UE-110787-RP

AVISTA

April 29, 2011

David Danner
Executive Director and Secretary
Washington Utilities & Transportation Commission
1300 S. Evergreen Park Drive S. W.
P.O. Box 47250
Olympia, Washington 98504-7250

RE: Avista Utilities' 2010 Electric Service Reliability Report

Dear Mr. Danner:

Pursuant to WAC 480-100-398, attached for filing is Avista Utilities' 2010 Electric Service Reliability Report.

If you have any questions, please contact Mark Weiss at 509-495-2034, Shawn Bonfield at 509-495-2782, Linda Gervais at 509-495-4975, or feel free to contact me at 509-495-8620.

Sincerely,

Pat Ehrbar
Manager, Rates and Tariffs
Avista Utilities
pat.ehrbar@avistacorp.com

cc: Mr. David Nightingale
Ms. Deborah Reynolds
Mr. Roger Kouchi

2010

Electric Service Reliability Report

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Introduction

Pursuant to WAC 480-100-393 and WAC 480-100-398, Avista Corporate dba Avista Utilities ("Avista" or "the Company") submits its annual Electric Service Reliability Report. The report describes the Company's reliability monitoring and reliability metrics for 2010. All numbers included in this report are based on system-data. The Company's system includes 11 geographical divisions with two of those divisions overlapping the Washington and Idaho border leading to a commingling of jurisdictional customers. A map of Avista's operating area is included on page 58 of this report.

WAC 480-100-393 (3)(b) requires the establishment of baseline reliability statistics. The Company's baseline statistics are included in this report and compare the current year data to the baseline year of 2005 and years in between. The Company also provides a statistical target that represents an analysis based on an average over a time period and adding two standard deviations. Year to year variations should be below this target, but may provide information that shows continuing trends.

Avista has reported in its previous annual reports that the completion of the transition to the Outage Management Tool (OMT) system had caused an increase in the variability of the data collected from 2001 to 2007. The 2009 Annual Report (UE-100659) indicated that a gradual increase in the SAIFI and SAIDI numbers that cannot be attributed to the transition to the OMT system was occurring. This trend line is still showing a gradual increase but at a slower rate after including the 2010 data. The charts on pages 9 and 12 show a trend line for SAIFI and SAIDI historical data.

Continued scrutiny will be important over the next year or two to determine if the rate of increase for SAIFI/SAIDI continues to slow, due to the reliability improvement programs implemented in 2009, 2010, and currently underway in 2011.

The 2010 SAIFI and SAIDI reliability indices are higher than the 2005 baseline, which may be due to the under reporting that may have occurred during the transition to OMT in 2005. On another note both the 2010 MAIFI and CAIDI reliability indices are below the 2005 baseline.

Avista added a new section beginning in the 2007 annual report (UE-080787) which analyzes the areas where customers are experiencing multiple sustained outages. This new section provides analysis of a reliability indice called $CEMI_n$, which implies Customers Experiencing Multiple sustained Interruptions more than n times.

Avista continues to review its annual baseline reliability statistics in light of operational experience under current regulatory protocol. Avista may modify its baseline statistics as appropriate and will update the Commission accordingly.

Definitions

"Reliability Statistic" – Standard Statistics measures and calculation methods are per the IEEE Standard 1366-2003 (or latest version) Titled "IEEE Guide for Electric Power Distribution Reliability Indices". Same as Reliability Indices.

"Major event" – Modified this definition to the IEEE Standard 1366-2003 (or latest version) of Major Event Day (MED), which uses a process "Beta Method" to identify a Major Event Day. The previous definition was "An event that impacts more than 5% of the Company's customers and causes outages of more than 24 hours in duration in any given division within its territory".

"Sustained Interruption" - An interruption lasting longer than 5 minutes.

"Momentary Event Interruption" – An interruption(s) of duration 5 minutes or less. Each event consists of one trip and one reclose operation that occur within 5 minutes. For example, if an interrupting device operates three times and then holds, this would be counted as three events with the number of customers affected as three times the Ni.

"Baseline reliability statistic" – Avista will compare its reliability statistics to the year 2005.

"Reliability Target" - A statistical method was developed in 2004 for baseline statistics. The method is defined as the average over a specific timeframe and 2 times the standard deviation. For 95% of the time, the Reliability Statistic should be below the target.

"Customer Complaint" - When a customer is not satisfied with the Company as it relates to Electric Reliability and makes a complaint directly to a Company representative.

"Commission Complaint" – When a customer is not satisfied with the Company as it relates to Electric Reliability and files a complaint directly with the Commission.

Data Collection and Calculation Changes

WAC 480-100-398 (2) requires the Company to report changes made in data collection or calculation of reliability information after initial baselines are set. This section addresses changes that the Company has made to data collection.

Data Collection

> Since Avista's Electric Service Reliability Monitoring and Reporting Plan was filed in 2001 (UE-011428), there have been several improvements in the methods used to collect outage data. In late 2001, centralizing the distribution trouble dispatch and data collection function for Avista's entire service territory began. The distribution dispatch office is located in the Spokane main complex. At the end of September 2005, 100% of the Company's feeders, accounting for 100% of the customers, are served from offices that employ central dispatching.

The data collected for 2010 represents the fifth full year of outage data collected through the Outage Management Tool (OMT). For 2010, all data was collected using the "Outage Management Tool" (OMT) based on the Company's Geographic Information System (GIS). The OMT system automates the logging of restoration times and customer counts.

Avista discovered a software coding error that has been within the OMT system since 2002 that caused a small increase in the SAIDI and CAIDI for 2008. Previous years were also evaluated to determine the overall impact to the Avista baseline statistics and at this time Avista is not proposing a change to the baseline numbers. The software error only occurred during very specific outage conditions when a group of customers with an initial outage starting time were "rolled" up into another group of customers that were determined to be part of the first group outage. The second group may have had a later outage starting time. When the first group of customer outage information was rolled up, the original outage starting time was lost and the second group outage starting time was used for both groups of customers instead of using the first outage starting time. The number of customers was counted correctly.

Even as good as the OMT system is at quantifying the number of customers and duration of the outage duration, there still are areas where the data collection is not precise. Determining the exact starting time of an outage is dependent on when a customer calls in, how well the Avista Distribution Dispatcher determines where the outage is and defines the device that has opened to remove the faulted section.

As AMR/AMI metering is implemented in the future and the customer meter provides outage information to the OMT system through an interface, the SAIDI and CAIDI numbers are expected to increase. This is similar to the above discussion.

Use of the OMT system and GIS data has improved the tracking of the numbers of customers without power, allowed for better prioritization of the restoration of service, and the improved dispatching of crews.

Interruption Cause Codes

Cause code information is provided in this report to give readers a better understanding of outage sources. Further, the Company uses cause information to analyze past outages and, if possible, reduce the frequency and duration of future outages.

For 2011, Avista will stop using the subcategory "protected" under the "Animal" category. Almost all birds are considered protected, so there is little differentiation between the "Bird" and "Protected" subcategories. Avista will include additional information in the Remarks section as reported from the field personnel.

Customers Experiencing Multiple Interruptions

The IEEE Standard 1366P-2003 provides for two methods to analyze data associated with customers experiencing multiple momentary interruptions and/or sustained interruptions. Avista's Outage Management Tool (OMT) and Geographical Information System (GIS) provide the ability to geospatially associate an outage to individual customer service points. This association allows for graphically showing Customers Experiencing Multiple sustained Interruptions ($CEMI_n$) with Major Event Day data included onto GIS produced areas. Data can be exported to MS Excel to also create graphs representing different values of n. 2010 information is provided in the new section added to the 2007 report (UE-080787) after the Areas of Concern Section to summarize the analysis Avista performed on the 2010 outage data. The calculation for $CEMI_n$ and Customers Experiencing Multiple Sustained and Momentary Interruptions $CEMSMI_n$ is provided in the Indices Section.

Major Events

Major Events and Major Event Days as used in this report are defined per the IEEE Guide for Electric Power Distribution Reliability Indices, IEEE P1366-2003. The following definitions are taken from this IEEE Guide.

> **Major Event** – Designates an event that exceeds reasonable design and or operation limits of the electric power system. A Major Event includes at least one Major Event Day (MED).
>
> **Major Event Day** – A day in which the daily system SAIDI exceeds a threshold value, T_{MED}. For the purposes of calculating daily system SAIDI, any interruption that spans multiple calendar days is accrued to the day on which the interruption began. Statistically, days having a daily system SAIDI greater than T_{MED} are days on which the energy delivery system experienced stresses beyond that normally expected (such as severe weather). Activities that occur on major event days should be separately analyzed and reported.

The Company will use the process defined in IEEE P1366 to calculate the threshold value of T_{MED} and to determine MED's. All indices will be reported both including and excluding MED's. The comparisons of service reliability to the baseline statistics in subsequent years will be made using the indices calculated without MED's.

Table 1.1 – 2010 Major Event Days

Major Event Days	SAIDI (Customer-Minutes)	Cause
2010 Major Event Day Threshold	11.110	
May 3, 2010	21.04	Wind Storm
November 16, 2010	68.67	Wind and Snow Storm

Additional analysis of the 2010 Major Event Days is provided in this Annual Report as was done in previous years in the Major Event Day Causes section on page 52.

Customer Complaints

The Company tracks reliability complaints in two areas, Commission Complaints and Customer Complaints, which are defined in the Definitions section. See the Customer Complaints section on Page 37 for a summary of results for this year.

System Indices

The charts below show indices for Avista's Washington and Idaho ("system") electric service territory by year. Breakdown by division is included later in this report. Each chart shows seven years of data along with the baseline reliability statistic which is highlighted in green. The Company also has calculated a reliability target that is the average over the previous five years plus two standard deviations. This target is shown in yellow on the reliability indice charts.

The reliability targets have been adjusted by removing Major Event Days, MED's, as defined in the previous section.

Table 2.1 - Reliability Statistic Target by Indice

Indice	2005-2009 Average (Excluding Major Events)	2005 Baseline	Reliability Target (Ave + 2 Standard Deviations)
SAIFI	1.26	0.97	1.70
MAIFI	4.9	3.58	4.17
SAIDI	210	108	147
CAIDI	116	112	137

Additional comparisons of the Reliability Indices are provided in the Office and Monthly Indices section of this report.

The Company continues to use the definition of major events as described above to be consistent with IEEE Standards. Therefore, the following charts show statistics including the effect of major events per this definition. Both the Baseline Statistic is shown for the year 2005 (green bar), along with the Avista Target Statistic which is shown as the yellow bar.

Refer to Attachment 1 – SAIDI and SAIFI Historical Summary for additional historical information.

Chart 2.1 – SAIFI - Sustained Interruptions / Customer

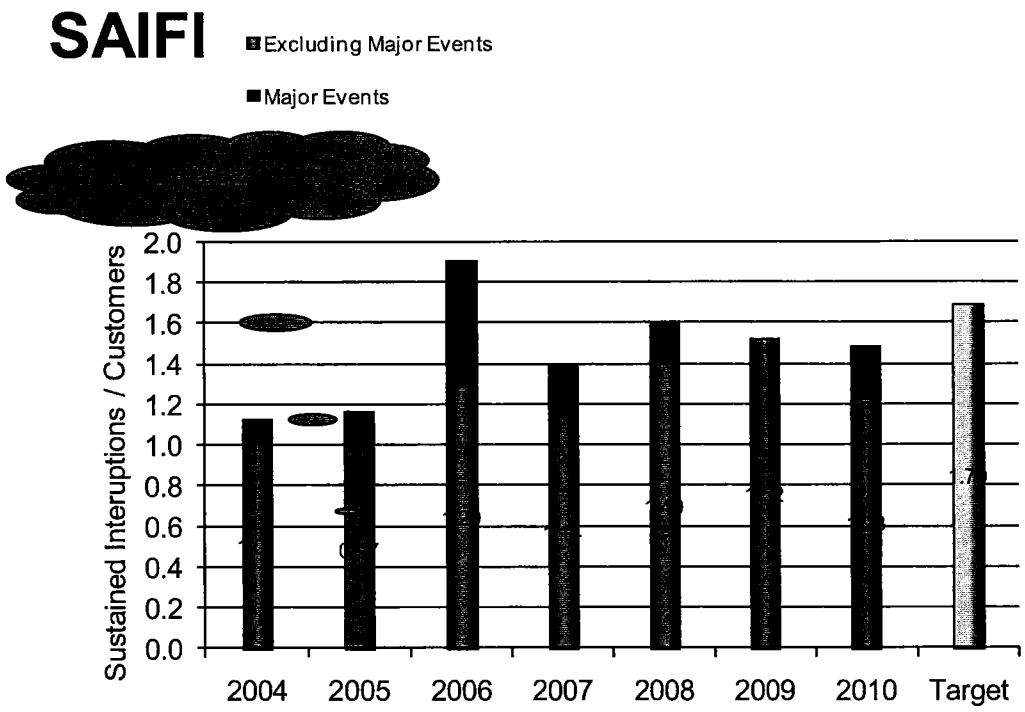
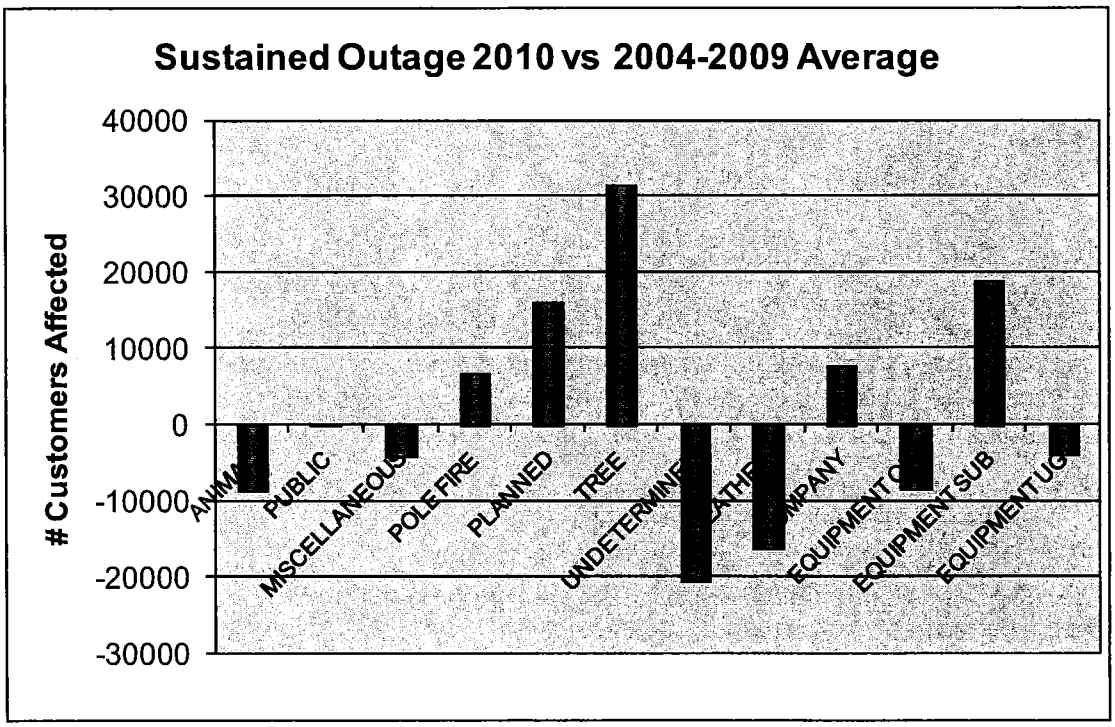


Chart 2.2 – Sustained Interruptions / Customer Historic Comparison



SAIFI for 2010 was over the 2005 baseline statistic and does represent an increasing trend, but at a slower rate than previously reported in the 2009 Annual Report (UE-100659). The 2010 SAIFI number is lower than the two previous years and may represent decreases due to Company expenditures specifically targeting reliability. Using a simple linear regression to establish a trend line, it would look like about a 6.7% growth in the number of customers affected. The R^2 coefficient of determination shows a much stronger correlation to the data than last year. A chart of this analysis has been provided just after this discussion. Planned outages were a major contributor to the number of customers affected along with trees and substation equipment.

There were 76,321 customers affected by sustained outages caused by weather in 2010. This compares to the 2004–2009 average of 92,655 customers.

23,355 customers were affected by sustained outages associated with animal related incidents. This compares to the 2004-2009 average of 32,032 customers. The vast majority of the animal related reasons were associated with squirrel caused incidents.

Planned maintenance activities and forced repairs affected 45,673 customers as compared to the 2004-2009 average of 29,511 customers. Continued maintenance activities associated with the Company equipment replacement program contributed to the increase in this cause and reduced the Overhead Equipment outage causes.

Outages associated with Tree causes affected 80,920 customers as compared to the 2004–2009 average of 49,465.

Chart 2.3 - SAIFI Linear Trend Line Chart

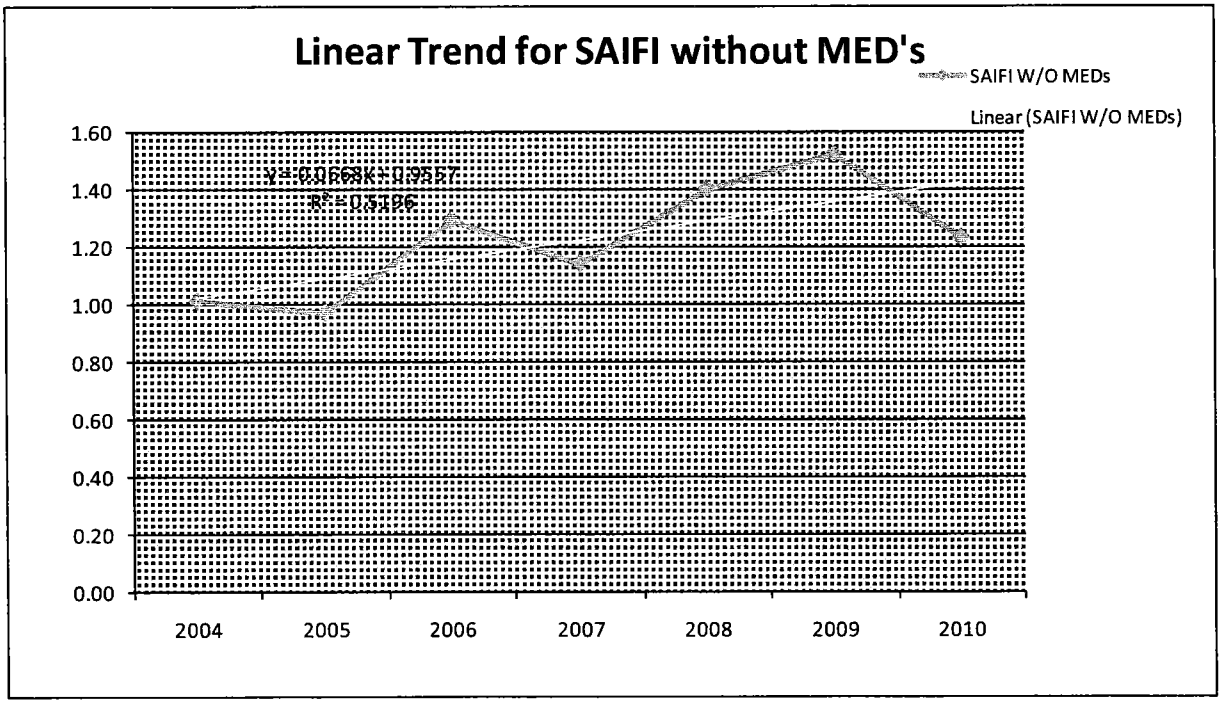


Chart 2.4 - MAIFI Momentary Interruption Events / Customer

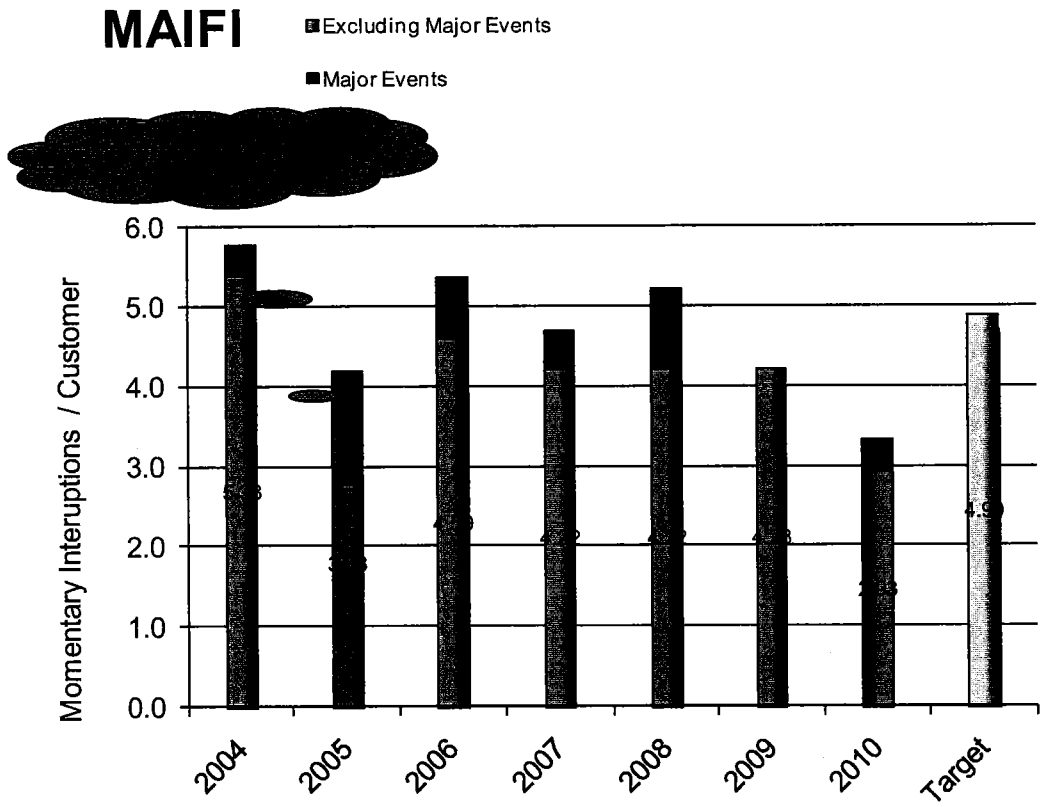
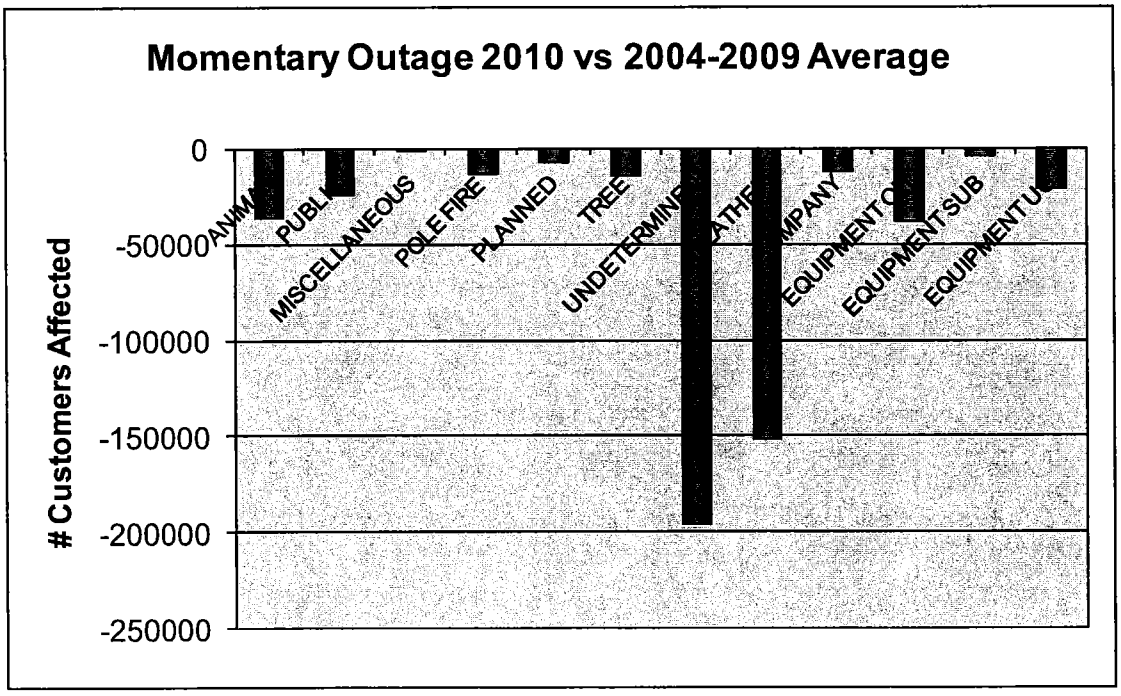


Chart 2.5 – Momentary Interruptions/ Customer Historic Comparison



The 2010 results for MAIFI show a large decrease over both 2008 and 2009 data and also below the 2005 baseline year number. There was a reduction in weather related momentary outages that cannot be explained on weather conditions alone. There was a corresponding decrease in the number of undetermined outages, which can reflect that weather conditions did cause outages. The overall improvements in the MAIFI numbers maybe due to tree trimming efforts along with Overhead Equipment replacement and Underground Equipment replacement. Some of the Urban areas have had the instantaneous trip function blocked, which reduces the total feeder customer momentary impacts, but may increase both SAIFI and SAIDI numbers for a few customers located downstream of a fuse lateral.

Distribution Dispatch continues to make improvements in correlating the momentary outages with subsequent sustained outages, which reduces the undetermined causes.

All other categories showed a slight decrease that would be consistent with previous years.

Chart 2.6 - SAIDI – Average Outage Time / Customer

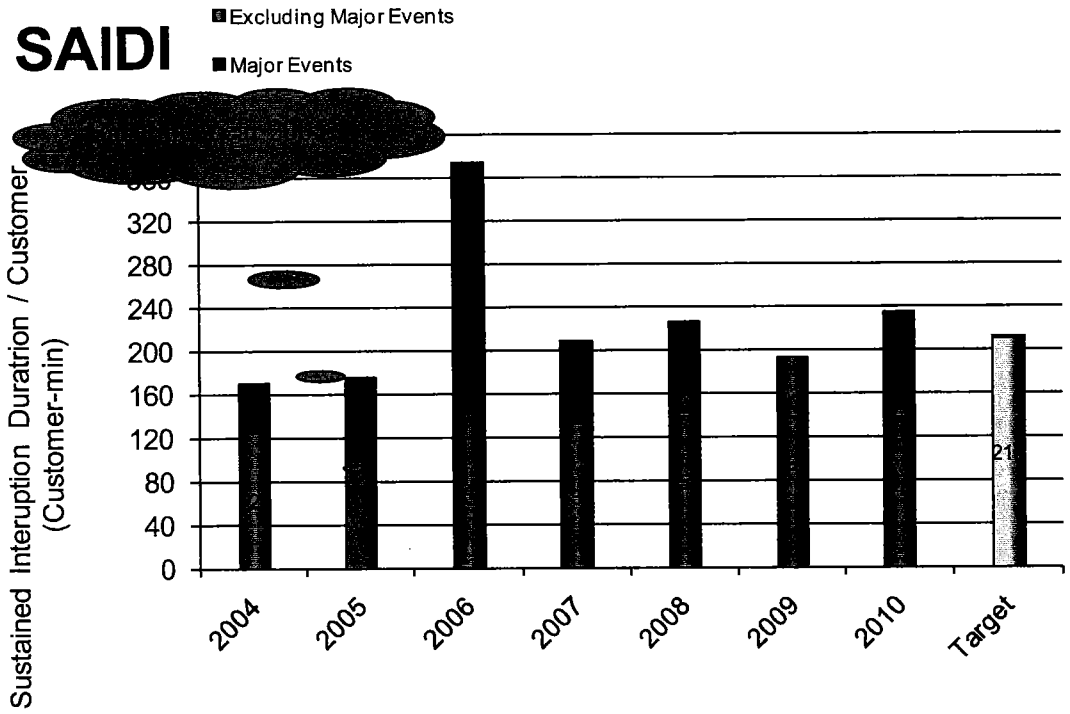


Chart 2.7 - SAIDI Linear Trend Line Chart

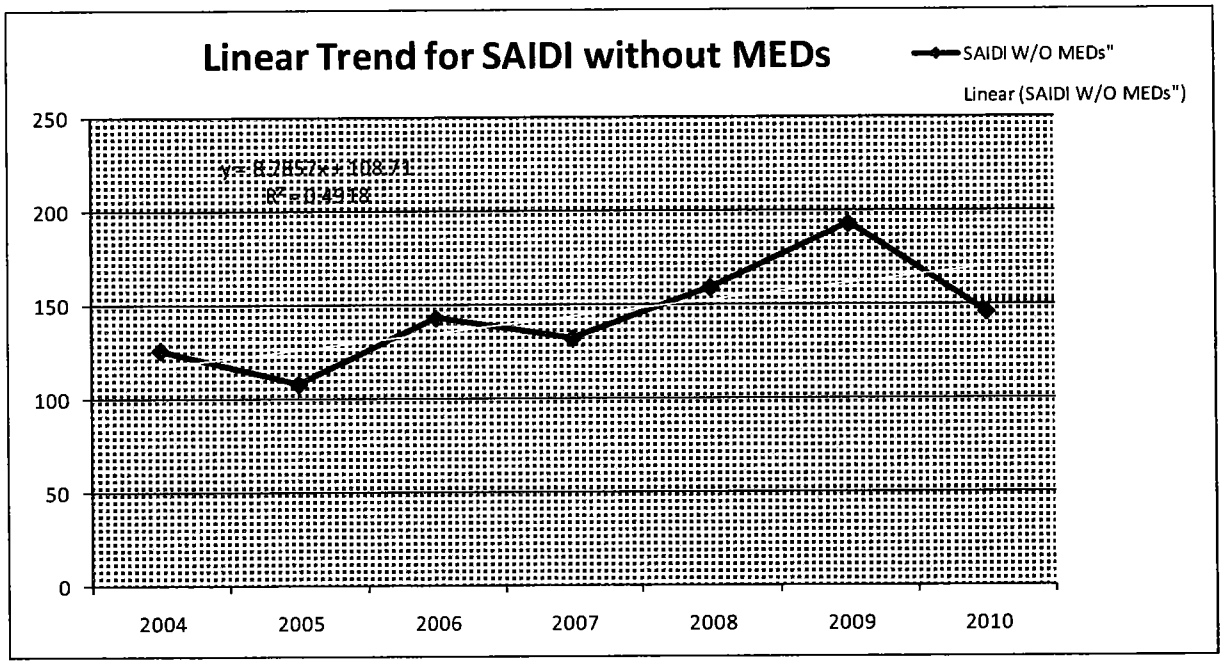
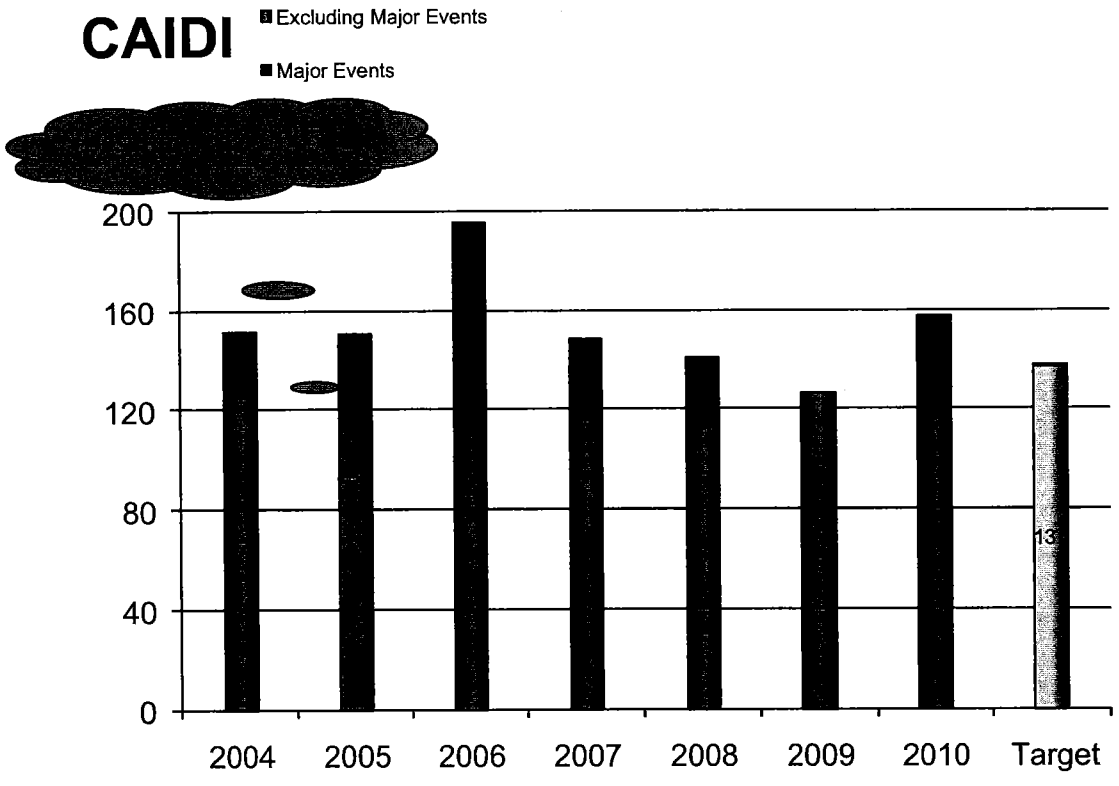


Chart 2.8 - CAIDI – Average Restoration Time



OFFICE Indices

Chart 3.1 – SAIFI - Sustained Interruptions / Customer

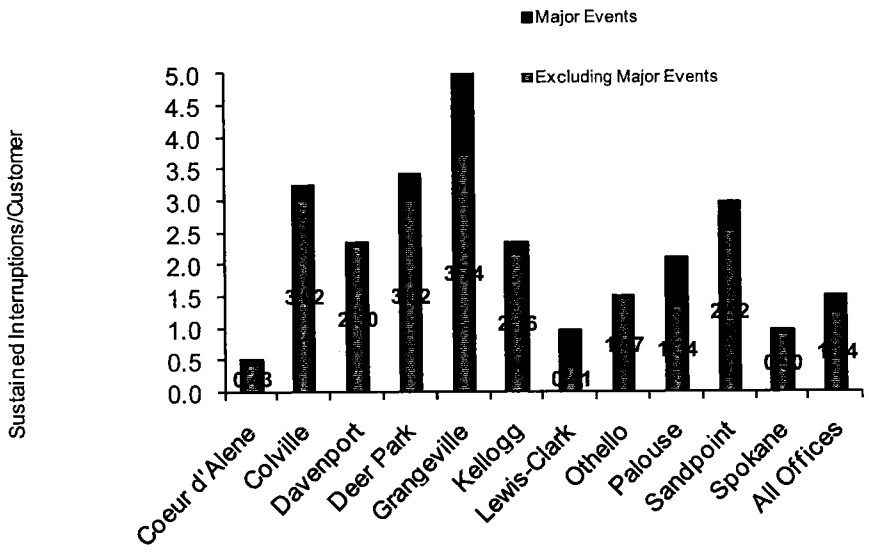


Chart 3.2 - MAIFI Momentary Interruption Events / Customer

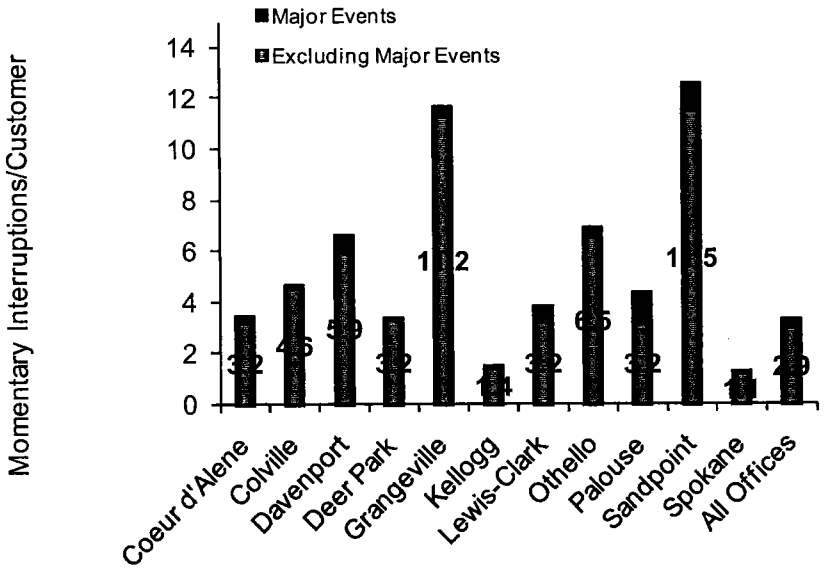


Chart 3.3 - SAIDI – Average Outage Time / Customer

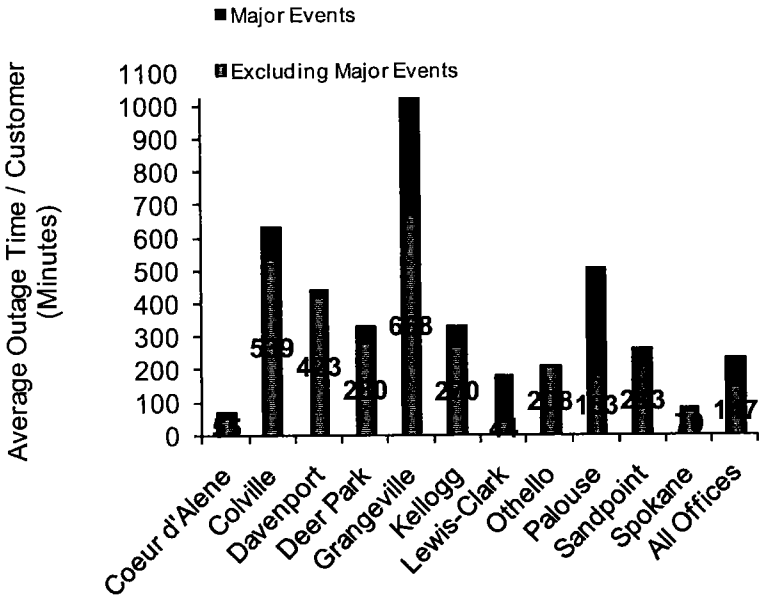
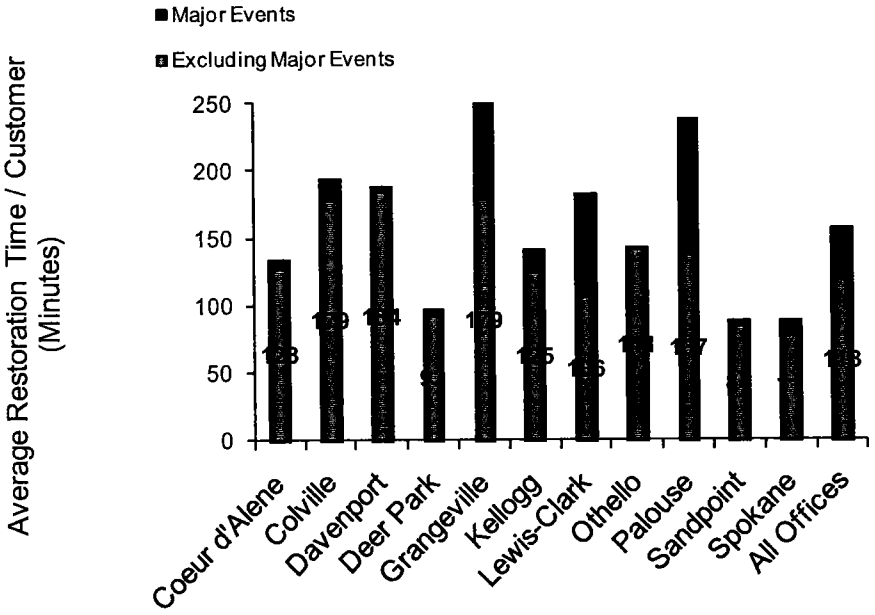


Chart 3.4 - CAIDI – Average Restoration Time



Areas of Concern

As in previous years, Colville continues to have the lowest reliability of Washington's operating areas. However, the Colville area continues to show improvement over previous years as work plans are implemented. Colville was judged lowest based on its performance in the yearly indices for SAIFI, SAIDI, CAIDI, and MAIFI. Within the Colville area, six feeders were identified as the Areas of Concern for 2010. These feeders are Gifford 34F1, Gifford 34F2, Colville 34F1, Chewelah 12F3, Chewelah 12F4, and Spirit 12F1. The first four feeders listed were also identified in the 2009 report (UE-100659) as Areas of Concern.

Cause Information

Generally rural areas have a greater number of outages per customer. Colville is a predominately rural and forested area. There are approximately 2,342 miles of distribution line exposed to weather, underground cable failures and tree problems. Unlike most of the Company's system, lines in this area are built on the narrow, cross-country rights-of-way, typical of PUD construction practices prior to Avista acquiring the system. These conditions make patrolling, tree trimming, right of way clearing and other maintenance difficult. When cost effective, Avista moves sections of these overhead lines to road rights of way and/or converts them to underground.

Further, when outages occur in rural areas, the time required to repair damage is longer. More time is required for first responders to arrive and assess the damage and more time is required for the crew to reach the site. Often the damage is off road and additional time is required to transport materials and equipment to the site.

Listed below is a summary of the specific cause data for each feeder. This is a compilation of data from the Avista Outage Management Tool and the reporting from our local servicemen to Distribution Dispatch. Data from the reporting system is shown as a percentage of total customer-outages, (SAIFI) for that feeder.

Snow loading on green healthy trees growing beyond the rights-of-way often causes them to bend or break and contact distribution lines. These trees are not cut as part of our vegetation management program because they are outside our right of way and are considered healthy marketable timber.

Gifford 34F1

- 28.7% Weather: snow, wind and lightning storms
- 22.8% Equipment
- 27.6% Public
- 5.7% Trees
- 2.8% Planned outages

Gifford 34F2

- 1.8% Weather: Wind, snow, and lightning storms
- 12.2% Equipment
- 20.2% Public
- 49.2% Trees
- 8.7% Planned outages
- 14.5% Animal: birds or squirrels

Colville 34F1

- 37.4% Weather; snow, wind and lightning storms
- 8.6% Equipment
- 0.0% Pole fires
- 28.5% Trees
- 9.2% Planned outages

Chewelah 12F3

- 6.6% Weather: snow, wind and lightning storms
- 19.3% Equipment
- 9.2% Trees
- 62.6% Planned outages

Chewelah 12F4

- 8.2% Weather: wind and lightning storms
- 4.0% Equipment
- 7.5% Trees
- 76.7% Planned outages

Spirit 12F1

- 45.8% Weather: snow, wind and lightning storms
- 2.4% Equipment
- 37.4% Trees
- 12.4% Pole Fire

Colville Area Work Plans

The improvement work that has been accomplished or planned for each feeder is listed below. The Company's reliability working group is continuing to study these feeders to develop additional work plans. Each of the identified feeders also had planned outages that correspond to the maintenance and replacement activities in the area.

Gifford 34F1

- 10,300' of URD cable was replaced in 2009, and 12,850' of URD cable is planned for replacement in 2010. Completed in 2010.
- A reliability improvement project is scheduled for 2010 in the Pleasant Valley area of this feeder to replace (42) 1940 class poles with new poles and replace approximately 2.2 miles of 1-phase #6A, #6CW, and #9 1/2D wire (all in poor shape) with 2-phases of #2ACSR wire. Completed in 2010.
- Vegetation Management completed tree trimming of 698 trims and two tree removals in 2010. No work planned for 2011.

Gifford 34F2

- 2,775' of URD cable was replaced in 2009, and 8,510' of URD cable is planned for replacement in 2010. 2009 Cable work was completed. Due to Cultural review issues on some of the Tribal lands only 3,000 feet was replaced in 2010. Continued work and negotiations for the remaining 5,000 feet in 2011.
- A reliability improvement project is planned for 2010 to convert 3.5 miles of 3-phase overhead line to URD in the Twin Lakes area near Inchelium. Plan not implemented again due to Cultural review issues on the Tribal lands. Project will be completed overhead in 2011.

Colville 34F1

- A reliability improvement project is planned for 2010 to perform an RF survey of the trunk of this feeder and perform follow-up work to address issues that are found. Completed in 2010 and repairs made on four or five pieces of equipment.
- Vegetation Management completed 14 tree trims and 373 tree removals in 2010. No work planned for 2011.
- $100k has been budgeted in 2011 to replace outage prone overhead sections with URD cable.
- $62k has been budgeted in 2011 to install Wild Life Guards in 2011.

Chewelah 12F3

- 7,700' of URD cable was replaced in 2009, and 5,200' of URD cable is planned for replacement in 2010. Completed in 2010.
- A reliability improvement project was completed in 2009 to split the Chewelah 12F3 into two feeders (Chewelah 12F3 and Chewelah 12F4). Also, another reliability project was completed to convert two miles of 1-phase overhead line with bad access with 2-phases of URD. Completed in 2010.
- Late December 2009 saw the completion of the new Chewelah 12F4 feeder, which split the existing 12F3 into two parts. The original 12F3 feeder was almost 66 miles in circuit miles and is now about 26 circuit miles. 12F4 will be about 40 circuit miles. Completed in 2010.
- Vegetation Management completed 2,051 tree trims and 1,642 tree removals in 2010. No work planned for 2011.

Valley 12F1

- No URD cable was replaced in 2009, but 300' of URD cable is planned for replacement in 2010. Completed in 2010.
- A reliability improvement project was completed in 2009 to convert 1.9 miles of 1-phase overhead line to URD in the Hesseltine Rd. area. Completed in 2010.
- Another reliability improvement project is planned for 2010 to convert 3.2 miles of 2-phase overhead line to 1-phase URD in the Jepsen Rd area. Completed in 2010.
- Wood Pole Inspection was completed in 2010, with capital follow-up work scheduled for 2011.
- Vegetation Management completed 1,661 tree trims and 2,508 tree removals along with extensive brush removal in 2010. No work planned for 2011.
- This feeder will not appear in 2011 report due to improvements over the previous years.

Valley 12F3

- 1,300' of URD cable was replaced in 2009, and 700' of URD cable is planned for replacement in 2010.
- This feeder will not appear in 2011 report due to improvements over the previous years.
- Vegetation Management completed 287 tree trims and 101 tree removals along with some brush removal in 2010. No work planned for 2011.

Avista typically uses several different protective devices on its feeders to isolate faulted or overloaded sections and also continue to serve the remaining customers. Generally, two different protection schemes are used to either "save" the lateral fuse or "blow" the lateral fuse by using or not using the instantaneous over current trip. Depending on the feeder, number of customers, types of faults, (temporary or permanent), customer type, time of year, etc. both of these schemes may be used on an individual feeder at different times at the discretion of the field personnel. With the better data and cause code collection that OMT provides and the customer growth on some of the Colville feeders, changes to the type of scheme used has been reviewed. Listed below are major reliability projects specifically identified by feeder.

Table 4.1 - Colville Area Major Reliability Projects by Feeder

Feeder	Decisions/ basis	2011	2011 and Beyond
Gifford 34F1	Reliability improvements	Budgeted	Planned
Gifford 34F2	Reliability improvements	Budgeted	Planned
Colville 34F1	Reliability improvements	Budgeted	Planned
Chewelah 12F4	With the recent splitting of the Chewelah 12F3 feeder into two separate feeders, some additional monitoring needs to be done.		Planned
Colville 12F2	Reliability improvements and voltage drop improvement.	Budgeted	Reconductor and replace recloser
SPI12F1	A major portion of this feeder will be reconductored for voltage drop improvement. Some additional reliability improvement should be done with this project.	Budgeted	Planned
Orin 12F1	Reliability Improvements	Budgeted	Add recloser
Orin 12F3	Reliability Improvements	Budgeted	Add recloser

Table 4.2 - Colville Area Historical & Proposed Future Reliability Projects by Feeder

Feeder Name	Last WPM Inspection	Proposed WPM Inspection	Proposed WPM Follow-up	Transformer Change-outs	Last Veg Management	Veg Management Proposed Year	Wildlife Guards Proposed Year
GIF34F1		25% in 2011	25% in 2012	78 in 2012 or 2013	2009	2014/2014	2013
GIF34F2	1995			50 in 2014, 2015, or 2016	2006	2012	2011
CHW12F3	1997			42 in 2014, 2015, or 2016	2000	2011	
CHW12F4	1997			28 in 2014, 2015, or 2016	2000	2011	
CLV34F1	1999			39 in 2014, 2015, or 2016	2007	2013	2011
VAL12F3	1998			37 in 2014, 2015, or 2016	2010	2015	
SPI12F1	1194			42 in 2014			

Avista System Wide Work Plans

Avista develops a detailed annual budget for various improvements to the facilities it owns and operates. For 2010, several reliability feeder projects were completed and described above. The reliability improvement should show up over the next couple of years. Valley 12F1 and Valley 12F3 have improved reliability enough to be removed from the Area of Concern list in 2011. Additionally Asset Management has developed some specific projects that are expected to improve reliability on several feeders system wide. These projects are summarized in the table above.

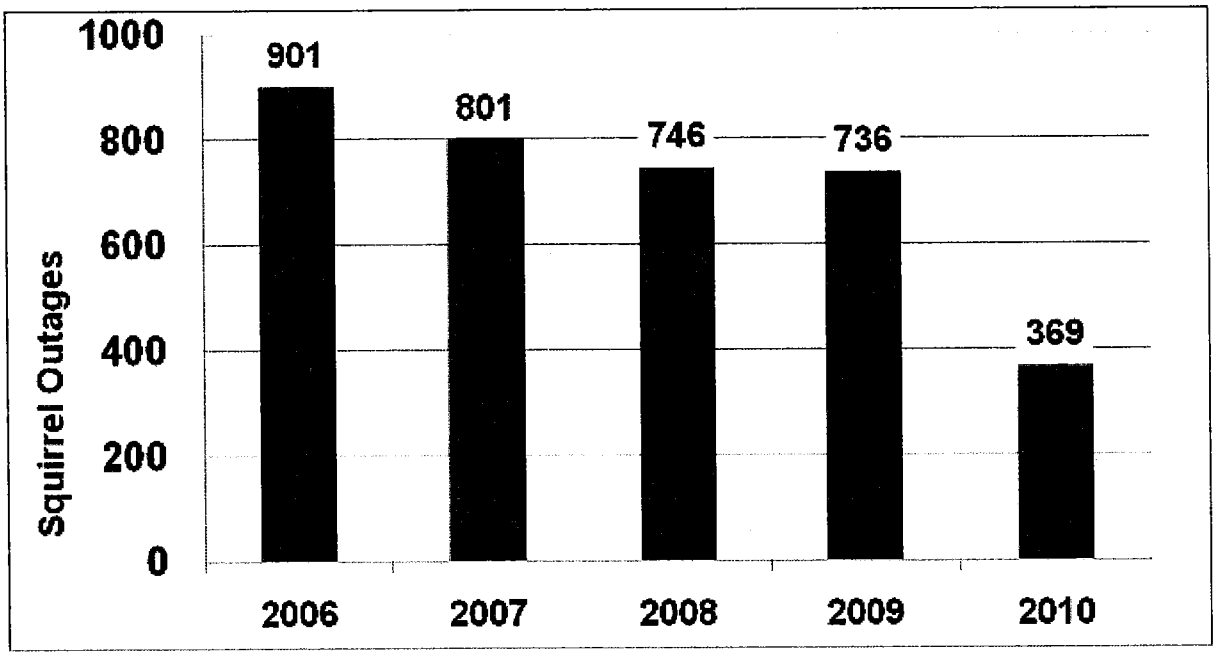
Material records show that some wildlife guards were installed on new distribution transformers installations starting in the mid 1980's. With the recognition of increases in animal caused outages, new materials and improvements have been made in the construction standards for new distribution transformer installations to reduce these types of outages. Initial indications show that the outage reduction on a feeder after wildlife guards are installed is significant.

2009 was the start of the multiyear wildlife guard installation program to reduce the squirrel and bird related outages on approximately sixty feeders in Washington and Idaho. Most of the wildlife guards were installed with a hot stick on existing transformers that do not have an existing wildlife guard.

Avista installed a total of 2,043 wildlife guards on 21 feeders in 2010. There were 1,676 wildlife guards installed in Idaho on 15 feeders and 367 wildlife guards installed in Washington on six feeders.

Avista plans to install wildlife guards on seven Idaho feeders and four Washington feeders in 2011 and plans to install wildlife guards on two Colville feeders (Gifford 34F2 and Colville 34F1) in 2011. The chart below shows the effectiveness of the wildlife guard program in reducing squirrel related outages.

Chart 4.1 – Squirrel Related Outages



Asset Management in conjunction with the Wood Pole Management Program stubbed or replaced numerous poles and additionally replaced numerous pole top transformers and associated cutouts/arresters.

Avista System Wide Vegetation Management Plan

Avista has an annual vegetation management plan and budget to accomplish the plan. The budget is allocated into distribution, transmission, administration, and gas line re-clearing.

Distribution
Our current plan for Avista's distribution system is managed by Asplundh Tree Expert Co. Every distribution circuit is scheduled to be line clearance pruned on a regular maintenance cycle of four years urban and seven years rural. Other distribution vegetation management activities include hazard tree patrol and herbicide application.

Transmission
The transmission system is managed by Avista's forester. All 230 kV lines are patrolled annually for hazard trees and other issues, and mitigation is done in that same year. Approximately one third of the 115 kV transmission system is patrolled annually for hazard tree identification and assessment of right of way clearing needs. Right of way clearing maintenance is scheduled and performed approximately every ten to fifteen years (for each line). Interim spot work is done as identified and needed. Engineering specifications for various voltages, line configurations are followed when clearing the right of way. Currently, the work is bid to a variety of contractors.

Customers Experiencing Multiple Interruptions

Avista has used the data from the OMT system integrated with the GIS system to geospatially display reliability data for specific conditions. The specific conditions imply looking at the number of sustained interruptions for each service point (meter point). This would be similar to the SAIFI indice, but would be related to a certain number of sustained interruptions. Avista includes all sustained interruptions including those classified under Major Event Days. This provides a view of what each customer on a specific feeder experiences on an annual basis. Momentary Interruptions are not included in the $CEMI_n$ indice, because by IEEE definition is only applies to sustained outages. Other Momentary Indices are not included because of the lack of indication at many rural substations and line locations.

The first chart below provides a view of the percentage of customers served from the Avista system that have sustained interruptions. 65 % of Avista customers had one or fewer sustained interruptions and 4.0% of Avista customers had six or more sustained interruptions during 2010.

The remaining geographic plots show the sustained interruptions by color designation according to the legend on each plot for each office area. Note the office area is designated as the area in white for each plot and that there is overlap between adjacent office area plots. The adjacent office areas are shown in light yellow.

The plots provide a quick visual indication of varying sustained interruptions, but significant additional analysis is required to determine underlying cause(s) of the interruptions and potential mitigation.

Chart 5.1 - Avista Service Territory - $CEMI_n$

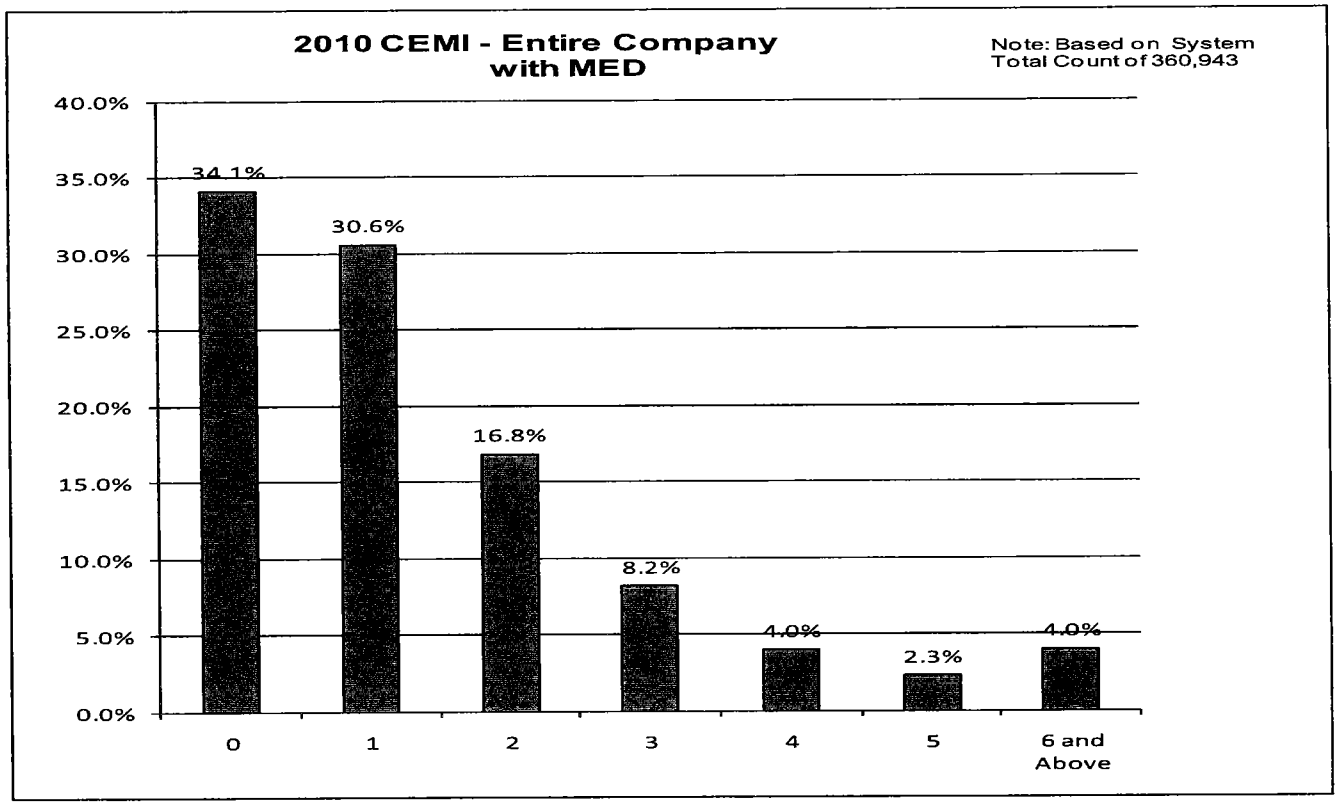


Chart 5.2 - Colville Office - $CEMI_n$

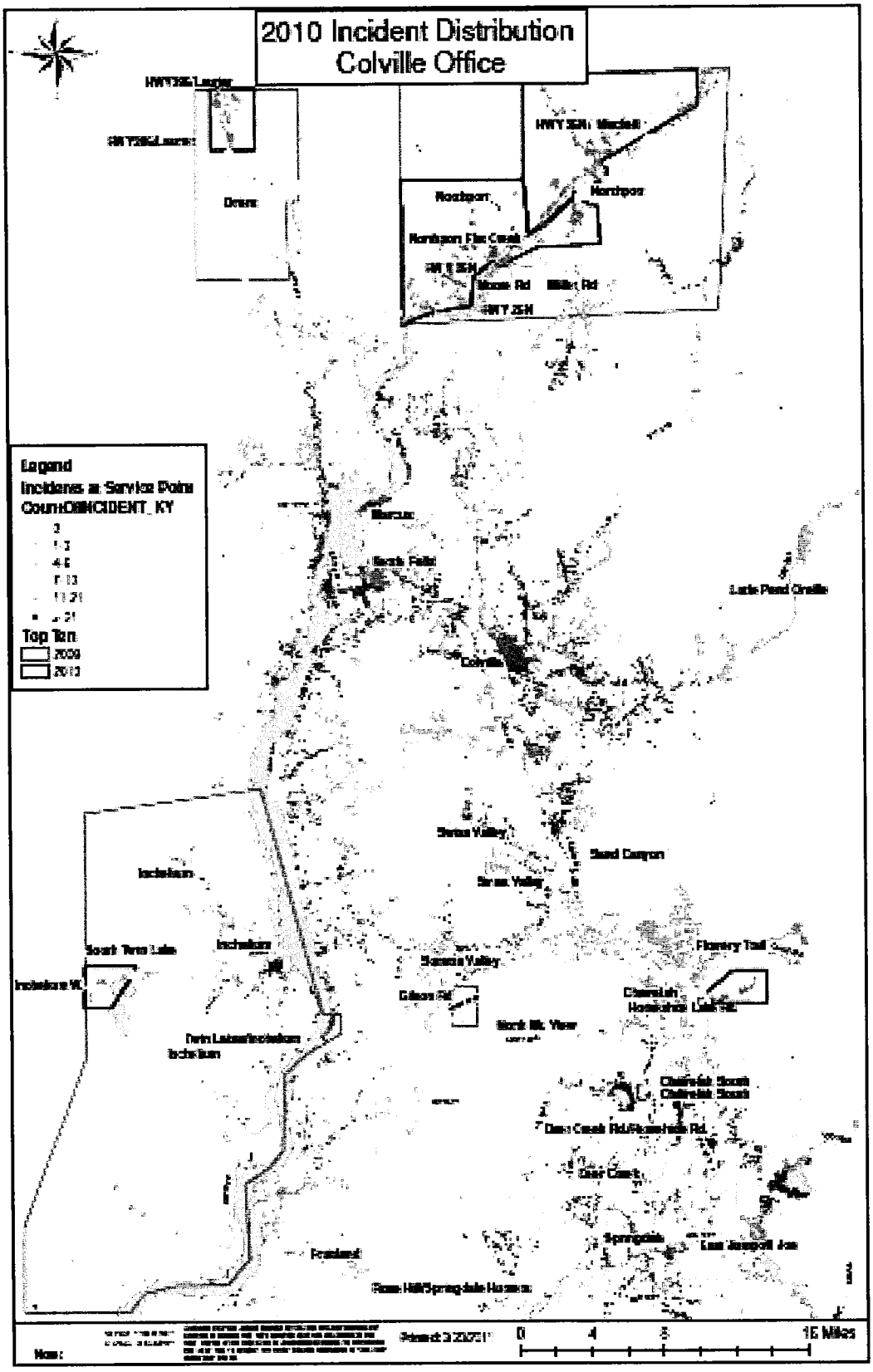


Chart 5.3 - Davenport Office - $CEMI_n$

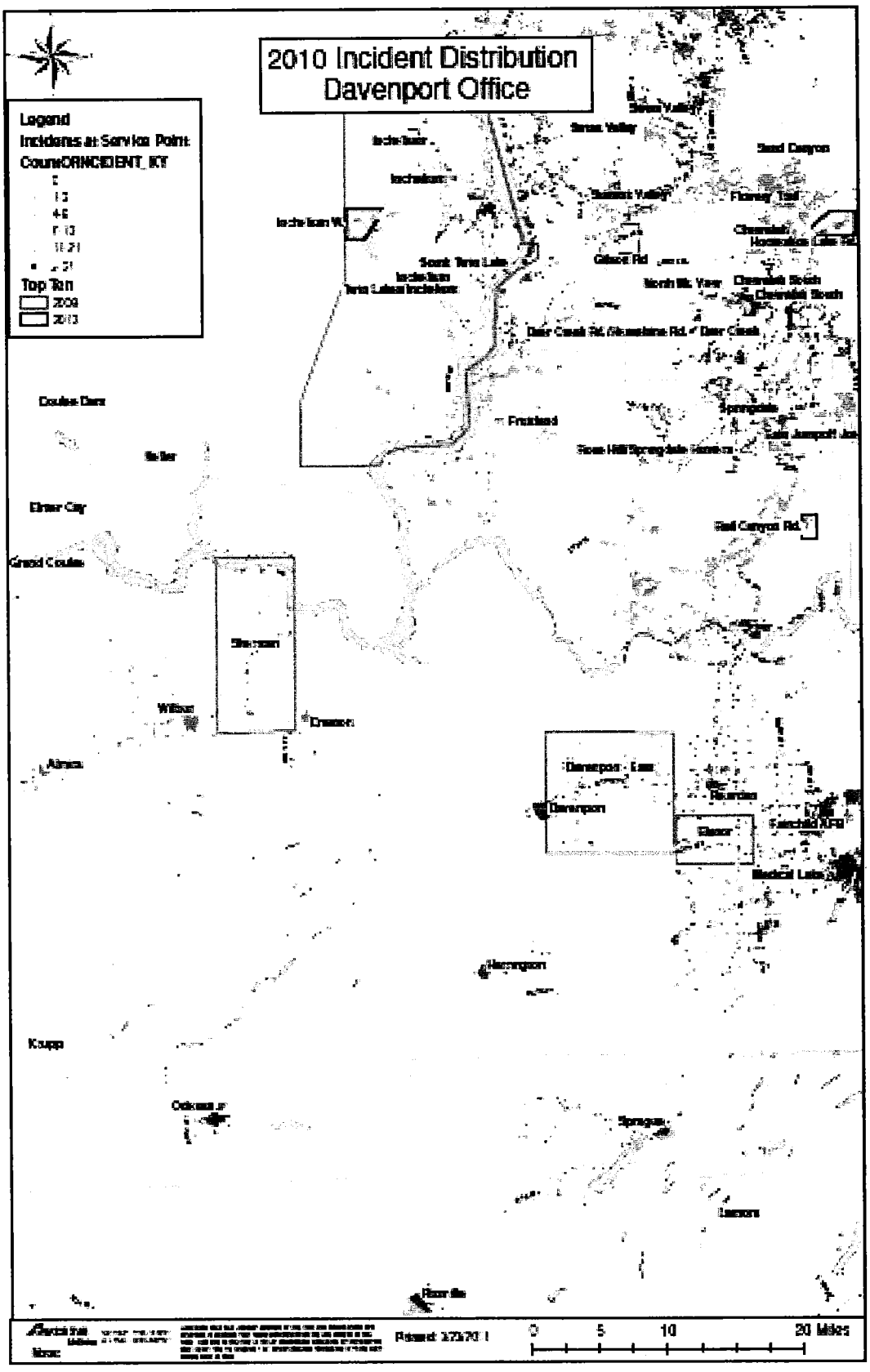


Chart 5.4 - Deer Park Office - $CEMI_n$

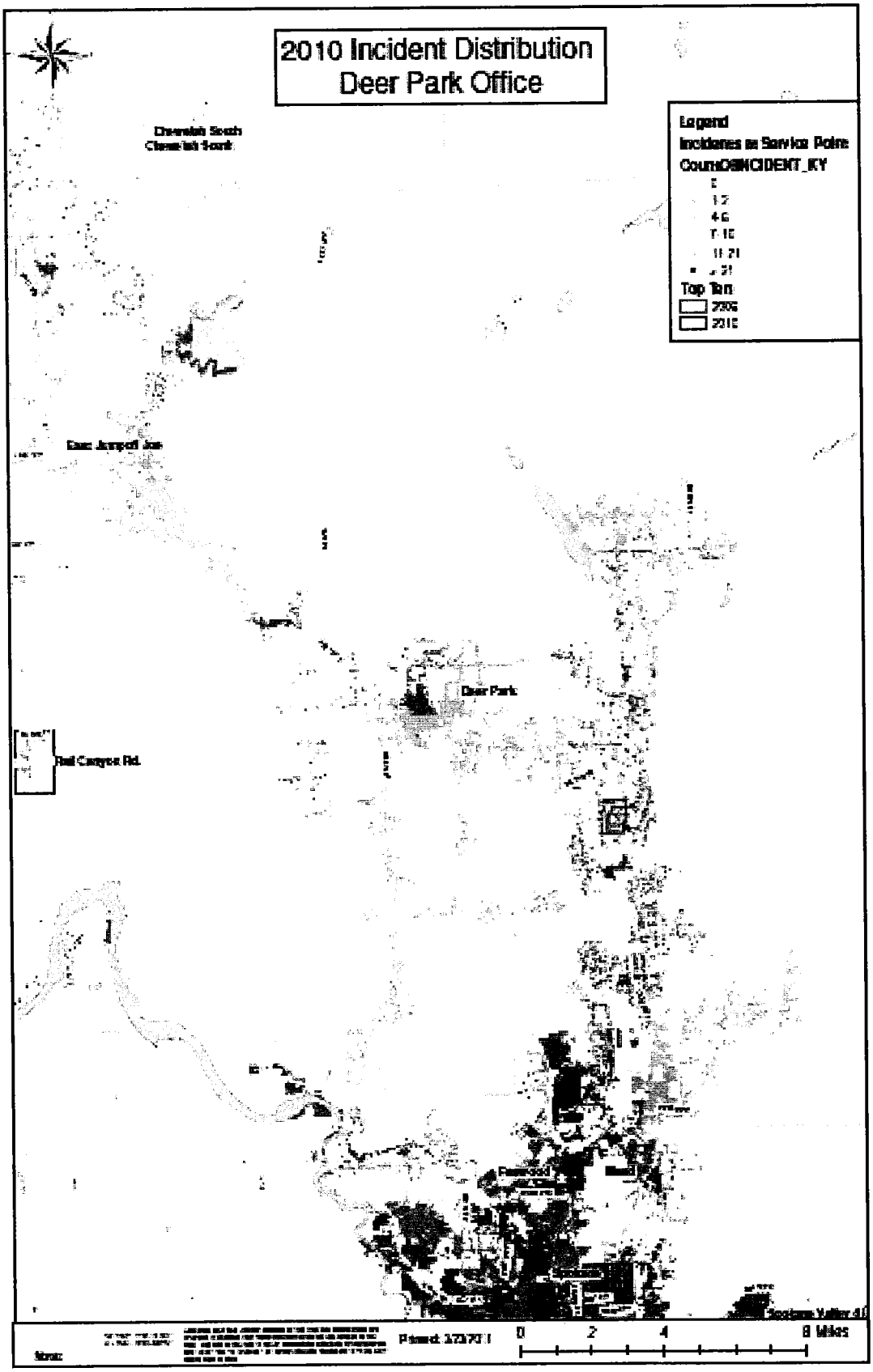


Chart 5.5 - Othello Office - $CEMI_n$

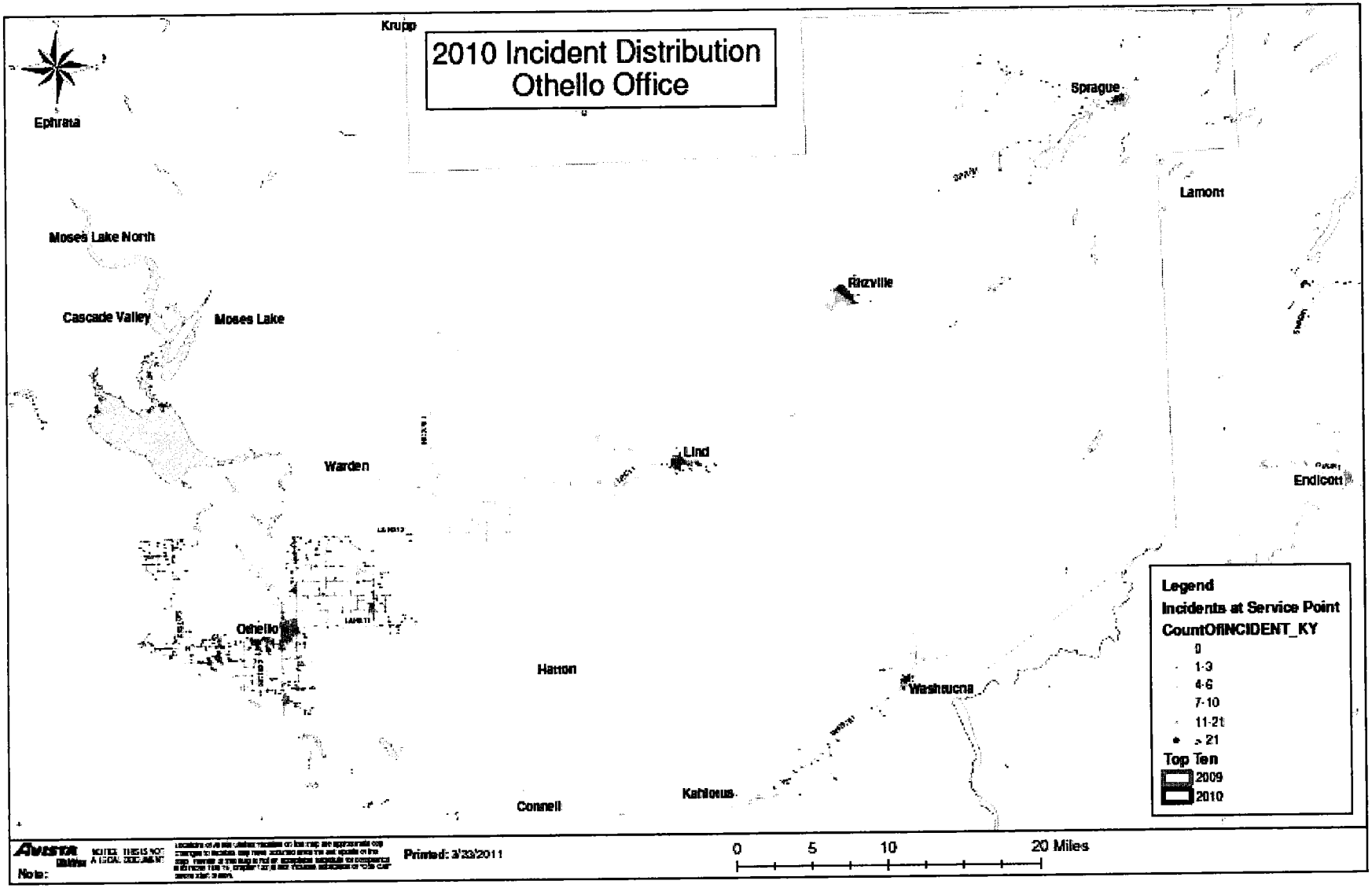


Chart 5.6 - Palouse Office - CEMI$_n$

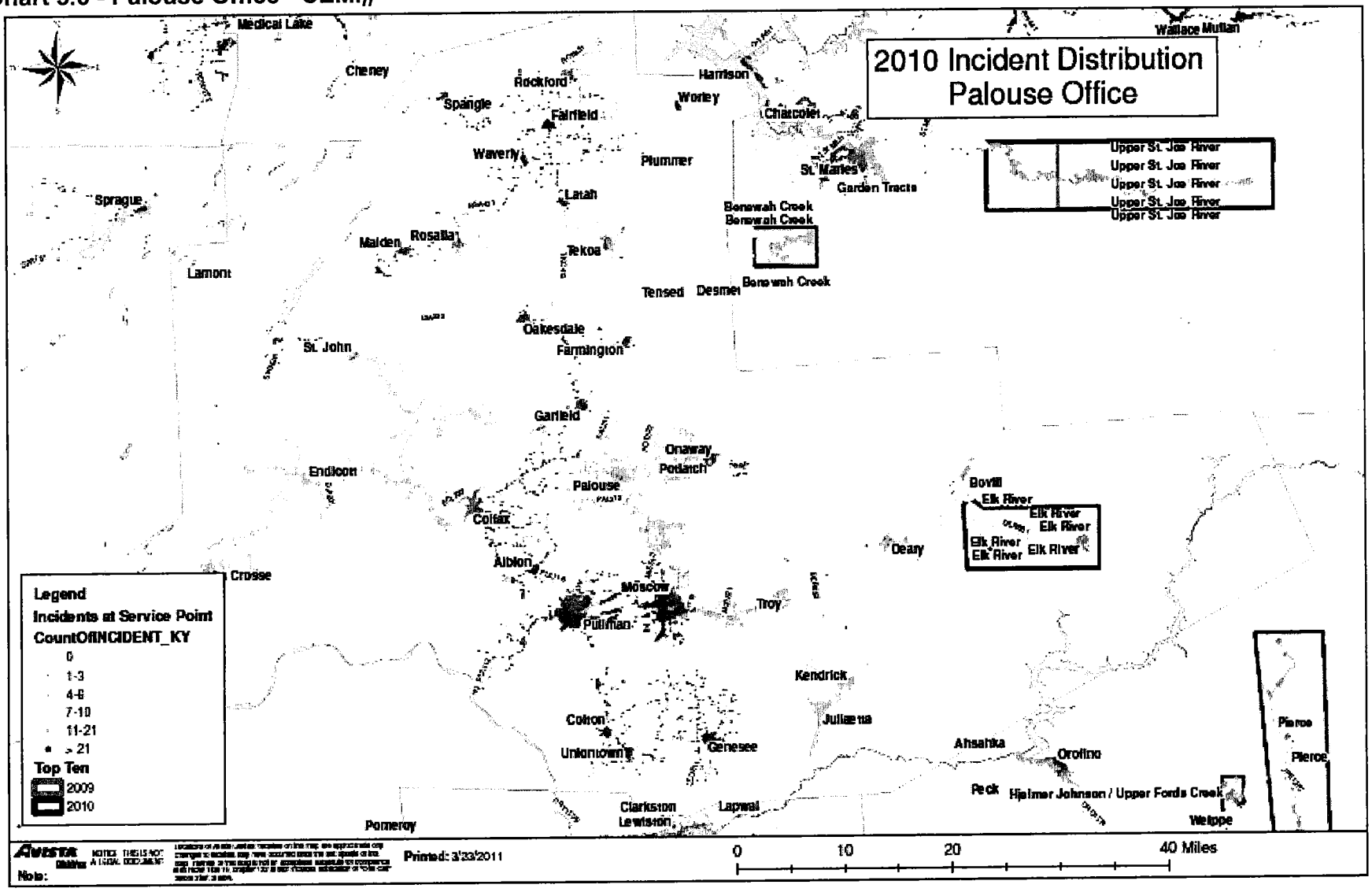


Chart 5.7 - Lewis-Clark Office - CEMI$_n$

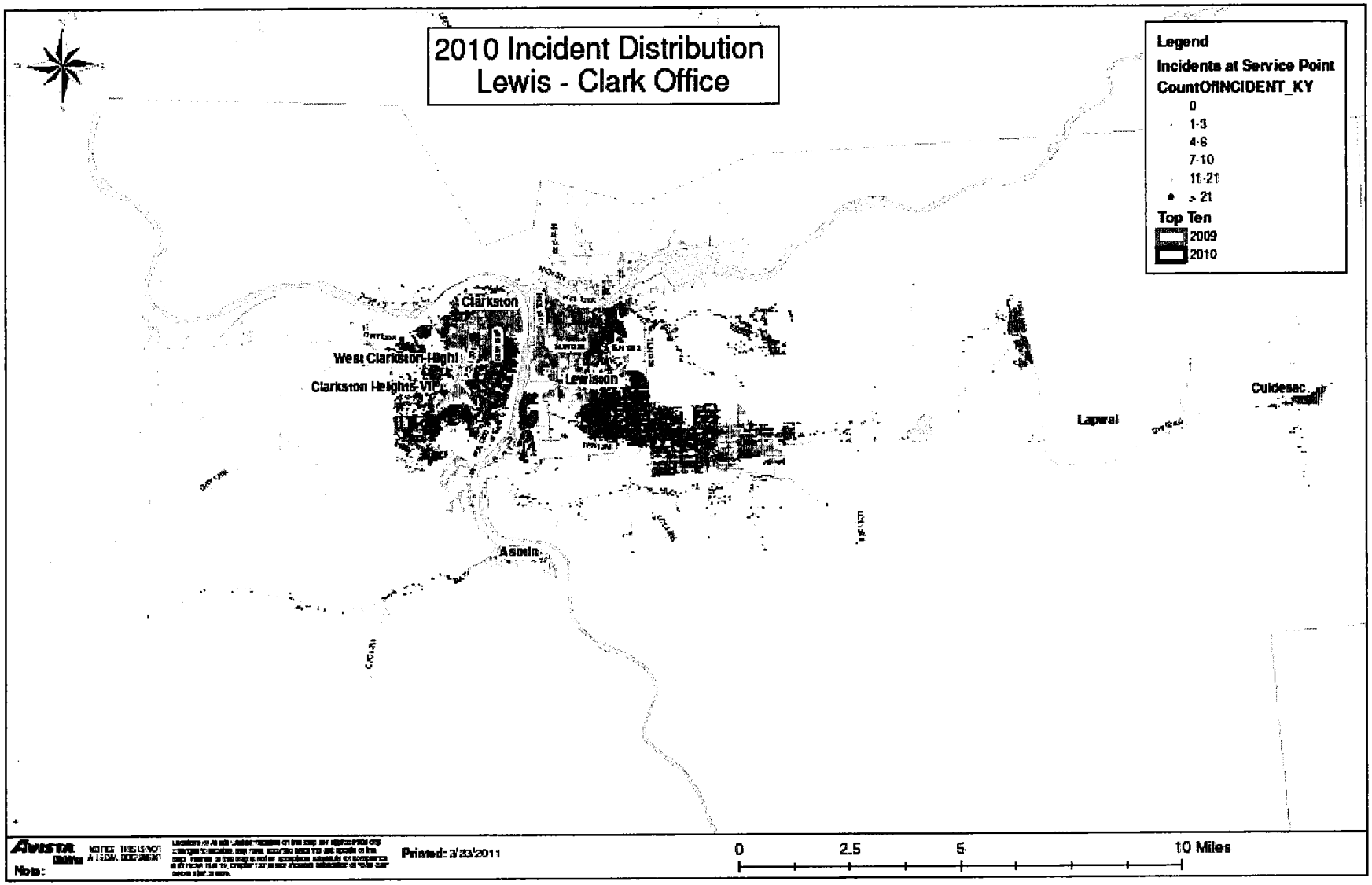


Chart 5.8 - Spokane Office - CEMI$_n$

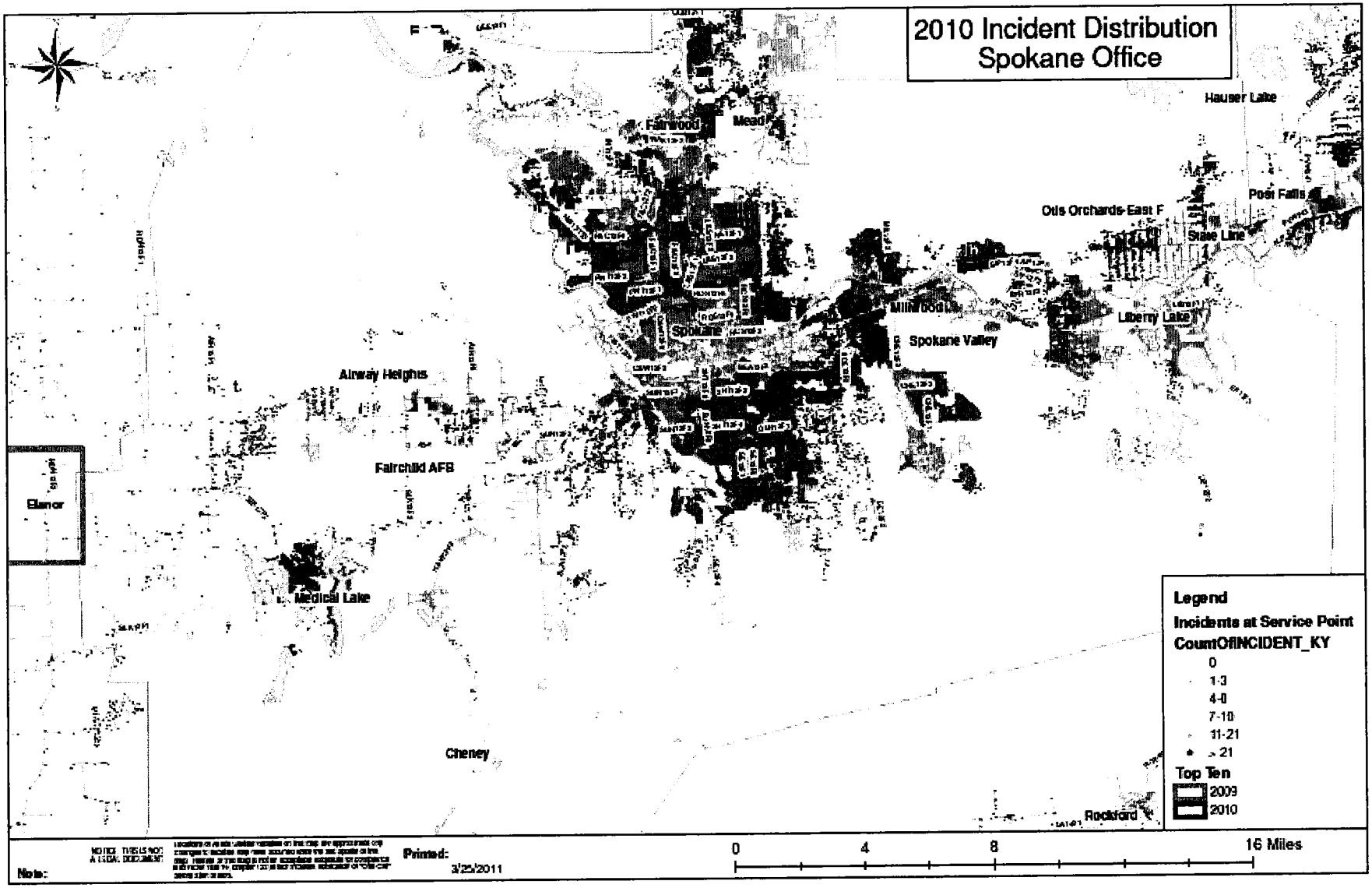


Chart 5.9 - Sandpoint Office - $CEMI_n$

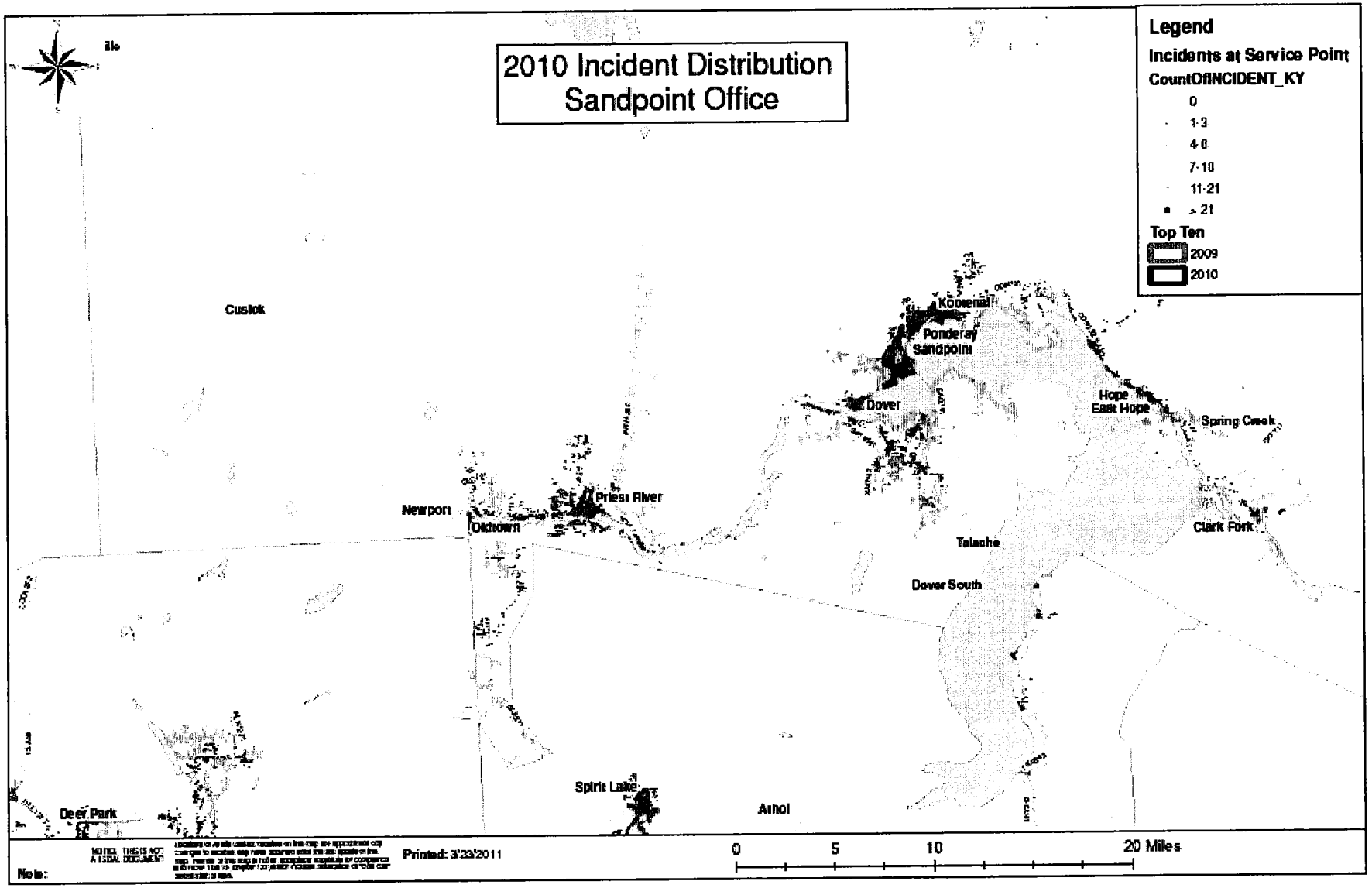


Chart 5.10 - Kellogg Office - CEMI$_n$

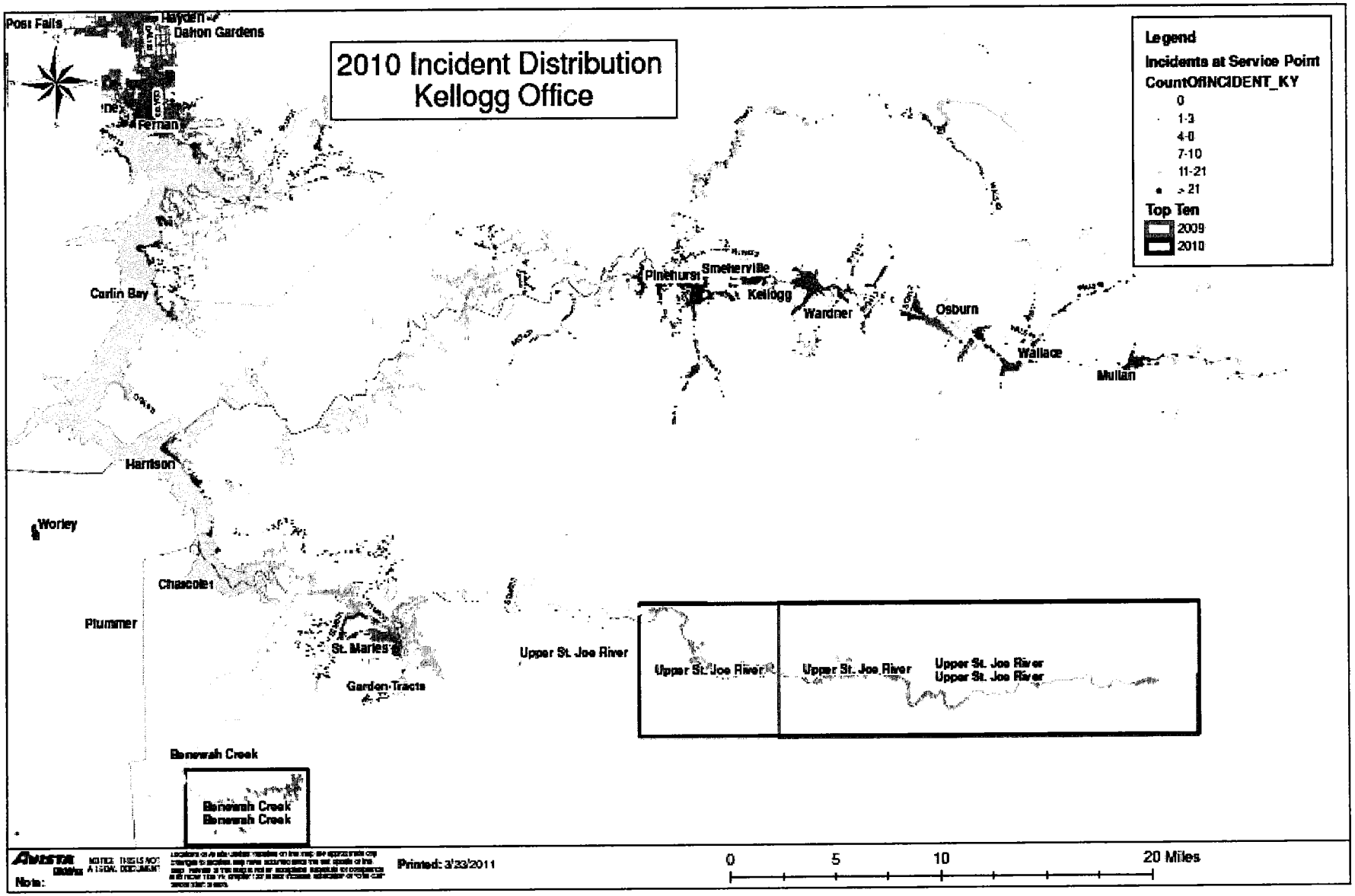


Chart 5.11 - Coeur d'Alene - $CEMI_n$

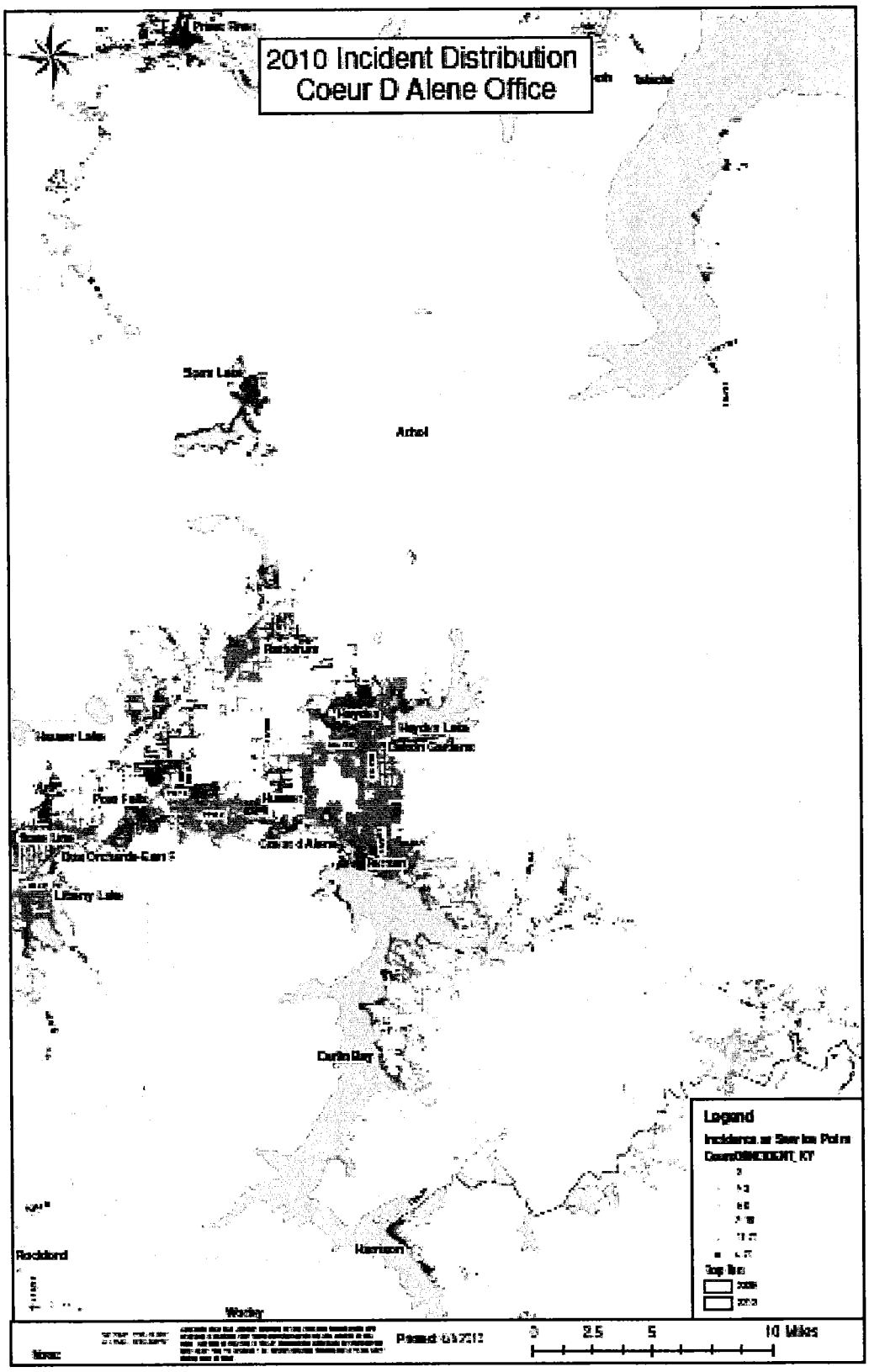
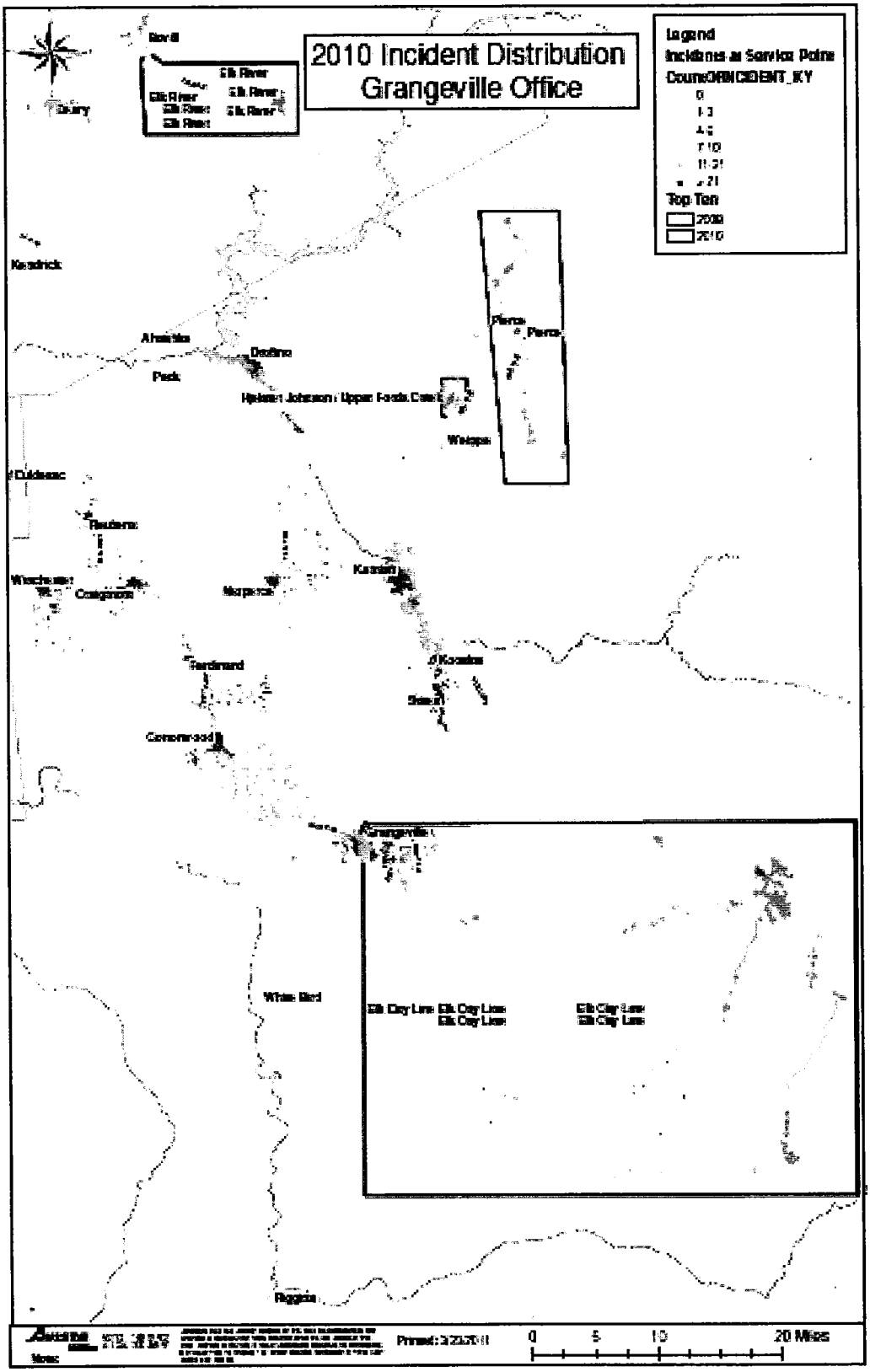


Chart 5.12 - Grangeville Office - $CEMI_n$



Monthly Indices

Each of the following indices, reported by month, shows the variations from month to month. These variations are partially due to inclement weather and, in some cases, reflect incidents of winter snowstorms, seasonal windstorms, and in mid- and late summer lightning storms. They also reflect varying degrees of animal activity causing disruptions in different months of the year.

Chart 6.1 – SAIFI - Sustained Interruptions / Customer

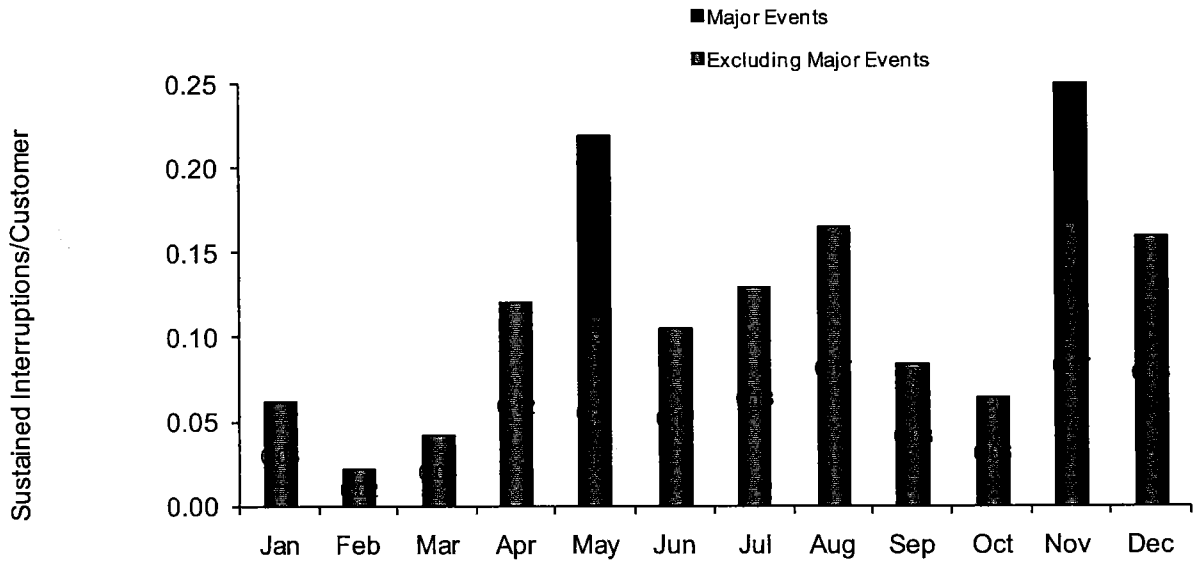


Chart 6.2 - MAIFI Momentary Interruption Events / Customer

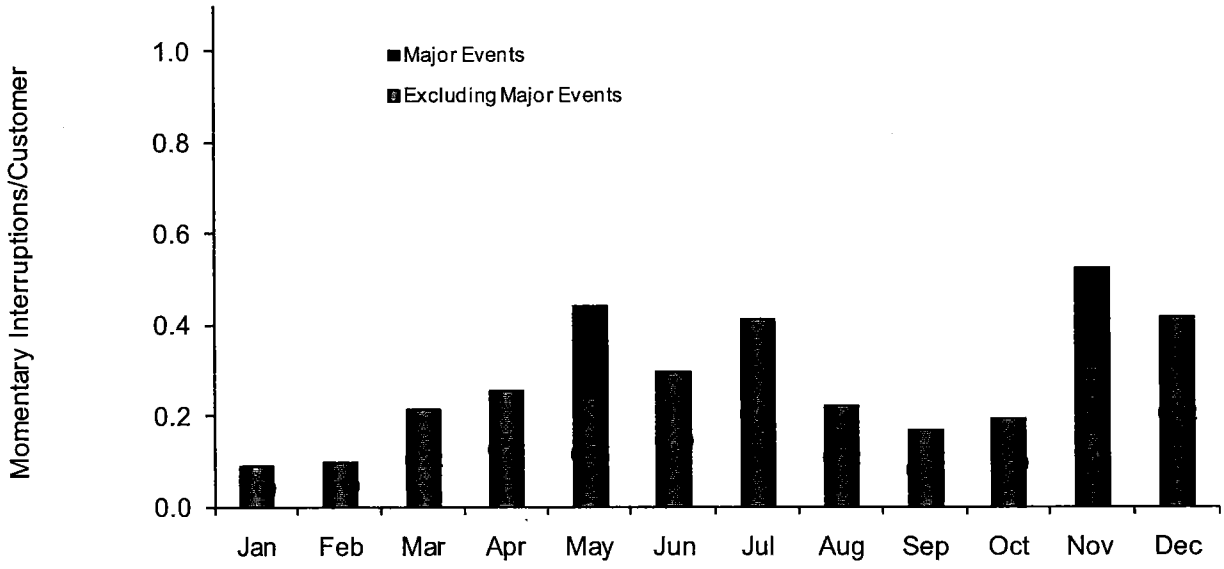


Chart 6.3 - SAIDI – Average Outage Time / Customer

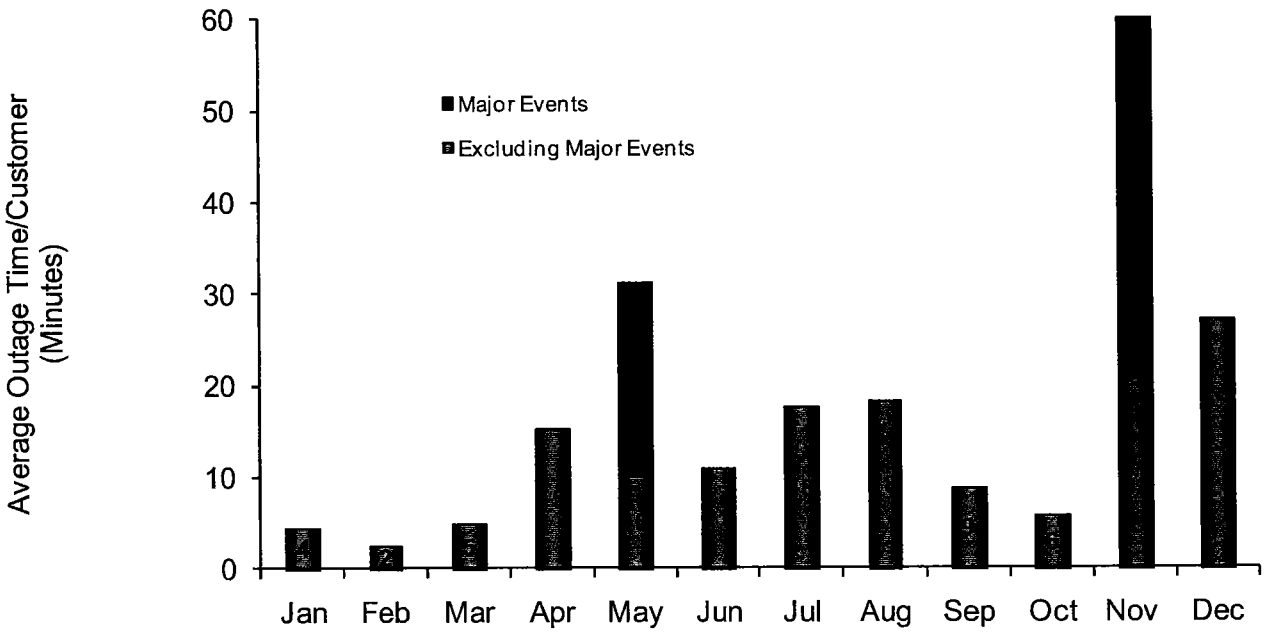
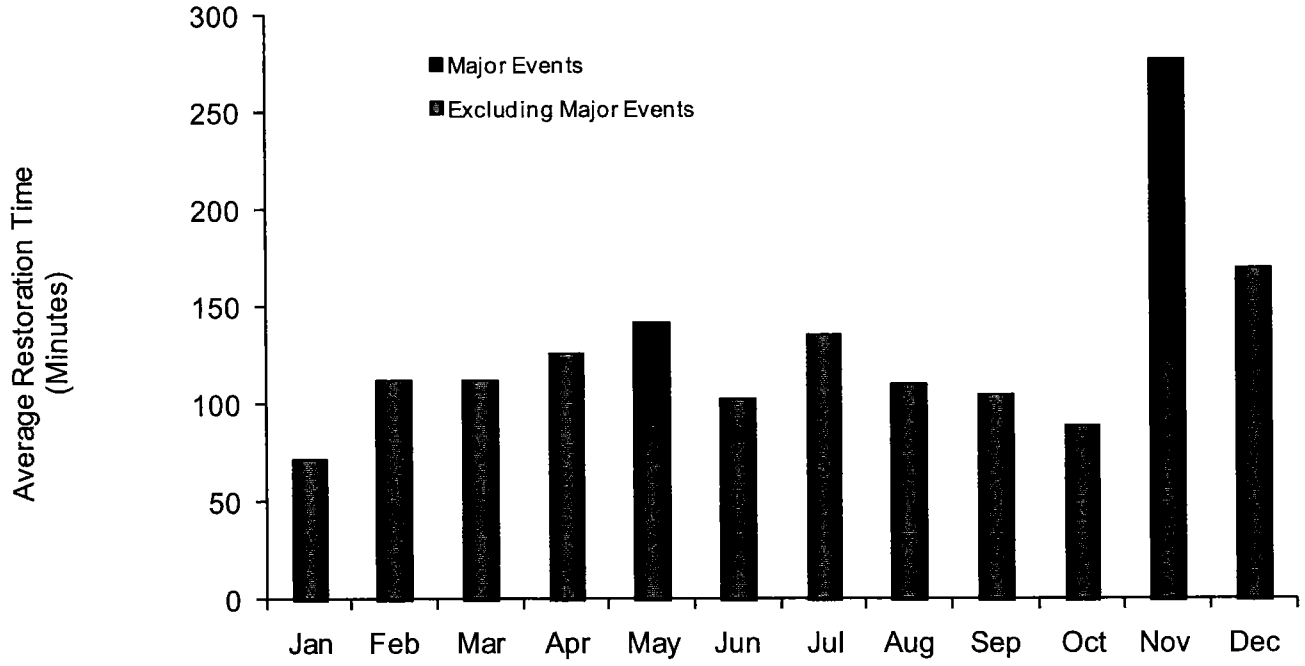


Chart 6.4 - CAIDI – Average Restoration Time



Customer Complaints

Table 7.1 - Commission Complaints

The following is a list of Complaints made to the Commission during this year.

Customer Address	Complaint	Complaint Category	Resolution
Spokane WA Fort Wright 12F3 # 110716	Older neighborhood has experienced two power outages so far this season. Neighbors' service is on but she is part of 19 households that did not have power. Yesterday's outage was 6 1/2 hours in duration. Customer believes the company needs to reinvest in the infrastructure in those neighborhoods that have aging facilities. ...*Customer wants to know what Avista's plans are for reinvesting in the infrastructure/facilities	Outages	Fed by 50KVA 18 Customers C Ph. 9 outages since 11/03. 3 outages in 2010 3/16/10 0:16 Company Hot Line Hold 6/20/10 2:07 Tree/Tree Growth 12/29/10 5:35 Weather snow/Ice Avista responded with a lengthy explanation on February 9, 2011 concerning the Customer recorded outages compared to the Company recorded outages. Customer was satisfied with the explanation and the complaint was closed.

Table 7.2 - Customer Complaints

The following is a list of complaints made to our Customer Service Representatives.

Customer / Feeder	Complaint	Complaint Category	Resolution
Post Falls ID Pleasant View 243	Feeder trip 09/08/10 at 7:20 p m customer upset that it has caused co. money exp the trip is to protect our equip from damaging lines and longer outages wants an incident report emailed to him for their records.	Outages	Avista Account Executive met with customer to go over outages 9/30/10. Customer satisfied with outage information. Customer thought he had automatic transfer switch but it is manual for his company.
Clarkston WA Dry Creek 1208	Wind Outage 11-16-10 Concerned neighbor upset that elderly customer w/out power for long period during outage. Feels should have better communication with agencies to come to aid of elderly. She does not want a call back.	Outages	No callback documented.
Colville WA Orin 12F1	Customer upset that power has been interrupted several time this week. Would like notice if planned outages.	Outages	No Resolution Documented.
Kamiah ID Kamiah 1291	Customer quite upset that her power goes out, and thinks she is the only one. Also wants to complain about call center reps not putting an order for her when she calls. Avista will register complaints.	Outages	No Resolution Documented.
Spokane Valley WA Chester 12F3	Customer outage complaint, says customer feels like when the neighbor called and told us there were sparks in the tree we should have responded before the power went out. Avista to explain that when we have a big wind storm we try to get to everything as quickly as possible. She also wanted me to know that she was frustrated with the lack of information customer service could provide.	Outages	No Resolution Documented.

Customer / Feeder	Complaint	Complaint Category	Resolution
Coeur d'Alene Appleway 111	Customer called to say he is frustrated that our power keeps going out when he is doing important things such as watching movies and working on the computer. Customer said it happened 3-4 times in 1 month alone.	Outages	No Resolution Documented.
Grangeville ID Grangeville 1274	Customer said he is having more outages then normal this year. Thinks maintenance is not being done properly. Avista advised him of the weather we are having along with wind storms this year. Customer responded the weather was bad last year also.	Outages	No Resolution Documented.
Chewelah WA Chewelah 12F2	Customer reported power has been going off and on about 9 - 10 times in the last 30 days. Customer not sure if neighbors are impacted and wants to know what the cause is and why power keeps going off and on	Outages	No Resolution Documented.

Sustained Interruption Causes

Table 8.1 - % SAIFI per Cause by Office

The following table lists the percentage SAIFI contribution by causes for outages excluding major event days.

Reason	CDC	COC	DAC	GRC	KEC	LCC	OTC	PAC	SAC	SPC	DPC	All Offices
ANIMAL	1.5%	1.2%	0.3%	3.3%	6.0%	17.4%	5.4%	2.0%	13.7%	5.1%	10.3%	5.2%
MISCELLANEOUS	0.1%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
POLE FIRE	28.7%	1.9%	1.3%	3.2%	0.3%	1.2%	1.6%	6.9%	0.1%	17.9%	1.9%	8.8%
WEATHER	4.9%	18.1%	29.6%	24.2%	17.0%	25.4%	49.4%	31.7%	2.5%	13.4%	6.2%	17.1%
UNDETERMINED	8.7%	8.5%	15.1%	2.9%	22.8%	1.1%	9.1%	5.8%	5.6%	5.7%	0.2%	7.0%
TREE	13.3%	18.3%	17.8%	13.4%	15.3%	29.7%	4.1%	26.0%	24.4%	15.8%	20.9%	18.2%
PUBLIC	7.9%	8.6%	4.3%	6.8%	7.8%	7.7%	1.2%	10.5%	4.5%	14.4%	7.7%	9.7%
COMPANY	1.5%	0.4%	3.7%	16.8%	0.0%	0.0%	0.0%	3.0%	3.1%	7.5%	6.4%	5.2%
EQUIPMENT OH	25.8%	12.6%	8.3%	10.6%	16.2%	5.9%	14.0%	5.0%	15.8%	4.3%	9.4%	9.5%
EQUIPMENT UG	0.3%	0.5%	3.7%	0.8%	0.5%	2.0%	0.2%	1.1%	0.1%	0.4%	0.6%	0.7%
EQUIPMENT SUB	3.6%	4.8%	2.9%	1.5%	5.8%	0.0%	0.8%	0.8%	26.4%	9.3%	22.9%	8.3%
PLANNED	3.7%	25.1%	13.0%	15.7%	8.3%	9.5%	14.2%	7.3%	3.8%	6.1%	13.6%	10.2%

CDC	Coeur d'Alene
COC	Colville
DAC	Davenport
DPC	Deer Park
GRC	Grangeville
KEC	Kellogg/ St. Maries
LCC	Lewiston-Clarkston
OTC	Othello
PAC	Palouse
SAC	Sandpoint
SPC	Spokane

Chart 8.1 – % SAIFI per Cause by Office

The following chart shows the percentage SAIFI contribution by causes for outages excluding major event days.

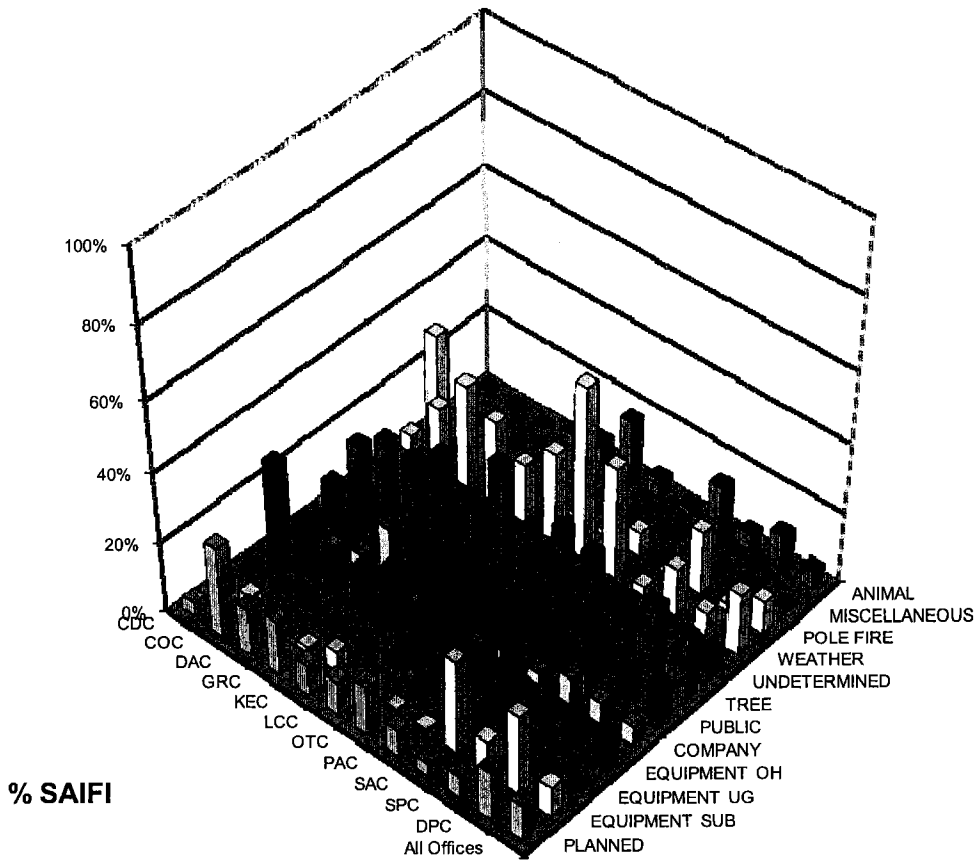


Table 8.2 - % SAIDI per Cause by Office

The following table lists the percentage SAIDI contribution by causes for outages excluding major event days.

Reason	CDC	COC	DAC	GRC	KEC	LCC	OTC	PAC	SAC	SPC	DPC	All Offices
ANIMAL	1.3%	0.5%	0.2%	7.8%	3.7%	5.2%	6.1%	1.3%	9.1%	3.4%	12.9%	3.9%
MISCELLANEOUS	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%
POLE FIRE	23.4%	2.8%	0.8%	2.4%	0.6%	2.5%	3.9%	3.6%	0.2%	15.5%	4.7%	6.3%
WEATHER	8.5%	34.3%	25.4%	21.3%	14.7%	32.9%	54.3%	43.6%	3.9%	21.5%	15.3%	25.5%
UNDETERMINED	3.4%	3.9%	7.9%	2.3%	13.5%	1.0%	6.0%	2.8%	1.9%	4.6%	0.3%	4.3%
TREE	16.9%	25.4%	22.5%	31.7%	22.7%	22.0%	8.7%	23.3%	47.6%	21.6%	26.4%	25.1%
PUBLIC	5.5%	6.0%	2.1%	5.4%	7.4%	9.1%	1.4%	9.9%	6.7%	10.7%	9.8%	7.5%
COMPANY	1.3%	0.2%	0.3%	2.7%	0.0%	0.0%	0.0%	0.7%	0.6%	2.9%	1.8%	1.3%
EQUIPMENT OH	34.6%	9.7%	9.6%	11.9%	14.9%	15.2%	10.3%	7.0%	13.1%	5.9%	10.4%	10.9%
EQUIPMENT UG	0.4%	1.1%	0.2%	1.9%	1.1%	5.4%	0.3%	0.8%	0.5%	1.4%	0.8%	1.2%
EQUIPMENT SUB	3.2%	5.3%	7.9%	1.1%	6.1%	0.0%	0.0%	0.6%	14.7%	6.6%	5.7%	4.8%
PLANNED	1.5%	10.8%	23.0%	10.2%	15.3%	6.7%	8.9%	6.5%	1.8%	5.8%	11.9%	9.0%

CDC	Coeur d'Alene	LCC	Lewiston-Clarkston
COC	Colville	OTC	Othello
DAC	Davenport	PAC	Palouse
DPC	Deer Park	SAC	Sandpoint
GRC	Grangeville	SPC	Spokane
KEC	Kellogg/ St. Maries		

Chart 8.2 – % SAIDI per Cause by Office

The following chart shows the percentage SAIDI contribution by causes for outages excluding major event days.

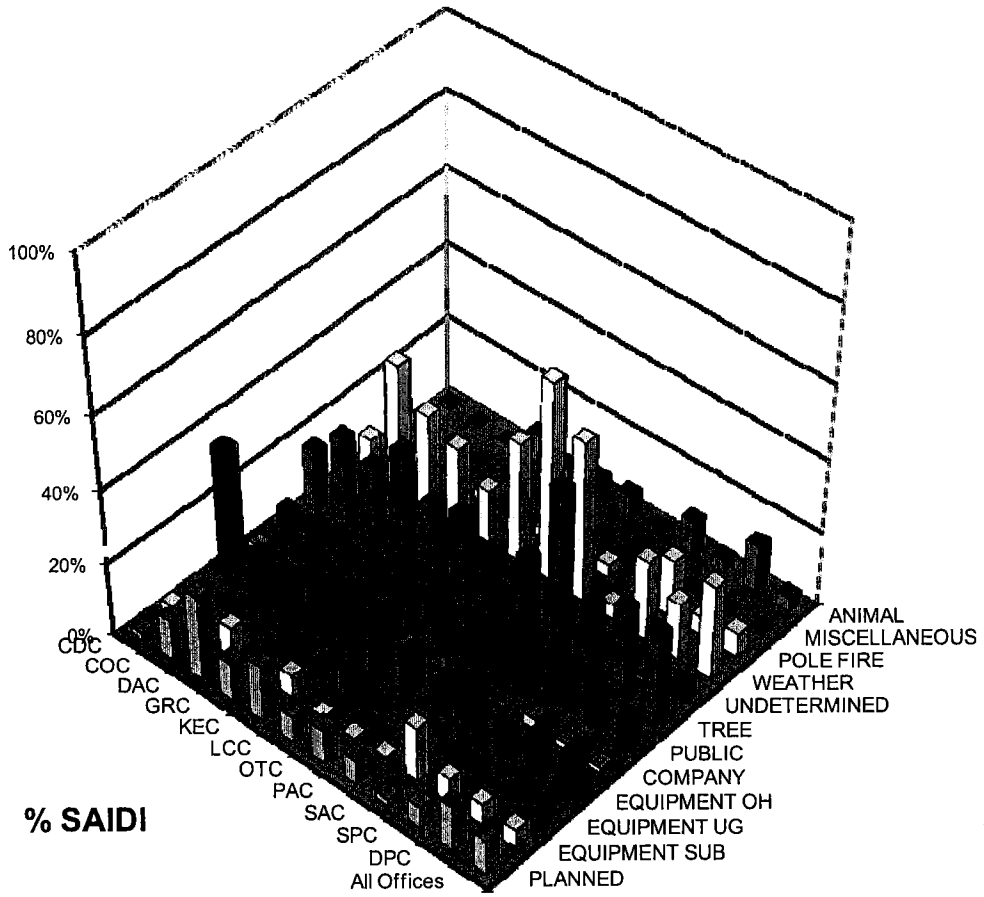


Table 8.3 - % SAIFI per Cause by Month

The following table lists the percentage SAIFI contribution by causes for all outages, excluding major event days.

Reason	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	8.5%	15.4%	1.7%	4.9%	0.9%	9.6%	7.2%	8.1%	1.3%	2.1%	6.8%	1.1%	5.2%
MISCELLANEOUS	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.1%
POLE FIRE	3.9%	4.6%	4.1%	6.1%	0.9%	5.1%	0.2%	42.3%	8.6%	1.2%	0.1%	7.0%	8.8%
WEATHER	0.4%	0.0%	36.5%	19.7%	5.1%	18.8%	36.1%	5.8%	0.4%	0.4%	25.7%	28.9%	17.1%
UNDETERMINED	5.3%	6.0%	4.5%	13.8%	5.0%	6.6%	5.6%	3.6%	10.8%	21.0%	8.0%	1.3%	7.0%
TREE	2.6%	7.7%	15.8%	23.8%	28.2%	14.6%	25.0%	8.4%	4.8%	15.1%	11.8%	36.8%	18.2%
PUBLIC	5.4%	12.7%	13.9%	10.0%	4.0%	2.6%	5.9%	10.9%	19.6%	10.5%	18.5%	5.5%	9.7%
COMPANY	9.1%	0.0%	13.4%	5.9%	3.6%	3.0%	0.0%	1.7%	7.2%	18.0%	10.5%	0.0%	5.2%
EQUIPMENT OH	11.0%	24.6%	6.0%	6.2%	18.9%	4.7%	5.4%	4.9%	3.1%	19.8%	8.7%	14.7%	9.5%
EQUIPMENT UG	0.8%	6.7%	0.4%	0.6%	0.2%	0.4%	1.9%	0.5%	0.7%	0.0%	0.2%	0.3%	0.7%
EQUIPMENT SUB	43.2%	12.0%	0.0%	3.0%	31.2%	20.4%	1.7%	4.3%	4.1%	0.0%	0.0%	0.1%	8.3%
PLANNED	9.7%	10.3%	3.8%	6.0%	1.8%	14.1%	11.0%	9.4%	39.2%	11.7%	9.1%	4.3%	10.2%

Chart 8.3 – % SAIFI per Cause by Month

The following chart shows the percentage SAIFI contribution by causes for all outages, excluding major event days.

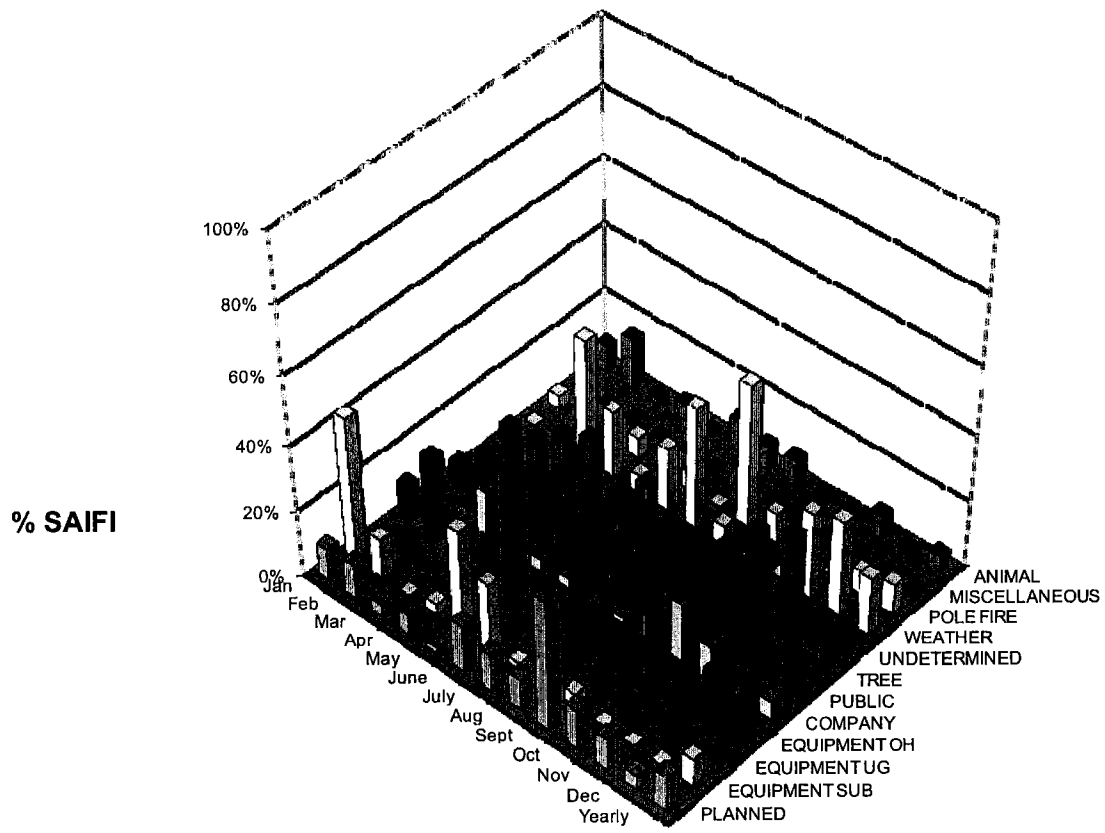


Table 8.4 - % SAIDI per Cause by Month

The following table lists the percentage SAIDI contribution by causes for outages excluding major event days.

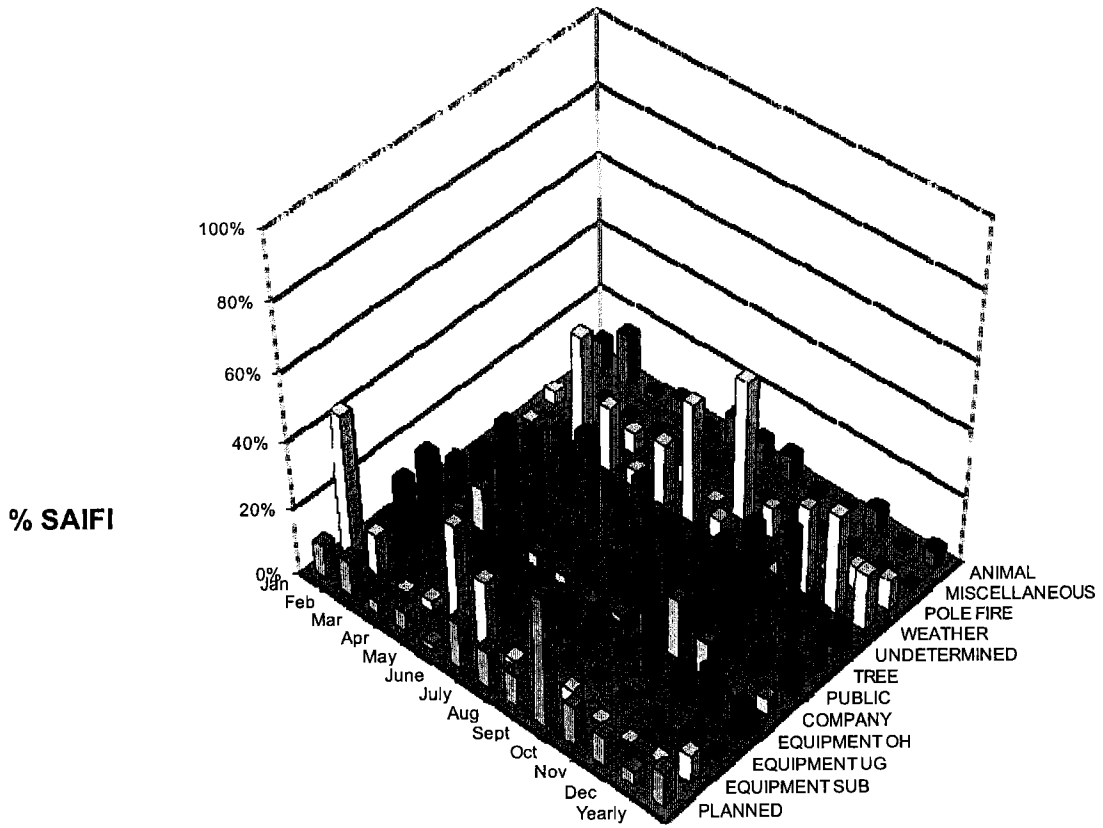
REASON	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	2.4%	12.3%	1.2%	2.9%	0.8%	10.5%	2.2%	11.8%	1.3%	2.7%	2.8%	0.5%	3.9%
MISCELLANEOUS	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.2%
POLE FIRE	7.1%	14.1%	8.9%	7.7%	1.7%	2.9%	0.6%	16.6%	9.3%	2.1%	0.2%	8.8%	6.3%
WEATHER	1.2%	0.0%	42.2%	20.3%	7.8%	23.8%	46.0%	5.9%	0.4%	0.8%	46.2%	37.1%	25.5%
UNDETERMINED	8.4%	4.6%	4.0%	8.2%	2.4%	3.1%	3.3%	4.4%	5.2%	13.9%	4.8%	0.3%	4.3%
TREE	10.6%	9.6%	18.6%	32.2%	41.3%	12.8%	25.7%	21.0%	8.5%	19.6%	23.6%	35.2%	25.1%
PUBLIC	4.4%	21.3%	8.6%	10.0%	6.6%	3.3%	8.0%	11.0%	18.6%	12.1%	3.8%	2.8%	7.5%
COMPANY	3.2%	0.0%	5.3%	1.1%	0.5%	2.6%	0.0%	0.1%	1.9%	5.1%	2.5%	0.0%	1.3%
EQUIPMENT OH	21.2%	13.0%	8.4%	5.9%	24.5%	7.6%	6.8%	4.7%	6.8%	31.4%	9.5%	13.3%	10.9%
EQUIPMENT UG	2.5%	5.7%	0.6%	1.6%	0.8%	1.3%	2.5%	1.1%	1.3%	0.1%	0.5%	0.4%	1.2%
EQUIPMENT SUB	28.2%	13.0%	0.0%	6.1%	11.9%	14.4%	1.4%	5.5%	5.5%	0.0%	0.0%	0.0%	4.8%
PLANNED	10.7%	6.2%	2.2%	4.0%	1.6%	17.8%	3.5%	17.9%	41.4%	12.2%	4.9%	1.6%	9.0%

Table 8.4.1 Average Outage Time (HH:MM)

Reason	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	0:20	1:30	1:19	1:14	1:17	1:52	0:42	2:40	1:40	1:54	0:49	1:19	1:27
COMPANY	0:25	0:00	0:44	0:24	0:11	1:28	1:31	0:09	0:27	0:25	0:29	1:38	0:29
EQUIPMENT OH	2:17	1:00	2:38	2:00	1:56	2:46	2:50	1:47	3:44	2:21	2:13	2:34	2:15
EQUIPMENT SUB	0:46	2:03	0:00	4:12	0:34	1:12	1:51	2:22	2:20	0:00	0:00	0:05	1:08
EQUIPMENT UG	3:48	1:36	3:12	5:46	5:04	5:06	2:56	4:07	2:58	2:50	5:43	4:18	3:28
MISCELLANEOUS	0:19	0:00	0:00	0:00	0:00	2:56	0:00	0:00	0:00	0:00	4:51	2:25	4:27
PLANNED	1:19	1:07	1:05	1:24	1:23	2:10	0:43	3:30	1:50	1:33	1:06	1:01	1:43
POLE FIRE	2:10	5:49	4:02	2:40	2:44	0:59	6:16	0:43	1:52	2:36	3:26	3:33	1:25
PUBLIC	0:57	3:10	1:09	2:07	2:27	2:07	3:02	1:51	1:39	1:42	0:25	1:27	1:31
TREE	4:49	2:20	2:12	2:52	2:12	1:31	2:19	4:36	3:05	1:55	4:04	2:42	2:43
UNDETERMINED	1:55	1:26	1:41	1:15	0:43	0:48	1:19	2:16	0:50	0:59	1:12	0:41	1:11
WEATHER	3:21	0:00	2:10	2:10	2:15	2:10	2:52	1:50	1:35	2:46	3:39	3:38	2:56

Chart 8.4 – % SAIDI per Cause by Month

The following chart shows the percentage SAIFI contribution by causes for outages excluding major event days.



Momentary Interruption Causes

The cause for many momentary interruptions is unknown. Because faults are temporary, the cause goes unnoticed even after the line is patrolled. Momentary outages are recorded using our SCADA system (System Control and Data Acquisition). On average, about 88% of Avista's customers are served from SCADA controlled stations.

Table 9.1 - % MAIFI per Cause by Office

The following table lists the percentage MAIFI contribution by causes for outages excluding major event days.

REASON	CDC	COC	DAC	GRC	KEC	LCC	OTC	PAC	SAC	SPC	DPC	All Offices
ANIMAL	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	2.8%	1.6%	2.4%	0.0%	1.2%
POLE FIRE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	0.7%	0.0%	0.3%
WEATHER	26.0%	15.5%	19.5%	13.2%	12.1%	26.0%	10.8%	40.9%	31.7%	29.7%	0.0%	25.9%
TREE	0.0%	0.0%	0.0%	0.0%	13.7%	1.0%	0.0%	0.3%	1.1%	0.6%	0.0%	0.6%
PUBLIC	1.4%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%	1.2%	0.9%	4.3%	0.0%	1.5%
COMPANY	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	0.8%	0.0%	0.4%
UNDETERMINED	69.6%	78.7%	78.5%	85.6%	72.0%	71.8%	85.9%	52.0%	62.8%	55.0%	0.0%	67.5%
EQUIPMENT UG	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
EQUIPMENT OH	2.3%	1.9%	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.9%	2.8%	0.0%	1.1%
PLANNED	0.0%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
EQUIPMENT SUB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.4%
FORCED OUTAGE	0.7%	0.0%	0.9%	0.1%	2.3%	0.5%	3.3%	1.9%	0.0%	2.3%	0.0%	1.0%

CDC	Coeur d'Alene	LCC	Lewiston-Clarkston
COC	Colville	OTC	Othello
DAC	Davenport	PAC	Palouse
DPC	Deer Park	SAC	Sandpoint
GRC	Grangeville	SPC	Spokane
KEC	Kellogg/ St. Maries		

Table 9.1.1 - % MAIFI per Cause by Office (Washington only)

The following table lists the percentage MAIFI contribution by causes for outages excluding major event days.

REASON	COC	DAC	OTC	SPC	DPC	PAC-WA	LCC-WA	All WA Offices
ANIMAL	1.17%	0.25%	5.43%	5.08%	10.26%	3.12%	1.63%	4.45%
COMPANY	0.44%	3.73%	0.00%	7.52%	6.45%	5.82%	0.04%	5.37%
MISCELLANEOUS	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.00%	0.00%
POLE FIRE	1.86%	1.31%	1.62%	17.95%	1.90%	11.55%	0.00%	10.90%
PUBLIC	8.63%	4.27%	1.20%	14.40%	7.66%	10.79%	0.71%	11.10%
TREE	18.26%	17.80%	4.05%	15.85%	20.87%	14.52%	62.71%	16.84%
UNDETERMINED	8.53%	15.09%	9.13%	5.74%	0.20%	7.91%	1.71%	6.45%
WEATHER	18.10%	29.65%	49.40%	13.35%	6.17%	32.16%	7.93%	17.29%
EQUIPMENT OH	12.64%	8.27%	14.04%	4.32%	9.44%	4.96%	17.91%	7.19%
EQUIPMENT UG	0.52%	3.68%	0.18%	0.38%	0.58%	1.66%	1.67%	0.73%
EQUIPMENT SUB	4.77%	2.93%	0.76%	9.33%	22.89%	1.50%	0.00%	8.52%
PLANNED	25.08%	13.03%	14.18%	6.09%	13.59%	5.99%	5.68%	11.17%

COC	Colville	OTC	Othello
DAC	Davenport	PAC-WA	Palouse Washington
DPC	Deer Park	SPC	Spokane
LCC-WA	Lewiston-Clarkston Washington		

Chart 9.1 – % MAIFI per Cause by Office

The following chart shows the percentage MAIFI contribution by causes for outages excluding major event days.

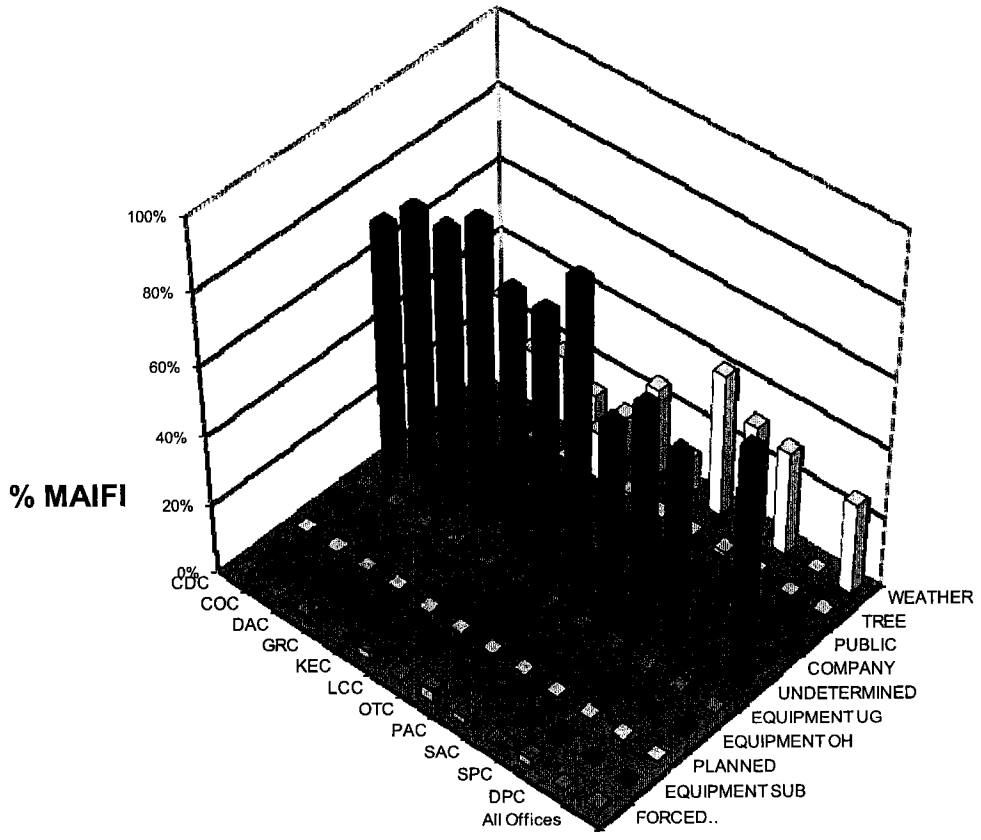


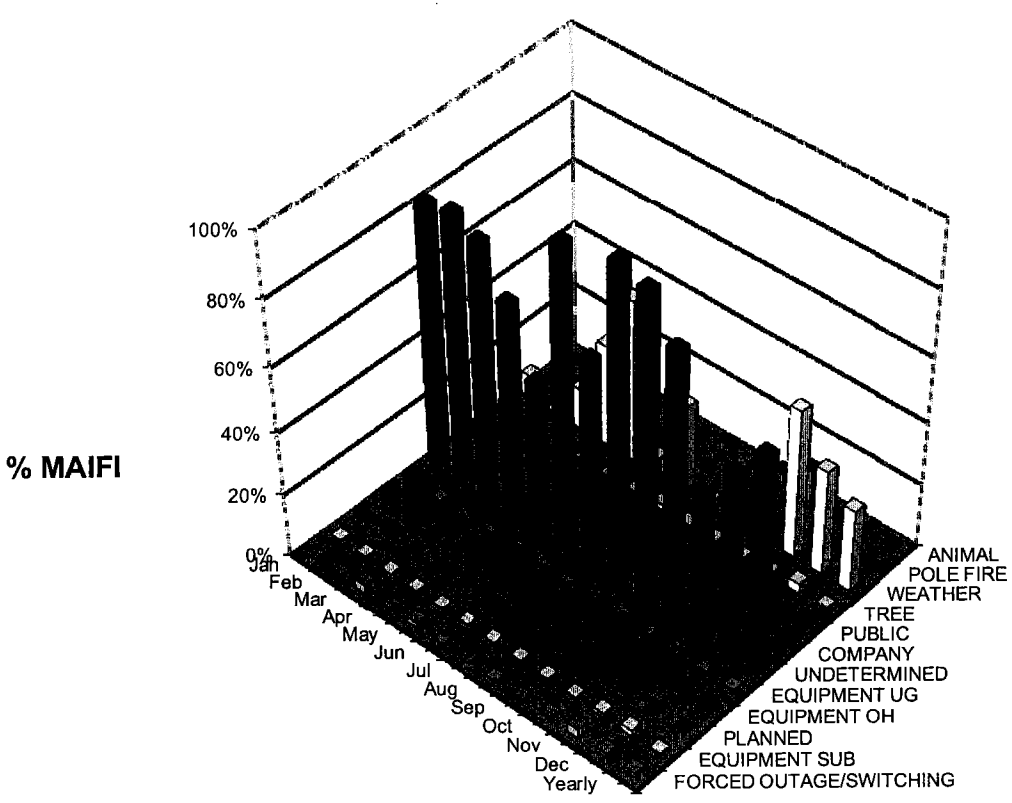
Table 9.2 - % MAIFI per Cause by Month

The following table lists the percentage MAIFI contribution by causes for outages excluding major event days.

REASON	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec	Yearly
ANIMAL	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.1%	0.0%	4.4%	10.5%	0.0%	0.0%	1.2%
POLE FIRE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.0%	0.3%
WEATHER	7.2%	0.0%	12.8%	32.0%	50.9%	5.6%	27.8%	1.7%	0.0%	0.0%	47.0%	33.0%	25.9%
TREE	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	0.6%	2.9%	0.6%
PUBLIC	7.1%	0.0%	2.1%	0.6%	0.0%	0.0%	1.9%	0.0%	1.0%	3.1%	4.0%	0.0%	1.5%
COMPANY	0.0%	0.0%	2.1%	0.2%	0.0%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	1.1%	0.4%
UNDETERMINED	82.3%	83.9%	80.2%	66.8%	47.6%	93.8%	64.8%	97.6%	94.7%	82.8%	43.6%	56.5%	67.5%
EQUIPMENT UG	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
EQUIPMENT OH	3.3%	14.2%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	3.1%	0.9%	1.8%	1.1%
PLANNED	0.0%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
EQUIPMENT SUB	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	1.6%	0.4%
FORCED OUTAGE	0.0%	0.0%	2.8%	0.5%	1.5%	0.0%	0.0%	0.0%	0.0%	0.6%	2.8%	1.1%	1.0%

Chart 9.2 – % MAIFI per Cause by Month

The following chart shows the percentage MAIFI contribution by causes for outages excluding major event days.



Major Event Day Causes

Chart 10.1 – % SAIFI by Cause Code for the Major Event Days

The following chart shows the percentage SAIFI contribution by causes for outages during major event days

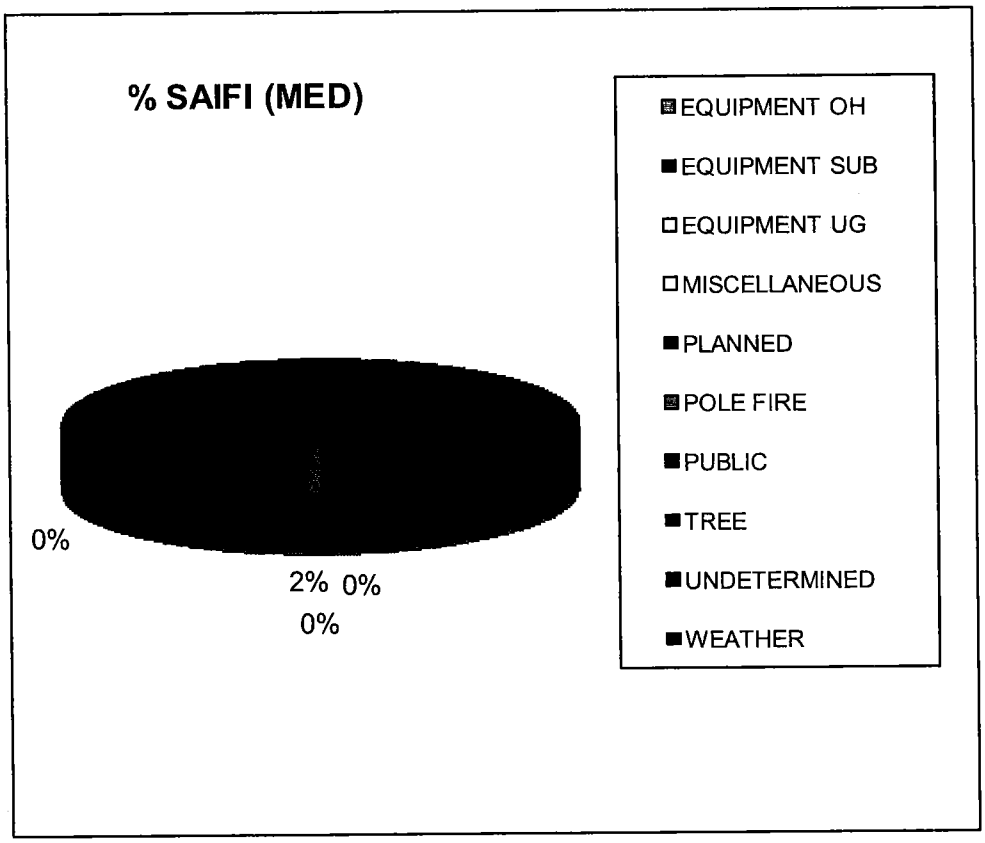


Table 10.1 – % SAIFI by Sub Cause Code for the Major Event Days

The following table shows the SAIFI contribution and Customer hours by sub causes code for the three main outage causes during major event days.

Cause Code	Sub reason	Sum of Ni	Sum of ri x Ni (hours)
EQUIPMENT OH	Crossarm-rotten	648	3682:48
	Pole-rotten	22	1127:30
	Regulator	269	493:10
Total		939	5303:28
POLE FIRE	Pole Fire	55	58:40
Total		55	58:40
TREE	Tree Fell	2327	4109:02
	Weather	15675	73352:33
Total		18002	77461:35
WEATHER	Lightning	1034	740:14
	Wind	72951	450847:30
Total		73985	451587:44

Table 10.2 – Yearly Summary of the Major Event Days

Table 10.2 is provided as an initial review of Major Event Day information. The main premise of the IEEE Major Event Day calculation is that using the 2.5b method should classify 2.3 days each year as MED's. The following table shows the previous major event days, the daily SAIDI value and the relationship of the yearly T_{MED}.

Year	Date	SAIDI	T_{MED}
2004	05-21-2004	7.11	6.35
	08-02-2004	7.36	
	12-08-2004	31.00	
2005	06-21-2005	39.53	4.916
	06-22-2005	9.03	
	08-12-2005	19.60	
2006	01-11-2006	12.10	7.058
	03-09-2006	8.58	
	11-13-2006	30.79	
	12-14-2006	29.26	
	12-15-2006	158.31	
2007	01-06-2007	9.98	8.017
	06-29-2007	32.64	
	07-13-2007	12.79	
	08-31-2007	21.30	
2008	01-27-2008	17.57	9.224
	07-10-2008	36.74	
	08-18-2008	9.49	
2009	None		9.925
2010	5/3/2010	21.04	11.110
	11/16/2010	68.67	
2011			10.848

Interruption Cause Codes

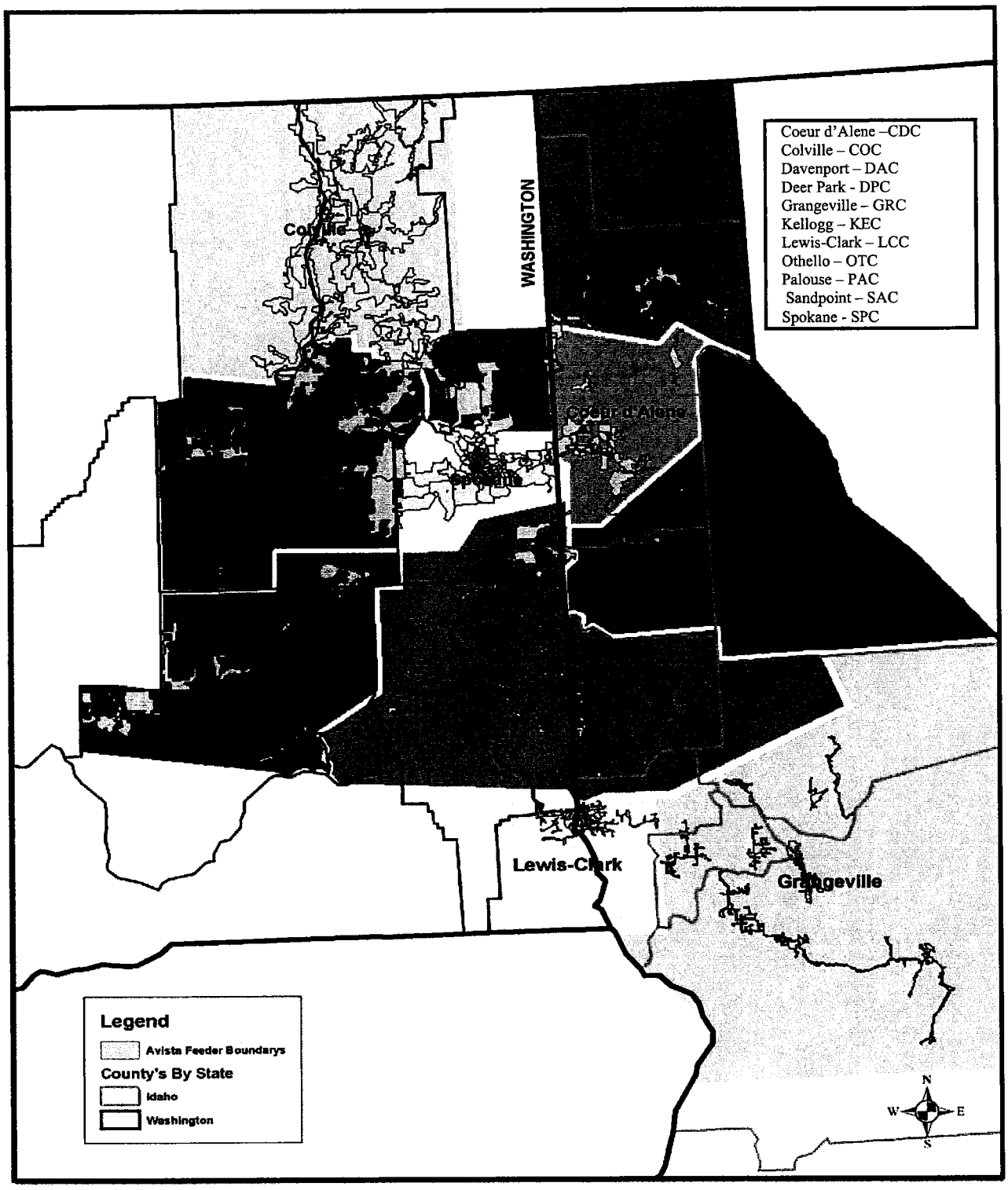
Table 11.1 – Interruption Cause Codes

MAIN CATEGORY	Proposed (Changes Only)	SUB CATEGORY	Proposed (Changes Only)	Definition
ANIMAL		Bird		Outages caused by animal contacts. Specific animal called out in sub category.
		Protected	Delete in 2011	No longer a need to use this subreason.
		Squirrel		
		Underground		
		Other		
PUBLIC		Car Hit Pad		Underground outage due to car, truck, construction equipment etc. contact with pad transformer, junction enclosure etc...
		Car Hit Pole		Overhead outage due to car, truck, construction equipment etc. contact with pole, guy, neutral etc.
		Dig In		Dig in by a customer, a customer's contractor, or another utility.
		Fire		Outages caused by or required for a house/structure or field/forest fire.
		Tree		Homeowner, tree service, logger etc. fells a tree into the line.
		Other		Other public caused outages
COMPANY		Dig in		Dig in by company or contract crew.
		Other		Other company caused outages
EQUIPMENT OH		Arrestors		Outages caused by equipment failure. Specific equipment called out in sub category.
		Capacitor		
		Conductor - Pri		
		Conductor - Sec		
		Connector - Pri		
		Connector - Sec		
		Crossarm- rotten		
		Cutout / Fuse		
		Insulator		
		Insulator Pin		
		Other		
		Pole - Rotten		
		Recloser		
		Regulator		
		Switch / Disconnect		
		Transformer - OH		
		Wildlife Guard		Wildlife guard failed or caused an outage
EQUIPMENT UG		URD Cable - Pri		Outages caused by equipment failure. Specific equipment called out in sub category.
		URD Cable- Sec		
		Connector - Sec		
		Elbow		
		Junctions		
		Primary Splice		
		Termination		
		Transformer - UG		
		Other		

MAIN CATEGORY Proposed (Changes Only)	SUB CATEGORY Proposed (Changes Only)	Definition
EQUIPMENT SUB	High side fuse Bus Insulator High side PCB High side Swt / Disc Low side OCB/Recloser Low side Swt / Disc Relay Misoperation Regulator Transformer Other	
MISCELLANEOUS	SEE REMARKS	For causes not specifically listed elsewhere
NOT OUR PROBLEM (*Outages in this category are not included in reported statistics*)	Customer Equipment SEE REMARKS	Customer equipment causing an outage to their service. If a customer causes an outage to another customer this is covered under Public.
	Other Utility	Outages when another utility's facilities cause an outage on our system.
POLE FIRE		Used when water and contamination causes insulator leakage current and fire. If insulator is leaking due to material failure list under equipment failure. If cracked due to gunfire use customer caused other.
PLANNED	Maintenance / Upgrade Forced	Outage, normally prearranged, needed for normal construction work Outage scheduled to repair outage damage
TREE	Tree fell	For outages when a tree falls into distribution primary/secondary or transmission during normal weather
	Tree growth	Tree growth causes a tree to contact distribution primary/secondary or transmission during normal weather.
	Service	For outages when a tree falls or grows into a service.
	Weather	When snow and wind storms causes a tree or branch to fall into, or contact the line. Includes snow loading and unloading.
UNDETERMINED		Use when the cause cannot be determined
WEATHER	Snow / Ice	Outages caused by snow or ice loading or unloading on a structure or conductor. Use weather tree for snow and ice loading on a tree.
	Lightning	Lightning flashovers without equipment damage. Equipment failures reported under the equipment type.
	Wind	Outages when wind causes conductors to blow into each other, another structure, building etc.

Office Areas

Chart 12.1 – Office Areas



Indices Calculations

Sustained Interruption

- An interruption lasting longer than 5 minutes.

Momentary Interruption Event

- An interruption lasting 5 minutes or less. The event includes all momentary interruptions occurring within 5 minutes of the first interruption. For example, when an interrupting device operates two, three, or four times and then holds, it is considered a single event.

SAIFI – System Average Interruption Frequency Index

- The average number of sustained interruptions per customer
- = The number of customers which had ***sustained interruptions*** / Total number of customers served
- = $\frac{\sum N_i}{N_T}$

$MAIFI_E$ – Momentary Average Interruption Event Frequency Index

- The average number of momentary interruption events per customer
- = The number of customers which had ***momentary interruption events*** / Total number of customers served
- = $\frac{\sum ID_E N_i}{N_T}$
- MAIFI can be calculated by one of two methods. Using the number of momentary interruptions or the number momentary events. This report calculates $MAIFI_E$ using momentary events. The event includes all momentary interruptions occurring within 5 minutes of the first interruption. For example, when an automatic interrupting device opens and then recloses two, or three times before it remains closed, it is considered a single event.

SAIDI – System Average Interruption Duration Index

- Average sustained outage time per customer
- = Outage duration multiplied by the customers effected for all ***sustained interruptions*** / Total number of customers served
- = $\frac{\sum r_i N_i}{N_T}$

CAIDI – Customer Average Interruption Duration Index

- Average restoration time
- = Outage duration multiplied by the customers effected for all ***sustained interruptions***
  The number of customers which had ***sustained interruptions***
- = $\frac{\sum r_i N_i}{\sum N_i}$

Quantities
i = An interruption event;
r_i *= Restoration time for each interruption event;*
T = Total;
ID_E *= Number of interrupting device events;*
N_i *= Number of interrupted customers for each interruption event during the reporting period;*
N_T *= Total number of customers served for the area being indexed;*

$CEMI_n$ – Customers Experiencing Multiple Sustained Interruptions more than n.

- $CEMI_n$
- = Total Number of Customers that experience more than *n* **sustained interruptions**
  Total Number of Customers Served
- = $\frac{CN_{(k>n)}}{N_T}$

$CEMSMI_n$ – Customers experiencing multiple sustained interruption and momentary interruption events.

- CEMSMIn
- = Total Number of Customers experiencing more than *n* **interruptions**
  Total Number of Customers Served
- = $\frac{CNT_{(k>n)}}{N_T}$

MED - Major Event Day

A major event day is a day in which the daily system SAIDI exceeds a threshold value. Its purpose is to allow major events to be studied separately from daily operation, and in the process, to better reveal trends in daily operation that would be hidden by the large statistical effect of major events.

T_{MED} is calculated (taken from the IEEE 1366-2003 Standard)
The major event day identification threshold value, T_{MED}, is calculated at the end of each reporting period (typically one year) for use during the next reporting period as follows:

a) Collect values of daily SAIDI for five sequential years ending on the last day of the last complete reporting period. If fewer than five years of historical data are available, use all available historical data until five years of historical data are available.
b) Only those days that have a SAIDI/Day value will be used to calculate the T_{MED} (do not include days that did not have any interruptions).
c) Take the natural logarithm (ln) of each daily SAIDI value in the data set.
d) Find $\hat{a}$(Alpha), the average of the logarithms (also known as the log-average) of the data set.
e) Find $\hat{b}$(Beta), the standard deviation of the logarithms (also known as the log-standard deviation) of the data set.
f) Compute the major event day threshold, TMED, using equation (25).

$$T_{MED} = e^{(a+2.5\,b)} \qquad (25)$$

g) Any day with daily SAIDI greater than the threshold value TMED that occurs during the subsequent reporting period is classified as a major event day. Activities that occur on days classified as major event days should be separately analyzed and reported.

Numbers of Customers Served

The following numbers of customers were based on the customers served at the beginning of the year. These numbers were used to calculate indices for this report.

Table 13.1 – Numbers of Customers Served

Office	Customers	% of Total
Coeur d'Alene	50,118	13.9%
Colville	18,059	5.0%
Davenport	6,911	1.9%
Deer Park	10,451	2.9%
Grangeville	10,165	2.8%
Kellogg/St. Maries	14,283	4.0%
Lewis-Clark	29,231	8.1%
Othello	6,686	1.9%
Palouse	38,067	10.5%
Sandpoint	14,583	4.0%
Spokane	162,389	45.0%
System Total	**360,943**	

Attachment 1 – SAIDI and SAIFI Historical Summary

See attachment.

Company Contact

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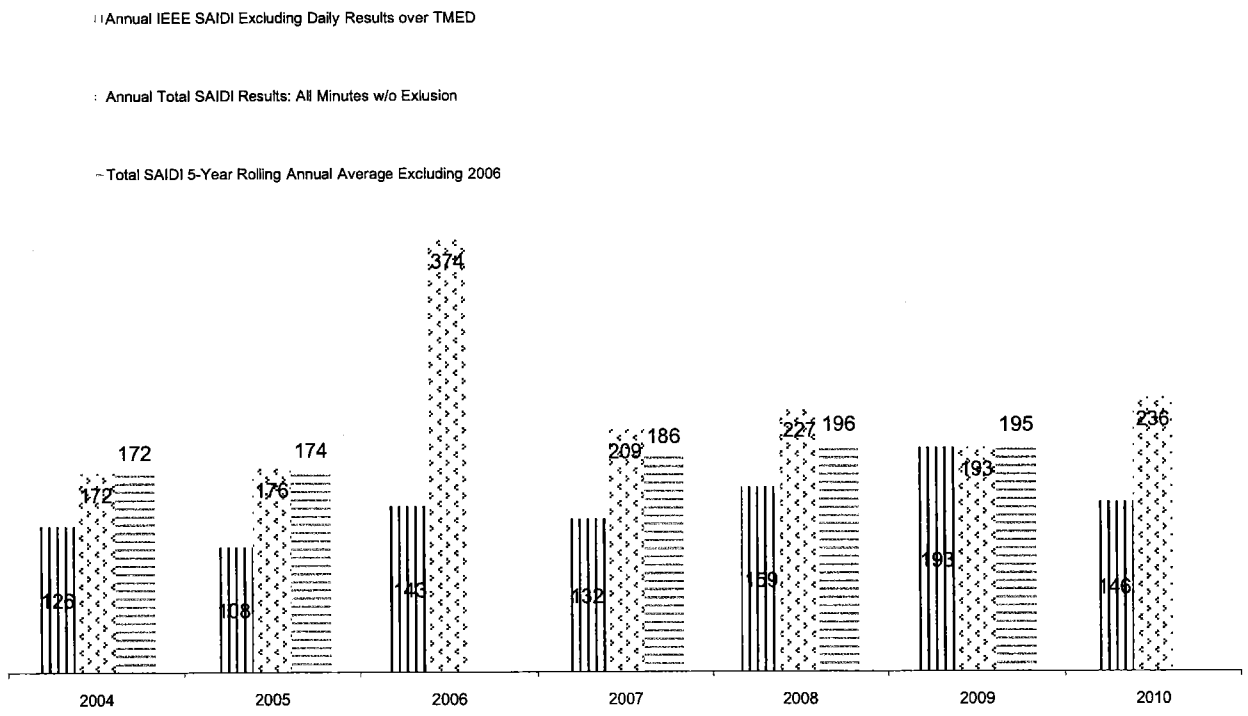
2004-2010 AVA SAIDI Performance in Different Measurements
(Average number of outage minutes per customer per year)

As of December 31, 2010

Table 1: 2004-2010 AVA SAIDI Performance by Measurement by Year

Year	Calendar Year	Annual IEEE SAIDI Excluding Daily Results over T_{MED}	Annual Total SAIDI Results: All Minutes w/o Exlusion	Annual Total SAIDI Results Excluding 2006	Total SAIDI 5-Year Rolling Annual Average Excluding 2006	
1	2004	126	172	172	172	
2	2005	108	176	176	174	Baseline
3	2006	143	374			
4	2007	132	209	209	186	
5	2008	159	227	227	196	
6	2009	193	193	193	195	
7	2010	146	236	236	202	
		210				Target

Chart 1: 2004-2010 AVA SAIDI Performance in Different Measurements by Year



2004 - 2010 AVA SAIFI Performance in Different Measurements (Average number of interruptions per year per customer)

As of December 31, 2010

Table 1: 2004 - 2010 AVA SAIFI Performance by Measurement by Year

Year	Calendar Year	Annual IEEE SAIFI Excluding Daily Results over TMED	Annual Total SAIFI Results: All Minutes w/o Exlusion	Annual Total SAIFI Results Excluding 2006	Total SAIFI 5-Year Rolling Annual Average Excluding 2006	
1	2004	1.01	1.13	1.13	1.13	
2	2005	0.97	1.17	1.17	1.15	Baseline
3	2006	1.29	1.91			
4	2007	1.14	1.40	1.40	1.23	
5	2008	1.40	1.60	1.60	1.33	
6	2009	1.52	1.52	1.52	1.36	
7	2010	1.23	1.49	1.49	1.39	
		1.70				Target

Chart 1: 2004-2010 AVA SAIFI Performance in Different Measurements by Year