

Contract No. G-051-099
**“Development of Operational Aerial Analytics for Remotely Measuring Reclamation Success
in North Dakota”**

Submitted by: SolSpec, Inc.
Principal Investigators: Nathan Casler & John Norman

PARTICIPANTS

Sponsor	Cost Share
SolSpec, Inc.	\$ 92,000 (In-kind)
ISight RPV Services	\$ 34,000 (In-kind)
Whiting Petroleum Corporation	\$ 41,600 (In-kind)
North Dakota Industrial Commission/OGRC Funding	<u>\$163,200</u> (Cash)
Total Project Cost	\$330,800

Project Schedule – 16 months
Contract Date – March 13, 2020
Start Date – March 13, 2020

Project Deliverables:
Status Report: March 31, 2020 ✓
Status Report: June 30, 2020
Status Report: September 30, 2020
Status Report: December 31, 2020
Status Report: March 31, 2021
Final Report: June 30, 2021

OBJECTIVE/STATEMENT OF WORK:

This project seeks to develop and validate a suite of automated analytics that bring remote reclamation assessment technology to operational capacity for industry, agencies, and the interested public of North Dakota. An examination of the cost effectiveness of aerial imaging and analysis methodologies for use in establishing an operational remote reclamation program will be part of the project. This project includes:

Data Management

- a. Consideration of which data storage architecture is optimum for data management needs.
- b. Development of a trusted third-party data organization system accessible by industry and regulators.

Decision Tools

- c. Consideration of how image processing can produce decision support tools from gross data.
- d. Consideration of what data are visualized and provided to leaders for decision making.
- e. Development of imagery analysis tools that enable cost estimates for completing site reclamation.

Cost-Effectiveness Analysis

- f. Analysis of the cost-effectiveness of using remote sensing technologies for well site reclamation assessment compared to current procedures employed by industry and agencies.

The objectives entail four central components: Model Development, Model Validation, Model Automation, and Cost-Effectiveness.

STATUS

March 31, 2020

Status report received. The report states in part:

For the time period of March 13, 2020 – March 31, 2020. In alignment with action goals, preliminary model development has been completed on a small subset of data for the analysis tools.

Data collection and aggregation for preliminary model development were completed using National Agricultural Imagery Program (NAIP) data; Colorado Oil and Gas Conservation Commission (COGCC) data; North Dakota Oil and Gas Division data; and drone-based imagery available to SolSpec.

The COGCC and North Dakota Oil and Gas Division well databases were mined for applicable spatial and non-spatial data. Well sites were filtered by status and dates to develop a statistically valid sample design within the “test extent.” These data were also used to further stratify locations by the status of production or interim reclamation, abandoned but not yet released, or plugged and abandoned.

The data in the “test extent” are intended for preliminary model development and to test feasibility and progress on analytical tools. This foundational work will facilitate late phases of the project, for example, in helping inform field data collection to better inform model development while validating outputs.

More details are available in the full report.

Updated 04/02/2020