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AUGUST 10, 2025

# INVESTIGATION REPORT

FIRE LOSS: MAY 3, 2025  
VEHICLE FIRE  
STURGEON COUNTY, ALBERTA

GPS: 53.93508N BY -112.93676 W

**KEVIN BUREAU**

LEAD INVESTIGATOR

**RANDY PARNELL**

ADMINISTRATIVE AND  
TECHNICAL REVIEW

FIRESTORM FILE:

**FS2025-052**



**FireStorm**  
CONSULTING GROUP INC.

specialists in emergency & protective services

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FOR STURGEON COUNTY

FILE: \*\*

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**FIRE INVESTIGATION SUMMARY:**

This fire occurred on May 3, 2025, at approximately 17:43:43. The volunteer fire department from the Redwater responded and attempted to extinguish the fire. When they arrived on scene the ATV fire had spread rapidly into the forest around causing a large complex forest fire. The fire caused significant structural damage to multiple building, RV's Vehicles and other equipment. The cause of the fire has been determined to be an electrical failure in a 2025 Outlander XMR 850 with VIN 3JB3WA645SJ001001.



***FIGURE 1. FS2025-052, PHOTO COURTESY OF FIRE COMMAND OF THE ATV IN THE GENERAL ORIGIN AREA.***

FIRESTORM CONSULTING GROUP INC.

INVESTIGATION REPORT

File No: 2025-052

Investigator: KEVIN BUREAU

**PERTINENT FACTS:**

DATE OF FIRE: MAY 3, 2025, TIME: 17:43

LOSS LOCATION: STURGEON COUNTY, ALBERTA

PROPERTY TYPE: 2025 OUTLANDER XMR 850

VIN: 3JB3WA645SJ001001

REQUESTED BY: STURGEON COUNTY

CONTACT: CHAD MOORE EMAIL: [aaron.w.fuson@gov.ab.ca](mailto:aaron.w.fuson@gov.ab.ca)

OWNER: **ATIA s.20** **ATIA s.20**

INSURANCE: INTACT CLAIM# **ATIA s.20**

EMAIL: **ATIA s.20**[@CC.INTACT.NET](mailto:ATIA s.20@CC.INTACT.NET) CHINONYE UZOMA

RIDING PARTNER: **ATIA s.20** **ATIA s.20**

FIRE DEPT.: STURGEON COUNTY FIRE SERVICES FILE:

CONTACT: CHAD MOORE CMOORE@STURGEONCOUNTY.CA

RCMP REDWATER RCMP FILE: 2025-59343

INV. DATE/TIME: MAY 6, 10, 2025, TIME: \*\*\*\*

INVESTIGATOR: KEVIN BUREAU PHOTOGRAPHER: KEVIN BUREAU

FERS: 1163462

**PRIVILEGED AND CONFIDENTIAL**

SHOULD LITIGATION ARISE

**PREPARED FOR**

STURGEON COUNTY,  
FIRE CHIEF, CHAD **MOORE**  
AND/OR ASSIGNS

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**FIRE INVESTIGATION METHODOLOGY:**

This fire investigation was conducted under the scope of NFPA® 921 – Guide for Fire and Explosion Investigations – 2024 Edition, which was used as a guideline. As such, all conclusions and expert opinions were arrived at in accordance with the scientific-based investigation and analysis of fire and explosion incidents outlined within. NFPA® 1033 – Standard for Professional Qualifications for Fire Investigator – 2022 Edition and NFPA® 1500 – Standard on Fire Department Occupational Safety Health and Wellness Program, were also integral considerations in processing the fire scene.

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**PROPERTY DESCRIPTION:**

This ATV fire spread to the forest area in the Redwater Provincial Park. The ATV of origin was a 2025 Outlander XMR 850. This photo is of the origin ATV.



*FIGURE 2. FS2025-052 STOCK PHOTO OF 2025  
OUTLANDER XMR 850.*

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## **INVESTIGATOR'S FINDINGS:**

On May 6, 2025, Sturgeon County Deputy Fire Chief, Darrick **GRAFF** contacted FireStorm Consulting Group Inc. (FS) for the purpose of a fire origin and cause investigation following a wildland fire. The fire was still actively actioned and was an ever-changing environment. Once it was safe to access the origin area I returned to the fire scene with Investigator Rowdy **COOK** to complete our fire scene examination.

I, Kevin **BUREAU**, arrived on scene at approximately 08:00 on May 10, 2025, we signed in at the operations base and proceeded to the general origin area. I conducted a 360° survey of the fire scene, in both a counterclockwise and clockwise direction, which served two purposes: the Field Level Hazard Assessment; and general observations of fire damages. Then using a systematic approach employing the scientific method outlined in *NFPA 921 – Guide for Fire and Explosion Investigations – 2024 Edition* and well as the *Guide to Wildland Fire Origin and Cause Determination (PMS 412, 2025 Edition)* a detailed scene examination was initiated with photographs taken and observations noted.



**FIGURE 3. FS2025-052 (2), PHOTO OF THE FIRE ATV IN THE GOA.**

# FIRESTORM CONSULTING GROUP INC.

INVESTIGATION REPORT

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After completing the 360 in both directions to establish a General Origin Area (GOA), **COOK** and I then moved south of the trail to where there was well defined advancing fire, then walked from East to West. As we were walking from East to West we were identifying and marking macro and micro fire vector indicators. On the East flank of the GOA, we were able to define lateral indicators we then proceeded to the west marking advancing indicators and as we proceeded further West we were able to identify lateral indicators once again. Once we hit the lateral sections of these indicators we would then move north and then continue from West to East moving to the North every time we located lateral fire indicators. This process was done from the South side of the trail, including the trail and the North side of the trail. As we process the scene immediately North of the ATV we noted a significant amount of backing fire vector indicators. These backing indicators progressed for approximately 100 meters to the North. It then changed to advancing indicators. This has been corroborated with fire command reporting they had significant wind changes which would have change the fire direction travel. We placed multiple-colored flags in the ground. The red flags represent advancing fire indicators, the yellow flags represent lateral fire pattern indicators, the blue flags represent backing fire pattern indicators, white represents evidence, and green represents items of interest. We placed 12 red, 26 yellow, and 32 blue, this is a total of 70 indicator flags. Out of the 70 flags placed in the ground, we documented 21 indicators as the exemplars.

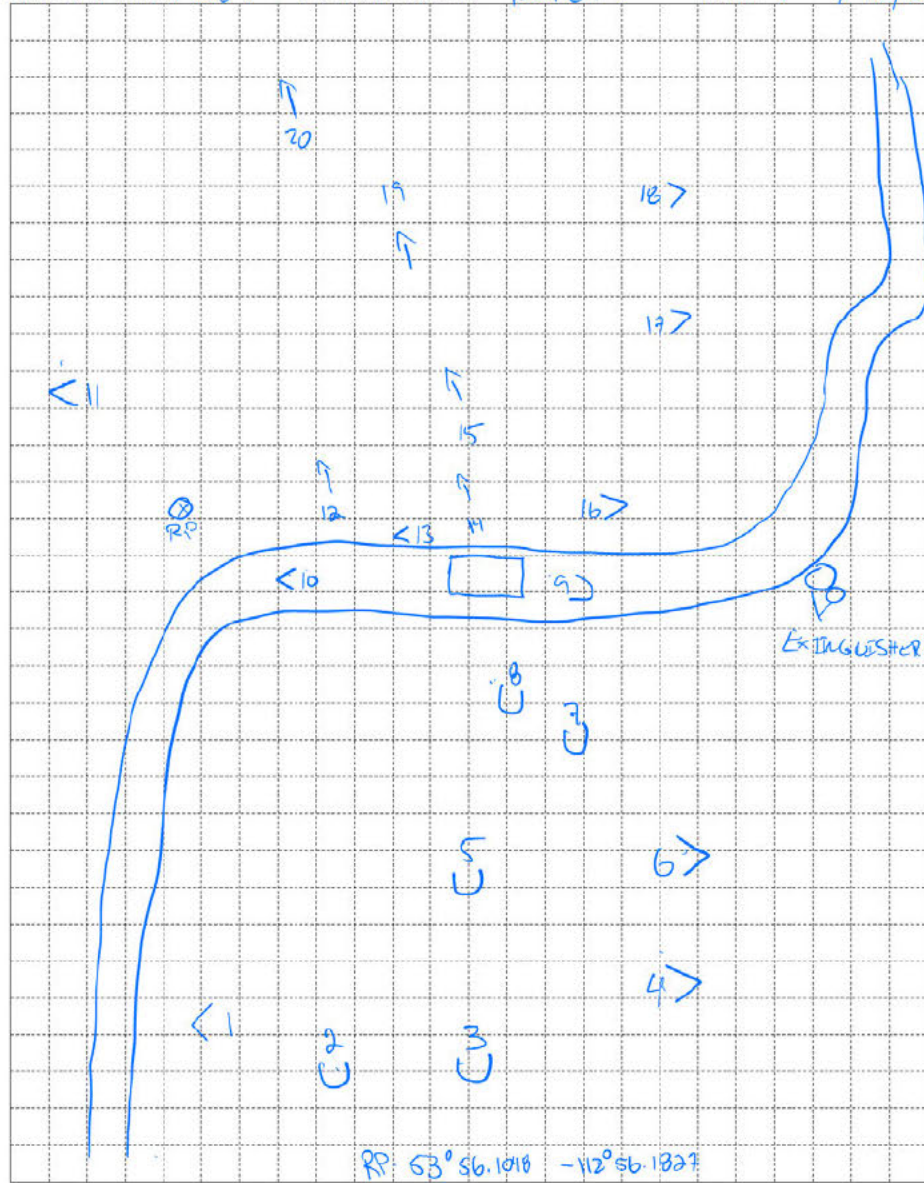


*FIGURE 4. FS2025-052 (38), PHOTO OF THE FIRE ATV IN THE SOA WITH ADVANCING INDICATORS IN THE FOREGROUND.*

After placing all the flags in the ground, we were able to determine through the fire pattern indicators that our Specific Origin Area (SOA) was a 2025 Outlander XMR.

**SCENE SKETCH**

FIRE NUMBER *FS2025-052* INVESTIGATOR *Bureau* DATE *MAY 10/25*



**FIGURE 5. FS2025-052, HAND DRAWN SKETCH (NOT TO SCALE) OF THE FIRE PATTERN INDICATORS WITH THE TRAIL AND ATV.**



After determining the SOA, we then proceeded to process the ATV which was in the SOA. I noted the ATV was facing east on the east/west section of the trail.



*FIGURE 6. FS2025-052 (50), PHOTO OF THE ATV FACING EAST ON THE TRAIL.*

I noted all of the plastics and some of the aluminum had melted and were in hard piles on the ground. I then examined the exhaust system as it was possible this fire was caused by organic material being heated by the hot exhaust system. During our examination at the fire scene, I did not observe any organic material adhered to the exhaust system or heat shields. There was burned sand on the muffler of the exhaust system. The heat shields were also intact and not compromised in any fashion. I continued to examine the ATV; I traced the main electrical wiring as well as the main power cables for the front mounted winch. I did note there was evidence of arcing on the positive power cable battery connection. I also noted an arced heavy gauge wire coming from the battery.



*FIGURE 6. FS2025-052 (88), PHOTO OF ARCING ON THE BATTERY CONNECTION.*



*FIGURE 7. FS2025-052 (89), BELOW, CLOSEUP PHOTO OF ARCING ON THE POSITIVE BATTERY CONNECTION.*



*FIGURE 8. FS2025-052 (90), PHOTO OF THE OTHER CONNECTION WIRING FOR THE BATTERY.  
NOTE THE ARC BEAD.*

After completing the examination on scene of the ATV, I decided it would be prudent to seize the entire ATV as evidence. We then secured it and transported the ATV to our secure lockup.

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**CANINE:**

Firestorm's Ignitable Liquid Detection Canine was not utilized at the fire scene.

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**EVIDENCE:**

I seized the 2025 Outlander XMR.



*FIGURE 8. FS2025-052 REMOVAL (9), PHOTO OF THE SEIZURE OF THE XMR.*

**WITNESS:**

I interviewed the owner of the ATV, **ATIA s.20** as well as **ATIA s.20** riding friend **ATIA s.20**. There is audio statements attached to this file.

The Outlander XMR was purchased by **ATIA s.20** on April 23, 2025, from Martin Motor Sports. It had approximately 13 hours on the engine when the fire occurred.

Both witnesses provided video and photos of the fire just after ignition and after they tried to extinguish it.



*FIGURE 9. FS2025-052 IMG\_2466, PHOTO PROVIDED BY ATIA s.20.*



*FIGURE 10. FS2025-052 6690595294268375381, PHOTO PROVIDED BY [REDACTED]*



*FIGURE 11. FS2025-052 1191445978484044775, PHOTO PROVIDED BY [REDACTED]*



*FIGURE 12. FS2025-052 IMG\_2467, PHOTO PROVIDED BY **ATIA s.20**, FIRE CREW ARRIVAL WITH FIRE PROGRESSION.*

## RESEARCH

I, Fire Investigator **BUREAU**, obtained historical weather information from Environment Canada for the time and date this fire was reported from the closest weather station to the event, Edmonton Blatchford, AB, TC ID #XEC weather for 18:00 on May 3, 2025, which is the closest time to the documented fire discovery.

### **Likely weather at the closest weather station (Edmonton Blatchford, AB) at 18:00:**

Temperature: 22.2° C

Dew Point Temperature: 3.6° C

Relative Humidity: 30%

Wind Direction: 360° (North)

Wind Speed: 23 kmph

Visibility: N/A

## **ENCLOSURES:**

Enclosure 1 – Environment Canada report for Edmonton Blatchford, AB.

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## **PHOTOGRAPHS:**

On May 10, 2025, BUREAU, documented the fire scene with 113 images taken with a Nikon D3400 Digital SLR Camera in the “Auto” setting with an attached Nikon AF-P Nikkor 18-55mm 1:3.5-5.6 G lens.

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## **INVESTIGATOR’S CONCLUSION AND SUMMARY COMMENTS**

### **ORIGIN AREA:**

After examining the fire damaged vehicle and wildland, fire pattern analysis, fire dynamics, and information provided by the owner, I (BUREAU, Kevin) was able to determine to origin of the fire to be in the battery area of the 2025 Outlander XMR.

### **TYPICAL FIRE CAUSE CONSIDERATIONS:**

**RAILROAD:** Excluded. No railway tracks in the vicinity.

**LIGHTNING:** Excluded. No lightning strikes or storms were reported.

**CHILDREN:** Excluded. Initial witness observations reported no children were in the area at the time the fire was discovered.

**FIREWORKS:** Excluded. No use of fireworks reported prior to or during the fire.

**SMOKING:** Excluded. There was no evidence of poorly discarded smoking material.

**DEBRIS BURN:** Excluded. No burn barrels in the area.

**INCENDIARY:** Excluded. There was no evidence to support this hypothesis.

**MISCELLANEOUS:** Excluded. There is a wide range of causes to consider under the miscellaneous category. Cutting, welding, grinding etc. There was no indication that any of these conditions were present at the time of ignition.

**SELF-HEATING:** Excluded. There was no evidence found that would have indicated self-heating nor any products that could have resulted in self-heating.

**POWER LINES:** Excluded. There were no powerlines in the area of origin.

**CAMPFIRE OR FIRE PIT:** Excluded. No fire pits were observed.

**MACHINERY OR VEHICLES: NOT Excluded.** Any power or motorized equipment that uses electricity or flammable products is capable of starting a fire when in proximity to combustible vegetation. Fires can be started by exhaust systems, faulty spark arresters, vehicle fires and friction. The potential for fire increases when the machinery or vehicle has defective or failed parts. There was evidence for arcing on the battery connections for the XMR. The early photos also corroborate this fire originated in the area of the battery compartment.

**PRESCRIBED FIRE (CONTROLLED BURN):** Excluded. A prescribed fire is the result of an intentional ignition by a person or a naturally caused fire that is allowed to continue to burn according to approved plans to achieve resource management objectives. These fires will at times escape the control of the responsible party because of weather conditions or negligence. No prescribed burns were scheduled at the time of this fire by the local Wildfire Management Area or permitted circumstance by the Municipality.

**SAFETY RECALL ALERTS:** Excluded. There were no recalls posted for the 2025 Outlander XMR when the Can Am website was searched.

### **IGNITION SEQUENCE:**

As stated in the NFPA® 921 – **Guide for Fire and Explosion Investigations – 2024 Edition 19.1.5 Ignition Sequence.** *“A fuel by itself or an ignition source by itself does not create a fire. Fire results from the combination of fuel, an oxidant, and an ignition source.”* Understanding the ignition sequence, and how it evolved into an uninhibited chemical chain reaction, can aid in the determination of the fire cause.

### **FIRE CAUSE:**

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**NFPA® 921 – Guide for Fire and Explosion Investigations – 2024 Edition states: 19.7.1 Establishing the Cause.** *“Although cause is common terminology, the investigator should describe it in terms of the competent ignition source providing enough heat to ignite the first fuel and the circumstances of how they came together.”*

**It is highly probable this fire was caused by an electrical malfunction at the battery cable connections.**

### **HYPOTHESES CONSIDERATIONS:**

Based on the Scientific Method as outlined in **NFPA 921 Guide for Fire and Explosion Investigations – 2024 Edition 19.6.4 Means of Hypothesis Testing.**

*“When testing a hypothesis, the investigator should attempt to disprove, rather than to confirm, the hypothesis. If the hypothesis cannot be disproved, then it may be accepted as either possible or probable. Hypothesis testing may include any application of fundamental principles of science, physical experiments or testing, cognitive experiments, analytical techniques and tools, and systems analysis.”*

While examining the fire damaged structure, I developed and considered the most probable hypotheses for this fire cause. Although other fire cause hypotheses were considered, they are not addressed or discussed because they were neither probable and/or possible based on collected empirical data. The most likely fire cause hypotheses are.

1. This fire was caused by a failure within the permanent electrical system of the Outlander XMR. ***Not Eliminated. The cause of the fire being caused by electrical malfunction cannot be disproven.***
2. This fire was intentionally ignited by unknown persons for unknown reasons. ***Eliminated. The cause of the fire being intentional has been disproven.***
3. This fire was caused by carelessly discarded smoking materials. ***Eliminated. There was no discarded smoking material in the SOA.***

**NFPA 921 Guide for Fire and Explosion Investigations – 2024 Edition** defines the Expression of Certainty as follows:

#### ***4.5.1 Expressions of Certainty.***

*Someone may express an opinion to a higher or lower level of certainty. The expression is determined by the investigator's confidence in the data, in the analysis of that data, and testing of hypotheses formed.*

##### **4.5.1.1**

*Two expressions of certainty commonly used are probable and possible as follows:*

- (1) **Probable.** *This expression corresponds to being more likely true than not.*
- (2) **Possible.** *The hypothesis be demonstrated to be feasible but cannot be either ruled out or declared probable. If two or more hypotheses are equally likely, then the expression must be “possible.”*

#### 4.5.1.2

*If the level of certainty of an opinion is merely “suspected,” the opinion does not qualify as an expert opinion. If the level of certainty is only “possible,” the opinion should be specifically expressed as “possible.” Only when the level of certainty is considered “probable” should an opinion be expressed with reasonable certainty.*

#### 4.5.2 Fire Investigation Certainty.

*Fire investigators achieve reasonable fire investigation certainty when they have properly applied all of the steps of the scientific method to reach a unique and reliable final hypothesis.*

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## **CLOSURE:**

This report is prepared for the express use by the agency contracting FireStorm Consulting Group Inc. and to be used at their discretion. The contents, including any illustrations, diagrams, internet research and enclosures are intended to represent facts, evidence and truths with the source cited, as necessary.

In accordance with Rule 11-(2) of the Supreme Court Rules, I provide the following acknowledgment; as an expert providing opinion evidence to the Court, my duty is to assist the Court and not to be an advocate for any party. I have prepared this report, in conformity of this duty. If called upon to give oral or written testimony, I will so testify in conformity with this duty.

This report was progressively prepared and formulated over time to be thorough, and to present the investigative findings more meaningfully:

- The actual scene examination occurred on May 10, 2025, as documented.
- Follow-up activities including research, interviews and/or evidence examination prior to writing this report; and
- The nature of the report, absent the revelation of “newly discovered evidence,” is final.

The scope and objective of investigative efforts associated with this report was to establish the origin and cause of the fire incident that occurred. This report is intended to document those investigative efforts and the origin and cause analysis.

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# FIRESTORM CONSULTING GROUP INC.

INVESTIGATION REPORT

File No: 2025-052

Investigator: KEVIN BUREAU

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Additional reference considerations for this fire investigative process were: NFPA® 1033 – Standard for Professional Qualifications for Fire Investigator – 2022 Edition; and, under the scope of fire scene safety, NFPA® 1500TM Standard on Fire Department Occupational Safety, Health, and Wellness Program.

**Physical evidence**, if collected, was processed, stored, and secured in accordance with NFPA® 921 (2024 edition) – Chapter 17 Physical Evidence and will remain under the care and control of this Fire Investigator until alternate direction and/or instruction is given by the owner or designate. This evidence will not be disposed of without authorization from the owner or designate.

**Ignition Sequence**, as highlighted in NFPA® 921 section 19.1.5, states “A fuel by itself or an ignition source by itself does not create a fire. Fire results from the combination of fuel, an oxidant, and an ignition source. The investigator’s description of events, including the ignition sequence, (the factors that allowed the ignition source, fuel, and oxidant to react) can help establish the fire cause.

**Historical weather** information from Environment Canada, if included, is based on a two-minute reading taken once per hour. Even though the weather information does not provide actual weather readings at the fire’s origin area or the estimated time of ignition, it does provide data that could be used to estimate a range of probable weather conditions as set out above. Weather conditions, particularly wind direction and speed, can influence burn patterns and fire dynamics.

It should be noted that this report does not, nor was it intended to, contain every investigative detail considered as part of the origin and cause analysis. Rather, this report highlights and summarizes only the information and evidence available to investigators believed to be most significant to the origin and cause analysis. As a result, this report should not be a substitute for deliberate and reasoned oral discussion with the author and concurring investigators. Additional details could be available from the participating agencies and organization involved in investigation of the incident.

Should new evidence and/or information come to the attention of FireStorm Consulting Group Inc., then expert opinions and conclusions contained in this document may warrant amendment. Questions or comments can be directed to the writer, FireStorm Group, Lead Investigator BUREAU, Kevin at 780-920-4103, or [Kevin@firestormgroup.ca](mailto:Kevin@firestormgroup.ca).



**BUREAU, K. A**

Lead Fire Investigator

SCO Level II, FI 310, IAAI-FIT(V) and IAAI-ECT

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## **LEAD FIRE INVESTIGATOR KEVIN BUREAU:**

FireStorm Consulting Group Inc, Fire Investigator **BUREAU** entered the emergency services in April 1997 as a Firefighter and later became an Emergency Medical Technician (EMT). Mr. **BUREAU** retired from the Edmonton Fire Rescue Services where he held branch positions in the Fire Suppression and Fire Investigations before retiring as Senior Captain Investigator (Chief Officer Qualified). He is a Level II Safety Codes Officer – Fire Investigator II under the Alberta Safety Codes Act, which is the highest certification. He has been Court qualified as an Expert in Fire Origin and Cause. He also holds certification from the International Association of Arson Investigators (IAAI). These certifications are the Fire Investigation Technician with the Motor Vehicle Fire Endorsement, IAAI-FIT(V). As well as the Evidence Collection Technician, IAAI-ECT. Mr. **BUREAU** is also a FI-210 and FI-310 Wildfire Investigator Trained to the Canadian Interagency Forest Fire Center Standard. Mr. **BUREAU** is a certified Ignitable Liquid Detection Canine Team handler along with his certified Canine “**RIOT.**” This certification is granted through Alberta K9. Mr. **BUREAU** has been Qualified in Provincial Court as an Expert in Fire Origin and Cause. He and **RIOT** have Qualified in Provincial Court and Court of King’s Bench as Experts in Canine Accelerant Detection.

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## **ADMINISTRATIVE AND TECHNICAL REVIEW –RANDY**

### **PARNELL:**

Firestorm Consulting Group Inc. Fire Investigator PARNELL entered the fire service on September 07, 2001. Mr. PARNELL began his career as a volunteer paid on-call firefighter with Leduc County before accepting a full-time position career with Edmonton Fire Rescue Services where he holds branch positions in the Fire Suppression, Fire Investigations Branches and Adjunct Training Officer. Investigator PARNELL is a Level II Safety Codes Officer (SCO#120630) – Fire Investigator II under the Alberta Safety Codes Act, which is the highest certification level for this discipline. He is also an FI-210 – Wildfire Investigator Trained to the Canadian Interagency Forest Fire Centre standard.

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