FUNCTIONAL REQUIREMENTS:

Display Console functional (MUST-HAVE):

1.1 – A user shall be able to review daily rainfall totals every second.

1.2 – A user shall be able to view the temperature in degrees Fahrenheit and humidity in % of air composition every second.

1.3 – A user shall be able to review wind speed in miles per hour and wind direction every second.

1.4 – A user shall be able to turn on and off the weather sensor from the console.

1.5 – A user shall be able to review their local weather forecast.

1.6 – A user shall be able to retrieve and display sensor status information from their console.

Display Console functional (NICE-TO-HAVE):

2.0 – A user should have the ability to set different alarms to warn of inclement weather, such as floods, high wind, and freezing temperatures.

2.1 – A user should have the ability to review a month's worth of historical weather data through graphs and statistics on the console.

2.2 – A user should have the ability to use view all weather sensor measurements from all weather sensors within a 1,000 foot operating range. (Rather than only measurements coming from the sensor which came connected to the display console.

2.3 – A user shall be able to review the date and time.

Weather Sensor functional (MUST-HAVE):

3.0 - The sensor shall collect weather data via hardware and process the data to be transmitted to display console and weather tower.

3.1 - The sensor shall transmit weather data every second to display console.

3.3 - The sensor shall be able to report the status of its hardware components.

Weather Tower functional (MUST-HAVE):

5.0 - The tower shall be able to generate a weather forecast prediction.

5.1 - The tower shall be able to report its current weather forecast prediction to display console.

NON-FUNCTIONAL REQUIREMENTS:
General User Authentication non-functional (NICE-TO-HAVE):
6.0– A user shall be able to be identified by his/her unique username.
6.1 – Each user shall have the option be required to input a password for console access.
6.2 – A user shall have the ability to configure the console during setup, such as inputting the date, time, coordinates, and geographic location.
6.3 – A user shall have the ability to perform a hard reset to return device to factory settings.
6.4 – A user should have the ability to manually update software/firmware.

Display Console non-functional (NICE-TO-HAVE):
7.0 – The system shall run a self-check routine every minute to ensure weather sensor and weather tower connectivity. (A self-check routine which will alert the user if normal operation is impossible.)

Weather Sensor non-functional (MUST-HAVE):
8.1 – The sensor shall transmit weather measurements every second to the weather tower. (This allows the tower to archive weather data.)

Weather Sensor non-functional (NICE-TO-HAVE):
9.0 – The system shall provide a wide ranging spectrum of frequencies and a lengthy transmission distance. (The system will test a wide spectrum of frequencies to ensure at least one frequency will allow transmission of data.)
9.1 – The system shall repeatedly send transmission queries to the console and weather station. (Similar to a self-check routine to ensure the device is performing its normal functions and to ensure real-time updates.)
9.2 – The system shall be able to self-check component status and report its degree of functionality (health). (Another self-check routine but most concerned about alerting user/technician if there is a problem with device.)
9.3 – The system shall be able to save its state if faced with a catastrophic event. (This feature is to ensure that all data is captured and recorded before device fails.)

Weather Tower (MUST-HAVE):

10.0 – The system shall be able to preserve all incoming data transmitted by a weather senor into a data archive. (This is a system function that stores all weather measurements throughout the day.)

Weather Tower (NICE-TO-HAVE)

11.0 The system shall be able to retrieve any weather measurement data within a month’s time span from the archive. (The user will have the ability to compare weather measurements against all-weather measurements that occurred within a month time span.)
11.1 – The system should be able to notify users of software updates. (An alert to ensure system is up-to-date and lessens vulnerabilities within the system.)
11.2 – The system should have the ability to remotely update console software.

Changes in this iteration of the System Specification Document include:
-removing use case of technician retrieving tower status
-shifting self check routine to NICE-TO-HAVE
-removing ability to check temperature in Celsius
-increasing rate at which sensor sends weather data to weather tower (from every 20 seconds to every second)

Scope has been reduced a tad, and most of the NICE-TO-HAVE requirements were not finished in their implementation upon delivery, but it’s nice that the SRS Document generally remained unchanged though the design and implementation process.