



CUSTOMER PROFILE

Starscream Aerial Services

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Why Draganfly

Sourcing a local OEM was an advantage we wanted to leverage in our business plan.

For circumstances that we wouldn't be able to handle independently, it was important to have a direct line. After researching the sensor integration, required, hardware tolerances in Northern climates, and price point we called [Draganfly](#).

The rest took care of itself, and it has remained our 'go to' platform for much of our work.

Project Quote:

"This has made my life easier. As an aggregates and mining consultant, you wouldn't believe the amount of pits in any given area that require permits and regulatory monitoring.

These datasets allow me to visualize and work with the landscapes in an extraordinary way from my computer. The data is shared with regulators and makes my reporting stand out.

The guys at Starscream are automatic. I request data, they provide it." Meghan Soehn P.Ag., B.Sc., Amisk Creek Aggregate Consulting Ltd. (Red Deer)



Project with Amisk Creek Aggregates Consulting Ltd.

Environmental Footprint Analysis

Introduction:

Starscream Aerial was approached by Meghan Sohen of Amisk Creek Aggregates Consulting Ltd. (Red Deer, AB) to apply aerial data that could assist with a regulatory submission concerning three neighbouring pits bordering a major water body. Since we had already completed some GIS projects for Amisk Creek on pit applications and remediation requests, we knew we could gather valuable insights to their standing issue and add value to the project.

Background/Problem:

Working with Meghan, we were doing an environmental footprint analysis for reclamation planning, assessing water flow characteristics between two other pits to the north and west of a 1/4 section divide, and the neighbouring river/creek systems. Each had presented water offloading concerns with the County that required as-built, GIS data to prove usage cases.

Since the freshwater offloading data was a primary concern, we needed to image the adjoining boundary of the neighbouring river system and the man-made end pit lake in their quarry. The objective was to produce a water flow analysis by DSM for ArcGIS water flow outputs, confirm and identify boundary areas / buffer zones, and additionally, produce volumes for aggregate inventory and overburden reclamation materials for submission to the AEP (Alberta

Environment and Parks) and their own internal accounting.

Potential Solution:

We had to complete a PPP-RTK survey, which we stationed from an existing ASM (Alberta Survey Marker) pin approximately 1.5km offsite, then gathered 10 RTK control points for the site imagery and verifying points of interest.

Our data was leveraged by Amisk Creek on behalf of their clients. They were able to successfully identify water flow lines and coalescence in the area to determine appropriate measures for water permitting,



2cm/pixel Orthomosaic of a reclamation planning pit north of the DSM pit

reducing the impact of grievance amongst the operators. This provided remarkable transparency so that all of the parties, particularly the AEP, could effectively communicate and reach an expedited decision.

In addition, we completed a stockpile volumetric of commissioned

VOLUMETRIC MODELING

RED DEER, AB, CANADA STOCKPILE

We've seen Pix4D progress through their volume and area calculations algorithms in their last few years. Prior to this project, we amassed an inventory on another pit with 28 stockpiles containing 200K+ aggregate in a short matter of time after DSM processing.

Their DSM derived process is quick and extremely accurate. Draganfly's acquisition platform (we used a Draganflyer X4-P with Sony RX100m3 at 110m AGL, 2.6cm/pixel and 6m/sec on Draganfly Surveyor) takes remarkably crisp images so that we can analyze the raw jpegs with point cloud imagery to gain further insights.

Ryan Brown



Pix4D 3D Point Cloud Model

aggregates for annual inventories and royalties. Overburden piles for the reclamation plan to be developed were successfully done on both pits as well, with a combined margin of error under 1% for just shy of 120,000m3 of volume on 8 piles.

Lessons Learned:

The platform is remarkably intuitive, with smooth workflows from acquisition to exporting geotagged data for processing in Pix4D. This engineering is a distinct advantage working in high stress areas that create additional distractions, like mining and energy with concurrent operations. Draganfly Surveyor does what we instruct it to do, which sounds minimalist, but in this industry there are a good deal that fall short of that expectation.

Experience Working with Draganfly:

Excellent. We've had our tense moments troubleshooting minor issues, but they have diligently and professionally handled the issues. We've never had a situation that hasn't produced a positive outcome working together. The most forthcoming thing in working with everyone at Draganfly is that they give it to you straight, from sales to operations. We've approached them with some pretty crazy ideas and they're there for the conversation!

The platform is robust; from a photogrammetric standpoint with IMU/INS, sensors, and acquisition software, to meeting industrial needs on jobsites. As a commercial operator, knowing OEM specs, and trusting them, falls heavily on the service company in industrial environments. As long

tenured oil and gas professionals with liability / safety standards, we know this. Work within the tolerances; Draganfly offers that in its hardware.

Future Plans:

Given the nature of this project, it was quickly realized that the produced datasets were instrumental in turning around application permits, zoning issues, remediation plans and dewatering applications for pits and quarries. The value add in knowing turnkey aggregate volumes is a huge ROI for any player in the industry. We will continue working with the aforementioned companies and governmental bodies to continuously deliver UAV generated data and GIS.

Return on Investment (ROI) Numbers for Stockpile Only

	Traditional Feet on the Ground	Draganflyer Aerial Data Collection
Data Collection and Processing:	24 hours 2-3 day data turn around time	N/A 1 day data turn around time
Man hour cost:	\$120 CAD	Flat Rate
One time cost:	\$2,880 CAD	\$1,200 CAD
Frequency:	4/year	4/year
Annual cost:	\$11,520 CAD	\$4,800 CAD
Cost savings per year:	\$6,720 CAD and 3X Faster	