



Evening Monsoon thunderstorm looking south from the base of Camelback Mountain, 6-28-2012, D. Henz

## **Flood Control District of Maricopa County**

**Engineering Division, Flood Warning Branch**

### **MSP Verification Report: Monsoon Season 2012**



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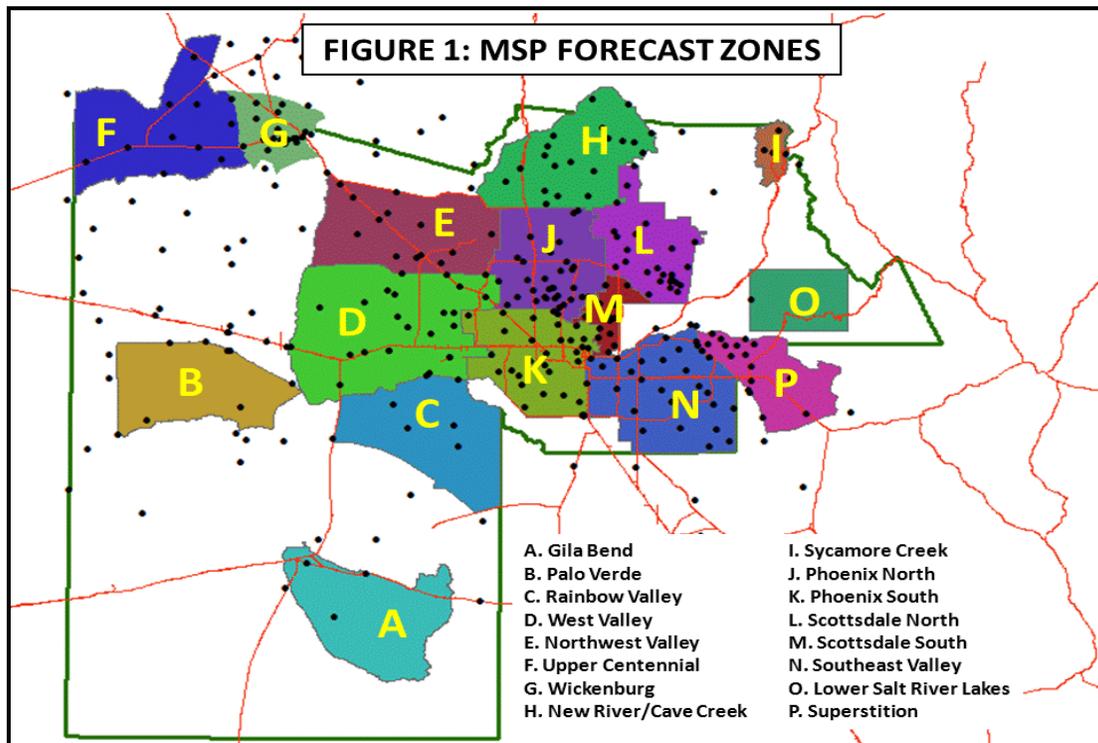
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## INTRODUCTION

This report was generated by the Flood Warning Branch of the Flood Control District of Maricopa County (FCDMC). It covers the length of the monsoon season as defined by the National Weather Service, June 15<sup>th</sup> - September 30<sup>th</sup>. This report includes daily records on Weather Outlooks and Statements issued by the Meteorological Services Program (MSP) as well as a complete verification and summary of these products.

The Flood Warning Branch of the FCDMC operates a year round MSP that’s purpose is to provide detailed meteorological forecasts and support to county, city, and other local agencies. The program covers 5,400 square miles encompassing Maricopa County and surrounding watersheds. The goal of the Flood Control District’s MSP is to reduce response time for emergency managers by providing timely and accurate weather information, primarily regarding the potential for flood-producing rainfall. During the length of the Monsoon season the MSP goes on a weekly rotating 24/7 manned schedule. A Duty Officer is selected for each day who is responsible for issuing MSP products, providing support to clients, and serves as the on-call supervisor during non-business hours. A supporting officer is also named and can be available to the duty officer in the case of a significant weather event. All MSP forecast products are disseminated via email, fax, and occasionally via pager. Emergency managers may also be notified by telephone to aid in decision making.

The MSP has broken down the 5,400 square mile operational area into 16 Forecast Zones. These zones are the primary warning areas identified by emergency management officials. A map of the forecast zone locations is shown below in Figure 1.



## MSP PRODUCT DESCRIPTION

### Weather Outlook:

The Weather Outlook is disseminated to clients daily no later than 2PM during the monsoon season. This product covers the today through tomorrow period and occasionally the following 2-3 days where appropriate. Occasionally, due to unexpected weather pattern changes, Weather Outlooks will be updated throughout the day or first thing the following morning. Weather Outlooks include a synopsis of expected weather conditions; the “probability of occurrence” of rain; the expected “prime time” for the bulk of the rain; and the amount of rain expected during the prime time period. Temperature forecasts and trends are included as well as a forecast of peak wind speeds.

### Message 1 – Alert:

When it is believed developing weather conditions may lead to heavy rain and/or minor to moderate flooding an Alert is issued. Lead time will generally be less than an hour in advance of the expected event. The Alert will normally identify the affected zone(s), the time frame of the event (valid time), rainfall potential, and the type of areas that will be impacted, such as roads and/or washes.

### Message 2 – Flash Flood Watch:

When it appears the developing weather event may lead to flash flooding a Watch is issued for the possible affected areas. Lead time will generally be 1 to 2 hours in advance of the expected event. The Watch will include the time frame it will be in effect (valid time), and a section describing what may take place (comments).

### Message 3 – Flash Flood Warning:

When it appears that significant flash flooding is imminent or has started to take place, a Warning will be issued for the affected areas. Lead time will generally be less than an hour. The Warning will normally identify the affected zone(s), a time frame of the event, rainfall potential, and a section describing what is expected to take place (comments).

### Message 1, 2 and 3 Update:

This product, issued as needed, will update an existing Alert, Watch or Warning.

### Message 4 – Cancel:

When an event (Watch or Warning) no longer poses a threat, and the expiration time has not been reached, a Cancel message may be issued.

### Lake Alerts:

In addition to the above MSP program, weather guidance is provided for Maricopa County lakes/reservoirs from June 15 through October 15. Lake Alerts are issued as needed to inform of approaching adverse weather conditions. Emphasis in these statements is on expected wind gusts and lightning activity.

Additional Products:

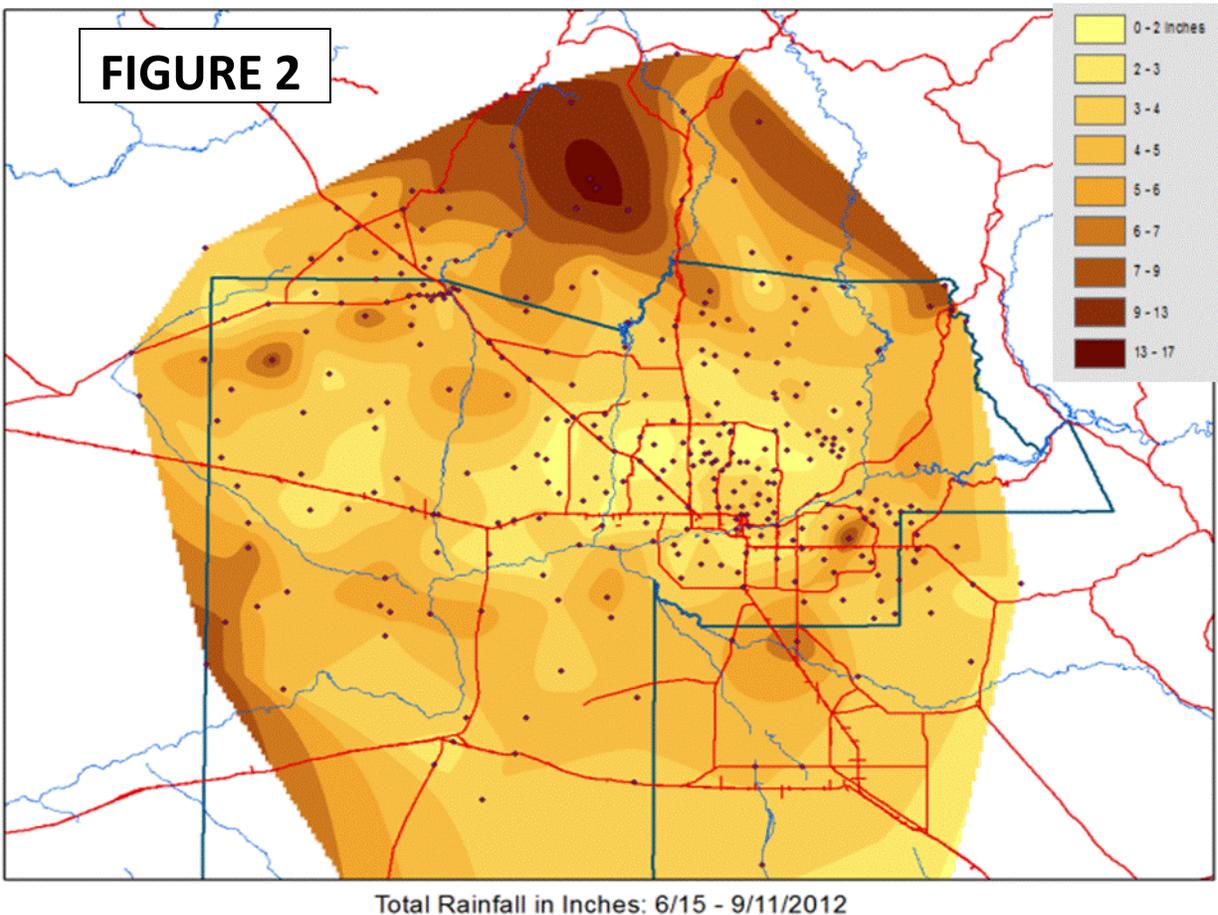
During the summer months, a program exists to aid the Boy Scouts at Camp Geronimo. Though not in Maricopa County, many of the scouts reside within the County. A call is made to the officials at the camp when needed, stating the expected flood problem.

At the request of clients, site specific products may be issued to support unusual or special operations, such as specific wind forecasts to aid in the fighting of fires, or forecasting for special events at the County lakes or parks, or District construction projects.

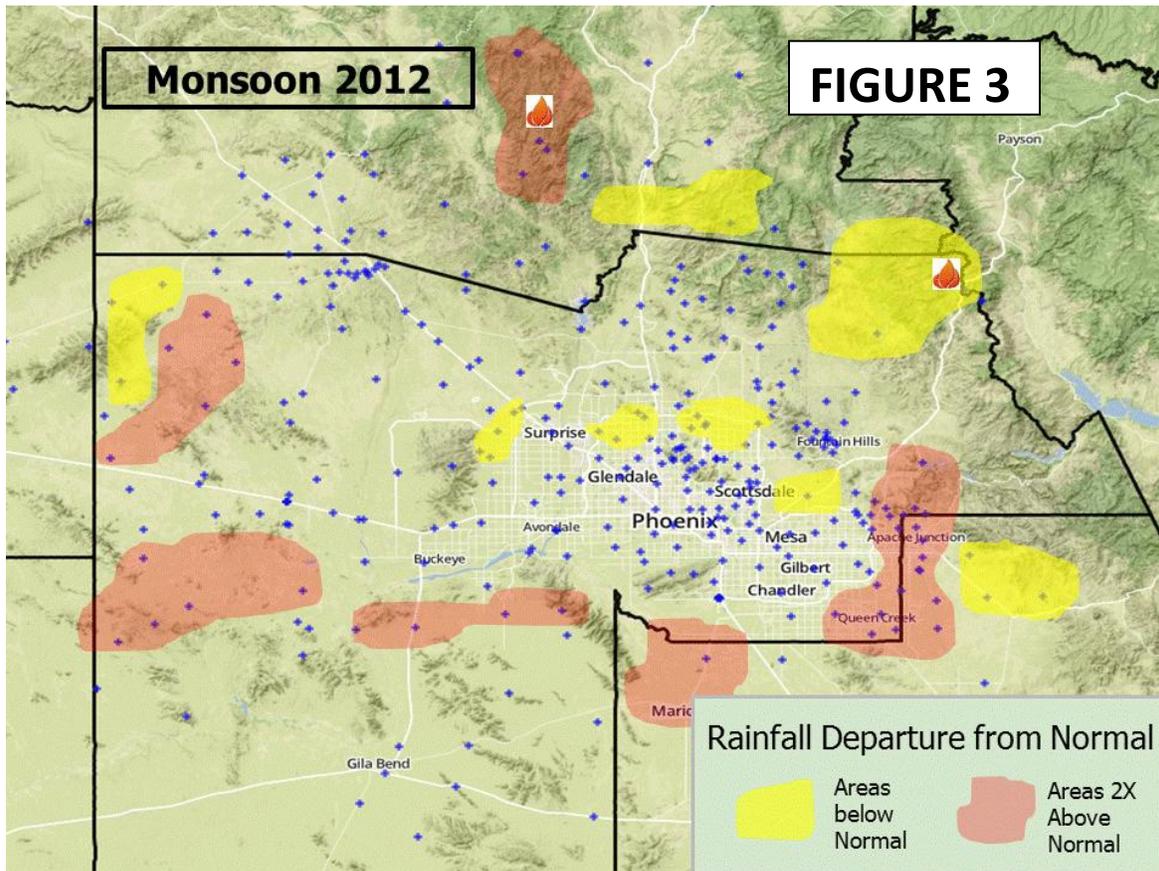
*Additional information and data regarding the FCDMC can be found online [here](#)*

## 2012 MONSOON SEASON RECAP

The 2012 monsoon season was one of the more active seasons in the past few years with above average rainfall at Sky Harbor Airport for the first time since the 2008 season. The official rainfall total as reported by the NWS Phoenix office was 3.00” or nearly twice as much as the previous season and 0.29” above the normal value of 2.71”. Figure 2 below offers a more comprehensive picture of rainfall distribution across the MSP forecast area.



This figure was generated using FCDMC ALERT rain gage data from around the county. The black dots are ALERT rain gage locations. Even more telling is Figure 3 on the next page which shows the rainfall departure from normal. Many areas around the North Valley saw below average rain for the season. Conversely most of the far Southeast Valley and southwestern portions of the county saw double their normal values for the season. Areas that were not highlighted reached or slightly exceeded their seasonal averages. These two figures serve as a strong reminder to the importance of having a widely distributed rain gage network in order to fully understand the distribution of monsoon rains.



The season got off to a slow start rain-wise across central AZ with excessive heat dominating the second half of June (tied for 2<sup>nd</sup> warmest average temperature for the month on record) and an over-abundance of dust storms moving north into the Valley out of Pinal County. The first active multi-day period of storms did not come until July 12<sup>th</sup>-15<sup>th</sup>, which was highlighted by area wide heavy rains on July 14<sup>th</sup>. July finished with a bang as several heavy rain events occurred within its final week. In particular, heavy rains in Anthem on July 31<sup>st</sup> (storm reports of up to 5.00") led to localized severe flooding along Deadman Wash and Gavilan Peak Wash. For more information on this event, please refer to the official [FCDMC Storm Report](#).

The first two weeks of August were met with unrelenting heat across the Valley owing to an extended break-period in the monsoon. New daily record high temperatures were set at Phoenix Sky Harbor Airport on August 7<sup>th</sup>-9<sup>th</sup> and 12<sup>th</sup>-15<sup>th</sup> respectively. The second half of the month was very active with multiple rain and flooding events occurring between the 16<sup>th</sup> and 24<sup>th</sup>. Most notably peak flows of record were observed along Rainbow Wash on the evening of the 21<sup>st</sup> and along Indian Bend Wash on the 23<sup>rd</sup>.

The beginning of September remained quite active with heavy rain events occurring on 6 of the first 10 days. The 7<sup>th</sup> saw widespread heavy rains move across the majority of the county during the morning hours ultimately leading to flooding across portions of the Southeast Valley and later along Waterman Wash in southern Goodyear. The last day of notable weather occurred on the evening of the 10<sup>th</sup> where heavy rains fell over the New River and Cave Creek

areas causing a peak flow of record along Cline Creek. For the remainder of the month the monsoon season existed in name only with dry conditions to its official finish on the 30<sup>th</sup>.

A total of 102 forecast zone-specific Messages were issued by the MSP spread across twenty-seven different days during the length of the monsoon season. Table 1 below shows the monthly break down by forecast zone of Messages issued including season totals.

<b>Forecast Zone</b>	<b>June</b>	<b>July</b>	<b>August</b>	<b>September</b>	<b>Total</b>
Gila Bend	0	5	3	3	11
Palo Verde	0	2	1	2	5
Rainbow Valley	0	5	4	2	11
West Valley	0	2	1	2	5
Northwest Valley	0	1	2	1	4
Upper Centennial	0	5	4	0	9
Wickenburg	0	5	4	1	10
New River/Cave Creek	0	3	0	4	7
Sycamore Creek	0	7	4	2	13
Phoenix North	0	0	0	2	2
Phoenix South	0	1	2	1	4
Scottsdale North	0	5	1	2	8
Scottsdale South	0	1	0	1	2
Southeast Valley	0	2	2	3	7
Lower Salt River Lakes	0	1	0	0	1
Superstition	0	3	0	0	3
<b>All Zones</b>	<b>0</b>	<b>48</b>	<b>28</b>	<b>26</b>	<b>102</b>

Of the 102 Messages issued, sixty-eight were Message-1 Alerts, seventeen were Message-2 Flash Flood Watches, and the remaining seventeen were Message-3 Flash Flood Warnings. Another fifty-two Lake Alert Statements were issued for the County Lakes Program including Lake Pleasant, Bartlett Lake, Horseshoe Lake, Saguaro Lake, Canyon Lake, and Apache Lake. The Alert Operation Center (AOC) was not activated during this monsoon season as none of the rain events ended up posing any serious threat to city dams or District flood control facilities.

## MSP VERIFICATION METRICS AND CRITERIA

Several key verification metrics and a clear set of operational based criteria were adopted in order to conduct a thorough and complete verification of MSP products issued during the 2012 monsoon season. This chapter is broken down into three sections: Outlooks, Messages, and QPF Peak Intensity and Storm Total Precipitation. Each section discusses the verification metrics used and the criteria followed to compute the statistics displayed in the summary chapter sections. A list of frequently used terms including definitions and acronyms as used throughout this report is listed below.

Observed Rainfall: the amounts of total rainfall gathered from either ALERT rain gages, gage corrected radar estimations, or local storm reports (LSRs).

Operationally Significant Event (OSE): a rain event within a MSP forecast zone with observed rainfall equal or greater than 0.50”.

Hit: considered a correct forecast.

Miss: considered an incorrect forecast.

Forecast Accuracy: a measure of the ability to correctly forecast daily rainfall potential. Given in percent and calculated using Equation 1 below:

$$1 \quad \text{Forecast Accuracy} = \frac{\text{Correct Forecasts}}{\text{Total Forecasts}} \times 100$$

Probability of Detection (POD): a measure of the ability to correctly discriminate heavy rain days (OSEs) from non-rain/minor rain days. Given in percent and calculated using Equation 2 below:

$$(2) \quad \text{POD} = \frac{\text{OSEs Correctly Detected}}{\text{Total OSEs}} \times 100$$

False Alarm: occurs an OSE is forecast for a location but does not occur.

False Alarm Rate: measures the number of false alarms compared to forecast days i.e. over-forecasting. Given in percent and calculated using the Equation 3 below:

$$(3) \quad \text{FAR} = \frac{\text{False Alarms}}{\text{Total Forecasts}} \times 100$$

Quantitative Precipitation Forecast (QPF): forecast zone or basin specific rainfall forecast including a rainfall amount given in inches and/or intensity.

Rainfall Intensity: the rate at which rain is falling including an amount in inches over a specific time period i.e. 0.50"/30min.

Storm Total Precipitation (STP): total rainfall from an identified storm or storm complex, given in inches.

Probability of Occurrence: forecast confidence, given in percent, that rainfall that could occur within a forecast zone or basin, usually given in conjunction with a QPF.

The following two sections explain the development of verification statistics as tabulated in Appendix A.

## OUTLOOKS:

### Forecast Accuracy:

Either a hit or a miss was selected for each day. A hit was assigned when observed rainfall met or exceeded the QPF. A miss was assigned when rainfall was observed and no QPF was made or if observed rainfall failed to reasonably meet the QPF. In some cases a hit was assigned when the QPF was not reasonably met by observed rainfall. In these cases the probability of occurrence was 30% or less and the QPF was below the OSE threshold. Values were then populated for each forecast zone and all zones combined. Forecast accuracy was then calculated by month.

### Probability of Detection:

A dash was assigned to all days when observed rainfall was below the OSE threshold. On days when observed rainfall met or exceeded the OSE threshold either a hit or a miss was assigned. A hit was selected when the observed rainfall reasonably met the QPF. A miss was assigned when observed rainfall greatly exceeded the QPF or if no QPF was issued. Values were then populated for each forecast zone and all zones combined. A probability of detection was calculated by month and season total.

### False Alarm Rate:

False alarms were denoted by an "x". A false alarm was assigned on days where the observed rainfall failed to meet the OSE threshold, yet the QPF called for an OSE with a high probability of occurrence. The two relationships below outline the above criteria.

$$\begin{aligned} & \textit{Probability} \geq 40\% \textit{ and QPF} \geq 0.50'' \textbf{ AND } \textit{Observed Rain} < 0.50'' \\ & \textit{Probability} = 30\% \textit{ and QPF} \geq 1.00'' \textbf{ AND } \textit{Observed Rain} < 0.50'' \end{aligned}$$

Values were then populated for each forecast zone and all zones combined. False alarm rate was then calculated by month and season total.

*Tables containing all of the raw data used in generating the verification metrics discussed above for the MSP daily Outlooks can be found in [Appendix A](#).*

## **MESSAGES:**

### Forecast Accuracy:

A hit was assigned if a rain, stream, or dam alarm was triggered during the valid period of the issued Message and/or if observed rainfall reasonably met the QPF during the valid period. Conversely a miss was assigned if neither of these two criteria were met. Values were then populated for each forecast zone and all zones combined. Forecast accuracy was then calculated by month and season total.

*Tables containing all of the raw data used in generating the verification metrics discussed above for the MSP Messages can be found in [Appendix B](#).*

## MSP OUTLOOK VERIFICATION

Table 2 below shows the Outlook verification seasonal totals for each Forecast Zone (FZ). Complete data tables for each FZ, separated by month, can be viewed in [Appendix A](#): Table A-2. Overall, Outlook forecast accuracy during the length of the monsoon season for all FZs combined was quite good at 79.1%. The forecast accuracy for only three FZs fell below 75% on the season: New River/Cave Creek, Sycamore Creek, and Lower Salt River Lakes. This was somewhat expected given the forecast challenges associated with predicting storm potential and rainfall output over these mainly high terrain regions. Over-forecasting rain totals was a noticeable reason as to the lower accuracy and was easily visible when comparing with the false alarm rate, discussed below.

<b>TABLE 2: MSP Weather Outlook Verification - SEASON TOTALS, 2012</b>						
<b>Forecast Zone</b>	<b>Accurate Forecasts</b>	<b>AOF (%)</b>	<b>OSEs Detected</b>	<b>POD (%)</b>	<b>False Alarms</b>	<b>FAR (%)</b>
Gila Bend	85/108	78.7%	15/19	78.9%	9	8.3%
Palo Verde	90/108	83.3%	13/18	72.2%	6	5.6%
Rainbow Valley	89/108	82.4%	13/13	100.0%	6	5.6%
West Valley	92/108	85.2%	9/10	90.0%	3	2.8%
Northwest Valley	92/108	85.2%	7/14	50.0%	6	5.6%
Upper Centennial	82/108	75.9%	16/20	80.0%	7	6.5%
Wickenburg	91/108	84.3%	11/15	73.3%	10	9.3%
New River/Cave Creek	78/108	72.2%	9/11	81.8%	14	13.0%
Sycamore Creek	68/101	67.3%	7/10	70.0%	20	19.8%
Phoenix North	90/108	83.3%	6/8	75.0%	9	8.3%
Phoenix South	90/108	83.3%	6/7	85.7%	7	6.5%
Scottsdale North	85/108	78.7%	12/12	100.0%	10	9.3%
Scottsdale South	84/108	77.8%	3/6	50.0%	10	9.3%
Southeast Valley	87/108	80.6%	12/14	85.7%	8	7.4%
Lower Salt River Lakes	76/108	70.4%	8/9	88.9%	17	15.7%
Superstition	83/108	76.9%	5/5	100.0%	12	11.1%
<b>All Zones</b>	<b>1362/1721</b>	<b>79.1%</b>	<b>152/191</b>	<b>79.6%</b>	<b>154</b>	<b>8.9%</b>

The next metric computed was probability of detection. This metric was quite important because it distinguished how well MSP forecasters detected operationally significant events. Operationally significant events were defined as having 0.50" of rainfall or more. The POD during the length of the monsoon season for all FZs combined was 79.6%. In general, a POD of over 50% is considered sufficient and over 75% excellent in the forecast community. All FZs were at or above the 50% accuracy threshold with eleven meeting or exceeding the 75% accuracy threshold.

The final metric included in Table 2 was FAR or false alarm rate. It is important to keep track of how often MSP forecasters predicted an operationally significant flooding day that did not occur. Too many false alarms can degrade user confidence in the forecasts. In general a FAR below 50% is sufficient and below 25% is considered excellent within the forecast community. The overall FAR for all zones during the length of the Monsoon Season was very low at 8.9% with none of the forecast zones exceeding 20%.

## MSP MESSAGE VERIFICATION

The MSP Messages carry a higher priority threat-wise than the daily Outlooks. These statements (Alerts, Watches, and Warnings) serve as the most critical products issued by the MSP during the monsoon season to our clients. A high level of accuracy is required when forecasting these types of events as the information they provide is directly applicable to the potential or imminent flooding situation. All of the Messages issued fall under the category of operationally significant events.

Table 3 on the next page shows the issued Message verification broken down by FZ and month. Complete data tables for each FZ can be viewed in [Appendix B](#): Tables B-1 and B-2. There 102 Messages issued over the length of the season. Forecast accuracy for all FZs combined, over the length of the season, was exceptional at 86.3%. Thirteen of the sixteen FZs exceeded the 75% accuracy threshold with the other three at or above the 50% accuracy threshold. As stated earlier, 50% accuracy is considered sufficient and 75% or above is considered excellent within the forecast community.

No Messages were issued in June for any of the FZs. July was the busiest month with 48 Messages issued and also included the most active day (the 14<sup>th</sup>), with eighteen statements issued. Seventeen out of the eighteen issued Messages that day were considered hits with the lone miss occurring in the West Valley zone. Forecast Accuracy for the month for all FZs combined was 85.4%.

August saw less than half the number of Messages issued as July with 28. Overall forecast accuracy dropped slightly to 82.1%. The main reason for this drop was directly attributable to a missed forecast on the 22<sup>nd</sup> of the month. Four of the five misses for the month occurred on that day where significant rainfall was expected but did not end up occurring until the following early morning on the 23<sup>rd</sup>. All four misses were a result to a Flash Flood Watch that had been issued for nine of the sixteen forecast zones around the county. September saw a marked rise in overall forecast accuracy at 92.3%. There were only two Messages that were deemed misses out of the twenty-six issued. The widespread heavy rain event on the 7<sup>th</sup> of the month was the second largest day statement wise of the season. Eleven message statements were issued with only one ruled a miss.

All of the heavy rain events that occurred in zones encompassing the highest terrain regions of Maricopa County had very high forecast accuracies meeting or exceeding 80%. Sycamore Creek came in the lowest at 69.2%. This is directly attributable to several over-forecast events that occurred throughout the season where Message-2s were issued by the MSP. No significant rain events occurred in the Sycamore Creek forecast zone on those days. Extra attention was given to this zone as a significant fire occurred within the Sycamore Creek watershed earlier in the year leaving it highly susceptible to flash flooding.

<b>TABLE 3: MSP Issued Messages Verification, broken down by month and Forecast Zone - Monsoon Season 2012</b>										
	June		July		August		September		Season Totals	
<b>Forecast Zone</b>	<b>Correct Messages</b>	<b>Accuracy (%)</b>								
Gila Bend	0/0	n/a	4/5	80.0%	2/3	66.7%	3/3	100.0%	9/11	81.8%
Palo Verde	0/0	n/a	2/2	100.0%	1/1	100.0%	2/2	100.0%	5/5	100.0%
Rainbow Valley	0/0	n/a	5/5	100.0%	4/4	100.0%	2/2	100.0%	11/11	100.0%
West Valley	0/0	n/a	1/2	50.0%	0/1	0.0%	2/2	100.0%	3/5	60.0%
Northwest Valley	0/0	n/a	1/1	100.0%	2/2	100.0%	1/1	100.0%	4/4	100.0%
Upper Centennial	0/0	n/a	4/5	80.0%	4/4	100.0%	0/0	n/a	8/9	88.9%
Wickenburg	0/0	n/a	4/5	80.0%	3/4	75.0%	1/1	100.0%	8/10	80.0%
New River/Cave Creek	0/0	n/a	3/3	100.0%	0/0	n/a	4/4	100.0%	7/7	100.0%
Sycamore Creek	0/0	n/a	5/7	71.4%	3/4	75.0%	1/2	50.0%	9/13	69.2%
Phoenix North	0/0	n/a	0/0	n/a	0/0	n/a	2/2	100.0%	2/2	100.0%
Phoenix South	0/0	n/a	1/1	100.0%	1/2	50.0%	0/1	0.0%	2/4	50.0%
Scottsdale North	0/0	n/a	4/5	80.0%	1/1	100.0%	2/2	100.0%	7/8	87.5%
Scottsdale South	0/0	n/a	1/1	100.0%	0/0	n/a	1/1	100.0%	2/2	100.0%
Southeast Valley	0/0	n/a	2/2	100.0%	2/2	100.0%	3/3	100.0%	7/7	100.0%
Lower Salt River Lakes	0/0	n/a	1/1	100.0%	0/0	n/a	0/0	n/a	1/1	100.0%
Superstition	0/0	n/a	3/3	100.0%	0/0	n/a	0/0	n/a	3/3	100.0%
<b>All Zones</b>	<b>0/0</b>	<b>n/a</b>	<b>41/48</b>	<b>85.4%</b>	<b>23/28</b>	<b>82.1%</b>	<b>24/26</b>	<b>92.3%</b>	<b>88/102</b>	<b>86.3%</b>

## SUMMARY

The Flood Warning Branch of the FCDMC operates a year round Meteorological Services Program (MSP) that's purpose is to provide detailed weather forecasts and support to county, city, and other local agencies encompassing Maricopa County and its contributing watersheds. In particular, during the length of the monsoon season, it is the specific the goal of the MSP to reduce response time for emergency managers by providing timely and accurate weather information, primarily regarding the potential flood-producing rainfall. This report provides a compiled set of verification statistics based on products issued by the MSP during the length of the 2012 monsoon season.

Outlooks and Messages were the two products analyzed in this report. Verification of daily Outlooks was conducted using three metrics: forecast accuracy, probability of detection, and false alarm rate. When comparing all Forecast Zones combined over the length of the monsoon season, forecast accuracy was 79.1%, probability of detection was 75%, and the false alarm rate was 8.9%. Each metric fell into the "excellent" category when equating these results with accepted values within the forecast community. Verification of Messages was conducted using forecast accuracy. When comparing all Forecast Zones combined over the length of the monsoon season, forecast accuracy was 86.3%. Any value of over 75% is considered "excellent" within the forecast community. In general, the main trend common to all verification metrics on both Outlooks and Messages was improvement in the percentages over the length of the season. This trend highlights the fact that forecaster skill and confidence continued to improve as the season wore on.

It is hoped that this report serves as quantifiable tool used to evaluate forecast performance on a year to year basis. This report will be continued in subsequent years focusing not only the present year's statistical data, but will also serve as a historical comparison to measure future year's performance. In addition, future MSP Verification Reports may be expanded to include:

1. Lead time as a metric for determining verification for issued Statements.
2. A complete verification and summary of Lake Alerts issued during the monsoon season.
3. A comprehensive evaluation of the Quantitative Precipitation Forecasts contained within Messages including peak rainfall intensity and storm total precipitation.
4. A historical comparison between current and previous year's verification statistics

**APPENDIX A: MSP OUTLOOKS - VERIFICATION TABLES**

**TABLE A-1:** This table shows the raw verification data of MSP issued precipitation forecasts contained in the daily Outlooks for the 2012 monsoon season. The valid period for rainfall each day is from 2PM same day through 12PM the following day. The table is broken down by date and MSP Forecast Zone. For brevity two Forecast Zones are included for each day. The columns from left to right are defined as follows:

**Prob.** – Percent probability of measureable rain within the Forecast Zone from 0% to 100% over the period.

**QPF** – Total forecast rainfall in inches within the Forecast Zone over the period.

**ALERT** – Peak total observed ALERT gage rainfall value in inches within the Forecast Zone over the period.

**GAQPE** – Gage Adjusted Quantitative Precipitation Estimate in inches. Radar rainfall estimating product from WDT Inc.

**AOF** – forecast accuracy, assigned an “h” for a hit and “m” for a miss.

**POD** – Probability of detection, assigned an “h” for a hit, “m” for a miss, or “-“ for non-significant rainfall.

**FA** – False alarms, assigned an “x”.

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
	<b>GILA BEND</b>							<b>PALO VERDE</b>						
06/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/24/12	30	0.25	0.00	0.00	m	-		0	0.00	0.00	0.00	h	-	
06/25/12	30	0.50	0.00	0.00	m	-		20	0.25	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
06/26/12	30	0.50	0.00	0.00	m	-		0	0.00	0.00	0.00	h	-	
06/27/12	20	0.25	0.00	0.10-0.25	h	-		0	0.00	0.00	0.00	h	-	
06/28/12	20	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>16 days</b>					<b>13/16*</b>	<b>0/0*</b>	<b>0.00</b>					<b>16/16*</b>	<b>0/0*</b>	<b>0.00</b>
07/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/02/12	20	0.35	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
07/03/12	40	0.75	0.00	0.25-0.50	h	-		30	0.50	0.00	0.10-0.25	h	-	
07/04/12	60	0.75	0.83	1.03-1.22	h	h		50	0.75	0.39	0.64-0.83	h	h	
07/05/12	10	0.25	0.12	1.00-1.50	m	m		0	0.00	0.00	0.10-0.25	m	-	
07/06/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/08/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/10/12	0	0.00	0.00	0.04-0.24	m	-		0	0.00	0.00	0.00	h	-	
07/11/12	20	0.50	0.28	0.64-0.83	h	h		20	0.35	0.28	2.21-2.40	m	m	
07/12/12	60	1.00	0.08	0.84-1.02	h	h		50	0.75	0.04	0.04-0.24	m	-	x
07/13/12	20	0.50	0.00	0.25-0.43	h	h		20	0.50	0.08	1.82-2.01	h	m	
07/14/12	40	1.00	0.83	1.82-2.01	h	h		40	1.00	0.94	1.82-2.01	h	h	
07/15/12	40	0.75	0.12	1.82-2.01	h	h		40	0.75	0.00	0.00	m	-	x
07/16/12	10	0.30	0.00	0.00	h	-		10	0.30	0.00	0.00	h	-	
07/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.04-0.24	h	-	
07/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/21/12	20	0.40	0.63	1.62-1.81	h	m		0	0.00	0.08	0.04-0.24	m	-	
07/22/12	30	1.00	0.00	0.25-0.43	m	-		30	0.75	0.24	1.03-1.22	h	h	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
<b>Date</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
07/23/12	40	1.00	0.00	0.00	m	-	x	30	0.75	0.00	0.04-0.24	m	-	
07/24/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/26/12	10	0.15	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/28/12	10	0.10	0.00	0.04-0.24	h	-		10	0.10	0.00	0.00	h	-	
07/29/12	40	1.50	1.22	1.62-1.81	h	h		30	0.75	0.94	1.23-1.61	h	m	
07/30/12	40	1.50	0.04	0.00	m	-	x	40	1.00	0.08	0.00	m	-	x
07/31/12	30	0.50	0.39	0.64-0.83	h	h		30	0.50	0.00	0.00	m	-	
<b>31 days</b>					<b>26/31*</b>	<b>9/11*</b>	<b>2.00</b>					<b>23/31*</b>	<b>3/6*</b>	<b>3.00</b>
08/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/03/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/04/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/05/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/06/12	10	0.15	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/07/12	10	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/08/12	30	0.35	0.00	0.00	m	-		10	0.15	0.00	0.00	h	-	
08/09/12	10	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/10/12	0	0.00	0.04	0.50-0.75	m	m		0	0.00	0.00	0.00	h	-	
08/11/12	40	0.75	0.31	0.84-1.02	h	h		0	0.00	0.00	0.00	h	-	
08/12/12	30	0.30	0.00	0.00	m	-		20	0.15	0.00	0.00	h	-	
08/13/12	30	0.25	0.20	1.23-1.61	h	m		30	0.10	0.63	1.23-1.61	h	m	
08/14/12	30	0.50	0.00	0.04-0.24	h	-		30	0.35	0.00	0.64-0.83	h	m	
08/15/12	40	1.25	0.00	0.00	m	-	x	30	0.75	0.00	0.00	m	-	
08/16/12	50	0.75	0.87	1.03-1.22	h	h		50	0.50	0.28	0.84-1.02	h	h	
08/17/12	50	1.00	0.08	0.64-0.83	h	h		50	1.00	0.79	0.25-0.43	h	h	
08/18/12	30	1.00	0.00	0.00	m	-	x	30	1.00	0.12	0.64-0.83	h	h	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
<b>Date</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
08/19/12	10	1.00	0.00	0.00	m	-		10	1.00	0.00	0.00	m	-	
08/20/12	20	1.25	0.00	0.44-0.63	m	-		20	1.25	0.31	0.84-1.02	h	h	
08/21/12	30	1.50	0.43	2.21-2.40	h	h		20	1.25	1.61	1.82-2.01	h	h	
08/22/12	50	1.75	0.35	0.44-0.63	m	-	x	50	1.50	1.97	1.23-1.61	h	h	
08/23/12	0	0.00	0.00	0.00	h	-		20	0.75	0.00	0.00	m	-	
08/24/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/27/12	10	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/29/12	10	0.25	0.00	0.25-0.43	h	-		10	0.25	0.00	0.00	h	-	
08/30/12	30	0.50	0.00	0.25-0.43	h	-		20	0.35	0.00	0.00	m	-	
08/31/12	30	0.75	0.00	0.00	m	-		20	0.67	0.00	0.00	m	-	
<b>31 days</b>					<b>22/30*</b>	<b>4/6*</b>	<b>3.00</b>					<b>26/31*</b>	<b>6/8*</b>	<b>0.00</b>
09/01/12	30	0.75	0.00	0.00	m	-		20	0.67	0.00	0.00	m	-	
09/02/12	20	0.50	0.00	0.00	h	-		10	0.33	0.00	0.00	h	-	
09/03/12	20	0.50	0.12	0.25-0.43	h	-		10	0.33	0.00	0.00	h	-	
09/04/12	30	1.50	0.12	0.44-0.63	h	-		30	1.25	0.47	0.84-1.02	h	h	
09/05/12	20	1.00	0.00	0.00	m	-		20	1.00	0.00	0.00	m	-	
09/06/12	20	1.00	0.04	1.03-1.22	h	h		20	1.00	1.18	0.64-0.83	h	h	
09/07/12	60	1.50	1.69	1.03-1.22	h	h		60	1.50	0.28	0.84-1.02	h	h	
09/08/12	40	1.50	0.04	0.25-0.43	m	-	x	30	1.50	0.00	0.00	m	-	x
09/09/12	40	1.00	0.04	0.04-0.24	m	-	x	40	1.00	0.43	0.25-0.43	m	-	x
09/10/12	50	1.50	0.35	0.44-0.63	m	-	x	50	1.50	1.18	1.23-1.61	h	h	
09/11/12	50	1.50	0.04	0.00	m	-	x	40	1.25	0.04	0.00	m	-	x
09/12/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/13/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/14/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
09/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/24/12	10	0.20	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>30 days</b>					<b>24/30*</b>	<b>2/2*</b>	<b>4</b>					<b>25/30*</b>	<b>4/4*</b>	<b>3</b>
	<b>Rainbow Valley</b>							<b>West Valley</b>						
06/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	Forecast Zone Data				Verification			Forecast Zone Data				Verification		
Date	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA
06/24/12	10	0.10	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
06/25/12	20	0.25	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
06/26/12	20	0.25	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
06/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>16 days</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>
07/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/02/12	10	0.10	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/03/12	30	0.50	0.00	0.00	m	-		20	0.25	0.00	0.00	h	-	
07/04/12	50	0.75	0.91	0.25-0.43	h	h		50	0.50	1.02	0.64-0.83	h	h	
07/05/12	10	0.10	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/06/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/08/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/10/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/11/12	30	0.50	0.47	1.62-1.81	h	h		30	0.50	0.43	0.64-0.83	h	h	
07/12/12	20	0.33	0.20	0.04-0.24	h	h		20	0.33	0.20	0.04-0.24	h	-	
07/13/12	20	0.50	0.04	0.00	m	-		20	0.60	0.04	0.00	m	-	
07/14/12	40	0.75	0.47	0.64-0.83	h	h		30	0.50	0.47	0.04-0.24	h	-	
07/15/12	40	0.75	0.59	1.03-1.22	h	h		30	0.50	0.59	0.25-0.43	h	h	
07/16/12	10	0.30	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-	
07/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
07/21/12	0	0.00	0.12	0.04-0.24	m	-		0	0.00	0.04	0.64-0.83	m	-	
07/22/12	30	0.75	0.08	0.04-0.24	m	-		30	0.75	0.43	0.84-1.02	h	h	
07/23/12	30	0.75	0.16	0.64-0.83	h	h		30	0.75	0.16	0.04-0.24	h	-	
07/24/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/28/12	10	0.10	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
07/29/12	40	1.00	1.26	1.23-1.61	h	h		30	0.50	0.75	2.21-2.40	h	m	
07/30/12	40	1.00	0.04	0.00	m	-	x	20	0.50	0.08	0.00	m	-	
07/31/12	20	0.25	0.00	0.04-0.24	h	h		10	0.25	0.00	0.00	h	-	
<b>31 days</b>					<b>26/31*</b>	<b>8/8*</b>	<b>1.00</b>					<b>28/31*</b>	<b>4/5*</b>	<b>0.00</b>
08/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/03/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/04/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/05/12	0	0.00	0.00	0.04-0.24	m	-		0	0.00	0.20	0.04-0.24	m	-	
08/06/12	10	0.15	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/08/12	10	0.15	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
08/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/10/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/11/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/12/12	10	0.15	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/13/12	10	0.10	0.00	0.25-0.43	h	-		0	0.00	0.12	0.25-0.43	m	-	
08/14/12	20	0.35	0.08	0.25-0.43	h	-		10	0.15	0.04	0.04-0.24	h	-	
08/15/12	30	1.00	0.00	0.00	m	-	x	30	0.75	0.00	0.00	m	-	
08/16/12	30	0.75	0.98	0.64-0.83	h	h		30	0.50	0.28	0.04-0.24	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	Forecast Zone Data				Verification			Forecast Zone Data				Verification		
Date	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA
08/17/12	30	1.00	0.12	0.00	m	-		30	1.25	0.24	0.04-0.24	m	-	
08/18/12	30	1.00	0.00	0.00	m	-	x	30	1.25	0.16	0.04-0.24	m	-	
08/19/12	20	1.00	0.00	0.00	m	-		20	1.25	0.00	0.00	m	-	
08/20/12	20	1.25	0.00	0.00	m	-		20	1.00	0.00	0.00	m	-	
08/21/12	30	1.25	2.24	2.21-2.40	h	h		30	1.00	1.65	1.23-1.61	h	h	
08/22/12	50	1.50	0.35	0.84-1.02	h	h		40	1.25	0.63	0.44-0.63	h	h	
08/23/12	10	0.75	0.04	0.00	m	-		20	1.00	0.00	0.00	m	-	
08/24/12	10	0.50	0.00	0.00	m	-		10	0.50	0.04	0.04-0.24	h	-	
08/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/30/12	10	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/31/12	20	0.50	0.00	0.00	m	-		10	0.50	0.00	0.00	h	-	
<b>31 days</b>					<b>23/31*</b>	<b>3/3*</b>	<b>2.00</b>					<b>23/31*</b>	<b>2/2*</b>	<b>0.00</b>
09/01/12	20	0.50	0.00	0.00	m	-		10	0.50	0.00	0.00	h	-	
09/02/12	10	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/03/12	10	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/04/12	30	1.00	0.00	0.04-0.24	h	-		10	0.75	1.10	0.84-1.02	h	h	
09/05/12	20	1.00	0.00	0.00	m	-		10	0.75	0.00	0.00	m	-	
09/06/12	20	1.00	0.00	0.00	m	-		10	0.75	0.00	0.00	m	-	
09/07/12	40	0.75	1.18	0.64-0.83	h	h		40	1.25	0.98	1.03-1.22	h	h	
09/08/12	30	1.50	0.00	0.00	m	-	x	40	1.00	0.00	0.00	m	-	x
09/09/12	30	0.75	0.51	0.00	h	h		30	0.50	0.51	0.04-0.24	h	h	
09/10/12	50	1.25	0.20	0.04-0.24	m	-	x	40	1.00	0.35	0.25-0.43	m	-	x
09/11/12	40	1.25	0.04	0.00	m	-	x	40	0.75	0.04	0.00	m	-	x
09/12/12	0	0.00	0.00	0.00	h	-		0	0.00	0.04	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
<b>Date</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
09/13/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/14/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/24/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>30 days</b>					<b>24/30*</b>	<b>2/2*</b>	<b>3</b>					<b>25/30*</b>	<b>3/3*</b>	<b>3</b>
	<b>Northwest Valley</b>							<b>Upper Centennial</b>						
06/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
06/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/24/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>16 days</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>
07/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/03/12	20	0.15	0.00	0.10-0.25	h	-		20	0.15	0.00	0.00	h	-	
07/04/12	50	0.50	0.83	0.25-0.43	h	h		60	0.50	0.71	0.64-0.83	h	h	
07/05/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/06/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/08/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/10/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.04-0.24	m	-	
07/11/12	30	0.50	0.28	0.44-0.63	h	-		30	0.35	0.35	1.23-1.61	h	m	
07/12/12	30	0.50	0.00	0.00	m	-		60	1.25	0.04	0.64-0.83	h	h	
07/13/12	30	0.60	0.55	0.44-0.63	h	h		30	0.70	0.59	1.23-1.61	h	h	
07/14/12	30	0.50	1.42	1.62-1.81	h	m		50	1.00	3.58	2.81-3.19+	h	h	
07/15/12	40	0.75	0.04	1.23-1.61	h	h		30	1.00	0.04	0.04-0.24	m	-	
07/16/12	20	0.25	0.00	0.00	h	-		10	0.40	0.00	0.04-0.24	m	-	
07/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
<b>Date</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
07/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.84-1.02	m	m	
07/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.44-0.63	m	-	
07/21/12	20	0.40	1.10	0.64-0.83	m	m		30	0.50	0.35	2.02-2.20	h	m	
07/22/12	40	0.75	0.63	0.84-1.02	h	h		40	0.75	0.79	1.82-2.01	h	h	
07/23/12	40	0.75	0.00	0.00	m	-	x	40	0.75	0.00	0.00	m	-	x
07/24/12	10	0.25	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-	
07/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.44-0.63	m	-	
07/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.25-0.43	m	-	
07/28/12	20	0.25	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-	
07/29/12	30	0.75	0.55	2.21-2.40	h	m		40	1.25	0.20	0.64-0.83	h	h	
07/30/12	30	0.75	0.00	0.00	m	-		50	1.25	0.04	0.44-0.63	m	-	x
07/31/12	10	0.25	0.00	0.00	h	-		30	0.75	0.00	0.04-0.24	m	-	
<b>31 days</b>					<b>27/31*</b>	<b>4/7*</b>	<b>1.00</b>					<b>21/31*</b>	<b>7/9*</b>	<b>2.00</b>
08/01/12	10	0.15	0.00	0.00	h	-		20	0.45	0.00	0.00	m	-	
08/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/03/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/04/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/05/12	0	0.00	0.04	0.04-0.24	m	-		0	0.00	0.00	0.00	h	-	
08/06/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.25-0.43	m	-	
08/08/12	20	0.25	0.00	0.00	h	-		30	0.25	0.00	0.00	m	-	
08/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/10/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/11/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.64-0.83	m		
08/12/12	10	0.15	0.00	0.00	h	-		20	0.25	0.00	0.44-0.63	h	-	
08/13/12	10	0.15	0.16	0.04-0.24	h	-		30	0.25	0.16	0.64-0.83	h	m	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
08/14/12	10	0.15	0.00	0.64-0.83	h	m		20	0.25	0.04	0.00	h	-	
08/15/12	30	0.75	0.00	0.00	m	-		30	0.50	0.00	0.00	m	-	
08/16/12	30	0.50	1.18	1.62-1.81	h	m		30	1.00	0.87	1.23-1.61	h	h	
08/17/12	30	1.50	0.04	0.04-0.24	m	-	x	30	1.50	0.35	0.84-1.02	h	h	
08/18/12	30	1.50	0.28	0.84-1.02	h	h		30	1.50	0.00	0.44-0.63	m	-	
08/19/12	20	1.50	0.00	0.00	m	-		30	1.50	0.00	0.00	m	-	x
08/20/12	30	1.50	0.00	0.00	m	-	x	40	1.50	0.00	0.84-1.02	h	h	
08/21/12	30	1.50	0.98	1.23-1.61	h	h		20	1.00	1.18	2.41-2.60	h	h	
08/22/12	40	1.50	1.18	0.84-1.02	h	h		50	1.25	0.79	2.21-2.40	h	h	
08/23/12	20	1.00	0.12	0.04-0.24	m	-		30	1.25	0.55	1.03-1.22	h	h	
08/24/12	10	0.50	0.00	0.04-0.24	h	-		20	0.75	0.67	0.64-0.83	h	h	
08/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.04-0.24	m	-	
08/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/29/12	0	0.00	0.00	0.00	h	-		20	0.25	0.00	0.04-0.24	h	-	
08/30/12	0	0.00	0.00	0.00	h	-		30	0.25	0.16	0.64-0.83	m		
08/31/12	10	0.50	0.00	0.00	m	-		10	0.50	0.00	0.00	m	-	
<b>31 days</b>					<b>24/31*</b>	<b>3/5*</b>	<b>2.00</b>					<b>21/31*</b>	<b>7/8*</b>	<b>1.00</b>
09/01/12	10	0.50	0.00	0.04-0.24	h	-		20	0.50	0.91	1.23-1.61	h	m	
09/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/03/12	0	0.00	0.00	0.00	h	-		10	0.50	0.00	0.00	m	-	
09/04/12	10	0.75	0.12	0.04-0.24	h	-		30	1.00	0.51	2.21-2.40	h	h	
09/05/12	10	0.75	0.00	0.00	m	-		20	1.00	0.00	0.04-0.24	m	-	
09/06/12	10	0.75	0.28	2.02-2.20	h	m		20	1.00	0.16	0.44-0.63	h	-	
09/07/12	30	1.00	0.04	0.04-0.24	m	-		40	1.50	0.04	0.04-0.24	m	-	x
09/08/12	30	1.25	0.00	0.00	m	-	x	40	1.25	0.00	0.00	m	-	x
09/09/12	30	0.50	1.42	1.03-1.22	h	m		40	0.75	0.00	0.00	m	-	x

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	Forecast Zone Data				Verification			Forecast Zone Data				Verification		
Date	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA
09/10/12	40	1.50	0.39	0.44-0.63	m	-	x	40	1.50	0.35	0.84-1.02	h	h	
09/11/12	40	1.25	0.04	0.00	m	-	x	50	1.50	0.08	0.00	m	-	x
09/12/12	10	0.15	0.16	0.25-0.43	h	-		20	0.25	0.00	0.04-0.24	h	-	
09/13/12	10	0.15	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/14/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/24/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>30 days</b>					<b>25/30*</b>	<b>0/2*</b>	<b>3</b>					<b>24/30*</b>	<b>2/3*</b>	<b>4</b>
	<b>Wickenburg</b>							<b>New River Cave Creek</b>						
06/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
<b>Date</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
06/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/24/12	0	0.00	0.00	0.00	h	-		20	0.10	0.00	0.00	h	-	
06/25/12	0	0.00	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
06/26/12	0	0.00	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-	
06/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>16 days</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>
07/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/03/12	20	0.15	0.00	0.00	h	-		30	0.35	0.00	0.00	m	-	
07/04/12	60	0.50	0.55	0.25-0.43	h	h		40	0.50	0.00	0.00	m	-	
07/05/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/06/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/08/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/09/12	0	0.00	0.00	0.00	h	-		20	0.15	0.00	0.00	h	-	
07/10/12	0	0.00	0.00	0.00	h	-		20	0.15	0.08	0.25-0.43	h	-	
07/11/12	30	0.50	0.16	1.23-1.61	h	m		40	0.75	0.16	0.44-0.63	h	-	
07/12/12	40	0.50	0.00	0.00	m	-	x	20	0.75	0.00	0.00	m	-	
07/13/12	30	0.70	0.24	0.04-0.24	h	-		50	1.00	0.08	0.04-0.24	m	-	x
07/14/12	50	1.00	2.40	2.81-3.19+	h	h		50	0.75	0.16	0.25-0.43	m	-	x
07/15/12	30	1.00	0.04	0.00	m	-	x	50	0.75	0.12	0.04-0.24	m	-	x

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
07/16/12	10	0.40	0.00	0.00	h	-		40	0.60	0.00	0.00	m	-	x
07/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/19/12	0	0.00	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
07/20/12	0	0.00	0.00	0.00	h	-		20	0.67	0.00	0.00	m	-	
07/21/12	30	0.50	0.63	0.84-1.02	h	h		30	0.75	1.97	2.61-2.80	h	m	
07/22/12	40	0.75	0.59	1.03-1.22	h	h		50	1.25	0.04	0.25-0.43	m	-	x
07/23/12	40	0.75	0.00	0.00	m	-	x	50	1.00	0.35	0.04-0.24	m	-	x
07/24/12	10	0.25	0.00	0.00	h	-		40	0.75	0.16	0.25-0.43	m	-	x
07/25/12	0	0.00	0.00	0.00	h	-		10	0.15	0.04	0.00	h	-	
07/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/28/12	10	0.25	0.00	0.00	h	-		40	0.75	0.08	0.04-0.24	m	-	x
07/29/12	40	1.25	0.31	0.44-0.63	m	-	x	40	1.00	0.91	1.62-1.81	h	h	
07/30/12	50	1.25	0.04	0.00	m	-	x	30	0.75	0.04	0.00	m	-	
07/31/12	30	0.75	0.00	0.04-0.24	h	-		20	0.25	1.38	4.06	m	m	
<b>31 days</b>					<b>26/31*</b>	<b>4/5*</b>	<b>5.00</b>					<b>17/31*</b>	<b>1/3*</b>	<b>8.00</b>
08/01/12	10	0.45	0.00	0.00	h	-		20	0.35	0.00	0.00	h	-	
08/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/03/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/04/12	0	0.00	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-	
08/05/12	0	0.00	0.00	0.00	h	-		10	0.25	0.31	0.44-0.63	h	-	
08/06/12	0	0.00	0.00	0.00	h	-		20	0.40	0.00	0.00	m	-	
08/07/12	0	0.00	0.04	0.00	h	-		20	0.40	0.00	0.00	m	-	
08/08/12	30	0.25	0.00	0.00	m	-		30	0.50	0.00	0.04-0.24	h	-	
08/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/10/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/11/12	0	0.00	0.00	0.04-0.24	m	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
<b>Date</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
08/12/12	20	0.25	0.00	0.00	h	-		20	0.25	0.00	0.00	h	-	
08/13/12	30	0.25	0.00	0.00	m	-		20	0.25	0.28	0.04-0.24	h	-	
08/14/12	20	0.25	0.04	0.25-0.43	h	-		20	0.30	0.31	0.25-0.43	h	-	
08/15/12	30	0.50	0.00	0.00	m	-		40	0.75	1.57	1.03-1.22	h	h	
08/16/12	30	1.00	0.94	1.03-1.22	h	h		40	0.75	1.22	1.03-1.22	h	h	
08/17/12	30	1.50	0.71	0.04-0.24	h	m		40	1.50	0.08	0.00	m	-	x
08/18/12	40	1.50	0.79	0.64-0.83	h	h		50	1.50	0.12	0.04-0.24	m	-	x
08/19/12	30	1.50	0.24	0.04-0.24	m	-		40	1.50	0.20	0.25-0.43	m	-	x
08/20/12	40	1.50	0.00	0.04-0.24	m	-	x	30	1.25	0.00	0.25-0.43	m	-	
08/21/12	20	1.00	0.28	0.84-1.02	h	h		40	1.25	1.18	0.64-0.83	h	h	
08/22/12	50	1.25	1.06	0.64-0.83	h	h		40	1.25	1.54	0.44-0.63	h	h	
08/23/12	30	1.25	0.75	0.84-1.02	h	h		30	1.50	0.24	0.00	m	-	x
08/24/12	20	0.75	0.20	0.04-0.24	m	-		50	1.00	1.61	1.03-1.22	h	h	
08/25/12	0	0.00	0.00	0.00	h	-		10	0.35	0.00	0.00	h	-	
08/26/12	0	0.00	0.00	0.00	h	-		10	0.35	0.00	0.00	h	-	
08/27/12	0	0.00	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-	
08/28/12	0	0.00	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-	
08/29/12	10	0.25	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-	
08/30/12	20	0.25	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-	
08/31/12	10	0.50	0.00	0.00	h	-		10	0.50	0.00	0.00	m	-	
<b>31 days</b>					<b>24/31*</b>	<b>5/6*</b>	<b>1.00</b>					<b>23/31*</b>	<b>5/5*</b>	<b>4.00</b>
09/01/12	20	0.50	0.71	1.23-1.61	h	m		10	0.50	0.00	0.00	m	-	
09/02/12	0	0.00	0.00	0.00	h	-		10	0.50	0.00	0.00	m	-	
09/03/12	10	0.50	0.00	0.00	h	-		0	0.00	0.24	0.25-0.43	m	-	
09/04/12	30	1.00	0.75	1.23-1.61	h	h		30	0.75	0.16	1.03-1.22	h	h	
09/05/12	20	1.00	0.00	0.00	m	-		20	0.75	0.00	0.00	m	-	
09/06/12	20	1.00	0.24	0.44-0.63	h	-		20	1.25	0.00	0.00	m	-	
09/07/12	40	1.50	0.04	0.00	m	-	x	30	1.00	2.05	1.23-1.61	h	h	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
09/08/12	40	1.25	0.00	0.00	m	-	x	40	1.00	0.00	0.00	m	-	x
09/09/12	40	0.75	0.04	0.64-0.83	h	h		30	0.75	0.12	0.04-0.24	m	-	
09/10/12	40	1.50	0.39	0.44-0.63	m	m	x	30	1.00	1.65	1.62-1.81	h	h	
09/11/12	50	1.50	0.08	0.00	m	-	x	40	1.50	0.16	0.00	m	-	x
09/12/12	20	0.25	0.00	0.00	h	-		20	0.50	0.35	0.04-0.24	h	-	
09/13/12	0	0.00	0.00	0.00	h	-		20	0.35	0.00	0.00	h	-	
09/14/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/24/12	0	0.00	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
09/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>30 days</b>					<b>25/30*</b>	<b>2/4*</b>	<b>4</b>					<b>22/30*</b>	<b>3/3*</b>	<b>2</b>
	<b>Sycamore Creek</b>							<b>Phoenix North</b>						
06/15/12	n/a	n/a	n/a	0.00	n/a	n/a	n/a	0	0.00	0.00	0.00	h	-	
06/16/12	n/a	n/a	n/a	0.00	n/a	n/a	n/a	0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
<b>Date</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
06/17/12	n/a	n/a	n/a	0.00	n/a	n/a	n/a	0	0.00	0.00	0.00	h	-	
06/18/12	n/a	n/a	n/a	0.00	n/a	n/a	n/a	0	0.00	0.00	0.00	h	-	
06/19/12	n/a	n/a	n/a	0.00	n/a	n/a	n/a	0	0.00	0.00	0.00	h	-	
06/20/12	n/a	n/a	n/a	0.00	n/a	n/a	n/a	0	0.00	0.00	0.00	h	-	
06/21/12	n/a	n/a	n/a	0.00	n/a	n/a	n/a	0	0.00	0.00	0.00	h	-	
06/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/24/12	20	0.25	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
06/25/12	20	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/26/12	20	0.35	0.00	0.00	h	-		10	0.05	0.00	0.00	h	-	
06/27/12	20	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/28/12	20	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>16 days</b>					<b>9/9*</b>	<b>0.00</b>	<b>0.00</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>
07/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/02/12	10	0.10	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/03/12	40	0.50	0.00	0.00	m	-	x	30	0.25	0.00	0.10-0.25	h	-	
07/04/12	50	0.75	0.04	0.00	m	-	x	40	0.50	0.16	0.00	m	-	x
07/05/12	10	0.10	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/06/12	10	0.10	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/08/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/09/12	20	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/10/12	30	0.40	0.00	0.00	m	-		0	0.00	0.00	0.00	h	-	
07/11/12	40	0.60	0.00	0.25-0.43	h	-		30	0.50	0.31	0.25-0.43	h	-	
07/12/12	20	0.75	0.00	0.00	m	-		20	0.67	0.00	0.00	m	-	
07/13/12	50	1.00	0.04	0.00	m	-	x	40	0.70	0.20	0.04-0.24	m	-	x

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
07/14/12	40	1.00	0.55	0.44-0.63	h	h		30	0.50	0.04	0.00	m	-	
07/15/12	40	1.00	0.00	0.00	m	-	x	40	0.50	0.12	0.25-0.43	h	-	
07/16/12	40	0.60	0.00	0.00	m	-	x	20	0.30	0.04	0.00	h	-	
07/17/12	10	0.15	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/19/12	10	0.10	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/20/12	30	0.75	0.16	0.04-0.24	m	-		20	0.33	0.00	0.00	h	-	
07/21/12	30	0.75	0.00	0.00	m	-	x	30	0.50	0.67	1.62-1.81	h	h	
07/22/12	50	1.25	0.04	0.00	m	-	x	40	0.75	0.20	0.25-0.43	m	-	x
07/23/12	50	1.00	1.34	1.23-1.61	h	h		30	0.75	1.14	0.04-0.24	h	h	
07/24/12	40	0.75	0.43	0.04-0.24	m	-		20	0.25	0.00	0.00	h	-	
07/25/12	20	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/28/12	40	0.75	1.10	1.03-1.22	h	h		10	0.25	0.24	0.25-0.43	h	-	
07/29/12	50	1.00	0.08	0.00	m	-	x	30	0.50	0.24	0.25-0.43	h	-	
07/30/12	30	0.75	0.00	0.00	m	-	x	20	0.50	0.04	0.00	m	-	
07/31/12	30	0.40	0.00	0.00	m	-		10	0.25	0.55	0.44-0.63	h	m	
<b>31 days</b>					<b>17/31*</b>	<b>3/3*</b>	<b>9.00</b>					<b>25/31*</b>	<b>2/3*</b>	<b>3.00</b>
08/01/12	30	0.35	0.00	0.00	m	-		0	0.00	0.00	0.00	h	-	
08/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/03/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/04/12	10	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/05/12	10	0.33	0.12	0.04-0.24	h	-		0	0.00	0.04	0.00	h	-	
08/06/12	30	0.40	0.12	0.04-0.24	h	-		0	0.00	0.00	0.00	h	-	
08/07/12	30	0.40	0.00	0.00	m	-		0	0.00	0.00	0.00	h	-	
08/08/12	30	0.50	0.00	0.00	m	-		10	0.10	0.00	0.00	h	-	
08/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
08/10/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/11/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/12/12	20	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/13/12	20	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/14/12	20	0.30	0.51	0.64-0.83	h	m		0	0.00	0.75	0.84-1.02	m	m	
08/15/12	40	0.75	0.00	0.00	m	-	x	20	0.75	0.00	0.00	m	-	
08/16/12	40	0.75	1.69	1.03-1.22	h	m		30	0.75	0.20	0.04-0.24	m	-	
08/17/12	40	1.50	0.04	0.00		-	x	30	1.25	0.08	0.00	m	-	x
08/18/12	50	1.50	0.83	0.64-0.83	h	h		40	1.25	0.16	0.25-0.43	m	-	x
08/19/12	40	1.50	0.00	0.00	m	-	x	30	1.25	0.00	0.00	m	-	x
08/20/12	30	1.25	0.12	0.44-0.63	h	-	x	20	1.00	0.00	0.00	m	-	
08/21/12	40	1.25	0.28	0.04-0.24	m	-	x	30	1.50	0.71	0.84-1.02	h	h	
08/22/12	40	1.00	1.06	0.44-0.63	h	h		40	1.50	1.18	0.44-0.63	h	h	
08/23/12	30	1.50	0.04	0.00	m	-	x	30	1.25	0.04	0.00	m	-	x
08/24/12	40	1.00	0.24	0.00	m	-	x	30	0.75	0.20	0.25-0.43	h	-	
08/25/12	10	0.35	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/26/12	10	0.35	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/27/12	10	0.35	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/28/12	10	0.35	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/29/12	10	0.15	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/30/12	10	0.25	0.00	0.25-0.43	h	-		0	0.00	0.00	0.00	h	-	
08/31/12	10	0.50	0.00	0.00	m	-		0	0.00	0.00	0.00	h	-	
<b>31 days</b>					<b>22/31*</b>	<b>2/4*</b>	<b>7.00</b>					<b>23/31*</b>	<b>2/3*</b>	<b>4.00</b>
09/01/12	10	0.50	0.00	0.00	m	-		0	0.00	0.00	0.00	h	-	
09/02/12	10	0.50	0.00	0.00	m	-		0	0.00	0.00	0.00	h	-	
09/03/12	0	0.00	0.94	0.84-1.02	m	m		0	0.00	0.00	0.00	h	-	
09/04/12	30	1.00	0.31	0.25-0.43	m	-		20	0.50	0.16	0.04-0.24	h	-	
09/05/12	20	0.75	0.00	0.00	m	-		10	0.50	0.00	0.00	m	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
09/06/12	20	1.50	0.43	0.64-0.83	h	h		10	0.75	0.00	0.00	m	-	
09/07/12	30	0.50	0.71	0.84-1.02	h	h		30	0.50	1.18	0.64-0.83	h	h	
09/08/12	40	1.00	0.00	0.00	m	-	x	30	1.00	0.00	0.00	m	-	x
09/09/12	30	0.75	0.00	0.00	m	-	x	20	0.50	0.43	0.44-0.63	h	-	
09/10/12	30	0.75	0.08	0.00	m	-	x	30	0.75	0.71	0.44-0.63	h	h	
09/11/12	40	1.50	0.04	0.00	m	-	x	40	1.00	0.12	0.00	m	-	x
09/12/12	20	0.50	0.00	0.00	m	-		10	0.15	0.16	0.25-0.43	h	-	
09/13/12	20	0.35	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-	
09/14/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/24/12	10	0.10	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>30 days</b>					<b>20/30*</b>	<b>2/3*</b>	<b>4</b>					<b>26/30*</b>	<b>2/2*</b>	<b>2</b>

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
Date	Forecast Zone Data				Verification			Forecast Zone Data				Verification		
	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA
	Phoenix North							Scottsdale South						
06/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/24/12	10	0.10	0.00	0.00	h	-		20	0.10	0.00	0.00	h	-	
06/25/12	10	0.10	0.00	0.00	h	-		20	0.25	0.00	0.00	h	-	
06/26/12	10	0.10	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
06/27/12	10	0.05	0.00	0.25-0.50	h	-		10	0.05	0.00	0.00	h	-	
06/28/12	10	0.05	0.00	0.00	h	-		10	0.05	0.00	0.00	h	-	
06/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>16 days</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>
07/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/02/12	10	0.10	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/03/12	30	0.25	0.00	0.00	m	-		30	0.35	0.00	0.00	m	-	
07/04/12	50	0.75	0.39	0.04-0.24	h	-		40	0.50	0.00	0.00	m	-	x
07/05/12	0	0.00	0.04	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/06/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/08/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/09/12	0	0.00	0.00	0.00	h	-		10	0.05	0.00	0.00	h	-	
07/10/12	0	0.00	0.08	0.00	h	-		10	0.05	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>															
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>			
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	
07/11/12	30	0.50	0.75	0.64-0.83	h	h		30	0.50	0.91	0.44-0.63	h	h		
07/12/12	10	0.50	0.04	0.00	m	-		20	0.67	0.04	0.00	m	-		
07/13/12	30	0.50	0.24	0.04-0.24	m	-		40	0.70	0.04	0.04-0.24	m	-	x	
07/14/12	30	0.50	0.75	0.44-0.63	h	h		30	0.75	0.83	0.44-0.63	h	h		
07/15/12	30	0.50	0.39	0.00	h	-		40	0.75	0.04	0.04-0.24	m	-	x	
07/16/12	20	0.30	0.00	0.00	h	-		20	0.30	0.00	0.00	h	-		
07/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-		
07/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-		
07/19/12	0	0.00	0.00	0.00	h	-		10	T	0.00	0.00	h	-		
07/20/12	20	0.33	0.16	0.00	h	-		20	0.50	0.08	0.04-0.24	m	-		
07/21/12	20	0.33	0.20	0.25-0.43	h	-		20	0.50	0.43	0.64-0.83	h	h		
07/22/12	30	0.60	0.12	0.25-0.43	h	-		40	0.75	0.00	0.00	m	-	x	
07/23/12	40	0.75	0.00	0.00	m	-	x	30	0.75	0.00	1.23-1.61	h	h		
07/24/12	10	0.25	0.00	0.00	h	-		30	0.40	0.04	0.00	m	-		
07/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-		
07/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-		
07/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-		
07/28/12	20	0.25	0.20	0.44-0.63	h	-		30	0.50	1.30	0.44-0.63	h	h		
07/29/12	40	0.75	0.40	0.25-0.43	h	-		40	0.75	0.47	0.44-0.63	h	h		
07/30/12	20	0.50	0.00	0.00	m	-		30	0.75	0.00	0.00	m	-		
07/31/12	20	0.25	0.24	0.44-0.63	h	-		20	0.25	0.00	0.25-0.43	h	-		
<b>31 days</b>					<b>26/31*</b>	<b>2/2*</b>	<b>1.00</b>					<b>22/31*</b>	<b>6/6*</b>	<b>4.00</b>	
08/01/12	0	0.00	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-		
08/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-		
08/03/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-		
08/04/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-		
08/05/12	0	0.00	0.12	0.04-0.24	m	-		0	0.00	0.04	0.04-0.24	m	-		
08/06/12	10	0.15	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-		

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
08/07/12	0	0.00	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-	
08/08/12	10	0.10	0.00	0.00	h	-		20	0.10	0.08	0.00	h	-	
08/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/10/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/11/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/12/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/13/12	0	0.00	0.04	0.00	h	-		10	0.10	0.00	0.00	h	-	
08/14/12	0	0.00	0.75	0.84-1.02	m	m		0	0.00	0.20	0.04-0.24	m	-	
08/15/12	30	1.00	0.00	0.00	m	-	x	20	0.75	0.00	0.00	m	-	
08/16/12	30	1.00	0.75	0.44-0.63	h	h		20	0.75	0.83	0.64-0.83	h	h	
08/17/12	30	1.00	0.12	0.00	m	-	x	20	1.25	0.08	0.00	m	-	
08/18/12	30	1.00	0.00	0.00	m	-	x	40	1.25	0.00	0.00	m	-	x
08/19/12	20	1.00	0.00	0.00	m	-		30	1.25	0.00	0.00	m	-	x
08/20/12	10	0.75	0.00	0.25-0.43	h	-		20	1.25	0.00	0.00	m	-	
08/21/12	30	1.50	1.97	1.03-1.22	h	h		30	1.50	0.47	1.03-1.22	h	h	
08/22/12	40	1.50	1.34	0.44-0.63	h	h		40	1.50	1.14	0.44-0.63	h	h	
08/23/12	20	1.00	0.12	0.00	m	-		30	1.25	0.39	0.00	m	-	x
08/24/12	10	0.50	0.35	0.00	h	-		40	0.75	1.18	0.44-0.63	h	h	
08/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/27/12	10	0.15	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-	
08/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/31/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>31 days</b>					<b>24/31*</b>	<b>3/4*</b>	<b>3.00</b>					<b>23/31*</b>	<b>4/4*</b>	<b>3.00</b>
09/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/02/12	10	0.33	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012														
Date	Forecast Zone Data				Verification			Forecast Zone Data				Verification		
	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA
09/03/12	0	0.00	0.12	0.04-0.24	m	-		0	0.00	0.16	0.25-0.43	m	-	
09/04/12	10	0.50	0.35	0.25-0.43	h	-		20	0.75	0.16	0.25-0.43	h	-	
09/05/12	10	0.50	0.00	0.00	m	-		10	0.75	0.00	0.00	m	-	
09/06/12	10	0.75	0.04	0.00	m	-		10	0.75	0.00	0.00	m	-	
09/07/12	30	0.50	0.98	0.04-0.24	h	h		30	0.50	1.26	0.64-0.83	h	h	
09/08/12	30	1.00	0.00	0.00	m	-	x	30	1.25	0.00	0.00	m	-	x
09/09/12	20	0.50	0.39	0.4-0.24	h	-		20	0.50	0.83	0.44-0.63	h	h	
09/10/12	40	1.00	0.35	0.25-0.43	m	-	x	40	1.00	0.47	0.25-0.43	m	-	x
09/11/12	40	0.75	0.12	0.00	m	-	x	40	1.25	0.08	0.00	m	-	x
09/12/12	0	0.00	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-	
09/13/12	0	0.00	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-	
09/14/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/20/12	0	0.00	0.04	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/24/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	Forecast Zone Data				Verification			Forecast Zone Data				Verification		
Date	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA
<b>30 days</b>					<b>24/30*</b>	<b>1/1*</b>	<b>3</b>					<b>24/30*</b>	<b>2/2*</b>	<b>3</b>
	<b>Scottsdale South</b>							<b>Southeast Valley</b>						
06/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/24/12	10	0.10	0.00	0.00	h	-		30	0.25	0.00	0.00	h	-	
06/25/12	20	0.10	0.00	0.00	h	-		20	0.35	0.00	0.00	h	-	
06/26/12	20	0.10	0.00	0.00	h	-		20	0.35	0.00	0.00	h	-	
06/27/12	10	0.05	0.00	0.00	h	-		20	0.15	0.00	0.00	h	-	
06/28/12	10	0.05	0.00	0.00	h	-		20	0.15	0.00	0.00	h	-	
06/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>16 days</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>
07/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/02/12	10	0.05	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
07/03/12	30	0.35	0.00	0.00	m	-		30	0.50	0.00	0.00	m	-	
07/04/12	50	0.75	0.08	0.00	m	-	x	50	0.75	0.16	0.04-0.24	m	-	x
07/05/12	0	0.00	0.00	0.00	h	-		0	0.00	0.04	0.00	h	-	
07/06/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/08/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
07/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/10/12	0	0.00	0.00	0.00	h	-		10	0.10	0.08	0.00	h	-	
07/11/12	30	0.60	0.87	0.44-0.63	h	h		40	0.75	0.24	0.25-0.43	h	-	
07/12/12	10	0.50	0.00	0.00	m	-		20	0.50	0.04	0.00	m	-	
07/13/12	30	0.50	0.08	0.00	m	-		30	0.50	0.31	0.04-0.24	h	-	
07/14/12	30	0.75	0.43	0.25-0.43	h	-		40	0.75	2.87	1.23-1.61	h	h	
07/15/12	30	0.75	0.35	0.00	h	-		40	1.00	0.35	0.00	m	-	x
07/16/12	20	0.30	0.00	0.00	h	-		30	0.30	0.00	0.00	m	-	
07/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/20/12	20	0.33	0.08	0.04-0.24	h	-		30	0.33	0.16	0.00	h	-	
07/21/12	20	0.33	0.08	0.64-0.83	h	m		30	0.50	0.63	0.44-0.63	h	h	
07/22/12	30	0.60	0.04	0.00	m	-		40	0.75	0.04	0.00	m	-	x
07/23/12	40	0.75	0.00	0.00	m	-	x	40	1.00	0.04	0.00	m	-	x
07/24/12	10	0.25	0.00	0.00	h	-		20	0.40	0.04	0.00	h	-	
07/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/28/12	20	0.25	0.47	0.04-0.24	h	-		30	0.40	0.59	0.44-0.63	h	h	
07/29/12	40	0.75	0.12	0.04-0.24	m	-	x	40	1.00	1.18	0.64-0.83	h	h	
07/30/12	20	0.50	0.04	0.00	m	-		30	0.75	0.04	0.00	m	-	
07/31/12	20	0.25	0.71	0.44-0.63	m	m		20	0.30	0.00	0.00	h	-	
<b>31 days</b>					<b>22/31*</b>	<b>1/3*</b>	<b>3.00</b>					<b>23/31*</b>	<b>4/4*</b>	<b>4.00</b>
08/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/03/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/04/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
08/05/12	0	0.00	0.00	0.00	h	-		0	0.00	0.04	0.04-0.24	m	-	
08/06/12	10	0.15	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-	
08/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/08/12	10	0.10	0.00	0.00	h	-		10	0.25	0.08	0.00	h	-	
08/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/10/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/11/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/12/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/13/12	0	0.00	0.04	0.00	h	-		20	0.25	0.04	0.00	h	-	
08/14/12	0	0.00	0.04	0.00	h	-		10	0.15	0.59	0.84-1.02	m	m	
08/15/12	30	1.00	0.00	0.00	m	-	x	30	1.00	0.00	0.00	m	-	x
08/16/12	30	1.00	0.31	0.04-0.24	m	-	x	40	1.25	0.75	0.64-0.83	h	h	
08/17/12	30	1.00	0.08	0.00	m	-	x	40	1.25	0.04	0.00	m	-	x
08/18/12	30	1.00	0.00	0.00	m	-	x	40	1.25	0.00	0.00	m	-	x
08/19/12	20	1.00	0.00	0.00	m	-		20	1.25	0.00	0.00	m	-	
08/20/12	10	0.75	0.00	0.00	m	-		20	1.00	1.30	0.25-0.43	h	h	
08/21/12	30	1.50	0.59	0.44-0.63	h	m		30	1.75	1.18	1.03-1.22	h	h	
08/22/12	40	1.50	1.30	0.25-0.43	h	h		40	1.75	1.18	0.25-0.43	h	h	
08/23/12	20	0.75	0.04	0.00	m	-		10	0.75	0.24	0.00	h	-	
08/24/12	20	0.75	0.12	0.00	m	-		10	0.50	0.59	0.00	h	h	
08/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/26/12	0	0.00	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-	
08/27/12	10	0.15	0.00	0.00	h	-		10	0.25	0.00	0.00	h	-	
08/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.24	0.00	m	-	
08/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/31/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>31 days</b>					<b>23/31*</b>	<b>1/2*</b>	<b>4.00</b>					<b>24/31*</b>	<b>5/6*</b>	<b>3.00</b>

**TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012**

Date	Forecast Zone Data				Verification			Forecast Zone Data				Verification		
	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA
09/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/02/12	10	0.33	0.00	0.00	h	-		20	0.50	0.00	0.00	m	-	
09/03/12	0	0.00	0.16	0.04-0.24	m	-		20	0.50	0.67	0.04-0.24	h	h	
09/04/12	10	0.50	0.24	0.04-0.24	h	-		20	1.00	0.00	0.04-0.24	m	-	
09/05/12	10	0.50	0.00	0.00	m	-		20	1.00	0.00	0.00	m	-	
09/06/12	10	0.75	0.00	0.00	m	-		20	1.00	0.08	0.00	m	-	
09/07/12	30	0.50	0.94	0.44-0.63	h	h		30	0.50	2.95	1.03-1.22	h	m	
09/08/12	30	1.50	0.00	0.00	m	-	x	30	1.50	0.00	0.00	m	-	x
09/09/12	30	0.50	0.08	0.00	m	-		30	0.75	0.12	0.00	m	-	
09/10/12	40	1.00	0.08	0.00	m	-	x	40	1.00	1.02	0.84-1.02	h	h	
09/11/12	40	1.00	0.08	0.00	m	-	x	40	1.25	0.94	0.04-0.24	h	h	
09/12/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/13/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/14/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.04	0.00	h	-	
09/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/24/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
<b>Date</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
09/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>30 days</b>					<b>23/30*</b>	<b>1/1*</b>	<b>3</b>					<b>24/30*</b>	<b>3/4*</b>	<b>1</b>
	<b>Lower Salt River Lakes</b>							<b>Superstition</b>						
06/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/24/12	20	0.25	0.00	0.00	h	-		30	0.25	0.00	0.00	m	-	
06/25/12	30	0.35	0.00	0.00	m	-		30	0.50	0.00	0.00	m	-	
06/26/12	30	0.35	0.00	0.00	m	-		30	0.50	0.00	0.00	m	-	
06/27/12	20	0.25	0.00	0.00	h	-		20	0.35	0.00	0.00	m	-	
06/28/12	20	0.25	0.00	0.00	h	-		20	0.25	0.00	0.00	h	-	
06/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
06/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>16 days</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>					<b>16/16*</b>	<b>0.00</b>	<b>0.00</b>
07/01/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/02/12	10	0.25	0.00	0.00	h	-		20	0.25	0.00	0.00	h	-	
07/03/12	40	0.50	0.00	0.00	m	-	x	40	0.50	0.00	0.00	m	-	x
07/04/12	50	1.00	0.00	0.00	m	-		50	1.00	0.00	0.00	m	-	x
07/05/12	10	0.10	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
07/06/12	10	0.10	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
<b>Date</b>	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
07/07/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/08/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/09/12	20	0.25	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-	
07/10/12	30	0.40	0.00	0.00	m	-		20	0.20	0.24	0.04-0.24	h	-	
07/11/12	40	1.00	0.00	0.25-0.43	m	-	x	40	1.00	0.35	0.04-0.25	m	-	x
07/12/12	30	0.67	0.00	0.00	m	-		20	0.67	0.00	0.00	m	-	
07/13/12	30	0.67	0.12	0.04-0.24	m	-		30	0.67	0.12	0.04-0.24	m	-	
07/14/12	40	1.00	0.55	0.25-0.43	h	h		40	1.00	1.30	0.44-0.63	h	h	
07/15/12	50	1.00	0.00	0.00	m	-	x	40	1.00	0.00	0.00	m	-	x
07/16/12	40	0.60	0.00	0.00	m	-	x	40	0.60	0.00	0.00	m	-	x
07/17/12	10	0.15	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/19/12	10	0.10	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
07/20/12	30	0.50	0.00	0.04-0.24	h	-		30	0.50	0.00	0.04-0.24	m	-	
07/21/12	30	0.67	0.00	0.25-0.43	h	-		30	0.67	0.43	0.25-0.43	h	h	
07/22/12	50	1.00	0.00	0.00	m	-	x	50	1.00	0.04	0.00	m	-	x
07/23/12	40	1.00	0.00	1.03-1.22	h	h		40	1.00	0.12	0.64-0.83	h	h	
07/24/12	40	0.75	0.87	0.00	h	h		40	0.75	0.87	0.04-0.24	h	h	
07/25/12	20	0.25	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
07/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
07/28/12	40	0.75	0.31	0.64-0.83	h	h		30	0.50	0.31	0.64-0.83	h	h	
07/29/12	50	1.00	0.31	0.44-0.63	m	-	x	40	1.00	0.91	0.44-0.63	h	h	
07/30/12	30	1.00	0.00	0.00	m	-	x	30	0.75	0.00	0.00	m	-	
07/31/12	30	0.50	0.00	0.00	m	-		20	0.30	0.00	0.00	h	-	
<b>31 days</b>					<b>19/31*</b>	<b>4/4*</b>	<b>7.00</b>					<b>21/31*</b>	<b>1.00</b>	<b>6.00</b>
08/01/12	30	0.35	0.00	0.00	m	-		10	0.25	0.00	0.00	h	-	
08/02/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012														
Date	Forecast Zone Data				Verification			Forecast Zone Data				Verification		
	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA
08/03/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/04/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/05/12	0	0.00	0.00	0.00	h	-		0	0.00	0.04	0.00	h	-	
08/06/12	30	0.40	0.00	0.00	m	-		20	0.25	0.00	0.00	h	-	
08/07/12	30	0.40	0.00	0.00	m	-		20	0.25	0.00	0.00	h	-	
08/08/12	20	0.40	0.00	0.64-0.83	h	h		20	0.25	0.20	0.04-0.24	h	-	
08/09/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/10/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/11/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.04-0.24	m	-	
08/12/12	20	0.25	0.00	0.00	h	-		0	0.00	0.00	0.25-0.43	m	-	
08/13/12	30	0.35	0.00	0.00	m	-		20	0.25	0.00	0.00	h	-	
08/14/12	30	0.35	0.00	0.00	m	-		20	0.25	0.00	0.04-0.24	h	-	
08/15/12	40	0.75	0.00	0.00	m	-	x	30	0.75	0.00	0.00	m	-	
08/16/12	50	1.50	0.24	0.64-0.83	h	m		30	1.00	0.31	0.04-0.24	m	-	
08/17/12	50	1.25	0.00	0.04-0.24	m	-	x	30	1.00	0.04	0.00	m	-	x
08/18/12	40	1.25	0.00	0.00	m	-	x	40	1.00	0.00	0.00	m	-	x
08/19/12	40	1.25	0.00	0.00	m	-	x	30	1.00	0.00	0.00	m	-	x
08/20/12	30	1.00	0.00	0.00	m	-	x	30	1.00	0.00	0.00	m	-	x
08/21/12	40	1.00	0.16	0.44-0.63	m	-	x	40	1.25	0.63	0.64-0.83	h	h	
08/22/12	50	1.75	0.94	0.44-0.63	h	h		50	1.50	1.38	0.25-0.43	h	h	
08/23/12	30	1.00	0.00	0.04-0.24	m	-	x	30	0.75	0.20	0.04-0.24	m	-	
08/24/12	50	0.75	0.00	0.00	m	-	x	40	0.75	0.59	0.00	h	h	
08/25/12	10	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/26/12	10	0.25	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-	
08/27/12	10	0.35	0.00	0.00	h	-		10	0.15	0.00	0.00	h	-	
08/28/12	10	0.35	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/29/12	10	0.15	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
08/30/12	10	0.15	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	Forecast Zone Data				Verification			Forecast Zone Data				Verification		
Date	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA	Prob. (%)	QPF (in)	ALERT (in)	GAQPE (in)	AOF	POD	FA
08/31/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>31 days</b>					<b>18/31*</b>	<b>2/3*</b>	<b>8.00</b>					<b>22/31*</b>	<b>3/3*</b>	<b>4.00</b>
09/01/12	10	0.50	0.00	0.00	m	-		0	0.00	0.00	0.00	h	-	
09/02/12	20	0.67	0.00	0.00	m	-		10	0.75	0.00	0.00	m	-	
09/03/12	20	0.67	0.79	0.25-0.43	h	h		10	0.67	1.30	0.25-0.43	h	h	
09/04/12	30	0.75	0.00	0.25-0.43	h	-		30	0.75	0.04	0.25-0.43	h	-	
09/05/12	30	0.75	0.00	0.00	m	-		20	0.75	0.00	0.00	m	-	
09/06/12	30	1.00	0.00	0.25-0.43	m	-		20	1.00	0.00	0.00	m	-	
09/07/12	30	0.50	0.75	0.44-0.63	h	h		30	0.50	2.01	0.64-0.83	h		
09/08/12	30	1.25	0.00	0.00	m	-	x	30	1.25	0.00	0.00	m	-	x
09/09/12	30	0.75	0.00	0.00	m	-		30	0.75	0.00	0.00	m	-	
09/10/12	30	0.75	0.04	0.25-0.43	h	-		30	0.75	0.24	0.25-0.43	h	-	
09/11/12	50	1.00	0.00	0.00	m	-	x	50	1.00	0.28	0.00	m	-	x
09/12/12	10	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/13/12	10	0.25	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/14/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/15/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/16/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/17/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/18/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/19/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/20/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/21/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/22/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/23/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/24/12	10	0.10	0.00	0.00	h	-		10	0.10	0.00	0.00	h	-	
09/25/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/26/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	

<b>TABLE A-1: MSP Outlooks Issued, Daily Verification Table - Monsoon Season 2012</b>														
	<b>Forecast Zone Data</b>				<b>Verification</b>			<b>Forecast Zone Data</b>				<b>Verification</b>		
<b>Date</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>	<b>Prob. (%)</b>	<b>QPF (in)</b>	<b>ALERT (in)</b>	<b>GAQPE (in)</b>	<b>AOF</b>	<b>POD</b>	<b>FA</b>
09/27/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/28/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/29/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
09/30/12	0	0.00	0.00	0.00	h	-		0	0.00	0.00	0.00	h	-	
<b>30 days</b>					<b>23/30*</b>	<b>2/2*</b>	<b>2</b>					<b>24/30*</b>	<b>1/1*</b>	<b>2</b>

**TABLE A-2:** This table shows the verification data of MSP issued precipitation forecasts contained in the daily Outlooks for the 2012 Monsoon Season. It is a monthly tally of the data contained in Table A-1. The table is broken down by month and MSP Forecast Zone. The columns from left to right are defined as follows:

**Accurate Forecasts** – Number of correct forecasts days out of total days in the month.

**Accuracy** – Accuracy of forecasts in percent.

**Op. Sig. Events Detected** – Number of operationally significant days detected correctly.

**POD** – Probability of detection in percent.

**False Alarms** – Number of false alarms that month.

**FAR** – False alarm rate in percent.

<b>TABLE A-2: MSP Weather Outlook Verification</b>						
<b>Forecast Zone</b>	<b>Accurate Forecasts</b>	<b>Accuracy (%)</b>	<b>OSEs Detected</b>	<b>POD (%)</b>	<b>False Alarms</b>	<b>FAR (%)</b>
<b>JUNE</b>						
Gila Bend	13/16	81.3%	0/0	n/a	0	0.0%
Palo Verde	16/16	100.0%	0/0	n/a	0	0.0%
Rainbow Valley	16/16	100.0%	0/0	n/a	0	0.0%
West Valley	16/16	100.0%	0/0	n/a	0	0.0%
Northwest Valley	16/16	100.0%	0/0	n/a	0	0.0%
Upper Centennial	16/16	100.0%	0/0	n/a	0	0.0%
Wickenburg	16/16	100.0%	0/0	n/a	0	0.0%
New River/Cave Creek	16/16	100.0%	0/0	n/a	0	0.0%
Sycamore Creek	09/09	100.0%	0/0	n/a	0	0.0%
Phoenix North	16/16	100.0%	0/0	n/a	0	0.0%
Phoenix South	16/16	100.0%	0/0	n/a	0	0.0%
Scottsdale North	16/16	100.0%	0/0	n/a	0	0.0%
Scottsdale South	16/16	100.0%	0/0	n/a	0	0.0%
Southeast Valley	16/16	100.0%	0/0	n/a	0	0.0%
Lower Salt River Lakes	16/16	100.0%	0/0	n/a	0	0.0%
Superstition	16/16	100.0%	0/0	n/a	0	0.0%

<b>TABLE A-2: MSP Weather Outlook Verification</b>						
<b>Forecast Zone</b>	<b>Accurate Forecasts</b>	<b>Accuracy (%)</b>	<b>OSEs Detected</b>	<b>POD (%)</b>	<b>False Alarms</b>	<b>FAR (%)</b>
<b>All Zones</b>	<b>246/249</b>	<b>98.8%</b>	<b>0/0</b>	<b>n/a</b>	<b>0</b>	<b>0.0%</b>
<b>JULY</b>						
Gila Bend	26/31	83.9%	9/11	81.8%	2	6.5%
Palo Verde	23/31	74.2%	3/6	50.0%	3	9.7%
Rainbow Valley	26/31	83.9%	8/8	100.0%	1	3.2%
West Valley	28/31	90.3%	4/5	80.0%	0	0.0%
Northwest Valley	27/31	87.1%	4/7	57.1%	1	3.2%
Upper Centennial	21/31	67.7%	7/9	77.8%	2	6.5%
Wickenburg	26/31	83.9%	4/5	80.0%	5	16.1%
New River/Cave Creek	17/31	54.8%	1/3	33.3%	8	25.8%
Sycamore Creek	17/31	54.8%	3/3	100.0%	9	29.0%
Phoenix North	25/31	80.6%	2/3	66.7%	3	9.7%
Phoenix South	26/31	83.9%	2/2	100.0%	1	3.2%
Scottsdale North	22/31	71.0%	6/6	100.0%	4	12.9%
Scottsdale South	22/31	71.0%	1/3	33.3%	3	9.7%
Southeast Valley	23/31	74.2%	4/4	100.0%	4	12.9%
Lower Salt River Lakes	19/31	61.3%	4/4	100.0%	7	22.6%
Superstition	21/31	67.7%	1/1	100.0%	6	19.4%
<b>All Zones</b>	<b>369/496</b>	<b>74.4%</b>	<b>63/80</b>	<b>78.8%</b>	<b>59</b>	<b>11.9%</b>
<b>AUGUST</b>						
Gila Bend	22/31	71.0%	4/6	66.7%	3	9.7%
Palo Verde	26/31	83.9%	6/8	75.0%	0	0.0%
Rainbow Valley	23/31	74.2%	3/3	100.0%	2	6.5%
West Valley	23/31	74.2%	2/2	100.0%	0	0.0%
Northwest Valley	24/31	77.4%	3/5	60.0%	2	6.5%
Upper Centennial	21/31	67.7%	7/8	87.5%	1	3.2%
Wickenburg	24/31	77.4%	5/6	83.3%	1	3.2%
New River/Cave Creek	23/31	74.2%	5/5	100.0%	4	12.9%
Sycamore Creek	22/31	71.0%	2/4	50.0%	7	22.6%

<b>TABLE A-2: MSP Weather Outlook Verification</b>						
<b>Forecast Zone</b>	<b>Accurate Forecasts</b>	<b>Accuracy (%)</b>	<b>OSEs Detected</b>	<b>POD (%)</b>	<b>False Alarms</b>	<b>FAR (%)</b>
Phoenix North	23/31	74.2%	2/3	66.7%	4	12.9%
Phoenix South	24/31	77.4%	3/4	75.0%	3	9.7%
Scottsdale North	23/31	74.2%	4/4	100.0%	3	9.7%
Scottsdale South	23/31	74.2%	1/2	50.0%	4	12.9%
Southeast Valley	24/31	77.4%	5/6	83.3%	3	9.7%
Lower Salt River Lakes	18/31	58.1%	2/3	66.7%	8	25.8%
Superstition	22/31	71.0%	3/3	100.0%	4	12.9%
<b>All Zones</b>	<b>365/496</b>	<b>73.6%</b>	<b>57/72</b>	<b>79.2%</b>	<b>49</b>	<b>9.9%</b>
<b>SEPTEMBER</b>						
Gila Bend	24/30	80.0%	2/2	100.0%	4	13.3%
Palo Verde	25/30	83.3%	4/4	100.0%	3	10.0%
Rainbow Valley	24/30	80.0%	2/2	100.0%	3	10.0%
West Valley	25/30	83.3%	3/3	100.0%	3	10.0%
Northwest Valley	25/30	83.3%	0/2	0.0%	3	10.0%
Upper Centennial	24/30	80.0%	2/3	66.7%	4	13.3%
Wickenburg	25/30	83.3%	2/4	50.0%	4	13.3%
New River/Cave Creek	22/30	73.3%	3/3	100.0%	2	6.7%
Sycamore Creek	20/30	66.7%	2/3	66.7%	4	13.3%
Phoenix North	26/30	86.7%	2/2	100.0%	2	6.7%
Phoenix South	24/30	80.0%	1/1	100.0%	3	10.0%
Scottsdale North	24/30	80.0%	2/2	100.0%	3	10.0%
Scottsdale South	23/30	76.7%	1/1	100.0%	3	10.0%
Southeast Valley	24/30	80.0%	3/4	75.0%	1	3.3%
Lower Salt River Lakes	23/30	76.7%	2/2	100.0%	2	6.7%
Superstition	24/30	80.0%	1/1	100.0%	2	6.7%
<b>All Zones</b>	<b>382/480</b>	<b>79.6%</b>	<b>32/39</b>	<b>82.1%</b>	<b>46</b>	<b>9.6%</b>

## APPENDIX B: MSP MESSAGES - VERIFICATION TABLES

**TABLE B-1:** This table shows each of the individual MSP Statements issued during the 2012 Monsoon season including the detailed forecast rainfall information. The table is broken down by date and MSP Message. The columns from left to right are defined as follows:

**Message Details** – Message information including date, time issued in local standard time, Forecast Zone, Message type, and issuing forecaster. Data is pulled directly from issued Message.

**Forecast Rain** – Rain information including forecast rainfall intensity and storm total precipitation where applicable. Data is pulled directly from issued Message. It is important to note that not all issued Messages contain forecast rainfall information (noted by an “N/A” in the table).

<b>TABLE B-1: MSP Messages Issued - Monsoon Season 2012</b>						
Statement Details					Forecast Rain	
Date	LST	MSP Forecast Zone	Message	Forecaster	QPF Intensity	STP (in)
07/04/12	12:30	Sycamore Creek	2	Henz	0.50"/30min	N/A
07/12/12	13:30	Gila Bend	2	Waters	N/A	N/A
07/12/12	13:30	Palo Verde	2	Waters	N/A	N/A
07/12/12	13:30	Upper Centennial	2	Waters	N/A	N/A
07/12/12	18:15	Gila Bend	1	Waters	0.75"/hr	N/A
07/13/12	15:31	Upper Centennial	1	Waters	1.00"/30min	N/A
07/14/12	09:34	Wickenburg	1	Henz	0.75"/30min	N/A
07/14/12	12:34	Upper Centennial	1	Henz	0.75"/30min	N/A
07/14/12	13:19	Gila Bend	1	Henz	0.50-0.75"/30min	N/A
07/14/12	14:37	Rainbow Valley	1	Henz	0.50-0.75"/30min	N/A
07/14/12	14:51	West Valley	1	Henz	0.50-0.75"/30min	N/A
07/14/12	14:51	Phoenix South	1	Henz	0.50-0.75"/30min	N/A
07/14/12	15:17	Southeast Valley	1	Henz	0.50-0.75"/30min	N/A
07/14/12	15:41	Scottsdale North	1	Henz	0.50-0.75"/30min	N/A
07/14/12	15:41	Scottsdale South	1	Henz	0.50-0.75"/30min	N/A
07/14/12	15:47	Sycamore Creek	2	Henz	0.75-1.25"/hr	N/A
07/14/12	16:25	Superstition	1	Henz	0.50-0.75"/30min	N/A

<b>TABLE B-1: MSP Messages Issued - Monsoon Season 2012</b>						
<b>Statement Details</b>					<b>Forecast Rain</b>	
<b>Date</b>	<b>LST</b>	<b>MSP Forecast Zone</b>	<b>Message</b>	<b>Forecaster</b>	<b>QPF Intensity</b>	<b>STP (in)</b>
07/14/12	16:52	Upper Centennial	3	Henz	0.50-0.75"/30min	1.25"
07/14/12	16:55	Sycamore Creek	3	Henz	0.50-0.75"/30min	N/A
07/14/12	17:08	Wickenburg	3	Henz	0.50-0.75"/30min	1.25"
07/14/12	18:41	Wickenburg	3 update	Henz	N/A	N/A
07/14/12	18:41	Upper Centennial	3 update	Henz	N/A	N/A
07/14/12	20:10	Rainbow Valley	1	Henz	0.50-0.75"/30min	1.50"
07/14/12	20:35	Northwest Valley	3	Henz	0.50-0.75"/30min	1.25"
07/15/12	17:42	Rainbow Valley	1	Henz	0.50-0.75"/30min	1.50"
07/15/12	17:42	West Valley	1	Henz	0.50-0.75"/30min	1.50"
07/21/12	18:11	Gila Bend	1	Waters	0.50-0.75"/30min	1.50"
07/21/12	18:40	New River/Cave Creek	1	Waters	N/A	N/A
07/22/12	18:16	Wickenburg	1	Waters	0.75"/30min	N/A
07/23/12	15:50	Rainbow Valley	1	Henz	0.50-0.75"/30min	1.25"
07/23/12	19:01	Lower Salt River Lakes	1	Henz	0.50-0.75"/30min	1.50"
07/23/12	19:34	Scottsdale North	1	Henz	0.50-0.75"/30min	1.50"
07/23/12	19:35	Scottsdale North	1 update	Henz	N/A	N/A
07/24/12	00:21	Sycamore Creek	3	Henz	0.50-0.75"/30min	N/A
07/24/12	03:14	Sycamore Creek	3	Henz	0.35-0.60"/30min	N/A
07/28/12	16:10	Sycamore Creek	3	Henz	0.50-0.75"/20-30min	1.25"
07/28/12	16:20	Superstition	1	Henz	0.50-0.75"/20-30min	1.50"
07/28/12	16:20	Scottsdale North	1	Henz	0.50-0.75"/20-30min	1.50"
07/29/12	13:17	Sycamore Creek	2	Henz	0.60-0.80"/20-30min	1.25"
07/29/12	14:15	Scottsdale North	1	Henz	0.75"-1.00"/20-30min	1.50"
07/29/12	15:50	Southeast Valley	1	Henz	0.50"-0.75"/20-30min	1.50"
07/29/12	15:50	Superstition	1	Henz	0.50"-0.75"/20-30min	1.50"
07/29/12	17:08	Rainbow Valley	1	Henz	0.50"-0.75"/20-30min	1.50"
07/29/12	17:22	Wickenburg	1	Henz	0.50"-0.75"/20-30min	1.25"
07/29/12	17:57	Gila Bend	1	Henz	0.75"-1.00"/20-30min	1.50"
07/29/12	18:15	New River/Cave Creek	1	Henz	0.50"-0.75"/20-30min	1.00"

<b>TABLE B-1: MSP Messages Issued - Monsoon Season 2012</b>						
<b>Statement Details</b>					<b>Forecast Rain</b>	
<b>Date</b>	<b>LST</b>	<b>MSP Forecast Zone</b>	<b>Message</b>	<b>Forecaster</b>	<b>QPF Intensity</b>	<b>STP (in)</b>
07/29/12	19:17	Palo Verde	1	Henz	0.60-0.80"/20-30min	1.50"
07/31/12	18:46	New River/Cave Creek	1	Waters	N/A	N/A
08/14/12	18:59	Sycamore Creek	2	Henz	N/A	N/A
08/16/12	19:31	Upper Centennial	1	Waters	1.25"/hr	N/A
08/16/12	19:31	Wickenburg	1	Waters	1.25"/hr	N/A
08/16/12	20:16	Upper Centennial	3	Waters	N/A	N/A
08/16/12	20:40	Northwest Valley	1	Waters	N/A	N/A
08/17/12	12:15	Gila Bend	1	Waters	N/A	N/A
08/18/12	13:37	Sycamore Creek	2	Waters	N/A	N/A
08/18/12	15:05	Sycamore Creek	3	Waters	N/A	N/A
08/18/12	16:26	Sycamore Creek	3 update	Waters	N/A	N/A
08/18/12	18:03	Wickenburg	1	Waters	N/A	N/A
08/20/12	14:30	Upper Centennial	1	Henz	0.50"-0.75"/15-30min	1.50"
08/20/12	19:01	Southeast Valley	1	Henz	0.50"-0.75"/20-30min	1.25"
08/20/12	19:24	Southeast Valley	3	Henz	0.50"-0.75"/10-20min	2.00"
08/21/12	16:53	Wickenburg	1	Henz	0.50"-0.75"/15-30min	1.50"
08/21/12	17:52	Gila Bend	1	Henz	0.50"-0.75"/15-30min	1.50"
08/21/12	20:12	Rainbow Valley	1	Henz	0.50"-0.75"/10-20min	1.50"
08/21/12	20:37	Rainbow Valley	3	Henz	N/A	N/A
08/21/12	21:52	Phoenix South	1	Henz	0.50"-0.75"/15-30min	1.50"
08/22/12	13:44	Rainbow Valley	2	Henz	N/A	N/A
08/22/12	13:44	Palo Verde	2	Henz	N/A	N/A
08/22/12	13:44	Gila Bend	2	Henz	N/A	N/A
08/22/12	13:44	Wickenburg	2	Henz	N/A	N/A
08/22/12	13:44	Upper Centennial	2	Henz	N/A	N/A
08/22/12	13:55	Rainbow Valley	3	Henz	0.50-0.75"/10-20min	N/A
08/22/12	14:39	Northwest Valley	2	Henz	N/A	N/A
08/22/12	14:39	West Valley	2	Henz	N/A	N/A
08/22/12	14:39	Phoenix South	2	Henz	N/A	N/A

<b>TABLE B-1: MSP Messages Issued - Monsoon Season 2012</b>						
<b>Statement Details</b>					<b>Forecast Rain</b>	
<b>Date</b>	<b>LST</b>	<b>MSP Forecast Zone</b>	<b>Message</b>	<b>Forecaster</b>	<b>QPF Intensity</b>	<b>STP (in)</b>
08/24/12	16:25	Scottsdale North	1	Waters	N/A	N/A
09/03/12	17:56	Sycamore Creek	3	Waters	N/A	N/A
09/04/12	16:07	Wickenburg	1	Henz	0.50-0.75"/15-30min	1.25"
09/04/12	18:29	West Valley	1	Henz	0.50-0.75"/15-30min	1.25"
09/04/12	21:09	Gila Bend	1	Henz	0.50-0.75"/20-30min	1.50"
09/06/12	11:48	Sycamore Creek	2	Waters	N/A	N/A
09/06/12	15:15	Gila Bend	1	Waters	0.50-0.75"/20-30min	1.50"
09/07/12	09:42	Phoenix North	1	Waters	0.50-0.75"/20-30min	1.50"
09/07/12	09:42	Phoenix South	1	Waters	0.50-0.75"/20-30min	1.50"
09/07/12	09:42	Scottsdale North	1	Waters	0.50-0.75"/20-30min	1.50"
09/07/12	09:42	Scottsdale South	1	Waters	0.50-0.75"/20-30min	1.50"
09/07/12	09:54	New River/Cave Creek	1	Waters	N/A	N/A
09/07/12	10:14	Southeast Valley	1	Henz	0.50-0.75"/10-20min	2.00"
09/07/12	10:35	Rainbow Valley	1	Henz	0.50-0.75"/10-20min	2.00"
09/07/12	11:20	Rainbow Valley	1 update	Henz	N/A	N/A
09/07/12	11:25	West Valley	1	Henz	0.50-0.75"/10-20min	2.00"
09/07/12	12:23	Gila Bend	1	Henz	0.50-0.75"/10-20min	2.00"
09/07/12	12:24	Palo Verde	1	Henz	0.50-0.75"/10-20min	1.50"
09/09/12	19:08	Northwest Valley	1	Henz	0.50-0.75"/15-30min	1.25"
09/09/12	19:39	Phoenix North	1	Henz	0.50-0.75"/15-30min	1.75"
09/09/12	20:19	Scottsdale North	1	Henz	0.50-0.75"/15-30min	1.25"
09/10/12	20:42	Southeast Valley	1	Henz	0.50-0.75"/10-20min	1.50"
09/10/12	20:56	Palo Verde	1	Henz	0.50-0.75"/15-30min	1.50"
09/10/12	21:38	Southeast Valley	1 update	Henz	N/A	N/A
09/10/12	22:33	New River/Cave Creek	1	Henz	0.50-0.75"/15-30min	1.50"
09/10/12	23:21	New River/Cave Creek	1 update	Henz	N/A	N/A
09/10/12	23:56	New River/Cave Creek	3	Henz	N/A	N/A

**TABLE B-2:** This table shows the raw verification data of MSP issued Messages for the 2012 Monsoon Season. The valid period for rainfall for each Message can be found in Table B-1. The table is broken down by date and MSP Message. The columns from left to right are defined as follows:

**Message Details** – Statement information including date and Forecast Zone.

**Forecast Rain** – Rain information including forecast rainfall intensity and forecast storm total precipitation where applicable. It is important to note that not all issued statements contain forecast rainfall information (noted by an “n/a” in the table).

**Rain Observations** – Observed rainfall amounts within the forecast zone including ALERT rain gages, gage adjusted radar rainfall totals, and local storm reports submitted to NWS Phoenix WFO.

**Alarms** – Triggered alarms on ALERT gage sensors. These alarms are broken down by alarm type including rain, stream, and dam.

**Verification** – The verification was broken down by rain and by alarm. Hits and misses were assigned based on thresholds previously discussed in the [MSP Verification Metrics and Criteria](#) section of this report.

<b>TABLE B-2: MSP Messages Issued - Monsoon Season 2012</b>											
<b>Message Details</b>		<b>Forecast Rain</b>		<b>Rain Observations (in)</b>			<b>Alarms</b>			<b>Verification</b>	
<b>Date</b>	<b>MSP Forecast Zone</b>	<b>QPF Intensity (in/Xmin)</b>	<b>STP (in)</b>	<b>ALERT</b>	<b>GAQPE</b>	<b>LSRs</b>	<b>Rain</b>	<b>Stream</b>	<b>Dam</b>	<b>Rain</b>	<b>Alarm</b>
07/04/12	Sycamore Creek	0.50"/30min	N/A	0.04"-0.08"	0.00"	None				Miss	Miss
07/12/12	Gila Bend	N/A	N/A	0.00"	0.25"-0.43"	None				Miss	Miss
07/12/12	Palo Verde	N/A	N/A	0.04"	1.62"-1.82"	None				Hit	Miss
07/12/12	Upper Centennial	N/A	N/A	0.16"-0.55"	1.23"-1.61"	None				Miss	Miss
07/12/12	Gila Bend	0.75"/hr	N/A	0.08"	0.84"-1.02"	None				Hit	Miss
07/13/12	Upper Centennial	1.00"/30min	N/A	0.59"-0.94"	1.23"-1.61"	None	X	X		Hit	Hit
07/14/12	Wickenburg	0.75"/30min	N/A	0.59"-0.83"	2.81"-3.19"	None	X	X	X	Hit	Hit
07/14/12	Upper Centennial	0.75"/30min	N/A	0.43"-1.93"	3.19"+	None	X	X		Hit	Hit
07/14/12	Gila Bend	0.50-0.75"/30min	N/A	0.16"-0.87"	1.82"-2.01"	None	X			Hit	Hit
07/14/12	Rainbow Valley	0.50-0.75"/30min	N/A	0.24"-0.35"	0.64"-0.83"	None		X		Hit	Hit
07/14/12	West Valley	0.50-0.75"/30min	N/A	0.47"	0.04"-0.24"	None				Miss	Miss
07/14/12	Phoenix South	0.50-0.75"/30min	N/A	0.24"-0.43"	0.44"-0.63"	None				Hit	Miss
07/14/12	Southeast Valley	0.50-0.75"/30min	N/A	1.42"-2.87"	1.23"-1.61"	2.25"	X			Hit	Hit

**TABLE B-2: MSP Messages Issued - Monsoon Season 2012**

Message Details		Forecast Rain		Rain Observations (in)			Alarms			Verification	
Date	MSP Forecast Zone	QPF Intensity (in/Xmin)	STP (in)	ALERT	GAQPE	LSRs	Rain	Stream	Dam	Rain	Alarm
07/14/12	Scottsdale North	0.50-0.75"/30min	N/A	0.16"-0.83"	0.44"-0.63"	None				Hit	Miss
07/14/12	Scottsdale South	0.50-0.75"/30min	N/A	0.43"-0.79"	0.44"-0.63"	None	X	X		Hit	Hit
07/14/12	Sycamore Creek	0.75-1.25"/hr	N/A	0.24"-0.51"	0.44"-0.63"	None		X		Miss	Hit
07/14/12	Superstition	0.50-0.75"/30min	N/A	0.83"-1.30"	0.44"-0.63"	None	X			Hit	Hit
07/14/12	Upper Centennial	0.50-0.75"/30min	1.25"	1.65"-2.76"	3.19"+	None	X			Hit	Hit
07/14/12	Sycamore Creek	0.50-0.75"/30min	N/A	0.24"-0.51"	0.44"-0.63"	None		X		Hit	Hit
07/14/12	Wickenburg	0.50-0.75"/30min	1.25"	1.73"-1.93"	2.61"-2.80"	None	X	X	X	Hit	Hit
07/14/12	Wickenburg	N/A	N/A	N/A	2.61"-2.80"	None	X	X	X	Hit	Hit
07/14/12	Upper Centennial	N/A	N/A	N/A	3.19"+	None	X	X		Hit	Hit
07/14/12	Rainbow Valley	0.50-0.75"/30min	1.50"	0.00"	0.64"-0.83"	None		X		Hit	Hit
07/14/12	Northwest Valley	0.50-0.75"/30min	1.25"	0.08"-0.67"	1.62"-1.81"	None				Hit	Miss
07/15/12	Rainbow Valley	0.50-0.75"/30min	1.50"	0.59"	1.23"-1.61"	None				Hit	Hit
07/15/12	West Valley	0.50-0.75"/30min	1.50"	0.59"	1.23"-1.61"	None				Hit	Hit
07/21/12	Gila Bend	0.50-0.75"/30min	1.50"	0.63"	1.62"-1.81"	None				Hit	Miss
07/21/12	New River/Cave Creek	N/A	N/A	1.34"-1.85"	2.61"-2.80"	None	X			Hit	Hit
07/22/12	Wickenburg	0.75"/30min	N/A	0.28"-0.47"	1.23"-1.61"	None		X		Hit	Hit
07/23/12	Rainbow Valley	0.50-0.75"/30min	1.25"	0.16"	0.64"-0.83"	None				Hit	Miss
07/23/12	Lower Salt River Lakes	0.50-0.75"/30min	1.50"	0.04"	1.03"-1.22"	None				Hit	Miss
07/23/12	Scottsdale North	0.50-0.75"/30min	1.50"	1.10"	1.23"-1.61"	None	X			Hit	Hit
07/23/12	Scottsdale North	N/A	N/A	N/A	1.23"-1.61"	None				Hit	Miss
07/24/12	Sycamore Creek	0.50-0.75"/30min	N/A	0.31"-0.55"	1.03"-1.22"	None	X	X		Hit	Hit
07/24/12	Sycamore Creek	0.35-0.60"/30min	N/A	0.63"-1.10"	1.03"-1.22"	None	X	X		Hit	Hit
07/28/12	Sycamore Creek	0.50-0.75"/20-30min	1.25"	0.71"-0.94"	1.03"-1.22"	0.87"	X	X		Hit	Hit
07/28/12	Superstition	0.50-0.75"/20-30min	1.50"	0.04"-0.16"	0.64"-0.83"	None				Hit	Miss
07/28/12	Scottsdale North	0.50-0.75"/20-30min	1.50"	0.59"-0.83"	0.44"-0.63"	0.94"	X			Hit	Hit
07/29/12	Sycamore Creek	0.60-0.80"/20-30min	1.25"	0.04"-0.08"	0.00"	None				Miss	Miss
07/29/12	Scottsdale North	0.75"-1.00"/20-30min	1.50"	0.28"-0.35"	0.44"-0.63"	None				Miss	Miss
07/29/12	Southeast Valley	0.50"-0.75"/20-30min	1.50"	1.10"-1.81"	0.64"-0.83"	None	X			Hit	Hit
07/29/12	Superstition	0.50"-0.75"/20-30min	1.50"	0.47"-0.87"	0.44"-0.63"	None				Hit	Miss

**TABLE B-2: MSP Messages Issued - Monsoon Season 2012**

Message Details		Forecast Rain		Rain Observations (in)			Alarms			Verification	
Date	MSP Forecast Zone	QPF Intensity (in/Xmin)	STP (in)	ALERT	GAQPE	LSRs	Rain	Stream	Dam	Rain	Alarm
07/29/12	Rainbow Valley	0.50"-0.75"/20-30min	1.50"	1.10"-1.89"	1.23"-1.61"	None	X	X		Hit	Hit
07/29/12	Wickenburg	0.50"-0.75"/20-30min	1.25"	0.04"-0.08"	0.44"-0.63"	None				Miss	Miss
07/29/12	Gila Bend	0.75"-1.00"/20-30min	1.50"	0.59"-1.18"	1.82"-2.01"	None		X		Hit	Hit
07/29/12	New River/Cave Creek	0.50"-0.75"/20-30min	1.00"	0.51"-0.91"	1.62"-1.81"	None				Hit	Miss
07/29/12	Palo Verde	0.60-0.80"/20-30min	1.50"	0.87"-1.06"	1.23"-1.61"	None	X	X		Hit	Hit
07/31/12	New River/Cave Creek	N/A	N/A	1.38"	4.06"	5.01"	X	X		Hit	Hit
08/14/12	Sycamore Creek	N/A	N/A	0.51"	0.64"-0.83"	None				Miss	Miss
08/16/12	Upper Centennial	1.25"/hr	N/A	0.87"-1.73"	1.23"-1.61"	None		X		Hit	Hit
08/16/12	Wickenburg	1.25"/hr	N/A	0.75"-0.94"	1.03"-1.22"	None	X			Hit	Hit
08/16/12	Upper Centennial	N/A	N/A	N/A	1.23"-1.61"	None				Hit	Miss
08/16/12	Northwest Valley	N/A	N/A	0.94"-1.42"	1.62"-1.81"	None				Hit	Miss
08/17/12	Gila Bend	N/A	N/A	0.00"	0.84"-1.02"	None				Hit	Miss
08/18/12	Sycamore Creek	N/A	N/A	N/A	0.64"-0.83"	None	X	X		Hit	Hit
08/18/12	Sycamore Creek	N/A	N/A	0.47"-0.83"	0.64"-0.83"	None	X	X		Hit	Hit
08/18/12	Sycamore Creek	N/A	N/A	N/A	0.64"-0.83"	None	X	X		Hit	Hit
08/18/12	Wickenburg	N/A	N/A	0.79"-1.50"	0.64"-0.83"	None	X	X		Hit	Hit
08/20/12	Upper Centennial	0.50"-0.75"/15-30min	1.50"	0.20"-1.06"	0.84"-1.02"	None				Hit	Miss
08/20/12	Southeast Valley	0.50"-0.75"/20-30min	1.25"	0.47"-1.30"	0.64"-0.83"	1.25"	X			Hit	Hit
08/20/12	Southeast Valley	0.50"-0.75"/10-20min	2.00"	0.47"-1.30"	0.64"-0.83"	1.25"	X			Hit	Hit
08/21/12	Wickenburg	0.50"-0.75"/15-30min	1.50"	1.10"	0.84"-1.02"	None	X	X		Hit	Hit
08/21/12	Gila Bend	0.50"-0.75"/15-30min	1.50"	0.31"	2.21"-2.40"	None		X		Hit	Hit
08/21/12	Rainbow Valley	0.50"-0.75"/10-20min	1.50"	0.75"-1.77"	2.21"-2.40"	None	X	X		Hit	Hit
08/21/12	Rainbow Valley	N/A	N/A	N/A	2.21"-2.40"	None	X	X		Hit	Hit
08/21/12	Phoenix South	0.50"-0.75"/15-30min	1.50"	1.26"-1.65"	1.03"-1.22"	None	X			Hit	Hit
08/22/12	Rainbow Valley	N/A	N/A	0.20"	0.84"-1.02"	None		X		Hit	Hit
08/22/12	Palo Verde	N/A	N/A	1.34"-1.69"	1.23"-1.61"	None	X	X		Hit	Hit
08/22/12	Gila Bend	N/A	N/A	0.04"	0.44"-0.63"	None				Miss	Miss
08/22/12	Wickenburg	N/A	N/A	0.04"	0.64"-0.83"	None				Miss	Miss
08/22/12	Upper Centennial	N/A	N/A	0.59"-0.63"	2.21"-2.40"	None	X			Hit	Hit

TABLE B-2: MSP Messages Issued - Monsoon Season 2012											
Message Details		Forecast Rain		Rain Observations (in)			Alarms			Verification	
Date	MSP Forecast Zone	QPF Intensity (in/Xmin)	STP (in)	ALERT	GAQPE	LSRs	Rain	Stream	Dam	Rain	Alarm
08/22/12	Rainbow Valley	0.50-0.75"/10-20min	N/A	0.20"	0.84"-1.02"	None		X		Hit	Hit
08/22/12	Northwest Valley	N/A	N/A	0.08"	0.84"-1.02"	None				Hit	Miss
08/22/12	West Valley	N/A	N/A	0.20"	0.44"-0.63"	None				Miss	Miss
08/22/12	Phoenix South	N/A	N/A	0.04"	0.44"-0.63"	None				Miss	Miss
08/24/12	Scottsdale North	N/A	N/A	0.63"-1.18"	0.44"-0.63"	0.98"				Hit	Miss
09/03/12	Sycamore Creek	N/A	N/A	0.39"-0.94"	0.84"-1.02"	1.65"	X	X		Hit	Hit
09/04/12	Wickenburg	0.50-0.75"/15-30min	1.25"	0.51"-0.71"	1.23"-1.61"	None				Hit	Miss
09/04/12	West Valley	0.50-0.75"/15-30min	1.25"	1.10"	0.84"-1.02"	None				Hit	Miss
09/04/12	Gila Bend	0.50-0.75"/20-30min	1.50"	0.12"	0.44"-0.63"	None				Hit	Miss
09/06/12	Sycamore Creek	N/A	N/A	0.24"-0.43"	0.64"-0.83"	None				Miss	Miss
09/06/12	Gila Bend	0.50-0.75"/20-30min	1.50"	0.00"	1.03"-1.22"	None				Hit	Miss
09/07/12	Phoenix North	0.50-0.75"/20-30min	1.50"	0.51"-0.98"	0.64"-0.83"	None	X	X	X	Hit	Hit
09/07/12	Phoenix South	0.50-0.75"/20-30min	1.50"	0.24"-0.51"	0.04"-0.24"	None				Miss	Miss
09/07/12	Scottsdale North	0.50-0.75"/20-30min	1.50"	0.94"-1.22"	0.64"-0.83"	None	X			Hit	Hit
09/07/12	Scottsdale South	0.50-0.75"/20-30min	1.50"	0.79"-0.94"	0.44"-0.63"	None	X	X		Hit	Hit
09/07/12	New River/Cave Creek	N/A	N/A	1.93"	1.23"-1.61"	None	X	X		Hit	Hit
09/07/12	Southeast Valley	0.50-0.75"/10-20min	2.00"	1.81"-2.87"	1.03"-1.22"	1.00"	X	X		Hit	Hit
09/07/12	Rainbow Valley	0.50-0.75"/10-20min	2.00"	1.14"	0.64"-0.83"	None	X	X		Hit	Hit
09/07/12	Rainbow Valley	N/A	N/A	N/A	0.64"-0.83"	None	X	X		Hit	Hit
09/07/12	West Valley	0.50-0.75"/10-20min	2.00"	0.71"-0.94"	1.03"-1.22"	None	X	X		Hit	Hit
09/07/12	Gila Bend	0.50-0.75"/10-20min	2.00"	1.57"	1.03"-1.22"	None		X		Hit	Hit
09/07/12	Palo Verde	0.50-0.75"/10-20min	1.50"	0.00"	0.84"-1.02"	None				Hit	Miss
09/09/12	Northwest Valley	0.50-0.75"/15-30min	1.25"	1.38"	1.03"-1.22"	None	X			Hit	Hit
09/09/12	Phoenix North	0.50-0.75"/15-30min	1.75"	0.28"-0.39"	0.44"-0.63"	None		X		Miss	Hit
09/09/12	Scottsdale North	0.50-0.75"/15-30min	1.25"	0.31"-0.83"	0.44"-0.63"	None	X			Hit	Hit
09/10/12	Southeast Valley	0.50-0.75"/10-20min	1.50"	1.02"	0.84"-1.02"	None	X	X		Hit	Hit
09/10/12	Palo Verde	0.50-0.75"/15-30min	1.50"	1.02"-1.42"	1.23"-1.61"	None	X	X		Hit	Hit
09/10/12	Southeast Valley	N/A	N/A	N/A	0.84"-1.02"	None	X	X		Hit	Hit
09/10/12	New River/Cave Creek	0.50-0.75"/15-30min	1.50"	1.10"-1.65"	1.62"-1.81"	None	X	X		Hit	Hit

<b>TABLE B-2: MSP Messages Issued - Monsoon Season 2012</b>											
<b>Message Details</b>		<b>Forecast Rain</b>		<b>Rain Observations (in)</b>			<b>Alarms</b>			<b>Verification</b>	
<b>Date</b>	<b>MSP Forecast Zone</b>	<b>QPF Intensity (in/Xmin)</b>	<b>STP (in)</b>	<b>ALERT</b>	<b>GAQPE</b>	<b>LSRs</b>	<b>Rain</b>	<b>Stream</b>	<b>Dam</b>	<b>Rain</b>	<b>Alarm</b>
09/10/12	New River/Cave Creek	N/A	N/A	N/A	1.62"-1.81"	None	X	X		Hit	Hit
09/10/12	New River/Cave Creek	N/A	N/A	1.10"-1.65"	1.62"-1.81"	None	X	X		Hit	Hit