

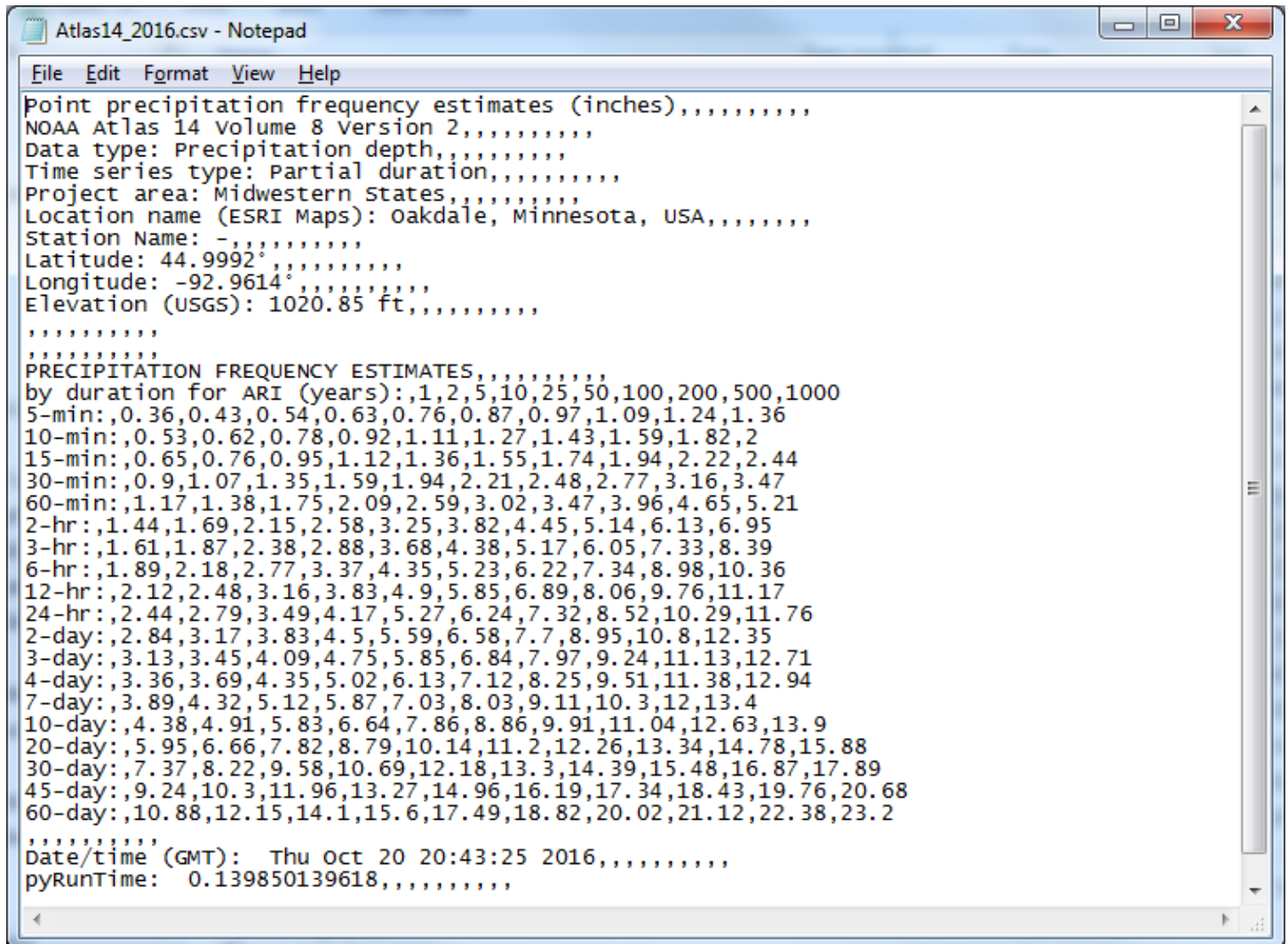
# Importing Atlas 14 Data into HydroCAD

## Export Data from Atlas 14 Precipitation Data Frequency Server

Data should be exported and edited if necessary so that when open in a text editor it looks like file below. See helpsheet

**Downloading Data Using Internet Explorer 8** on the Atlas 14 web page.

[http://ihub/bridge/hydraulics/atlas14/pdf/Atlas\\_14\\_DownloadingDataUsingInternetExplorer8.pdf](http://ihub/bridge/hydraulics/atlas14/pdf/Atlas_14_DownloadingDataUsingInternetExplorer8.pdf)



```
Atlas14_2016.csv - Notepad
File Edit Format View Help
Point precipitation frequency estimates (inches),,,,,,,,,
NOAA Atlas 14 Volume 8 Version 2,,,,,,,,
Data type: Precipitation depth,,,,,,,,
Time series type: Partial duration,,,,,,,,
Project area: Midwestern States,,,,,,,,
Location name (ESRI Maps): Oakdale, Minnesota, USA,,,,,,,,
Station Name: -,,,,,,,,,
Latitude: 44.9992°,,,,,,,,,
Longitude: -92.9614°,,,,,,,,,
Elevation (USGS): 1020.85 ft,,,,,,,,
,,,,,,,,
PRECIPITATION FREQUENCY ESTIMATES,,,,,,,,
by duration for ARI (years):,1,2,5,10,25,50,100,200,500,1000
5-min:,0.36,0.43,0.54,0.63,0.76,0.87,0.97,1.09,1.24,1.36
10-min:,0.53,0.62,0.78,0.92,1.11,1.27,1.43,1.59,1.82,2
15-min:,0.65,0.76,0.95,1.12,1.36,1.55,1.74,1.94,2.22,2.44
30-min:,0.9,1.07,1.35,1.59,1.94,2.21,2.48,2.77,3.16,3.47
60-min:,1.17,1.38,1.75,2.09,2.59,3.02,3.47,3.96,4.65,5.21
2-hr:,1.44,1.69,2.15,2.58,3.25,3.82,4.45,5.14,6.13,6.95
3-hr:,1.61,1.87,2.38,2.88,3.68,4.38,5.17,6.05,7.33,8.39
6-hr:,1.89,2.18,2.77,3.37,4.35,5.23,6.22,7.34,8.98,10.36
12-hr:,2.12,2.48,3.16,3.83,4.9,5.85,6.89,8.06,9.76,11.17
24-hr:,2.44,2.79,3.49,4.17,5.27,6.24,7.32,8.52,10.29,11.76
2-day:,2.84,3.17,3.83,4.5,5.59,6.58,7.7,8.95,10.8,12.35
3-day:,3.13,3.45,4.09,4.75,5.85,6.84,7.97,9.24,11.13,12.71
4-day:,3.36,3.69,4.35,5.02,6.13,7.12,8.25,9.51,11.38,12.94
7-day:,3.89,4.32,5.12,5.87,7.03,8.03,9.11,10.3,12,13.4
10-day:,4.38,4.91,5.83,6.64,7.86,8.86,9.91,11.04,12.63,13.9
20-day:,5.95,6.66,7.82,8.79,10.14,11.2,12.26,13.34,14.78,15.88
30-day:,7.37,8.22,9.58,10.69,12.18,13.3,14.39,15.48,16.87,17.89
45-day:,9.24,10.3,11.96,13.27,14.96,16.19,17.34,18.43,19.76,20.68
60-day:,10.88,12.15,14.1,15.6,17.49,18.82,20.02,21.12,22.38,23.2
,,,,,,,,
Date/time (GMT): Thu Oct 20 20:43:25 2016,,,,,,,,
pyRunTime: 0.139850139618,,,,,,,,
```

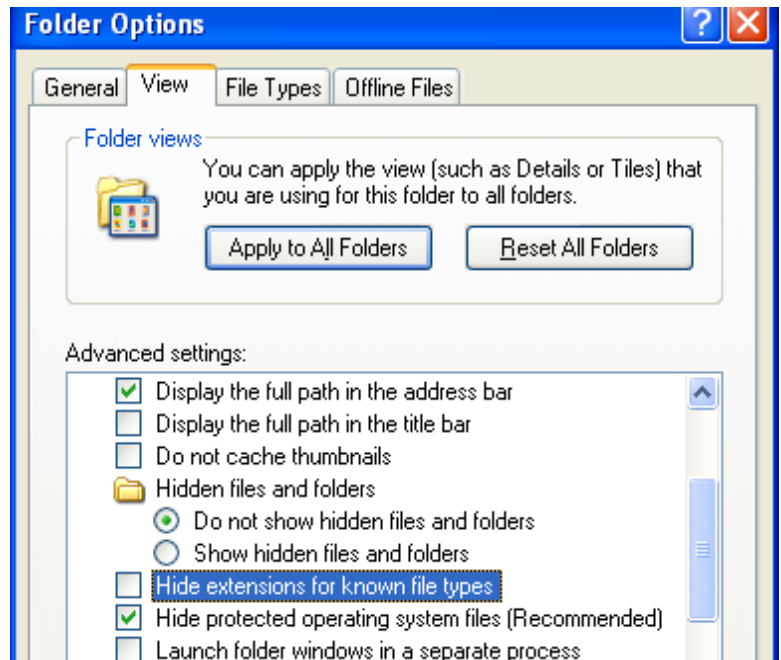
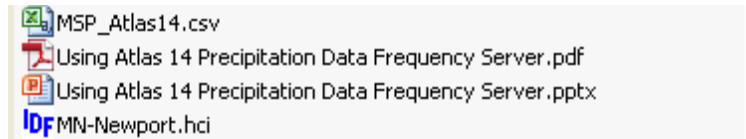
## Open Data file in HydroCAD

Instructions below work for HydroCAD Version 10.0, Build 19 or greater. If you HydroCAD 10 with a build prior to 19, see the instructions on page 8 to edit the csv file prior to completing the instructions below.

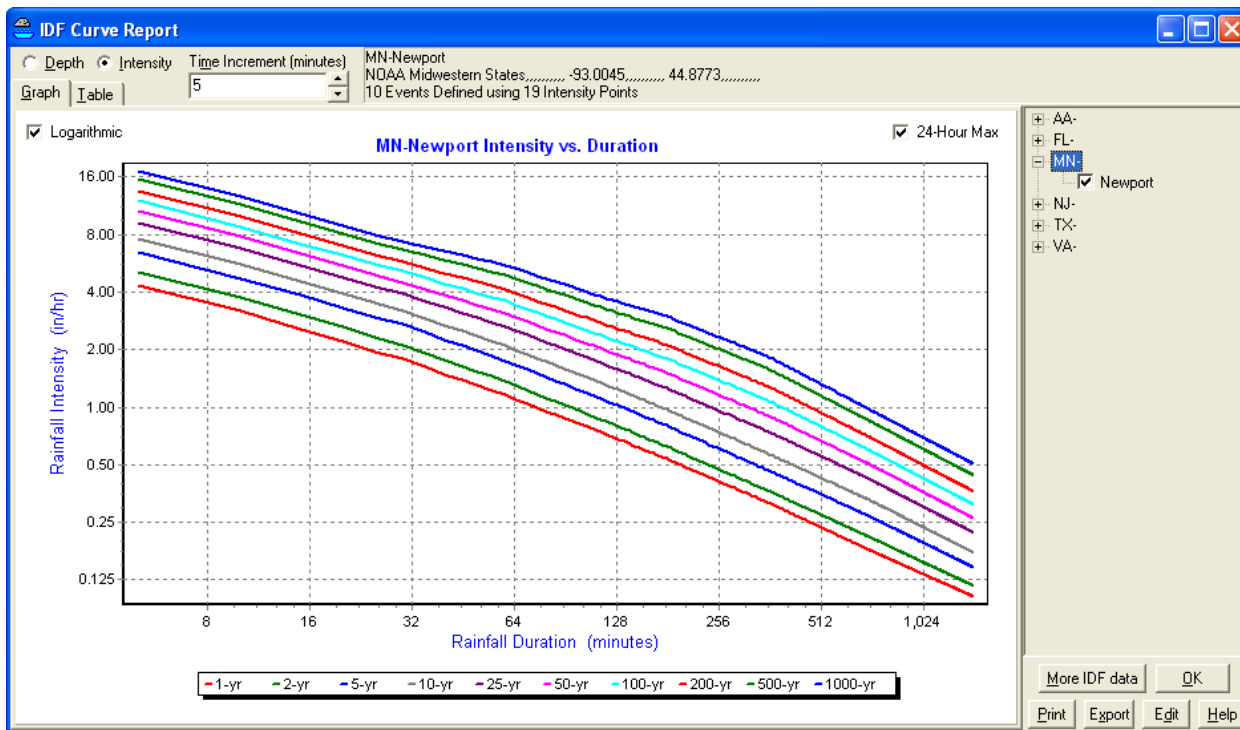
Copy file to directory with HydroCAD project file

Rename file and change extension of atlas 14 data to "hci"

(If extensions not shown, then go to windows explorer and select Tools > Folder Options > View and toggle off Hide Extensions for known file types.



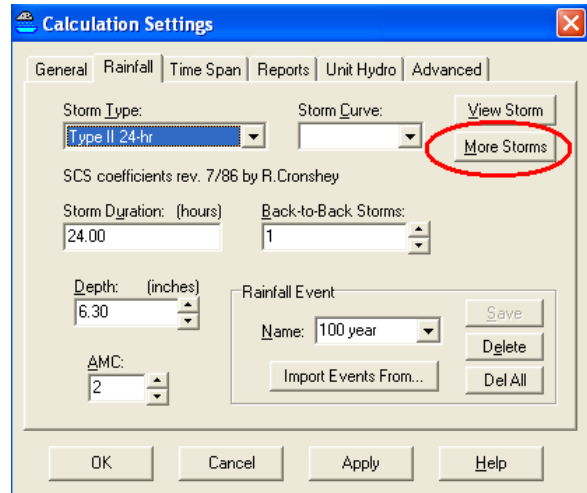
Double click on the hci file in Windows Explorer to verify that it opens in HydroCAD



# Import Atlas 14 Rainfall Data into HydroCAD Project

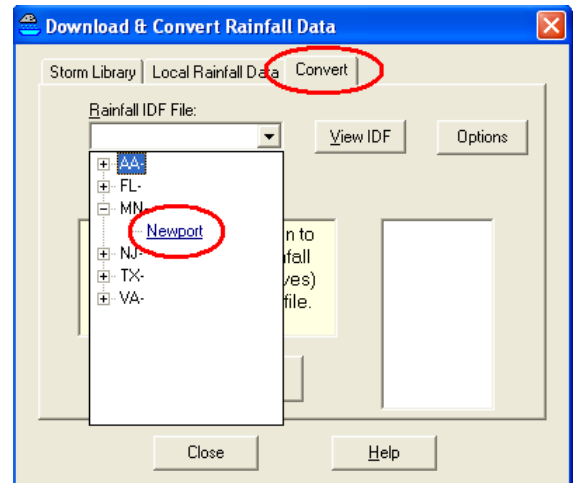
Open project and go to Settings > Calculation > Rainfall

Select More Storms

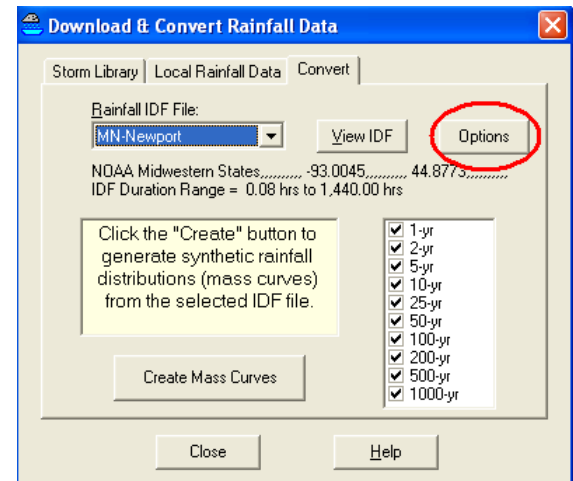


Select the Convert Tab

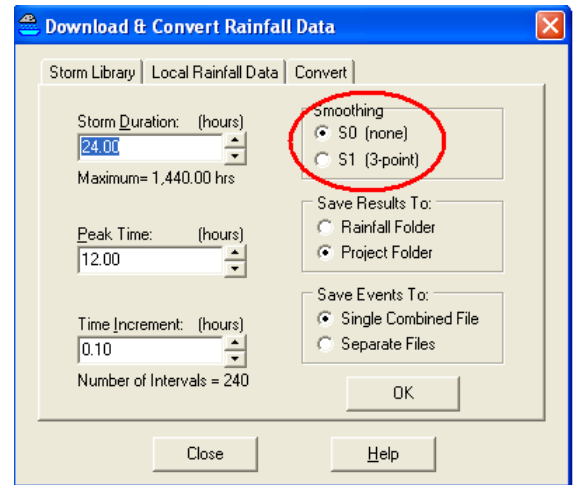
Click on the dropdown arrow by Rainfall IDF File and select the rainfall distribution.



Select Options button

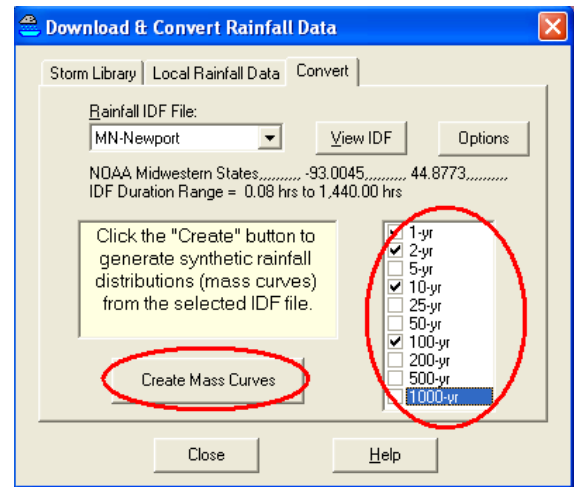


Select the S0 (none) smoothing option and OK



Toggle off Return Periods not used

Select Create Mass Curves



Confirm Store curves in project file

Confirm Select new Storm file

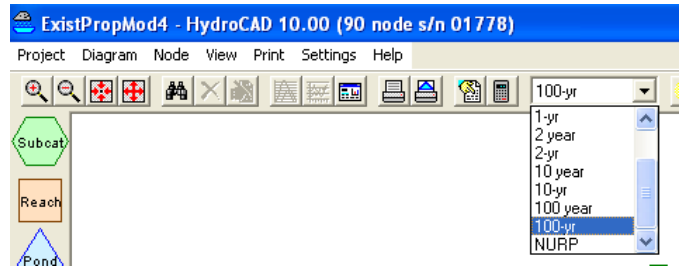
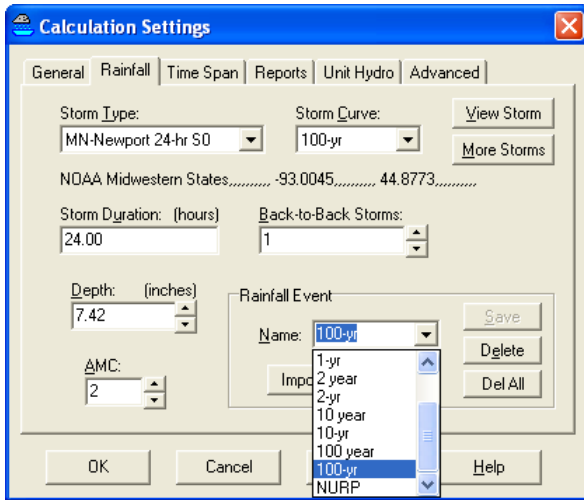


For message box asking to replace all current rainfall events:

- If new project and just using Atlas 14 rainfall, then click on Yes.
- If existing project and you want to keep previous rainfall information the project, then click on No.



Rainfall events can then be selected from the Calculations Settings dialog or from the drop down Events on the main view.



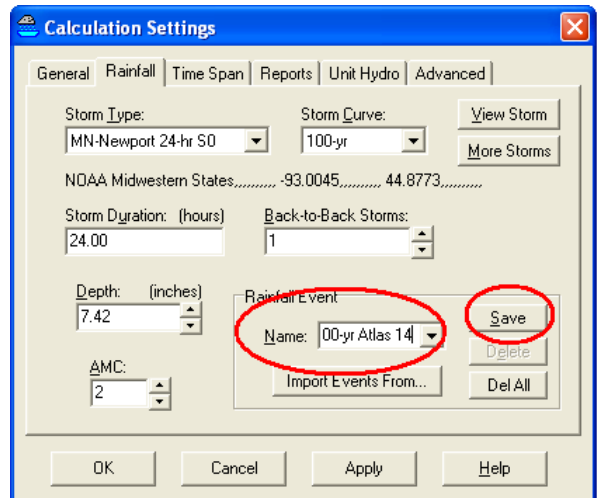
Optional: Rainfall events can be renamed on the Calculation Settings Rainfall dialog.

Select the rainfall event

Edit the name

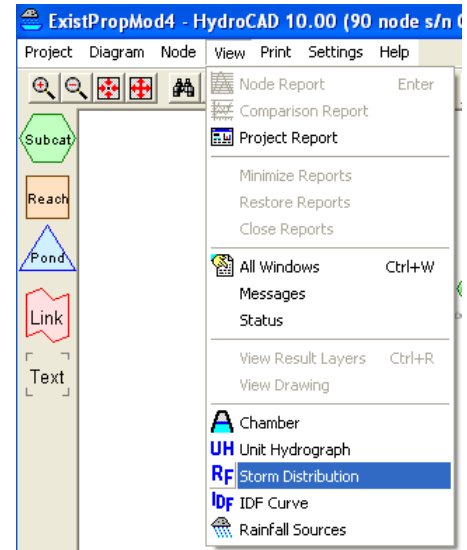
Select Save – this creates a new rainfall event

Delete rainfall event with non-edited name

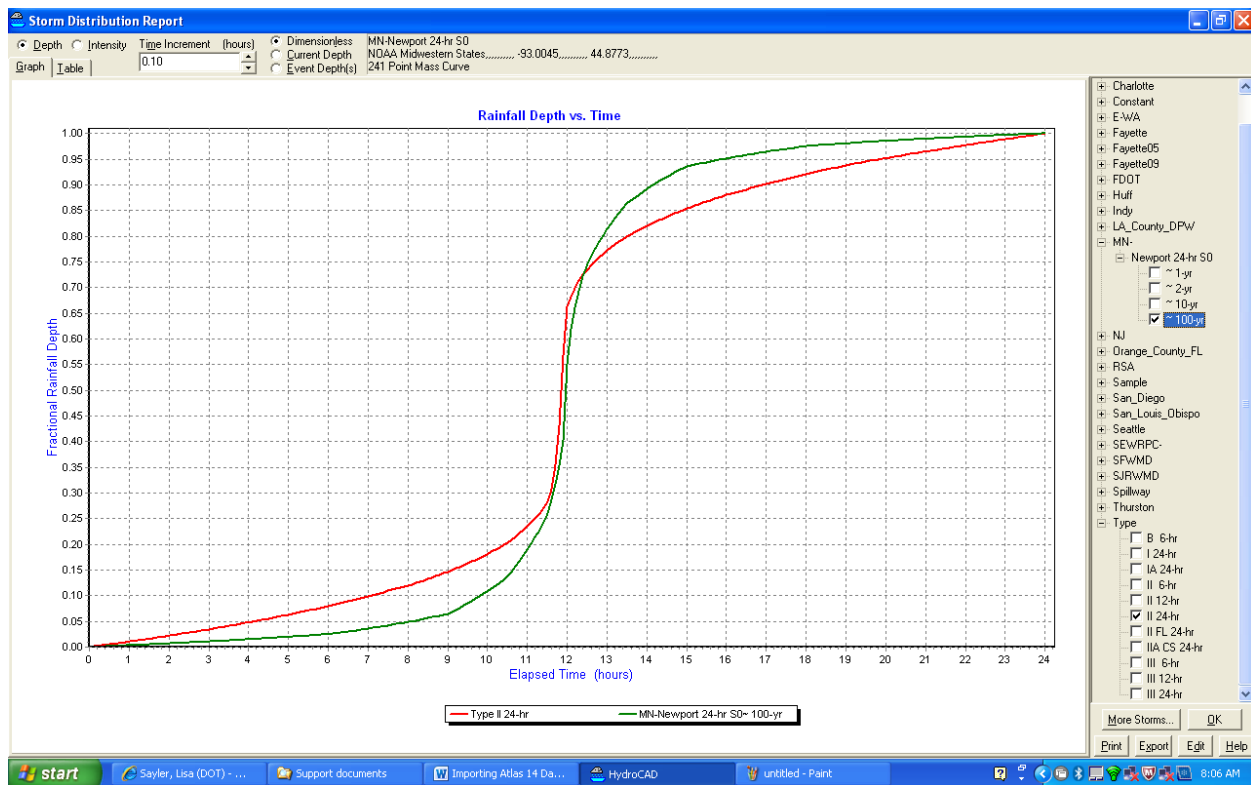


# Compare Rainfall Distributions

To compare the storm distribution, select View > Storm Distribution



Toggle on/off storms to compare. For this location, the Atlas 14 rainfall distribution is more intense than the NRCS Type II distribution.



## Compare results from multiple events

The results from multiple rainfall events can be displayed in tabular form. Go to a node and double click to bring up the results dialog.

Select the Events tab

Click on the Update button

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (acre-feet)
100-yr Atlas 14	56.39	35.21	35.21	0.00	717.22	1.127

The computed results from all of the storm events in the project will be computed and displayed in the table.

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (acre-feet)
.25 inch	0.00	0.00	0.00	0.00	710.80	0.000
1 inch	3.97	3.96	3.96	0.00	711.79	0.005
1 year	10.50	10.48	10.48	0.00	712.58	0.009
1-yr Atlas 14	21.32	18.12	18.12	0.00	713.65	0.094
2 year	25.79	20.95	20.95	0.00	714.02	0.155
2-yr Atlas 14	25.02	20.95	20.95	0.00	714.02	0.155
10 year	39.81	28.05	28.05	0.00	715.24	0.440
10-yr Atlas 14	38.73	28.42	28.42	0.00	715.33	0.466

Multiple events can be included in the report as desired by selecting appropriate events from the Print > Report dialog.

**Print Report**

Rainfall:

- Current Rainfall
- Selected Events:
  - .25 inch
  - 1 inch
  - 1 year
  - 1-yr Atlas 14
  - 2 year
  - 2-yr Atlas 14
  - 10 year

Include:

- All 13 Nodes
- 1 Selected Node(s)

Node Type: (any)

Sort By:

- Node Type & Number
- Node Number Only

Project Report Items:

- Routing Diagram
- Project Notes
- Private Notes
- Area Listing
- Soil Listing
- Ground Covers
- Land-Uses
- Pipe Listing
- Notes Listing
- Node Listing
- Totals

Node Report Items:

- Summaries
- Notes
- Private Notes
- Messages
- Wizards
  - Hydrograph Plots
  - Hydrograph Tables
  - Stage-Discharge Plots
  - Stage-Discharge Tables
  - Stage-Storage Plots
  - Stage-Storage Tables

## Work Around for HydroCAD 10 below Build 19

In 2016, NOAA modified the output format of csv data. HydroCAD released a new build that will import both the old and new format. If your version of HydroCAD 10 is before Build 19, then it is an easy edit to the output data to make it work with previous builds.

Previous to fall, 2016, Atlas 14 had the word “years” after the 1000 in the export file. To import this data into an older build of HydroCAD, you will need to edit the downloaded file either in Excel or a text editor to add the word “years” after 1000:

```
Point precipitation frequency estimates (inches),,,,,,,,,,
NOAA Atlas 14 Volume 8 Version 2,,,,,,,,,
Data type: Precipitation depth,,,,,,,,,
Time series type: Partial duration,,,,,,,,,
Project area: Midwestern States,,,,,,,,,
Location name (ESRI Maps): Roseville, Minnesota, USA,,,,,,,,,
Station Name: -,,,,,,,,,,
Latitude: 45.0135°,,,,,,,,,,
Longitude: -93.1641°,,,,,,,,,,
Elevation (USGS): 937.14 ft,,,,,,,,,
,,,,,,,,,
,,,,,,,,,
PRECIPITATION FREQUENCY ESTIMATES,,,,,,,,,
by duration for ARI (years):,1,2,5,10,25,50,100,200,500,1000 years
5-min: ,0.36,0.42,0.53,0.62,0.76,0.87,0.98,1.09,1.25,1.38
10-min: ,0.52,0.62,0.78,0.91,1.11,1.27,1.43,1.6,1.84,2.02
15-min: ,0.64,0.75,0.94,1.11,1.35,1.55,1.75,1.96,2.24,2.47
30-min: ,0.89,1.06,1.34,1.59,1.94,2.21,2.5,2.8,3.21,3.52
60-min: ,1.17,1.38,1.75,2.09,2.6,3.03,3.49,3.99,4.7,5.28
2-hr: ,1.44,1.69,2.15,2.59,3.27,3.85,4.49,5.19,6.2,7.03
3-hr: ,1.61,1.88,2.39,2.89,3.7,4.42,5.21,6.1,7.4,8.47
```

Original 5/1/2013 – LKS

Updated 10/20/2016 by LKS because of update to Atlas 14 data export file