



# WE VISUALIZED ASPLUNDH'S DATA FOR FASTER PAYMENTS

**ASPLUNDH**  
ANYTIME. ANYWHERE.

## Objective

Enable dynamic queries showing work performed by Asplundh's Spray Trains and Trucks for customers in a straightforward map interface.

## Solution

Seisan developed a system that can process and ingest data from multiple flat files, utilizing Sql Server Integration Services with SharePoint Embedded and a user-friendly dashboard.

## LEVERAGED TECHNOLOGIES

- Microsoft Entity Framework
- Windows Service Applications
- .Net Web Application
- VUE.JS
- MapBox Javascript Library

## PLATFORM INTEGRATIONS

- Mapbox GL
- Microsoft SQL Server
- SharePoint 2013
- ASP.NET Web API
- Telogis / IoT Data Feeds

## CAPABILITIES

- Application Development
- Systems Integration
- Geospatial
- Data Visualization

Seisan combined our expertise with geospatial platforms, application development, and systems integration to design, develop, and automate a maintainable system allowing customers to easily access historical data on services rendered.



The primary objective was to enable dynamic queries showing work performed by Asplundh's Spray Trains and Trucks for customers in a straightforward map interface. Doing so eliminated the use of spreadsheets containing three to twenty thousand lines per day of service that required cumbersome navigation.

Our solution was a system that would process and ingest data from multiple flat files, utilizing Sql Server Integration Services with SharePoint Embedded and a user-friendly dashboard. An advanced dashboard was developed showing spray activity

with a rendered map display. The dashboard provides date range capabilities and other filters to refine information displayed on the map.

The project included user experience design, database architecture, platform integrations, and web services. Prior to development, Seisan business analysts worked with Asplundh staff to ensure compliance with all business process workflows and data field requirements. Our systems integration powered Asplundh's customer satisfaction through a dashboard easily accessible to clients.

# SEISAN'S APPROACH / ASPLUNDH WEB APP DEVELOPMENT

## PROJECT OVERVIEW

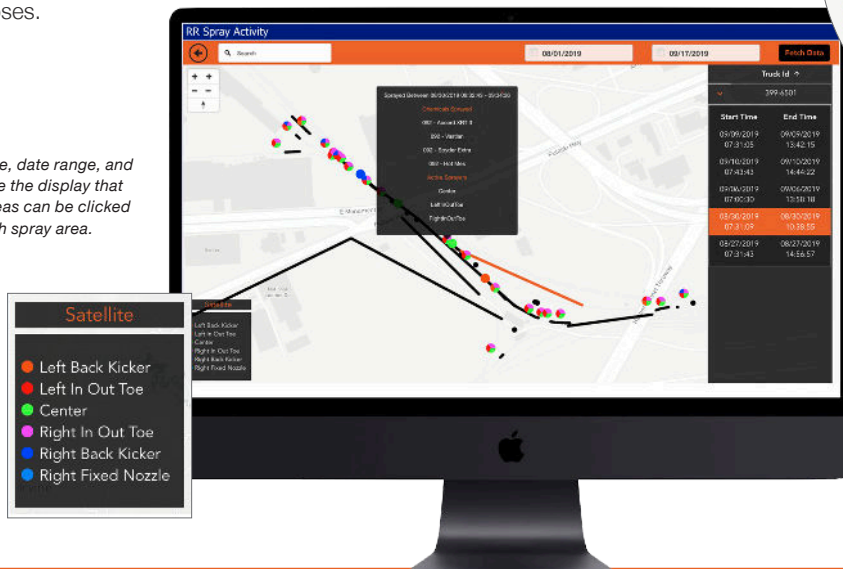
Prior to working with Seisan, Asplundh's account teams would send invoices including hundreds of data attachments indicating where services were rendered and how much product was used for vegetation mitigation. The immense amount of data made it difficult for their customers to understand exactly what they were paying for in relation to their requests, contracted service, and compliance requirements.

Asplundh approached Seisan with the goal of creating a web portal tied to customer invoices to ensure on time payments requiring less customer service calls. In order to overcome the challenges and increase customer understanding, we decided on creating a convenient and dynamic dashboard with a mapping interface linking customers invoices.

Seisan accomplished this by integrating multiple systems and tracking platforms from GPS to Internet-connect spray. We created an easy to configure and deploy front end application which allowed Asplundh to effectively deliver our solution to customers within the pre-established system. This allowed customers to utilize a map showing what areas were sprayed, how much product was used, and the ability to verify certain areas (near waterways, schools, etc.) were not sprayed with harmful chemicals for their own compliance purposes.

## FILTERS & DETAILS

Users can filter by specific date, date range, and other options in order to create the display that works best for them. Spray areas can be clicked to drill-down for details of each spray area.



## TECHNOLOGY DETAILS

Asplundh maintains disparate systems across their enterprise. We decided on using Sql Server Integration Service (SSIS) to marry the data across separate systems into one, providing a unique view of their data. Using SSIS provided an efficient way to integrate all data coming from various systems that leverage information currently being collected. A Windows Service Application was developed to periodically check for new files and trigger the SSIS packages.

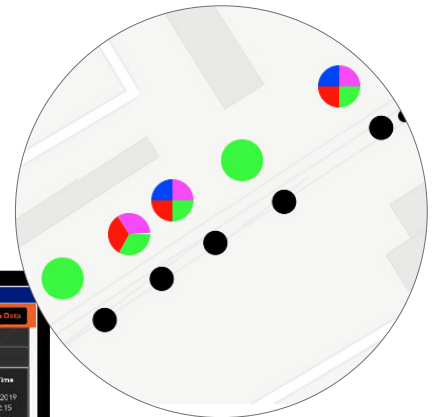
The persistence layer chosen was a SQL Server, and Microsoft Entity Framework(EF) was used as the Object Relational Mapping. These choices enabled management of the database state while keeping a changelog through the migration files. Other advantages were realized in standing up the application for different environments. For the front end dashboard, we chose to use a static Single Page Application (SPA) written with VUE.JS. This lightweight Javascript framework was ideal for integrating with SharePoint, and many other third party frameworks as the need arose. Utilizing ASP.NET WebAPI RESTful web services were developed for the SPA to dynamically populate data.

The MapBox GL Javascript library was used to provide the mapping display interface, allowing all the standard features of panning and zooming to different areas.

Custom data and drawing routines were developed by Seisan to take advantage of MapBox line, polygon, and point drawing functions to create the spray activity visualization.

## RESULTS

Seisan's user-friendly dashboard integration with Mapbox GL allows end users to promptly view their historical data. This allows users to audit and confirm that their company is meeting all regulatory standards for foliage control. Our systems integration solution within Asplundh's existing platforms created efficiencies and realized productivity by eliminating the need for additional data entry or manipulation. This new dashboard visualization and automated data ingestion into a mapping display offered dynamic filtering features, allowing users to view data how they want, leading to quicker decision making and time savings for compliance record keeping.



## DETAILED SPRAY INFORMATION

Each spray indicator delivers quick details pertaining to chemicals used, nozzle(s) activated, as well as length and exact location of the job.

