface Flow
DP	Deep Percolation from Rain and Applied Water	SWI	Seawater Intrusion
SR	Stream Recharge		

Figure 11

Average Annual Ground Water Balance by Subarea  
 Water Years 1958-1994  
 Historical Simulation  
 (Values Rounded to Nearest Thousands of Acre-Feet)

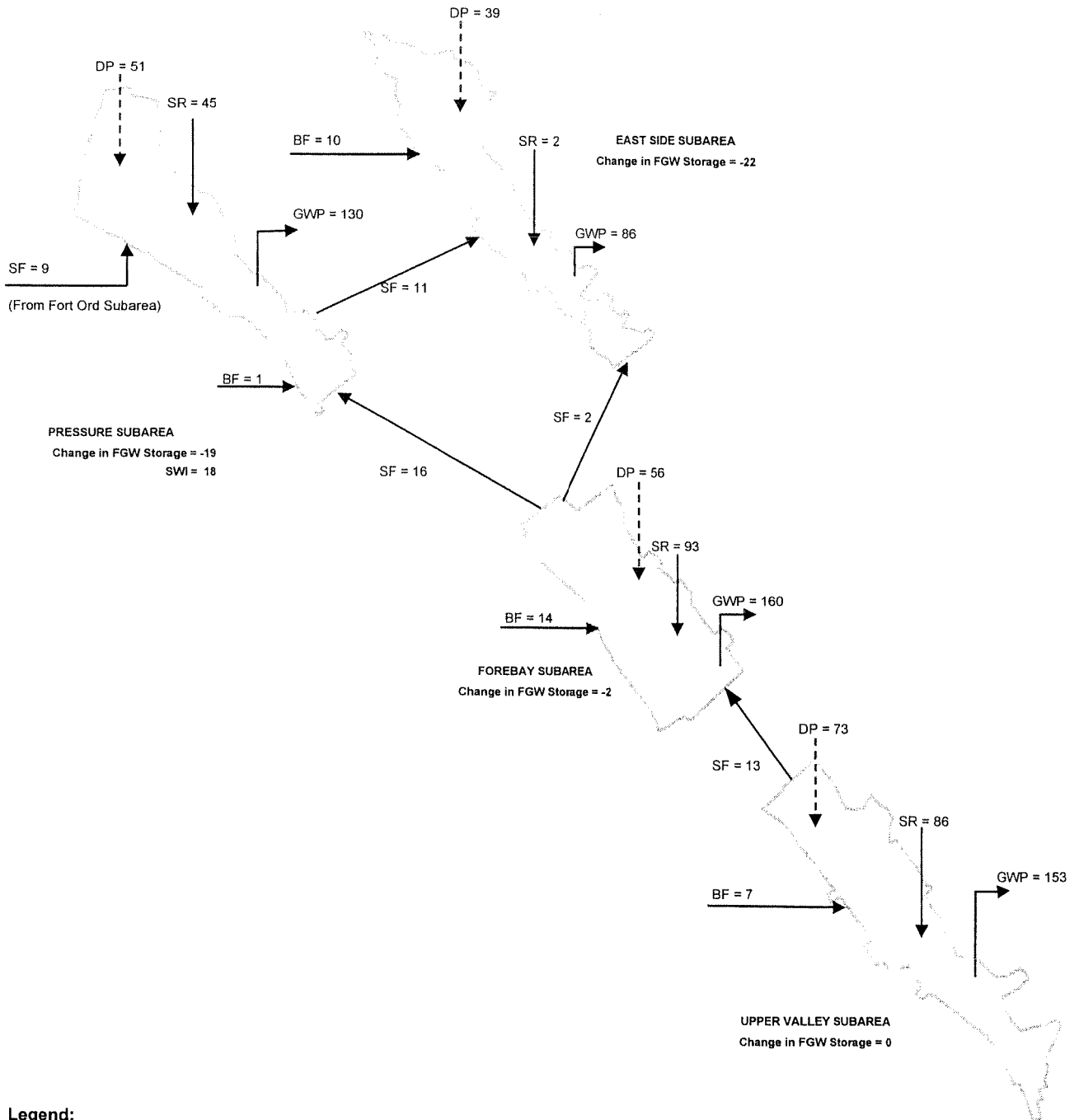


Legend:

FGW	Fresh Ground Water	GWP	Ground Water Pumping
BF	Boundary Flow	SF	Subsurface Flow
DP	Deep Percolation from Rain and Applied Water	SWI	Seawater Intrusion
SR	Stream Recharge		

Figure 12

**Average Annual Ground Water Balance by Subarea  
Water Years 1958-1994  
Without Reservoir Simulation  
(Values Rounded to Nearest Thousands of Acre-Feet)**



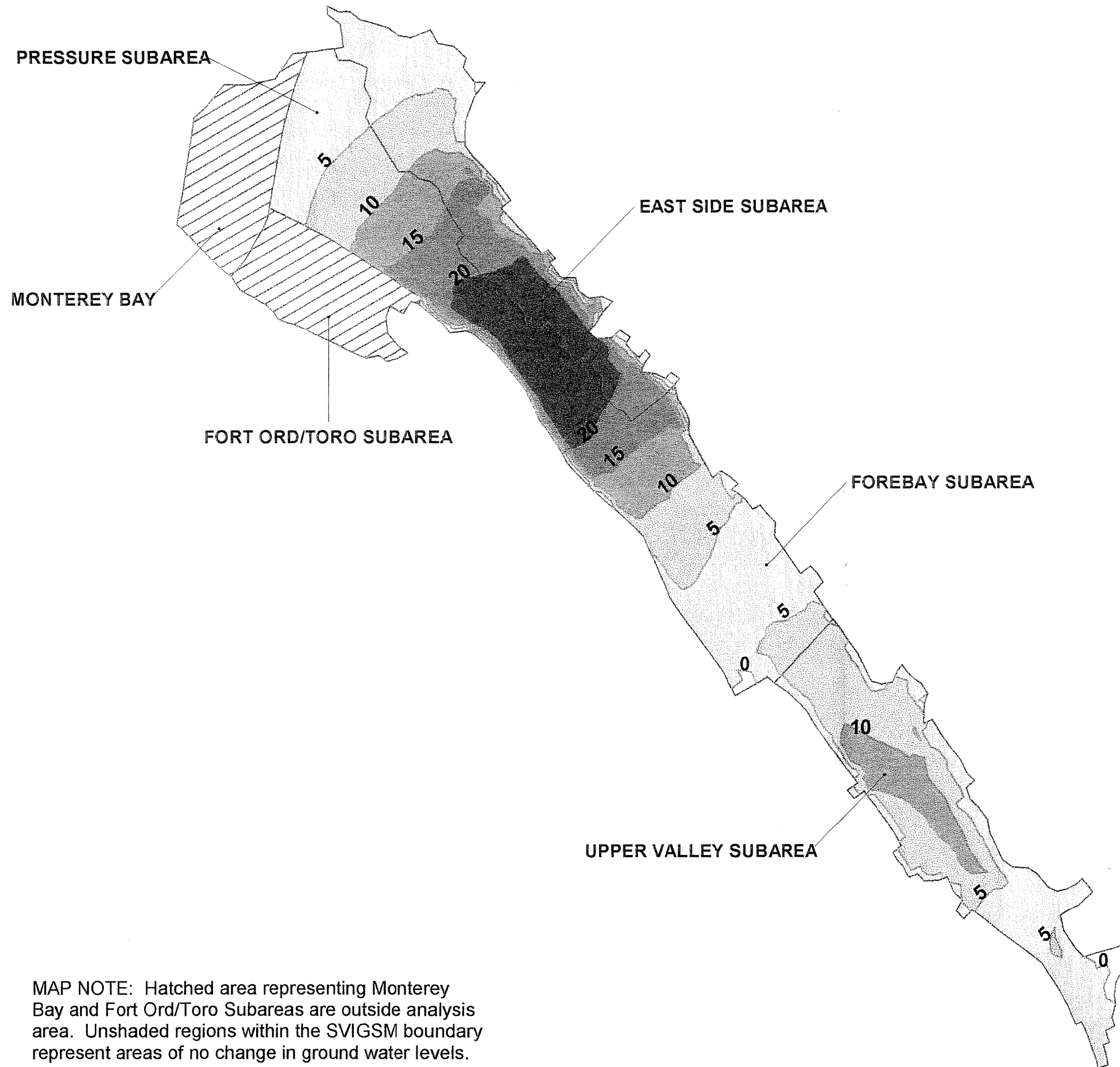
**Legend:**

FGW	Fresh Ground Water	GWP	Ground Water Pumping
BF	Boundary Flow	SF	Subsurface Flow
DP	Deep Percolation from Rain and Applied Water	SWI	Seawater Intrusion
SR	Stream Recharge		

FIGURE 13

# Salinas Valley Historical Benefits Analysis Update: December 1999

Average Annual Increase in Ground Water Levels, Historical vs. Without Reservoirs Simulation (1958 - 1994)



### LEGEND

Ground Water Difference Contours

Subarea Boundaries

>0.0 - 4.9

5.0 - 9.9

10.0 - 14.9

15.0 - 19.9

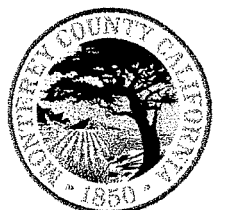
20.0 - 24.2



Miles

MAP NOTE: Hatched area representing Monterey Bay and Fort Ord/Toro Subareas are outside analysis area. Unshaded regions within the SVIGSM boundary represent areas of no change in ground water levels.

**Monterey County  
Water Resources Agency**



Source: SVIGSM, December 1999

Note: The scale and configuration of all information shown hereon are approximate and are not intended as a guide for design or survey work.

## **Section 4- Scope and Limitations of SVIGSM Application**

The IGSM is a comprehensive hydrologic model that simulates the various components of the hydrologic cycle and their interaction.

The IGSM is generally used for water supply planning purposes to investigate various water demands and supply options in a complex river basin. Compared to other similar models, the IGSM is considered a state-of-the-art model, in both theory and application. The IGSM has been in the forefront of numerical tools to assist in planning and management of river basins in California. The IGSM has been used for analysis of surface water and ground water supply and conjunctive use planning in basins ranging from 50 to 20,000 square miles.

The Salinas Valley application of the IGSM, the SVIGSM, was developed in 1993 for purposes of basin planning and management in Salinas Valley. The model was originally developed as an integrated hydrologic model of the Valley and calibrated for the period 1970-90. Subsequently, a reservoir operation module was added to the code and the hydrologic database was extended to include 1949 to 94. The SVIGSM has been applied to the following projects:

1. Salinas Valley Basin Management Plan (BMP), Water Supply Analysis;
2. Castroville Seawater Intrusion Project;
3. Salinas Valley BMP Alternatives Analysis;
4. Salinas Valley BMP Facilities Requirements and Sizing;
5. Analysis of Operation of Nacimiento and San Antonio Reservoirs;
6. Analysis of Re-operation of the Reservoirs;
7. Hydrologic Investigation of Historical Benefits Analysis (HBA);
8. Analysis of Agricultural Pumping Estimation in the Valley;
9. Analysis of Ground Water Monitoring Program in the Valley; and
10. Salinas Valley Water Project (SVWP), EIR.

In simple terms, the goal of SVIGSM, and generally any numerical model, is to simulate the complex hydrologic processes and their inter-relationship through the solution of a series of mathematical formulas. The degree and accuracy that these mathematical formulae represent the complex hydrologic processes depend on a number of factors, including:

- Nature and complexity of the hydrologic process,
- Accuracy of observations and records that are utilized to develop the model theory,
- Range of parameters selected, and
- Accuracy of calibration of the formula to the observed record.



For example, the accuracy of a simple regression model depends on (i) goodness of fit ( $R^2$ ) to the data, (ii) order of regression equation (e.g., linear or second degree), (iii) range that the equation is valid for, and (iv) accuracy and reasonableness of the parameters.

In the case of a complex hydrologic model, generally, multi-degree and multi-order differential equations are used to represent the hydrologic process. In simple terms, these equations are combined to represent the inter-relationship of the processes.

The accuracy of the SVIGSM depends on the accuracy of calibration and host of data and parameters used in the model. These include, but are not limited to the following:

- Accuracy of the streamflow and ground water level observed records.
- Accuracy and consistency in other climatological and hydrologic data, such as evaporation and evapotranspiration, and rainfall data;
- Estimates of land use and crop mix acreage;
- Estimates of ground water pumping and distribution;
- Consistency between the land use and crop mix data and water use estimates;
- Estimates of geologic stratification and hydrogeologic parameters;
- Estimates of boundary conditions used in the model; and
- Accuracy and consistency in the reservoir operation data.

The daily surface water simulation capabilities of the SVIGSM have been calibrated to a set of observed daily streamflow data from various gaging stations in the Valley. The ground water simulation capabilities are calibrated against a set of observed ground water level data from a number of wells selected throughout the Valley. The results of the latest calibration, prior to the minor re-calibration performed in this project, are published in Appendix A of the April 1998 HBA final report.

Based on the calibration results, the model has been approved by the technical advisors and representatives of Salinas Valley stakeholders who participated in the IGSM Technical Workshops held during 1997 and 1998. Participants determined the model was suitable for use as a regional planning numerical tool to assess the regional impacts of the historical operations of the reservoirs on the downstream surface water and ground water conditions. During the Workshops, it was also agreed that the SVIGSM would be suitable for selecting the best alternative project for halting seawater intrusion, balancing the basin and meeting future water demand.

Although, the model simulates the ground water flow conditions at each of the finite elements, the scale of some of the input data, such as land use and ground water pumping is at the regional or subarea level. This limits the accuracy of the model simulations when used in geographic areas that are substantially smaller than the hydrologic subarea. In general, the model accuracy diminishes as the geographic boundary of the analysis area gets smaller.

In order to evaluate these impacts in more detail geographic areas than the model subareas, the major hydrologic subareas of Pressure, East Side, Forebay and Upper Valley were further broken down into smaller sub-units, called Economic Study Units (ESU). Although these sub-units were called ESUs, a major factor in delineation of the extent of ESU boundaries was the range and distribution of the hydrologic benefits as estimated from changes in average annual ground water levels. Subsequently, in order to determine landmarks for the boundaries of ESUs, the boundaries were adjusted from the SVIGSM finite elements to physical features on land, such as roads, ditches, and creeks.

Therefore, in order to prevent violation of the accuracy of the model, it was suggested and agreed upon in the SVIGSM Workshops, that the level of accuracy of HBA analysis would be limited to the summary tables presented for each ESU.

The accuracy in the contour maps prepared to represent the impact of reservoir operations on changes in ground water level also is dependent on the accuracy of the model results. Since there are inherent errors built into both the model simulations and observed records, the accuracy of the model has generally been reported as  $\pm 5$  feet throughout the Valley. The scale of this accuracy is different in various subareas. Figures 14a through 14d show a statistical breakdown of the residual ground water levels by subarea and by aquifer layer. The distributions of residual ground water levels show the percentage of residuals within the specified ranges. A higher percentage of residuals near zero, and a more centered the distribution around zero, indicates a better simulation of historical conditions.

Based on these statistical breakdowns, model performance in each subarea can be summarized as follows:

**Pressure Subarea-** The majority of the simulated ground water levels lie within  $\pm 10$  feet of observed values. Approximately 56 percent of the residuals lie within  $\pm 5$  feet, and 78 percent of the residuals lie within  $\pm 10$  feet. In general, the distributions for the 180-foot Aquifer, the 400-foot Aquifer, and the total Pressure Subarea appear bell-shaped and centered around the zero point. The distribution for the Deep Aquifer shows somewhat more spread. This distribution may be skewed by the limited number of wells and the limited number of data points for each well in the Deep Aquifer. Pumping and data collection from the Deep Aquifer began in the mid-1980s.

**East Side Subarea-** Distributions of the residuals in the East Side Subarea show that 33 percent of the simulated ground water levels lie within  $\pm 5$  feet of observed levels, and 54 percent lie within  $\pm 10$  feet. For similar reasons described in the SVIGSM Update Report, these distributions show more spread than in other subareas. In general, the model was calibrated to reasonable agreement with regional trends in ground water levels and as many of the calibration wells as possible. The distributions tend to be centered around the zero point, with the exception of the East Side Shallow Aquifer, which may be skewed by the relatively small number of calibration wells.

**Forebay Subarea-** The distribution of residuals, as well as the calibration hydrographs, show good calibration between simulated and observed ground water levels. Overall, 60 percent of

the residuals are in the  $\pm 5$  feet range, and 84 percent are in the  $\pm 10$  feet range. The distributions appear to be normal-shaped and are centered slightly (less than 5 feet) higher than the zero point.

**Upper Valley Subarea.** Simulated ground water levels tend to match observed values fairly well in the Upper Valley. As the residual distribution shows, the majority of the residuals are in the  $\pm 5$  feet range. Specifically, 80 percent of the residuals are within the  $\pm 5$  feet range, and 91 percent are within the  $\pm 10$  feet range. The distribution is normal-shaped and is centered around the zero point.

Although the statistical accuracy of the model is different in each subarea, based on the error histograms presented, a valley-wide level of accuracy of  $\pm 5$  feet is generally acceptable. The final HBA ground water impact contours are thus presented with a 5-foot interval to honor the accuracy of the analysis. Study of the historical benefits at a more detail level may violate the accuracy of the analysis.



**Figure 14-B**

**Distribution of Residual Ground Water Levels**

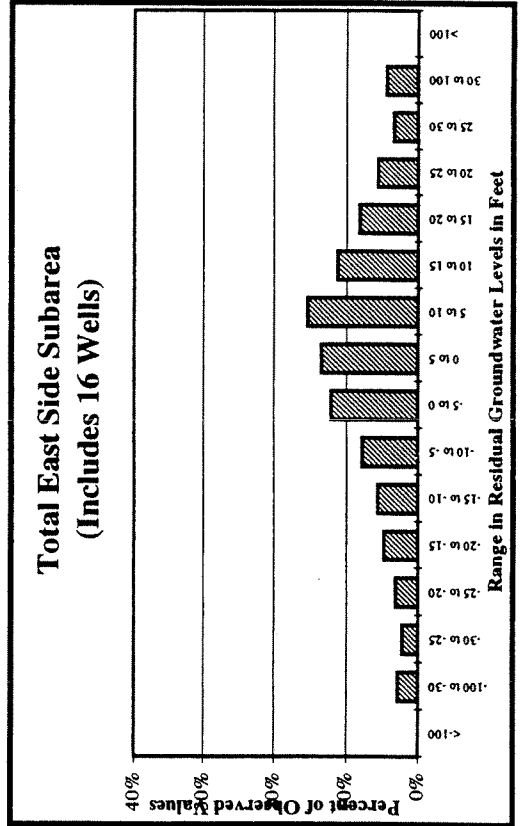
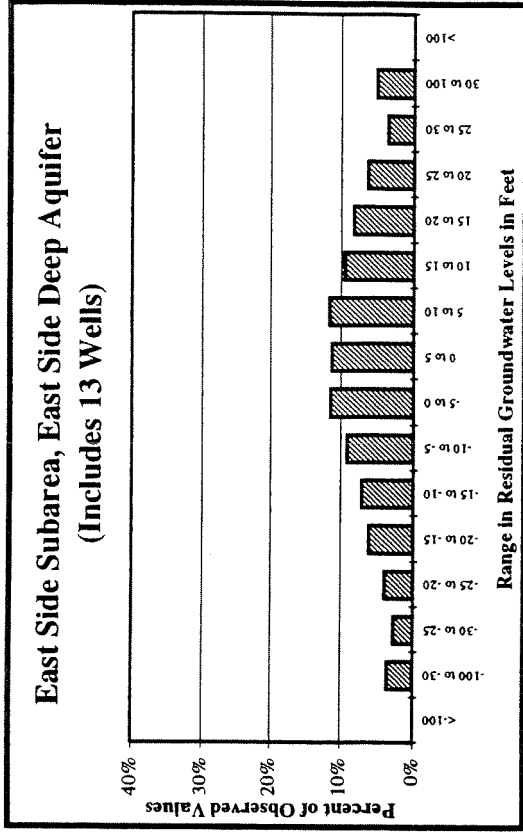
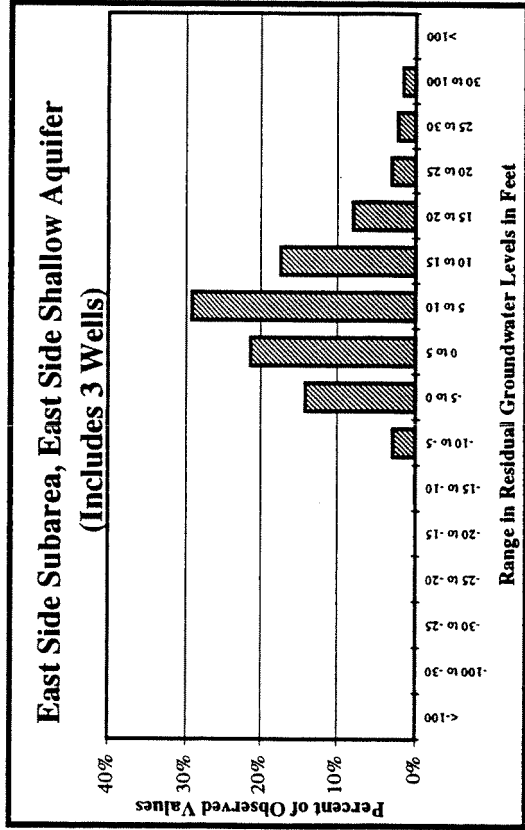


Figure 14-C

Distribution of Residual Ground Water Levels

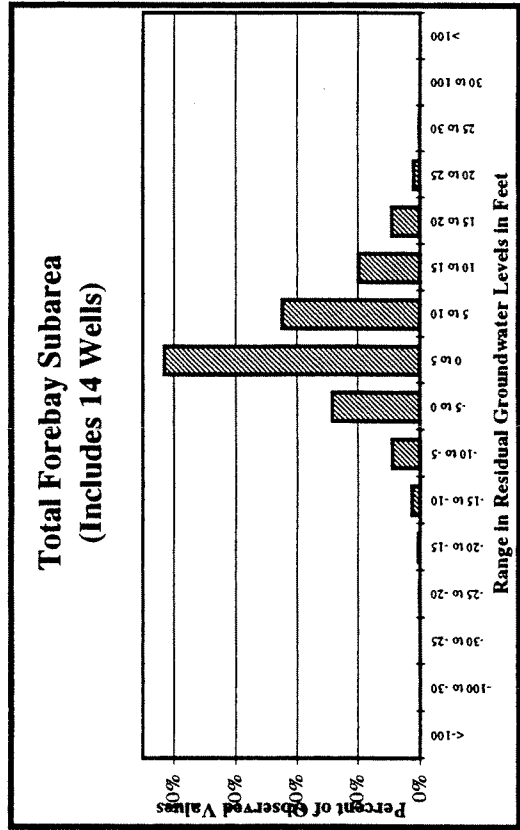
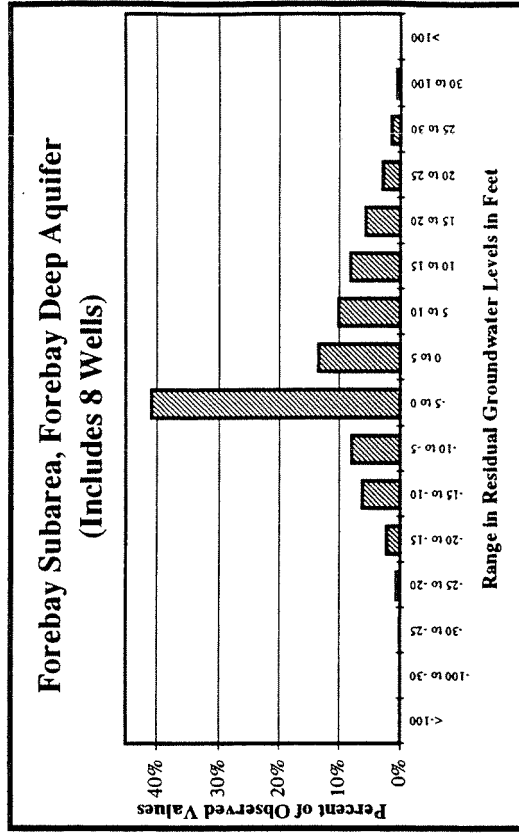
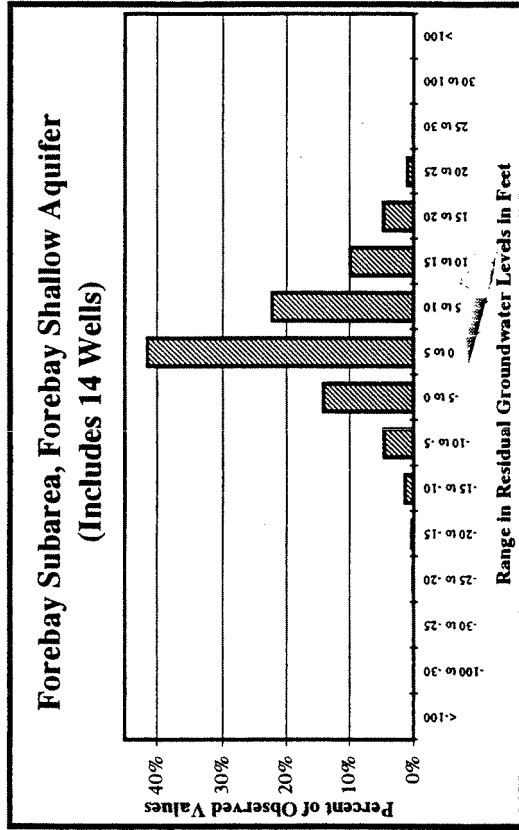
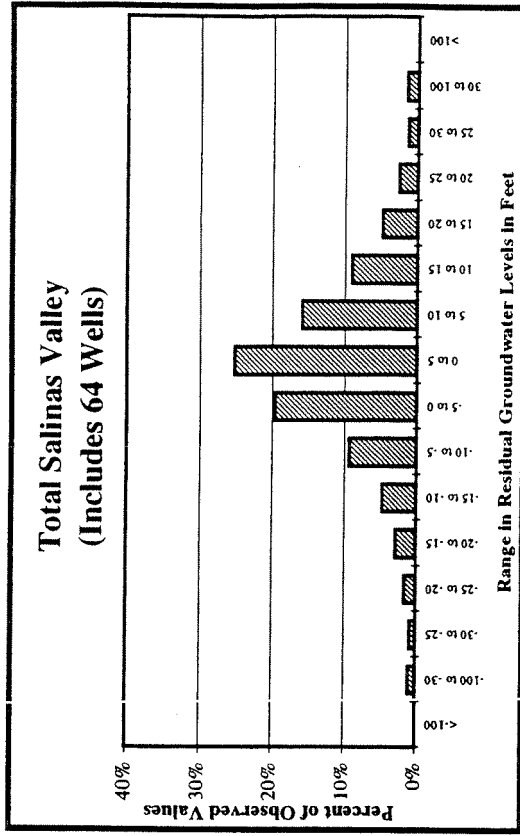
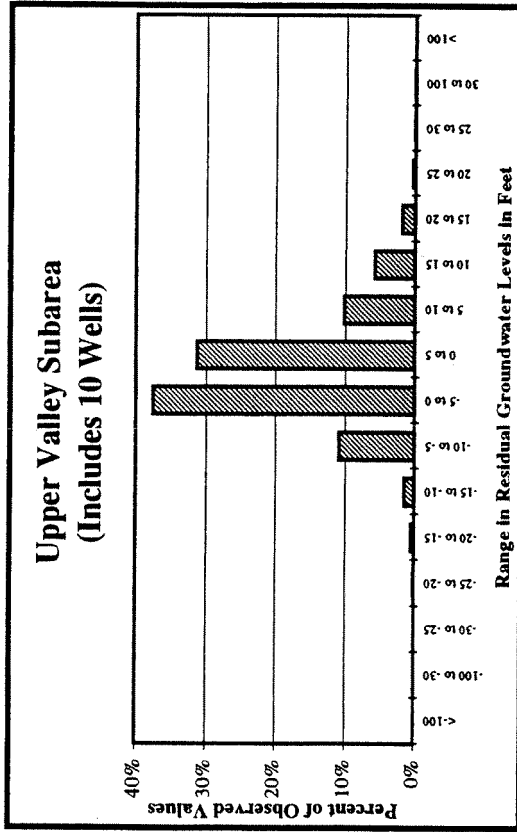


Figure 14-D

Distribution of Residual Ground Water Levels



## **Section 5- Summary**

The purpose of this project was to re-evaluate the recharge rate from the Arroyo Seco channel, and update the hydrologic investigation of the Historical Benefits Analysis (HBA) for the Arroyo Seco Cone area. The project included the development of a rainfall runoff model for the Reliz Creek watershed to estimate the runoff contributions from the Reliz Creek to the Arroyo Seco. This runoff contribution affects the estimate of the rate of Arroyo Seco recharge to the ground water basin. Based on a mass balance approach, it is concluded that the Arroyo Seco maximum recharge rate is 330 CFS per day under stable, equilibrium conditions. The corresponding hydraulic conductivity of the Arroyo Seco channel bed is approximately 4-6 feet per day.

The SVIGSM parameter data is updated based for the new estimates of the Arroyo Seco streambed parameters. Subsequently, the aquifer hydraulic parameters in the Arroyo Seco Cone area are appropriately adjusted to ensure that the model calibration is valid. The model calibration is verified by evaluating the simulated ground water levels against the observed ground water levels at the model calibration wells in the Arroyo Seco Cone area. Note that the new streambed hydraulic parameters used for the Arroyo Seco represent the extreme conditions, and the aquifer hydraulic parameters in the Cone area are adjusted to calibrate the model to such high recharge conditions. While the aquifer hydraulic parameters in the Cone area represent local hydrogeologic conditions, the parameters in other areas, including those upstream of the Cone area represent regional hydraulic conditions. This has caused the model calibration results to be somewhat less accurate relative to the previous version of the model calibration. However, the simulation results are still within the acceptable range of model errors, and can be used for the future HBA and other regional analyses.

In addition to the estimation of Reliz watershed daily runoff and estimation of Arroyo Seco recharge rate, to ensure that the model geologic stratification represents the latest published data, a comparison of two model cross-sections is made with two corresponding cross-sections from the Arroyo Seco Cone Hydrogeologic Investigation report prepared for the MCWRA in April 1994. The results show that the model geological stratification represents the regional conditions reasonably well.

The hydrologic investigation of the HBA is revised, based on the changes to the SVIGSM. The revised analysis shows that the long-term average annual hydrologic benefits to the Arroyo Seco Cone area due to the historical operations of the reservoirs, is approximately 5.5 feet of higher ground water levels. This hydrologic benefit is approximately 0.4 feet less than the estimate made in April 1998. Figure 13 shows the distribution of the benefits within the Valley. The hydrologic benefits to other parts of the Valley are not substantially affected by the revisions to the analysis.



## **Appendix A**

### **MCWRA data collection on Reliz Watershed**

This appendix includes the supporting material for the Arroyo Seco permeability investigation, prepared by Mr. Dennis Lebow of MCWRA, and submitted on May 23, 1998 for use in this project.

Date: May 23, 1998

Montgomery Watson  
Attn.: Ali Taghavi  
777 Campus Commons Rd., Suite 250  
Sacramento, Ca. 95825-8308

Subject: Hydrogeologic data for the Arroyo Seco area.

Dear Mr. Taghavi:

Enclosed are supporting materials for the Arroyo Seco permeability investigation:

1. A table displaying peak discharges, mean daily discharges, mean daily vs. peak discharges, and mean discharge per square mile of watershed area for Reliz Creek and three other watersheds.
2. A graph displaying the estimated correlation between the Arroyo Seco mean daily flows and Reliz Creek mean daily flows.
3. Peak discharge estimate on Reliz creek for the storm of February 3, 1998.
4. Pictures displaying the reach of Reliz creek used to estimate peak flow for February 3, 1998.
5. Preliminary USGS discharge data for the Arroyo Seco near Soledad and the Arroyo Seco below Reliz.
6. Manual discharge measurements made on Reliz creek and Arroyo Seco river on 04/22/98 and 05/05/98.
7. For a non-related matter, also enclosed are the 1995 and 1996 ground water extraction data reports.

If you have any questions or need any additional information, please feel free to call me at (408) 755-8912.

Sincerely,

Dave Diller  
Hydrographer

Enclosures: 10 pages, 2 reports, 2 pictures

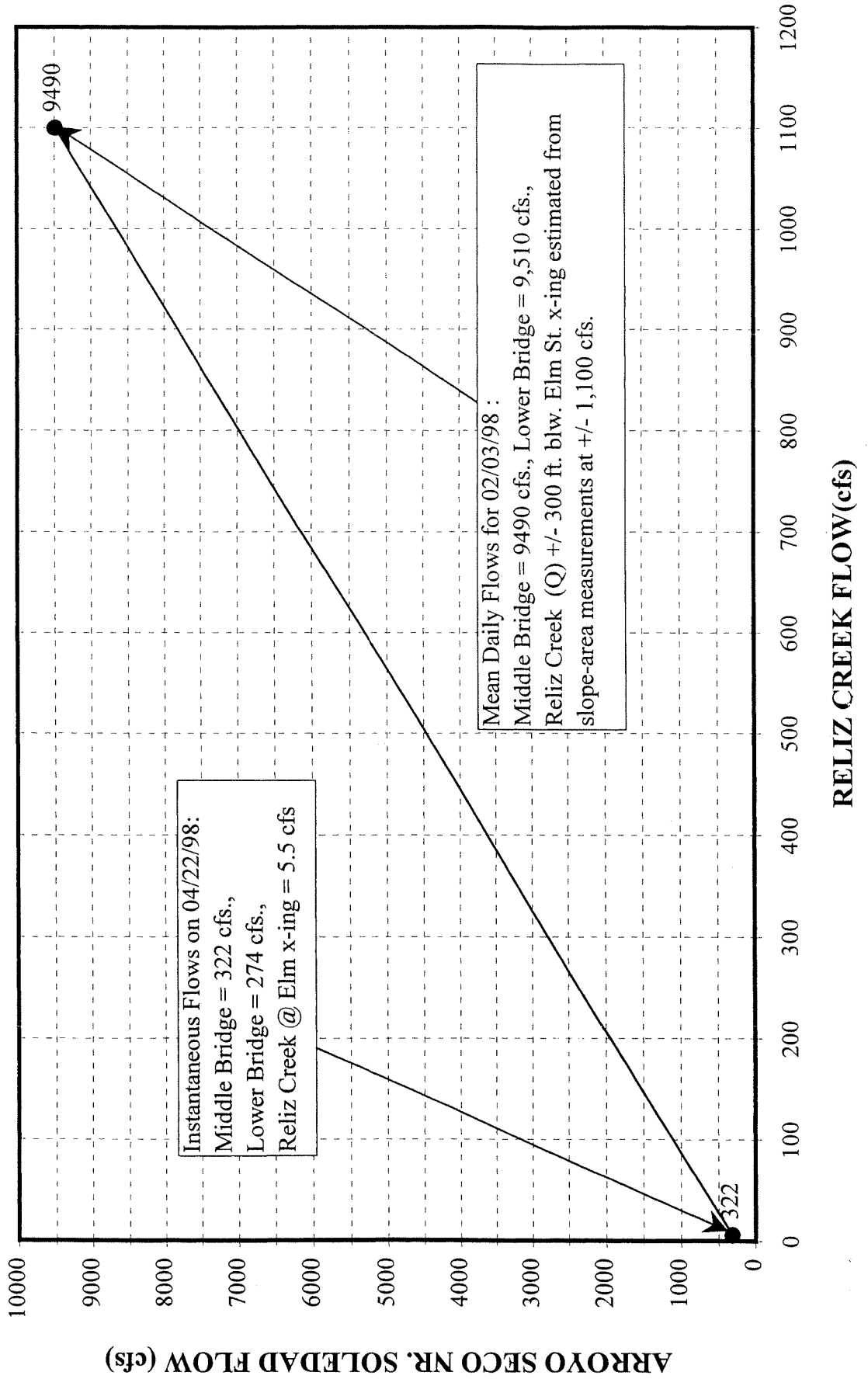
**ARROYO SECO PERMEABILITY INVESTIGATION**

LOCATION	DATE	PEAK DISCHARGE	MEAN DAILY DISCHARGE	MEAN DAILY VS PEAK DISCHARGE RATIO	WATERSHED AREA (SQ. MI.)	MEAN DISCHARGE PER (SQ. MI.)	REMARKS	LOCATION	DATE	INSTANTANEOUS DISCHARGE
ARROYO SECO NR. SOLEDAD	02/03/98	17300	9490	0.55	244	38.9	DATA PROVIDED BY THE USGS	ARROYO SECO NR. SOLEDAD	04/22/98	322.0
ARROYO SECO b/w. RELIZ	02/03/98	22000	9510	0.43	304	31.3	DATA PROVIDED BY THE USGS	ARROYO SECO b/w. RELIZ	04/22/98	274.0
RELIZ CREEK +/- 300 FT. BLW. ELM ST. x-ing	02/03/98	1842	1100**	0.60	23.5	46.8	MCWRA DETERMINED PEAK DISCHARGE BY SLOPE/AREA METHOD	RELIZ CREEK +/- 300 FT. BLW. ELM ST. x-ing	04/22/98	5.5
Big Sur nr. Big Sur	02/03/98	6426	3756	0.58	46.5	80.8	DATA PROVIDED BY THE USGS			

\*Note: All flows/discharges are in cubic feet per second.

\*\*Mean daily discharge estimate based on synthesized hydrograph using Big Sur River at Big Sur

# ARROYO SECO nr. SOLEDAD VS. RELIZ CREEK MEAN DAILY AND INSTANTANEOUS FLOWS

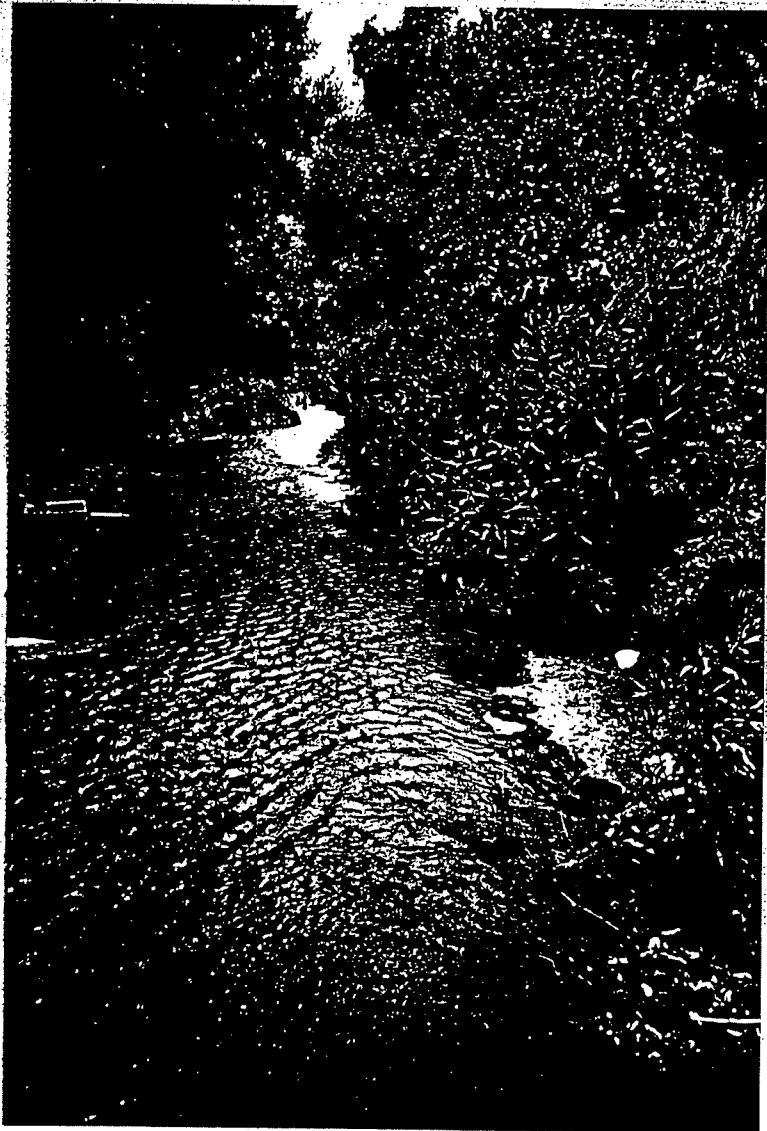


**RELIZ CREEK X-SECTION #4  
+/- 300 FT. BLW. ELM ST. X-ING**

High water marks are confident within +/- 0.5 ft.

$\frac{XS}{Area}$	193
n	0.039
Slope	0.0083
Pw	42.5

**Q (CFS) 1842 +/- 20% ERROR**



## 11152000 ARROYO SECO NEAR SOLEDAD, CA

LOCATION.—Lat 36°16'50", long 121°19'18", in SW 1/4 NE 1/4 sec.16, T.19 S., R.6 E., Monterey County, Hydrologic Unit 18060005, on right bank under county road bridge, 1.5 mi downstream from Vaquero Creek, and 10 mi south of Soledad.

DRAINAGE AREA.—244 mi<sup>2</sup>.

PERIOD OF RECORD.—November 1901 to current year. Records for water year 1902 incomplete; yearly estimate published in WSP 1315-B.

REVISED RECORDS.—WSP 881: 1902–9 (yearly summary only). WSP 1565: 1916–19, 1920–21(M), 1922, 1926–27, 1928–30(M), 1932, 1934, 1936(M). WSP 1715: Drainage area.

GAGE.—Water-stage recorder and crest-stage gage. Datum of gage is 339.20 ft above sea level. Prior to June 16, 1929, nonrecording gage, and June 16, 1929, to Dec. 2, 1941, water-stage recorder at site 1 mi upstream at different datum. Dec. 3, 1941, to Sept. 30, 1959, water-stage recorder at datum 2.00 ft higher. Jan. 30 to Mar. 26, 1969, nonrecording gage at bridge at same datum.

REMARKS.—Records poor. No regulation or large diversion upstream from station. Low flows affected by upstream gravel mining and irrigation during summer months. See schematic diagram of Salinas River Basin.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 28,300 ft<sup>3</sup>/s, Apr. 3, 1958, gage height, 16.40 ft, datum then in use, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurement at gage height 16.30 ft, maximum gage height, 16.44 ft, Mar. 10, 1995; no flow at times during several years.

EXTREMES FOR CURRENT YEAR.—Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s, or maximum:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	1845	2,660	5.08	Feb. 7	1715	14,700	11.72
Feb. 3	0515	17,300	12.81	Feb. 21	Unknown	e4,900	Unknown

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	11	94	62	1110	1320	704	441	292	136	67	24
2	5.6	10	70	65	3990	1210	649	620	282	133	63	23
3	5.8	10	60	124	9490	1110	783	482	276	136	58	22
4	5.4	9.9	53	323	3280	1020	919	459	272	134	54	21
5	6.2	8.7	805	266	2210	973	850	589	264	133	50	21
6	5.7	9.0	502	188	4230	940	783	538	257	125	48	23
7	4.1	9.7	608	164	6940	837	755	499	258	122	46	25
8	6.5	9.7	603	145	5330	781	693	460	253	116	44	26
9	6.3	11	313	220	3170	728	647	435	243	114	45	25
10	7.2	13	216	881	2330	681	617	414	235	111	43	26
11	11	13	170	485	1900	643	641	401	229	110	43	27
12	12	17	141	729	1620	611	604	465	224	108	41	26
13	12	17	120	924	1420	611	658	478	219	102	40	24
14	11	20	248	537	1740	571	629	426	214	101	38	24
15	10	28	257	1190	1630	537	602	404	203	98	37	24
16	9.3	45	181	1160	1550	511	574	388	196	94	36	25
17	7.8	30	154	714	1640	495	556	374	189	90	34	23
18	7.0	24	135	767	1450	473	536	358	183	87	36	21
19	6.9	26	121	1210	1710	455	517	343	178	86	38	22
20	7.5	48	112	812	e1700	439	498	334	175	81	40	23
21	8.0	35	103	624	e2500	426	478	325	174	80	40	23
22	9.3	27	95	499	e2900	407	460	317	172	78	39	25
23	9.9	24	91	413	e2700	393	456	305	169	78	35	28
24	10	25	84	352	2260	588	482	296	167	78	33	32
25	11	26	80	307	1900	1030	440	289	163	77	32	33
26	10	470	77	270	1750	700	417	284	161	75	33	35
27	9.6	249	74	250	1610	590	402	277	157	71	33	35
28	9.7	103	72	228	1450	647	387	339	149	67	30	37
29	9.2	73	69	861	---	626	374	467	143	65	29	37
30	9.8	92	66	603	---	560	361	343	140	65	27	37
31	9.8	---	65	537	---	622	---	311	---	68	24	---
TOTAL	260.3	1494.0	5839	15910	75510	21535	17472	12461	6237	3019	1256	797
MEAN	8.40	49.8	188	513	2697	695	582	402	208	97.4	40.5	26.6
MAX	12	470	805	1210	9490	1320	919	620	292	136	67	37
MIN	4.1	8.7	53	62	1110	393	361	277	140	65	24	21
AC-FT	516	2960	11580	31560	149800	42710	34660	24720	12370	5990	2490	1580

e Estimated.

## 11152050 ARROYO SECO BELOW RELIZ CREEK, NEAR SOLEDAD, CA

LOCATION.—Lat 36°23'59", long 121°19'23", in Los Conches Grant, Monterey County, Hydrologic Unit 18060005, on right bank at county road bridge, 1.7 mi south of Soledad, and 7.4 mi downstream from Reliz Creek.

DRAINAGE AREA.—304 mi<sup>2</sup>.

PERIOD OF RECORD.—October 1994 to current year.

GAGE.—Water-stage recorder and crest-stage gage. Datum of gage is 167.93 ft above sea level (levels by Monterey County).

REMARKS.—Records poor. No regulation or large diversion upstream from station. Low flows affected by upstream gravel mining and irrigation during summer months. See schematic diagram of Salinas River Basin.

EXTREMES FOR PERIOD OF RECORD.—Maximum discharge, 31,000 ft<sup>3</sup>/s, Mar. 10, 1995, gage height, 9.62 ft, rating affected by backwater from Salinas River. Discharge estimated by routing peak. No flow for many days.

EXTREMES FOR CURRENT YEAR.—Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s, or maximum:

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 15	2100	2,780	4.62	Feb. 7	1915	18,600	7.48
Feb. 3	0715	22,000	7.84	Feb. 21	2215	6,220	5.65

## DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1997 TO SEPTEMBER 1998

## DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	828	1240	601	e150	e26	e.00	e.00	e.00
2	.00	.00	.00	.00	3480	1100	580	e160	e24	e.00	e.00	e.00
3	.00	.00	.00	.00	9510	998	659	e170	e21	e.00	e.00	e.00
4	.00	.00	.00	3.5	3090	917	794	e150	e19	e.00	e.00	e.00
5	.00	.00	462	37	2070	875	770	e140	e17	e.00	e.00	e.00
6	.00	.00	268	7.0	3820	891	751	e130	e16	e.00	e.00	e.00
7	.00	.00	216	.53	7700	793	699	e120	e15	e.00	e.00	e.00
8	.00	.00	450	.00	5760	766	648	e112	e14	e.00	e.00	e.00
9	.00	.00	72	.00	e3100	717	612	e110	e13	e.00	e.00	e.00
10	.00	.00	13	653	e2500	646	571	e100	e12	e.00	e.00	e.00
11	.00	.00	1.9	314	e2000	612	e550	e90	e11	e.00	e.00	e.00
12	.00	.00	.00	346	e1800	589	e530	e80	e10	e.00	e.00	e.00
13	.00	.00	.00	954	e1600	580	e500	e74	e9.0	e.00	e.00	e.00
14	.00	.00	3.8	416	e1900	559	e460	e70	e8.5	e.00	e.00	e.00
15	.00	.00	54	954	e1800	532	e450	e65	e8.0	e.00	e.00	e.00
16	.00	.00	5.7	1240	e1700	518	e420	e60	e7.2	e.00	e.00	e.00
17	.00	.00	.23	616	e1800	497	e400	e55	e6.4	e.00	e.00	e.00
18	.00	.00	.00	460	e1800	481	e380	e52	e5.5	e.00	e.00	e.00
19	.00	.00	.00	1390	e1700	454	e360	e50	e5.0	e.00	e.00	e.00
20	.00	.00	.00	778	e2000	432	e340	e45	e4.0	e.00	e.00	e.00
21	.00	.00	.00	555	e2600	414	e320	e40	e3.0	e.00	e.00	e.00
22	.00	.00	.00	388	3070	376	e300	e38	e2.5	e.00	e.00	e.00
23	.00	.00	.00	256	3150	360	e280	e35	e2.0	e.00	e.00	e.00
24	.00	.00	.00	178	2740	447	e270	e33	e1.0	e.00	e.00	e.00
25	.00	.00	.00	129	2140	784	e250	e30	e.00	e.00	e.00	e.00
26	.00	107	.00	98	1860	642	e230	e28	e.00	e.00	e.00	e.00
27	.00	149	.00	80	1630	566	e210	e25	e.00	e.00	e.00	e.00
28	.00	.77	.00	59	1410	570	e190	e75	e.00	e.00	e.00	e.00
29	.00	.00	.00	620	---	556	e160	e66	e.00	e.00	e.00	e.00
30	.00	.00	.00	539	---	513	e140	e40	e.00	e.00	e.00	e.00
31	.00	---	.00	431	---	519	---	e30	---	e.00	e.00	---
TOTAL	0.00	256.77	1546.63	11502.03	78558	19944	13425	2423	260.10	0.00	0.00	0.00
MEAN	.000	8.56	49.9	371	2806	643	448	78.2	8.67	.000	.000	.000
MAX	.00	149	462	1390	9510	1240	794	170	26	.00	.00	.00
MIN	.00	.00	.00	.00	828	360	140	25	.00	.00	.00	.00
AC-FT	.00	509	3070	22810	155800	39560	26630	4810	516	.00	.00	.00

e Estimated.



# Discharge Measurement Calculation Sheet (PYGMY)

Time	A.C.	Dist. F. I. P.	Width	Depth	O.D.	Rev.	Time	V at ppt.	V mean	Adj for ang.	Area	Q
1450	REW	3.4	0.55	0	0.6	50	49	1.02	1.02	NONE	0.14	0.15
		4.5	0.8	0.18	0.6	80	41	1.93	1.93	NONE	0.10	0.19
		5	0.5	0.2	0.6	60	44	1.36	1.36	NONE	0.13	0.17
		5.5	0.5	0.25	0.6	90	41	2.17	2.17	NONE	0.11	0.24
		6	0.5	0.22	0.6	100	43	2.30	2.30	NONE	0.17	0.38
		6.5	0.5	0.33	0.6	150	49	3.02	3.02	NONE	0.15	0.45
		7	0.5	0.3	0.6	150	60	2.47	2.47	NONE	0.15	0.37
		7.5	0.5	0.3	0.6	100	40	2.47	2.47	NONE	0.15	0.37
		8	0.5	0.3	0.6	100	42	2.35	2.35	NONE	0.14	0.33
		8.5	0.5	0.28	0.6	150	58	2.55	2.55	NONE	0.15	0.38
		9	0.5	0.3	0.6	150	56	2.64	2.64	NONE	0.15	0.40
		9.5	0.5	0.3	0.6	100	40	2.47	2.47	NONE	0.15	0.37
1512		10	0.5	0.3	0.6	100	40	2.47	2.47	NONE	0.13	0.31
		10.5	0.5	0.25	0.6	100	40	1.98	1.98	NONE	0.15	0.30
		11	0.5	0.3	0.6	100	50	2.25	2.25	NONE	0.15	0.34
		11.5	0.5	0.3	0.6	100	44	2.41	2.41	NONE	0.15	0.36
		12	0.5	0.3	0.6	100	41	1.98	1.98	NONE	0.13	0.25
		12.5	0.5	0.25	0.6	100	50	1.62	1.62	NONE	0.12	0.19
		13	0.5	0.23	0.6	80	49				0.07	0.04
		13.5	0.6	0.12	0.6	ESTIMATE			0.49			
1525	LEW	14.2	0.35	0								

**TOTALS** 10.8 2.10 2.57 5.58

04/22/98 - Reliz Creek +/- 50 ft. upstream of Elm Street x-ing.

**Discharge Measurement Calculation Sheet (PRICE METER)**

Time	A.C.	Dist.	F. I. P.	Width	Depth	O.D.	Rev.	Time	V at pnt.	V mean	Adj for ang.	Area	Q
1650	REW	-8.5		1.25	0.87	0.6	15	42	0.80	0.80	NONE	1.96	1.56
		-6		2.25	0.98	0.6	20	42	1.06	1.06	NONE	2.94	3.11
		-4		3	1.01	0.6	25	41	1.35	1.35	NONE	4.04	5.45
		0		4	1.06	0.6	30	43	1.54	1.54	NONE	4.24	6.53
		4		4	0.93	0.6	40	49	1.80	1.80	NONE	3.72	6.70
		8		4	1	0.6	40	41	2.15	2.15	NONE	4.00	8.59
		12		4	0.98	0.6	30	45	1.47	1.47	NONE	3.92	5.78
		16		4	0.82	0.6	40	49	1.80	1.80	NONE	3.28	5.91
		20		4	1.26	0.6	40	42	2.10	2.10	NONE	5.04	10.57
		24		4	0.96	0.6	40	40	2.20	2.20	NONE	3.84	8.45
		28		4	1.41	0.6	25	40	1.38	1.38	NONE	5.64	7.80
		32		4	1.16	0.6	50	54	2.04	2.04	NONE	4.64	9.46
		36		4	1.48	0.6	40	48	1.84	1.84	NONE	5.92	10.88
		40		4	1.56	0.6	40	43	2.05	2.05	NONE	6.24	12.78
1707		44		4	1.43	0.6	40	48	1.84	1.84	NONE	7.87	14.46
		48		5.5	1.18	0.6	40	49	1.80	1.80	NONE	7.08	12.75
		55		6	1.09	0.6	30	45	1.47	1.47	NONE	5.45	8.03
		60		5	1.54	0.6	40	46	1.92	1.92	NONE	7.70	14.76
1714		65		5	2.17	0.6	40	50	1.77	1.77	NONE	10.85	19.16
		70		5	2.15	0.6	40	44	2.00	2.00	NONE	10.75	21.53
		75		5	1.95	0.6	60	58	2.27	2.27	NONE	9.75	22.18
		80		5	1.69	0.6	60	51	2.58	2.58	NONE	8.45	21.83
		85		5	1.9	0.6	40	42	2.10	2.10	NONE	9.50	19.92
		90		5	1.54	0.6	40	47	1.88	1.88	NONE	5.39	10.12
		95		3.5	1.12	0.6	30	46	1.44	1.44	NONE	2.80	4.04
		97		2.5									
1723		100		1.5									
<b>TOTALS</b>												145	274.343
												1.86	
												2	+EST 2CFS

04/22/98 - Arroyo Seco +/- 80 feet downstream of the lower Arroyo Seco Bridge.

## **Appendix B**

### **Reliz Watershed Runoff Model**

This appendix includes the FORTRAN program code, and input/output data files for the Reliz watershed runoff model.

- Model Code
- Input Data
- Output Data

## MODEL CODE

```
Program Runoff
C
C This program simualtes the surface runoff and subsurface contribution
C generated from series of daily rainfall events on a watershed.
C
C Written by S. Ali Taghavi, Ph.D., PE
C AT Associates
C July 1999
C
PARAMETER (NYEAR = 10 ,
1          NMON   = NYEAR*12 ,
1          NDAY   = NYEAR*366 ,
1          SFACT  = 0.48/12 )

CHARACTER FILENA*30
COMMON/CHR/ FILENA(5)
DIMENSION IDATE(NDAY),ARAIN(NDAY), AET(12), AEV(12), CN(4),
1          SAREA(4)

C
C READ FILE NAMES

WRITE(0,*) '
WRITE(0,*) 'ENTER THE NAME OF THE CONTROL INPUT FILE >'
READ(*,500) FILENA(1)
OPEN (UNIT=3, FILE=FILENA(1), STATUS='OLD')
CALL SKIP(3)
READ(3,500) FILENA(2)
READ(3,500) FILENA(3)
READ(3,500) FILENA(4)

C
C OPEN FILES
OPEN (UNIT=4, FILE=FILENA(2), STATUS='OLD')
OPEN (UNIT=5, FILE=FILENA(3), STATUS='OLD')
OPEN (UNIT=6, FILE=FILENA(4), STATUS='UNKNOWN')
OPEN (UNIT=7, FILE='RELIZE.TMP', STATUS='UNKNOWN')

C
C READ CONTROL FILE
C
CALL SKIP(3)
READ(3,*) IBEGT
READ(3,*) IENDT
CALL SKIP(3)
READ(3,*) FACTA
READ(3,*) FACTQ
CALL SKIP(3)
READ(3,*) AREA, QMAXWB
CALL SKIP(3)
READ(3,*) FRNS, FLDCAS, TPORO, CROOT, SOILKS, GWSOS, SWKS, GWKS
CALL SKIP(3)
READ(3,*) (CN(I), I=1,4)
READ(3,*) (SAREA(I), I=1,4)
```

```

DO I=1,4
ACN=ACN+CN(I)*SAREA(I)
SSAREA=SSAREA+SAREA(I)
END DO
ACN=ACN/SSAREA
C   WRITE(7,*)ACN

AREA=AREA*640.

IBEGY=INT( IBEGT/10000)
IENDY=INT( IENDT/10000)
IBEGM=INT( IBEGT/100)-IBEGY*100
IENDM=INT( IENDT/100)-IENDY*100
IBEGD=IBEGT-(IBEGY*100+IBEGM)*100
IENDD=IENDT-(IENDY*100+IENDM)*100
NDAYS=INT( ((IENDY+(IENDM+IENDD/30.33)/12)-
1      (IBEGY+(IBEGM+IBEGD/30.33)/12) ) *365)
NDAYS=NDAYS+4      !Account for leap years during the period

C   WRITE(6,*)IBEGT,IBEGY,IBEGM,IBEGD
C   WRITE(6,*)IENDT,IENDY,IENDM,IENDD
C   WRITE(6,*)NDAYS

C
C READ RAINFALL DATA
C
CALL SKIP(4)
DO I=1,NDAYS
READ(4,*,END=200)IDATE(I),ARAIN(I)
END DO
200 CONTINUE
C
C READ ET DATA
C
CALL SKIP(5)
READ(5,*)FACTET
CALL SKIP(5)
DO I=1,12
READ(5,*,END=201)IMO,AET(I),AEV(I)
AET(I)=AET(I)*FACTET
AEV(I)=AEV(I)*FACTET
END DO
201 CONTINUE

ROFFG=0.
GWK=GWKS
SWK=SWKS
STO=GWSOS
SK =SOILKS
FC =FLDCAS
TN =TPOROS
HSOIL=(1000./ACN-10)*SFAC

ROFFP=0.

WRITE(6,600)      !WRITE TITLE CARD IN OUTPUT FILE

```

```

WRITE(6,602)                                !WRITE TITLE CARD IN OUTPUT FILE

DO IDAY=1,NDAYS
ICY=INT(IDATE(IDAY)/10000)                  !CURRENT YEAR
ICM=INT(IDATE(IDAY)/100)-ICY*100           !CURRENT MONTH
ICD=IDATE(IDAY)-(ICY*100+ICM)*100         !CURRENT DAY
STS =GWSTS
SMI =SOILS
RAIN=ARAIN(IDAY)*FRNS
PET =AET(ICM)                              !VEG. ET
PEV =AEV(ICM)                              !SOIL EVAP.

CALL          SOILMNA(RAIN,HSOIL,TN,FC,SK,PET,PEV,ROFFP,SMI,
1             SMF,ET,EV,ROFF,PERC)

WRITE(7,'(I10,7F8.2)')IDAY,RAIN,PET,PEV,SMI,STS,ROFF,PERC

GW=(STS+PERC)*GWK
C   SW=AMAX1(0.,STS+PERC-STO)*SWK
SW=ROFF*SWK

STS=STS+PERC-GW-SW
IF(STS.LT.0.) THEN
    GW=GW-STG*GW/(GW+SW)
    SW=SW-STG*SW/(GW+SW)
    STS=0.
END IF
ROFFS=SW
ROFFG=GW
SOILS=SMF
GWSTS=STS

ROFFS=(AREA*ROFFS/12)*0.50417
ROFFG=(AREA*ROFFG/12)*0.50417

WRITE(6,601)IDAY,IDATE(IDAY),RAIN,ROFFS,ROFFG,GWSTS

END DO

STOP
600 FORMAT(14X,'DATE',8X,'RAIN',3X,'SURFACE',3X,
1         'SUBSURFACE',3X,'STORAGE')
602 FORMAT(33X,'RUNOFF',3X,'CONTRIBUTION')
601 FORMAT(2I10,4F10.2)
500 FORMAT(A20)
END

C*****
SUBROUTINE SKIP (IFILE)
C*****
C   THIS ROUTINE SIMPLY SKIPS COMMENT LINES IN A FILE
CHARACTER*1 JUNK
90 READ (IFILE,100,END=120) JUNK
IF(JUNK.EQ.'*' .OR. JUNK.EQ.'C' .OR. JUNK.EQ.'C') GO TO 90

```

```

        BACKSPACE(IFILE)
100  FORMAT (A1)
120  RETURN
      END
C*****
      SUBROUTINE SOILMNA(RAIN, HSOIL, TN, FC, SK, PET, PEV, ROFFP, SMI,
1          SM, ET, EV, ROFF, PERC)
C*****
      DATA RETPER, RETPER_D/0.0167, 0.0083/

C-----CALCULATE DIRECT RUNOFF FROM IRRIGATION WATER AND RAIN

      SMF=AMIN1(FC, SMI)/FC

      ROFF=0.
      CK=SK
      FILT=RAIN
      IF(RAIN.LE.0.) GO TO 106
      S =HSOIL/(SMF*SMF+0.2)
      SI=0.2*S
      SP=0.8*S
      IF(RAIN.GT.SI) THEN
          ROFF=RAIN-SI
          ROFF=ROFF*ROFF/(RAIN+SP)
          FILT=RAIN-ROFF
      ENDIF

C      CALCULATE PERCOLATION FROM IRRIGATION WATER AND RAIN

106  CONTINUE

      C=CK/(TN-SMI+CK)
      PERC=AMAX1(0., FILT-RETPER_D)*C

C      CALCULATE ET AND UPDATE SOIL MOISTURE

201  CONTINUE
      SM=SMI+FILT-PERC

      C =AMIN1(1.0, (SMI+SM)/FC)
      ET=AMIN1(SM, C*PET)

      C =AMIN1(1.0, (SMI+SM)/(2.*FC))
      EV=AMIN1(SM, C*PEV)

      IF(ET.GT.EV) THEN
          SM=SM-ET
          EV=0.
      ELSE
          SM=SM-EV
          EV=EV-ET
      ENDIF

      IF(SM.GT.FC) THEN
          PERC=PERC+SM-FC
          SM=FC
      ENDIF

```

```
C=AMAX1(0.,ROFF-ROFFP)
PERC=PERC+ROFF-C
ROFF=C

IF(PERC.GT.CK) THEN
  ROFF=ROFF+PERC-CK
  PERC=CK
ENDIF

RETURN
END
C*****
```



## INPUT DATA (File: RELIZ.INP)

```

C*****
C
C           MONTEREY COUNTY WATER RESOURCES AGENCY
C
C   Reliz Creek Watershed Rainfall Runoff Simulation Program
C
C                               December 1999
C
C-----
C
C   Enter Input and Output Filenames
C*****
C   Relprcp.dat           / Rainfall Data
C   Relet.dat            / ET Data
C   Reliz1.out           / Standard Output File
C*****
C
C   Enter Time Interval
C
C   Beginning and Ending Dates for simulation
C
C   Format: YYYYMMDD
C-----
C   19930701             / IBEGD
C   19980930             / IENDD
C*****
C   FACTA ; Factor to convert area to ft^2 or m^2
C   FACTQ ; Factor to convert flow to cfs or m^3/s
C   AREAS ; Drainage area of the watershed in square miles
C-----
C   27878400.           / FACTA
C   43560.              / FACTQ
C   23.68               / AREAS
C*****
C                               Watershed Parameters
C
C   FRNS ; Rainfall weighting factor for the watershed
C   FLDCAS; Field capacity in fraction
C   TPOROS; Total Porosity
C   CROOT ; Root depth of the natural vegetation in the watershed, (ft)
C   SOILKS; Percolation parameter for the watershed group, (ft/Day)
C   GWSOS ; Threshold value above which gw storage of watershed
C           contributes to surface runoff (ft)
C   SWKS ; Recession coefficient for surface outflow, (1/Day)
C   GWKS ; Recession coefficient for subsurface outflow, (1/Day)
C-----
C   FRNS   FLDCAS   TPORO   CROOT   SOILKS   GWSOS   SWKS   GWKS
C-----
C   0.55   0.16    0.28    3.0    0.52    0.01    0.75   0.0050
C-----
C   CN ; Curve Number for Each Hydrologic Soil Type
C   SAREA; Coverage Area for Each Hydrologic Soil Type (AF)
C-----
C   50     60     65     70           / CN
C   27.    1058.  6633.  7438.   / SAREA

```

C-----

# INPUT DATA (File: RELPRCP.DAT)

```
C*****
C          MONTEREY COUNTY WATER RESOURCES AGENCY
C
C  Reliz Creek Watershed Rainfall Runoff Simulation Program
C
C  Daily Rainfall Data
C
C  Data from daily rainfall at Arroyo Seco station
C
C          November 1999
C
C*****
C      Date      Rain (Inches)
C-----
C      19930701      0.00
C      19930702      0.00
C      19930703      0.00
C      19930704      0.00
C      19930705      0.00
C      19930706      0.00
C      19930707      0.00
C      19930708      0.00
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C      19930809      0.00
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19980327	0.43
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19980331	0.00
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19980409	0.00
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19980414	0.04
19980415	0.04

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19980507	0.00
19980508	0.00
19980509	0.00
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19980511	0.00
19980512	0.00
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19980516	0.00
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19980518	0.00
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19980530	0.10
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19980620	0.00
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19980630	0.00
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19980704	0.00
19980705	0.00
19980706	0.00
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19980708	0.00
19980709	0.00
19980710	0.00
19980711	0.00
19980712	0.00
19980713	0.00
19980714	0.00
19980715	0.00
19980716	0.00
19980717	0.00
19980718	0.00
19980719	0.00
19980720	0.00
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19980728	0.00
19980729	0.00
19980730	0.00
19980731	0.00
19980801	0.00
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19980803	0.00
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19980805	0.00
19980806	0.00
19980807	0.00

19980808	0.00
19980809	0.00
19980810	0.00
19980811	0.00
19980812	0.00
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19980828	0.00
19980829	0.00
19980830	0.00
19980831	0.00
19980901	0.00
19980902	0.00
19980903	0.00
19980904	0.04
19980905	0.05
19980906	0.00
19980907	0.00
19980908	0.00
19980909	0.00
19980910	0.00
19980911	0.00
19980912	0.00
19980913	0.00
19980914	0.00
19980915	0.00
19980916	0.00
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19980921	0.00
19980922	0.00
19980923	0.00
19980924	0.00
19980925	0.00
19980926	0.00
19980927	0.00
19980928	0.00
19980929	0.00
19980930	0.00

## INPUT DATA (File: RELET.DAT)

```

C*****
C          MONTEREY COUNTY WATER RESOURCES AGENCY
C
C  Reliz Creek Watershed Rainfall Runoff Simulation Program
C
C  Evaptranspiration data
C
C          July 1999
C
C*****
C          Monthly evapotranspiration data
C
C  FACTET: Factor to convert evapotranspiration depth to feet or meters
C          (Use 0.08333 for inches or 0.001 for millimeters)
C-----
C  VALUE          DESCRIPTION
C-----
C          0.08333          /FACTET
C-----
C
C  AEVAP;   Average monthly potential evapotranspiration rate for native
vegetation
C          and soil evaporation. (inches)
C-----
C  MONTH      NV ET      Soil ET
C-----
C          1          1.24      1.51
C          2          1.46      2.19
C          3          2.13      3.22
C          4          2.96      3.58
C          5          3.72      5.11
C          6          3.69      4.43
C          7          3.91      6.01
C          8          3.53      4.46
C          9          3.15      3.52
C         10          2.29      3.01
C         11          1.48      2.5
C         12          1.05      1.84
C*****
C  END OF FILE
C*****

```

## OUTPUT DATA (File: RELIZ.OUT)

	DATE	RAIN	SURFACE RUNOFF	SUBSURFACE CONTRIBUTION	STORAGE
1	19930701	0.00	0.00	0.00	0.00
2	19930702	0.00	0.00	0.00	0.00
3	19930703	0.00	0.00	0.00	0.00
4	19930704	0.00	0.00	0.00	0.00
5	19930705	0.00	0.00	0.00	0.00
6	19930706	0.00	0.00	0.00	0.00
7	19930707	0.00	0.00	0.00	0.00
8	19930708	0.00	0.00	0.00	0.00
9	19930709	0.00	0.00	0.00	0.00
10	19930710	0.00	0.00	0.00	0.00
11	19930711	0.00	0.00	0.00	0.00
12	19930712	0.00	0.00	0.00	0.00
13	19930713	0.00	0.00	0.00	0.00
14	19930714	0.00	0.00	0.00	0.00
15	19930715	0.00	0.00	0.00	0.00
16	19930716	0.00	0.00	0.00	0.00
17	19930717	0.00	0.00	0.00	0.00
18	19930718	0.00	0.00	0.00	0.00
19	19930719	0.00	0.00	0.00	0.00
20	19930720	0.00	0.00	0.00	0.00
21	19930721	0.00	0.00	0.00	0.00
22	19930722	0.00	0.00	0.00	0.00
23	19930723	0.00	0.00	0.00	0.00
24	19930724	0.00	0.00	0.00	0.00
25	19930725	0.00	0.00	0.00	0.00
26	19930726	0.00	0.00	0.00	0.00
27	19930727	0.00	0.00	0.00	0.00
28	19930728	0.00	0.00	0.00	0.00
29	19930729	0.00	0.00	0.00	0.00
30	19930730	0.00	0.00	0.00	0.00
31	19930731	0.00	0.00	0.00	0.00
32	19930801	0.00	0.00	0.00	0.00
33	19930802	0.00	0.00	0.00	0.00
34	19930803	0.00	0.00	0.00	0.00
35	19930804	0.00	0.00	0.00	0.00
36	19930805	0.00	0.00	0.00	0.00
37	19930806	0.00	0.00	0.00	0.00
38	19930807	0.00	0.00	0.00	0.00
39	19930808	0.00	0.00	0.00	0.00
40	19930809	0.00	0.00	0.00	0.00
41	19930810	0.00	0.00	0.00	0.00
42	19930811	0.00	0.00	0.00	0.00
43	19930812	0.00	0.00	0.00	0.00
44	19930813	0.00	0.00	0.00	0.00
45	19930814	0.00	0.00	0.00	0.00
46	19930815	0.00	0.00	0.00	0.00
47	19930816	0.00	0.00	0.00	0.00
48	19930817	0.00	0.00	0.00	0.00
49	19930818	0.00	0.00	0.00	0.00
50	19930819	0.00	0.00	0.00	0.00
51	19930820	0.00	0.00	0.00	0.00

52	19930821	0.00	0.00	0.00	0.00
53	19930822	0.00	0.00	0.00	0.00
54	19930823	0.00	0.00	0.00	0.00
55	19930824	0.00	0.00	0.00	0.00
56	19930825	0.00	0.00	0.00	0.00
57	19930826	0.00	0.00	0.00	0.00
58	19930827	0.00	0.00	0.00	0.00
59	19930828	0.00	0.00	0.00	0.00
60	19930829	0.00	0.00	0.00	0.00
61	19930830	0.00	0.00	0.00	0.00
62	19930831	0.00	0.00	0.00	0.00
63	19930901	0.00	0.00	0.00	0.00
64	19930902	0.00	0.00	0.00	0.00
65	19930903	0.00	0.00	0.00	0.00
66	19930904	0.00	0.00	0.00	0.00
67	19930905	0.00	0.00	0.00	0.00
68	19930906	0.00	0.00	0.00	0.00
69	19930907	0.00	0.00	0.00	0.00
70	19930908	0.00	0.00	0.00	0.00
71	19930909	0.00	0.00	0.00	0.00
72	19930910	0.00	0.00	0.00	0.00
73	19930911	0.00	0.00	0.00	0.00
74	19930912	0.00	0.00	0.00	0.00
75	19930913	0.00	0.00	0.00	0.00
76	19930914	0.00	0.00	0.00	0.00
77	19930915	0.00	0.00	0.00	0.00
78	19930916	0.00	0.00	0.00	0.00
79	19930917	0.00	0.00	0.00	0.00
80	19930918	0.00	0.00	0.00	0.00
81	19930919	0.00	0.00	0.00	0.00
82	19930920	0.00	0.00	0.00	0.00
83	19930921	0.00	0.00	0.00	0.00
84	19930922	0.00	0.00	0.00	0.00
85	19930923	0.00	0.00	0.00	0.00
86	19930924	0.00	0.00	0.00	0.00
87	19930925	0.00	0.00	0.00	0.00
88	19930926	0.00	0.00	0.00	0.00
89	19930927	0.00	0.00	0.00	0.00
90	19930928	0.00	0.00	0.00	0.00
91	19930929	0.00	0.00	0.00	0.00
92	19930930	0.00	0.00	0.00	0.00
93	19931001	0.00	0.00	0.00	0.00
94	19931002	0.00	0.00	0.00	0.00
95	19931003	0.00	0.00	0.00	0.00
96	19931004	0.00	0.00	0.00	0.00
97	19931005	0.00	0.00	0.00	0.00
98	19931006	0.00	0.00	0.00	0.00
99	19931007	0.00	0.00	0.00	0.00
100	19931008	0.00	0.00	0.00	0.00
101	19931009	0.00	0.00	0.00	0.00
102	19931010	0.00	0.00	0.00	0.00
103	19931011	0.00	0.00	0.00	0.00
104	19931012	0.00	0.00	0.00	0.00
105	19931013	0.00	0.00	0.00	0.00
106	19931014	0.00	0.00	0.00	0.00
107	19931015	0.00	0.00	0.00	0.00
108	19931016	0.00	0.00	0.00	0.00

109	19931017	0.00	0.00	0.00	0.00
110	19931018	0.00	0.00	0.00	0.00
111	19931019	0.00	0.00	0.00	0.00
112	19931020	0.00	0.00	0.00	0.00
113	19931021	0.00	0.00	0.00	0.00
114	19931022	0.00	0.00	0.00	0.00
115	19931023	0.00	0.00	0.00	0.00
116	19931024	0.00	0.00	0.00	0.00
117	19931025	0.00	0.00	0.00	0.00
118	19931026	0.00	0.00	0.00	0.00
119	19931027	0.00	0.00	0.00	0.00
120	19931028	0.00	0.00	0.00	0.00
121	19931029	0.00	0.00	0.00	0.00
122	19931030	0.00	0.00	0.00	0.00
123	19931031	0.00	0.00	0.00	0.00
124	19931101	0.00	0.00	0.00	0.00
125	19931102	0.00	0.00	0.00	0.00
126	19931103	0.00	0.00	0.00	0.00
127	19931104	0.00	0.00	0.00	0.00
128	19931105	0.00	0.00	0.00	0.00
129	19931106	0.00	0.00	0.00	0.00
130	19931107	0.00	0.00	0.00	0.00
131	19931108	0.00	0.00	0.00	0.00
132	19931109	0.00	0.00	0.00	0.00
133	19931110	0.38	14.53	1.10	0.32
134	19931111	0.06	0.00	1.17	0.37
135	19931112	0.17	0.00	1.67	0.52
136	19931113	0.00	0.00	1.66	0.52
137	19931114	0.00	0.00	1.65	0.52
138	19931115	0.00	0.00	1.64	0.51
139	19931116	0.00	0.00	1.63	0.51
140	19931117	0.00	0.00	1.63	0.51
141	19931118	0.00	0.00	1.62	0.51
142	19931119	0.00	0.00	1.61	0.50
143	19931120	0.00	0.00	1.60	0.50
144	19931121	0.00	0.00	1.59	0.50
145	19931122	0.00	0.00	1.59	0.50
146	19931123	0.00	0.00	1.58	0.49
147	19931124	0.00	0.00	1.57	0.49
148	19931125	0.00	0.00	1.56	0.49
149	19931126	0.00	0.00	1.55	0.49
150	19931127	0.00	0.00	1.55	0.48
151	19931128	0.17	0.00	2.04	0.64
152	19931129	0.33	7.67	3.00	0.93
153	19931130	0.00	0.00	2.95	0.92
154	19931201	0.00	0.00	2.94	0.92
155	19931202	0.00	0.00	2.92	0.91
156	19931203	0.00	0.00	2.91	0.91
157	19931204	0.00	0.00	2.89	0.90
158	19931205	0.00	0.00	2.88	0.90
159	19931206	0.00	0.00	2.86	0.89
160	19931207	0.00	0.00	2.85	0.89
161	19931208	0.00	0.00	2.83	0.89
162	19931209	0.00	0.00	2.82	0.88
163	19931210	0.00	0.00	2.81	0.88
164	19931211	0.55	44.74	4.22	1.25
165	19931212	0.00	0.00	3.97	1.24



166	19931213	0.00	0.00	3.95	1.24
167	19931214	0.17	0.00	4.43	1.39
168	19931215	0.06	0.00	4.56	1.43
169	19931216	0.00	0.00	4.54	1.42
170	19931217	0.00	0.00	4.52	1.41
171	19931218	0.00	0.00	4.49	1.40
172	19931219	0.00	0.00	4.47	1.40
173	19931220	0.00	0.00	4.45	1.39
174	19931221	0.00	0.00	4.43	1.38
175	19931222	0.00	0.00	4.40	1.38
176	19931223	0.00	0.00	4.38	1.37
177	19931224	0.00	0.00	4.36	1.36
178	19931225	0.00	0.00	4.34	1.36
179	19931226	0.00	0.00	4.32	1.35
180	19931227	0.00	0.00	4.29	1.34
181	19931228	0.00	0.00	4.27	1.34
182	19931229	0.00	0.00	4.25	1.33
183	19931230	0.00	0.00	4.23	1.32
184	19931231	0.00	0.00	4.21	1.32
185	19940101	0.00	0.00	4.19	1.31
186	19940102	0.00	0.00	4.17	1.30
187	19940103	0.00	0.00	4.15	1.30
188	19940104	0.00	0.00	4.13	1.29
189	19940105	0.00	0.00	4.11	1.28
190	19940106	0.00	0.00	4.08	1.28
191	19940107	0.00	0.00	4.06	1.27
192	19940108	0.00	0.00	4.04	1.26
193	19940109	0.00	0.00	4.02	1.26
194	19940110	0.00	0.00	4.00	1.25
195	19940111	0.00	0.00	3.98	1.24
196	19940112	0.00	0.00	3.96	1.24
197	19940113	0.00	0.00	3.94	1.23
198	19940114	0.00	0.00	3.92	1.23
199	19940115	0.00	0.00	3.90	1.22
200	19940116	0.00	0.00	3.88	1.21
201	19940117	0.00	0.00	3.87	1.21
202	19940118	0.00	0.00	3.85	1.20
203	19940119	0.00	0.00	3.83	1.20
204	19940120	0.00	0.00	3.81	1.19
205	19940121	0.00	0.00	3.79	1.18
206	19940122	0.06	0.00	3.92	1.22
207	19940123	0.50	33.38	5.23	1.58
208	19940124	0.38	14.54	6.15	1.90
209	19940125	0.06	0.00	6.19	1.93
210	19940126	0.06	0.00	6.31	1.97
211	19940127	0.00	0.00	6.28	1.96
212	19940128	0.00	0.00	6.25	1.95
213	19940129	0.00	0.00	6.22	1.94
214	19940130	0.00	0.00	6.18	1.93
215	19940131	0.00	0.00	6.15	1.92
216	19940201	0.00	0.00	6.12	1.91
217	19940202	0.00	0.00	6.09	1.90
218	19940203	0.11	0.00	6.39	2.00
219	19940204	0.00	0.00	6.35	1.99
220	19940205	0.06	0.00	6.47	2.02
221	19940206	0.28	2.80	7.27	2.27
222	19940207	1.10	273.45	8.88	2.34

223	19940208	0.00	0.00	7.47	2.33
224	19940209	0.00	0.00	7.43	2.32
225	19940210	0.00	0.00	7.39	2.31
226	19940211	0.06	0.00	7.50	2.34
227	19940212	0.00	0.00	7.46	2.33
228	19940213	0.00	0.00	7.43	2.32
229	19940214	0.00	0.00	7.39	2.31
230	19940215	0.00	0.00	7.35	2.30
231	19940216	0.11	0.00	7.64	2.39
232	19940217	0.88	169.04	9.26	2.63
233	19940218	0.22	0.27	9.04	2.82
234	19940219	1.10	274.07	10.65	2.90
235	19940220	0.06	0.00	9.37	2.93
236	19940221	0.00	0.00	9.33	2.91
237	19940222	0.00	0.00	9.28	2.90
238	19940223	0.00	0.00	9.23	2.89
239	19940224	0.00	0.00	9.19	2.87
240	19940225	0.00	0.00	9.14	2.86
241	19940226	0.00	0.00	9.10	2.84
242	19940227	0.00	0.00	9.05	2.83
243	19940228	0.00	0.00	9.00	2.81
244	19940301	0.00	0.00	8.96	2.80
245	19940302	0.00	0.00	8.91	2.79
246	19940303	0.00	0.00	8.87	2.77
247	19940304	0.00	0.00	8.83	2.76
248	19940305	0.06	0.00	8.93	2.79
249	19940306	0.00	0.00	8.89	2.78
250	19940307	0.00	0.00	8.84	2.76
251	19940308	0.00	0.00	8.80	2.75
252	19940309	0.00	0.00	8.75	2.74
253	19940310	0.00	0.00	8.71	2.72
254	19940311	0.00	0.00	8.67	2.71
255	19940312	0.00	0.00	8.62	2.69
256	19940313	0.00	0.00	8.58	2.68
257	19940314	0.00	0.00	8.54	2.67
258	19940315	0.00	0.00	8.49	2.65
259	19940316	0.00	0.00	8.45	2.64
260	19940317	0.00	0.00	8.41	2.63
261	19940318	0.00	0.00	8.37	2.62
262	19940319	0.00	0.00	8.33	2.60
263	19940320	0.00	0.00	8.28	2.59
264	19940321	0.00	0.00	8.24	2.58
265	19940322	0.00	0.00	8.20	2.56
266	19940323	0.00	0.00	8.16	2.55
267	19940324	0.28	2.79	8.95	2.79
268	19940325	0.00	0.00	8.89	2.78
269	19940326	0.00	0.00	8.85	2.76
270	19940327	0.00	0.00	8.80	2.75
271	19940328	0.00	0.00	8.76	2.74
272	19940329	0.00	0.00	8.71	2.72
273	19940330	0.00	0.00	8.67	2.71
274	19940331	0.00	0.00	8.63	2.70
275	19940401	0.00	0.00	8.58	2.68
276	19940402	0.00	0.00	8.54	2.67
277	19940403	0.00	0.00	8.50	2.66
278	19940404	0.00	0.00	8.46	2.64
279	19940405	0.00	0.00	8.41	2.63

280	19940406	0.00	0.00	8.37	2.62
281	19940407	0.00	0.00	8.33	2.60
282	19940408	0.11	0.00	8.61	2.69
283	19940409	0.00	0.00	8.57	2.68
284	19940410	0.00	0.00	8.53	2.66
285	19940411	0.00	0.00	8.48	2.65
286	19940412	0.00	0.00	8.44	2.64
287	19940413	0.00	0.00	8.40	2.63
288	19940414	0.00	0.00	8.36	2.61
289	19940415	0.00	0.00	8.32	2.60
290	19940416	0.00	0.00	8.27	2.59
291	19940417	0.00	0.00	8.23	2.57
292	19940418	0.00	0.00	8.19	2.56
293	19940419	0.00	0.00	8.15	2.55
294	19940420	0.00	0.00	8.11	2.53
295	19940421	0.00	0.00	8.07	2.52
296	19940422	0.00	0.00	8.03	2.51
297	19940423	0.11	0.00	8.31	2.60
298	19940424	0.17	0.00	8.77	2.74
299	19940425	0.28	2.79	9.56	2.98
300	19940426	0.06	0.00	9.64	3.01
301	19940427	0.00	0.00	9.60	3.00
302	19940428	0.00	0.00	9.55	2.98
303	19940429	0.00	0.00	9.50	2.97
304	19940430	0.00	0.00	9.45	2.95
305	19940501	0.00	0.00	9.40	2.94
306	19940502	0.00	0.00	9.36	2.92
307	19940503	0.00	0.00	9.31	2.91
308	19940504	0.06	0.00	9.41	2.94
309	19940505	0.00	0.00	9.37	2.93
310	19940506	0.00	0.00	9.32	2.91
311	19940507	0.33	7.65	10.25	3.19
312	19940508	0.00	0.00	10.16	3.17
313	19940509	0.00	0.00	10.11	3.16
314	19940510	0.00	0.00	10.05	3.14
315	19940511	0.00	0.00	10.00	3.13
316	19940512	0.00	0.00	9.95	3.11
317	19940513	0.00	0.00	9.90	3.10
318	19940514	0.00	0.00	9.86	3.08
319	19940515	0.00	0.00	9.81	3.06
320	19940516	0.00	0.00	9.76	3.05
321	19940517	0.17	0.00	10.21	3.19
322	19940518	0.06	0.00	10.30	3.22
323	19940519	0.00	0.00	10.25	3.20
324	19940520	0.00	0.00	10.20	3.19
325	19940521	0.00	0.00	10.15	3.17
326	19940522	0.00	0.00	10.10	3.16
327	19940523	0.00	0.00	10.05	3.14
328	19940524	0.00	0.00	10.00	3.13
329	19940525	0.00	0.00	9.95	3.11
330	19940526	0.00	0.00	9.90	3.09
331	19940527	0.00	0.00	9.85	3.08
332	19940528	0.00	0.00	9.80	3.06
333	19940529	0.00	0.00	9.75	3.05
334	19940530	0.00	0.00	9.70	3.03
335	19940531	0.00	0.00	9.65	3.02
336	19940601	0.00	0.00	9.61	3.00

337	19940602	0.00	0.00	9.56	2.99
338	19940603	0.00	0.00	9.51	2.97
339	19940604	0.00	0.00	9.46	2.96
340	19940605	0.00	0.00	9.42	2.94
341	19940606	0.00	0.00	9.37	2.93
342	19940607	0.00	0.00	9.32	2.91
343	19940608	0.00	0.00	9.28	2.90
344	19940609	0.00	0.00	9.23	2.88
345	19940610	0.00	0.00	9.18	2.87
346	19940611	0.00	0.00	9.14	2.86
347	19940612	0.00	0.00	9.09	2.84
348	19940613	0.00	0.00	9.05	2.83
349	19940614	0.00	0.00	9.00	2.81
350	19940615	0.00	0.00	8.96	2.80
351	19940616	0.00	0.00	8.91	2.78
352	19940617	0.00	0.00	8.87	2.77
353	19940618	0.00	0.00	8.82	2.76
354	19940619	0.00	0.00	8.78	2.74
355	19940620	0.00	0.00	8.73	2.73
356	19940621	0.00	0.00	8.69	2.72
357	19940622	0.00	0.00	8.65	2.70
358	19940623	0.00	0.00	8.60	2.69
359	19940624	0.00	0.00	8.56	2.68
360	19940625	0.00	0.00	8.52	2.66
361	19940626	0.00	0.00	8.47	2.65
362	19940627	0.00	0.00	8.43	2.64
363	19940628	0.00	0.00	8.39	2.62
364	19940629	0.00	0.00	8.35	2.61
365	19940630	0.00	0.00	8.31	2.60
366	19940701	0.00	0.00	8.27	2.58
367	19940702	0.00	0.00	8.22	2.57
368	19940703	0.00	0.00	8.18	2.56
369	19940704	0.00	0.00	8.14	2.54
370	19940705	0.00	0.00	8.10	2.53
371	19940706	0.00	0.00	8.06	2.52
372	19940707	0.00	0.00	8.02	2.51
373	19940708	0.00	0.00	7.98	2.49
374	19940709	0.00	0.00	7.94	2.48
375	19940710	0.00	0.00	7.90	2.47
376	19940711	0.00	0.00	7.86	2.46
377	19940712	0.00	0.00	7.82	2.44
378	19940713	0.00	0.00	7.78	2.43
379	19940714	0.00	0.00	7.74	2.42
380	19940715	0.00	0.00	7.70	2.41
381	19940716	0.00	0.00	7.67	2.40
382	19940717	0.00	0.00	7.63	2.38
383	19940718	0.00	0.00	7.59	2.37
384	19940719	0.00	0.00	7.55	2.36
385	19940720	0.00	0.00	7.51	2.35
386	19940721	0.00	0.00	7.48	2.34
387	19940722	0.00	0.00	7.44	2.33
388	19940723	0.00	0.00	7.40	2.31
389	19940724	0.00	0.00	7.37	2.30
390	19940725	0.00	0.00	7.33	2.29
391	19940726	0.00	0.00	7.29	2.28
392	19940727	0.00	0.00	7.26	2.27
393	19940728	0.00	0.00	7.22	2.26

394	19940729	0.00	0.00	7.18	2.24
395	19940730	0.00	0.00	7.15	2.23
396	19940731	0.00	0.00	7.11	2.22
397	19940801	0.00	0.00	7.08	2.21
398	19940802	0.00	0.00	7.04	2.20
399	19940803	0.00	0.00	7.01	2.19
400	19940804	0.00	0.00	6.97	2.18
401	19940805	0.00	0.00	6.94	2.17
402	19940806	0.00	0.00	6.90	2.16
403	19940807	0.00	0.00	6.87	2.15
404	19940808	0.00	0.00	6.83	2.14
405	19940809	0.00	0.00	6.80	2.12
406	19940810	0.00	0.00	6.76	2.11
407	19940811	0.00	0.00	6.73	2.10
408	19940812	0.00	0.00	6.70	2.09
409	19940813	0.00	0.00	6.66	2.08
410	19940814	0.00	0.00	6.63	2.07
411	19940815	0.00	0.00	6.60	2.06
412	19940816	0.00	0.00	6.56	2.05
413	19940817	0.00	0.00	6.53	2.04
414	19940818	0.00	0.00	6.50	2.03
415	19940819	0.00	0.00	6.47	2.02
416	19940820	0.00	0.00	6.43	2.01
417	19940821	0.00	0.00	6.40	2.00
418	19940822	0.00	0.00	6.37	1.99
419	19940823	0.00	0.00	6.34	1.98
420	19940824	0.00	0.00	6.31	1.97
421	19940825	0.00	0.00	6.27	1.96
422	19940826	0.00	0.00	6.24	1.95
423	19940827	0.00	0.00	6.21	1.94
424	19940828	0.00	0.00	6.18	1.93
425	19940829	0.00	0.00	6.15	1.92
426	19940830	0.00	0.00	6.12	1.91
427	19940831	0.00	0.00	6.09	1.90
428	19940901	0.00	0.00	6.06	1.89
429	19940902	0.00	0.00	6.03	1.88
430	19940903	0.00	0.00	6.00	1.87
431	19940904	0.00	0.00	5.97	1.86
432	19940905	0.00	0.00	5.94	1.86
433	19940906	0.00	0.00	5.91	1.85
434	19940907	0.00	0.00	5.88	1.84
435	19940908	0.00	0.00	5.85	1.83
436	19940909	0.00	0.00	5.82	1.82
437	19940910	0.00	0.00	5.79	1.81
438	19940911	0.00	0.00	5.76	1.80
439	19940912	0.00	0.00	5.73	1.79
440	19940913	0.00	0.00	5.70	1.78
441	19940914	0.00	0.00	5.68	1.77
442	19940915	0.00	0.00	5.65	1.76
443	19940916	0.00	0.00	5.62	1.76
444	19940917	0.00	0.00	5.59	1.75
445	19940918	0.00	0.00	5.56	1.74
446	19940919	0.00	0.00	5.53	1.73
447	19940920	0.00	0.00	5.51	1.72
448	19940921	0.00	0.00	5.48	1.71
449	19940922	0.00	0.00	5.45	1.70
450	19940923	0.00	0.00	5.42	1.70

451	19940924	0.00	0.00	5.40	1.69
452	19940925	0.00	0.00	5.37	1.68
453	19940926	0.00	0.00	5.34	1.67
454	19940927	0.00	0.00	5.32	1.66
455	19940928	0.00	0.00	5.29	1.65
456	19940929	0.00	0.00	5.26	1.65
457	19940930	0.00	0.00	5.24	1.64
458	19941001	0.00	0.00	5.21	1.63
459	19941002	0.00	0.00	5.19	1.62
460	19941003	0.00	0.00	5.16	1.61
461	19941004	0.71	89.16	6.79	1.98
462	19941005	0.11	0.00	6.63	2.07
463	19941006	0.00	0.00	6.60	2.06
464	19941007	0.00	0.00	6.57	2.05
465	19941008	0.00	0.00	6.53	2.04
466	19941009	0.00	0.00	6.50	2.03
467	19941010	0.00	0.00	6.47	2.02
468	19941011	0.00	0.00	6.44	2.01
469	19941012	0.00	0.00	6.40	2.00
470	19941013	0.06	0.00	6.52	2.04
471	19941014	0.00	0.00	6.49	2.03
472	19941015	0.00	0.00	6.46	2.02
473	19941016	0.00	0.00	6.42	2.01
474	19941017	0.00	0.00	6.39	2.00
475	19941018	0.00	0.00	6.36	1.99
476	19941019	0.00	0.00	6.33	1.98
477	19941020	0.00	0.00	6.30	1.97
478	19941021	0.00	0.00	6.26	1.96
479	19941022	0.00	0.00	6.23	1.95
480	19941023	0.00	0.00	6.20	1.94
481	19941024	0.00	0.00	6.17	1.93
482	19941025	0.00	0.00	6.14	1.92
483	19941026	0.00	0.00	6.11	1.91
484	19941027	0.00	0.00	6.08	1.90
485	19941028	0.00	0.00	6.05	1.89
486	19941029	0.00	0.00	6.02	1.88
487	19941030	0.00	0.00	5.99	1.87
488	19941031	0.00	0.00	5.96	1.86
489	19941101	0.00	0.00	5.93	1.85
490	19941102	0.00	0.00	5.90	1.84
491	19941103	0.00	0.00	5.87	1.83
492	19941104	0.00	0.00	5.84	1.83
493	19941105	0.19	0.00	6.40	2.00
494	19941106	0.00	0.00	6.37	1.99
495	19941107	0.14	0.00	6.76	2.11
496	19941108	0.00	0.00	6.73	2.10
497	19941109	0.00	0.00	6.70	2.09
498	19941110	0.00	0.00	6.66	2.08
499	19941111	0.66	71.04	8.23	2.46
500	19941112	0.00	0.00	7.83	2.45
501	19941113	0.00	0.00	7.79	2.44
502	19941114	0.00	0.00	7.76	2.42
503	19941115	0.37	13.00	8.79	2.73
504	19941116	0.00	0.00	8.68	2.71
505	19941117	0.14	0.00	9.07	2.83
506	19941118	0.00	0.00	9.02	2.82
507	19941119	0.00	0.00	8.98	2.81

508	19941120	0.00	0.00	8.93	2.79
509	19941121	0.00	0.00	8.89	2.78
510	19941122	0.00	0.00	8.85	2.76
511	19941123	0.00	0.00	8.80	2.75
512	19941124	0.00	0.00	8.76	2.74
513	19941125	0.34	8.88	9.71	3.02
514	19941126	0.19	0.00	10.21	3.19
515	19941127	0.00	0.00	10.16	3.17
516	19941128	0.00	0.00	10.11	3.16
517	19941129	0.00	0.00	10.06	3.14
518	19941130	0.00	0.00	10.01	3.13
519	19941201	0.00	0.00	9.96	3.11
520	19941202	0.00	0.00	9.91	3.10
521	19941203	0.00	0.00	9.86	3.08
522	19941204	0.00	0.00	9.81	3.07
523	19941205	0.00	0.00	9.76	3.05
524	19941206	0.00	0.00	9.71	3.03
525	19941207	0.00	0.00	9.66	3.02
526	19941208	0.00	0.00	9.61	3.00
527	19941209	0.00	0.00	9.57	2.99
528	19941210	0.00	0.00	9.52	2.97
529	19941211	0.00	0.00	9.47	2.96
530	19941212	0.22	0.27	10.09	3.15
531	19941213	0.06	0.00	10.19	3.19
532	19941214	0.22	0.28	10.82	3.38
533	19941215	0.00	0.00	10.76	3.36
534	19941216	0.00	0.00	10.71	3.35
535	19941217	0.00	0.00	10.66	3.33
536	19941218	0.00	0.00	10.60	3.31
537	19941219	0.00	0.00	10.55	3.30
538	19941220	0.00	0.00	10.50	3.28
539	19941221	0.00	0.00	10.44	3.26
540	19941222	0.00	0.00	10.39	3.25
541	19941223	0.00	0.00	10.34	3.23
542	19941224	0.33	7.65	11.26	3.51
543	19941225	0.00	0.00	11.17	3.49
544	19941226	0.00	0.00	11.11	3.47
545	19941227	0.00	0.00	11.06	3.46
546	19941228	0.00	0.00	11.00	3.44
547	19941229	0.00	0.00	10.94	3.42
548	19941230	0.00	0.00	10.89	3.40
549	19941231	0.06	0.00	10.98	3.43
550	19950101	0.00	0.00	10.93	3.42
551	19950102	0.00	0.00	10.87	3.40
552	19950103	0.06	0.00	10.97	3.43
553	19950104	1.76	590.34	12.57	3.00
554	19950105	0.00	0.00	9.56	2.99
555	19950106	0.50	33.28	10.84	3.33
556	19950107	0.38	14.59	11.72	3.64
557	19950108	0.22	0.27	12.27	3.83
558	19950109	1.87	642.47	13.86	3.32
559	19950110	0.76	110.66	12.23	3.65
560	19950111	0.00	0.00	11.62	3.63
561	19950112	0.00	0.00	11.56	3.61
562	19950113	0.00	0.00	11.50	3.59
563	19950114	0.10	0.00	11.73	3.67
564	19950115	0.19	0.00	12.26	3.83

565	19950116	0.10	0.00	12.49	3.90
566	19950117	0.00	0.00	12.43	3.88
567	19950118	0.00	0.00	12.37	3.87
568	19950119	0.00	0.00	12.31	3.85
569	19950120	1.05	249.38	13.90	3.95
570	19950121	0.00	0.00	12.58	3.93
571	19950122	0.34	8.88	13.52	4.21
572	19950123	0.76	111.65	15.06	4.53
573	19950124	1.38	405.00	16.09	4.39
574	19950125	0.14	0.00	14.41	4.50
575	19950126	0.00	0.00	14.34	4.48
576	19950127	0.00	0.00	14.27	4.46
577	19950128	0.00	0.00	14.20	4.44
578	19950129	0.00	0.00	14.13	4.41
579	19950130	0.00	0.00	14.05	4.39
580	19950131	0.00	0.00	13.98	4.37
581	19950201	0.00	0.00	13.91	4.35
582	19950202	0.00	0.00	13.84	4.33
583	19950203	0.00	0.00	13.78	4.31
584	19950204	0.00	0.00	13.71	4.28
585	19950205	0.00	0.00	13.64	4.26
586	19950206	0.00	0.00	13.57	4.24
587	19950207	0.10	0.00	13.79	4.31
588	19950208	0.34	8.90	14.73	4.59
589	19950209	0.00	0.00	14.61	4.57
590	19950210	0.00	0.00	14.53	4.54
591	19950211	0.00	0.00	14.46	4.52
592	19950212	0.00	0.00	14.39	4.50
593	19950213	0.38	14.53	15.42	4.80
594	19950214	0.06	0.00	15.42	4.82
595	19950215	0.00	0.00	15.34	4.80
596	19950216	0.00	0.00	15.27	4.77
597	19950217	0.00	0.00	15.19	4.75
598	19950218	0.00	0.00	15.11	4.72
599	19950219	0.00	0.00	15.04	4.70
600	19950220	0.06	0.00	15.11	4.72
601	19950221	0.00	0.00	15.04	4.70
602	19950222	0.00	0.00	14.96	4.68
603	19950223	0.00	0.00	14.89	4.65
604	19950224	0.00	0.00	14.81	4.63
605	19950225	0.00	0.00	14.74	4.61
606	19950226	0.00	0.00	14.66	4.58
607	19950227	0.00	0.00	14.59	4.56
608	19950228	0.00	0.00	14.52	4.54
609	19950301	0.00	0.00	14.44	4.51
610	19950302	0.17	0.00	14.87	4.65
611	19950303	0.06	0.00	14.95	4.67
612	19950304	0.33	7.65	15.84	4.94
613	19950305	0.28	2.79	16.56	5.17
614	19950306	0.00	0.00	16.46	5.14
615	19950307	0.00	0.00	16.38	5.12
616	19950308	0.17	0.00	16.80	5.25
617	19950309	1.76	588.20	18.37	4.82
618	19950310	2.97	1166.03	16.99	3.48
619	19950311	0.22	0.27	11.75	3.67
620	19950312	0.06	0.00	11.84	3.70
621	19950313	0.00	0.00	11.78	3.68



622	19950314	0.00	0.00	11.72	3.66
623	19950315	0.00	0.00	11.66	3.64
624	19950316	0.00	0.00	11.60	3.63
625	19950317	0.00	0.00	11.54	3.61
626	19950318	0.00	0.00	11.48	3.59
627	19950319	0.00	0.00	11.43	3.57
628	19950320	0.33	7.65	12.34	3.85
629	19950321	0.17	0.00	12.74	3.98
630	19950322	1.54	483.14	14.33	3.72
631	19950323	0.17	0.00	12.35	3.86
632	19950324	0.06	0.00	12.43	3.89
633	19950325	0.00	0.00	12.37	3.87
634	19950326	0.00	0.00	12.31	3.85
635	19950327	0.00	0.00	12.25	3.83
636	19950328	0.00	0.00	12.19	3.81
637	19950329	0.00	0.00	12.12	3.79
638	19950330	0.00	0.00	12.06	3.77
639	19950331	0.00	0.00	12.00	3.75
640	19950401	0.00	0.00	11.94	3.73
641	19950402	0.00	0.00	11.88	3.71
642	19950403	0.00	0.00	11.82	3.70
643	19950404	0.00	0.00	11.77	3.68
644	19950405	0.00	0.00	11.71	3.66
645	19950406	0.00	0.00	11.65	3.64
646	19950407	0.00	0.00	11.59	3.62
647	19950408	0.06	0.00	11.68	3.65
648	19950409	0.06	0.00	11.77	3.68
649	19950410	0.00	0.00	11.71	3.66
650	19950411	0.00	0.00	11.65	3.64
651	19950412	0.00	0.00	11.60	3.62
652	19950413	0.06	0.00	11.69	3.65
653	19950414	0.00	0.00	11.63	3.63
654	19950415	0.11	0.00	11.89	3.72
655	19950416	0.00	0.00	11.83	3.70
656	19950417	0.00	0.00	11.77	3.68
657	19950418	0.00	0.00	11.72	3.66
658	19950419	0.00	0.00	11.66	3.64
659	19950420	0.06	0.00	11.75	3.67
660	19950421	0.06	0.00	11.84	3.70
661	19950422	0.00	0.00	11.78	3.68
662	19950423	0.00	0.00	11.72	3.66
663	19950424	0.00	0.00	11.66	3.64
664	19950425	0.00	0.00	11.60	3.63
665	19950426	0.00	0.00	11.54	3.61
666	19950427	0.00	0.00	11.49	3.59
667	19950428	0.00	0.00	11.43	3.57
668	19950429	0.00	0.00	11.37	3.55
669	19950430	0.00	0.00	11.32	3.54
670	19950501	0.06	0.00	11.41	3.57
671	19950502	0.00	0.00	11.35	3.55
672	19950503	0.00	0.00	11.29	3.53
673	19950504	0.00	0.00	11.24	3.51
674	19950505	0.06	0.00	11.33	3.54
675	19950506	0.00	0.00	11.27	3.52
676	19950507	0.00	0.00	11.22	3.51
677	19950508	0.00	0.00	11.16	3.49
678	19950509	0.00	0.00	11.10	3.47

679	19950510	0.00	0.00	11.05	3.45
680	19950511	0.00	0.00	10.99	3.44
681	19950512	0.06	0.00	11.09	3.47
682	19950513	0.06	0.00	11.18	3.49
683	19950514	0.06	0.00	11.27	3.52
684	19950515	0.06	0.00	11.37	3.55
685	19950516	0.00	0.00	11.31	3.53
686	19950517	0.06	0.00	11.40	3.56
687	19950518	0.00	0.00	11.34	3.55
688	19950519	0.00	0.00	11.29	3.53
689	19950520	0.00	0.00	11.23	3.51
690	19950521	0.00	0.00	11.17	3.49
691	19950522	0.00	0.00	11.12	3.48
692	19950523	0.00	0.00	11.06	3.46
693	19950524	0.00	0.00	11.01	3.44
694	19950525	0.00	0.00	10.95	3.42
695	19950526	0.00	0.00	10.90	3.41
696	19950527	0.00	0.00	10.84	3.39
697	19950528	0.00	0.00	10.79	3.37
698	19950529	0.00	0.00	10.74	3.36
699	19950530	0.00	0.00	10.68	3.34
700	19950531	0.00	0.00	10.63	3.32
701	19950601	0.00	0.00	10.58	3.31
702	19950602	0.00	0.00	10.52	3.29
703	19950603	0.00	0.00	10.47	3.27
704	19950604	0.00	0.00	10.42	3.26
705	19950605	0.00	0.00	10.37	3.24
706	19950606	0.00	0.00	10.31	3.22
707	19950607	0.00	0.00	10.26	3.21
708	19950608	0.00	0.00	10.21	3.19
709	19950609	0.00	0.00	10.16	3.18
710	19950610	0.00	0.00	10.11	3.16
711	19950611	0.00	0.00	10.06	3.14
712	19950612	0.00	0.00	10.01	3.13
713	19950613	0.00	0.00	9.96	3.11
714	19950614	0.00	0.00	9.91	3.10
715	19950615	0.10	0.00	10.15	3.17
716	19950616	0.10	0.00	10.39	3.25
717	19950617	0.04	0.00	10.45	3.27
718	19950618	0.00	0.00	10.39	3.25
719	19950619	0.00	0.00	10.34	3.23
720	19950620	0.00	0.00	10.29	3.22
721	19950621	0.00	0.00	10.24	3.20
722	19950622	0.00	0.00	10.19	3.18
723	19950623	0.00	0.00	10.14	3.17
724	19950624	0.00	0.00	10.09	3.15
725	19950625	0.00	0.00	10.04	3.14
726	19950626	0.00	0.00	9.99	3.12
727	19950627	0.00	0.00	9.94	3.11
728	19950628	0.00	0.00	9.89	3.09
729	19950629	0.00	0.00	9.84	3.07
730	19950630	0.00	0.00	9.79	3.06
731	19950701	0.00	0.00	9.74	3.04
732	19950702	0.00	0.00	9.69	3.03
733	19950703	0.00	0.00	9.64	3.01
734	19950704	0.00	0.00	9.59	3.00
735	19950705	0.00	0.00	9.55	2.98

736	19950706	0.00	0.00	9.50	2.97
737	19950707	0.00	0.00	9.45	2.95
738	19950708	0.00	0.00	9.40	2.94
739	19950709	0.00	0.00	9.36	2.92
740	19950710	0.00	0.00	9.31	2.91
741	19950711	0.00	0.00	9.26	2.89
742	19950712	0.00	0.00	9.22	2.88
743	19950713	0.00	0.00	9.17	2.87
744	19950714	0.00	0.00	9.12	2.85
745	19950715	0.00	0.00	9.08	2.84
746	19950716	0.00	0.00	9.03	2.82
747	19950717	0.00	0.00	8.99	2.81
748	19950718	0.00	0.00	8.94	2.80
749	19950719	0.00	0.00	8.90	2.78
750	19950720	0.00	0.00	8.85	2.77
751	19950721	0.00	0.00	8.81	2.75
752	19950722	0.00	0.00	8.77	2.74
753	19950723	0.00	0.00	8.72	2.73
754	19950724	0.00	0.00	8.68	2.71
755	19950725	0.00	0.00	8.64	2.70
756	19950726	0.00	0.00	8.59	2.69
757	19950727	0.00	0.00	8.55	2.67
758	19950728	0.00	0.00	8.51	2.66
759	19950729	0.00	0.00	8.46	2.65
760	19950730	0.00	0.00	8.42	2.63
761	19950731	0.00	0.00	8.38	2.62
762	19950801	0.00	0.00	8.34	2.61
763	19950802	0.00	0.00	8.30	2.59
764	19950803	0.00	0.00	8.25	2.58
765	19950804	0.00	0.00	8.21	2.57
766	19950805	0.00	0.00	8.17	2.55
767	19950806	0.00	0.00	8.13	2.54
768	19950807	0.00	0.00	8.09	2.53
769	19950808	0.00	0.00	8.05	2.52
770	19950809	0.00	0.00	8.01	2.50
771	19950810	0.00	0.00	7.97	2.49
772	19950811	0.00	0.00	7.93	2.48
773	19950812	0.00	0.00	7.89	2.47
774	19950813	0.00	0.00	7.85	2.45
775	19950814	0.00	0.00	7.81	2.44
776	19950815	0.00	0.00	7.77	2.43
777	19950816	0.00	0.00	7.73	2.42
778	19950817	0.00	0.00	7.69	2.40
779	19950818	0.00	0.00	7.66	2.39
780	19950819	0.00	0.00	7.62	2.38
781	19950820	0.00	0.00	7.58	2.37
782	19950821	0.00	0.00	7.54	2.36
783	19950822	0.00	0.00	7.50	2.35
784	19950823	0.00	0.00	7.47	2.33
785	19950824	0.00	0.00	7.43	2.32
786	19950825	0.00	0.00	7.39	2.31
787	19950826	0.00	0.00	7.36	2.30
788	19950827	0.00	0.00	7.32	2.29
789	19950828	0.00	0.00	7.28	2.28
790	19950829	0.00	0.00	7.25	2.26
791	19950830	0.00	0.00	7.21	2.25
792	19950831	0.00	0.00	7.17	2.24

793	19950901	0.00	0.00	7.14	2.23
794	19950902	0.00	0.00	7.10	2.22
795	19950903	0.00	0.00	7.07	2.21
796	19950904	0.00	0.00	7.03	2.20
797	19950905	0.00	0.00	7.00	2.19
798	19950906	0.00	0.00	6.96	2.18
799	19950907	0.00	0.00	6.93	2.16
800	19950908	0.00	0.00	6.89	2.15
801	19950909	0.00	0.00	6.86	2.14
802	19950910	0.00	0.00	6.82	2.13
803	19950911	0.00	0.00	6.79	2.12
804	19950912	0.00	0.00	6.75	2.11
805	19950913	0.00	0.00	6.72	2.10
806	19950914	0.00	0.00	6.69	2.09
807	19950915	0.00	0.00	6.65	2.08
808	19950916	0.00	0.00	6.62	2.07
809	19950917	0.00	0.00	6.59	2.06
810	19950918	0.00	0.00	6.55	2.05
811	19950919	0.00	0.00	6.52	2.04
812	19950920	0.00	0.00	6.49	2.03
813	19950921	0.00	0.00	6.46	2.02
814	19950922	0.00	0.00	6.42	2.01
815	19950923	0.00	0.00	6.39	2.00
816	19950924	0.00	0.00	6.36	1.99
817	19950925	0.00	0.00	6.33	1.98
818	19950926	0.00	0.00	6.30	1.97
819	19950927	0.00	0.00	6.27	1.96
820	19950928	0.00	0.00	6.23	1.95
821	19950929	0.00	0.00	6.20	1.94
822	19950930	0.00	0.00	6.17	1.93
823	19951001	0.00	0.00	6.14	1.92
824	19951002	0.00	0.00	6.11	1.91
825	19951003	0.00	0.00	6.08	1.90
826	19951004	0.00	0.00	6.05	1.89
827	19951005	0.00	0.00	6.02	1.88
828	19951006	0.00	0.00	5.99	1.87
829	19951007	0.00	0.00	5.96	1.86
830	19951008	0.00	0.00	5.93	1.85
831	19951009	0.00	0.00	5.90	1.84
832	19951010	0.00	0.00	5.87	1.83
833	19951011	0.00	0.00	5.84	1.83
834	19951012	0.00	0.00	5.81	1.82
835	19951013	0.00	0.00	5.78	1.81
836	19951014	0.00	0.00	5.75	1.80
837	19951015	0.00	0.00	5.72	1.79
838	19951016	0.00	0.00	5.70	1.78
839	19951017	0.00	0.00	5.67	1.77
840	19951018	0.00	0.00	5.64	1.76
841	19951019	0.00	0.00	5.61	1.75
842	19951020	0.00	0.00	5.58	1.74
843	19951021	0.00	0.00	5.56	1.74
844	19951022	0.00	0.00	5.53	1.73
845	19951023	0.00	0.00	5.50	1.72
846	19951024	0.00	0.00	5.47	1.71
847	19951025	0.00	0.00	5.44	1.70
848	19951026	0.00	0.00	5.42	1.69
849	19951027	0.00	0.00	5.39	1.68

850	19951028	0.00	0.00	5.36	1.68
851	19951029	0.00	0.00	5.34	1.67
852	19951030	0.00	0.00	5.31	1.66
853	19951031	0.06	0.00	5.43	1.70
854	19951101	0.06	0.00	5.55	1.74
855	19951102	0.00	0.00	5.53	1.73
856	19951103	0.00	0.00	5.50	1.72
857	19951104	0.00	0.00	5.47	1.71
858	19951105	0.00	0.00	5.44	1.70
859	19951106	0.00	0.00	5.42	1.69
860	19951107	0.00	0.00	5.39	1.68
861	19951108	0.00	0.00	5.36	1.68
862	19951109	0.00	0.00	5.34	1.67
863	19951110	0.00	0.00	5.31	1.66
864	19951111	0.00	0.00	5.28	1.65
865	19951112	0.00	0.00	5.26	1.64
866	19951113	0.00	0.00	5.23	1.63
867	19951114	0.00	0.00	5.20	1.63
868	19951115	0.00	0.00	5.18	1.62
869	19951116	0.00	0.00	5.15	1.61
870	19951117	0.00	0.00	5.13	1.60
871	19951118	0.00	0.00	5.10	1.59
872	19951119	0.00	0.00	5.07	1.59
873	19951120	0.00	0.00	5.05	1.58
874	19951121	0.00	0.00	5.02	1.57
875	19951122	0.00	0.00	5.00	1.56
876	19951123	0.00	0.00	4.97	1.55
877	19951124	0.00	0.00	4.95	1.55
878	19951125	0.00	0.00	4.92	1.54
879	19951126	0.00	0.00	4.90	1.53
880	19951127	0.00	0.00	4.88	1.52
881	19951128	0.00	0.00	4.85	1.52
882	19951129	0.00	0.00	4.83	1.51
883	19951130	0.00	0.00	4.80	1.50
884	19951201	0.00	0.00	4.78	1.49
885	19951202	0.00	0.00	4.75	1.49
886	19951203	0.00	0.00	4.73	1.48
887	19951204	0.00	0.00	4.71	1.47
888	19951205	0.00	0.00	4.68	1.46
889	19951206	0.00	0.00	4.66	1.46
890	19951207	0.00	0.00	4.64	1.45
891	19951208	0.06	0.00	4.76	1.49
892	19951209	0.00	0.00	4.74	1.48
893	19951210	0.00	0.00	4.71	1.47
894	19951211	0.66	71.04	6.29	1.86
895	19951212	1.60	512.06	7.56	1.56
896	19951213	0.61	57.38	6.48	1.94
897	19951214	0.00	0.00	6.16	1.93
898	19951215	0.17	0.00	6.63	2.07
899	19951216	0.00	0.00	6.60	2.06
900	19951217	0.00	0.00	6.57	2.05
901	19951218	0.00	0.00	6.53	2.04
902	19951219	0.00	0.00	6.50	2.03
903	19951220	0.00	0.00	6.47	2.02
904	19951221	0.00	0.00	6.44	2.01
905	19951222	0.38	14.53	7.51	2.32
906	19951223	0.00	0.00	7.40	2.31

907	19951224	0.00	0.00	7.36	2.30
908	19951225	0.00	0.00	7.32	2.29
909	19951226	0.00	0.00	7.28	2.28
910	19951227	0.00	0.00	7.25	2.27
911	19951228	0.00	0.00	7.21	2.25
912	19951229	0.06	0.00	7.32	2.29
913	19951230	0.00	0.00	7.29	2.28
914	19951231	0.00	0.00	7.25	2.27
915	19960101	0.00	0.00	7.22	2.26
916	19960102	0.00	0.00	7.18	2.24
917	19960103	0.00	0.00	7.14	2.23
918	19960104	0.00	0.00	7.11	2.22
919	19960105	0.00	0.00	7.07	2.21
920	19960106	0.00	0.00	7.04	2.20
921	19960107	0.00	0.00	7.00	2.19
922	19960108	0.00	0.00	6.97	2.18
923	19960109	0.00	0.00	6.93	2.17
924	19960110	0.00	0.00	6.90	2.16
925	19960111	0.00	0.00	6.86	2.14
926	19960112	0.00	0.00	6.83	2.13
927	19960113	0.00	0.00	6.79	2.12
928	19960114	0.00	0.00	6.76	2.11
929	19960115	0.00	0.00	6.73	2.10
930	19960116	0.71	89.16	8.35	2.47
931	19960117	0.00	0.00	7.86	2.46
932	19960118	0.17	0.00	8.32	2.60
933	19960119	0.00	0.00	8.28	2.59
934	19960120	0.00	0.00	8.24	2.57
935	19960121	0.33	7.65	9.17	2.85
936	19960122	0.06	0.00	9.23	2.89
937	19960123	0.00	0.00	9.19	2.87
938	19960124	0.11	0.00	9.47	2.96
939	19960125	0.11	0.00	9.74	3.05
940	19960126	0.00	0.00	9.70	3.03
941	19960127	0.38	14.53	10.75	3.34
942	19960128	0.00	0.00	10.62	3.32
943	19960129	0.00	0.00	10.57	3.30
944	19960130	0.33	7.65	11.49	3.58
945	19960131	0.00	0.00	11.40	3.56
946	19960201	0.00	0.00	11.34	3.54
947	19960202	0.22	0.27	11.95	3.74
948	19960203	1.26	353.09	13.55	3.68
949	19960204	0.11	0.00	12.04	3.76
950	19960205	0.00	0.00	11.98	3.74
951	19960206	0.00	0.00	11.92	3.73
952	19960207	0.00	0.00	11.86	3.71
953	19960208	0.00	0.00	11.80	3.69
954	19960209	0.00	0.00	11.74	3.67
955	19960210	0.00	0.00	11.68	3.65
956	19960211	0.00	0.00	11.62	3.63
957	19960212	0.00	0.00	11.57	3.61
958	19960213	0.00	0.00	11.51	3.60
959	19960214	0.00	0.00	11.45	3.58
960	19960215	0.17	0.00	11.89	3.72
961	19960216	0.06	0.00	11.98	3.74
962	19960217	0.00	0.00	11.92	3.73
963	19960218	0.28	2.79	12.69	3.96

964	19960219	1.98	694.76	14.27	3.37
965	19960220	0.22	0.27	11.40	3.56
966	19960221	0.55	44.79	12.77	3.92
967	19960222	0.06	0.00	12.63	3.95
968	19960223	0.00	0.00	12.57	3.93
969	19960224	0.06	0.00	12.65	3.95
970	19960225	0.22	0.27	13.27	4.15
971	19960226	0.06	0.00	13.35	4.17
972	19960227	0.28	2.80	14.11	4.41
973	19960228	0.06	0.00	14.18	4.43
974	19960229	0.44	23.16	15.33	4.75
975	19960301	0.00	0.00	15.14	4.73
976	19960302	0.10	0.00	15.35	4.80
977	19960303	0.24	0.97	16.01	5.00
978	19960304	0.04	0.00	16.04	5.01
979	19960305	0.00	0.00	15.96	4.99
980	19960306	0.00	0.00	15.88	4.96
981	19960307	0.00	0.00	15.80	4.94
982	19960308	0.00	0.00	15.72	4.91
983	19960309	0.00	0.00	15.64	4.89
984	19960310	0.00	0.00	15.57	4.86
985	19960311	0.00	0.00	15.49	4.84
986	19960312	0.77	115.42	17.07	5.15
987	19960313	0.00	0.00	16.40	5.13
988	19960314	0.00	0.00	16.32	5.10
989	19960315	0.00	0.00	16.24	5.08
990	19960316	0.00	0.00	16.16	5.05
991	19960317	0.00	0.00	16.08	5.02
992	19960318	0.00	0.00	16.00	5.00
993	19960319	0.00	0.00	15.92	4.97
994	19960320	0.00	0.00	15.84	4.95
995	19960321	0.00	0.00	15.76	4.93
996	19960322	0.00	0.00	15.68	4.90
997	19960323	0.00	0.00	15.60	4.88
998	19960324	0.00	0.00	15.52	4.85
999	19960325	0.00	0.00	15.45	4.83
1000	19960326	0.00	0.00	15.37	4.80
1001	19960327	0.00	0.00	15.29	4.78
1002	19960328	0.19	0.00	15.80	4.94
1003	19960329	0.00	0.00	15.72	4.91
1004	19960330	0.00	0.00	15.64	4.89
1005	19960331	0.00	0.00	15.57	4.86
1006	19960401	0.50	33.28	16.82	5.20
1007	19960402	0.00	0.00	16.57	5.18
1008	19960403	0.00	0.00	16.48	5.15
1009	19960404	0.00	0.00	16.40	5.13
1010	19960405	0.00	0.00	16.32	5.10
1011	19960406	0.00	0.00	16.24	5.07
1012	19960407	0.00	0.00	16.16	5.05
1013	19960408	0.00	0.00	16.07	5.02
1014	19960409	0.00	0.00	15.99	5.00
1015	19960410	0.00	0.00	15.91	4.97
1016	19960411	0.00	0.00	15.83	4.95
1017	19960412	0.00	0.00	15.76	4.92
1018	19960413	0.00	0.00	15.68	4.90
1019	19960414	0.00	0.00	15.60	4.87
1020	19960415	0.11	0.00	15.84	4.95

1021	19960416	0.06	0.00	15.91	4.97
1022	19960417	0.06	0.00	15.98	5.00
1023	19960418	0.00	0.00	15.90	4.97
1024	19960419	0.00	0.00	15.82	4.95
1025	19960420	0.00	0.00	15.74	4.92
1026	19960421	0.00	0.00	15.67	4.90
1027	19960422	0.00	0.00	15.59	4.87
1028	19960423	0.00	0.00	15.51	4.85
1029	19960424	0.00	0.00	15.43	4.82
1030	19960425	0.00	0.00	15.35	4.80
1031	19960426	0.00	0.00	15.28	4.77
1032	19960427	0.00	0.00	15.20	4.75
1033	19960428	0.00	0.00	15.12	4.73
1034	19960429	0.00	0.00	15.05	4.70
1035	19960430	0.00	0.00	14.97	4.68
1036	19960501	0.00	0.00	14.90	4.66
1037	19960502	0.00	0.00	14.82	4.63
1038	19960503	0.00	0.00	14.75	4.61
1039	19960504	0.00	0.00	14.68	4.59
1040	19960505	0.00	0.00	14.60	4.56
1041	19960506	0.00	0.00	14.53	4.54
1042	19960507	0.00	0.00	14.46	4.52
1043	19960508	0.00	0.00	14.39	4.50
1044	19960509	0.00	0.00	14.31	4.47
1045	19960510	0.00	0.00	14.24	4.45
1046	19960511	0.00	0.00	14.17	4.43
1047	19960512	0.00	0.00	14.10	4.41
1048	19960513	0.00	0.00	14.03	4.38
1049	19960514	0.00	0.00	13.96	4.36
1050	19960515	0.55	44.74	15.32	4.72
1051	19960516	0.55	44.74	16.44	5.07
1052	19960517	0.00	0.00	16.14	5.04
1053	19960518	0.00	0.00	16.06	5.02
1054	19960519	0.00	0.00	15.98	4.99
1055	19960520	0.00	0.00	15.90	4.97
1056	19960521	0.06	0.00	15.96	4.99
1057	19960522	0.00	0.00	15.88	4.96
1058	19960523	0.00	0.00	15.81	4.94
1059	19960524	0.00	0.00	15.73	4.91
1060	19960525	0.00	0.00	15.65	4.89
1061	19960526	0.00	0.00	15.57	4.87
1062	19960527	0.00	0.00	15.49	4.84
1063	19960528	0.00	0.00	15.41	4.82
1064	19960529	0.00	0.00	15.34	4.79
1065	19960530	0.00	0.00	15.26	4.77
1066	19960531	0.00	0.00	15.18	4.75
1067	19960601	0.00	0.00	15.11	4.72
1068	19960602	0.00	0.00	15.03	4.70
1069	19960603	0.00	0.00	14.96	4.67
1070	19960604	0.00	0.00	14.88	4.65
1071	19960605	0.00	0.00	14.81	4.63
1072	19960606	0.00	0.00	14.73	4.60
1073	19960607	0.00	0.00	14.66	4.58
1074	19960608	0.00	0.00	14.59	4.56
1075	19960609	0.00	0.00	14.51	4.54
1076	19960610	0.00	0.00	14.44	4.51
1077	19960611	0.00	0.00	14.37	4.49



1078	19960612	0.00	0.00	14.30	4.47
1079	19960613	0.00	0.00	14.23	4.45
1080	19960614	0.00	0.00	14.15	4.42
1081	19960615	0.00	0.00	14.08	4.40
1082	19960616	0.00	0.00	14.01	4.38
1083	19960617	0.00	0.00	13.94	4.36
1084	19960618	0.00	0.00	13.87	4.34
1085	19960619	0.00	0.00	13.80	4.31
1086	19960620	0.00	0.00	13.74	4.29
1087	19960621	0.00	0.00	13.67	4.27
1088	19960622	0.00	0.00	13.60	4.25
1089	19960623	0.00	0.00	13.53	4.23
1090	19960624	0.00	0.00	13.46	4.21
1091	19960625	0.00	0.00	13.40	4.19
1092	19960626	0.00	0.00	13.33	4.17
1093	19960627	0.00	0.00	13.26	4.14
1094	19960628	0.00	0.00	13.20	4.12
1095	19960629	0.00	0.00	13.13	4.10
1096	19960630	0.00	0.00	13.06	4.08
1097	19960701	0.00	0.00	13.00	4.06
1098	19960702	0.00	0.00	12.93	4.04
1099	19960703	0.00	0.00	12.87	4.02
1100	19960704	0.00	0.00	12.80	4.00
1101	19960705	0.00	0.00	12.74	3.98
1102	19960706	0.00	0.00	12.68	3.96
1103	19960707	0.00	0.00	12.61	3.94
1104	19960708	0.00	0.00	12.55	3.92
1105	19960709	0.00	0.00	12.49	3.90
1106	19960710	0.00	0.00	12.43	3.88
1107	19960711	0.00	0.00	12.36	3.86
1108	19960712	0.00	0.00	12.30	3.84
1109	19960713	0.00	0.00	12.24	3.83
1110	19960714	0.00	0.00	12.18	3.81
1111	19960715	0.00	0.00	12.12	3.79
1112	19960716	0.00	0.00	12.06	3.77
1113	19960717	0.00	0.00	12.00	3.75
1114	19960718	0.00	0.00	11.94	3.73
1115	19960719	0.00	0.00	11.88	3.71
1116	19960720	0.00	0.00	11.82	3.69
1117	19960721	0.00	0.00	11.76	3.67
1118	19960722	0.00	0.00	11.70	3.66
1119	19960723	0.00	0.00	11.64	3.64
1120	19960724	0.00	0.00	11.58	3.62
1121	19960725	0.00	0.00	11.53	3.60
1122	19960726	0.00	0.00	11.47	3.58
1123	19960727	0.00	0.00	11.41	3.57
1124	19960728	0.00	0.00	11.35	3.55
1125	19960729	0.00	0.00	11.30	3.53
1126	19960730	0.00	0.00	11.24	3.51
1127	19960731	0.00	0.00	11.18	3.50
1128	19960801	0.00	0.00	11.13	3.48
1129	19960802	0.00	0.00	11.07	3.46
1130	19960803	0.00	0.00	11.02	3.44
1131	19960804	0.00	0.00	10.96	3.43
1132	19960805	0.00	0.00	10.91	3.41
1133	19960806	0.00	0.00	10.85	3.39
1134	19960807	0.00	0.00	10.80	3.37

1135	19960808	0.00	0.00	10.74	3.36
1136	19960809	0.00	0.00	10.69	3.34
1137	19960810	0.00	0.00	10.64	3.32
1138	19960811	0.00	0.00	10.58	3.31
1139	19960812	0.00	0.00	10.53	3.29
1140	19960813	0.00	0.00	10.48	3.27
1141	19960814	0.00	0.00	10.43	3.26
1142	19960815	0.00	0.00	10.37	3.24
1143	19960816	0.00	0.00	10.32	3.23
1144	19960817	0.00	0.00	10.27	3.21
1145	19960818	0.00	0.00	10.22	3.19
1146	19960819	0.00	0.00	10.17	3.18
1147	19960820	0.00	0.00	10.12	3.16
1148	19960821	0.00	0.00	10.07	3.15
1149	19960822	0.00	0.00	10.02	3.13
1150	19960823	0.00	0.00	9.97	3.11
1151	19960824	0.00	0.00	9.92	3.10
1152	19960825	0.00	0.00	9.87	3.08
1153	19960826	0.00	0.00	9.82	3.07
1154	19960827	0.00	0.00	9.77	3.05
1155	19960828	0.00	0.00	9.72	3.04
1156	19960829	0.00	0.00	9.67	3.02
1157	19960830	0.00	0.00	9.62	3.01
1158	19960831	0.00	0.00	9.57	2.99
1159	19960901	0.00	0.00	9.53	2.98
1160	19960902	0.00	0.00	9.48	2.96
1161	19960903	0.00	0.00	9.43	2.95
1162	19960904	0.00	0.00	9.38	2.93
1163	19960905	0.00	0.00	9.34	2.92
1164	19960906	0.00	0.00	9.29	2.90
1165	19960907	0.00	0.00	9.24	2.89
1166	19960908	0.00	0.00	9.20	2.87
1167	19960909	0.00	0.00	9.15	2.86
1168	19960910	0.00	0.00	9.11	2.85
1169	19960911	0.00	0.00	9.06	2.83
1170	19960912	0.00	0.00	9.02	2.82
1171	19960913	0.00	0.00	8.97	2.80
1172	19960914	0.00	0.00	8.93	2.79
1173	19960915	0.00	0.00	8.88	2.78
1174	19960916	0.00	0.00	8.84	2.76
1175	19960917	0.00	0.00	8.79	2.75
1176	19960918	0.00	0.00	8.75	2.73
1177	19960919	0.00	0.00	8.70	2.72
1178	19960920	0.00	0.00	8.66	2.71
1179	19960921	0.00	0.00	8.62	2.69
1180	19960922	0.00	0.00	8.57	2.68
1181	19960923	0.00	0.00	8.53	2.67
1182	19960924	0.00	0.00	8.49	2.65
1183	19960925	0.00	0.00	8.45	2.64
1184	19960926	0.00	0.00	8.40	2.63
1185	19960927	0.00	0.00	8.36	2.61
1186	19960928	0.00	0.00	8.32	2.60
1187	19960929	0.00	0.00	8.28	2.59
1188	19960930	0.00	0.00	8.24	2.57
1189	19961001	0.00	0.00	8.20	2.56
1190	19961002	0.00	0.00	8.16	2.55
1191	19961003	0.00	0.00	8.11	2.54

1192	19961004	0.00	0.00	8.07	2.52
1193	19961005	0.00	0.00	8.03	2.51
1194	19961006	0.00	0.00	7.99	2.50
1195	19961007	0.00	0.00	7.95	2.49
1196	19961008	0.00	0.00	7.91	2.47
1197	19961009	0.00	0.00	7.87	2.46
1198	19961010	0.00	0.00	7.83	2.45
1199	19961011	0.00	0.00	7.80	2.44
1200	19961012	0.00	0.00	7.76	2.42
1201	19961013	0.00	0.00	7.72	2.41
1202	19961014	0.00	0.00	7.68	2.40
1203	19961015	0.00	0.00	7.64	2.39
1204	19961016	0.00	0.00	7.60	2.38
1205	19961017	0.00	0.00	7.56	2.36
1206	19961018	0.00	0.00	7.53	2.35
1207	19961019	0.00	0.00	7.49	2.34
1208	19961020	0.00	0.00	7.45	2.33
1209	19961021	0.00	0.00	7.41	2.32
1210	19961022	0.00	0.00	7.38	2.31
1211	19961023	0.00	0.00	7.34	2.29
1212	19961024	0.00	0.00	7.30	2.28
1213	19961025	0.00	0.00	7.27	2.27
1214	19961026	0.06	0.00	7.38	2.31
1215	19961027	0.00	0.00	7.34	2.29
1216	19961028	0.00	0.00	7.31	2.28
1217	19961029	0.61	57.37	8.79	2.66
1218	19961030	0.06	0.00	8.60	2.69
1219	19961031	0.00	0.00	8.56	2.68
1220	19961101	0.06	0.00	8.67	2.71
1221	19961102	0.00	0.00	8.62	2.70
1222	19961103	0.00	0.00	8.58	2.68
1223	19961104	0.00	0.00	8.54	2.67
1224	19961105	0.00	0.00	8.50	2.66
1225	19961106	0.00	0.00	8.45	2.64
1226	19961107	0.00	0.00	8.41	2.63
1227	19961108	0.00	0.00	8.37	2.62
1228	19961109	0.00	0.00	8.33	2.60
1229	19961110	0.00	0.00	8.29	2.59
1230	19961111	0.00	0.00	8.24	2.58
1231	19961112	0.00	0.00	8.20	2.56
1232	19961113	0.00	0.00	8.16	2.55
1233	19961114	0.00	0.00	8.12	2.54
1234	19961115	0.00	0.00	8.08	2.53
1235	19961116	0.28	2.79	8.87	2.77
1236	19961117	0.83	142.69	10.47	3.05
1237	19961118	0.06	0.00	9.85	3.08
1238	19961119	0.22	0.27	10.48	3.27
1239	19961120	0.00	0.00	10.42	3.26
1240	19961121	0.17	0.00	10.87	3.40
1241	19961122	0.22	0.27	11.49	3.59
1242	19961123	0.00	0.00	11.43	3.57
1243	19961124	0.00	0.00	11.37	3.55
1244	19961125	0.00	0.00	11.32	3.54
1245	19961126	0.00	0.00	11.26	3.52
1246	19961127	0.00	0.00	11.20	3.50
1247	19961128	0.00	0.00	11.15	3.48
1248	19961129	0.00	0.00	11.09	3.47

1249	19961130	0.00	0.00	11.04	3.45
1250	19961201	0.00	0.00	10.98	3.43
1251	19961202	0.00	0.00	10.93	3.41
1252	19961203	0.00	0.00	10.87	3.40
1253	19961204	0.00	0.00	10.82	3.38
1254	19961205	0.17	0.00	11.26	3.52
1255	19961206	0.00	0.00	11.21	3.50
1256	19961207	0.00	0.00	11.15	3.48
1257	19961208	0.00	0.00	11.09	3.47
1258	19961209	0.66	71.04	12.64	3.84
1259	19961210	1.76	590.95	13.88	3.41
1260	19961211	0.00	0.00	10.85	3.39
1261	19961212	0.11	0.00	11.12	3.48
1262	19961213	0.06	0.00	11.22	3.51
1263	19961214	0.06	0.00	11.31	3.53
1264	19961215	0.00	0.00	11.25	3.52
1265	19961216	0.00	0.00	11.20	3.50
1266	19961217	0.00	0.00	11.14	3.48
1267	19961218	0.00	0.00	11.09	3.46
1268	19961219	0.00	0.00	11.03	3.45
1269	19961220	0.00	0.00	10.97	3.43
1270	19961221	0.88	167.95	12.58	3.67
1271	19961222	0.38	14.64	12.78	3.97
1272	19961223	0.00	0.00	12.65	3.95
1273	19961224	0.00	0.00	12.58	3.93
1274	19961225	0.00	0.00	12.52	3.91
1275	19961226	0.38	14.53	13.56	4.21
1276	19961227	0.00	0.00	13.42	4.19
1277	19961228	0.00	0.00	13.35	4.17
1278	19961229	0.99	220.48	14.94	4.32
1279	19961230	0.50	33.45	15.10	4.67
1280	19961231	0.00	0.00	14.86	4.64
1281	19970101	1.49	456.87	16.44	4.42
1282	19970102	0.61	57.52	15.60	4.78
1283	19970103	0.00	0.00	15.23	4.76
1284	19970104	0.00	0.00	15.15	4.74
1285	19970105	0.00	0.00	15.08	4.71
1286	19970106	0.06	0.00	15.15	4.74
1287	19970107	0.00	0.00	15.08	4.71
1288	19970108	0.00	0.00	15.00	4.69
1289	19970109	0.00	0.00	14.93	4.66
1290	19970110	0.00	0.00	14.85	4.64
1291	19970111	0.00	0.00	14.78	4.62
1292	19970112	0.00	0.00	14.70	4.60
1293	19970113	0.17	0.00	15.13	4.73
1294	19970114	0.00	0.00	15.05	4.70
1295	19970115	0.44	23.14	16.20	5.03
1296	19970116	0.33	7.70	16.98	5.29
1297	19970117	0.00	0.00	16.86	5.27
1298	19970118	0.00	0.00	16.77	5.24
1299	19970119	0.00	0.00	16.69	5.22
1300	19970120	0.17	0.00	17.10	5.35
1301	19970121	0.77	116.92	18.67	5.65
1302	19970122	0.17	0.00	18.49	5.78
1303	19970123	0.77	116.72	20.06	6.09
1304	19970124	0.00	0.00	19.37	6.05
1305	19970125	0.33	7.65	20.25	6.32

1306	19970126	0.38	14.59	21.22	6.61
1307	19970127	0.00	0.00	21.04	6.58
1308	19970128	0.00	0.00	20.93	6.54
1309	19970129	0.00	0.00	20.83	6.51
1310	19970130	0.00	0.00	20.73	6.48
1311	19970131	0.00	0.00	20.62	6.45
1312	19970201	0.00	0.00	20.52	6.41
1313	19970202	0.00	0.00	20.42	6.38
1314	19970203	0.00	0.00	20.31	6.35
1315	19970204	0.00	0.00	20.21	6.32
1316	19970205	0.00	0.00	20.11	6.29
1317	19970206	0.00	0.00	20.01	6.25
1318	19970207	0.00	0.00	19.91	6.22
1319	19970208	0.00	0.00	19.81	6.19
1320	19970209	0.00	0.00	19.71	6.16
1321	19970210	0.00	0.00	19.61	6.13
1322	19970211	0.00	0.00	19.52	6.10
1323	19970212	0.00	0.00	19.42	6.07
1324	19970213	0.00	0.00	19.32	6.04
1325	19970214	0.00	0.00	19.22	6.01
1326	19970215	0.00	0.00	19.13	5.98
1327	19970216	0.00	0.00	19.03	5.95
1328	19970217	0.06	0.00	19.09	5.97
1329	19970218	0.00	0.00	18.99	5.94
1330	19970219	0.00	0.00	18.90	5.91
1331	19970220	0.00	0.00	18.80	5.88
1332	19970221	0.00	0.00	18.71	5.85
1333	19970222	0.00	0.00	18.61	5.82
1334	19970223	0.00	0.00	18.52	5.79
1335	19970224	0.06	0.00	18.58	5.81
1336	19970225	0.00	0.00	18.48	5.78
1337	19970226	0.00	0.00	18.39	5.75
1338	19970227	0.00	0.00	18.30	5.72
1339	19970228	0.06	0.00	18.36	5.74
1340	19970301	0.00	0.00	18.27	5.71
1341	19970302	0.00	0.00	18.17	5.68
1342	19970303	0.00	0.00	18.08	5.65
1343	19970304	0.00	0.00	17.99	5.62
1344	19970305	0.00	0.00	17.90	5.60
1345	19970306	0.00	0.00	17.81	5.57
1346	19970307	0.00	0.00	17.72	5.54
1347	19970308	0.00	0.00	17.64	5.51
1348	19970309	0.00	0.00	17.55	5.48
1349	19970310	0.00	0.00	17.46	5.46
1350	19970311	0.00	0.00	17.37	5.43
1351	19970312	0.00	0.00	17.29	5.40
1352	19970313	0.00	0.00	17.20	5.38
1353	19970314	0.00	0.00	17.11	5.35
1354	19970315	0.00	0.00	17.03	5.32
1355	19970316	0.00	0.00	16.94	5.29
1356	19970317	0.00	0.00	16.86	5.27
1357	19970318	0.00	0.00	16.77	5.24
1358	19970319	0.00	0.00	16.69	5.22
1359	19970320	0.00	0.00	16.61	5.19
1360	19970321	0.00	0.00	16.52	5.16
1361	19970322	0.00	0.00	16.44	5.14
1362	19970323	0.00	0.00	16.36	5.11

1363	19970324	0.00	0.00	16.28	5.09
1364	19970325	0.00	0.00	16.19	5.06
1365	19970326	0.00	0.00	16.11	5.04
1366	19970327	0.00	0.00	16.03	5.01
1367	19970328	0.00	0.00	15.95	4.99
1368	19970329	0.00	0.00	15.87	4.96
1369	19970330	0.00	0.00	15.79	4.94
1370	19970331	0.00	0.00	15.72	4.91
1371	19970401	0.00	0.00	15.64	4.89
1372	19970402	0.00	0.00	15.56	4.86
1373	19970403	0.00	0.00	15.48	4.84
1374	19970404	0.00	0.00	15.40	4.81
1375	19970405	0.00	0.00	15.33	4.79
1376	19970406	0.00	0.00	15.25	4.77
1377	19970407	0.00	0.00	15.17	4.74
1378	19970408	0.00	0.00	15.10	4.72
1379	19970409	0.00	0.00	15.02	4.69
1380	19970410	0.00	0.00	14.95	4.67
1381	19970411	0.00	0.00	14.87	4.65
1382	19970412	0.00	0.00	14.80	4.62
1383	19970413	0.00	0.00	14.72	4.60
1384	19970414	0.00	0.00	14.65	4.58
1385	19970415	0.00	0.00	14.58	4.56
1386	19970416	0.00	0.00	14.50	4.53
1387	19970417	0.00	0.00	14.43	4.51
1388	19970418	0.00	0.00	14.36	4.49
1389	19970419	0.00	0.00	14.29	4.47
1390	19970420	0.00	0.00	14.22	4.44
1391	19970421	0.00	0.00	14.14	4.42
1392	19970422	0.00	0.00	14.07	4.40
1393	19970423	0.00	0.00	14.00	4.38
1394	19970424	0.00	0.00	13.93	4.35
1395	19970425	0.00	0.00	13.86	4.33
1396	19970426	0.00	0.00	13.79	4.31
1397	19970427	0.00	0.00	13.73	4.29
1398	19970428	0.00	0.00	13.66	4.27
1399	19970429	0.00	0.00	13.59	4.25
1400	19970430	0.00	0.00	13.52	4.23
1401	19970501	0.00	0.00	13.45	4.20
1402	19970502	0.00	0.00	13.39	4.18
1403	19970503	0.00	0.00	13.32	4.16
1404	19970504	0.00	0.00	13.25	4.14
1405	19970505	0.00	0.00	13.19	4.12
1406	19970506	0.00	0.00	13.12	4.10
1407	19970507	0.00	0.00	13.05	4.08
1408	19970508	0.00	0.00	12.99	4.06
1409	19970509	0.00	0.00	12.92	4.04
1410	19970510	0.00	0.00	12.86	4.02
1411	19970511	0.00	0.00	12.80	4.00
1412	19970512	0.00	0.00	12.73	3.98
1413	19970513	0.00	0.00	12.67	3.96
1414	19970514	0.00	0.00	12.60	3.94
1415	19970515	0.00	0.00	12.54	3.92
1416	19970516	0.00	0.00	12.48	3.90
1417	19970517	0.00	0.00	12.42	3.88
1418	19970518	0.00	0.00	12.35	3.86
1419	19970519	0.00	0.00	12.29	3.84

1420	19970520	0.00	0.00	12.23	3.82
1421	19970521	0.00	0.00	12.17	3.80
1422	19970522	0.00	0.00	12.11	3.78
1423	19970523	0.06	0.00	12.20	3.81
1424	19970524	0.00	0.00	12.14	3.79
1425	19970525	0.00	0.00	12.08	3.77
1426	19970526	0.00	0.00	12.02	3.76
1427	19970527	0.00	0.00	11.96	3.74
1428	19970528	0.00	0.00	11.90	3.72
1429	19970529	0.00	0.00	11.84	3.70
1430	19970530	0.00	0.00	11.78	3.68
1431	19970531	0.00	0.00	11.72	3.66
1432	19970601	0.00	0.00	11.66	3.64
1433	19970602	0.00	0.00	11.60	3.63
1434	19970603	0.00	0.00	11.54	3.61
1435	19970604	0.00	0.00	11.49	3.59
1436	19970605	0.00	0.00	11.43	3.57
1437	19970606	0.00	0.00	11.37	3.55
1438	19970607	0.00	0.00	11.31	3.54
1439	19970608	0.00	0.00	11.26	3.52
1440	19970609	0.00	0.00	11.20	3.50
1441	19970610	0.00	0.00	11.15	3.48
1442	19970611	0.00	0.00	11.09	3.47
1443	19970612	0.00	0.00	11.03	3.45
1444	19970613	0.00	0.00	10.98	3.43
1445	19970614	0.00	0.00	10.92	3.41
1446	19970615	0.00	0.00	10.87	3.40
1447	19970616	0.00	0.00	10.81	3.38
1448	19970617	0.00	0.00	10.76	3.36
1449	19970618	0.00	0.00	10.71	3.35
1450	19970619	0.00	0.00	10.65	3.33
1451	19970620	0.00	0.00	10.60	3.31
1452	19970621	0.00	0.00	10.55	3.30
1453	19970622	0.00	0.00	10.49	3.28
1454	19970623	0.00	0.00	10.44	3.26
1455	19970624	0.00	0.00	10.39	3.25
1456	19970625	0.00	0.00	10.34	3.23
1457	19970626	0.00	0.00	10.29	3.21
1458	19970627	0.00	0.00	10.23	3.20
1459	19970628	0.00	0.00	10.18	3.18
1460	19970629	0.00	0.00	10.13	3.17
1461	19970630	0.00	0.00	10.08	3.15
1462	19970701	0.00	0.00	10.03	3.14
1463	19970702	0.00	0.00	9.98	3.12
1464	19970703	0.00	0.00	9.93	3.10
1465	19970704	0.00	0.00	9.88	3.09
1466	19970705	0.00	0.00	9.83	3.07
1467	19970706	0.00	0.00	9.78	3.06
1468	19970707	0.00	0.00	9.73	3.04
1469	19970708	0.00	0.00	9.69	3.03
1470	19970709	0.00	0.00	9.64	3.01
1471	19970710	0.00	0.00	9.59	3.00
1472	19970711	0.00	0.00	9.54	2.98
1473	19970712	0.00	0.00	9.49	2.97
1474	19970713	0.00	0.00	9.45	2.95
1475	19970714	0.00	0.00	9.40	2.94
1476	19970715	0.00	0.00	9.35	2.92

1477	19970716	0.00	0.00	9.30	2.91
1478	19970717	0.00	0.00	9.26	2.89
1479	19970718	0.00	0.00	9.21	2.88
1480	19970719	0.00	0.00	9.17	2.86
1481	19970720	0.00	0.00	9.12	2.85
1482	19970721	0.00	0.00	9.07	2.84
1483	19970722	0.00	0.00	9.03	2.82
1484	19970723	0.00	0.00	8.98	2.81
1485	19970724	0.00	0.00	8.94	2.79
1486	19970725	0.00	0.00	8.89	2.78
1487	19970726	0.00	0.00	8.85	2.77
1488	19970727	0.00	0.00	8.81	2.75
1489	19970728	0.00	0.00	8.76	2.74
1490	19970729	0.00	0.00	8.72	2.72
1491	19970730	0.00	0.00	8.67	2.71
1492	19970731	0.00	0.00	8.63	2.70
1493	19970801	0.00	0.00	8.59	2.68
1494	19970802	0.00	0.00	8.54	2.67
1495	19970803	0.00	0.00	8.50	2.66
1496	19970804	0.00	0.00	8.46	2.64
1497	19970805	0.00	0.00	8.42	2.63
1498	19970806	0.00	0.00	8.38	2.62
1499	19970807	0.00	0.00	8.33	2.60
1500	19970808	0.00	0.00	8.29	2.59
1501	19970809	0.00	0.00	8.25	2.58
1502	19970810	0.00	0.00	8.21	2.57
1503	19970811	0.00	0.00	8.17	2.55
1504	19970812	0.00	0.00	8.13	2.54
1505	19970813	0.00	0.00	8.09	2.53
1506	19970814	0.00	0.00	8.05	2.51
1507	19970815	0.00	0.00	8.01	2.50
1508	19970816	0.00	0.00	7.97	2.49
1509	19970817	0.00	0.00	7.93	2.48
1510	19970818	0.00	0.00	7.89	2.46
1511	19970819	0.06	0.00	8.00	2.50
1512	19970820	0.06	0.00	8.10	2.53
1513	19970821	0.00	0.00	8.06	2.52
1514	19970822	0.00	0.00	8.02	2.51
1515	19970823	0.00	0.00	7.98	2.50
1516	19970824	0.00	0.00	7.94	2.48
1517	19970825	0.00	0.00	7.90	2.47
1518	19970826	0.00	0.00	7.86	2.46
1519	19970827	0.00	0.00	7.82	2.45
1520	19970828	0.00	0.00	7.79	2.43
1521	19970829	0.00	0.00	7.75	2.42
1522	19970830	0.00	0.00	7.71	2.41
1523	19970831	0.00	0.00	7.67	2.40
1524	19970901	0.00	0.00	7.63	2.38
1525	19970902	0.00	0.00	7.59	2.37
1526	19970903	0.00	0.00	7.56	2.36
1527	19970904	0.00	0.00	7.52	2.35
1528	19970905	0.00	0.00	7.48	2.34
1529	19970906	0.00	0.00	7.44	2.33
1530	19970907	0.00	0.00	7.41	2.31
1531	19970908	0.00	0.00	7.37	2.30
1532	19970909	0.00	0.00	7.33	2.29
1533	19970910	0.00	0.00	7.29	2.28



1534	19970911	0.00	0.00	7.26	2.27
1535	19970912	0.00	0.00	7.22	2.26
1536	19970913	0.00	0.00	7.19	2.25
1537	19970914	0.00	0.00	7.15	2.23
1538	19970915	0.00	0.00	7.11	2.22
1539	19970916	0.00	0.00	7.08	2.21
1540	19970917	0.00	0.00	7.04	2.20
1541	19970918	0.00	0.00	7.01	2.19
1542	19970919	0.00	0.00	6.97	2.18
1543	19970920	0.00	0.00	6.94	2.17
1544	19970921	0.00	0.00	6.90	2.16
1545	19970922	0.00	0.00	6.87	2.15
1546	19970923	0.00	0.00	6.83	2.14
1547	19970924	0.00	0.00	6.80	2.13
1548	19970925	0.00	0.00	6.77	2.11
1549	19970926	0.00	0.00	6.73	2.10
1550	19970927	0.00	0.00	6.70	2.09
1551	19970928	0.00	0.00	6.67	2.08
1552	19970929	0.00	0.00	6.63	2.07
1553	19970930	0.00	0.00	6.60	2.06
1554	19971001	0.00	0.00	6.57	2.05
1555	19971002	0.00	0.00	6.53	2.04
1556	19971003	0.00	0.00	6.50	2.03
1557	19971004	0.00	0.00	6.47	2.02
1558	19971005	0.00	0.00	6.44	2.01
1559	19971006	0.00	0.00	6.40	2.00
1560	19971007	0.00	0.00	6.37	1.99
1561	19971008	0.00	0.00	6.34	1.98
1562	19971009	0.00	0.00	6.31	1.97
1563	19971010	0.00	0.00	6.28	1.96
1564	19971011	0.06	0.00	6.39	2.00
1565	19971012	0.00	0.00	6.36	1.99
1566	19971013	0.00	0.00	6.33	1.98
1567	19971014	0.00	0.00	6.30	1.97
1568	19971015	0.00	0.00	6.27	1.96
1569	19971016	0.00	0.00	6.24	1.95
1570	19971017	0.00	0.00	6.20	1.94
1571	19971018	0.00	0.00	6.17	1.93
1572	19971019	0.00	0.00	6.14	1.92
1573	19971020	0.00	0.00	6.11	1.91
1574	19971021	0.00	0.00	6.08	1.90
1575	19971022	0.00	0.00	6.05	1.89
1576	19971023	0.00	0.00	6.02	1.88
1577	19971024	0.00	0.00	5.99	1.87
1578	19971025	0.00	0.00	5.96	1.86
1579	19971026	0.00	0.00	5.93	1.85
1580	19971027	0.00	0.00	5.90	1.84
1581	19971028	0.00	0.00	5.87	1.83
1582	19971029	0.00	0.00	5.84	1.83
1583	19971030	0.00	0.00	5.81	1.82
1584	19971031	0.00	0.00	5.78	1.81
1585	19971101	0.00	0.00	5.75	1.80
1586	19971102	0.00	0.00	5.73	1.79
1587	19971103	0.00	0.00	5.70	1.78
1588	19971104	0.00	0.00	5.67	1.77
1589	19971105	0.00	0.00	5.64	1.76
1590	19971106	0.00	0.00	5.61	1.75

1591	19971107	0.00	0.00	5.58	1.75
1592	19971108	0.00	0.00	5.56	1.74
1593	19971109	0.00	0.00	5.53	1.73
1594	19971110	0.11	0.00	5.82	1.82
1595	19971111	0.00	0.00	5.80	1.81
1596	19971112	0.00	0.00	5.77	1.80
1597	19971113	0.11	0.00	6.06	1.89
1598	19971114	0.11	0.00	6.36	1.99
1599	19971115	0.38	14.53	7.43	2.30
1600	19971116	0.06	0.00	7.47	2.33
1601	19971117	0.00	0.00	7.43	2.32
1602	19971118	0.06	0.00	7.54	2.36
1603	19971119	0.44	23.18	8.73	2.69
1604	19971120	0.00	0.00	8.57	2.68
1605	19971121	0.00	0.00	8.53	2.66
1606	19971122	0.00	0.00	8.48	2.65
1607	19971123	0.06	0.00	8.59	2.68
1608	19971124	0.00	0.00	8.55	2.67
1609	19971125	0.33	7.65	9.48	2.95
1610	19971126	1.21	326.75	11.05	2.94
1611	19971127	0.00	0.00	9.36	2.92
1612	19971128	0.00	0.00	9.31	2.91
1613	19971129	0.00	0.00	9.26	2.90
1614	19971130	0.33	7.65	10.19	3.17
1615	19971201	0.06	0.00	10.25	3.20
1616	19971202	0.00	0.00	10.20	3.19
1617	19971203	0.00	0.00	10.15	3.17
1618	19971204	0.38	14.53	11.20	3.48
1619	19971205	1.54	485.76	12.73	3.21
1620	19971206	0.17	0.00	10.74	3.36
1621	19971207	0.44	23.27	11.91	3.69
1622	19971208	0.06	0.00	11.88	3.71
1623	19971209	0.06	0.00	11.97	3.74
1624	19971210	0.00	0.00	11.91	3.72
1625	19971211	0.00	0.00	11.85	3.70
1626	19971212	0.00	0.00	11.79	3.69
1627	19971213	0.00	0.00	11.74	3.67
1628	19971214	0.28	2.79	12.51	3.90
1629	19971215	0.00	0.00	12.43	3.88
1630	19971216	0.00	0.00	12.37	3.87
1631	19971217	0.00	0.00	12.31	3.85
1632	19971218	0.00	0.00	12.24	3.83
1633	19971219	0.00	0.00	12.18	3.81
1634	19971220	0.00	0.00	12.12	3.79
1635	19971221	0.00	0.00	12.06	3.77
1636	19971222	0.00	0.00	12.00	3.75
1637	19971223	0.00	0.00	11.94	3.73
1638	19971224	0.00	0.00	11.88	3.71
1639	19971225	0.00	0.00	11.82	3.70
1640	19971226	0.00	0.00	11.76	3.68
1641	19971227	0.00	0.00	11.70	3.66
1642	19971228	0.00	0.00	11.65	3.64
1643	19971229	0.00	0.00	11.59	3.62
1644	19971230	0.00	0.00	11.53	3.60
1645	19971231	0.00	0.00	11.47	3.59
1646	19980101	0.22	0.27	12.09	3.78
1647	19980102	0.17	0.00	12.53	3.92

1648	19980103	0.50	33.31	13.80	4.26
1649	19980104	0.00	0.00	13.56	4.24
1650	19980105	0.14	0.00	13.92	4.35
1651	19980106	0.00	0.00	13.85	4.33
1652	19980107	0.00	0.00	13.78	4.31
1653	19980108	0.00	0.00	13.71	4.29
1654	19980109	0.50	33.28	14.97	4.63
1655	19980110	0.06	0.00	14.88	4.65
1656	19980111	0.00	0.00	14.81	4.63
1657	19980112	0.33	7.65	15.71	4.90
1658	19980113	0.00	0.00	15.59	4.87
1659	19980114	0.17	0.00	16.01	5.00
1660	19980115	0.38	14.59	17.04	5.30
1661	19980116	0.00	0.00	16.88	5.28
1662	19980117	0.00	0.00	16.80	5.25
1663	19980118	0.77	115.42	18.37	5.56
1664	19980119	0.06	0.00	17.85	5.58
1665	19980120	0.00	0.00	17.76	5.55
1666	19980121	0.00	0.00	17.67	5.52
1667	19980122	0.00	0.00	17.58	5.49
1668	19980123	0.00	0.00	17.49	5.47
1669	19980124	0.00	0.00	17.41	5.44
1670	19980125	0.00	0.00	17.32	5.41
1671	19980126	0.00	0.00	17.23	5.39
1672	19980127	0.00	0.00	17.15	5.36
1673	19980128	0.38	14.53	18.16	5.65
1674	19980129	0.33	7.70	18.98	5.92
1675	19980130	0.06	0.00	18.99	5.94
1676	19980131	0.11	0.00	19.22	6.01
1677	19980201	0.61	57.44	20.65	6.36
1678	19980202	2.70	1035.09	21.92	5.22
1679	19980203	0.44	23.17	17.85	5.54
1680	19980204	0.00	0.00	17.65	5.52
1681	19980205	0.00	0.00	17.56	5.49
1682	19980206	1.60	509.40	19.13	5.18
1683	19980207	1.15	300.51	18.14	5.20
1684	19980208	0.28	2.79	17.38	5.43
1685	19980209	0.06	0.00	17.43	5.45
1686	19980210	0.11	0.00	17.67	5.52
1687	19980211	0.00	0.00	17.58	5.49
1688	19980212	0.06	0.00	17.64	5.51
1689	19980213	0.17	0.00	18.05	5.64
1690	19980214	0.50	33.28	19.29	5.98
1691	19980215	0.08	0.00	19.26	6.02
1692	19980216	0.17	0.00	19.68	6.15
1693	19980217	0.06	0.00	19.74	6.17
1694	19980218	0.00	0.00	19.64	6.14
1695	19980219	0.10	0.00	19.84	6.20
1696	19980220	0.02	0.00	19.79	6.18
1697	19980221	0.21	0.08	20.33	6.35
1698	19980222	0.08	0.00	20.45	6.39
1699	19980223	0.02	0.00	20.39	6.37
1700	19980224	0.00	0.00	20.29	6.34
1701	19980225	0.00	0.00	20.19	6.31
1702	19980226	0.00	0.00	20.08	6.28
1703	19980227	0.00	0.00	19.98	6.25
1704	19980228	0.00	0.00	19.88	6.21

1705	19980301	0.00	0.00	19.78	6.18
1706	19980302	0.00	0.00	19.69	6.15
1707	19980303	0.00	0.00	19.59	6.12
1708	19980304	0.00	0.00	19.49	6.09
1709	19980305	0.14	0.00	19.82	6.19
1710	19980306	0.00	0.00	19.72	6.16
1711	19980307	0.00	0.00	19.62	6.13
1712	19980308	0.00	0.00	19.53	6.10
1713	19980309	0.00	0.00	19.43	6.07
1714	19980310	0.00	0.00	19.33	6.04
1715	19980311	0.24	0.75	19.96	6.24
1716	19980312	0.00	0.00	19.85	6.20
1717	19980313	0.00	0.00	19.75	6.17
1718	19980314	0.08	0.00	19.87	6.21
1719	19980315	0.00	0.00	19.77	6.18
1720	19980316	0.00	0.00	19.67	6.15
1721	19980317	0.00	0.00	19.58	6.12
1722	19980318	0.00	0.00	19.48	6.09
1723	19980319	0.00	0.00	19.38	6.06
1724	19980320	0.00	0.00	19.28	6.03
1725	19980321	0.00	0.00	19.19	6.00
1726	19980322	0.00	0.00	19.09	5.97
1727	19980323	0.00	0.00	19.00	5.94
1728	19980324	0.79	125.93	20.56	6.23
1729	19980325	0.19	0.00	20.39	6.37
1730	19980326	0.02	0.00	20.33	6.36
1731	19980327	0.24	0.75	20.95	6.55
1732	19980328	0.02	0.00	20.89	6.53
1733	19980329	0.00	0.00	20.78	6.50
1734	19980330	0.00	0.00	20.68	6.46
1735	19980331	0.00	0.00	20.58	6.43
1736	19980401	0.22	0.27	21.15	6.61
1737	19980402	0.02	0.00	21.08	6.59
1738	19980403	0.38	14.53	22.08	6.88
1739	19980404	0.00	0.00	21.90	6.84
1740	19980405	0.00	0.00	21.79	6.81
1741	19980406	0.00	0.00	21.68	6.78
1742	19980407	0.02	0.00	21.61	6.76
1743	19980408	0.00	0.00	21.51	6.72
1744	19980409	0.00	0.00	21.40	6.69
1745	19980410	0.00	0.00	21.29	6.65
1746	19980411	0.13	0.00	21.58	6.74
1747	19980412	0.00	0.00	21.47	6.71
1748	19980413	0.22	0.27	22.04	6.89
1749	19980414	0.02	0.00	21.97	6.87
1750	19980415	0.02	0.00	21.90	6.85
1751	19980416	0.00	0.00	21.79	6.81
1752	19980417	0.00	0.00	21.68	6.78
1753	19980418	0.00	0.00	21.57	6.74
1754	19980419	0.00	0.00	21.47	6.71
1755	19980420	0.00	0.00	21.36	6.68
1756	19980421	0.00	0.00	21.25	6.64
1757	19980422	0.00	0.00	21.15	6.61
1758	19980423	0.21	0.08	21.68	6.78
1759	19980424	0.00	0.00	21.57	6.74
1760	19980425	0.00	0.00	21.46	6.71
1761	19980426	0.00	0.00	21.36	6.67

1762	19980427	0.00	0.00	21.25	6.64
1763	19980428	0.00	0.00	21.14	6.61
1764	19980429	0.00	0.00	21.04	6.57
1765	19980430	0.00	0.00	20.93	6.54
1766	19980501	0.00	0.00	20.83	6.51
1767	19980502	0.00	0.00	20.72	6.48
1768	19980503	0.00	0.00	20.62	6.44
1769	19980504	0.00	0.00	20.52	6.41
1770	19980505	0.00	0.00	20.41	6.38
1771	19980506	0.00	0.00	20.31	6.35
1772	19980507	0.00	0.00	20.21	6.32
1773	19980508	0.00	0.00	20.11	6.28
1774	19980509	0.00	0.00	20.01	6.25
1775	19980510	0.00	0.00	19.91	6.22
1776	19980511	0.00	0.00	19.81	6.19
1777	19980512	0.00	0.00	19.71	6.16
1778	19980513	0.06	0.00	19.76	6.18
1779	19980514	0.22	0.27	20.33	6.35
1780	19980515	0.00	0.00	20.23	6.32
1781	19980516	0.00	0.00	20.13	6.29
1782	19980517	0.00	0.00	20.03	6.26
1783	19980518	0.00	0.00	19.93	6.23
1784	19980519	0.00	0.00	19.83	6.20
1785	19980520	0.36	10.86	20.77	6.47
1786	19980521	0.00	0.00	20.61	6.44
1787	19980522	0.00	0.00	20.51	6.41
1788	19980523	0.00	0.00	20.41	6.38
1789	19980524	0.00	0.00	20.30	6.35
1790	19980525	0.00	0.00	20.20	6.31
1791	19980526	0.00	0.00	20.10	6.28
1792	19980527	0.28	2.79	20.83	6.51
1793	19980528	0.71	89.16	22.37	6.85
1794	19980529	0.94	194.22	23.47	7.03
1795	19980530	0.06	0.00	22.53	7.04
1796	19980531	0.00	0.00	22.41	7.00
1797	19980601	0.00	0.00	22.30	6.97
1798	19980602	0.00	0.00	22.19	6.94
1799	19980603	0.00	0.00	22.08	6.90
1800	19980604	0.00	0.00	21.97	6.87
1801	19980605	0.00	0.00	21.86	6.83
1802	19980606	0.00	0.00	21.75	6.80
1803	19980607	0.02	0.00	21.68	6.78
1804	19980608	0.00	0.00	21.58	6.74
1805	19980609	0.00	0.00	21.47	6.71
1806	19980610	0.00	0.00	21.36	6.68
1807	19980611	0.02	0.00	21.30	6.66
1808	19980612	0.00	0.00	21.19	6.62
1809	19980613	0.00	0.00	21.08	6.59
1810	19980614	0.00	0.00	20.98	6.56
1811	19980615	0.00	0.00	20.87	6.52
1812	19980616	0.00	0.00	20.77	6.49
1813	19980617	0.00	0.00	20.67	6.46
1814	19980618	0.00	0.00	20.56	6.43
1815	19980619	0.00	0.00	20.46	6.39
1816	19980620	0.00	0.00	20.36	6.36
1817	19980621	0.00	0.00	20.26	6.33
1818	19980622	0.00	0.00	20.15	6.30

1819	19980623	0.00	0.00	20.05	6.27
1820	19980624	0.00	0.00	19.95	6.24
1821	19980625	0.00	0.00	19.85	6.21
1822	19980626	0.00	0.00	19.75	6.17
1823	19980627	0.00	0.00	19.66	6.14
1824	19980628	0.00	0.00	19.56	6.11
1825	19980629	0.00	0.00	19.46	6.08
1826	19980630	0.00	0.00	19.36	6.05
1827	19980701	0.00	0.00	19.27	6.02
1828	19980702	0.00	0.00	19.17	5.99
1829	19980703	0.00	0.00	19.07	5.96
1830	19980704	0.00	0.00	18.98	5.93
1831	19980705	0.00	0.00	18.88	5.90
1832	19980706	0.00	0.00	18.79	5.87
1833	19980707	0.00	0.00	18.70	5.84
1834	19980708	0.00	0.00	18.60	5.81
1835	19980709	0.00	0.00	18.51	5.78
1836	19980710	0.00	0.00	18.42	5.76
1837	19980711	0.00	0.00	18.32	5.73
1838	19980712	0.00	0.00	18.23	5.70
1839	19980713	0.00	0.00	18.14	5.67
1840	19980714	0.00	0.00	18.05	5.64
1841	19980715	0.00	0.00	17.96	5.61
1842	19980716	0.00	0.00	17.87	5.59
1843	19980717	0.00	0.00	17.78	5.56
1844	19980718	0.00	0.00	17.69	5.53
1845	19980719	0.00	0.00	17.60	5.50
1846	19980720	0.00	0.00	17.52	5.47
1847	19980721	0.00	0.00	17.43	5.45
1848	19980722	0.00	0.00	17.34	5.42
1849	19980723	0.00	0.00	17.25	5.39
1850	19980724	0.00	0.00	17.17	5.37
1851	19980725	0.00	0.00	17.08	5.34
1852	19980726	0.00	0.00	17.00	5.31
1853	19980727	0.00	0.00	16.91	5.29
1854	19980728	0.00	0.00	16.83	5.26
1855	19980729	0.00	0.00	16.74	5.23
1856	19980730	0.00	0.00	16.66	5.21
1857	19980731	0.00	0.00	16.58	5.18
1858	19980801	0.00	0.00	16.49	5.15
1859	19980802	0.00	0.00	16.41	5.13
1860	19980803	0.00	0.00	16.33	5.10
1861	19980804	0.00	0.00	16.25	5.08
1862	19980805	0.00	0.00	16.17	5.05
1863	19980806	0.00	0.00	16.08	5.03
1864	19980807	0.00	0.00	16.00	5.00
1865	19980808	0.00	0.00	15.92	4.98
1866	19980809	0.00	0.00	15.84	4.95
1867	19980810	0.00	0.00	15.77	4.93
1868	19980811	0.00	0.00	15.69	4.90
1869	19980812	0.00	0.00	15.61	4.88
1870	19980813	0.00	0.00	15.53	4.85
1871	19980814	0.00	0.00	15.45	4.83
1872	19980815	0.00	0.00	15.38	4.81
1873	19980816	0.00	0.00	15.30	4.78
1874	19980817	0.00	0.00	15.22	4.76
1875	19980818	0.00	0.00	15.15	4.73

1876	19980819	0.00	0.00	15.07	4.71
1877	19980820	0.00	0.00	14.99	4.69
1878	19980821	0.00	0.00	14.92	4.66
1879	19980822	0.00	0.00	14.85	4.64
1880	19980823	0.00	0.00	14.77	4.62
1881	19980824	0.00	0.00	14.70	4.59
1882	19980825	0.00	0.00	14.62	4.57
1883	19980826	0.00	0.00	14.55	4.55
1884	19980827	0.00	0.00	14.48	4.52
1885	19980828	0.00	0.00	14.41	4.50
1886	19980829	0.00	0.00	14.33	4.48
1887	19980830	0.00	0.00	14.26	4.46
1888	19980831	0.00	0.00	14.19	4.43
1889	19980901	0.00	0.00	14.12	4.41
1890	19980902	0.00	0.00	14.05	4.39
1891	19980903	0.00	0.00	13.98	4.37
1892	19980904	0.02	0.00	13.95	4.36
1893	19980905	0.03	0.00	13.94	4.36
1894	19980906	0.00	0.00	13.87	4.34
1895	19980907	0.00	0.00	13.80	4.31
1896	19980908	0.00	0.00	13.74	4.29
1897	19980909	0.00	0.00	13.67	4.27
1898	19980910	0.00	0.00	13.60	4.25
1899	19980911	0.00	0.00	13.53	4.23
1900	19980912	0.00	0.00	13.46	4.21
1901	19980913	0.00	0.00	13.40	4.19
1902	19980914	0.00	0.00	13.33	4.17
1903	19980915	0.00	0.00	13.26	4.14
1904	19980916	0.00	0.00	13.20	4.12
1905	19980917	0.00	0.00	13.13	4.10
1906	19980918	0.00	0.00	13.06	4.08
1907	19980919	0.00	0.00	13.00	4.06
1908	19980920	0.00	0.00	12.93	4.04
1909	19980921	0.00	0.00	12.87	4.02
1910	19980922	0.00	0.00	12.80	4.00
1911	19980923	0.00	0.00	12.74	3.98
1912	19980924	0.00	0.00	12.68	3.96
1913	19980925	0.00	0.00	12.61	3.94
1914	19980926	0.00	0.00	12.55	3.92
1915	19980927	0.00	0.00	12.49	3.90
1916	19980928	0.00	0.00	12.43	3.88
1917	19980929	0.00	0.00	12.36	3.86
1918	19980930	0.00	0.00	12.30	3.84

## **Appendix C**

### **Arroyo Seco Recharge Estimation**

This appendix includes printout of the EXCEL spreadsheet table used in estimation of recharge rates for the Arroyo Seco.



## Update of the Historical Benefits Analysis (HBA) Hydrologic Investigation Analysis of daily recharge in Arroyo Seco

Q1 = measured flow at USGS station 11152000, "Arroyo Seco nr Soledad" (cfs)  
 Q2 = measured flow at USGS station 11152050, "Arroyo Seco Bl Reliz C nr Soledad" (cfs)  
 D = diversions by Clark Colony (cfs)

**Parameters:**

52800                    Length of Arroyo Seco channel from Q1 to Q2 (ft)  
 0.35                    Coefficient in width-discharge function  
 19.9                    Constant in the relationship  
 85                        Max width of AS channel (ft)  
 130                    Discharge where max width applies (cfs)  
 1                         Hydraulic Gradient (Hs-Hg)/bs  
                           Normal Values Used

Day	Q1 (cfs)	Q <sub>Relize</sub> (cfs)	D (cfs)	Q2 (cfs)	Gain(-ve) / Loss(+ve) (cfs)	+ve Recharge (River Loss Rate) (cfs)	Width (ft)	Bed K (ft/Day)
1994.11.06	0.77	0	0.00	0	0.77	0.77	20	0.06
1994.11.07	1.3	0	0.00	0	1.30	1.30	20	0.10
1994.11.08	3.7	0	0.00	0	3.70	3.70	21	0.29
1994.11.09	4.8	0	0.00	0	4.80	4.80	22	0.36
1994.11.10	7.3	0	0.00	0	7.30	7.30	22	0.53
1994.11.11	16	71.04	0.00	0	87.04	87.04	26	5.59
1994.11.12	12	0	0.00	0	12.00	12.00	24	0.81
1994.11.13	9.2	0	0.00	0	9.20	9.20	23	0.65
1994.11.14	6.9	0	0.00	0	6.90	6.90	22	0.51
1994.11.15	6.4	13	0.00	0	19.40	19.40	22	1.43
1994.11.16	6.8	0	0.00	0	6.80	6.80	22	0.50
1994.11.17	7.6	0	0.00	0	7.60	7.60	23	0.55
1994.11.18	8.6	0	0.00	0	8.60	8.60	23	0.61
1994.11.19	7.6	0	0.00	0	7.60	7.60	23	0.55
1994.11.20	7.7	0	0.00	0	7.70	7.70	23	0.56
1994.11.21	6.9	0	0.00	0	6.90	6.90	22	0.51
1994.11.22	6.4	0	0.00	0	6.40	6.40	22	0.47
1994.11.23	6.2	0	0.00	0	6.20	6.20	22	0.46
1994.11.24	6.8	0	0.00	0	6.80	6.80	22	0.50
1994.11.25	7.4	8.88	0.00	0	16.28	16.28	22	1.18
1994.11.26	22	0	0.00	0	22.00	22.00	28	1.30
1994.11.27	50	0	0.00	0	50.00	50.00	37	2.19
1994.11.28	26	0	0.00	0	26.00	26.00	29	1.47
1994.11.29	19	0	0.00	0	19.00	19.00	27	1.17
1994.11.30	16	0	0.00	0	16.00	16.00	26	1.03
1994.12.01	13	0	0.00	0	13.00	13.00	24	0.87
1994.12.02	12	0	0.00	0	12.00	12.00	24	0.81
1994.12.03	11	0	0.00	0	11.00	11.00	24	0.76

1994.12.04	11	0	0.00	0	11.00	11.00	24	0.76
1994.12.05	12	0	0.00	0	12.00	12.00	24	0.81
1994.12.06	21	0	0.00	0	21.00	21.00	27	1.26
1994.12.07	19	0	0.00	0	19.00	19.00	27	1.17
1994.12.08	17	0	0.00	0	17.00	17.00	26	1.08
1994.12.09	14	0	0.00	0	14.00	14.00	25	0.92
1994.12.10	14	0	0.00	0	14.00	14.00	25	0.92
1994.12.11	14	0	0.00	0	14.00	14.00	25	0.92
1994.12.12	14	0.27	0.00	0	14.27	14.27	25	0.94
1994.12.13	19	0	0.00	0	19.00	19.00	27	1.17
1994.12.14	38	0.28	0.00	0	38.28	38.28	33	1.89
1994.12.15	58	0	0.00	0	58.00	58.00	40	2.36
1994.12.16	56	0	0.00	0	56.00	56.00	40	2.32
1994.12.17	30	0	0.00	0	30.00	30.00	30	1.61
1994.12.18	25	0	0.00	0	25.00	25.00	29	1.43
1994.12.19	22	0	0.00	0	22.00	22.00	28	1.30
1994.12.20	20	0	0.00	0	20.00	20.00	27	1.22
1994.12.21	19	0	0.00	0	19.00	19.00	27	1.17
1994.12.22	19	0	0.00	0	19.00	19.00	27	1.17
1994.12.23	18	0	0.00	0	18.00	18.00	26	1.12
1994.12.24	20	7.65	0.00	0	27.65	27.65	27	1.68
1994.12.25	31	0	0.00	0	31.00	31.00	31	1.65
1994.12.26	33	0	0.00	0	33.00	33.00	31	1.72
1994.12.27	28	0	0.00	0	28.00	28.00	30	1.54
1994.12.28	26	0	0.00	0	26.00	26.00	29	1.47
1994.12.29	26	0	0.00	0	26.00	26.00	29	1.47
1994.12.30	25	0	0.00	0	25.00	25.00	29	1.43
1994.12.31	24	0	0.00	0	24.00	24.00	28	1.39
1995.01.01	25	0	0.00	0	25.00	25.00	29	1.43
1995.01.02	27	0	0.00	0	27.00	27.00	29	1.51
1995.01.03	168	0	0.00	10	158.00	158.00	85	3.04
1995.01.04	1860	590.34	0.00	1500	950.34	950.34	85	18.30
1995.01.05	1440	0	0.00	1500	-60.00		85	
1995.01.06	392	33.28	0.00	500	-74.72		85	
1995.01.07	803	14.59	0.00	800	17.59	17.59	85	0.34
1995.01.08	611	0.27	0.00	700	-88.73		85	
1995.01.09	2370	642.47	0.00	2000	1012.47	1012.47	85	19.49
1995.01.10	10200	110.66	0.00	12000	-1689.34		85	
1995.01.11	2600	0	0.00	3000	-400.00		85	
1995.01.12	1470	0	0.00	1600	-130.00		85	
1995.01.13	1050	0	0.00	1060	-10.00		85	
1995.01.14	1510	0	0.00	1280	230.00	230.00	85	4.43
1995.01.15	1770	0	0.00	1280	490.00	490.00	85	9.43
1995.01.16	1300	0	0.00	973	327.00	327.00	85	6.30
1995.01.17	979	0	0.00	761	218.00	218.00	85	4.20
1995.01.18	768	0	0.00	568	200.00	200.00	85	3.85
1995.01.19	629	0	0.00	377	252.00	252.00	85	4.85
1995.01.20	633	249.38	0.00	315	567.38	567.38	85	10.92
1995.01.21	1030	0	0.00	774	256.00	256.00	85	4.93
1995.01.22	1140	8.88	0.00	779	369.88	369.88	85	7.12

1995.01.23	2100	111.65	0.00	2170	41.65	41.65	85	0.80
1995.01.24	4600	405	0.00	5930	-925.00		85	
1995.01.25	2740	0	0.00	3760	-1020.00		85	
1995.01.26	1740	0	0.00	2160	-420.00		85	
1995.01.27	1420	0	0.00	1530	-110.00		85	
1995.01.28	1370	0	0.00	1430	-60.00		85	
1995.01.29	1060	0	0.00	1010	50.00	50.00	85	0.96
1995.01.30	857	0	0.00	780	77.00	77.00	85	1.48
1995.01.31	724	0	0.00	623	101.00	101.00	85	1.94
1995.02.01	626	0	0.00	513	113.00	113.00	85	2.18
1995.02.02	553	0	0.00	415	138.00	138.00	85	2.66
1995.02.03	499	0	0.00	337	162.00	162.00	85	3.12
1995.02.04	447	0	0.00	287	160.00	160.00	85	3.08
1995.02.05	402	0	0.00	254	148.00	148.00	85	2.85
1995.02.06	367	0	0.00	225	142.00	142.00	85	2.73
1995.02.07	341	0	0.00	209	132.00	132.00	85	2.54
1995.02.08	338	8.9	0.00	201	145.90	145.90	85	2.81
1995.02.09	327	0	0.00	195	132.00	132.00	85	2.54
1995.02.10	288	0	0.00	159	129.00	129.00	85	2.48
1995.02.11	265	0	0.00	140	125.00	125.00	85	2.41
1995.02.12	247	0	0.00	123	124.00	124.00	85	2.39
1995.02.13	241	14.53	0.00	116	139.53	139.53	85	2.69
1995.02.14	485	0	0.00	328	157.00	157.00	85	3.02
1995.02.15	330	0	0.00	235	95.00	95.00	85	1.83
1995.02.16	285	0	0.00	175	110.00	110.00	85	2.12
1995.02.17	259	0	0.00	153	106.00	106.00	85	2.04
1995.02.18	239	0	0.00	129	110.00	110.00	85	2.12
1995.02.19	223	0	0.00	125	98.00	98.00	85	1.89
1995.02.20	208	0	0.00	111	97.00	97.00	85	1.87
1995.02.21	197	0	0.00	99	98.00	98.00	85	1.89
1995.02.22	186	0	0.00	87	99.00	99.00	85	1.91
1995.02.23	175	0	0.00	79	96.00	96.00	85	1.85
1995.02.24	167	0	0.00	63	104.00	104.00	85	2.00
1995.02.25	161	0	0.00	64	97.00	97.00	85	1.87
1995.02.26	153	0	0.00	57	96.00	96.00	85	1.85
1995.02.27	148	0	0.00	48	100.00	100.00	85	1.93
1995.02.28	144	0	0.00	45	99.00	99.00	85	1.91
1995.03.01	139	0	0.00	46	93.00	93.00	85	1.79
1995.03.02	159	0	0.00	43	116.00	116.00	85	2.23
1995.03.03	348	0	0.00	146	202.00	202.00	85	3.89
1995.03.04	296	7.65	0.00	148	155.65	155.65	85	3.00
1995.03.05	479	2.79	0.00	242	239.79	239.79	85	4.62
1995.03.06	440	0	0.00	282	158.00	158.00	85	3.04
1995.03.07	364	0	0.00	213	151.00	151.00	85	2.91
1995.03.08	327	0	0.00	189	138.00	138.00	85	2.66
1995.03.09	2920	588.2	0.00	2830	678.20	678.20	85	13.06
1995.03.10	15800	1166.03	0.00	17000	-33.97		85	
1995.03.11	7660	0.27	0.00	9000	-1339.73		85	
1995.03.12	3480	0	0.00	4000	-520.00		85	
1995.03.13	2320	0	0.00	2800	-480.00		85	

1995.03.14	1680	0	0.00	2100	-420.00		85	
1995.03.15	1330	0	0.00	1700	-370.00		85	
1995.03.16	1180	0	0.00	1370	-190.00		85	
1995.03.17	1030	0	0.00	1030	0.00		85	
1995.03.18	897	0	0.00	784	113.00	113.00	85	2.18
1995.03.19	835	0	0.00	637	198.00	198.00	85	3.81
1995.03.20	849	7.65	0.00	556	300.65	300.65	85	5.79
1995.03.21	919	0	0.00	848	71.00	71.00	85	1.37
1995.03.22	2120	483.14	0.00	2580	23.14	23.14	85	0.45
1995.03.23	2680	0	0.00	2800	-120.00		85	
1995.03.24	1640	0	0.00	1850	-210.00		85	
1995.03.25	1620	0	0.00	1770	-150.00		85	
1995.03.26	1440	0	0.00	1370	70.00	70.00	85	1.35
1995.03.27	1290	0	0.00	1040	250.00	250.00	85	4.81
1995.03.28	1150	0	0.00	807	343.00	343.00	85	6.60
1995.03.29	931	0	0.00	762	169.00	169.00	85	3.25
1995.03.30	857	0	0.00	701	156.00	156.00	85	3.00
1995.03.31	829	0	0.00	624	205.00	205.00	85	3.95
1995.04.01	776	0	0.00	575	201.00	201.00	85	3.87
1995.04.02	729	0	0.00	546	183.00	183.00	85	3.52
1995.04.03	662	0	0.00	542	120.00	120.00	85	2.31
1995.04.04	615	0	0.00	526	89.00	89.00	85	1.71
1995.04.05	579	0	0.00	487	92.00	92.00	85	1.77
1995.04.06	543	0	0.00	434	109.00	109.00	85	2.10
1995.04.07	523	0	0.00	393	130.00	130.00	85	2.50
1995.04.08	494	0	0.00	367	127.00	127.00	85	2.44
1995.04.09	466	0	0.00	343	123.00	123.00	85	2.37
1995.04.10	446	0	0.00	330	116.00	116.00	85	2.23
1995.04.11	417	0	0.00	298	119.00	119.00	85	2.29
1995.04.12	394	0	0.00	273	121.00	121.00	85	2.33
1995.04.13	395	0	0.00	279	116.00	116.00	85	2.23
1995.04.14	374	0	0.00	270	104.00	104.00	85	2.00
1995.04.15	361	0	0.00	258	103.00	103.00	85	1.98
1995.04.16	360	0	0.00	265	95.00	95.00	85	1.83
1995.04.17	370	0	0.00	245	125.00	125.00	85	2.41
1995.04.18	355	0	0.00	246	109.00	109.00	85	2.10
1995.04.19	345	0	0.00	233	112.00	112.00	85	2.16
1995.04.20	335	0	0.00	219	116.00	116.00	85	2.23
1995.04.21	328	0	0.00	205	123.00	123.00	85	2.37
1995.04.22	320	0	0.00	190	130.00	130.00	85	2.50
1995.04.23	312	0	0.00	170	142.00	142.00	85	2.73
1995.04.24	305	0	0.00	155	150.00	150.00	85	2.89
1995.04.25	300	0	0.00	145	155.00	155.00	85	2.98
1995.04.26	295	0	0.00	142	153.00	153.00	85	2.95
1995.04.27	365	0	0.00	142	223.00	223.00	85	4.29
1995.04.28	400	0	0.00	187	213.00	213.00	85	4.10
1995.04.29	640	0	0.00	195	445.00	445.00	85	8.57
1995.04.30	746	0	0.00	845	-99.00		85	
1995.05.01	452	0	31.54	363	57.46	57.46	85	1.11
1995.05.02	401	0	31.54	291	78.46	78.46	85	1.51

1995.05.03	358	0	31.54	241	85.46	85.46	85	1.65
1995.05.04	342	0	31.54	216	94.46	94.46	85	1.82
1995.05.05	335	0	31.54	184	119.46	119.46	85	2.30
1995.05.06	320	0	31.54	180	108.46	108.46	85	2.09
1995.05.07	301	0	31.54	169	100.46	100.46	85	1.93
1995.05.08	285	0	31.54	151	102.46	102.46	85	1.97
1995.05.09	268	0	31.54	141	95.46	95.46	85	1.84
1995.05.10	252	0	31.54	128	92.46	92.46	85	1.78
1995.05.11	240	0	31.54	111	97.46	97.46	85	1.88
1995.05.12	230	0	31.54	102	96.46	96.46	85	1.86
1995.05.13	270	0	31.54	108	130.46	130.46	85	2.51
1995.05.14	250	0	31.54	111	107.46	107.46	85	2.07
1995.05.15	230	0	31.54	102	96.46	96.46	85	1.86
1995.05.16	215	0	31.54	97	86.46	86.46	85	1.66
1995.05.17	201	0	31.54	81	88.46	88.46	85	1.70
1995.05.18	190	0	31.54	70	88.46	88.46	85	1.70
1995.05.19	172	0	31.54	70	70.46	70.46	85	1.36
1995.05.20	170	0	31.54	70	68.46	68.46	85	1.32
1995.05.21	164	0	31.54	65	67.46	67.46	85	1.30
1995.05.22	163	0	31.54	60	71.46	71.46	85	1.38
1995.05.23	160	0	31.54	55	73.46	73.46	85	1.41
1995.05.24	159	0	31.54	50	77.46	77.46	85	1.49
1995.05.25	159	0	31.54	45	82.46	82.46	85	1.59
1995.05.26	151	0	31.54	40	79.46	79.46	85	1.53
1995.05.27	146	0	31.54	35	79.46	79.46	85	1.53
1995.05.28	143	0	31.54	30	81.46	81.46	85	1.57
1995.05.29	137	0	31.54	25	80.46	80.46	85	1.55
1995.05.30	128	0	31.54	20	76.46	76.46	65	1.93
1995.05.31	130	0	31.54	15	83.46	83.46	85	1.61
1995.06.01	130	0	21.47	10	98.53	98.53	85	1.90
1995.06.02	127	0	21.47	6	99.53	99.53	64	2.53
1995.06.03	127	0	21.47	6	99.53	99.53	64	2.53
1995.06.04	122	0	21.47	6	94.53	94.53	63	2.47
1995.06.05	120	0	21.47	6	92.53	92.53	62	2.45
1995.06.06	118	0	21.47	5.8	90.73	90.73	61	2.43
1995.06.07	116	0	21.47	5.7	88.83	88.83	61	2.40
1995.06.08	114	0	21.47	3	89.53	89.53	60	2.45
1995.06.09	110	0	21.47	1	87.53	87.53	58	2.45
1995.06.10	106	0	21.47	0	84.53	84.53	57	2.43
1995.06.11	104	0	21.47	0	82.53	82.53	56	2.40
1995.06.12	101	0	21.47	0	79.53	79.53	55	2.36
1995.06.13	99	0	21.47	0	77.53	77.53	55	2.33
1995.06.14	97	0	21.47	0	75.53	75.53	54	2.30
1995.06.15	96	0	21.47	0	74.53	74.53	54	2.28
1995.06.16	115	0	21.47	0	93.53	93.53	60	2.54
1995.06.17	120	0	21.47	0	98.53	98.53	62	2.60
1995.06.18	100	0	21.47	0	78.53	78.53	55	2.34
1995.06.19	95	0	21.47	0	73.53	73.53	53	2.26
1995.06.20	90	0	21.47	0	68.53	68.53	51	2.18
1995.06.21	92	0	21.47	0	70.53	70.53	52	2.22

1995.06.22	94	0	21.47	0	72.53	72.53	53	2.25
1995.06.23	96	0	21.47	0	74.53	74.53	54	2.28
1995.06.24	93	0	21.47	0	71.53	71.53	52	2.23
1995.06.25	84	0	21.47	0	62.53	62.53	49	2.08
1995.06.26	70	0	21.47	0	48.53	48.53	44	1.79
1995.06.27	67	0	21.47	0	45.53	45.53	43	1.72
1995.06.28	66	0	21.47	0	44.53	44.53	43	1.69
1995.06.29	63	0	21.47	0	41.53	41.53	42	1.62
1995.06.30	63	0	21.47	0	41.53	41.53	42	1.62
1995.07.01	62	0	31.48	0	30.52	30.52	42	1.20
1995.07.02	62	0	31.48	0	30.52	30.52	42	1.20
1995.07.03	59	0	31.48	0	27.52	27.52	41	1.11
1995.07.04	60	0	31.48	0	28.52	28.52	41	1.14
1995.07.05	58	0	31.48	0	26.52	26.52	40	1.08
1995.07.06	53	0	31.48	0	21.52	21.52	38	0.92
1995.07.07	51	0	31.48	0	19.52	19.52	38	0.85
1995.07.08	50	0	31.48	0	18.52	18.52	37	0.81
1995.07.09	49	0	31.48	0	17.52	17.52	37	0.77
1995.07.10	49	0	31.48	0	17.52	17.52	37	0.77
1995.07.11	48	0	31.48	0	16.52	16.52	37	0.74
1995.07.12	48	0	31.48	0	16.52	16.52	37	0.74
1995.07.13	48	0	31.48	0	16.52	16.52	37	0.74
1995.07.14	48	0	31.48	0	16.52	16.52	37	0.74
1995.07.15	47	0	31.48	0	15.52	15.52	36	0.70
1995.07.16	47	0	31.48	0	15.52	15.52	36	0.70
1995.07.17	44	0	31.48	0	12.52	12.52	35	0.58
1995.07.18	45	0	31.48	0	13.52	13.52	36	0.62
1995.07.19	42	0	31.48	0	10.52	10.52	35	0.50
1995.07.20	42	0	31.48	0	10.52	10.52	35	0.50
1995.07.21	42	0	31.48	0	10.52	10.52	35	0.50
1995.07.22	41	0	31.48	0	9.52	9.52	34	0.45
1995.07.23	41	0	31.48	0	9.52	9.52	34	0.45
1995.07.24	40	0	31.48	0	8.52	8.52	34	0.41
1995.07.25	37	0	31.48	0	5.52	5.52	33	0.28
1995.07.26	36	0	31.48	0	4.52	4.52	33	0.23
1995.07.27	34	0	31.48	0	2.52	2.52	32	0.13
1995.07.28	32	0	31.48	0	0.52	0.52	31	0.03
1995.07.29	31	0	31.00	0	0.00		31	
1995.07.30	30	0	30.00	0	0.00		30	
1995.07.31	28	0	28.00	0	0.00		30	
1995.08.01	26	0	24.04	0	1.96	1.96	29	0.11
1995.08.02	25	0	24.04	0	0.96	0.96	29	0.05
1995.08.03	23	0	23.00	0	0.00		28	
1995.08.04	22	0	22.00	0	0.00		28	
1995.08.05	22	0	22.00	0	0.00		28	
1995.08.06	20	0	20.00	0	0.00		27	
1995.08.07	14	0	14.00	0	0.00		25	
1995.08.08	13	0	13.00	0	0.00		24	
1995.08.09	13	0	13.00	0	0.00		24	
1995.08.10	13	0	13.00	0	0.00		24	

1995.08.11	13	0	13.00	0	0.00	24
1995.08.12	14	0	14.00	0	0.00	25
1995.08.13	14	0	14.00	0	0.00	25
1995.08.14	12	0	12.00	0	0.00	24
1995.08.15	11	0	11.00	0	0.00	24
1995.08.16	12	0	12.00	0	0.00	24
1995.08.17	11	0	11.00	0	0.00	24
1995.08.18	11	0	11.00	0	0.00	24
1995.08.19	12	0	12.00	0	0.00	24
1995.08.20	12	0	12.00	0	0.00	24
1995.08.21	15	0	15.00	0	0.00	25
1995.08.22	15	0	15.00	0	0.00	25
1995.08.23	14	0	14.00	0	0.00	25
1995.08.24	13	0	13.00	0	0.00	24
1995.08.25	13	0	13.00	0	0.00	24
1995.08.26	12	0	12.00	0	0.00	24
1995.08.27	12	0	12.00	0	0.00	24
1995.08.28	11	0	11.00	0	0.00	24
1995.08.29	11	0	11.00	0	0.00	24
1995.08.30	12	0	12.00	0	0.00	24
1995.08.31	13	0	13.00	0	0.00	24
1995.09.01	13	0	13.00	0	0.00	24
1995.09.02	12	0	12.00	0	0.00	24
1995.09.03	11	0	11.00	0	0.00	24
1995.09.04	11	0	11.00	0	0.00	24
1995.09.05	9.3	0	9.30	0	0.00	23
1995.09.06	10	0	10.00	0	0.00	23
1995.09.07	9.9	0	9.90	0	0.00	23
1995.09.08	9.9	0	9.90	0	0.00	23
1995.09.09	10	0	10.00	0	0.00	23
1995.09.10	10	0	10.00	0	0.00	23
1995.09.11	11	0	11.00	0	0.00	24
1995.09.12	11	0	11.00	0	0.00	24
1995.09.13	11	0	11.00	0	0.00	24
1995.09.14	11	0	11.00	0	0.00	24
1995.09.15	11	0	11.00	0	0.00	24
1995.09.16	11	0	11.00	0	0.00	24
1995.09.17	11	0	11.00	0	0.00	24
1995.09.18	11	0	11.00	0	0.00	24
1995.09.19	10	0	10.00	0	0.00	23
1995.09.20	10	0	10.00	0	0.00	23
1995.09.21	9.5	0	9.50	0	0.00	23
1995.09.22	9.2	0	9.20	0	0.00	23
1995.09.23	11	0	11.00	0	0.00	24
1995.09.24	11	0	11.00	0	0.00	24
1995.09.25	10	0	10.00	0	0.00	23
1995.09.26	10	0	10.00	0	0.00	23
1995.09.27	11	0	11.00	0	0.00	24
1995.09.28	12	0	12.00	0	0.00	24
1995.09.29	12	0	12.00	0	0.00	24

1995.09.30	13	0	13.00	0	0.00	24
1995.10.01	12	0	12.00	0	0.00	24
1995.10.02	13	0	13.00	0	0.00	24
1995.10.03	12	0	12.00	0	0.00	24
1995.10.04	11	0	11.00	0	0.00	24
1995.10.05	11	0	11.00	0	0.00	24
1995.10.06	10	0	10.00	0	0.00	23
1995.10.07	10	0	10.00	0	0.00	23
1995.10.08	11	0	11.00	0	0.00	24
1995.10.09	10	0	10.00	0	0.00	23
1995.10.10	9.9	0	9.90	0	0.00	23
1995.10.11	9.5	0	9.50	0	0.00	23
1995.10.12	10	0	10.00	0	0.00	23
1995.10.13	10	0	10.00	0	0.00	23
1995.10.14	11	0	11.00	0	0.00	24
1995.10.15	11	0	11.00	0	0.00	24
1995.10.16	11	0	11.00	0	0.00	24
1995.10.17	11	0	11.00	0	0.00	24
1995.10.18	11	0	11.00	0	0.00	24
1995.10.19	11	0	11.00	0	0.00	24
1995.10.20	11	0	11.00	0	0.00	24
1995.10.21	10	0	10.00	0	0.00	23
1995.10.22	10	0	10.00	0	0.00	23
1995.10.23	9.4	0	9.40	0	0.00	23
1995.10.24	9.1	0	9.10	0	0.00	23
1995.10.25	9.5	0	9.50	0	0.00	23
1995.10.26	10	0	10.00	0	0.00	23
1995.10.27	11	0	11.00	0	0.00	24
1995.10.28	11	0	11.00	0	0.00	24
1995.10.29	11	0	11.00	0	0.00	24
1995.10.30	12	0	12.00	0	0.00	24
1995.10.31	12	0	12.00	0	0.00	24
1995.11.01	15	0	15.00	0	0.00	25
1995.11.02	16	0	16.00	0	0.00	26
1995.11.03	16	0	16.00	0	0.00	26
1995.11.04	16	0	16.00	0	0.00	26
1995.11.05	16	0	16.00	0	0.00	26
1995.11.06	15	0	15.00	0	0.00	25
1995.11.07	15	0	15.00	0	0.00	25
1995.11.08	15	0	15.00	0	0.00	25
1995.11.09	15	0	15.00	0	0.00	25
1995.11.10	15	0	15.00	0	0.00	25
1995.11.11	16	0	16.00	0	0.00	26
1995.11.12	15	0	15.00	0	0.00	25
1995.11.13	15	0	15.00	0	0.00	25
1995.11.14	15	0	15.00	0	0.00	25
1995.11.15	15	0	15.00	0	0.00	25
1995.11.16	16	0	16.00	0	0.00	26
1995.11.17	16	0	16.00	0	0.00	26
1995.11.18	16	0	16.00	0	0.00	26



1995.11.19	16	0	16.00	0	0.00		26	
1995.11.20	17	0	17.00	0	0.00		26	
1995.11.21	16	0	16.00	0	0.00		26	
1995.11.22	17	0	17.00	0	0.00		26	
1995.11.23	17	0	17.00	0	0.00		26	
1995.11.24	16	0	16.00	0	0.00		26	
1995.11.25	17	0	17.00	0	0.00		26	
1995.11.26	16	0	16.00	0	0.00		26	
1995.11.27	15	0	15.00	0	0.00		25	
1995.11.28	16	0	16.00	0	0.00		26	
1995.11.29	16	0	16.00	0	0.00		26	
1995.11.30	16	0	16.00	0	0.00		26	
1995.12.01	16	0	0.00	0	16.00	16.00	26	1.03
1995.12.02	16	0	0.00	0	16.00	16.00	26	1.03
1995.12.03	16	0	0.00	0	16.00	16.00	26	1.03
1995.12.04	18	0	0.00	0	18.00	18.00	26	1.12
1995.12.05	18	0	0.00	0	18.00	18.00	26	1.12
1995.12.06	18	0	0.00	0	18.00	18.00	26	1.12
1995.12.07	19	0	0.00	0	19.00	19.00	27	1.17
1995.12.08	19	0	0.00	0	19.00	19.00	27	1.17
1995.12.09	20	0	0.00	0	20.00	20.00	27	1.22
1995.12.10	20	0	0.00	0	20.00	20.00	27	1.22
1995.12.11	21	71.04	0.00	0	92.04	92.04	27	5.53
1995.12.12	480	512.06	0.00	91	901.06	901.06	85	17.35
1995.12.13	308	57.38	0.00	131	234.38	234.38	85	4.51
1995.12.14	212	0	0.00	21	191.00	191.00	85	3.68
1995.12.15	113	0	0.00	0.99	112.01	112.01	59	3.08
1995.12.16	108	0	0.00	0	108.00	108.00	58	3.06
1995.12.17	85	0	0.00	0	85.00	85.00	50	2.80
1995.12.18	65	0	0.00	0	65.00	65.00	43	2.49
1995.12.19	59	0	0.00	0	59.00	59.00	41	2.38
1995.12.20	53	0	0.00	0	53.00	53.00	38	2.26
1995.12.21	48	0	0.00	0	48.00	48.00	37	2.14
1995.12.22	51	14.53	0.00	0	65.53	65.53	38	2.84
1995.12.23	85	0	0.00	0	85.00	85.00	50	2.80
1995.12.24	67	0	0.00	0	67.00	67.00	43	2.53
1995.12.25	56	0	0.00	0	56.00	56.00	40	2.32
1995.12.26	52	0	0.00	0	52.00	52.00	38	2.23
1995.12.27	47	0	0.00	0	47.00	47.00	36	2.12
1995.12.28	45	0	0.00	0	45.00	45.00	36	2.07
1995.12.29	43	0	0.00	0	43.00	43.00	35	2.01
1995.12.30	43	0	0.00	0	43.00	43.00	35	2.01
1995.12.31	42	0	0.00	0	42.00	42.00	35	1.99
1996.01.01	38	0	0.00	0	38.00	38.00	33	1.87
1996.01.02	35	0	0.00	0	35.00	35.00	32	1.78
1996.01.03	34	0	0.00	0	34.00	34.00	32	1.75
1996.01.04	33	0	0.00	0	33.00	33.00	31	1.72
1996.01.05	32	0	0.00	0	32.00	32.00	31	1.68
1996.01.06	32	0	0.00	0	32.00	32.00	31	1.68
1996.01.07	32	0	0.00	0	32.00	32.00	31	1.68

1996.01.08	32	0	0.00	0	32.00	32.00	31	1.68
1996.01.09	32	0	0.00	0	32.00	32.00	31	1.68
1996.01.10	32	0	0.00	0	32.00	32.00	31	1.68
1996.01.11	31	0	0.00	0	31.00	31.00	31	1.65
1996.01.12	31	0	0.00	0	31.00	31.00	31	1.65
1996.01.13	30	0	0.00	0	30.00	30.00	30	1.61
1996.01.14	29	0	0.00	0	29.00	29.00	30	1.58
1996.01.15	29	0	0.00	0	29.00	29.00	30	1.58
1996.01.16	248	89.16	0.00	8.8	328.36	328.36	85	6.32
1996.01.17	318	0	0.00	164	154.00	154.00	85	2.96
1996.01.18	115	0	0.00	5.4	109.60	109.60	60	2.98
1996.01.19	214	0	0.00	18	196.00	196.00	85	3.77
1996.01.20	133	0	0.00	5.8	127.20	127.20	85	2.45
1996.01.21	235	7.65	0.00	25	217.65	217.65	85	4.19
1996.01.22	205	0	0.00	33	172.00	172.00	85	3.31
1996.01.23	148	0	0.00	12	136.00	136.00	85	2.62
1996.01.24	123	0	0.00	3.4	119.60	119.60	63	3.11
1996.01.25	436	0	0.00	126	310.00	310.00	85	5.97
1996.01.26	267	0	0.00	74	193.00	193.00	85	3.72
1996.01.27	335	14.53	0.00	50	299.53	299.53	85	5.77
1996.01.28	431	0	0.00	172	259.00	259.00	85	4.99
1996.01.29	282	0	0.00	61	221.00	221.00	85	4.25
1996.01.30	216	7.65	0.00	33	190.65	190.65	85	3.67
1996.01.31	1860	0	0.00	1350	510.00	510.00	85	9.82
1996.02.01	1150	0	0.00	1140	10.00	10.00	85	0.19
1996.02.02	622	0.27	0.00	488	134.27	134.27	85	2.58
1996.02.03	492	353.09	0.00	292	553.09	553.09	85	10.65
1996.02.04	1350	0	0.00	846	504.00	504.00	85	9.70
1996.02.05	2260	0	0.00	2230	30.00	30.00	85	0.58
1996.02.06	1080	0	0.00	936	144.00	144.00	85	2.77
1996.02.07	752	0	0.00	514	238.00	238.00	85	4.58
1996.02.08	585	0	0.00	323	262.00	262.00	85	5.04
1996.02.09	474	0	0.00	246	228.00	228.00	85	4.39
1996.02.10	403	0	0.00	180	223.00	223.00	85	4.29
1996.02.11	351	0	0.00	148	203.00	203.00	85	3.91
1996.02.12	314	0	0.00	116	198.00	198.00	85	3.81
1996.02.13	279	0	0.00	94	185.00	185.00	85	3.56
1996.02.14	252	0	0.00	73	179.00	179.00	85	3.45
1996.02.15	235	0	0.00	53	182.00	182.00	85	3.50
1996.02.16	301	0	0.00	79	222.00	222.00	85	4.27
1996.02.17	259	0	0.00	70	189.00	189.00	85	3.64
1996.02.18	235	2.79	0.00	47	190.79	190.79	85	3.67
1996.02.19	3090	694.76	0.00	2450	1334.76	1334.76	85	25.70
1996.02.20	3100	0.27	0.00	4740	-1639.73		85	
1996.02.21	1960	44.79	0.00	3300	-1295.21		85	
1996.02.22	1550	0	0.00	2440	-890.00		85	
1996.02.23	1170	0	0.00	1680	-510.00		85	
1996.02.24	983	0	0.00	1240	-257.00		85	
1996.02.25	828	0.27	0.00	954	-125.73		85	
1996.02.26	692	0	0.00	705	-13.00		85	

1996.02.27	660	2.8	0.00	594	68.80	68.80	85	1.32
1996.02.28	632	0	0.00	537	95.00	95.00	85	1.83
1996.02.29	896	23.16	0.00	856	63.16	63.16	85	1.22
1996.03.01	886	0	0.00	909	-23.00		85	
1996.03.02	765	0	0.00	668	97.00	97.00	85	1.87
1996.03.03	671	0.97	0.00	531	140.97	140.97	85	2.71
1996.03.04	813	0	0.00	640	173.00	173.00	85	3.33
1996.03.05	1030	0	0.00	1460	-430.00		85	
1996.03.06	834	0	0.00	977	-143.00		85	
1996.03.07	738	0	0.00	804	-66.00		85	
1996.03.08	669	0	0.00	693	-24.00		85	
1996.03.09	610	0	0.00	593	17.00	17.00	85	0.33
1996.03.10	559	0	0.00	510	49.00	49.00	85	0.94
1996.03.11	513	0	0.00	451	62.00	62.00	85	1.19
1996.03.12	845	115.42	0.00	882	78.42	78.42	85	1.51
1996.03.13	789	0	0.00	852	-63.00		85	
1996.03.14	653	0	0.00	614	39.00	39.00	85	0.75
1996.03.15	579	0	0.00	511	68.00	68.00	85	1.31
1996.03.16	518	0	0.00	428	90.00	90.00	85	1.73
1996.03.17	472	0	0.00	357	115.00	115.00	85	2.21
1996.03.18	434	0	0.00	319	115.00	115.00	85	2.21
1996.03.19	404	0	0.00	286	118.00	118.00	85	2.27
1996.03.20	377	0	0.00	253	124.00	124.00	85	2.39
1996.03.21	350	0	0.00	227	123.00	123.00	85	2.37
1996.03.22	329	0	0.00	204	125.00	125.00	85	2.41
1996.03.23	313	0	0.00	184	129.00	129.00	85	2.48
1996.03.24	297	0	0.00	168	129.00	129.00	85	2.48
1996.03.25	283	0	0.00	163	120.00	120.00	85	2.31
1996.03.26	272	0	0.00	150	122.00	122.00	85	2.35
1996.03.27	257	0	0.00	137	120.00	120.00	85	2.31
1996.03.28	266	0	33.11	135	97.89	97.89	85	1.88
1996.03.29	247	0	23.01	115	108.99	108.99	85	2.10
1996.03.30	236	0	19.92	111	105.08	105.08	85	2.02
1996.03.31	226	0	20.90	101	104.10	104.10	85	2.00
1996.04.01	305	33.28	19.92	110	208.36	208.36	85	4.01
1996.04.02	386	0	18.00	300	68.00	68.00	85	1.31
1996.04.03	272	0	17.51	155	99.49	99.49	85	1.92
1996.04.04	244	0	17.51	121	105.49	105.49	85	2.03
1996.04.05	229	0	17.11	99	112.89	112.89	85	2.17
1996.04.06	216	0	17.11	83	115.89	115.89	85	2.23
1996.04.07	207	0	17.11	74	115.89	115.89	85	2.23
1996.04.08	199	0	17.76	64	117.24	117.24	85	2.26
1996.04.09	194	0	17.76	59	117.24	117.24	85	2.26
1996.04.10	194	0	25.11	52	116.89	116.89	85	2.25
1996.04.11	184	0	25.11	47	111.89	111.89	85	2.15
1996.04.12	176	0	25.11	43	107.89	107.89	85	2.08
1996.04.13	173	0	29.61	38	105.39	105.39	85	2.03
1996.04.14	167	0	29.61	35	102.39	102.39	85	1.97
1996.04.15	162	0	29.61	32	100.39	100.39	85	1.93
1996.04.16	188	0	29.61	43	115.39	115.39	85	2.22

1996.04.17	184	0	29.61	53	101.39	101.39	85	1.95
1996.04.18	233	0	30.21	84	118.79	118.79	85	2.29
1996.04.19	191	0	30.21	74	86.79	86.79	85	1.67
1996.04.20	176	0	30.21	60	85.79	85.79	85	1.65
1996.04.21	165	0	29.61	52	83.39	83.39	85	1.61
1996.04.22	160	0	29.61	44	86.39	86.39	85	1.66
1996.04.23	151	0	29.61	35	86.39	86.39	85	1.66
1996.04.24	145	0	29.61	28	87.39	87.39	85	1.68
1996.04.25	141	0	29.61	22	89.39	89.39	85	1.72
1996.04.26	134	0	29.61	7	97.39	97.39	85	1.87
1996.04.27	128	0	28.51	4.4	95.09	95.09	65	2.41
1996.04.28	124	0	27.01	2.5	94.49	94.49	63	2.44
1996.04.29	121	0	25.10	1.5	94.40	94.40	62	2.48
1996.04.30	119	0	31.41	0	87.59	87.59	62	2.33
1996.05.01	115	0	31.41	0	83.59	83.59	60	2.27
1996.05.02	113	0	31.41	0	81.59	81.59	59	2.25
1996.05.03	111	0	31.41	0	79.59	79.59	59	2.22
1996.05.04	109	0	31.41	0	77.59	77.59	58	2.19
1996.05.05	109	0	31.41	0	77.59	77.59	58	2.19
1996.05.06	107	0	31.41	0	75.59	75.59	57	2.16
1996.05.07	105	0	31.41	0	73.59	73.59	57	2.13
1996.05.08	104	0	31.41	0	72.59	72.59	56	2.11
1996.05.09	103	0	31.41	0	71.59	71.59	56	2.09
1996.05.10	100	0	30.94	0	69.06	69.06	55	2.06
1996.05.11	99	0	30.94	0	68.06	68.06	55	2.04
1996.05.12	98	0	30.94	0	67.06	67.06	54	2.02
1996.05.13	95	0	30.21	0	64.79	64.79	53	1.99
1996.05.14	92	0	31.91	0	60.09	60.09	52	1.89
1996.05.15	94	44.74	31.91	0	106.83	106.83	53	3.31
1996.05.16	380	44.74	30.21	104	290.53	290.53	85	5.59
1996.05.17	155	0	29.01	65	60.99	60.99	85	1.17
1996.05.18	121	0	28.51	13	79.49	79.49	62	2.09
1996.05.19	107	0	27.01	0	79.99	79.99	57	2.28
1996.05.20	96	0	27.01	0	68.99	68.99	54	2.11
1996.05.21	90	0	27.01	0	62.99	62.99	51	2.01
1996.05.22	93	0	24.60	0	68.40	68.40	52	2.13
1996.05.23	86	0	23.50	0	62.50	62.50	50	2.05
1996.05.24	82	0	23.50	0	58.50	58.50	49	1.97
1996.05.25	80	0	29.01	0	50.99	50.99	48	1.74
1996.05.26	77	0	29.01	0	47.99	47.99	47	1.68
1996.05.27	76	0	29.01	0	46.99	46.99	47	1.65
1996.05.28	75	0	29.01	0	45.99	45.99	46	1.63
1996.05.29	70	0	29.01	0	40.99	40.99	44	1.51
1996.05.30	70	0	29.01	0	40.99	40.99	44	1.51
1996.05.31	69	0	28.51	0	40.49	40.49	44	1.50
1996.06.01	67	0	28.51	0	38.49	38.49	43	1.45
1996.06.02	66	0	27.01	0	38.99	38.99	43	1.48
1996.06.03	63	0	24.60	0	38.40	38.40	42	1.50
1996.06.04	59	0	28.51	0	30.49	30.49	41	1.23
1996.06.05	56	0	25.81	0	30.19	30.19	40	1.25

1996.06.06	54	0	25.81	0	28.19	28.19	39	1.19
1996.06.07	54	0	24.60	0	29.40	29.40	39	1.24
1996.06.08	53	0	29.01	0	23.99	23.99	38	1.02
1996.06.09	50	0	28.51	0	21.49	21.49	37	0.94
1996.06.10	47	0	28.51	0	18.49	18.49	36	0.83
1996.06.11	46	0	28.51	0	17.49	17.49	36	0.80
1996.06.12	46	0	28.51	0	17.49	17.49	36	0.80
1996.06.13	46	0	28.51	0	17.49	17.49	36	0.80
1996.06.14	45	0	28.51	0	16.49	16.49	36	0.76
1996.06.15	43	0	30.21	0	12.79	12.79	35	0.60
1996.06.16	42	0	30.21	0	11.79	11.79	35	0.56
1996.06.17	42	0	29.61	0	12.39	12.39	35	0.59
1996.06.18	39	0	29.61	0	9.39	9.39	34	0.46
1996.06.19	37	0	29.01	0	7.99	7.99	33	0.40
1996.06.20	36	0	29.01	0	6.99	6.99	33	0.35
1996.06.21	35	0	29.01	0	5.99	5.99	32	0.31
1996.06.22	35	0	29.61	0	5.39	5.39	32	0.27
1996.06.23	34	0	29.61	0	4.39	4.39	32	0.23
1996.06.24	31	0	29.01	0	1.99	1.99	31	0.11
1996.06.25	32	0	28.51	0	3.49	3.49	31	0.18
1996.06.26	34	0	28.92	0	5.08	5.08	32	0.26
1996.06.27	39	0	29.61	0	9.39	9.39	34	0.46
1996.06.28	39	0	29.61	0	9.39	9.39	34	0.46
1996.06.29	34	0	29.01	0	4.99	4.99	32	0.26
1996.06.30	32	0	29.01	0	2.99	2.99	31	0.16
1996.07.01	31	0	28.51	0	2.49	2.49	31	0.13
1996.07.02	28	0	25.11	0	2.89	2.89	30	0.16
1996.07.03	27	0	23.01	0	3.99	3.99	29	0.22
1996.07.04	25	0	23.01	0	1.99	1.99	29	0.11
1996.07.05	22	0	22.00	0	0.00		28	
1996.07.06	22	0	22.00	0	0.00		28	
1996.07.07	22	0	22.00	0	0.00		28	
1996.07.08	21	0	21.00	0	0.00		27	
1996.07.09	20	0	20.00	0	0.00		27	
1996.07.10	19	0	19.00	0	0.00		27	
1996.07.11	18	0	18.00	0	0.00		26	
1996.07.12	16	0	16.00	0	0.00		26	
1996.07.13	15	0	15.00	0	0.00		25	
1996.07.14	14	0	14.00	0	0.00		25	
1996.07.15	13	0	13.00	0	0.00		24	
1996.07.16	12	0	12.00	0	0.00		24	
1996.07.17	12	0	12.00	0	0.00		24	
1996.07.18	13	0	13.00	0	0.00		24	
1996.07.19	14	0	14.00	0	0.00		25	
1996.07.20	12	0	12.00	0	0.00		24	
1996.07.21	12	0	12.00	0	0.00		24	
1996.07.22	13	0	13.00	0	0.00		24	
1996.07.23	13	0	13.00	0	0.00		24	
1996.07.24	11	0	11.00	0	0.00		24	
1996.07.25	11	0	11.00	0	0.00		24	

1996.07.26	11	0	11.00	0	0.00		24	
1996.07.27	11	0	11.00	0	0.00		24	
1996.07.28	11	0	11.00	0	0.00		24	
1996.07.29	12	0	12.00	0	0.00		24	
1996.07.30	9.5	0	9.50	0	0.00		23	
1996.07.31	8.5	0	8.50	0	0.00		23	
1996.08.01	8.1	0	8.10	0	0.00		23	
1996.08.02	7.1	0	7.10	0	0.00		22	
1996.08.03	6.8	0	6.80	0	0.00		22	
1996.08.04	6.3	0	6.30	0	0.00		22	
1996.08.05	6.4	0	6.40	0	0.00		22	
1996.08.06	5.7	0	5.70	0	0.00		22	
1996.08.07	6.2	0	6.20	0	0.00		22	
1996.08.08	7.5	0	7.50	0	0.00		23	
1996.08.09	6.7	0	6.70	0	0.00		22	
1996.08.10	5.9	0	5.90	0	0.00		22	
1996.08.11	5.4	0	5.40	0	0.00		22	
1996.08.12	6.2	0	6.20	0	0.00		22	
1996.08.13	5.7	0	5.70	0	0.00		22	
1996.08.14	4.6	0	4.60	0	0.00		22	
1996.08.15	3.9	0	3.90	0	0.00		21	
1996.08.16	2.7	0	2.70	0	0.00		21	
1996.08.17	3.4	0	3.40	0	0.00		21	
1996.08.18	3.3	0	3.30	0	0.00		21	
1996.08.19	3.5	0	3.50	0	0.00		21	
1996.08.20	4.7	0	4.70	0	0.00		22	
1996.08.21	4.2	0	4.20	0	0.00		21	
1996.08.22	4.9	0	4.90	0	0.00		22	
1996.08.23	4.1	0	4.10	0	0.00		21	
1996.08.24	4.6	0	4.60	0	0.00		22	
1996.08.25	4	0	0.00	0	4.00	4.00	21	0.31
1996.08.26	4.8	0	0.00	0	4.80	4.80	22	0.36
1996.08.27	5	0	0.00	0	5.00	5.00	22	0.38
1996.08.28	4.9	0	0.00	0	4.90	4.90	22	0.37
1996.08.29	4.9	0	0.00	0	4.90	4.90	22	0.37
1996.08.30	3.6	0	0.00	0	3.60	3.60	21	0.28
1996.08.31	2.8	0	0.00	0	2.80	2.80	21	0.22
1996.09.01	2.9	0	0.00	0	2.90	2.90	21	0.23
1996.09.02	2.5	0	0.00	0	2.50	2.50	21	0.20
1996.09.03	1.5	0	0.00	0	1.50	1.50	20	0.12
1996.09.04	2.9	0	0.00	0	2.90	2.90	21	0.23
1996.09.05	3.4	0	0.00	0	3.40	3.40	21	0.26
1996.09.06	3.6	0	0.00	0	3.60	3.60	21	0.28
1996.09.07	3.7	0	0.00	0	3.70	3.70	21	0.29
1996.09.08	3.4	0	0.00	0	3.40	3.40	21	0.26
1996.09.09	3.2	0	0.00	0	3.20	3.20	21	0.25
1996.09.10	3.1	0	0.00	0	3.10	3.10	21	0.24
1996.09.11	3.6	0	0.00	0	3.60	3.60	21	0.28
1996.09.12	3.8	0	0.00	0	3.80	3.80	21	0.29
1996.09.13	3.3	0	0.00	0	3.30	3.30	21	0.26

1996.09.14	3.6	0	0.00	0	3.60	3.60	21	0.28
1996.09.15	3.7	0	0.00	0	3.70	3.70	21	0.29
1996.09.16	4.7	0	0.00	0	4.70	4.70	22	0.36
1996.09.17	4.7	0	0.00	0	4.70	4.70	22	0.36
1996.09.18	5.2	0	0.00	0	5.20	5.20	22	0.39
1996.09.19	4.5	0	0.00	0	4.50	4.50	21	0.34
1996.09.20	4.4	0	0.00	0	4.40	4.40	21	0.34
1996.09.21	4.3	0	0.00	0	4.30	4.30	21	0.33
1996.09.22	4.1	0	0.00	0	4.10	4.10	21	0.31
1996.09.23	4.1	0	0.00	0	4.10	4.10	21	0.31
1996.09.24	4.5	0	0.00	0	4.50	4.50	21	0.34
1996.09.25	4	0	0.00	0	4.00	4.00	21	0.31
1996.09.26	3.7	0	0.00	0	3.70	3.70	21	0.29
1996.09.27	4.1	0	0.00	0	4.10	4.10	21	0.31
1996.09.28	4	0	0.00	0	4.00	4.00	21	0.31
1996.09.29	4.3	0	0.00	0	4.30	4.30	21	0.33
1996.09.30	3.7	0	0.00	0	3.70	3.70	21	0.29
1996.10.01	4.2	0	4.20	0	0.00		21	
1996.10.02	5	0	5.00	0	0.00		22	
1996.10.03	5.9	0	5.90	0	0.00		22	
1996.10.04	7	0	7.00	0	0.00		22	
1996.10.05	7.1	0	7.10	0	0.00		22	
1996.10.06	6.9	0	6.90	0	0.00		22	
1996.10.07	5.9	0	5.90	0	0.00		22	
1996.10.08	5	0	5.00	0	0.00		22	
1996.10.09	4.3	0	4.30	0	0.00		21	
1996.10.10	5.4	0	5.40	0	0.00		22	
1996.10.11	6.4	0	6.40	0	0.00		22	
1996.10.12	7.9	0	7.90	0	0.00		23	
1996.10.13	8.2	0	8.20	0	0.00		23	
1996.10.14	8.2	0	8.20	0	0.00		23	
1996.10.15	8.5	0	8.50	0	0.00		23	
1996.10.16	9.9	0	9.90	0	0.00		23	
1996.10.17	9.9	0	9.90	0	0.00		23	
1996.10.18	10	0	10.00	0	0.00		23	
1996.10.19	10	0	10.00	0	0.00		23	
1996.10.20	10	0	10.00	0	0.00		23	
1996.10.21	12	0	12.00	0	0.00		24	
1996.10.22	12	0	12.00	0	0.00		24	
1996.10.23	12	0	12.00	0	0.00		24	
1996.10.24	12	0	12.00	0	0.00		24	
1996.10.25	13	0	13.00	0	0.00		24	
1996.10.26	13	0	13.00	0	0.00		24	
1996.10.27	14	0	14.00	0	0.00		25	
1996.10.28	14	0	14.00	0	0.00		25	
1996.10.29	17	57.37	17.00	0	57.37	57.37	26	3.63
1996.10.30	54	0	17.24	0	36.76	36.76	39	1.55
1996.10.31	30	0	17.24	0	12.76	12.76	30	0.69
1996.11.01	21	0	19.33	0	1.67	1.67	27	0.10
1996.11.02	19	0	19.00	0	0.00		27	

1996.11.03	17	0	17.00	0	0.00		26	
1996.11.04	17	0	17.00	0	0.00		26	
1996.11.05	17	0	17.00	0	0.00		26	
1996.11.06	16	0	16.00	0	0.00		26	
1996.11.07	16	0	16.00	0	0.00		26	
1996.11.08	17	0	17.00	0	0.00		26	
1996.11.09	17	0	17.00	0	0.00		26	
1996.11.10	18	0	18.00	0	0.00		26	
1996.11.11	18	0	18.00	0	0.00		26	
1996.11.12	17	0	17.00	0	0.00		26	
1996.11.13	17	0	17.00	0	0.00		26	
1996.11.14	18	0	18.00	0	0.00		26	
1996.11.15	19	0	19.00	0	0.00		27	
1996.11.16	19	2.79	19.00	0	2.79	2.79	27	0.17
1996.11.17	641	142.69	19.33	215	549.36	549.36	85	10.58
1996.11.18	286	0	19.33	175	91.67	91.67	85	1.76
1996.11.19	96	0.27	19.33	3.5	73.44	73.44	54	2.25
1996.11.20	134	0	19.33	0	114.67	114.67	85	2.21
1996.11.21	91	0	19.33	0	71.67	71.67	52	2.27
1996.11.22	208	0.27	19.33	2.3	186.64	186.64	85	3.59
1996.11.23	202	0	19.33	34	148.67	148.67	85	2.86
1996.11.24	111	0	19.33	0.44	91.23	91.23	59	2.54
1996.11.25	86	0	19.33	0	66.67	66.67	50	2.18
1996.11.26	73	0	19.33	0	53.67	53.67	45	1.93
1996.11.27	65	0	19.33	0	45.67	45.67	43	1.75
1996.11.28	61	0	19.33	0	41.67	41.67	41	1.65
1996.11.29	56	0	19.33	0	36.67	36.67	40	1.52
1996.11.30	52	0	19.33	0	32.67	32.67	38	1.40
1996.12.01	49	0	0.00	0	49.00	49.00	37	2.16
1996.12.02	47	0	0.00	0	47.00	47.00	36	2.12
1996.12.03	44	0	0.00	0	44.00	44.00	35	2.04
1996.12.04	42	0	0.00	0	42.00	42.00	35	1.99
1996.12.05	43	0	0.00	0	43.00	43.00	35	2.01
1996.12.06	62	0	0.00	0	62.00	62.00	42	2.44
1996.12.07	54	0	0.00	0	54.00	54.00	39	2.28
1996.12.08	49	0	0.00	0	49.00	49.00	37	2.16
1996.12.09	130	71.04	0.00	0	201.04	201.04	85	3.87
1996.12.10	2520	590.95	0.00	502	2608.95	2608.95	85	<b>50.23</b>
1996.12.11	1860	0	0.00	1480	380.00	380.00	85	7.32
1996.12.12	821	0	0.00	750	71.00	71.00	85	1.37
1996.12.13	596	0	0.00	462	134.00	134.00	85	2.58
1996.12.14	419	0	0.00	238	181.00	181.00	85	3.48
1996.12.15	309	0	0.00	122	187.00	187.00	85	3.60
1996.12.16	230	0	0.00	63	167.00	167.00	85	3.21
1996.12.17	181	0	0.00	37	144.00	144.00	85	2.77
1996.12.18	144	0	0.00	20	124.00	124.00	85	2.39
1996.12.19	124	0	0.00	5.1	118.90	118.90	63	3.07
1996.12.20	111	0	0.00	0	111.00	111.00	59	3.09
1996.12.21	230	167.95	0.00	0	397.95	397.95	85	7.66
1996.12.22	1460	14.64	0.00	1300	174.64	174.64	85	3.36



1996.12.23	737	0	0.00	678	59.00	59.00	85	1.14
1996.12.24	494	0	0.00	350	144.00	144.00	85	2.77
1996.12.25	369	0	0.00	233	136.00	136.00	85	2.62
1996.12.26	304	14.53	0.00	166	152.53	152.53	85	2.94
1996.12.27	585	0	0.00	458	127.00	127.00	85	2.44
1996.12.28	388	0	0.00	278	110.00	110.00	85	2.12
1996.12.29	453	220.48	0.00	222	451.48	451.48	85	8.69
1996.12.30	2190	33.45	0.00	2410	-186.55		85	
1996.12.31	1940	0	0.00	2390	-450.00		85	
1997.01.01	4470	456.87	0.00	4470	456.87	456.87	85	8.80
1997.01.02	4270	57.52	0.00	5420	-1092.48		85	
1997.01.03	2510	0	0.00	3810	-1300.00		85	
1997.01.04	1540	0	0.00	2480	-940.00		85	
1997.01.05	1160	0	0.00	1690	-530.00		85	
1997.01.06	915	0	0.00	1220	-305.00		85	
1997.01.07	740	0	0.00	930	-190.00		85	
1997.01.08	618	0	0.00	765	-147.00		85	
1997.01.09	525	0	0.00	654	-129.00		85	
1997.01.10	464	0	0.00	574	-110.00		85	
1997.01.11	412	0	0.00	507	-95.00		85	
1997.01.12	399	0	0.00	487	-88.00		85	
1997.01.13	381	0	0.00	476	-95.00		85	
1997.01.14	337	0	0.00	401	-64.00		85	
1997.01.15	1040	23.14	0.00	1230	-166.86		85	
1997.01.16	710	7.7	0.00	955	-237.30		85	
1997.01.17	560	0	0.00	705	-145.00		85	
1997.01.18	489	0	0.00	620	-131.00		85	
1997.01.19	439	0	0.00	573	-134.00		85	
1997.01.20	1320	0	0.00	1700	-380.00		85	
1997.01.21	1120	116.92	0.00	1590	-353.08		85	
1997.01.22	1490	0	0.00	2130	-640.00		85	
1997.01.23	2620	116.72	0.00	4240	-1503.28		85	
1997.01.24	1570	0	0.00	2670	-1100.00		85	
1997.01.25	2910	7.65	0.00	4250	-1332.35		85	
1997.01.26	3530	14.59	0.00	5620	-2075.41		85	
1997.01.27	2350	0	0.00	3780	-1430.00		85	
1997.01.28	1790	0	0.00	2700	-910.00		85	
1997.01.29	1530	0	0.00	1920	-390.00		85	
1997.01.30	1280	0	0.00	1480	-200.00		85	
1997.01.31	1090	0	0.00	1170	-80.00		85	
1997.02.01	940	0	0.00	938	2.00	2.00	85	0.04
1997.02.02	827	0	0.00	736	91.00	91.00	85	1.75
1997.02.03	742	0	0.00	620	122.00	122.00	85	2.35
1997.02.04	673	0	0.00	534	139.00	139.00	85	2.68
1997.02.05	615	0	0.00	473	142.00	142.00	85	2.73
1997.02.06	566	0	0.00	411	155.00	155.00	85	2.98
1997.02.07	524	0	0.00	364	160.00	160.00	85	3.08
1997.02.08	489	0	0.00	334	155.00	155.00	85	2.98
1997.02.09	459	0	0.00	309	150.00	150.00	85	2.89
1997.02.10	433	0	0.00	289	144.00	144.00	85	2.77

1997.02.11	408	0	0.00	276	132.00	132.00	85	2.54
1997.02.12	388	0	0.00	259	129.00	129.00	85	2.48
1997.02.13	368	0	0.00	244	124.00	124.00	85	2.39
1997.02.14	349	0	0.00	231	118.00	118.00	85	2.27
1997.02.15	336	0	0.00	215	121.00	121.00	85	2.33
1997.02.16	320	0	0.00	204	116.00	116.00	85	2.23
1997.02.17	313	0	0.00	196	117.00	117.00	85	2.25
1997.02.18	302	0	0.00	188	114.00	114.00	85	2.19
1997.02.19	288	0	0.00	166	122.00	122.00	85	2.35
1997.02.20	278	0	0.00	156	122.00	122.00	85	2.35
1997.02.21	265	0	0.00	149	116.00	116.00	85	2.23
1997.02.22	257	0	0.00	144	113.00	113.00	85	2.18
1997.02.23	253	0	0.00	138	115.00	115.00	85	2.21
1997.02.24	244	0	0.00	132	112.00	112.00	85	2.16
1997.02.25	236	0	0.00	123	113.00	113.00	85	2.18
1997.02.26	232	0	0.00	120	112.00	112.00	85	2.16
1997.02.27	227	0	0.00	121	106.00	106.00	85	2.04
1997.02.28	222	0	0.00	119	103.00	103.00	85	1.98
1997.03.01	212	0	0.00	109	103.00	103.00	85	1.98
1997.03.02	205	0	0.00	109	96.00	96.00	85	1.85
1997.03.03	200	0	0.00	103	97.00	97.00	85	1.87
1997.03.04	194	0	0.00	94	100.00	100.00	85	1.93
1997.03.05	189	0	0.00	91	98.00	98.00	85	1.89
1997.03.06	182	0	0.00	88	94.00	94.00	85	1.81
1997.03.07	176	0	0.00	81	95.00	95.00	85	1.83
1997.03.08	171	0	0.00	73	98.00	98.00	85	1.89
1997.03.09	167	0	0.00	69	98.00	98.00	85	1.89
1997.03.10	161	0	0.00	64	97.00	97.00	85	1.87
1997.03.11	159	0	0.00	63	96.00	96.00	85	1.85
1997.03.12	153	0	0.00	62	91.00	91.00	85	1.75
1997.03.13	147	0	0.00	62	85.00	85.00	85	1.64
1997.03.14	143	0	0.00	53	90.00	90.00	85	1.73
1997.03.15	139	0	0.00	45	94.00	94.00	85	1.81
1997.03.16	139	0	0.00	40	99.00	99.00	85	1.91
1997.03.17	136	0	0.00	42	94.00	94.00	85	1.81
1997.03.18	133	0	0.00	39	94.00	94.00	85	1.81
1997.03.19	128	0	0.00	34	94.00	94.00	65	2.38
1997.03.20	123	0	0.00	27	96.00	96.00	63	2.50
1997.03.21	121	0	0.00	16	105.00	105.00	62	2.76
1997.03.22	122	0	0.00	4.6	117.40	117.40	63	3.07
1997.03.23	124	0	0.00	40	84.00	84.00	63	2.17
1997.03.24	117	0	0.00	38	79.00	79.00	61	2.12
1997.03.25	116	0	0.00	28	88.00	88.00	61	2.38
1997.03.26	114	0	0.00	22	92.00	92.00	60	2.52
1997.03.27	111	0	0.00	17	94.00	94.00	59	2.62
1997.03.28	107	0	0.00	11	96.00	96.00	57	2.74
1997.03.29	109	0	33.11	0.51	75.38	75.38	58	2.12
1997.03.30	105	0	23.01	0	81.99	81.99	57	2.37
1997.03.31	104	0	19.92	0	84.08	84.08	56	2.44
1997.04.01	103	0	20.90	0	82.10	82.10	56	2.40

1997.04.02	103	0	19.92	0	83.08	83.08	56	2.43
1997.04.03	104	0	18.00	0	86.00	86.00	56	2.50
1997.04.04	103	0	17.51	0	85.49	85.49	56	2.50
1997.04.05	101	0	17.51	0	83.49	83.49	55	2.47
1997.04.06	99	0	17.11	0	81.89	81.89	55	2.46
1997.04.07	99	0	17.11	0	81.89	81.89	55	2.46
1997.04.08	97	0	17.11	0	79.89	79.89	54	2.43
1997.04.09	97	0	17.76	0	79.24	79.24	54	2.41
1997.04.10	97	0	17.76	0	79.24	79.24	54	2.41
1997.04.11	95	0	25.11	0	69.89	69.89	53	2.15
1997.04.12	93	0	25.11	0	67.89	67.89	52	2.12
1997.04.13	93	0	25.11	0	67.89	67.89	52	2.12
1997.04.14	91	0	29.61	0	61.39	61.39	52	1.94
1997.04.15	89	0	29.61	0	59.39	59.39	51	1.90
1997.04.16	89	0	29.61	0	59.39	59.39	51	1.90
1997.04.17	86	0	29.61	0	56.39	56.39	50	1.85
1997.04.18	85	0	29.61	0	55.39	55.39	50	1.83
1997.04.19	88	0	30.21	0	57.79	57.79	51	1.87
1997.04.20	89	0	30.21	0	58.79	58.79	51	1.88
1997.04.21	84	0	30.21	0	53.79	53.79	49	1.79
1997.04.22	82	0	29.61	0	52.39	52.39	49	1.76
1997.04.23	80	0	29.61	0	50.39	50.39	48	1.72
1997.04.24	78	0	29.61	0	48.39	48.39	47	1.68
1997.04.25	78	0	29.61	0	48.39	48.39	47	1.68
1997.04.26	76	0	29.61	0	46.39	46.39	47	1.63
1997.04.27	73	0	29.61	0	43.39	43.39	45	1.56
1997.04.28	70	0	28.51	0	41.49	41.49	44	1.53
1997.04.29	69	0	27.01	0	41.99	41.99	44	1.56
1997.04.30	71	0	25.10	0	45.90	45.90	45	1.68
1997.05.01	68	0	31.41	0	36.59	36.59	44	1.37
1997.05.02	66	0	31.41	0	34.59	34.59	43	1.32
1997.05.03	68	0	31.41	0	36.59	36.59	44	1.37
1997.05.04	67	0	31.41	0	35.59	35.59	43	1.34
1997.05.05	64	0	31.41	0	32.59	32.59	42	1.26
1997.05.06	62	0	31.41	0	30.59	30.59	42	1.20
1997.05.07	60	0	31.41	0	28.59	28.59	41	1.14
1997.05.08	58	0	31.41	0	26.59	26.59	40	1.08
1997.05.09	57	0	31.41	0	25.59	25.59	40	1.05
1997.05.10	57	0	31.41	0	25.59	25.59	40	1.05
1997.05.11	55	0	30.94	0	24.06	24.06	39	1.01
1997.05.12	53	0	30.94	0	22.06	22.06	38	0.94
1997.05.13	49	0	30.94	0	18.06	18.06	37	0.80
1997.05.14	48	0	30.21	0	17.79	17.79	37	0.79
1997.05.15	47	0	31.91	0	15.09	15.09	36	0.68
1997.05.16	46	0	31.91	0	14.09	14.09	36	0.64
1997.05.17	45	0	30.21	0	14.79	14.79	36	0.68
1997.05.18	42	0	29.01	0	12.99	12.99	35	0.61
1997.05.19	38	0	28.51	0	9.49	9.49	33	0.47
1997.05.20	36	0	27.01	0	8.99	8.99	33	0.45
1997.05.21	36	0	27.01	0	8.99	8.99	33	0.45

1997.05.22	35	0	27.01	0	7.99	7.99	32	0.41
1997.05.23	36	0	24.60	0	11.40	11.40	33	0.57
1997.05.24	42	0	23.50	0	18.50	18.50	35	0.87
1997.05.25	42	0	23.50	0	18.50	18.50	35	0.87
1997.05.26	40	0	29.01	0	10.99	10.99	34	0.53
1997.05.27	37	0	29.01	0	7.99	7.99	33	0.40
1997.05.28	36	0	29.01	0	6.99	6.99	33	0.35
1997.05.29	35	0	29.01	0	5.99	5.99	32	0.31
1997.05.30	30	0	29.01	0	0.99	0.99	30	0.05
1997.05.31	28	0	28.00	0	0.00		30	
1997.06.01	26	0	26.00	0	0.00		29	
1997.06.02	27	0	27.00	0	0.00		29	
1997.06.03	27	0	27.00	0	0.00		29	
1997.06.04	28	0	24.60	0	3.40	3.40	30	0.19
1997.06.05	32	0	28.51	0	3.49	3.49	31	0.18
1997.06.06	33	0	25.81	0	7.19	7.19	31	0.37
1997.06.07	30	0	25.81	0	4.19	4.19	30	0.23
1997.06.08	26	0	24.60	0	1.40	1.40	29	0.08
1997.06.09	24	0	24.00	0	0.00		28	
1997.06.10	24	0	24.00	0	0.00		28	
1997.06.11	26	0	26.00	0	0.00		29	
1997.06.12	23	0	23.00	0	0.00		28	
1997.06.13	22	0	22.00	0	0.00		28	
1997.06.14	22	0	22.00	0	0.00		28	
1997.06.15	22	0	22.00	0	0.00		28	
1997.06.16	21	0	21.00	0	0.00		27	
1997.06.17	20	0	20.00	0	0.00		27	
1997.06.18	18	0	18.00	0	0.00		26	
1997.06.19	16	0	16.00	0	0.00		26	
1997.06.20	14	0	14.00	0	0.00		25	
1997.06.21	14	0	14.00	0	0.00		25	
1997.06.22	13	0	13.00	0	0.00		24	
1997.06.23	13	0	13.00	0	0.00		24	
1997.06.24	13	0	13.00	0	0.00		24	
1997.06.25	12	0	12.00	0	0.00		24	
1997.06.26	10	0	10.00	0	0.00		23	
1997.06.27	10	0	10.00	0	0.00		23	
1997.06.28	9.4	0	9.40	0	0.00		23	
1997.06.29	9.5	0	9.50	0	0.00		23	
1997.06.30	11	0	11.00	0	0.00		24	
1997.07.01	11	0	11.00	0	0.00		24	
1997.07.02	12	0	12.00	0	0.00		24	
1997.07.03	12	0	12.00	0	0.00		24	
1997.07.04	11	0	11.00	0	0.00		24	
1997.07.05	10	0	10.00	0	0.00		23	
1997.07.06	9.1	0	9.10	0	0.00		23	
1997.07.07	7.5	0	7.50	0	0.00		23	
1997.07.08	9.6	0	9.60	0	0.00		23	
1997.07.09	6.6	0	6.60	0	0.00		22	
1997.07.10	6	0	6.00	0	0.00		22	

1997.07.11	7.9	0	7.90	0	0.00		23	
1997.07.12	5	0	5.00	0	0.00		22	
1997.07.13	6.1	0	6.10	0	0.00		22	
1997.07.14	6.4	0	6.40	0	0.00		22	
1997.07.15	6.3	0	6.30	0	0.00		22	
1997.07.16	5.1	0	5.10	0	0.00		22	
1997.07.17	4.7	0	4.70	0	0.00		22	
1997.07.18	4.6	0	4.60	0	0.00		22	
1997.07.19	4.5	0	4.50	0	0.00		21	
1997.07.20	4.5	0	4.50	0	0.00		21	
1997.07.21	3.8	0	3.80	0	0.00		21	
1997.07.22	3.6	0	3.60	0	0.00		21	
1997.07.23	4	0	4.00	0	0.00		21	
1997.07.24	3.6	0	3.60	0	0.00		21	
1997.07.25	3	0	3.00	0	0.00		21	
1997.07.26	3	0	3.00	0	0.00		21	
1997.07.27	3.2	0	3.20	0	0.00		21	
1997.07.28	3.7	0	3.70	0	0.00		21	
1997.07.29	3.7	0	3.70	0	0.00		21	
1997.07.30	3.7	0	3.70	0	0.00		21	
1997.07.31	3.7	0	3.70	0	0.00		21	
1997.08.01	3.8	0	3.80	0	0.00		21	
1997.08.02	3.5	0	3.50	0	0.00		21	
1997.08.03	2.9	0	2.90	0	0.00		21	
1997.08.04	2.7	0	2.70	0	0.00		21	
1997.08.05	2.6	0	2.60	0	0.00		21	
1997.08.06	2.1	0	2.10	0	0.00		21	
1997.08.07	2	0	2.00	0	0.00		21	
1997.08.08	1.4	0	1.40	0	0.00		20	
1997.08.09	0.82	0	0.82	0	0.00		20	
1997.08.10	1.4	0	1.40	0	0.00		20	
1997.08.11	1.5	0	1.50	0	0.00		20	
1997.08.12	0.81	0	0.81	0	0.00		20	
1997.08.13	1.1	0	1.10	0	0.00		20	
1997.08.14	2.8	0	2.80	0	0.00		21	
1997.08.15	3.6	0	3.60	0	0.00		21	
1997.08.16	3.3	0	3.30	0	0.00		21	
1997.08.17	3.1	0	3.10	0	0.00		21	
1997.08.18	2.4	0	2.40	0	0.00		21	
1997.08.19	2.4	0	2.40	0	0.00		21	
1997.08.20	3.6	0	3.60	0	0.00		21	
1997.08.21	3.2	0	3.20	0	0.00		21	
1997.08.22	3	0	3.00	0	0.00		21	
1997.08.23	4.4	0	4.40	0	0.00		21	
1997.08.24	4	0	4.00	0	0.00		21	
1997.08.25	3.9	0	3.90	0	0.00		21	
1997.08.26	4.2	0	0.00	0	4.20	4.20	21	0.32
1997.08.27	4	0	0.00	0	4.00	4.00	21	0.31
1997.08.28	4.5	0	0.00	0	4.50	4.50	21	0.34
1997.08.29	4.5	0	0.00	0	4.50	4.50	21	0.34

1997.08.30	5.2	0	0.00	0	5.20	5.20	22	0.39
1997.08.31	5.6	0	0.00	0	5.60	5.60	22	0.42
1997.09.01	4.8	0	0.00	0	4.80	4.80	22	0.36
1997.09.02	4.3	0	0.00	0	4.30	4.30	21	0.33
1997.09.03	3.9	0	0.00	0	3.90	3.90	21	0.30
1997.09.04	4	0	0.00	0	4.00	4.00	21	0.31
1997.09.05	3.2	0	0.00	0	3.20	3.20	21	0.25
1997.09.06	3.7	0	0.00	0	3.70	3.70	21	0.29
1997.09.07	3.1	0	0.00	0	3.10	3.10	21	0.24
1997.09.08	2.9	0	0.00	0	2.90	2.90	21	0.23
1997.09.09	2.2	0	0.00	0	2.20	2.20	21	0.17
1997.09.10	1.7	0	0.00	0	1.70	1.70	20	0.14
1997.09.11	2.8	0	0.00	0	2.80	2.80	21	0.22
1997.09.12	3.1	0	0.00	0	3.10	3.10	21	0.24
1997.09.13	3.6	0	0.00	0	3.60	3.60	21	0.28
1997.09.14	3.5	0	0.00	0	3.50	3.50	21	0.27
1997.09.15	3.9	0	0.00	0	3.90	3.90	21	0.30
1997.09.16	4.8	0	0.00	0	4.80	4.80	22	0.36
1997.09.17	4.8	0	0.00	0	4.80	4.80	22	0.36
1997.09.18	4.8	0	0.00	0	4.80	4.80	22	0.36
1997.09.19	5.6	0	0.00	0	5.60	5.60	22	0.42
1997.09.20	6	0	0.00	0	6.00	6.00	22	0.45
1997.09.21	5.7	0	0.00	0	5.70	5.70	22	0.43
1997.09.22	5.3	0	0.00	0	5.30	5.30	22	0.40
1997.09.23	4.3	0	0.00	0	4.30	4.30	21	0.33
1997.09.24	4.4	0	0.00	0	4.40	4.40	21	0.34
1997.09.25	4.5	0	0.00	0	4.50	4.50	21	0.34
1997.09.26	4.2	0	0.00	0	4.20	4.20	21	0.32
1997.09.27	4.1	0	0.00	0	4.10	4.10	21	0.31
1997.09.28	4.1	0	0.00	0	4.10	4.10	21	0.31
1997.09.29	3.3	0	0.00	0	3.30	3.30	21	0.26
1997.09.30	3.7	0	0.00	0	3.70	3.70	21	0.29
1997.10.01	6.7	0	0.00	0	6.70	6.70	22	0.49
1997.10.02	5.6	0	5.60	0	0.00		22	
1997.10.03	5.8	0	5.80	0	0.00		22	
1997.10.04	5.4	0	5.40	0	0.00		22	
1997.10.05	6.2	0	6.20	0	0.00		22	
1997.10.06	5.7	0	5.70	0	0.00		22	
1997.10.07	4.1	0	4.10	0	0.00		21	
1997.10.08	6.5	0	6.50	0	0.00		22	
1997.10.09	6.3	0	6.30	0	0.00		22	
1997.10.10	7.2	0	7.20	0	0.00		22	
1997.10.11	11	0	11.00	0	0.00		24	
1997.10.12	12	0	12.00	0	0.00		24	
1997.10.13	12	0	12.00	0	0.00		24	
1997.10.14	11	0	11.00	0	0.00		24	
1997.10.15	10	0	10.00	0	0.00		23	
1997.10.16	9.3	0	9.30	0	0.00		23	
1997.10.17	7.8	0	7.80	0	0.00		23	
1997.10.18	7	0	7.00	0	0.00		22	

1997.10.19	6.9	0	6.90	0	0.00		22	
1997.10.20	7.5	0	7.50	0	0.00		23	
1997.10.21	8	0	8.00	0	0.00		23	
1997.10.22	9.3	0	9.30	0	0.00		23	
1997.10.23	9.9	0	9.90	0	0.00		23	
1997.10.24	10	0	10.00	0	0.00		23	
1997.10.25	11	0	11.00	0	0.00		24	
1997.10.26	10	0	10.00	0	0.00		23	
1997.10.27	9.6	0	9.60	0	0.00		23	
1997.10.28	9.7	0	9.70	0	0.00		23	
1997.10.29	9.2	0	9.20	0	0.00		23	
1997.10.30	9.8	0	9.80	0	0.00		23	
1997.10.31	9.8	0	9.80	0	0.00		23	
1997.11.01	11	0	11.00	0	0.00		24	
1997.11.02	10	0	10.00	0	0.00		23	
1997.11.03	10	0	10.00	0	0.00		23	
1997.11.04	9.9	0	9.90	0	0.00		23	
1997.11.05	8.7	0	8.70	0	0.00		23	
1997.11.06	9	0	9.00	0	0.00		23	
1997.11.07	9.7	0	9.70	0	0.00		23	
1997.11.08	9.7	0	9.70	0	0.00		23	
1997.11.09	11	0	11.00	0	0.00		24	
1997.11.10	13	0	13.00	0	0.00		24	
1997.11.11	13	0	13.00	0	0.00		24	
1997.11.12	17	0	17.00	0	0.00		26	
1997.11.13	17	0	17.00	0	0.00		26	
1997.11.14	20	0	19.33	0	0.67	0.67	27	0.04
1997.11.15	28	14.53	19.33	0	23.20	23.20	30	1.28
1997.11.16	45	0	19.33	0	25.67	25.67	36	1.18
1997.11.17	30	0	19.33	0	10.67	10.67	30	0.57
1997.11.18	24	0	19.33	0	4.67	4.67	28	0.27
1997.11.19	26	23.18	19.33	0	29.85	29.85	29	1.68
1997.11.20	48	0	19.33	0	28.67	28.67	37	1.28
1997.11.21	35	0	19.33	0	15.67	15.67	32	0.80
1997.11.22	27	0	19.33	0	7.67	7.67	29	0.43
1997.11.23	24	0	19.33	0	4.67	4.67	28	0.27
1997.11.24	25	0	19.33	0	5.67	5.67	29	0.32
1997.11.25	26	7.65	19.33	0	14.32	14.32	29	0.81
1997.11.26	470	326.75	19.33	107	670.42	670.42	85	12.91
1997.11.27	249	0	19.33	149	80.67	80.67	85	1.55
1997.11.28	103	0	19.33	0.77	82.90	82.90	56	2.42
1997.11.29	73	0	19.33	0	53.67	53.67	45	1.93
1997.11.30	92	7.65	19.33	0	80.32	80.32	52	2.52
1997.12.01	94	0	19.33	0	74.67	74.67	53	2.31
1997.12.02	70	0	0.00	0	70.00	70.00	44	2.58
1997.12.03	60	0	0.00	0	60.00	60.00	41	2.40
1997.12.04	53	14.53	0.00	0	67.53	67.53	38	2.87
1997.12.05	805	485.76	0.00	462	828.76	828.76	85	15.95
1997.12.06	502	0	0.00	268	234.00	234.00	85	4.50
1997.12.07	608	23.27	0.00	216	415.27	415.27	85	7.99

1997.12.08	603	0	0.00	450	153.00	153.00	85	2.95
1997.12.09	313	0	0.00	72	241.00	241.00	85	4.64
1997.12.10	216	0	0.00	13	203.00	203.00	85	3.91
1997.12.11	170	0	0.00	1.9	168.10	168.10	85	3.24
1997.12.12	141	0	0.00	0	141.00	141.00	85	2.71
1997.12.13	120	0	0.00	0	120.00	120.00	62	3.17
1997.12.14	248	2.79	0.00	3.8	246.99	246.99	85	4.75
1997.12.15	257	0	0.00	54	203.00	203.00	85	3.91
1997.12.16	181	0	0.00	5.7	175.30	175.30	85	3.37
1997.12.17	154	0	0.00	0.23	153.77	153.77	85	2.96
1997.12.18	135	0	0.00	0	135.00	135.00	85	2.60
1997.12.19	121	0	0.00	0	121.00	121.00	62	3.18
1997.12.20	112	0	0.00	0	112.00	112.00	59	3.10
1997.12.21	103	0	0.00	0	103.00	103.00	56	3.01
1997.12.22	95	0	0.00	0	95.00	95.00	53	2.92
1997.12.23	91	0	0.00	0	91.00	91.00	52	2.88
1997.12.24	84	0	0.00	0	84.00	84.00	49	2.79
1997.12.25	80	0	0.00	0	80.00	80.00	48	2.73
1997.12.26	77	0	0.00	0	77.00	77.00	47	2.69
1997.12.27	74	0	0.00	0	74.00	74.00	46	2.64
1997.12.28	72	0	0.00	0	72.00	72.00	45	2.61
1997.12.29	69	0	0.00	0	69.00	69.00	44	2.56
1997.12.30	66	0	0.00	0	66.00	66.00	43	2.51
1997.12.31	65	0	0.00	0	65.00	65.00	43	2.49
1998.01.01	62	0.27	0.00	0	62.27	62.27	42	2.45
1998.01.02	65	0	0.00	0	65.00	65.00	43	2.49
1998.01.03	124	33.31	0.00	0	157.31	157.31	63	4.07
1998.01.04	323	0	0.00	3.5	319.50	319.50	85	6.15
1998.01.05	266	0	0.00	37	229.00	229.00	85	4.41
1998.01.06	188	0	0.00	7	181.00	181.00	85	3.48
1998.01.07	164	0	0.00	0.53	163.47	163.47	85	3.15
1998.01.08	145	0	0.00	0	145.00	145.00	85	2.79
1998.01.09	220	33.28	0.00	0	253.28	253.28	85	4.88
1998.01.10	881	0	0.00	653	228.00	228.00	85	4.39
1998.01.11	485	0	0.00	314	171.00	171.00	85	3.29
1998.01.12	729	7.65	0.00	346	390.65	390.65	85	7.52
1998.01.13	924	0	0.00	954	-30.00		85	
1998.01.14	537	0	0.00	416	121.00	121.00	85	2.33
1998.01.15	1190	14.59	0.00	954	250.59	250.59	85	4.82
1998.01.16	1160	0	0.00	1240	-80.00		85	
1998.01.17	714	0	0.00	616	98.00	98.00	85	1.89
1998.01.18	767	115.42	0.00	460	422.42	422.42	85	8.13
1998.01.19	1210	0	0.00	1390	-180.00		85	
1998.01.20	812	0	0.00	778	34.00	34.00	85	0.65
1998.01.21	624	0	0.00	555	69.00	69.00	85	1.33
1998.01.22	499	0	0.00	388	111.00	111.00	85	2.14
1998.01.23	413	0	0.00	256	157.00	157.00	85	3.02
1998.01.24	352	0	0.00	178	174.00	174.00	85	3.35
1998.01.25	307	0	0.00	129	178.00	178.00	85	3.43
1998.01.26	270	0	0.00	98	172.00	172.00	85	3.31



1998.01.27	250	0	0.00	80	170.00	170.00	85	3.27
1998.01.28	228	14.53	0.00	59	183.53	183.53	85	3.53
1998.01.29	861	7.7	0.00	620	248.70	248.70	85	4.79
1998.01.30	603	0	0.00	539	64.00	64.00	85	1.23
1998.01.31	537	0	0.00	431	106.00	106.00	85	2.04
1998.02.01	1110	57.44	0.00	828	339.44	339.44	85	6.53
1998.02.02	3990	1035.09	0.00	3480	1545.09	1545.09	85	29.75
1998.02.03	9490	23.17	0.00	9510	3.17	3.17	85	0.06
1998.02.04	3280	0	0.00	3090	190.00	190.00	85	3.66
1998.02.05	2210	0	0.00	2070	140.00	140.00	85	2.70
1998.02.06	4230	509.4	0.00	3820	919.40	919.40	85	17.70
1998.02.07	6940	300.51	0.00	7700	-459.49		85	
1998.02.08	5330	2.79	0.00	5760	-427.21		85	
1998.02.09	3170	0	0.00	3100	70.00	70.00	85	1.35
1998.02.10	2330	0	0.00	2500	-170.00		85	
1998.02.11	1900	0	0.00	2000	-100.00		85	
1998.02.12	1620	0	0.00	1800	-180.00		85	
1998.02.13	1420	0	0.00	1600	-180.00		85	
1998.02.14	1740	33.28	0.00	1900	-126.72		85	
1998.02.15	1630	0	0.00	1800	-170.00		85	
1998.02.16	1550	0	0.00	1700	-150.00		85	
1998.02.17	1640	0	0.00	1800	-160.00		85	
1998.02.18	1450	0	0.00	1800	-350.00		85	
1998.02.19	1710	0	0.00	1700	10.00	10.00	85	0.19
1998.02.20	1700	0	0.00	2000	-300.00		85	
1998.02.21	2500	0.08	0.00	2600	-99.92		85	
1998.02.22	2900	0	0.00	3070	-170.00		85	
1998.02.23	2700	0	0.00	3150	-450.00		85	
1998.02.24	2260	0	0.00	2740	-480.00		85	
1998.02.25	1900	0	0.00	2140	-240.00		85	
1998.02.26	1750	0	0.00	1860	-110.00		85	
1998.02.27	1610	0	0.00	1630	-20.00		85	
1998.02.28	1450	0	0.00	1410	40.00	40.00	85	0.77
1998.03.01	1320	0	0.00	1240	80.00	80.00	85	1.54
1998.03.02	1210	0	0.00	1100	110.00	110.00	85	2.12
1998.03.03	1110	0	0.00	998	112.00	112.00	85	2.16
1998.03.04	1020	0	0.00	917	103.00	103.00	85	1.98
1998.03.05	973	0	0.00	875	98.00	98.00	85	1.89
1998.03.06	940	0	0.00	891	49.00	49.00	85	0.94
1998.03.07	837	0	0.00	793	44.00	44.00	85	0.85
1998.03.08	781	0	0.00	766	15.00	15.00	85	0.29
1998.03.09	728	0	0.00	717	11.00	11.00	85	0.21
1998.03.10	681	0	0.00	646	35.00	35.00	85	0.67
1998.03.11	643	0.75	0.00	612	31.75	31.75	85	0.61
1998.03.12	611	0	0.00	589	22.00	22.00	85	0.42
1998.03.13	611	0	0.00	580	31.00	31.00	85	0.60
1998.03.14	571	0	0.00	559	12.00	12.00	85	0.23
1998.03.15	537	0	0.00	532	5.00	5.00	85	0.10
1998.03.16	511	0	0.00	518	-7.00		85	
1998.03.17	495	0	0.00	497	-2.00		85	

1998.03.18	473	0	0.00	481	-8.00		85	
1998.03.19	455	0	0.00	454	1.00	1.00	85	0.02
1998.03.20	439	0	0.00	432	7.00	7.00	85	0.13
1998.03.21	426	0	0.00	414	12.00	12.00	85	0.23
1998.03.22	407	0	0.00	376	31.00	31.00	85	0.60
1998.03.23	393	0	0.00	360	33.00	33.00	85	0.64
1998.03.24	588	125.93	0.00	447	266.93	266.93	85	5.14
1998.03.25	1030	0	0.00	784	246.00	246.00	85	4.74
1998.03.26	700	0	0.00	642	58.00	58.00	85	1.12
1998.03.27	590	0.75	0.00	566	24.75	24.75	85	0.48
1998.03.28	647	0	0.00	570	77.00	77.00	85	1.48
1998.03.29	626	0	0.00	556	70.00	70.00	85	1.35
1998.03.30	560	0	33.11	513	13.89	13.89	85	0.27
1998.03.31	622	0	23.01	519	79.99	79.99	85	1.54
1998.04.01	704	0.27	19.92	601	83.35	83.35	85	1.60
1998.04.02	649	0	20.90	580	48.10	48.10	85	0.93
1998.04.03	783	14.53	19.92	659	118.61	118.61	85	2.28
1998.04.04	919	0	18.00	794	107.00	107.00	85	2.06
1998.04.05	850	0	17.51	770	62.49	62.49	85	1.20
1998.04.06	783	0	17.51	751	14.49	14.49	85	0.28
1998.04.07	755	0	17.11	699	38.89	38.89	85	0.75
1998.04.08	693	0	17.11	648	27.89	27.89	85	0.54
1998.04.09	647	0	17.11	612	17.89	17.89	85	0.34
1998.04.10	617	0	17.76	571	28.24	28.24	85	0.54
1998.04.11	641	0	17.76	550	73.24	73.24	85	1.41
1998.04.12	604	0	25.11	530	48.89	48.89	85	0.94
1998.04.13	658	0.27	25.11	500	133.16	133.16	85	2.56
1998.04.14	629	0	25.11	460	143.89	143.89	85	2.77
1998.04.15	602	0	29.61	450	122.39	122.39	85	2.36
1998.04.16	574	0	29.61	420	124.39	124.39	85	2.39
1998.04.17	556	0	29.61	400	126.39	126.39	85	2.43
1998.04.18	536	0	29.61	380	126.39	126.39	85	2.43
1998.04.19	517	0	29.61	360	127.39	127.39	85	2.45
1998.04.20	498	0	30.21	340	127.79	127.79	85	2.46
1998.04.21	478	0	30.21	320	127.79	127.79	85	2.46
1998.04.22	460	0	30.21	300	129.79	129.79	85	2.50
1998.04.23	456	0.08	29.61	280	146.47	146.47	85	2.82
1998.04.24	482	0	29.61	270	182.39	182.39	85	3.51
1998.04.25	440	0	29.61	250	160.39	160.39	85	3.09
1998.04.26	417	0	29.61	230	157.39	157.39	85	3.03
1998.04.27	402	0	29.61	210	162.39	162.39	85	3.13
1998.04.28	387	0	29.61	190	167.39	167.39	85	3.22
1998.04.29	374	0	28.51	160	185.49	185.49	85	3.57
1998.04.30	361	0	27.01	140	193.99	193.99	85	3.73
1998.05.01	441	0	25.10	150	265.90	265.90	85	5.12
1998.05.02	620	0	31.41	160	428.59	428.59	85	8.25
1998.05.03	482	0	31.41	170	280.59	280.59	85	5.40
1998.05.04	459	0	31.41	150	277.59	277.59	85	5.34
1998.05.05	589	0	31.41	140	417.59	417.59	85	8.04
1998.05.06	538	0	31.41	130	376.59	376.59	85	7.25

1998.05.07	499	0	31.41	120	347.59	347.59	85	6.69
1998.05.08	460	0	31.41	112	316.59	316.59	85	6.09
1998.05.09	435	0	31.41	110	293.59	293.59	85	5.65
1998.05.10	414	0	31.41	100	282.59	282.59	85	5.44
1998.05.11	401	0	31.41	90	279.59	279.59	85	5.38
1998.05.12	465	0	30.94	80	354.06	354.06	85	6.82
1998.05.13	478	0	30.94	74	373.06	373.06	85	7.18
1998.05.14	426	0.27	30.94	70	325.33	325.33	85	6.26
1998.05.15	404	0	30.21	65	308.79	308.79	85	5.94
1998.05.16	388	0	31.91	60	296.09	296.09	85	5.70
1998.05.17	374	0	31.91	55	287.09	287.09	85	5.53
1998.05.18	358	0	30.21	52	275.79	275.79	85	5.31
1998.05.19	343	0	29.01	50	263.99	263.99	85	5.08
1998.05.20	334	10.86	28.51	45	271.35	271.35	85	5.22
1998.05.21	325	0	27.01	40	257.99	257.99	85	4.97
1998.05.22	317	0	27.01	38	251.99	251.99	85	4.85
1998.05.23	305	0	27.01	35	242.99	242.99	85	4.68
1998.05.24	296	0	24.60	33	238.40	238.40	85	4.59
1998.05.25	289	0	23.50	30	235.50	235.50	85	4.53
1998.05.26	284	0	23.50	28	232.50	232.50	85	4.48
1998.05.27	277	2.79	29.01	25	225.78	225.78	85	4.35
1998.05.28	339	89.16	29.01	75	324.15	324.15	85	6.24
1998.05.29	467	194.22	29.01	66	566.21	566.21	85	10.90
1998.05.30	343	0	29.01	40	273.99	273.99	85	5.27
1998.05.31	311	0	29.01	30	251.99	251.99	85	4.85
1998.06.01	292	0	29.01	26	236.99	236.99	85	4.56
1998.06.02	282	0	28.51	24	229.49	229.49	85	4.42
1998.06.03	276	0	28.51	21	226.49	226.49	85	4.36
1998.06.04	272	0	27.01	19	225.99	225.99	85	4.35
1998.06.05	264	0	24.60	17	222.40	222.40	85	4.28
1998.06.06	257	0	28.51	16	212.49	212.49	85	4.09
1998.06.07	258	0	25.81	15	217.19	217.19	85	4.18
1998.06.08	253	0	25.81	14	213.19	213.19	85	4.10
1998.06.09	243	0	24.60	13	205.40	205.40	85	3.95
1998.06.10	235	0	29.01	12	193.99	193.99	85	3.73
1998.06.11	229	0	28.51	11	189.49	189.49	85	3.65
1998.06.12	224	0	28.51	10	185.49	185.49	85	3.57
1998.06.13	219	0	28.51	9	181.49	181.49	85	3.49
1998.06.14	214	0	28.51	8.5	176.99	176.99	85	3.41
1998.06.15	203	0	28.51	8	166.49	166.49	85	3.21
1998.06.16	196	0	28.51	7.2	160.29	160.29	85	3.09
1998.06.17	189	0	30.21	6.4	152.39	152.39	85	2.93
1998.06.18	183	0	30.21	5.5	147.29	147.29	85	2.84
1998.06.19	178	0	29.61	5	143.39	143.39	85	2.76
1998.06.20	175	0	29.61	4	141.39	141.39	85	2.72
1998.06.21	174	0	29.01	3	141.99	141.99	85	2.73
1998.06.22	172	0	29.01	2.5	140.49	140.49	85	2.70
1998.06.23	169	0	29.01	2	137.99	137.99	85	2.66
1998.06.24	167	0	29.61	1	136.39	136.39	85	2.63
1998.06.25	163	0	29.61	0	133.39	133.39	85	2.57

1998.06.26	161	0	29.01	0	131.99	131.99	85	2.54
1998.06.27	157	0	28.51	0	128.49	128.49	85	2.47
1998.06.28	149	0	28.92	0	120.08	120.08	85	2.31
1998.06.29	143	0	29.61	0	113.39	113.39	85	2.18
1998.06.30	140	0	29.61	0	110.39	110.39	85	2.13
1998.07.01	136	0	29.01	0	106.99	106.99	85	2.06
1998.07.02	133	0	29.01	0	103.99	103.99	85	2.00
1998.07.03	136	0	28.51	0	107.49	107.49	85	2.07
1998.07.04	134	0	25.11	0	108.89	108.89	85	2.10
1998.07.05	133	0	23.01	0	109.99	109.99	85	2.12
1998.07.06	125	0	23.01	0	101.99	101.99	64	2.62
1998.07.07	122	0	22.51	0	99.49	99.49	63	2.60
1998.07.08	116	0	29.61	0	86.39	86.39	61	2.34
1998.07.09	114	0	29.61	0	84.39	84.39	60	2.31
1998.07.10	111	0	29.61	0	81.39	81.39	59	2.27
1998.07.11	110	0	29.61	0	80.39	80.39	58	2.25
1998.07.12	108	0	29.01	0	78.99	78.99	58	2.24
1998.07.13	102	0	29.61	0	72.39	72.39	56	2.13
1998.07.14	101	0	29.61	0	71.39	71.39	55	2.11
1998.07.15	98	0	29.01	0	68.99	68.99	54	2.08
1998.07.16	94	0	28.51	0	65.49	65.49	53	2.03
1998.07.17	90	0	25.81	0	64.19	64.19	51	2.04
1998.07.18	87	0	25.81	0	61.19	61.19	50	1.99
1998.07.19	86	0	25.81	0	60.19	60.19	50	1.97
1998.07.20	81	0	25.81	0	55.19	55.19	48	1.87
1998.07.21	80	0	25.11	0	54.89	54.89	48	1.88
1998.07.22	78	0	23.01	0	54.99	54.99	47	1.91
1998.07.23	78	0	20.90	0	57.10	57.10	47	1.98
1998.07.24	78	0	19.92	0	58.08	58.08	47	2.01
1998.07.25	77	0	19.92	0	57.08	57.08	47	1.99
1998.07.26	75	0	19.92	0	55.08	55.08	46	1.95
1998.07.27	71	0	19.50	0	51.50	51.50	45	1.88
1998.07.28	67	0	19.01	0	47.99	47.99	43	1.81
1998.07.29	65	0	18.50	0	46.50	46.50	43	1.78
1998.07.30	65	0	18.50	0	46.50	46.50	43	1.78
1998.07.31	68	0	18.50	0	49.50	49.50	44	1.85
1998.08.01	67	0	18.50	0	48.50	48.50	43	1.83
1998.08.02	63	0	18.50	0	44.50	44.50	42	1.74
1998.08.03	58	0	18.50	0	39.50	39.50	40	1.61
1998.08.04	54	0	18.50	0	35.50	35.50	39	1.50
1998.08.05	50	0	17.50	0	32.50	32.50	37	1.42
1998.08.06	48	0	17.50	0	30.50	30.50	37	1.36
1998.08.07	46	0	17.11	0	28.89	28.89	36	1.31
1998.08.08	44	0	17.11	0	26.89	26.89	35	1.25
1998.08.09	45	0	17.11	0	27.89	27.89	36	1.28
1998.08.10	43	0	16.61	0	26.39	26.39	35	1.24
1998.08.11	43	0	16.61	0	26.39	26.39	35	1.24
1998.08.12	41	0	16.61	0	24.39	24.39	34	1.17
1998.08.13	40	0	16.11	0	23.89	23.89	34	1.15
1998.08.14	38	0	16.11	0	21.89	21.89	33	1.08

1998.08.15	37	0	16.11	0	20.89	20.89	33	1.04
1998.08.16	36	0	16.11	0	19.89	19.89	33	1.00
1998.08.17	34	0	16.11	0	17.89	17.89	32	0.92
1998.08.18	36	0	16.12	0	19.88	19.88	33	1.00
1998.08.19	38	0	15.70	0	22.30	22.30	33	1.10
1998.08.20	40	0	15.70	0	24.30	24.30	34	1.17
1998.08.21	40	0	15.70	0	24.30	24.30	34	1.17
1998.08.22	39	0	15.70	0	23.30	23.30	34	1.14
1998.08.23	35	0	15.70	0	19.30	19.30	32	0.98
1998.08.24	33	0	15.20	0	17.80	17.80	31	0.93
1998.08.25	32	0	15.20	0	16.80	16.80	31	0.88
1998.08.26	33	0	15.20	0	17.80	17.80	31	0.93
1998.08.27	33	0	0.00	0	33.00	33.00	31	1.72
1998.08.28	30	0	0.00	0	30.00	30.00	30	1.61
1998.08.29	29	0	0.00	0	29.00	29.00	30	1.58
1998.08.30	27	0	0.00	0	27.00	27.00	29	1.51
1998.08.31	24	0	0.00	0	24.00	24.00	28	1.39
1998.09.01	24	0	0.00	0	24.00	24.00	28	1.39
1998.09.02	23	0	0.00	0	23.00	23.00	28	1.35
1998.09.03	22	0	0.00	0	22.00	22.00	28	1.30
1998.09.04	21	0	0.00	0	21.00	21.00	27	1.26
1998.09.05	21	0	0.00	0	21.00	21.00	27	1.26
1998.09.06	23	0	0.00	0	23.00	23.00	28	1.35
1998.09.07	25	0	0.00	0	25.00	25.00	29	1.43
1998.09.08	26	0	0.00	0	26.00	26.00	29	1.47
1998.09.09	25	0	0.00	0	25.00	25.00	29	1.43
1998.09.10	26	0	0.00	0	26.00	26.00	29	1.47
1998.09.11	27	0	0.00	0	27.00	27.00	29	1.51
1998.09.12	26	0	0.00	0	26.00	26.00	29	1.47
1998.09.13	24	0	0.00	0	24.00	24.00	28	1.39
1998.09.14	24	0	0.00	0	24.00	24.00	28	1.39
1998.09.15	24	0	0.00	0	24.00	24.00	28	1.39
1998.09.16	25	0	0.00	0	25.00	25.00	29	1.43
1998.09.17	23	0	0.00	0	23.00	23.00	28	1.35
1998.09.18	21	0	0.00	0	21.00	21.00	27	1.26
1998.09.19	22	0	0.00	0	22.00	22.00	28	1.30
1998.09.20	23	0	0.00	0	23.00	23.00	28	1.35
1998.09.21	23	0	0.00	0	23.00	23.00	28	1.35
1998.09.22	25	0	0.00	0	25.00	25.00	29	1.43
1998.09.23	28	0	0.00	0	28.00	28.00	30	1.54
1998.09.24	32	0	0.00	0	32.00	32.00	31	1.68
1998.09.25	33	0	0.00	0	33.00	33.00	31	1.72
1998.09.26	35	0	0.00	0	35.00	35.00	32	1.78
1998.09.27	35	0	0.00	0	35.00	35.00	32	1.78
1998.09.28	37	0	0.00	0	37.00	37.00	33	1.84
1998.09.29	37	0	0.00	0	37.00	37.00	33	1.84
1998.09.30	37	0	0.00	0	37.00	37.00	33	1.84

<b>MAX</b>	<b>15,800</b>	<b>1,166</b>	<b>33</b>	<b>17,000</b>	<b>2,609</b>	<b>2,609</b>	<b>85</b>	<b>50</b>
<b>MIN</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-2,075</b>	<b>1</b>	<b>20</b>	<b>0</b>

Average (cfs)	318	9	11	272	44	100	N/A	N/A
Average (Af/Yr)	226,715	6,170	7,683	193,594	31,607	71,402	N/A	N/A

## **Appendix D**

### **Hydrologic Data- Monterey County Water Resources Agency Arroyo Seco Observations**

This appendix presents the hydrologic data collected for a study conducted in April 1994 by Staal, Gardner, and Dunne, Inc., titled "Hydrogeologic Investigation, Arroyo Seco Cone". The information was originally published in Appendix F as Table F-1 and is reprinted here as Appendix D.

**Table D-1. Monterey County Water Resources Agency Arroyo Seco Observations**

MCWRA Arroyo Seco Observations

Date	Time	Lower Bridge		Middle Bridge	
		Description	Q - cfs	Q - cfs	Time
12/22/64	920	GH about 2.0, Q about 150, flow thru	150	400	1000
12/23/64	940	GH about 2.0, Q about 175, flow thru	175	1364	830
04/09/65	1045	Q 100, flow thru	100	370	1100
11/23/65	800	no flow visible		281	daily
12/13/65	1000	Did not reach Salinas River		112	daily
02/01/66	1200	flow thru		250	daily
12/05/66	1015	GH 2.8, est. Q 1,000, Thru to Salinas	1000	3000	1000
12/17/66	?	Stopped flowing		156	daily
02/21/67	1400	est. 5 - 7 cfs flowing	7	185	daily
03/18/67	1400	GH 4.8		9350	1000
01/31/68	845	Flow thru a.m., Thome Rd. Closed		370	1600
03/13/68	800	No flow		282	daily
01/14/69	1345	GH 1.75, Q est. 500 cfs	500	721	daily
01/21/69	719	GH 4.0		5070	daily
01/28/69	1700	GH 2.9		1900	daily
02/07/69	1400	GH 2.5, steady		1170	daily
12/22/69	1000	est. GH of 1.5, Q 75-80	80	225	daily
12/26/69	930	GH 7, Q est. 250	250	272	daily
01/12/70	1030	GH 1.1, falling		514	daily
01/20/70	1400	GH 1.0		533	daily
01/21/70	1145	GH .85, falling slowly		367	daily
11/30/70	1630	GH .95		3750	830
12/01/70	1515	GH .7		503	daily
12/02/70	930	GH 2.75, rising		2640	945
12/03/70	1115	GH 1.2, falling		782	daily
12/18/70	?	Thru in evening		282	daily
12/21/70	1018	GH 2.0		1620	am
12/22/70	802	GH 1.3, dropping		734	daily
01/20/71	?	Thru to Salinas		221	daily
12/22/71	?	GH est. 1.5, Q est. 500	500	2280	1630
12/23/71	?	GH est. 1.0, Q est. 200, visual obs., thru	200	395	945
12/27/71	1100	GH 1.25, visual obs., thru		1114	1030
11/14/72	1100	est. 2,000 cfs at lower bridge	2000	4060	1000
01/07/74	1115	Thru to Salinas River, GH 1.0		932	1115
01/08/74	819	Thru to Salinas River, GH 1.8		845	daily
01/09/74	805	Thru to Salinas River, GH 1.25		612	daily
02/04/74	1300	Stopped running		142	daily
03/01/74	1450	flowing		2680	daily
04/14/74	1200	flowing thru, est Q 300	300	402	daily
05/02/74	?	Flow stopped today, dry		156	daily
12/04/74	1030	GH 1.1, est Q 1,000, earlier 2.8' and 3-4,000 cfs		766	1000
02/02/75	1430	High flow, near peak		17230	unk
02/10/75	1447	Thru to Salinas River		2400	daily
11/18/75	1000	No flow, < 50 cfs Thome		75	1045
12/17/77	1430	High flow, good velocity, GH 2.5		9975	1405
01/18/78	400	GH 5.8		18268	1200
02/07/78	1445	GH 5.8		15250	1300
02/15/78	1650	GH 1.6, split channel		2000	1640
11/21/78	1035	River came thru after 0900, GH 2.0		2275	1035
04/11/79	1259	Looks like flow is thru to Salinas River, GH 1.3		339	daily
05/07/79	1200	Est 40.5 CFS, River to Salinas river	40.5	172	daily
01/15/80	1800	GH est 2.0, Q 1500, gage silted in	1500	2270	daily
02/07/80	900	Q est. 200, 100' wide and 1' deep	200	252	daily
02/21/80	1500	GH 4.25, est. 6-7000 cfs	7000	6184	1435
12/04/80	1115	est. 30 - 40 cfs	40	1005	930
03/30/82	?	MB obser. rec. - flow to Salinas River		499	1037
11/30/82	1130	Flow dropping off - gage height - 3.50		2626	1200
11/30/82	1020	Peak flow, gage height - 3.75'		4874	715
12/01/82	1020	Still good flow through to Salinas, est. 400 cfs	400		
12/22/82	1000	Good flow through lower bridge		2271	1030
11/11/83	?	Through to Salinas (from MB obs.)		1415	415
11/25/85	915	Flow under lower bridge, thru to Salinas ?		644	daily
12/02/85	1200	Flow thru lower bridge, nearing confluence		2124	1215
12/03/85	950	Flow approx. 150' wide, GH 2.1, Q 300	300		
02/13/86	1015	lots of water - GH = 3.5		2000	daily
10/08/86	1000	Flow thru lower bridge		199	daily
03/04/91	930	Good flow thru to Salinas River, GH 2.2		2200	700
03/06/91	1130	Flow roughly 200' wide at bridge, GH .9		306	1200
03/19/91	1430	GH 1.3, light turbidity		421	1230
03/20/91	1000	Flow covers channel from pier 21 to 10, GH 2.3		1175	1020
02/11/92	1220	Flow thru to Salinas River, bank to bank		2281	1232
01/07/93	930	GH 3.0, Q 3000 approx, river flowing 550'	3000	5614	200



## **Appendix E**

### **SVIGSM Calibration Well Hydrographs in the Arroyo Seco Cone Area**

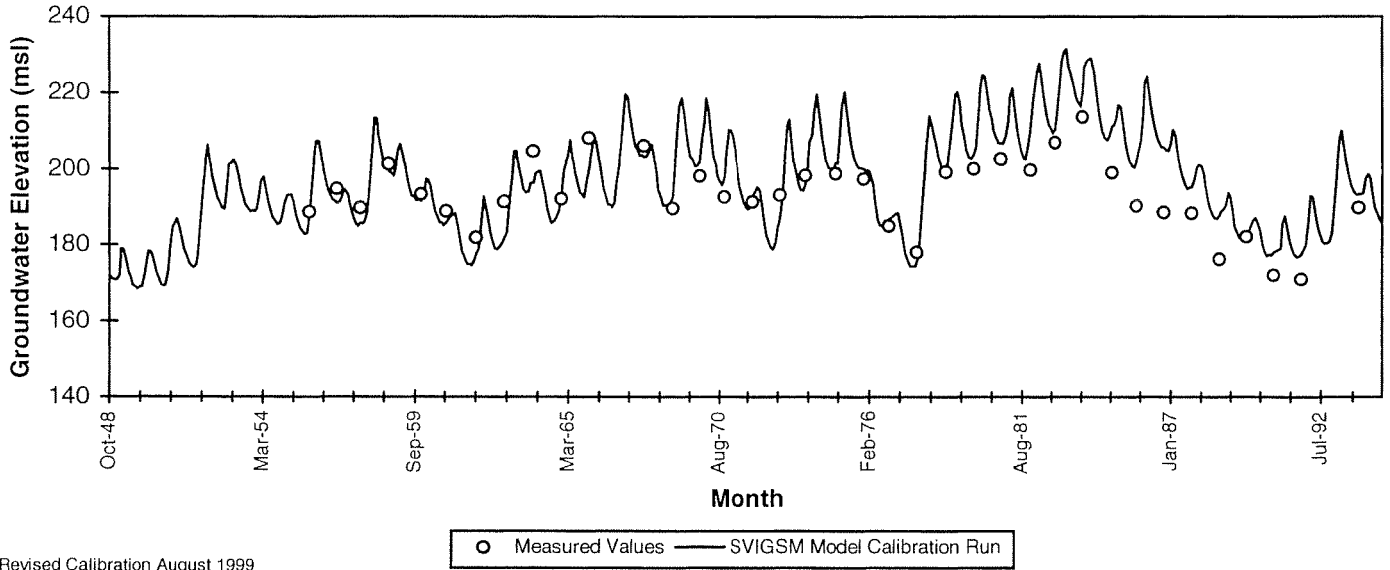
This appendix includes hydrograph of simulated and observed ground water levels for the SVIGSM calibration wells in the Arroyo Seco Cone area. Table E-1 presents the State well ID number, along with the construction information available for each calibration well.

**Table E-1. Construction Information for SVIGSM Calibration Wells in the Arroyo Seco Cone Area**

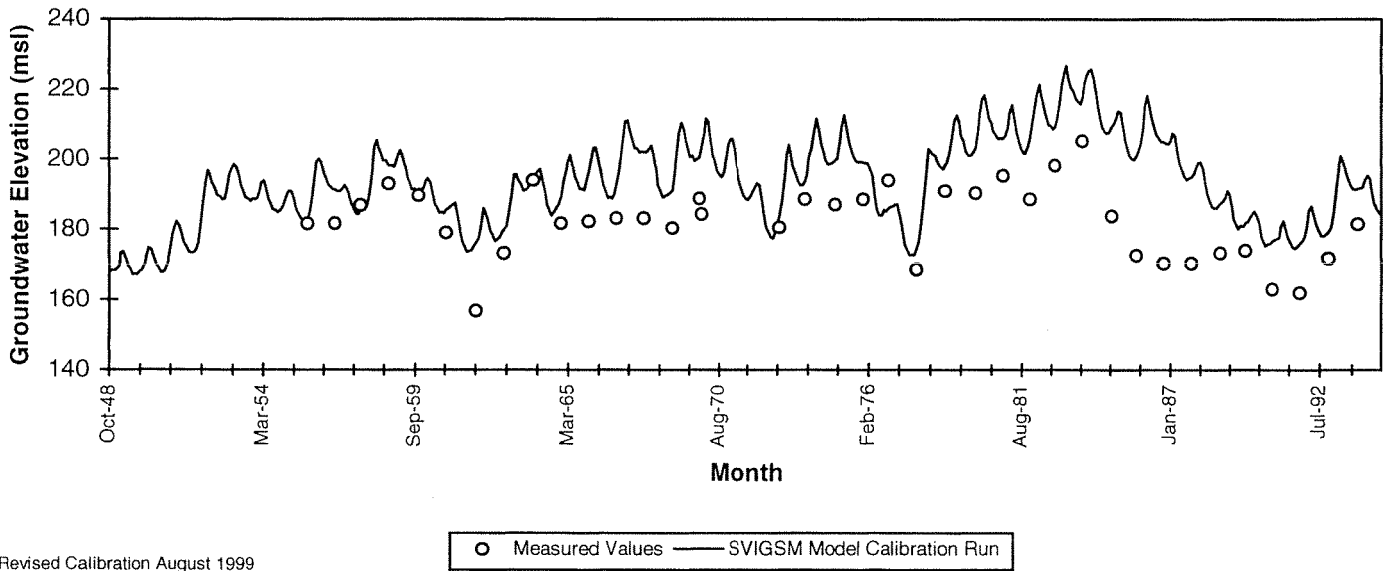
SVIGSM Well ID	STATE WELL ID (SWID)	CONSTRUCTION DATE	WELL DEPTH (FT)	PERF START DEPTH (FT)	PERF STOP DEPTH (FT)	CASING DIA. (IN.)
65	18S/06E-27A01	01-Jan-48	343	N/A	N/A	N/A
66	18S/06E-27C01	N/A	N/A	N/A	N/A	N/A
67	18S/06E-34A01	15-Jul-48	400	N/A	N/A	N/A
68	18S/06E-34B01	01-Jan-25	300	150	285	16
69	19S/06E-01H01	01-Apr-58	300	210	292	14
70	19S/06E-03E02	01-Jan-46	340	180	322	N/A
71	19S/06E-12F01	24-Mar-52	N/A	N/A	N/A	N/A
72	19S/07E-06P01	N/A	N/A	N/A	N/A	N/A
73	19S/07E-08N01	01-Jan-44	N/A	N/A	N/A	N/A

N/A: Data not available

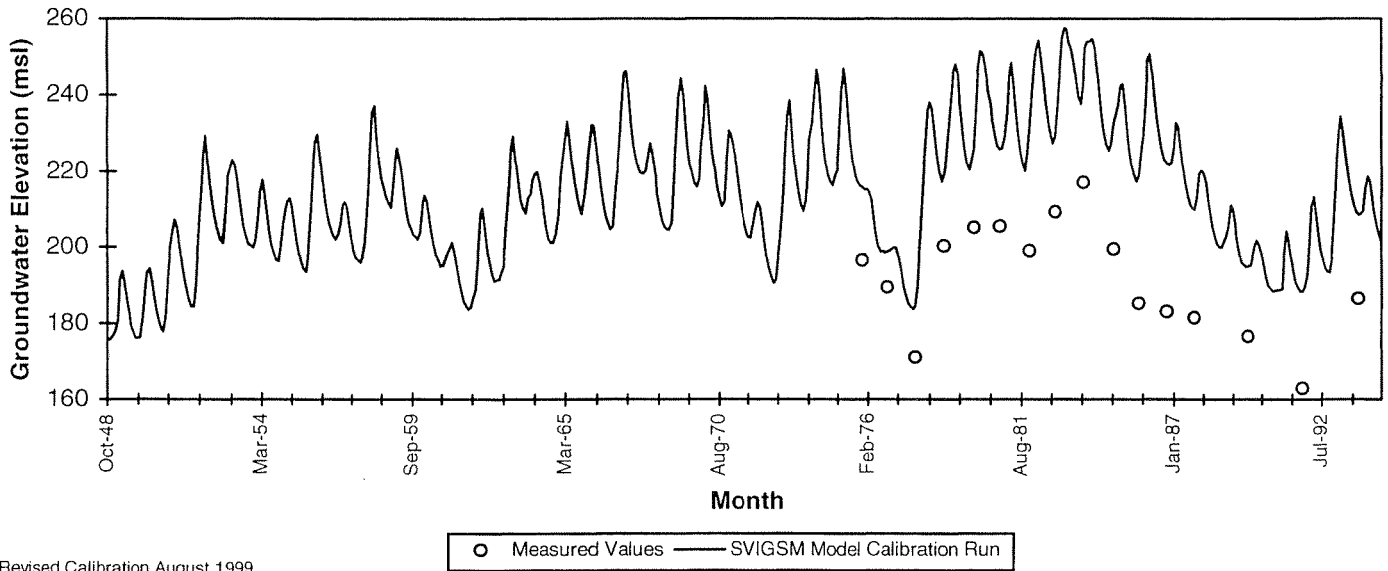
**HYDROGRAPH OF MEASURED AND SIMULATED GW LEVELS**  
**Calibration Well No. 65: Forebay Subarea, Forebay Deep Aquifer**



**HYDROGRAPH OF MEASURED AND SIMULATED GW LEVELS**  
**Calibration Well No. 66: Forebay Subarea, Forebay Deep Aquifer**

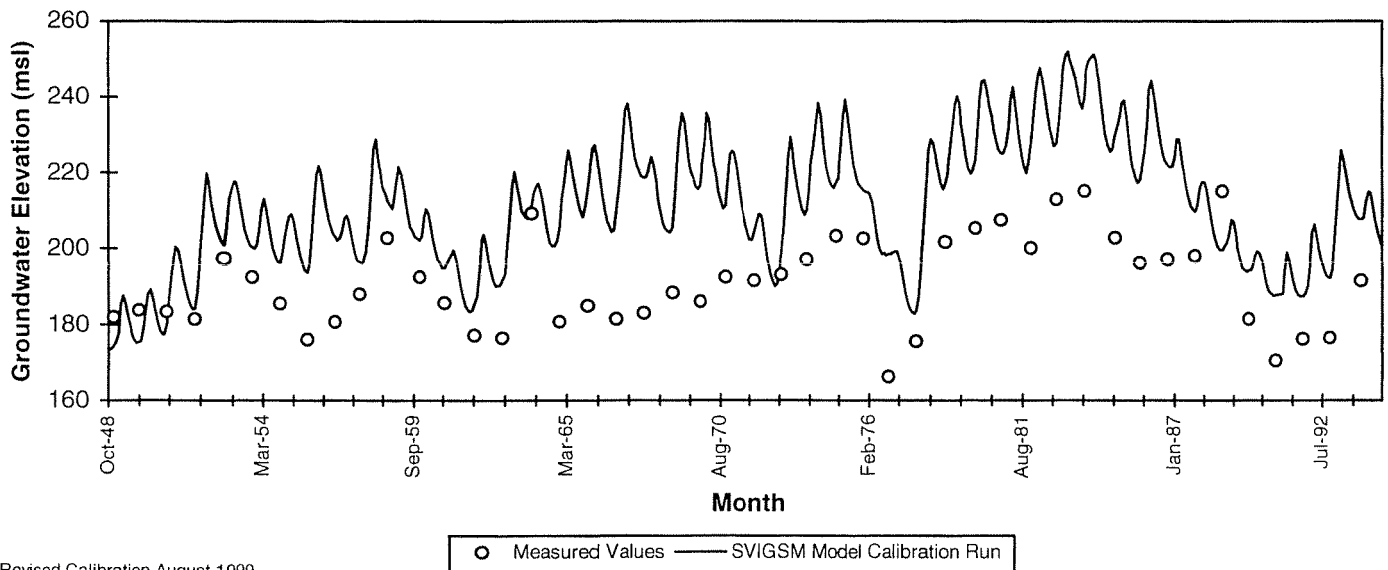


**HYDROGRAPH OF MEASURED AND SIMULATED GW LEVELS**  
**Calibration Well No. 67: Forebay Subarea, Forebay Shallow Aquifer**



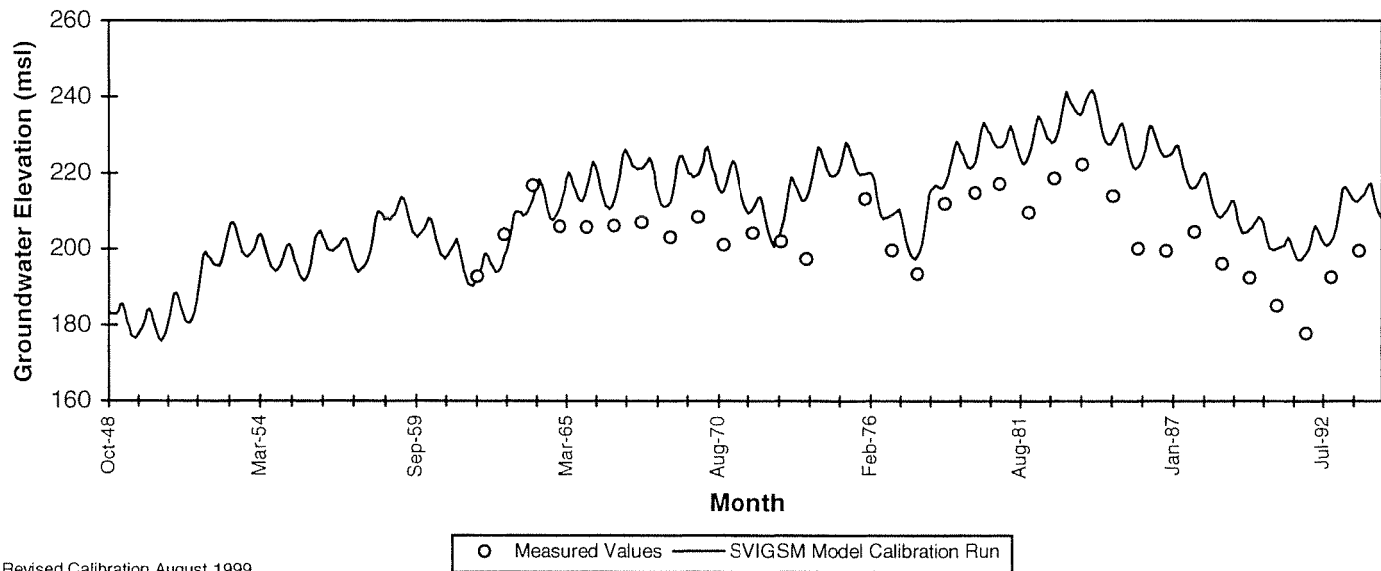
Revised Calibration August 1999

**HYDROGRAPH OF MEASURED AND SIMULATED GW LEVELS**  
**Calibration Well No. 68: Forebay Subarea, Forebay Shallow Aquifer**

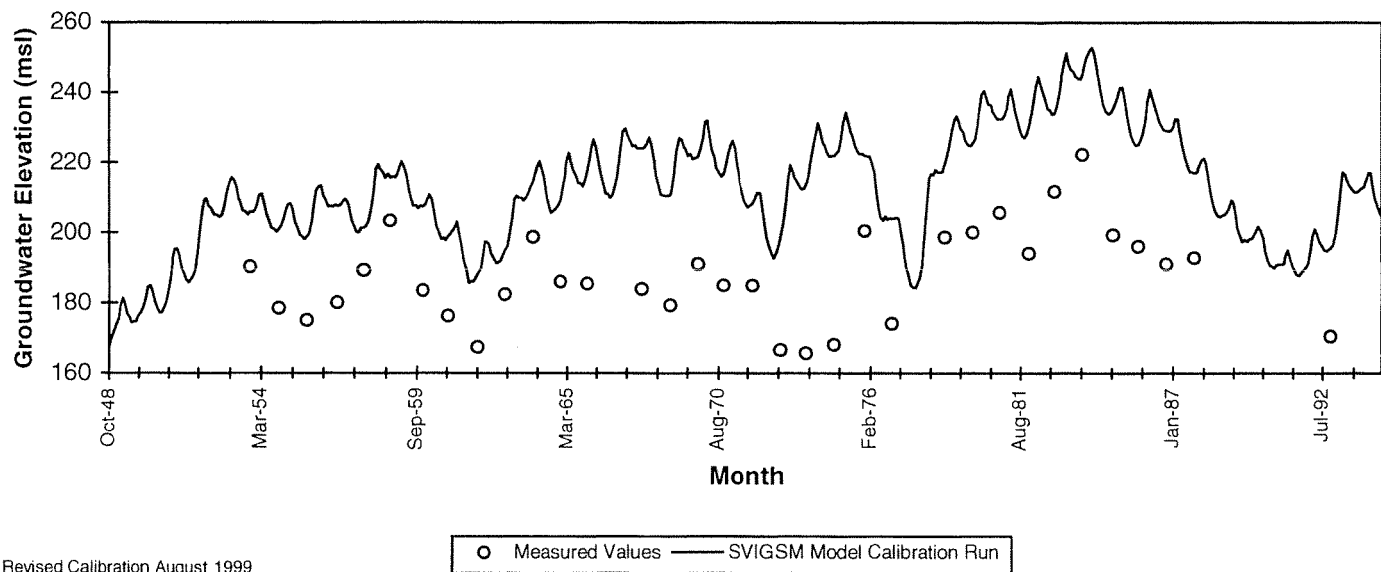


Revised Calibration August 1999

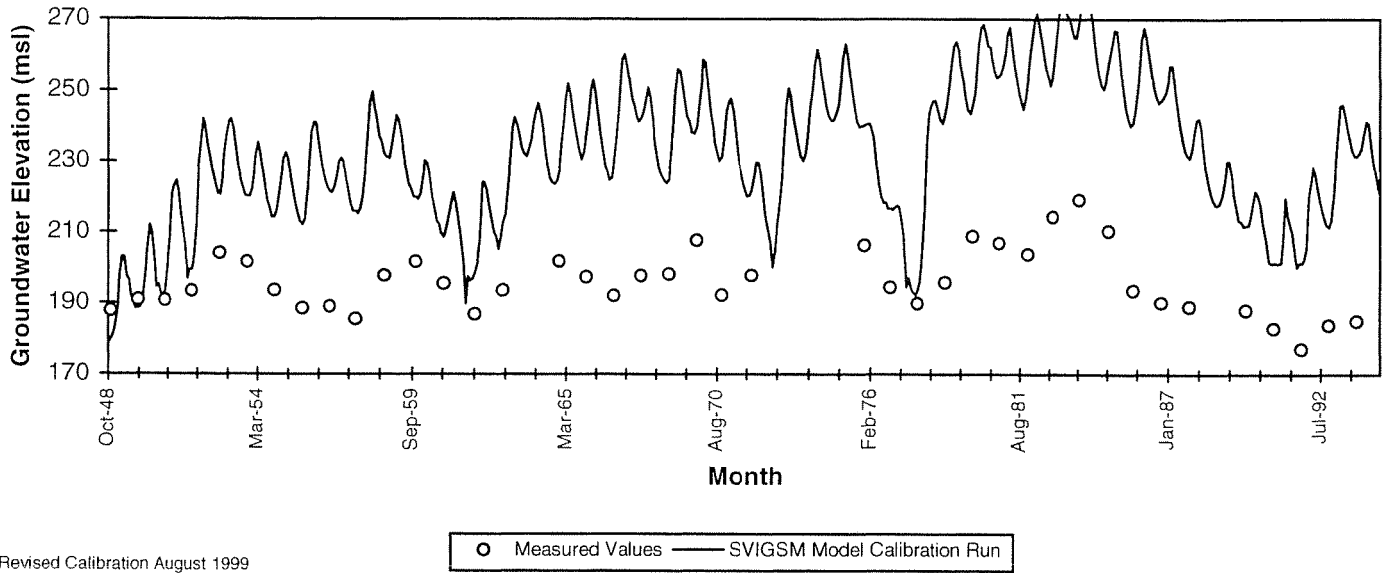
**HYDROGRAPH OF MEASURED AND SIMULATED GW LEVELS**  
**Calibration Well No. 69: Forebay Subarea, Forebay Shallow Aquifer**



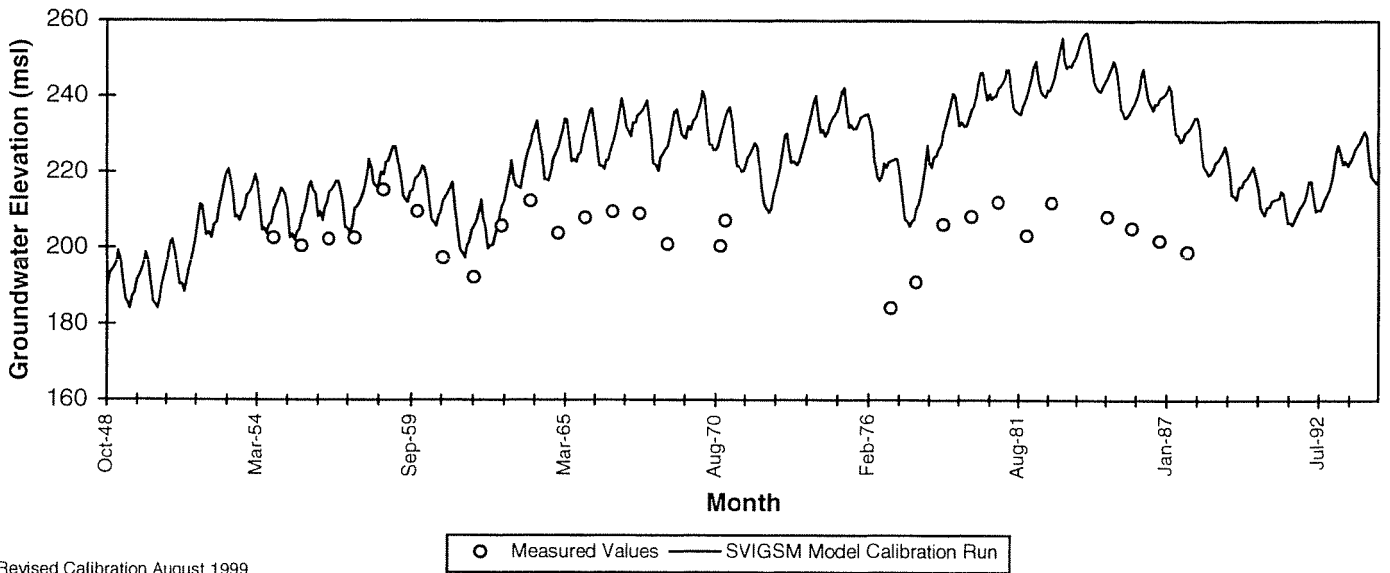
**HYDROGRAPH OF MEASURED AND SIMULATED GW LEVELS**  
**Calibration Well No. 70: Forebay Subarea, Forebay Deep Aquifer**



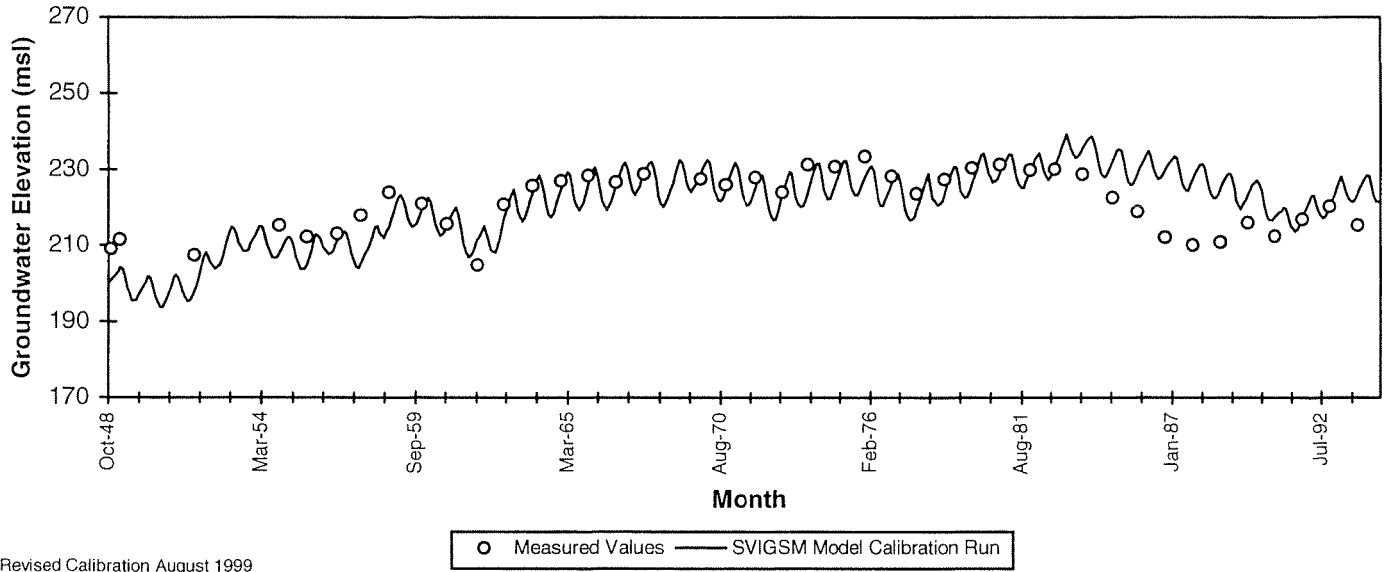
**HYDROGRAPH OF MEASURED AND SIMULATED GW LEVELS**  
**Calibration Well No. 71: Forebay Subarea, Forebay Deep Aquifer**



**HYDROGRAPH OF MEASURED AND SIMULATED GW LEVELS**  
**Calibration Well No. 72: Forebay Subarea, Forebay Deep Aquifer**

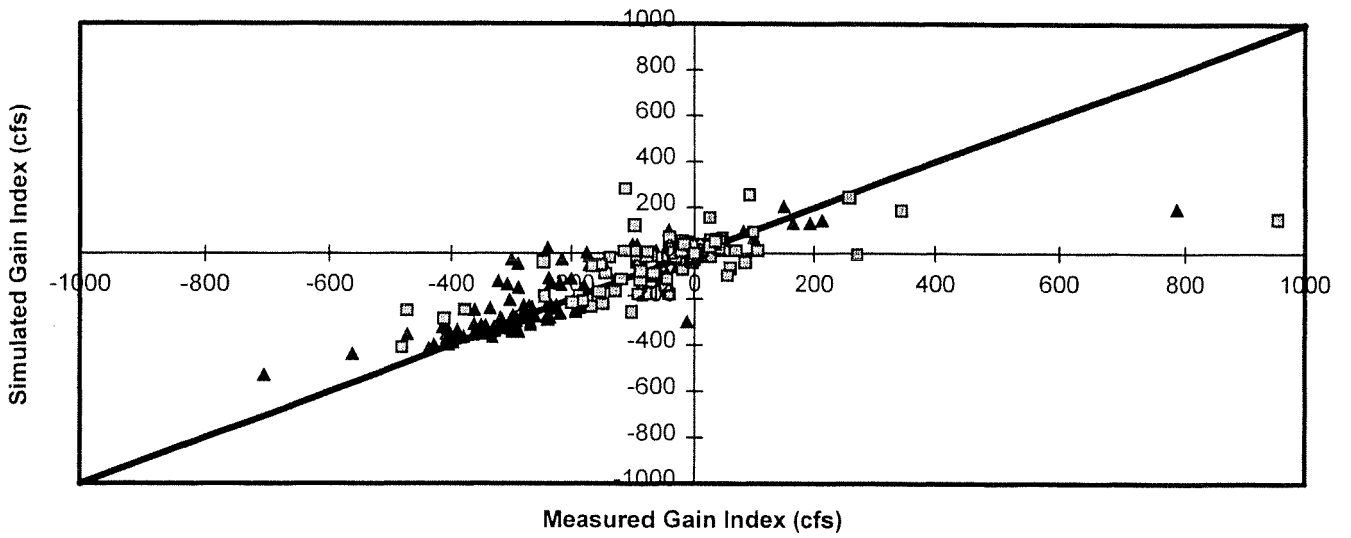


**HYDROGRAPH OF MEASURED AND SIMULATED GW LEVELS**  
**Calibration Well No. 73: Forebay Subarea, Forebay Shallow Aquifer**



Revised Calibration August 1999

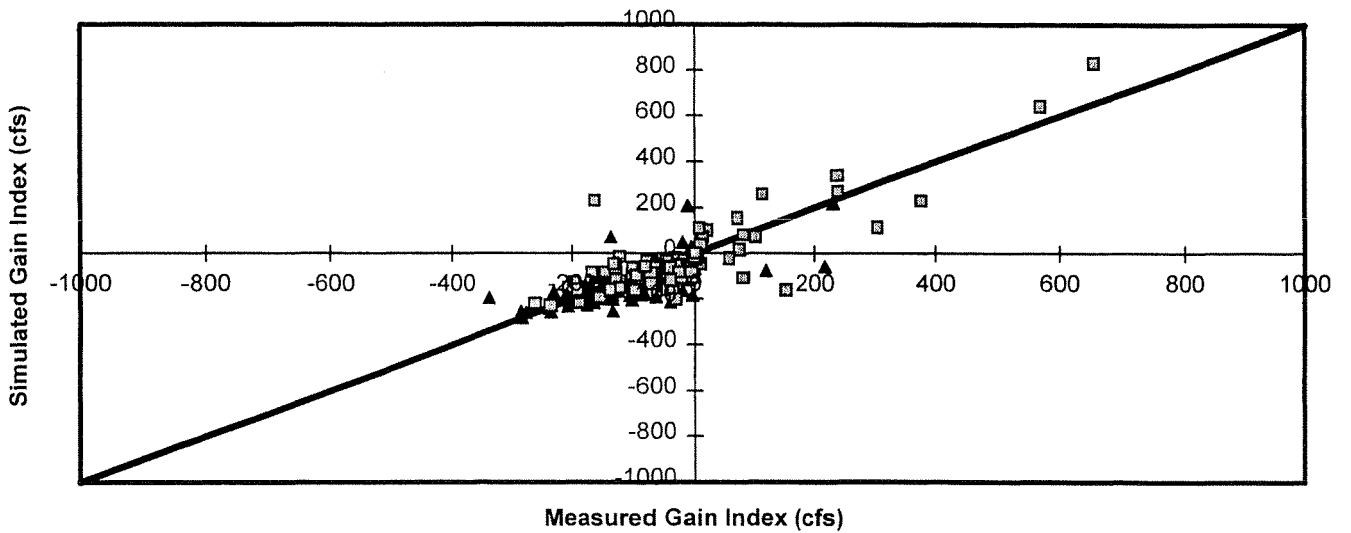
**SCATTER PLOT OF MEASURED VS. SIMULATED SALINAS RIVER GAINS  
BETWEEN BRADLEY AND SOLEDAD (FLOWS <1000 CFS)  
1970-1994**



Revised HBA Calibration December 1999

▲ April-September □ October-March

**SCATTER PLOT OF MEASURED VS. SIMULATED SALINAS RIVER GAINS  
BETWEEN SOLEDAD AND SPRECKELS (FLOWS <1000 CFS)  
1970-1994**

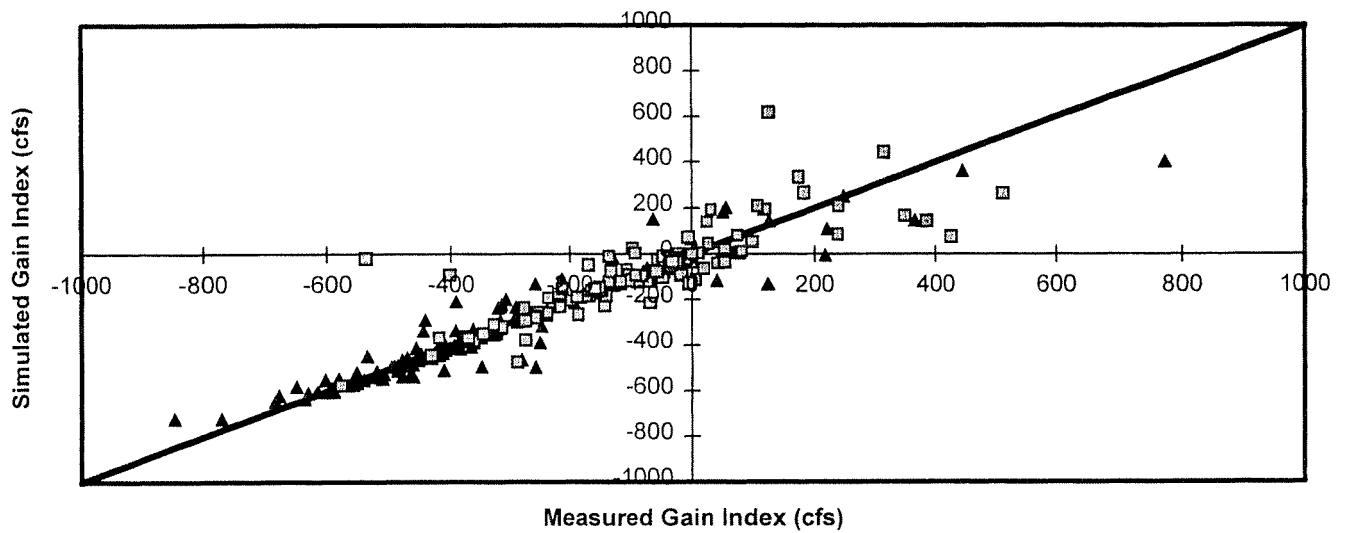


Revised HBA Calibration December 1999

▲ April-September □ October-March



SCATTER PLOT OF MEASURED VS. SIMULATED SALINAS RIVER GAINS  
BETWEEN BRADLEY AND SPRECKELS (FLOWS <1000 CFS)  
1970-1994



Revised HBA Calibration December 1999

▲ April-September    ■ October-March