



SecureGem™

SecureGem Oracles in Afghanistan

Michael H Peters

June 2021

Introduction



This first-of-its-kind solution **blockchain tracks** every step in the supply chain from mine to market, gathering data **directly from the real world**, without relying on potentially fraudulent human data entry



It **proves beyond doubt** that these Panjshir Valley emeralds were sourced ethically, without illegal smuggling and that they played no role in drug trafficking or other criminal activity



It gives end customers access to the **complete sourcing story**, ensuring that the rightful local owners of mineral resources can have a sustainable, secure, and prosperous future

The Journey

- On May 26, 2021, a SecureGem oracle was taken into the Panjshir Valley in Afghanistan
- This journey simulated many of the steps and conditions involved in a gem purchasing trip
- The purpose of this document is to demonstrate **our ability to understand what happened during a journey based solely on Blockchain data** captured by an oracle
- While this journey did not follow every aspect of a full buying trip, it does clearly demonstrate our ability to accurately track the route and timing of product from mine to market
- The oracles provide no-touch capabilities for capturing GPS location, timestamp, temperature, humidity, barometric pressure, and altitude at set intervals of time, regardless of human interaction

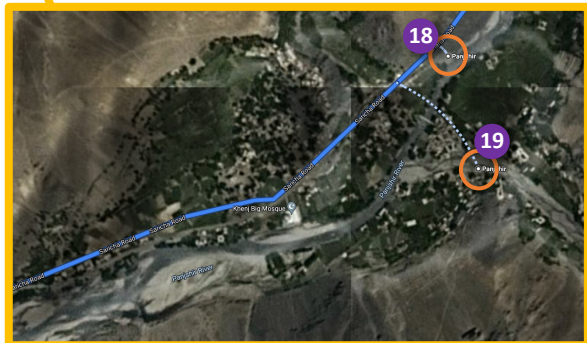




To view this Blockchain journey, scan the QR Code using the iPhone app below:

<https://apps.apple.com/us/app/securegem/id1489049060>

What the Blockchain told us:



Based only on data captured on the Blockchain, we can track the journey of Oracle #1010 from **Safid Cher Mine to Kabul**




1 May 26, 2021, 6:18AM AFT – Building near Wazir Akbar Khan Park, Kabul
Powered on and Journey QR Code scanned
Timestamp and event recorded on Blockchain; Location and other readings start being recorded after "check in" at mine

~7 hours

2 May 26, 2021, 1:38PM AFT – Hisa-e-Awal Panjshir, off Saricha Road, ~4km off road
Powered on. Control Point and Badges Scans. Official start of registered journey
GPS lock (3 satellites); Temp = 45.3C; Humidity = 18.1; Pressure = 757.6; Alt = 2786.1m


~12 minutes

3 -14 May 26, 2021, 1:50-1:54PM AFT – Hisa-e-Awal Panjshir, off Saricha Road, ~4km off road
Powered On. Scanned QR Code for Parcel. Same position as last reading. Took ten photos
GPS lock (3 satellites); Temp = 46.5; Humidity = 15.9; Pressure = 757.7; Alt = 2795.3.1m



~19 minutes

15-17 May 26, 2021, 2:13-2:14PM AFT – Just North of Mata in Panjshir Valley (GPS)
Powered on. Scanned Control Point. 4km since last read. Took two photos



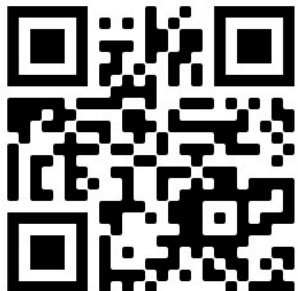
~20 minutes

18 May 26, 2021, 2:34PM AFT – On Saricha Road, just north of Khenj, along Panjshir River (GPS)
Automated stealth read. 4.3km since last read.
GPS lock (3 satellites); Temp = 35.5C; Humidity = 22.1; Pressure = 779.5; Alt = 2457.9m

~20 minutes

19 May 26, 2021, 2:56PM AFT – Village of Khenj (GPS)
Automated stealth read. <1km since last read. Short stay near village – less than 30 minutes.
GPS lock (3 satellites); Temp = 35.5C; Humidity = 22; Pressure = 777.4; Alt = 2454.4m

~20 minutes



Journey from *Safid Cher Mine to Kabul*

Part 2 of 3



What the Blockchain told us:



20

~20 minutes

May 26, 2021, 3:21PM AFT – South of Resturant dilkafanak, on Saricha Road
Automated stealth read. 12.5km since last read.
GPS lock (3 satellites); Temp = 35C; Humidity = 21.8; Pressure = 791.9; Alt = 2275.4m

21

~20 minutes

May 26, 2021, 3:42PM AFT – South of Resturant dilkafanak, on Saricha Road
Automated stealth read. 9m since last read. Based on time/distance, likely stopped here for ~30 minutes.
GPS lock (4 satellites); Temp = 35C; Humidity = 21.7; Pressure = 793.9; Alt = 2252.2m

22

~20 minutes

May 26, 2021, 4:03PM AFT – Along Saricha Road
Automated stealth read. 2.7km since last read.
GPS lock (6 satellites); Temp = 35C; Humidity = 21.5; Pressure = 804.4; Alt = 2098.7m

23

~20 minutes

May 26, 2021, 4:22PM AFT – Salang, along Saricha Road
Automated stealth read. 11.1Km since last read.
GPS lock (6 satellites); Temp = 35C; Humidity = 21.5; Pressure = 812.8; Alt = 1985.1m

24

~20 minutes

May 26, 2021, 4:43PM AFT – Near University of Panjshir, along Saricha Road
Automated stealth read. 15.7km since last read.
GPS lock (8 satellites); Temp = 34.8C; Humidity = 21.4; Pressure = 814.5; Alt = 1828.3m

25

~20 minutes

May 26, 2021, 5:07PM AFT – North of Alberoni University, along Saricha Road
Automated stealth read. 18.6km since last read.
GPS lock (8 satellites); Temp = 33.9C; Humidity = 21.4; Pressure = 820.1; Alt = 1870m

26

~20 minutes

May 26, 2021, 5:29PM AFT – North of Chaharikar, along A76
Automated stealth read. 17.3km since last read.
GPS lock (5satellites); Temp = 32.8C; Humidity = 21.3; Pressure = 824.9; Alt = 1592.8m

27

~20 minutes

May 26, 2021, 5:52PM AFT – Chaharikar, along A76
Automated stealth read. 13.7km since last read.
GPS lock (5 satellites); Temp = 32.4C; Humidity = 21.1; Pressure = 844; Alt = 1550.1m



Journey from *Safid Cher Mine to Kabul*

Part 3 of 3



28

May 26, 2021, 6:16PM AFT – Qarabagh, south of the Dergai Business Center

Automated stealth read. 12.4km since last read.

GPS lock (5 satellites); Temp = 31.9C; Humidity = 21.1; Pressure = 843.2; Alt = 1590.3m

~20 minutes

29

May 26, 2021, 6:39PM AFT – Mir Bacha Kot, along AH76

Automated stealth read. 11.2km since last read.

GPS lock (3 satellites); Temp = 31.5C; Humidity = 21; Pressure = 826.1; Alt = 1872.9m

~20 minutes

30

May 26, 2021, 7:00PM AFT – Sarak-E-Kabul Charikar

Automated stealth read. 13km since last read.

GPS lock (3 satellites); Temp = 31.4C; Humidity = 20.9; Pressure = 810.8; Alt = 1897.4m

~20 minutes

31

May 26, 2021, 7:21PM AFT – Building near Wazir Akbar Khan Park, Kabul

Automated stealth read. 18.5km since last read.

GPS lock (3 satellites); Temp = 28.9C; Humidity = 20.2; Pressure = 814.4; Alt = 1972.1m

~20 minutes

32

May 26, 2021, 7:42PM AFT – Building near Wazir Akbar Khan Park, Kabul

Automated stealth read. Same location as previous reading.

GPS lock (3 satellites); Temp = 28.9C; Humidity = 20.2; Pressure = 814.4; Alt = 1972.1m

~20 minutes

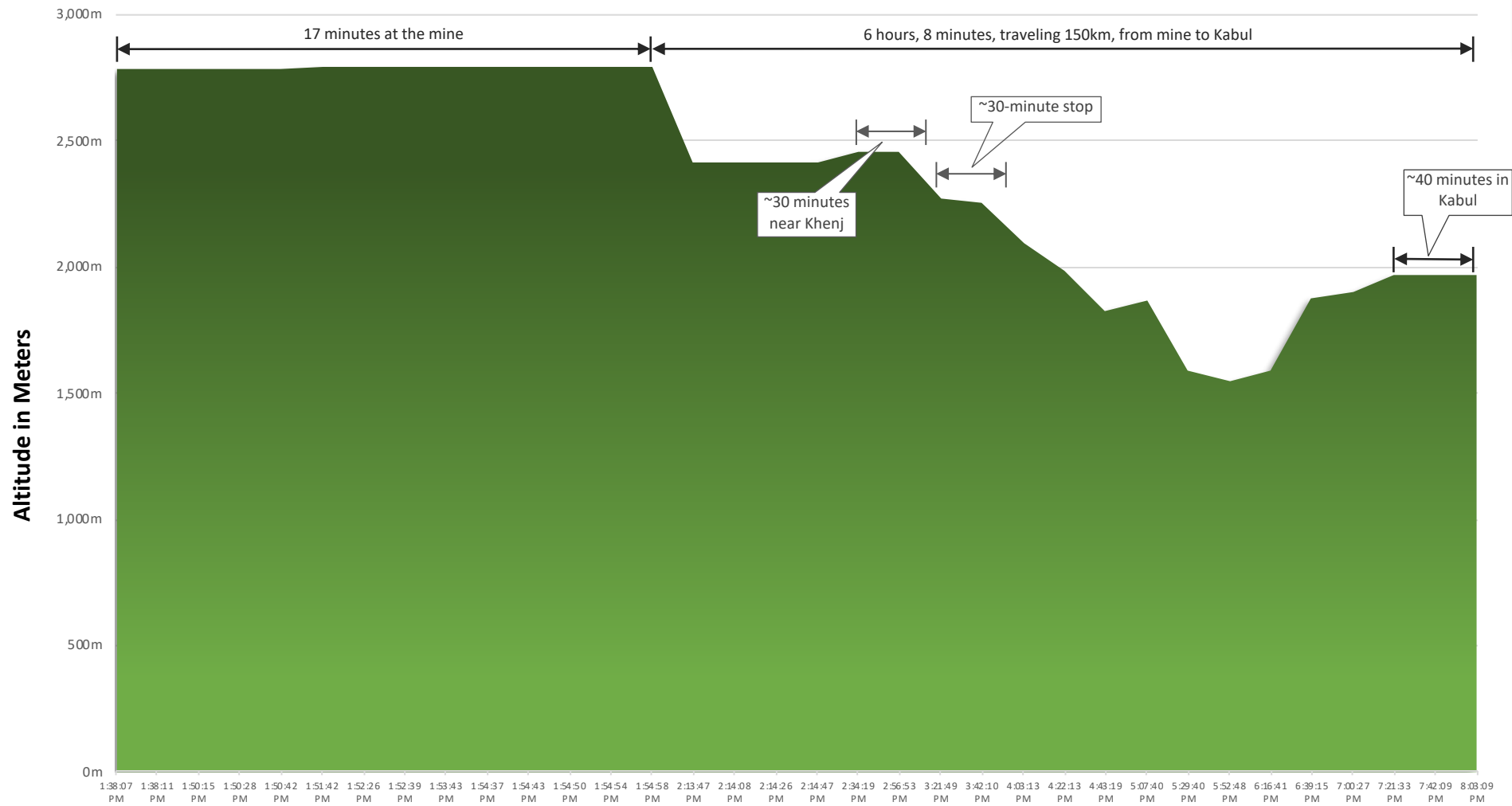
33

May 26, 2021, 8:03PM AFT – Building near Wazir Akbar Khan Park, Kabul

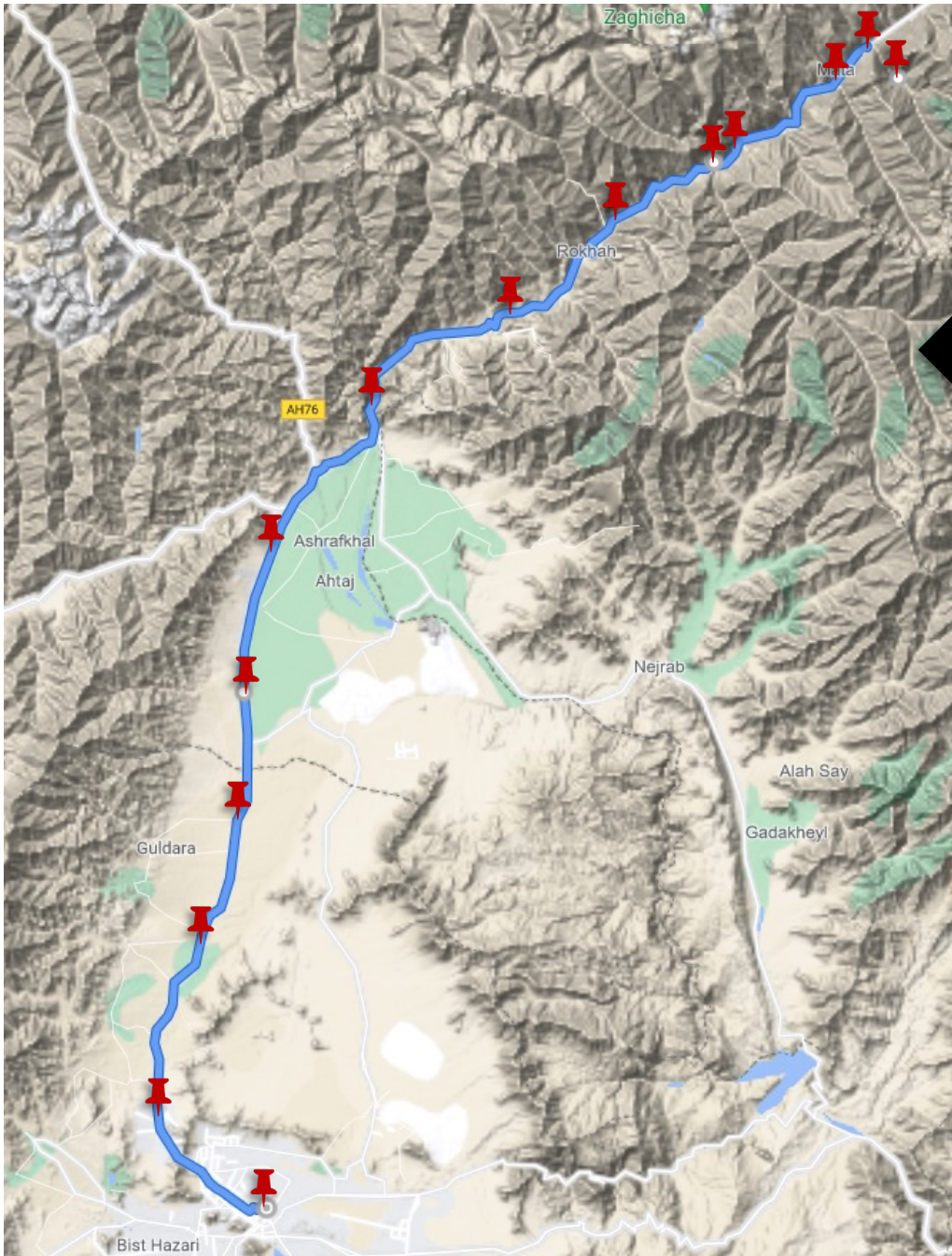
*Powered on and Synched Oracle. **Official end of journey.***

GPS lock (3 satellites); Temp = 28.8C; Humidity = 20.2; Pressure = 814.3; Alt = 1972.8m

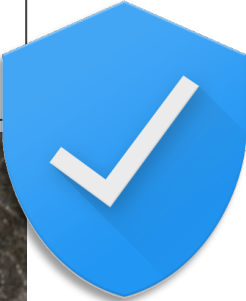
The Captured Timestamps and Frequency of GPS readings, corroborated by barometric pressure, temperature, and altitude, provide **high confidence in the path followed**



May 26, 2021, in Afghanistan Time (AFT)



By mapping the GPS coordinates of each point of the journey, we can track the exact path taken and **VERIFY** it matches the **expected path**



Actual Path

Expected Path



All Photographs are **embedded with metadata that validates** the time, location, and atmospheric conditions read by the Oracle when the picture was taken

