

How TerraQuest Provides End-to-End Traceability for Carbon Credits

Prepared by:



March 23, 2021

Overview

TerraQuest utilizes UPCO2 tokens to create carbon challenges for 3 three reasons:

- Retiring UPCO2 tokens tangibly reduces carbon through verified REDD+ projects
- End-to-end traceability
- Fungibility

More people ask about the second reason, end-to-end traceability, than anything else. So, we prepared this document to explain how it works.

TerraQuest adds another layer of traceability by providing users transaction receipts for the carbon offsets they earn.

Read on to see how it works.

The basic three layers of traceability

While a little oversimplistic, there are three key layers:

1. **Etherium Blockchain** - immutably records carbon token transactions
2. **Verra** - independently registers the exchange of tokens for verified carbon units the and the retirement of the carbon offsets
3. **TerraQuest** – provides carbon offset transaction receipts

Each is discussed in more detail below.

Ethereum Blockchain

Anyone can view UPCO2 transactions in the Etherscan smart contract database. Carbon offsets are achieved by retiring tokens which is recorded in the smart contract and tied to Verra meta data.

Etherscan is a database explorer for Ethereum, a decentralized smart contract platform.

Etherscan

Eth: \$1,585.86 (-1.71%) | 112 Gwei

All Filters Search by Address / Txn Hash / Block / Token / Ens

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Transaction Details

Overview Internal Txns Logs (3) State Comments

Transaction Hash: 0x2d562630c8294f0a8499eeafef54b88501b0322f5ea7248366b8642060796d56

Status: Success

Block: 11471014 501868 Block Confirmations

Timestamp: 77 days 2 hrs ago (Dec-17-2020 01:48:15 PM +UTC) Confirmed within 30 secs

From: 0x5155e9593973cac956641328a81ede1e140c27db

Interacted With (To): Contract 0xdaca64167918aba5e254431292ad0790e2b48265

Tokens Transferred: From 0xf3263bef3f1297... To 0x00000000000000... For 50 Universal Ca... (UPCO2)

Value: 0 Ether (\$0.00)

Transaction Fee: 0.03399886285727 Ether (\$53.92)

Gas Price: 0.00000011428571429 Ether (111.428571429 Gwei)

Ether Price: \$643.16 / ETH

Gas Limit: 320,118

Gas Used by Transaction: 305,118 (95.31%)

Nonce Position 23 264

Input Data: R @5{"approver":"4736e89b-1869-4fad-a224-295e3f00e0ad","destination":"2197073e-a77c-4441-9bfb-31e51c104593","origin":"ba33696-6697-4aa3-8220-535c17f6c71f","reference":"5531-241969230-241969279-VCU-048-MER-CD-14-934-01012015-31122015-1","version":0}

View Input As Decode Input Data

Block Chain affords immutable record keeping of all carbon credit transactions which prevents double dipping. This is the smart contract record for retiring 50 UPCO2 tokens on Dec. 17, 2020

The input data represents Verra meta data, which includes the serial number of the carbon credit project.

registry.verra.org/app/search/VCS/VCUs

Executive Summary

VERRA Standards for a Sustainable Future

VCS Projects Registered
1,687

VCS Projects without VCUs Issued
337

NEWS PUBLIC REPORT OPEN AN ACCOUNT LOGIN

Darkwoods Forest Carbon Project, NCC Bruce Kirkby

The Verra registry is the international third-party organization that certifies the transaction of voluntary carbon units VCUs.

All Projects Registered Pipeline VCUs Buffer

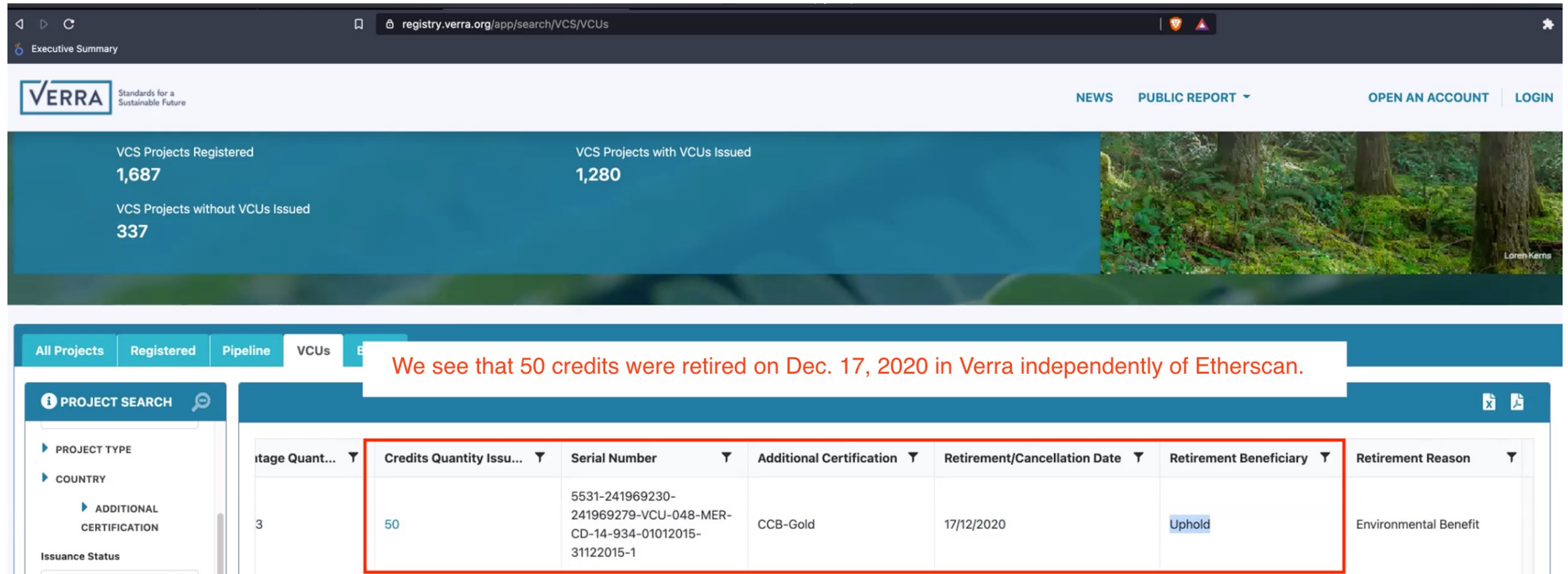
PROJECT SEARCH

PROJECT TYPE COUNTRY ADDITIONAL CERTIFICATION Issuance Status

We can find the retired VCUs for specific projects by searching for the serial number provided by Etherscan.

| ge E... | ID | Name | Coun... | Project Type | Methodology | Total Vintage Quant... | Credits Quantity Issu... | Serial Number |
|---------|-----|------------------------------|---------------------------------------|---|-------------|------------------------|--------------------------|--|
| 2015 | 934 | The Mai Ndombe REDD+ Project | Congo, The Democratic Republic of The | Agriculture Forestry and Other Land Use | VM0009 | 2,583,673 | 50 | 5531-241969230-241969279-VCU-048-MER-CD-14-934-01012015-31122015-1 |

Verra independently records the retirement of a credit in its registry. Shown above is the project name and the project serial number, the same number recorded in the blockchain.



The screenshot shows the Verra registry website. The top navigation bar includes the Verra logo, a search bar with the URL `registry.verra.org/app/search/VCS/VCUs`, and links for [NEWS](#), [PUBLIC REPORT](#), [OPEN AN ACCOUNT](#), and [LOGIN](#). Below the navigation bar, a summary section displays the following statistics:

- VCS Projects Registered: 1,687
- VCS Projects with VCUs Issued: 1,280
- VCS Projects without VCUs Issued: 337

A photograph of a forest is visible on the right side of this section. Below the summary, a tabbed interface shows 'All Projects', 'Registered', 'Pipeline', and 'VCUs'. The 'VCUs' tab is selected. A red box highlights a specific entry in the table, with a callout stating: "We see that 50 credits were retired on Dec. 17, 2020 in Verra independently of Etherscan."

| Stage Quant... | Credits Quantity Issu... | Serial Number | Additional Certification | Retirement/Cancellation Date | Retirement Beneficiary | Retirement Reason |
|----------------|--------------------------|--|--------------------------|------------------------------|------------------------|-----------------------|
| 3 | 50 | 5531-241969230-241969279-VCU-048-MER-CD-14-934-01012015-31122015-1 | CCB-Gold | 17/12/2020 | Uphold | Environmental Benefit |

By looking up the serial number in Verra that was supplied by the blockchain, we see the 50 credits were retired when the UPCO2 tokens were retired. The value of the tokens goes to UPCO2, the organization that purchased the carbon offsets from the project.

In Verra, we can also look up which projects produced the verified carbon offsets purchased by UPCO2 when they created the tokens, in this case, the Mai Ndombe REDD+ Project.

registry.verra.org/app/projectDetail/VCS/934

Executive Summary

VERRA Standards for a Sustainable Future

The Mai Ndombe REDD+ Project, located in western DRC, Africa, will protect 248,956 hectares of forest from industrial logging, unsustainable fuel wood extraction and slash and burn agriculture. Carbon validation will be undertaken by the Verified Carbon Standard (VCS) and major socio-economic co-benefits ensured by the Climate, Community and Biodiversity (CCB) standard. The project is developed and managed in a joint venture by forest carbon leaders ERA-Ecosystem Restoration Associates Inc. and Wildlife Works Carbon LLC. This groundbreaking project will be the first of its kind in the Congo Basin and utilizes the novel methodology developed by Wildlife Works, VM0009, 'Methodology for Avoided Deforestation' approved by the VCS in October, 2012. The project is estimated to deliver over 175MT CO₂-e over 30 years.

VCS PIPELINE DOCUMENTS

| Document Name | Date Updated |
|---------------|--------------|
| | |

VCS REGISTRATION DOCUMENTS

| Document Name | Date Updated |
|------------------------------|--------------|
| PROJ_DESC_934_19NOV2012.pdf | 10/08/2017 |
| PP_REG_REP_934_07DEC2012.pdf | 10/08/2017 |
| VALID_REP_934_06DEC2012.pdf | 10/08/2017 |

The Mai Ndombe REDD+ Project Description

Verra

Detailed project descriptions are openly available through Verra.



| | | |
|----------------------|---|--------------------------|
| Project Title | The Mai Ndombe REDD+ Project | |
| Version | 1.63 | |
| Date of Issue | 19 November 2012 | |
| Prepared By | Wildlife Works Department of Carbon Development | |
| Contact | Jeremy T. Freund, VP Carbon Development, Wildlife Works | Jeremy@wildlifeworks.com |

<https://www.everlandmarketing.com/wp-content/uploads/2019/12/Mai-Project-Description.pdf>

TerraQuest

TerraQuest Carbon Credit Retirement Transaction Record

[Oxdaca64167918aba5e254431292ad079022b48265](#)

[View this Ethereum record in Etherscan](#)

Once UPCO2 adds wallet support for retiring tokens to its Application Programming Interface, TerraQuest will provide users transaction records for their carbon credit offsets (ETA June 2021).