

**RFID**  
JOURNAL  
**LIVE!**

**20** **YRS**  
2003 - 2022

**MAY 17 - 19, 2022**  
MANDALAY BAY | LAS VEGAS, NV

## RFID Beefs Up Identification of Cattle Under Loan

Glen Kathler

Principal Investigator-RFID Applications



# The Alberta Beef Industry

- 70% of the 2.5 Million Cattle fed in Canada are fed in Alberta
- 1.7 million head fed and finished in Alberta
- 44 Feeder Co-operatives in the province
- The Picture Butte Feeder Co-operative (PBFC) finances about 40% of the Co-op financed cattle in the province



# Problem Statement

- The PBFC finances between 125,000-150,000 head of cattle for its members every year.
- Historically all financed cattle were hot-iron branded and the Co-op would like to eliminate the need for that
- Financed cattle need to be verified as collateral for the member's loan
- Retiring the loan when cattle are shipped to processing, needs to be more timely and efficient.







# Time line

- 3 year NSERC/Alberta Innovates funded ARD-3 project
  - Start Date April 1<sup>st</sup>, 2020
  - End Date March 31<sup>st</sup>, 2023



Natural Sciences and Engineering  
Research Council of Canada

Conseil de recherches en sciences  
naturelles et en génie du Canada

Canada



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# TAGS



- These are the original prototype feedlot tags that were converted to UHF
- They offer 5 different colours of the UHF tags and up to 11 colors on the standard dangle tag

UHF antenna



# TAGS



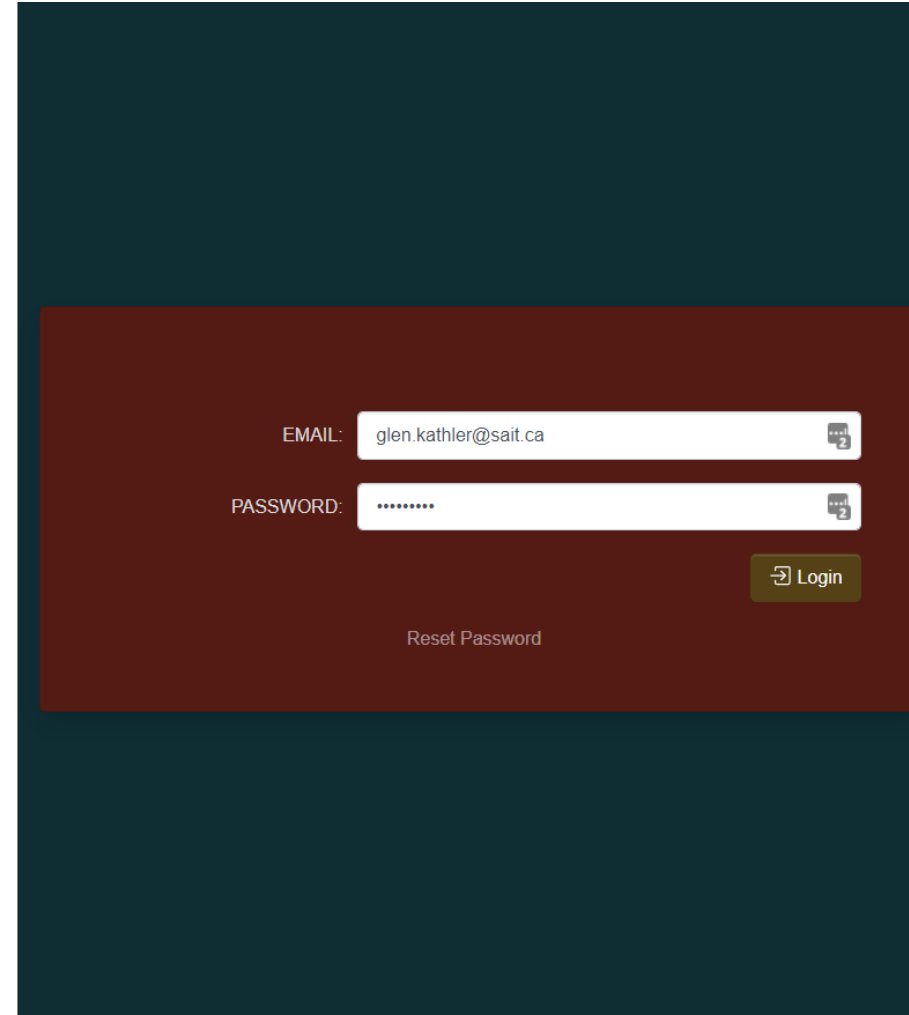
UHF antenna  
Embedded here



- These are a second vendors' feedlot tags with UHF embedded
- They offer 9 different colours of the UHF tags with various surface printing options



# Web Site



EMAIL: glen.kathler@sait.ca

PASSWORD: .....

Login

[Reset Password](#)



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# System Description

- This RFID system is to collect tag and animal data at 3 main intervals
  - When the animals are inducted into the feedlot and have a PBFC branded UHF RFID tag added to the animal
  - When the PBFC Supervisor does an RFID validation scan of the tagged animals after they have been inducted and sent to their home pen.
  - When the animals are shipped from the Feedlot to accelerate loan retirement
  - **Optional** – periodic inventory scans (typically by the PBFC Supervisor or the Member themselves)



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# Time line Detail

- Stages – Year 1
  - Design ✓
  - Development ✓
  - Integration ✓
  - Installation (4 locations) ✓
  - System Operation and bug fixes ✓
  - Pre Field Trial Test ✓
  - Tagging/Induction Events (16,836 cattle)✓
  - Validation Events✓
  - Shipping Events – *fall 2021*✓



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# Time line Detail

- Stages – Year 2
  - Design Improvements ✓
  - Development ✓
  - Integration ✓
  - Installation (5 additional locations) ✓
  - System Operation and bug fixes ✓
  - Tagging/Induction Events (48,008 cattle)✓
  - Validation Events✓
  - Inventory Events✓
  - Shipping Events – *fall 2022*



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# Time line Detail

- Stages – Year 3
  - Production Tagging/Induction Events (TBD)
  - Validation Events
  - Software Feature Improvements
    - – *underway for Web, gates and Mobile Application*
  - Field Testing



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# Project Inventory

- Field Hardware Units
  - Loading Gate UHF RFID Enclosure
  - Induction Gate UHF RFID Enclosure
  - *Coming Soon- Pre-loading Gate*
- Software
  - 2 Cloud based Websites
    - 1 for testing and 1 for production
  - Mobile Application
    - Validation scan
    - Inventory scan
    - Inspection Report
  - Field Unit
    - Mini-Webserver
    - Operation firmware



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## GATE STATUS

GATE ID: 64CFD9D61A19

Firmware version: 0.5.58

Lights ●●●

Health Messages

EVENT STATUS: In progress

MEMBER: ☒ Location Owner ☐ OtherANIMAL GENDER: ☒ Heifers ☐ Steers

LOT: 835g

PEN: 5

PAUSED LOT:

PAUSED PEN:

Start

Stop

Pause

Resume

Pairs: 280

## Tag Reads

Timestamp	UHF	LF	Pen	Lot
12/3/2020, 1:42:25 PM	300ED89F3000000000473063	124000205621475	5	835g
12/3/2020, 1:39:58 PM	300ED89F3000000000473064	124000196402404	5	835g
12/3/2020, 1:39:29 PM	300ED89F3000000000472999	124000196950941	5	835g



# Induction Complete



rfid@pbfccattle.com

Glen Kathler

Lot 864e is ready for validation

Hi Glen Kathler,

Lot 864e has completed the induction process with 131 animals ready for validation:

LOT: 864e

LOCATION: [REDACTED]

PEN: 14

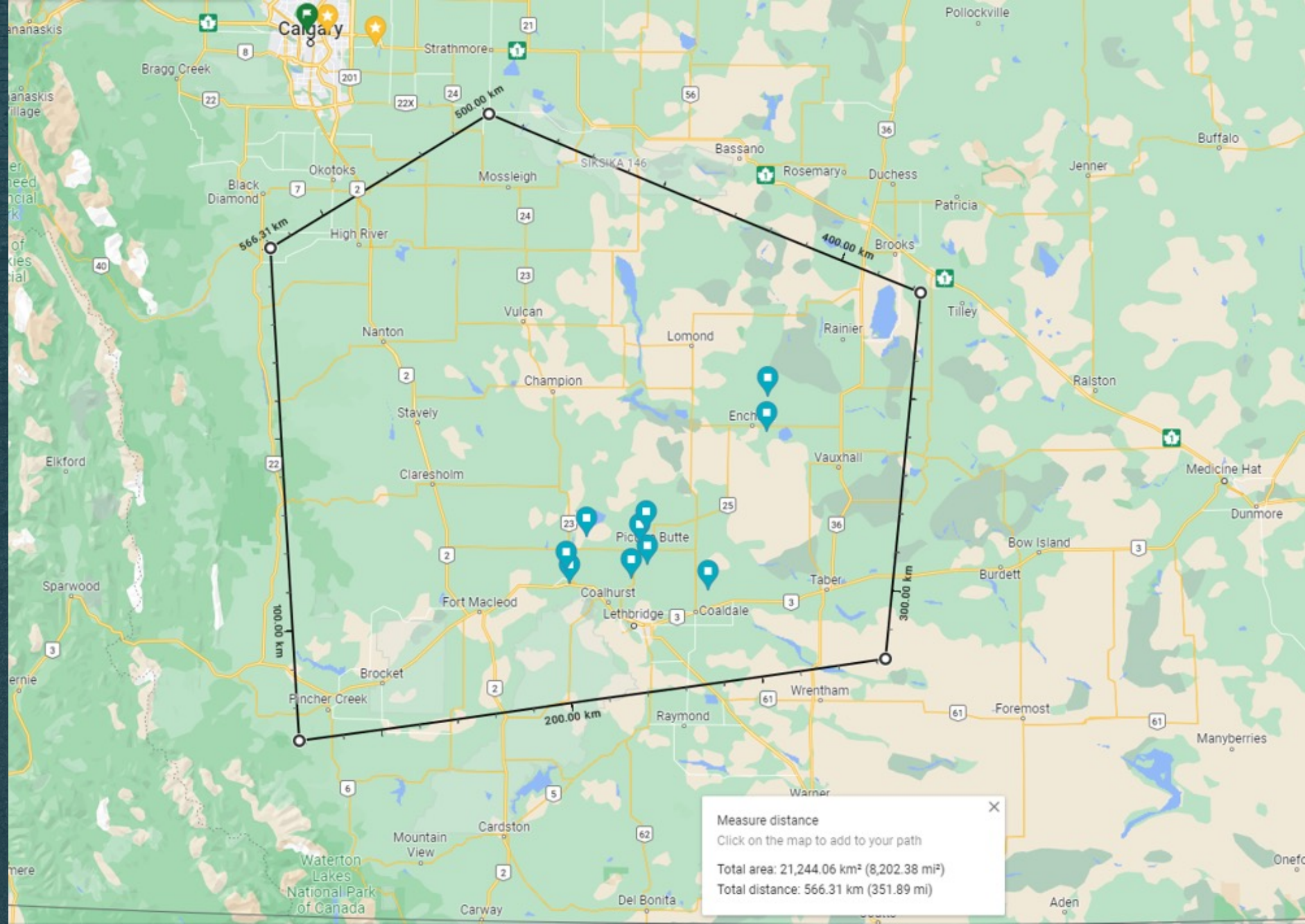
INDUCTION COMPLETED: March 11, 2021, 1:47 p.m.

To see other possible lots ready for validation please visit the PBFC site at:

<http://rfid.pbfccattle.com/#/reports/for-validation/>



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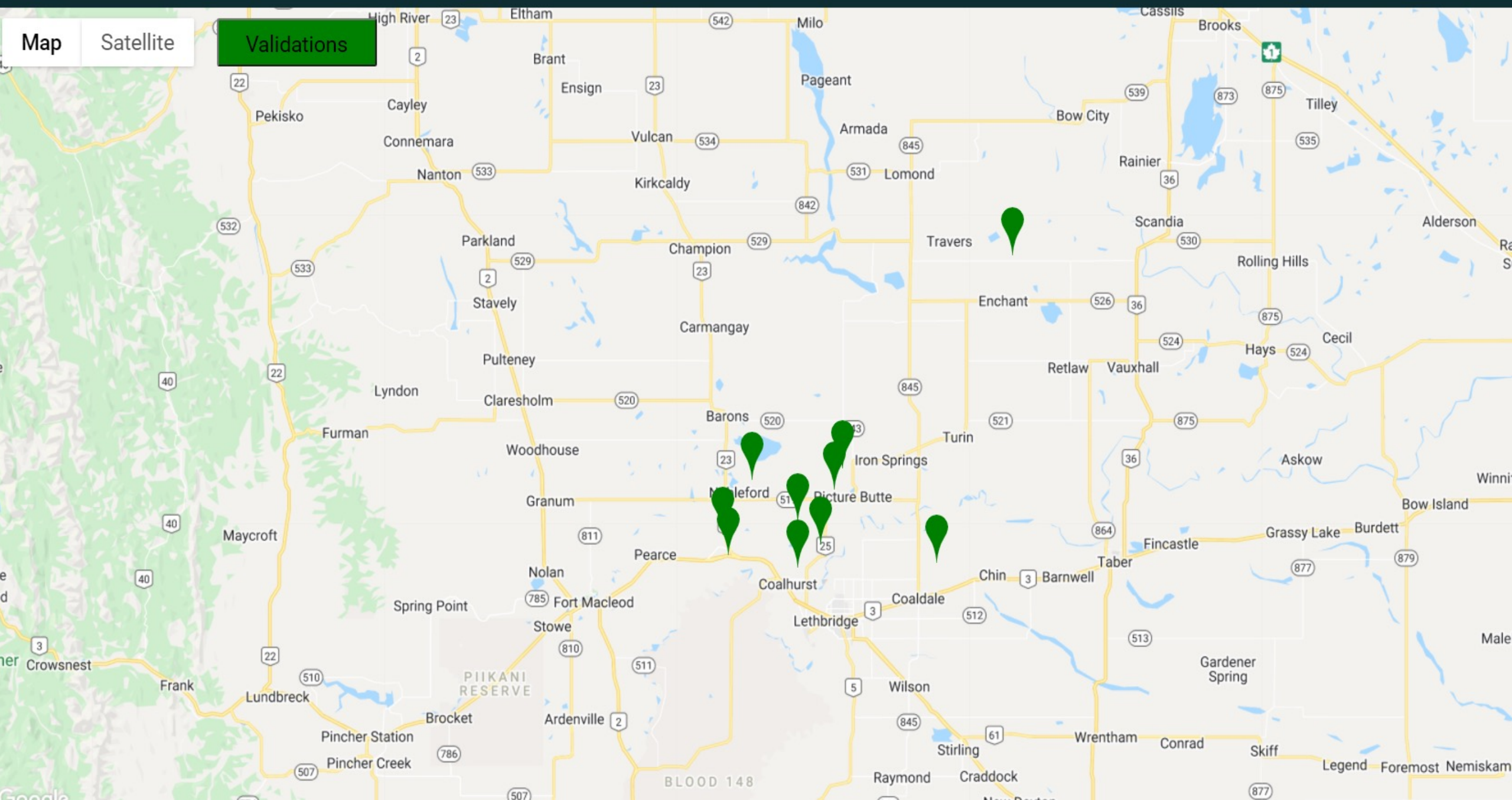




Map

Satellite

Validations



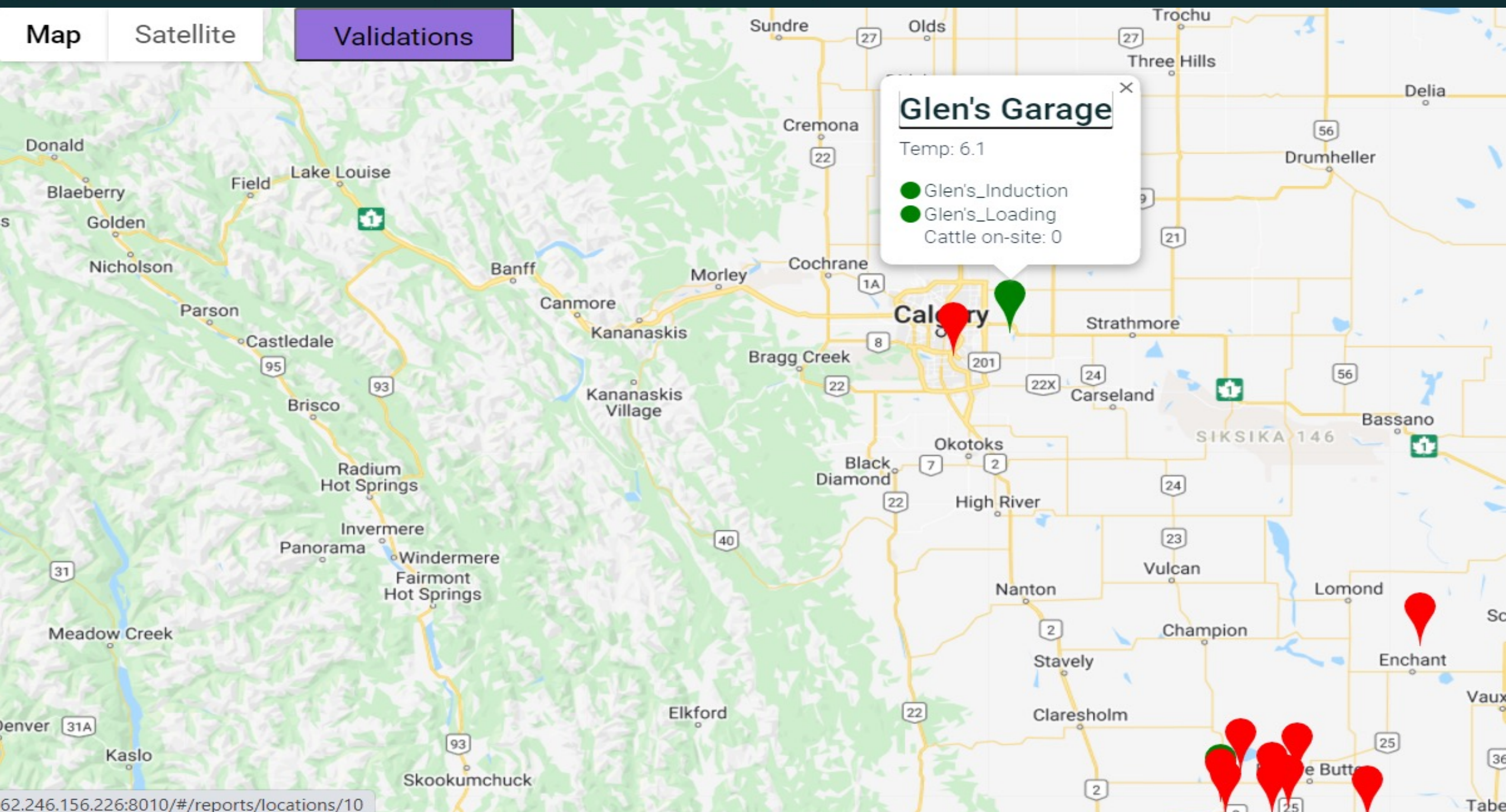




Map

Satellite

Validations





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START TIME

TUESDAY, JANUARY 4,  
2022

END TIME

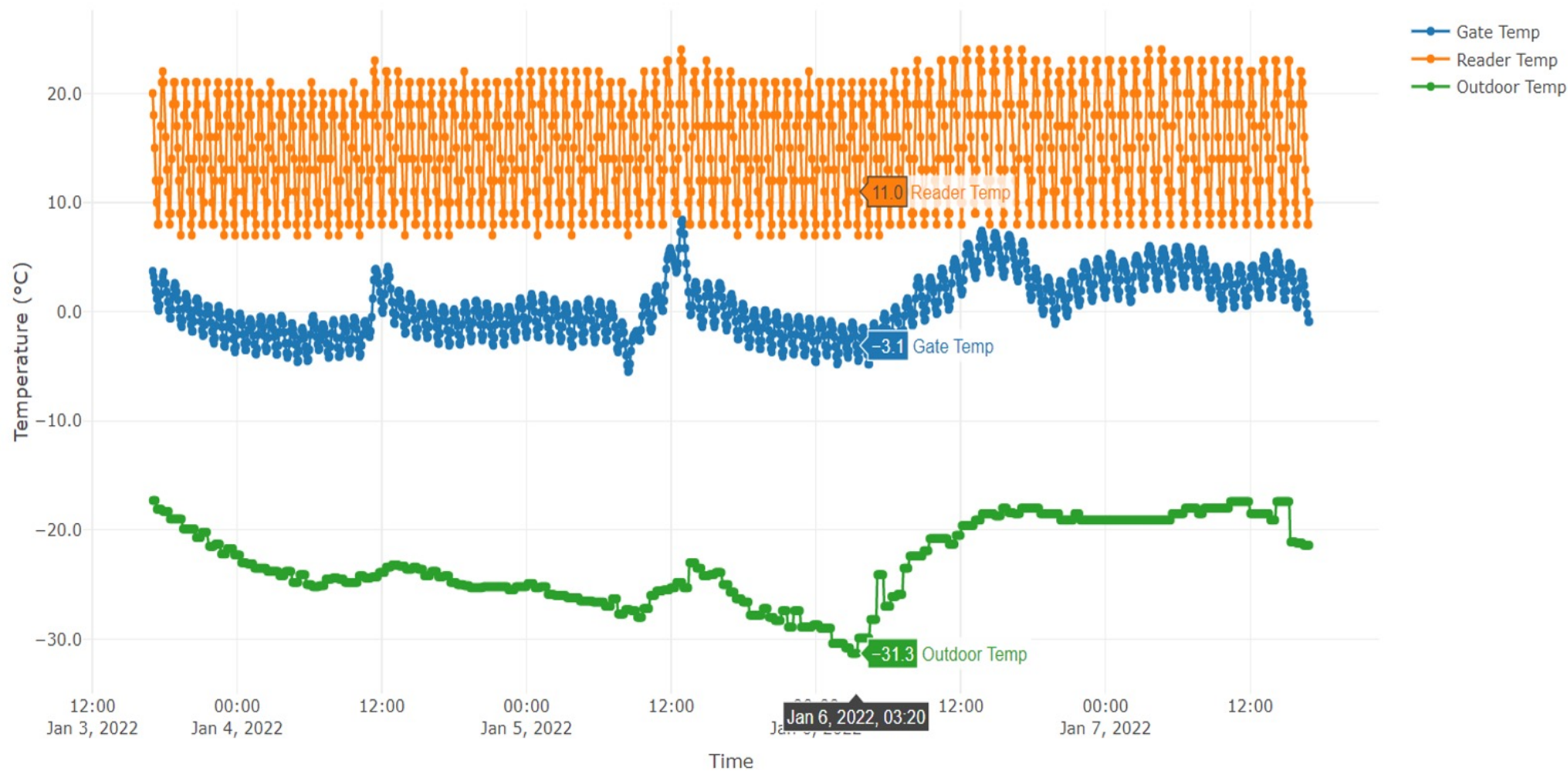
FRIDAY, JANUARY 7, 2022

Filter

Prev Gate

Next Gate

Gate:   (BB9)



# RFID JOURNAL LIVE!

START TIME



THURSDAY, JANUARY 6,  
2022

END TIME



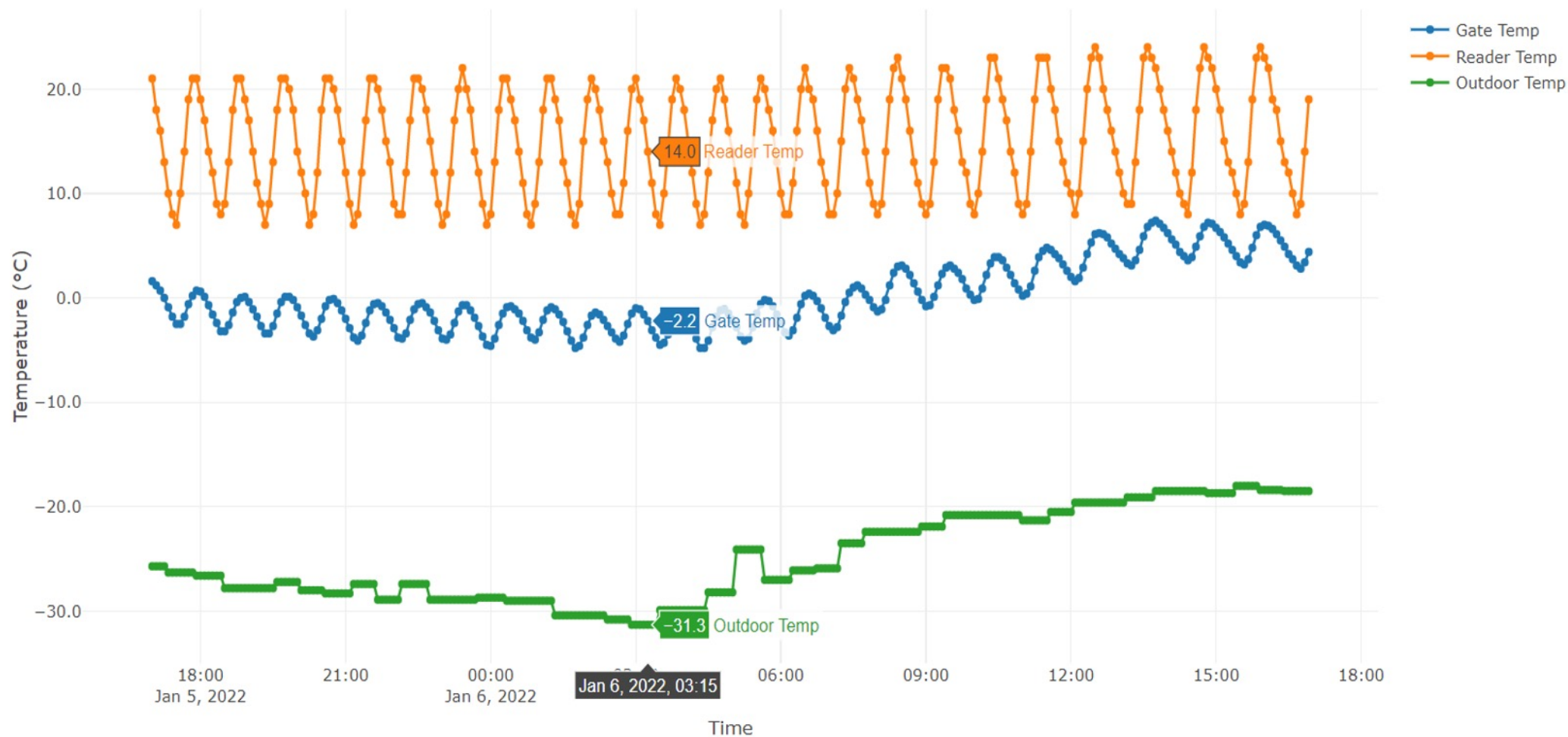
THURSDAY, JANUARY 6,  
2022

Filter

Prev Gate

Next Gate

Gate:   (BB9)





# Validation Event

- LF validations hope for 10% of the lot
- UHF validations are getting more than 30% of the lot
- Time required for the UHF validation is 10% of the time required for the LF validation.
- Automatically uploaded to Cloud Server and announcements sent







Picture Butte Feeder Cooperative Cattle  
Inspection Verification Declaration

Date: 17-02-2022

Member Name: [Redacted]

Number of Cattle: 103

Kind: ☐ Steer ☒ Heifer  
Method of Identification: ☒ RFID ☒ UHF ☐ LF  
☐ Brand

Reverse D Over Spir. Bar

I have taken a picture of the Cattle being verified and have forwarded an electronic copy of said picture to the PBFC office? ☒ Yes ☐ No

**Cattle Using Dangle Ear Tags/RFID as Identification**

Please be advised that I have inspected the herein referenced Cattle and found them to be tagged properly with Picture Butte Feeder Cooperative Association Dangle Ear Tags. I have also collected a representative sample of RFID Tags ('Sample RFID Tags') from the herein referenced cattle and cross referenced these RFID tags to the member submitted list of RFID tags for the herein referenced cattle ('Member Submitted RFID List') and have found the sample to be included in the Member Submitted RFID List. I

have submitted an electronic file of the RFID Tags to the PBFC Office. You are authorized to make payment for these particular cattle.

These Cattle have been purchased from: Alberta Prime

Verified by: Brock Murray

Supervisors Signature:

Comments:

Lot 935g, white tags,  
Branded LH





# Validation Complete



rfid@pbfccattle.com

Glen Kathler

Lot 864e has validated a batch of animals

Hi Glen Kathler,

Lot 864e has completed the validation process for 41 animals.

LOT: 864e

LOCATION: [REDACTED]

VALIDATION COMPLETED: March 11, 2021, 2:09 p.m.

Check the status of your lots at:

<http://rfid.pbfccattle.com/#/reports/status/>



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INVENTORY EVENT

DOWNLOAD

STARTED: 2022-03-24 13:05:02 ENDED: 2022-03-24 13:17:39

LOCATION: LOT: C22AUUS13S

ANIMALS SCANNED: 113 View Current Status

MANUAL ANIMAL COUNT: Not Added ENTER MANUAL COUNT: Enter count... Save Count

TAG COLOR: Orange

Notes

DATE	USER	NOTE
------	------	------

Enter note...

Save Note

TAG	SCANNED	GENDER	SCAN TYPE	POSITION
A404022206E2801170026871	2022-03-24 13:16:23	Steer	Inventory	49.89128857, -112.82211328
A403022206E2801170026818	2022-03-24 13:16:19	Steer	Inventory	49.89128857, -112.82211328
A404022206E2801170026911	2022-03-24 13:16:19	Steer	Inventory	49.89128857, -112.82211328
A404022206E2801170027052	2022-03-24 13:16:18	Steer	Inventory	49.89128857, -112.82211328
A404022206E2801170026906	2022-03-24 13:16:18	Steer	Inventory	49.89128857, -112.82211328
A404022206E2801170026939	2022-03-24 13:16:18	Steer	Inventory	49.89128857, -112.82211328



# Loading Gate

- Two or Four antennas
- RFID reader
- Light Stack
- Reset button. 😊
- Motion Sensor
- Manual Override



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# Loading Complete



Mon 3/21/2022 8:07 AM

rfid@pbfccattle.com

Animals have been loaded at [REDACTED]

To ✓ Glen Kathler

Hi Glen Kathler,

A loading event has been completed and uploaded.

LOCATION: [REDACTED]

LOT [REDACTED] 72 animals

Please enter a manual animal count for this event at the following page.

<https://rfid.pbfccattle.com/#/reports/locations/4/events/1991>



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- This is where the video slide goes and should play at full screen when started.



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# Contact



- Glen Kathler
  - 403-200-5512
  - [glen.kathler@sait.ca](mailto:glen.kathler@sait.ca)



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# THANK YOU

