

PLASTIC IMPACT PROTOCOL™

VERSION 4.5

The Platinum Standard for plastic credit governance.

Regulatory Alignment Framework. Jurisdictional Tagging. Machine-Readable Claim Package™ Schema.

Effective 1 June 2026 · Supersedes Plastic Impact Protocol™ v4.4 (May 2026)

Issued by Global Environmental Impact Solutions, LLC

Service-Disabled Veteran-Owned Small Business · 13 CFR 128.203

Wyoming SDVOSB · SAM.GOV REGISTERED · Patent Pending

GEISolutions.com · Contact@GEISolutions.com

Governing Eco-Credits with Purpose & Precision



GEIS™

GLOBAL ENVIRONMENTAL
IMPACT SOLUTIONS

Document Control

Issued by	Global Environmental Impact Solutions, LLC (GEIS)
Version	v4.5 · Regulatory Alignment Framework · Jurisdictional Tagging · Machine-Readable Data Schema · Draft Pyrolysis Methodology (Annex C, not activated)
Status	Active · PIC-C™, PIC-MR™, and PIC-T™ Live · Hybrid Claim Architecture™ Governing
Supersedes	Plastic Impact Protocol™ v4.4 (May 2026)
Effective	1 June 2026
Issuer status	SDVOSB under 13 CFR 128.203 · Wyoming LLC · SAM.GOV REGISTERED
Patent	Patent Pending · Inventor: Yerahmeel Ben-Yehudah · Assignee: GEIS
Repository	Deposited at Zenodo, 2026 · DOI and citation reference at GEISolutions.com
Governing doc	This Protocol controls. Developer Handoff and Technical Specification are subordinate in all conflicts.
Contact	GEISolutions.com · Yerahmeel@GEISolutions.com

Version History

Version	Effective	Key changes
v4.5	1 June 2026	Added Regulatory Alignment Framework (Section 1.4); PPWR Producer Responsibility Baseline (Section 6.3); Jurisdictional Tagging Framework (Section 6.4); Draft Pyrolysis-to-Secondary-Material Methodology open for public comment (Annex C, not activated); GEIS Machine-Readable Data Schema (Appendix 10). Version references updated throughout.
v4.4	May 2026	Added Secondary Market Architecture (Section 17) and Holding Period Governance (Section 18); Market Participant Accounts; Buffer Pool (Section 12.7); Conformance Levels (Section 19); Approved Verifier framework (Section 11.5); FPIC (Section 4); expanded market failures table to 16; worked examples (Appendices 8 and 9).
v4.3	Apr 2026	Initial public release with PIC-C™, PIC-MR™, PIC-T™, Hybrid Claim Architecture™, Evidence Partitioning™, Registry ID system.

Table of Contents

PART II — ACTIVE METHODOLOGIES

A	Collection Class (PIC-C™)
B	Mechanical Recycling Class (PIC-MR™)
C	Treegens / Tier 4 Coastal International Class (PIC-T™)

PART III — RESERVED ANNEXES

C	Advanced Recycling — Hard Gate
D	Reuse & Repurposing — Hard Gate
E	Pre-processing & Aggregation — Hard Gate
F	Plastic Avoidance Class (PIC-AV™) — Hard Gate
G	Biodegradable Processing Class (PIC-BP™) — Hard Gate

PART IV — APPENDICES

01	Minimum Project Description Contents
02	Minimum Monitoring Report Contents
03	Minimum Verifier Competence Expectations
04	Annex Activation Governance
05	Annex Activation Notice — Required Format
06	Trademark Schedule

07	Sources Cited
08	Worked Example 1 — PIC-C™ Domestic Collection
09	Worked Example 2 — PIC-T™ International Coastal Collection

READER'S INTRODUCTION

Before the Standard. For the corporate buyer, the curious reader, the institutional investor, the regulator, the secondary-market participant, and anyone who wants to understand why this document matters.

Why "The Platinum Standard." The Protocol is positioned as the Platinum Standard for plastic credit governance because it closes the sixteen documented structural failure modes of existing plastic credit systems at the architectural level rather than at the marketing level. The Platinum designation refers to the combination of five elements that no other plastic credit program currently brings together: (i) published, versioned, publicly auditable governance; (ii) mandatory third-party verification under the Approved Verifier Framework (Section 11.5); (iii) physical evidence requirements including Field-to-Facility Weight Reconciliation (Section 10.3) and Individual Participant Records (Section 10.4); (iv) the anti-double-counting controls embedded in the Hybrid Claim Architecture™ and operationalized through the Zero Double Counting Rule (Section 2); and (v) the Conformance Levels (Section 19) and Revalidation regime (Section 18.2) that prevent quality degradation over time.

I. What Is a Plastic Credit?

Every year the world produces more than 400 million metric tonnes of plastic. [1] Of all the plastic ever produced, fewer than ten percent has ever been recycled. [2] The rest ends up in landfills, incinerators, open dumps, waterways, and oceans, breaking down into microplastics that have now been confirmed in peer-reviewed studies of human blood, [3] breast milk, [4] lung tissue, [5] cirrhotic liver tissue, [6] and cardiac tissue. [7] In April 2026 the U.S. Environmental Protection Agency, in partnership with the U.S. Department of Health and Human Services and a \$144 million ARPA-H investment under the STOMP program, included microplastics for the first time as a priority contaminant group in the draft Sixth Contaminant Candidate List under the Safe Drinking Water Act. [8] This is no longer an environmental abstraction. It is a measured human health exposure.

A plastic credit is a financial instrument representing one metric tonne of plastic that has been collected from the environment or processed through a qualified recycling pathway. A company purchases the credit and provides the financial capital that funds the cleanup. The credit is then permanently retired, and the buyer receives the right to make a specific, evidenced, non-duplicative impact claim. The difference between that outcome and a paper exercise is the protocol that governs it.

400M+ METRICTONNESOFPLASTIC < 10% OF ALL PLASTIC EVER \$144M ARPA-H STOMP INVESTMENT, PRODUCED ANNUALLY PRODUCED HAS BEEN APRIL 2026 RECYCLED

II. Why This Document Exists

As of the date of this document, there is no single universally adopted standard governing the plastic credit market. Every organization sets its own rules. No two programs use the same evidence requirements, additionality definitions, credit issuance thresholds, or claims restrictions. The result is a market in which credits sold for incineration are described as recycling, certificates are generated at scale without underlying activity, additionality fails on the majority of audited projects, and corporate buyers carry the legal and reputational consequences.

GEIS was built to change that. The Plastic Impact Protocol™ is the first published, versioned, publicly auditable governing standard for plastic credits. Every section is written. Every status code is defined. Every Hard Gate is documented. Every claim a buyer is permitted to make is templated. The Protocol controls. All other GEIS materials, including the dApp, the Registry, the on-chain token system, partner agreements, marketing, and investor documentation, are subordinate.

In their public statements, both Nestlé and Danone, two of the largest food and beverage companies in the world, have explicitly identified the absence of a credible standard as the reason they have not deployed plastic credits at scale. Nestlé: "We don't believe in the effectiveness of plastic credits without a credible, solid, and harmonized global standard." [9] Danone: "We believe there is a need for standardized methodologies to measure the impact of voluntary initiatives." [10] This Protocol is the answer to that gap.

"	We don't believe in the effectiveness of plastic credits without a credible, solid, and harmonized global standard.
NES TLÉ — O	FFICIAL COMPANY POSITION
"	We believe there is a need for standardized methodologies to measure the impact of voluntary initiatives.
DAN ONE — S	POKESPERSON STATEMENT

III. How the Market Failed — and What GEIS Built Instead Sixteen Documented Failures. Sixteen Structural Answers. Every failure below is documented in published research, investigative journalism, regulatory reviews, or the public statements of the programs themselves.

#	The Market Failure	The GEIS Answer
1	Additionality fraud. The majority of audited plastic offsetting projects (83 percent per the BFFP/GAIA Smoke and Mirrors report, November 2023) had been operating before credits were issued. [11]	Three independent additionality tests are required: barrier, common-practice, and economic plausibility. The dApp embeds additionality evidence at the individual level: direct payment to a named individual for a verified weight, on a documented date, at a confirmed GPS location.
2	Volume-based auditor compensation. Programs allowed validators and verifiers to be paid more when projects issued more credits.	GEIS prohibits volume-based compensation absolutely (Section 11). Independence declarations are signed and retained before assignment. A five-percent Major Discrepancy threshold creates a quantitative trip-wire.
3	No chain-of-custody. Credits issued without documented handoff between collection, sorting, and downstream destination.	Every batch carries a Custody Transfer Record. Field-to-Facility Weight Reconciliation is mandatory (Section 10.3). Approved facility lists are pre-published and ad-hoc destinations are prohibited.
4	Double-counting of credits. The same kilograms supporting more than one issuance under one or more programs.	The Integrity Lock Flag™ is set at the database constraint level. The same VPK ledger entry cannot support more than one issuance under any circumstances.
5	Collected plastic not rejoining the circular economy. Programs counted collection without auditing whether the plastic actually reached a controlled downstream destination.	All eligible activity must terminate at a GEIS pre-approved downstream facility. Mere collection without controlled destination is not creditable.
6	Phantom credits. Issuance figures unsupported by underlying activity.	Quantity Waterfall (Section 3, rows A through R) requires every kilogram to be traced from gross reported to verified eligible to issued PICs, with verifier-confirmed deductions.
7	Pre-existing activity credited. Programs issued credits for activity that would have occurred regardless of the credit.	Additionality is tested at project design, not asserted. Barrier test, common-practice test, and economic plausibility test are required. Section 6.
8	No published governing standard. Most programs operated without a publicly available, versioned methodology.	This Protocol is the standard. Published. Versioned. Auditable. Referenced in every Claim Package™.
9	Incineration sold as recycling. An investigation by AFP and SourceMaterial of four major plastic credit marketplaces (February 2025) found that only around a quarter of credits issued were for projects that recycle, while more than two-thirds were for co-processing in cement kilns or other forms of incineration. [12]	Reserved Annex C (Advanced Recycling) is a Hard Gate. Zero VPK recorded, zero PICs issued, until GEIS publishes a formal activation notice with a technology-specific emissions methodology.
10	Certificate fraud at scale. Approximately 700,000 fake recycling certificates generated at up to 38 times actual processing capacity, identified by the India Central Pollution Control Board (CPCB) in October 2023 and documented by the Centre for Science and Environment in its October 2024 report; cumulative fines of ₹355 crore imposed by CPCB. [13]	Field-to-Facility Weight Reconciliation is mandatory (Section 10.3). The Integrity Lock Flag™ blocks duplicate issuance. The Registry is the authoritative record.
11	Token burn as retirement. Blockchain platforms treated burning a token as equivalent to retiring a credit.	The GEIS Registry™ is the authoritative legal source of truth (Section 13.1). No token burn constitutes a valid retirement unless the Registry sets the unit to RTRD status first. The on-chain burn is the final action, not the

		initiating action.
12	No community safeguards. Multiple certified facilities suspended after residents reported inadequate consultation and health impacts.	Section 4 requires Community Consultation documentation for all projects in or adjacent to residential communities. A Community Consultation Status field is part of the Project Master Record. Projects cannot proceed to validation until consultation is documented.
13	No EPR surplus testing. Programs failed to account for activity that was already legally required under Extended Producer Responsibility regimes.	Section 6 requires Regulatory Surplus testing. EPR Notification (EPRN) is required within 90 days of any new or expanded EPR obligation covering credited activity. Baseline refresh and reassessment is triggered.
14	No individual-level data. Programs aggregated activity at project or facility level, masking the underlying participants.	Section 10 establishes Individual Participant Records as the highest-integrity evidence tier. Thirteen mandatory fields per individual collection event, including GPS, weight, payment status, and submission timestamp.
15	Unverifiable weight claims. Programs accepted self-reported weights without third-party measurement.	Approved facility weight tickets, certified scale records, and Field-to-Facility Reconciliation are mandatory. Verifier review of the Quantity Waterfall is required before issuance.
16	No GPS-confirmed collection data. Programs accepted collection claims without verifiable location. IV. Why Plastiks Is Not Scaling — and Why GEIS Will The most prominent blockchain-based plastic credit competitor, Plastiks based system across approximately 20 countries with a community-mark Web2-friendly user interface. Plastiks has been operating since appr not scaled to meaningful corporate adoption. The reasons are structural failures in the table above. PLASTIKS WHY IT BLOCKS SCALE STRUCTURAL LIMITATION No published Corporate ESG, legal, and audit tea governing cannot evaluate, ingest, or defend standard issued under a methodology that doe exist as a versioned document.	GPS coordinates within registered project bounds are mandatory per collection event. Accuracy worse than 100 meters triggers a warning. Accuracy worse than 500 meters blocks submission. Section 10.1. iks (plastiks.io), operates a token- eted PLASTIK token and a oximately 2021. The platform has ral and they map directly to the HOW PIP™ V4.5 CLOSES IT ms The Protocol is published, versioned, a credit and publicly auditable. Section 14 s not templates the legally defensible claim language.

IV. Why Plastiks Is Not Scaling — and Why GEIS Will The most prominent blockchain-based plastic credit competitor, Plastiks (plastiks.io), operates a token- based system across approximately 20 countries with a community-marketed PLASTIK token and a Web2-friendly user interface. Plastiks has been operating since approximately 2021. The platform has not scaled to meaningful corporate adoption. The reasons are structural and they map directly to the failures in the table above.

PLASTIKS STRUCTURAL LIMITATION	WHY IT BLOCKS SCALE	HOW PIP™ V4.5 CLOSES IT
No published governing standard	Corporate ESG, legal, and audit teams cannot evaluate, ingest, or defend a credit issued under a methodology that does not exist as a versioned document.	The Protocol is published, versioned, and publicly auditable. Section 14 templates the legally defensible claim language.
PLASTIKS STRUCTURAL LIMITATION	WHY IT BLOCKS SCALE HOW P	IP™ V4.5 CLOSES IT
Developing-world operations only	Corporate buyers in U.S. and EU GEIS jurisdictions face unresolved waste-Mater export, community-harm, and traceability feder questions when credits originate expan exclusively from countries without quali equivalent regulatory oversight.	launches with U.S.-licensed ials Recovery Facilities under al regulation. International sion is gated on per-nation fication under Section 16.2.
No individual- level GPS-confirmed evidence	The buyer receives an aggregated impact Indiv number with no per-event evidence trail requi and cannot make a defensible specific produ claim. curat and p 13.6)	idual Participant Records are red. Evidence Partitioning™ at burn ces a per-buyer, non-overlapping ed subset of photos, GPS data, articpant summaries (Section .
Token burn treated as retirement	A token burn is a smart-contract event. It Regis carries no legal record of impact burn attribution. A buyer who burns a token Recor without a registry record holds no forma credentialed claim.	try status is set first. On-chain is final action. Burn Attribution d™ and Claim Package™ are the l claim instruments (Section 13).
No U.S. MRF infrastructure	Lacks federal procurement access, EPR-GEIS compliance positioning, and the U.S.-SAM.g resident emissions and chain-of-	is SDVOSB-registered on ov. U.S. MRF partners are d. Section 8 governs facility val.

	custody signe documentation required for corporate appro ESG defensibility in U.S. markets.	
No secondary market architecture	Resale, transfer, and price discovery Secti occur informally, without registry- Parti controlled lot standardization, transfer stand accounting, or holding period rules governance.	ons 17 and 18 establish the Market cipant Account, transfer fee, lot ardization, and holding period .
No EPR or regulatory surplus testing	Buyers in EPR-regulated jurisdictions Secti cannot tell whether a credit represents Notif genuinely additional activity or activity testi already required by law.	on 6 and Section 6 EPR ication rules govern surplus ng and refresh triggers.
Same fraud failures as the broader market	Plastiks does not architecturally close All s additionality fraud, certificate fraud, struc double-counting, or volume-based marke compensation problems. the d	ixteen failures above are closed turally. The failures are not a ting claim; they are encoded in ocutment.

GEIS does not compete with Plastiks on the same axis. GEIS is the published governing standard, and standards do not compete with platforms. Standards are what platforms must conform to. Plastiks, like any other plastic-credit platform, may at any time elect to migrate eligible activity onto a standard that meets corporate buyer requirements. Section 16 of this Protocol governs migration.

V. How to Read This Protocol

AUDIENCE	PRIMARY SECTIONS
Corporate buyers and ESG teams	Sections 1, 13, 14, and this Introduction. Section 14 governs what you may and may not say after burning. Section 13 governs the Claim Package™ you receive.
Project developers and MRF partners	Sections 5 through 11. Section 7 is the full lifecycle. Section 9 governs IDs and status codes. Section 10 governs monitoring and Individual Participant Records.
dApp developers and technology partners	Sections 3, 9, 10, 13, 14, 17. The Hybrid Claim Architecture™ in Sections 13.4 through 13.7 is the governing framework for burn attribution and evidence delivery. Section 17 governs the secondary market account architecture.
Institutional investors and federal procurement	Sections 11, 12, 16, and 17. GEIS is SAM.gov registered as an SDVOSB.
Secondary-market participants and resellers	Sections 17 and 18, plus Section 9.3 (Account Architecture) and Section 12 (Transfer & Burn). The Reseller Agreement is a separate commercial document that incorporates these sections by reference.
Treegens and international project proponents	Methodology C (PIC-T™), Section 16.2 International Expansion Pathway, and Section 4 Safeguards.
Regulators and policy professionals	Sections 6, 4, 17.7, and Reserved Annexes C, F, G. The Section 9 status vocabulary is designed for regulatory legibility.

PART I

PART I — CORE

PROGRAM STANDARD Governance, units, lifecycle, assurance, registry, claims, safeguards, and the secondary market.

SECTIONS OF STATUSCODESIN ACCOUNT T YPES IN

GOVERNING RULES THE CONTROLLED THE REGISTRY
VOCABULARY ARCHITECTURE

SECTION 1.

PURPOSE, SCOPE & PROGRAM POSITIONING This Protocol governs how GEIS registers projects, defines eligibility, validates project design, monitors project activity, verifies performance, issues Plastic Impact Credit™s (PICs), controls ownership and burn records, governs secondary-market activity, and restricts the way units, sponsorships, and impact attributions may be described in the market.

GEIS operates an independent plastic crediting framework designed for structural compatibility with later migration into recognized third-party certification systems. As of v4.5 effective date, the active issuance classes are:

- PIC-C™ — Collection Class • PIC-MR™ — Mechanical Recycling Class • PIC-T™ — Treegens / Tier 4 Coastal International Class (issuance gated on per-nation qualification under Section 16.2)

Reserved (Hard Gate, not active for issuance until formal activation notice published per Appendix 5):

- Reserved Annex C — Advanced Recycling • Reserved Annex D — Reuse & Repurposing • Reserved Annex E — Pre-processing & Aggregation • Reserved Annex F — PIC-AV™ Plastic Avoidance Class • Reserved Annex G — PIC-BP™ Biodegradable Processing Class

Excluded Launch Pathways • Plastic-to-fuel conversion or open burning avoidance without qualifying controlled downstream proof. • Export or shipment alone, regardless of destination or supporting documentation. • Co-processing in cement kilns or waste-to-energy incineration. Excluded unless a dedicated annex is activated with full emissions, environmental performance, and chain-of-custody methodology. • Any activity already fully counted under another plastic-credit, waste-credit, or materially similar environmental instrument. • Home composting and unverified soil incorporation (relevant to Reserved Annex G PIC-BP™ — see Annex G eligibility rules).

Issuer Governance and Service-Disabled Veteran-Owned Status GEIS is a Service-Disabled Veteran-Owned Small Business (SDVOSB) operating as a Wyoming limited liability company, registered on SAM.gov, with founder control retained as a structural feature of the

organization. Under 13 CFR 128.203, SDVOSB status requires that one or more service-disabled veterans hold unconditional ownership and operational control. The founder of GEIS is the inventor of the patent-pending architecture described in this Protocol, holds direct operational control of methodology decisions, and bears personal responsibility for the integrity of the standard. The organization additionally maintains an advisory board and other equity holders whose roles are commercial and operational and do not include unilateral authority over the methodology.

This governance structure is operative, not cosmetic. The standard cannot be weakened by shareholder pressure to expand issuance volume, by a board of investors voting to relax additionality criteria, or by a private-equity acquirer deprioritizing audit cadence in favor of revenue. Founder control under SDVOSB rules is the structural protection against the failure mode in which a standards body becomes a marketplace and the methodology becomes a marketing surface. The federal procurement implications (38 USC 8127 set-asides, GSA Schedule pathway, and DoD acquisition relevance) are commercial advantages of this structure but are not the basis for it. The basis is governance integrity.

1.4 Regulatory Alignment Framework

The Plastic Impact Protocol™ is designed to support data integrity, auditability, chain-of-custody documentation, recovery evidence organization, and claims substantiation in regulatory environments where plastic accountability obligations are enforceable or emerging. Regulatory frameworks for which PIP data architecture is designed to provide evidentiary support include the EU Packaging and Packaging Waste Regulation (PPWR, Regulation (EU) 2025/40), applicable from August 12, 2026; Extended Producer Responsibility (EPR) frameworks across EU member states, the United Kingdom, and U.S. state jurisdictions; the EU Corporate Sustainability Reporting Directive (CSRD); and voluntary and contractual

plastic impact claim environments where corporate buyers require defensible, third-party-verified evidence of plastic recovery activity.

Scope Limitation. Not a Compliance Substitute

PIP does not replace, satisfy, or constitute compliance with any of the regulatory frameworks listed above or any other applicable law or regulation. PIP provides a verification, registry-control, and evidence-management infrastructure that may support substantiation, audit readiness, and data organization. Project Proponents, Burning Parties, and Market Participants remain solely responsible for their own legal compliance obligations. No representation made under this Protocol shall be construed as a legal opinion, compliance certification, or regulatory filing.

Machine-Readable Architecture

The Registry operates on a structured, machine-readable data architecture designed for compatibility with corporate ESG reporting systems, regulatory data submission environments, and independent audit workflows. The Claim Package™ delivered at burn includes machine-readable JSON output conforming to the GEIS Machine-Readable Data Schema published in Appendix 10. Each Claim Package™ references the schema version used at the time of generation.

SECTION 2.

DEFINITIONS All defined terms are capitalized when used in this Protocol. Section A covers core credit and registry terms. Section B covers Hybrid Claim Architecture™ terms. Section C covers secondary-market and Market Participant terms (new in v4.4).

A. Core Credit and Registry Terms **Additionality.** The condition that the project activity would not occur at the same scale, quality, timing, or environmental integrity in the absence of the project and its associated crediting or sponsorship support.

Baseline. The most plausible scenario describing what would have happened to the relevant plastic waste in the absence of the project activity.

Batch. A uniquely identified lot or traceable unit of plastic activity representing a single physical collection or intake event, supported by measurement, source, date, custody, and evidence records appropriate to the pathway.

Burn / Burned Status (RTRD). The permanent, irreversible removal of a specific number of PICs from a Lot, and the formal assignment of associated impact data to the named Burning Party. A burn is valid only when the GEIS Registry™ sets the units to RTRD status as the FIRST action in the burn sequence. For partial burns where fewer than all PICs in a Lot are burned, the remaining PICs are set to PBNB status and remain transferable. The on-chain burn is the FINAL action, triggered only after Registry status is confirmed and all attribution and evidence partitioning steps are complete.

Burning Party. The entity, typically a corporate buyer or sponsor, who instructs GEIS to burn a PIC. Upon burning, impact data and attributed evidence are formally recorded under their name in the Registry. A Market Participant Account holder is not, by virtue of holding alone, a Burning Party. A Market Participant becomes a Burning Party only upon instructing a burn for its own account or transferring the PICs to a Holding Account that subsequently burns them.

GEIS Registry™. The authoritative legal record maintained by GEIS for all projects, kilogram balances, issuances, transfers, burns, cancellations, invalidations, and metadata. The Registry is the source of truth. All other representations, including tokens, dashboards, secondary-market interfaces, Reseller Agreements, and Claim Package™s, are subordinate to the Registry.

Impact Claim. A statement asserting plastic impact based on a burned PIC. Valid only after GEIS confirms RTRD status in the Registry and issues the Burn Certificate. Holding a token, holding PICs in a Holding Account or Market Participant Account, or transferring PICs without burning, does not create a claim.

Individual Participant ID. The unique identifier assigned to each individual registered in the GEIS dApp. Format: IP-{ProjectID}-YYYYMMDD-#### (sequential per event date).

Integrity Lock Flag™. A boolean flag on the VPK Ledger record. Set to TRUE when kilograms are committed to a PIC issuance. Prevents the same verified kilograms from supporting more than one issuance. Primary anti-double-counting control.

MRF. Materials Recovery Facility. A licensed, permitted physical sorting and processing facility where plastic is separated and directed to approved recycling or management streams.

MRV. Monitoring, Reporting, and Verification. The three-phase process by which plastic impact is measured, documented, and confirmed by a third party before credits are issued.

PIC. A Plastic Impact Credit™ equal to one metric tonne (1,000 kilograms) of eligible plastic impact issued under this Protocol.

PIC Lot. A batch of PICs issued together from one monitoring period verification. Each PIC Lot has a unique ID and forms the basis of one mint event. The PIC Lot record includes a list of all supporting batch IDs, the foundation of the Burn Attribution Calculation™.

Regulatory Surplus. The portion of activity above and beyond what is already specifically required by law, permit, concession, court order, binding municipal obligation, EPR obligation, or equivalent enforceable duty.

Source Category. The controlled classification of the origin of collected plastic waste. Permitted categories: Municipal; Waterway/Coastal; Commercial; Industrial. Not free-text.

VPK. Verified Plastic Kilogram™. The internal kilogram-level accounting unit. VPK are not tradeable, never minted on-chain, and never displayed as whole credits. 1,000 VPK = 1 PIC.

Zero Double Counting Rule. The Protocol-level requirement that each verified kilogram of recovered plastic generate exactly one Plastic Impact Credit™ and that each PIC™ support exactly one environmental claim. The Rule is operationalized through three controls: the Integrity Lock Flag™ on the VPK Ledger, which prevents the same verified kilograms from supporting more than one issuance; the Claim Lock Flag, which locks the burning party's claim at burn; and Evidence Partitioning™, which assigns evidence exclusively to one burning party. No PIC™ issued under any active or future-activated methodology may violate the Zero Double Counting Rule.

B. Hybrid Claim Architecture™ Terms Burn Attribution Calculation™. The automated process that runs in the Registry at the moment RTRD or PBNB status is set. Calculates each burning party's proportional share of every batch in the burned PIC Lot and generates the Burn Attribution Record™. Attribution Percentage = PICs Burned / Original Lot Quantity × 100. The original lot quantity is always used as the denominator, never the remaining quantity, to ensure attribution percentages across all burn events on a given lot sum to exactly 100 percent. Must complete and the BAR must be locked before the on-chain burn is triggered.

Burn Attribution Record™ (BAR). The formal Registry record generated automatically at burn. One record per burn event. Lists every batch attributed to the burning party, the attribution percentage for each, and the locked Evidence Partition Record™s. Cannot be modified after generation. Format: BAR- {BurnID}- {YYYYMMDD} .

Claim Attribution Standard™. The formal rules governing what a burning party may and may not say publicly based on their Burn Attribution Record™. Defines project-level claims, batch-level claims, weight claims, and evidence-level claims, with permitted language for each. Governed in Section 14.

Claim Lock Flag™. A boolean flag on the Burn Attribution Record™. Set to TRUE when a batch attribution is formally assigned to a burning party at burn. Primary anti-double-claim control for evidence and narrative rights. Mirrors the Integrity Lock Flag™: prevents double-attribution of claims just as the Integrity Lock Flag™ prevents double-issuance of kilograms.

Claim Package™. The three-tier deliverable generated automatically for each burning party at burn. Contains: (1) Legal Burn Certificate, formal GEIS-signed document; (2) Attribution Summary, PDF and machine-readable JSON; (3) Curated Evidence Package, formally partitioned photos, video, GPS data, and participant summaries exclusively assigned to this burning party. Download links valid 30 days; GEIS retains all data indefinitely and burning parties may request re-generation of links after expiry.

Evidence Partitioning™. The process by which the evidence assets of each attributed batch are divided into curated subsets and formally assigned to burning parties in proportion to their Burn Attribution Record™. Each burning party receives a different, non-overlapping subset. No two burning parties receive the same evidence files.

Evidence Partition Record™ (EPR). A Registry record that formally assigns a specific curated subset of batch evidence to one burning party. Locked at burn. No other party may claim the same evidence assets. One EPR per attributed batch per burn event. Format: EPR-{BurnID}-{BatchID} .

Partial Burn / PBNB Status. The Registry status assigned to a PIC Lot when fewer than all PICs in the lot have been burned in a given burn event. The burned PICs are set to RTRD status and formally assigned to the burning party. The remaining PICs are set to PBNB status and remain transferable. When a subsequent burn reduces remaining PICs to zero, the lot transitions to full RTRD status.

C. Secondary Market and Market Participant Terms (New in v4.4) Annual Attestation. A required written confirmation from a Market Participant Account holder that PICs held longer than 24 months remain held by the Account, that no underlying impact claim has been asserted, and that no transfer or burn occurred outside the Registry. Submitted to GEIS via the Holding Period Compliance Form (Section 18.3).

CFTC Threshold Disclosure. A required notification to GEIS by any Market Participant whose aggregate PIC holdings, valued at the most recent published last-sale price per tier, exceed \$10,000,000 USD. Required under Section 17.6 and Section 18.4.

Lot Standardization. The requirement that PICs offered for transfer through Market Participant Accounts be aggregated into standard lot sizes of 10, 50, or 100 PICs to support liquidity, price transparency, and Registry transfer efficiency. Section 17.4.

Mandatory Revalidation. A required re-review of baseline, additionality, and regulatory surplus for any PIC held longer than 60 months by a Market Participant Account. Triggered automatically at the 60- month threshold. Section 18.2.

Market Participant Account. A Registry account type permitted to acquire, hold, and transfer PICs without burning. Resale Account holders do not by default hold the right to make impact claims; impact claims attach to the burning party only. Section 9.3 governs account architecture. Section 17 governs operational rules.

Reseller Agreement. A separate commercial document executed between GEIS and each Market Participant Account holder. Incorporates Sections 17 and 18 by reference. Sets volume metrics for any exclusivity terms. Reseller Agreements do not modify the Protocol; the Protocol controls in any conflict.

Transfer Fee. A 1.0 percent fee applied to each Registry transfer event involving a Market Participant Account, payable in USD to GEIS at the point of transfer. Section 17.3.

SECTION 3.

CORE UNITS, ACCOUNTING ARCHITECTURE & QUANTITY WATERFALL All project activity shall be measured at the kilogram level. One VPK equals one kilogram of eligible plastic impact. One PIC equals exactly 1,000 VPK. Residual kilograms below 1,000 kg carry forward as VPK to the next period; never minted, never displayed as whole credits, never conveyed to any counterparty as issued units.

Quantity Waterfall — Mandatory Display Standard The dApp and all monitoring reports must present all rows of this waterfall, not only the final PIC count.

ROW	QUANTITY	UNIT	RULE / DESCRIPTION
A	Gross reported quantity	kg	Measured at collection or intake before any deductions
B	Less: ineligible material	kg	Non-plastic, excluded types, protocol-disqualified material
C	Less: contamination, moisture, losses	kg	Documented deductions with evidence
D	Adjusted eligible quantity (pre- verification)	kg	= A - B - C; submitted for third-party review
E	Verified eligible quantity	kg	Confirmed by third-party verifier; may differ from D
F	Previously issued quantity (same basis)	kg	Prevents re-issuance from same verified pool
G	Net quantity eligible for current issuance	kg	= E - F; basis for PIC calculation
H	PICs requested for issuance	PICs	= G ÷ 1,000; whole units only
R	Residual kilograms (carry-forward VPK)	kg	= G mod 1,000; carried as VPK to next period; NEVER minted

Integrity Lock Flag™ — Absolute Anti-Double-Counting Control The Integrity Lock Flag™ on each VPK Ledger record must be set to TRUE when kilograms are committed to a PIC issuance lot. The same VPK ledger entry may not support more than one issuance under any circumstances. Enforced at the database constraint level.

SECTION 4.

SAFEGUARDS & SOCIAL/ENVIRONMENTAL INTEGRITY All projects, facilities, and material downstream handling stages relied upon for issuance shall satisfy minimum safeguards including lawful operation, reasonable worker health and safety controls, prohibition of forced labor, prohibition of child labor except where clearly permitted light work is lawful and non-hazardous, and access to a documented grievance channel.

Community Consultation Requirement Projects operating in or adjacent to residential communities shall document evidence of community notification and provide a reasonable opportunity for affected parties to raise concerns before validation is completed.

Where credible harm complaints exist at the time of registration review, GEIS shall require documented resolution or a written mitigation plan before registration is approved.

The Project Master Record must include a Community Consultation Status field with permitted values: Not Required / In Progress / Completed / Conditional Approval / Suspended. A Community Consultation Record (CC-{ProjectID}-#####) must be filed and accepted by GEIS before project validation is approved on qualifying projects.

International Project Safeguards For projects registered under PIC-T™ (Methodology C) or any future internationally activated pathway, the Project Proponent shall additionally evidence:

- Compliance with the destination nation's labor law as confirmed by Treegens Foundation or equivalent qualifying Project Proponent.
- A documented community consultation process consistent with the local cultural and legal context.
- A grievance channel accessible to participants in the language of operation.
- Worker health and safety controls reasonable to the operating environment, including for cleanup activity in coastal, riverine, or remote conditions.

International safeguard documentation is reviewed by GEIS as part of the Treegens consolidated Monitoring Report (Section 11 and Methodology C).

Free, Prior, and Informed Consent (FPIC) Requirement For any project where collection or operational activity occurs on the lands, waterways, or traditional territories of indigenous peoples, tribal communities, or local communities with recognized customary land rights, the Project Proponent shall evidence Free, Prior, and Informed Consent (FPIC) consistent

with the principles articulated in International Labour Organization Convention 169 (ILO 169) and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

FPIC documentation shall include:

- Identification of the affected indigenous, tribal, or customary-rights-holding community by name and recognized representative body.
- Evidence that consent was obtained prior to project commencement, not retroactively.
- Evidence that consent was provided freely without coercion, intimidation, or undue inducement.
- Evidence that consent was informed, meaning the community received complete information about project scope, duration, expected impact, and any compensation or benefit-sharing terms in a language and format accessible to them.
- A signed Community Consent Record (CCR-`{ProjectID}-####`) filed with GEIS before validation is approved.
- A pathway for the community to withdraw or modify consent during the project lifecycle, with corresponding GEIS suspension authority under Section 15.

Where the Project Proponent asserts that FPIC is not applicable (for example, urban operations on freely accessible public land where no community customary rights apply), the Proponent shall file a written FPIC Non-Applicability Determination explaining the basis. GEIS reviews each determination and may require FPIC documentation upon further inquiry.

FPIC is a substantive safeguard. Documentation of consultation alone does not satisfy FPIC. The standard is consent obtained free of coercion, prior to commencement, with full information.

SECTION 5.

PROJECT TYPES, ELIGIBILITY, SOURCE CATEGORIES & CLEANUP RULES This Protocol supports both structured operating systems and localized cleanup projects. Eligible quantities may accumulate as VPK so long as every quantity remains linked to a registered project, a defined monitoring period, and a verifiable evidence trail.

Localized cleanup activity is eligible only if it meets the same core tests applied to larger systems: lawful operation, baseline review, additionality review, minimum evidence sufficiency, controlled downstream handling, and no double issuance. Small scale does not excuse weak evidence.

Source Categories — Controlled Vocabulary The four permitted Source Categories are:

- **Municipal** — plastic waste originating from residential or municipally-administered waste streams.
- **2. Waterway / Coastal** — plastic waste collected from rivers, riverbanks, beaches, mangroves, estuaries, lakeshores, marine waters, or directly threatening discharge to such water bodies.
- **3. Commercial** — plastic waste originating from commercial enterprises (retail, hospitality, food service, offices) prior to entry into municipal collection.
- **4. Industrial** — plastic waste originating from industrial production, processing, or manufacturing operations prior to entry into commercial or municipal streams.

No fifth category exists. Source-Category-free-text is not accepted.

SECTION 6.

BASELINE, ADDITIONALITY & REGULATORY SURPLUS Every project shall identify and evidence the most plausible baseline scenario. Additionality shall be assessed at project design stage using at minimum a barrier assessment, common-practice assessment, and economic plausibility assessment. Regulatory surplus shall be tested carefully; only the clearly documented surplus portion above mandatory obligations may be eligible.

EPR & Regulatory Change Trigger Where a new Extended Producer Responsibility obligation is enacted or materially expanded covering a significant portion of a registered project's credited activity, the Project Proponent shall notify GEIS in writing within ninety (90) days using the EPR Notification Form (EPRN- {ProjectID}-#####).

GEIS shall determine whether a baseline refresh and regulatory surplus reassessment is required before the project's next monitoring period closes. GEIS may suspend issuance for the affected portion pending reassessment.

International Surplus Considerations For PIC-T™ activity (Methodology C), regulatory surplus is tested against the destination nation's enforceable obligations. Where a nation enacts an EPR-equivalent obligation covering Treegens- network activity, the same 90-day notification rule applies. Treegens Foundation, as Project Proponent, is responsible for monitoring regulatory developments across the 12-nation network and submitting EPRN filings as required.

6.3 PPWR Producer Responsibility Baseline

The EU Packaging and Packaging Waste Regulation (PPWR, Regulation (EU) 2025/40) establishes producer responsibility obligations for packaging placed on the EU market, with enforceable minimum targets for recycled content, packaging recovery, and producer financial contributions. These obligations constitute a regulatory baseline for purposes of Regulatory Surplus testing under this Protocol.

Where a Producer subject to PPWR obligations relies on plastic recovery or recycling activity that is already specifically required to meet minimum recycled content targets, recovery rate obligations, or producer responsibility quotas under PPWR, that activity does not constitute Regulatory Surplus and may not form the additionality basis for PIC issuance for that Producer account. Only the clearly documented surplus portion above mandatory PPWR obligations may be eligible. The surplus portion shall be calculated at project design stage, documented in the Project Description, and reviewed by the independent verifier each monitoring period.

The EPR Notification (EPRN) trigger in Section 6.1 applies to PPWR-covered activity. Where PPWR obligations are subsequently enacted, expanded, or clarified in a manner that materially affects the surplus calculation for an active project, the 90-day EPRN notification requirement applies and a baseline refresh may be required. PPWR applies to packaging placed on the EU market regardless of where the packaging is manufactured or where recovery occurs.

6.4 Jurisdictional Tagging Framework

To support corporate buyers, ESG reporting teams, legal compliance functions, and audit workflows operating across multiple regulatory environments, GEIS applies a controlled Jurisdictional Tag to each Batch Record and PIC Lot at issuance. The Jurisdictional Tag is not a legal compliance determination. It is a structured organizational classification identifying the primary regulatory environment relevant to the activity.

6.4.1 Controlled Jurisdictional Tag Vocabulary

Tag	Description
EU-PPWR	Activity in or directly serving the EU market under PPWR (Regulation (EU) 2025/40). Applies where the Producer is subject to PPWR packaging obligations.
EU-EPR-{MS}	EU member-state-specific EPR obligation. ISO 3166-1 alpha-3 country code suffix (e.g., EU-EPR-DEU, EU-EPR-FRA).

UK-EPR	Activity subject to the United Kingdom Packaging Extended Producer Responsibility scheme.
US-EPR-{State}	U.S. state EPR program. Two-letter state code suffix (e.g., US-EPR-CA, US-EPR-MN).
VOLUNTARY	No mandatory regulatory basis. Supports voluntary plastic impact claims or corporate sustainability commitments.
ESG-SUBST	ESG substantiation use. Supports CSRD-aligned reporting, SEC climate disclosure, or equivalent frameworks.
MULTI	Activity subject to two or more overlapping frameworks. All applicable tags listed in the Registry record.

6.4.2 Tag Assignment and Maintenance

Tags are assigned by GEIS at issuance based on Project Proponent disclosure and GEIS review. Where the regulatory environment changes after issuance, the Project Proponent shall notify GEIS and GEIS shall update the tag. A change in Jurisdictional Tag does not automatically trigger reissuance but may trigger an EPRN review under Section 6.1. Where MULTI applies, all applicable tags are listed. The Jurisdictional Tag is included in the machine-readable JSON output of the Claim Package™ and in the Attribution Summary delivered at burn.

6.4.3 Limitation

A Jurisdictional Tag is an organizational tool only. It does not constitute a legal compliance determination, a regulatory filing, or a representation that the tagged activity satisfies any specific legal obligation. Burning Parties and Market Participants must conduct their own legal review. GEIS makes no representation regarding the legal sufficiency of tagged activity for any regulatory purpose.

SECTION 7.

PROJECT LIFECYCLE, REGISTRATION, MONITORING PERIODS & CREDITING PERIOD GEIS distinguishes project validation, independent assessment of project design before issuance, from performance verification, independent assessment of monitored results. Both are required before any PICs can be issued.

STEP	STAGE	DESCRIPTION
01	Screening & Intake Review	Initial eligibility and completeness check by GEIS.
02	Project Description Submission	Formal project design file submitted by the Project Proponent.
03	Completeness Review	GEIS requests clarification or additional documentation as needed.
04	Independent Validation	Third-party assessment of project design, baseline, and additionality.
05	Registration Decision	GEIS assigns a unique project identifier (GEIS-PJ-YYYY-####) and approves the initial Crediting Period (CP-{ProjectID}-##).
06	Monitoring Period	Project implements the approved monitoring plan and collects all required evidence.
07	Monitoring Report Submission	Project Proponent submits compiled monitored data to GEIS.
08	Independent Verification	Third-party assessment of monitored quantities and evidence sufficiency. Verifier assigned via Section 11 process; Corrective Action Requests (CAR-{PeriodID}-###) issued as needed.
09	Issuance Decision	GEIS approves quantity; PICs issued and recorded in Registry.
10	Transfer / Hold	Issued PICs transferred to buyer or Market Participant Account. Status: ISSD. Buyer or Market Participant holds pending transfer or burn. No impact claim rights while in ISSD or PBNB status.

11	Burn	Burning Party instructs burn. Registry sets RTRD (full burn) or PBNB (partial burn) first. Burn Attribution Calculation™ runs. Evidence Partitioning™ executes. Claim Package™ generated. On-chain burn triggered last.
Crediting Period Initial credit assigned a unique	Rules g period shall not exceed five e ID: CP-{ProjectID}-## .	(5) years from registration. Each crediting period is

A single renewal of up to five additional years may be granted only after full revalidation of baseline, additionality, regulatory surplus, safeguards, ownership, methodology applicability, and material project changes. A baseline refresh is required at renewal. No more than two crediting periods total (initial plus one renewal) are permitted per project.

SECTION 8.

FACILITY APPROVAL, MEASUREMENT & CHAIN OF CUSTODY Any facility relied upon for issuance must be lawfully authorized and accepted by GEIS for the applicable pathway. GEIS maintains pre-approved facility lists by methodology:

- PIC-C™ — approved downstream destinations for collected plastic (typically licensed U.S. MRFs).
- PIC-MR™ — approved mechanical recycling facilities and downstream remanufacturing partners.
- PIC-T™ — approved international receiving and downstream facilities qualified under Section 16.2.
- Reserved Annex G (PIC-BP™) — when activated, approved certified composting and anaerobic digestion facilities (USCC/STA-certified, USDA organic certified composting, or equivalent national standard).

Ad-hoc destinations are prohibited under all methodologies. The pre-approved list is maintained in the GEIS Registry™ Facility Master under Facility ID FAC-##### .

Batch Record — Minimum Required Fields

FIELD	REQUIRED?	NOTES / RULES
Batch ID	Yes	Format: BT-{ProjectID}-YYYYMMDD-###
Project ID	Yes	Parent project link
Monitoring Period ID	Yes	Parent monitoring period
Collection or Intake Date	Yes	Cannot be future or pre-date project registration
Source Category	Yes	Controlled: Municipal / Waterway-Coastal / Commercial / Industrial. No free-text.
Gross Weight kg	Yes	Must be positive. Zero, negative, and implausibly large values rejected.
Ineligible / Contamination kg	Conditional	Documented exclusions with evidence
Net Eligible kg	Yes	After contamination deductions. Must not exceed gross weight.
FIELD	REQUIRED?	NOTES / RULES
Downstream Destination	Yes	Must be from GEIS pre-approved facility list only. Ad-hoc destinations prohibited.
Evidence Bundle Reference	Yes	Photos, logs, weight tickets, GPS records, IPFS content hashes
Evidence Item Count	Yes	Total count of discrete evidence items. Used in Evidence Partitioning™ at burn.
Reconciliation Record ID	Conditional	Link to field-to-facility reconciliation record where applicable
Batch Status	Yes	Controlled status code, see Section 9.2
Claim Lock Flag™	Yes	Boolean. FALSE until burn. Set to TRUE when batch attribution is formally assigned at burn. Prevents duplicate claim assignment.
Attribution Records	Conditional	Reference list of all Burn Attribution Record™ IDs referencing this batch. Populated at burn.
Methodology Code	Yes	Controlled: PIC-C / PIC-MR / PIC-T / and reserved codes when activated.

Facility Approval Process Facilities are added to the pre-approved list only after GEIS verifies:

- Lawful operation under applicable national, state, and local law.
- Permits and licenses appropriate to the methodology pathway.
- Documented capacity to produce weight tickets or certified scale records.
- Documented downstream destination chain through to remanufacturing or certified processing endpoint, as applicable.
- Independent third-party validation where required by the methodology.
- For PIC-T™ international facilities: equivalency review under Section 16.2.

GEIS publishes facility additions via Registry update. The Facility Master is the authoritative facility record.

SECTION 9.

REGISTRY ID SYSTEM, STATUS CODES & ACCOUNT ARCHITECTURE The GEIS Registry™ uses a hierarchical, controlled ID system. Every ID must be unique, persistent, machine-readable, and never reassigned.

9.1 ID and Serial Number System

RECORD TYPE	FORMAT	EXAMPLE	REQUIRED?
Project ID	GEIS-PJ-YYYY-####	GEIS-PJ-2026-0001	Yes
Monitoring Period ID	MP- {ProjectID}- ##	MP-GEIS-PJ-2026-0001-01	Yes
Batch ID	BT- {ProjectID}-YYYYMMDD-###	BT-GEIS- PJ-2026-0001-20260315-001	Yes
Individual Participant ID	IP- {ProjectID}-YYYYMMDD-####	IP-GEIS- PJ-2026-0001-20260315-0001	Yes — when tracking active
Facility ID	FAC-####	FAC-0001	Yes — all approved downstream facilities
Umbrella Organization ID	UORG-####	UORG-0001	Conditional — when participant is umbrella-linked
VPK Ledger ID	VPK- {ProjectID}-YYYY-#####	VPK-GEIS- PJ-2026-0001-2026-000001	Yes
Crediting Period ID	CP- {ProjectID}- ##	CP-GEIS-PJ-2026-0001-01	Yes
PIC Lot ID	PIC- {ProjectID}-YYYY-LOT-###	PIC-GEIS-PJ-2026-0001-2026- LOT001	Yes
RECORD TYPE	FORMAT	EXAMPLE	REQUIRED?
Transfer ID	TR- {Account}- {YYYYMMDD}- ###	TR-BUYER001-20260315-001	Yes
Burn ID	RT- {Account}- {YYYYMMDD}- ###	RT-BUYER001-20260315-001	Yes
Burn Attribution Record™ ID	BAR- {BurnID}- {YYYYMMDD}	BAR-RT- BUYER001-20260315-001-20260315	Yes — generated at burn
Evidence Partition Record™ ID	EPR- {BurnID}- {BatchID}	EPR-RT-BUYER001-20260315-001- BT-001	Yes — one per batch per burn
Community Consultation ID	CC- {ProjectID}-####	CC-GEIS-PJ-2026-0001-0001	Conditional — qualifying projects
EPR Notification ID	EPRN- {ProjectID}-####	EPRN-GEIS-PJ-2026-0001-0001	Conditional — EPR- affected projects
Corrective Action Request ID	CAR- {PeriodID}-###	CAR-MP-GEIS-PJ-2026-0001-01-00	1 Conditional — raised by verifier
Freeze / Hold ID	FH- {YYYYMMDD}-###	FH-20260315-001	Conditional
Correction ID	CR- {YYYYMMDD}-###	CR-20260315-001	Conditional
Invalidation ID	IV- {YYYYMMDD}-###	IV-20260315-001	Conditional
Market Participant Account ID	MPA-####	MPA-0001	Yes — all Market Participants (new in v4.4)
Reseller Agreement ID	RA-MPA-####- VV	RA-MPA-0001-01	Yes — one per Market Participant per agreement version (new in v4.4)
RECORD TYPE	FORMAT	EXAMPLE	REQUIRED?
Holding Period Compliance Form ID	HPCF-MPA-####-YYYYMM	HPCF-MPA-0001-202608	Conditional — required for holdings >24 months (new in v4.4)
CFTC Threshold Disclosure ID	CFTC-MPA-####-YYYYMMDD	CFTC-MPA-0001-20260815	Conditional — required at \$10M+ holdings (new in v4.4)
Annex Activation Notice ID	AAN- {AnnexCode}-YYYYMMDD	AAN-F-20270101	Conditional — published when an annex is activated (new in v4.4)
International Activation Notice ID	IAN- {ISO3166}-YYYYMMDD	IAN-PHL-20260901	Conditional — published when a nation is activated under Section 16.2 (new in v4.4)

9.2 Status Code Vocabulary — Controlled (13 codes)

These thirteen status codes are the complete controlled vocabulary. No other values may be used anywhere in the dApp, Registry, or on-chain metadata.

CODE	MEANING
DRFT	Draft — record created but not yet submitted or effective
URVW	Under Review — submitted and pending decision
REGD	Registered / Approved — GEIS has formally accepted
PEND	Pending — awaiting action or decision
VERF	Verified — quantity confirmed by third-party verifier
ISSD	Issued — credits formally issued and recorded in Registry
HOLD	Hold — temporary administrative hold, action required
FRZN	Frozen — no transfer or burn permitted; must propagate to smart contract immediately
CODE	MEANING
PBND	Partially Burned — some PICs in a lot have been burned in a prior burn event; remaining PICs are still transferable; lot transitions to RTRD when all remaining PICs are burned
RTRD	Burned — all PICs permanently removed from circulation; claim and evidence formally assigned; irreversible
INVD	Invalidated — cancelled due to error, fraud, or protocol violation
CORR	Under Correction — active corrective action workflow in progress
CLSD	Closed — no further operational action permitted or required

9.3 Account Architecture

The following six account types define all permissible holding structures within the GEIS Registry™. The Market Participant Account is new in v4.4 and is governed in detail in Section 17. The Buffer Account is also new in v4.4 and is governed in detail in Section 12.7.

ACCOUNT TYPE	CONTROLLED BY	PURPOSE	PERMITTED STATUSES
Project Account	Project Proponent	Receives newly issued PICs tied to a registered project. Primary holding account post-issuance.	ISSD
Holding Account	Buyer or Intermediary (whitelisted wallet)	Holds active PICs after purchase, pending transfer or burn. No impact claim rights while in ISSD or PBND status. PBND indicates some PICs in the lot have been burned by a prior event; remaining PICs in the lot are still held and transferable.	ISSD / PBND
Market Participant Account (MPA)	Approved Reseller (whitelisted wallet, Reseller Agreement executed)	Acquires, holds, and transfers PICs in the secondary market without burning. No impact claim rights from holding alone. Subject to Sections 17 and 18: transfer fee, lot standardization, holding period rules, regulatory threshold disclosures.	ISSD / PBND
ACCOUNT TYPE	CONTROLLED BY	PURPOSE	PERMITTED STATUSES
Buffer Account	GEIS only (system- controlled)	Holds the mandatory 7 percent buffer set-aside drawn from every issuance under Section 12.7. Buffer units may not be transferred to any external party and are drawn down only by GEIS to cover retroactive disqualification, fraud-detected reversal, facility failure, or verifier removal events. Buffer units expiring without draw return to general retirement under Section 12.7.5.	ISSD / RTRD
Burn Ledger Entry	Burning Party + GEIS	Records permanent burn event. Units locked RTRD. Impact claim data, Burn Attribution Record™, and Evidence Partition Record™s formally assigned to burning party.	RTRD
Administrative Account	GEIS only	Freezes, corrections, invalidations, admin-only actions. Cannot hold tradeable PICs.	Any

9.4 Account Eligibility and KYC

All Holding Accounts and Market Participant Accounts must be wallet-whitelisted by GEIS. KYC requirements apply to all account types other than the Project Account and Administrative Account.

For Market Participant Accounts:

- KYC of the legal entity (business registration, beneficial ownership above 25 percent, AML screening). • KYC of the individual signing authority on the Reseller Agreement. • Sanctions screening against OFAC and equivalent international sanctions lists. • Documented source of funds for initial PIC acquisition above \$250,000 USD equivalent. • A signed Reseller Agreement (RA-MPA-####-VV) with current version on file. • Wallet whitelisting executed by GEIS prior to first transfer.

GEIS may pause, suspend, or revoke account whitelisting at any time for compliance, sanctions, fraud, or material misrepresentation reasons. Suspended accounts cannot transfer or burn until reinstated.

SECTION 10.

MONITORING, DATA QUALITY, EVIDENCE & INDIVIDUAL PARTICIPANT RECORDS Each project shall operate under a written monitoring plan identifying data to be collected, responsible personnel, measurement devices, evidence controls, retention periods, anomaly response steps, and escalation triggers.

10.1 Real-Time Data Validation — Required dApp Controls

The following are protocol-level data integrity controls, not optional UX features. A batch that cannot satisfy these checks cannot be submitted:

- Weight field must be positive and above a minimum threshold. Zero, negative, and implausibly large values rejected. • Collection or intake date cannot be a future date and cannot pre-date the project registration date. • Source Category must be selected from the controlled four-category dropdown. Free-text is not permitted as the sole entry. • Evidence bundle: weight ticket and at least one location record must be attached before submission. Submit button disabled until minimum evidence requirements met. • Downstream Destination must be selected from the pre-approved GEIS facility list. No ad-hoc destinations permitted. • GPS coordinates, where submitted, must fall within the geographic bounds registered for the project. GPS accuracy worse than 100 meters shall trigger a warning to the submitter. GPS accuracy worse than 500 meters shall block submission. • Photo evidence: at least one photo is required per PIC-C™ collection event. Minimum resolution is 800 x 600 pixels. Accepted formats: JPEG and PNG. The dApp must validate resolution before accepting the upload. • Methodology code must be set on every batch and consistent across all evidence in the batch.

10.2 Aggregated Submissions — PIC-T™ Treegens Network

For PIC-T™ projects under Methodology C, the Project Proponent (Treegens Foundation) submits a single consolidated Monitoring Report covering all 12-nation activity for the period. Within that consolidated submission:

- Each individual collector remains tracked at the individual level via Individual Participant Records (Section 10.4). • Treegens manages dApp registration for participants in its network. • The 13-field Individual Participant Record applies to every collection event regardless of nation.
- GEIS reviews the consolidated submission and conducts independent verification through the third-party verifier on the consolidated dataset. • The aggregated submission does not relieve individual-level evidence requirements; aggregation is administrative, not evidentiary.

10.3 Field-to-Facility Weight Reconciliation

Where plastic is collected in the field and subsequently delivered to a licensed facility, a weight reconciliation record is required. Field weight and facility intake weight must both be documented. The delta must be

recorded with an explanation. This is mandatory evidence for all batches involving field collection followed by facility intake.

10.4 Individual Participant Records — Highest-Integrity Evidence Tier

For PIC-C™ and PIC-T™ projects involving group cleanup events or individual collectors registered in the GEIS dApp, Individual Participant Records constitute the highest-integrity evidence tier under this Protocol.

Minimum required fields:

FIELD	REQUIRED?	NOTES / RULES
Individual Participant ID	Yes	Format: IP-{ProjectID}-YYYYMMDD-####
Project ID	Yes	Parent project link
Batch ID Link	Yes	Links to parent batch record
Umbrella Organization ID	Conditional	Required if participant operates under an umbrella organization (nonprofit, cooperative, or implementing partner). Umbrella org must be registered and approved before participants can be linked to it (UORG-####). For PIC-T™, Treegens Foundation is the default umbrella organization.
Collection Date	Yes	Date plastic was physically collected
Collection Location — GPS	Yes	Lat/Long at point of collection. Must be within project geographic bounds. GPS accuracy rules from Section 10.1 apply.
Verified Collected Weight (kg)	Yes	Weight recorded at point of collection or initial weigh-in
FIELD	REQUIRED?	NOTES / RULES
Source Category	Yes	Municipal / Waterway-Coastal / Commercial / Industrial
Custody Transfer Record	Yes	Evidence of handoff to next custody node
Payment Status	Yes	Opt-In Payment / No Payment / Donated / Umbrella-Managed
Payment Amount (USD)	Conditional	Required if Payment Status = Opt-In Payment
Payment Processor Reference	Conditional	Payment processor transaction reference ID written back upon successful payment. Required when USD payment is processed.
Submission Timestamp	Yes	System-recorded timestamp of dApp submission. Not user-editable.

SECTION 11.

INDEPENDENT VALIDATION & VERIFICATION GEIS shall require documented competence, independence, and work-quality standards from all validators and verifiers. No validator or verifier may have a disqualifying financial interest in the project outcome, volume-based compensation tied to issuance quantity, or a role in designing the baseline or issuance calculation that they are reviewing. Independence declarations shall be signed and retained before a verifier may be assigned to any monitoring period.

Major Discrepancy Threshold GEIS applies a five-percent Major Discrepancy threshold as a quantitative trip-wire during verification. Where verified quantities differ from reported quantities by more than five percent without adequate explanation, the verifier must raise a Corrective Action Request (CAR) at Major severity before the period can be approved. This threshold applies to total period mass. Individual batch deviations are assessed separately based on evidence quality.

Volume-Based Compensation Prohibited — Absolute No verifier or validator may receive compensation that increases with the quantity of credits issued, under any structure or arrangement.

The dApp must not enable or record any verifier assignment that includes volume-contingent compensation of any kind.

Independence Declarations Each validator and verifier shall sign and submit an Independence Declaration before assignment, attesting to:

- No financial interest in the project outcome other than ordinary professional fees.
- No volume-based or issuance-quantity-contingent compensation.
- No role in designing the baseline, additionality assessment, or issuance calculation under review.
- No commercial relationship with the Project Proponent that creates a disqualifying conflict of interest.
- For PIC-T™ international verification, no disqualifying relationship with Treegens Foundation or any nation-level operating entity within the network.

Declarations are retained indefinitely in the Registry and are accessible to GEIS for audit purposes.

11.5 Approved Verifier Framework

GEIS publishes and maintains the Approved Verifier List, which is the authoritative public roster of third-party entities qualified to perform validation and verification under this Protocol. Only entities on the Approved Verifier List as of the assignment date may be retained for engagements that result in PIC issuance, claim attribution, or registry-recorded verification of any kind.

11.5.1 Accreditation Criteria

To be added to the Approved Verifier List, a verifying entity shall demonstrate:

- Corporate independence from any active Project Proponent, Burning Party, Market Participant, or GEIS commercial counterparty.
- Documented technical competence consistent with Appendix 3 (waste characterization, mass balance, chain-of-custody auditing, additionality testing, and methodology-specific scope).
- Compliance with ISO/IEC 17029 (general principles for validation/verification bodies) or equivalent national accreditation, where such accreditation is available in the verifier's jurisdiction.
- Professional liability insurance at a level commensurate with the issuance scale of engagements undertaken.
- A signed Verifier Conduct Agreement (VCA-{VerifierID}-VV) committing to GEIS's volume-based-compensation prohibition, independence requirements, and data integrity rules.
- Demonstrated experience with at least one comparable environmental-credit standard (Verra, Gold Standard, ACR, CAR, ISCC, or equivalent) OR equivalent regulatory audit experience under a recognized national framework.

11.5.2 Conflict-of-Interest Rules

An Approved Verifier shall not:

- Accept compensation that varies with the quantity of credits issued.
- Hold equity, debt, or convertible interests in any Project Proponent, Burning Party, or Market Participant under active GEIS engagement, beyond ordinary publicly traded passive holdings.
- Provide consulting services to the same Project Proponent within twelve months prior to verification engagement, except for services explicitly disclosed and documented as compatible with independence.
- Verify a project for which the verifier or any partner-level employee was involved in baseline design, additionality assessment, or methodology selection.

11.5.3 Suspension and Removal

GEIS may suspend or remove a verifier from the Approved Verifier List for:

- Failure to disclose a conflict of interest.
- Material misstatement in a verification report.
- Volume-based compensation arrangements detected post-engagement.
- Loss of underlying ISO 17029 or national accreditation.
- Pattern of Major Discrepancy threshold violations not surfaced by the verifier.
- Failure to cooperate with a GEIS quality review.

A suspended verifier may not be assigned to new engagements. Existing engagements are reviewed by GEIS and may be reassigned. A removed verifier's prior engagements remain valid unless the removal is for material misstatement or fraud, in which case affected projects are reviewed under Section 15.

11.5.4 Public List and First Publication

The Approved Verifier List is published on GEISolutions.com with each entry including verifier legal name, jurisdiction of operation, scope of approved methodologies (PIC-C™, PIC-MR™, PIC-T™, and any future activated annexes), accreditation references, and date of approval.

GEIS shall publish the first version of the Approved Verifier List no later than Q4 2026. Until first publication, individual verifier engagements proceed under direct GEIS approval on a per-engagement basis with full documentation retained, and the engagement records become the foundation of the public list at first publication.

11.5.5 Appeals

A verifier denied accreditation, suspended, or removed may file a written appeal to GEIS within 30 days of the action. GEIS reviews appeals within 60 days and issues a written determination. Appeal determinations are final under this Protocol and do not waive any rights the verifier may have under applicable law.

SECTION 12.

REGISTRY, SERIAL INTEGRITY, TRANSFER & BURN The GEIS Registry™ is the authoritative legal source of truth for project status, VPK balances, issued credits, transfers, burns, cancellations, invalidations, and core metadata. No token, dashboard, invoice, contract excerpt, or marketing statement can override the Registry.

A burn permanently removes the burned PICs from further sale or use. For full burns, the entire lot is set to RTRD status. For partial burns, only the burned PICs are retired; the remaining PICs in the lot are set to PBNB status and remain transferable until burned in a subsequent event. The burn sequence is governed by Sections 13.3 through 13.7: Registry status is set first; the on-chain burn is the final action after all attribution and evidence steps are complete.

Transfer Mechanics Transfers between Holding Accounts, Market Participant Accounts, and Project Accounts are governed by:

- The transferring account holds the PICs at the time of transfer instruction.
- The receiving account is whitelisted and KYC-current.
- The Registry generates a Transfer ID (TR- $\{Account\}$ - $\{YYYYMMDD\}$ - $\{###\}$).
- For transfers involving a Market Participant Account, the transfer fee under Section 17.3 is collected at the point of transfer.
- The on-chain token state is updated to reflect the Registry transfer. If the on-chain state diverges from the Registry, the Registry controls and the on-chain state is corrected.
- Transfer events are immutable in the Registry once executed.

Transfers within a single Market Participant Account (e.g., wallet rotation by the same legal entity) are administrative and do not trigger the transfer fee, provided the entity is unchanged and the wallet rotation is documented to GEIS in advance.

12.7 Buffer Pool — Risk-of-Reversal Reserve

GEIS maintains a Buffer Pool to protect the integrity of issued PICs against retroactive disqualification, fraud-detected reversal, facility failure, or verifier removal events. The Buffer Pool is a non-negotiable structural feature of the standard and is operative for all issuances under this Protocol.

12.7.1 Buffer Set-Aside Rate

At every issuance event, seven (7) percent of the calculated PIC quantity is set aside into the GEIS Buffer Account as Buffer Units. The remaining 93 percent is issued to the Project Account. Buffer set-aside is calculated on the verified PIC quantity (Quantity Waterfall Row H) before any commercial sale.

For example, if a project's verified eligible quantity supports issuance of 100 PICs, 93 PICs are issued to the Project Account and 7 PICs are issued as Buffer Units to the GEIS Buffer Account. The buffer set-aside is non-discretionary and applies uniformly across PIC-C™, PIC-MR™, and PIC-T™ issuances. Annex-activated methodologies (PIC-AV™, PIC-BP™, and any future annex) may specify a different rate at activation, but no rate may be lower than five (5) percent.

12.7.2 Buffer Account Status and Restrictions

Buffer Units are held in the Buffer Account in ISSD status. They are non-transferable to any external party and cannot be sold, gifted, or assigned. The Buffer Account is system-controlled and accessible only to GEIS for the specific drawdown events listed in Section 12.7.3. Buffer Units appear in the public Registry alongside their originating project so that any observer can verify the buffer set-aside occurred and remains intact.

12.7.3 Drawdown Triggers

GEIS draws down Buffer Units to RTRD status when one of the following events affects already-issued PICs:

- Retroactive additionality disqualification. A project is determined under Section 15 to have failed additionality after issuance occurred, and the affected PICs cannot be administratively reversed because they have already been transferred or burned.
- Fraud-detected reversal. Fraud is detected in chain-of-custody, weight reconciliation, individual participant records, or verifier reports, and the affected PICs are no longer recoverable.
- Facility failure. An approved downstream facility is determined to have failed to perform the controlled disposition for which credits were issued, and the affected PICs cannot be administratively reversed.
- Verifier removal for material misstatement. A verifier is removed from the Approved Verifier List under Section 11.5.3 for material misstatement, and projects affected by that misstatement cannot be administratively corrected.

In each case, GEIS retires Buffer Units in a quantity equal to the affected PICs, in the same vintage as the affected issuance where possible, and the retirement is recorded as a Buffer Drawdown (BUFD-`{IssuanceID}-####`).

12.7.4 Buffer Drawdown Disclosure

Each Buffer Drawdown is publicly disclosed in the Registry within 14 days of the drawdown event. Disclosure includes the originating project ID, the issuance vintage, the quantity drawn, the trigger category from Section 12.7.3, and the underlying determination supporting the drawdown. Buffer drawdowns are part of the public integrity record of the standard.

12.7.5 Buffer Replenishment and Aging

Buffer Units do not expire automatically. GEIS reviews the Buffer Pool annually and may, at its sole discretion, retire Buffer Units that have aged more than seven years without drawdown when the underlying projects have completed full crediting periods, full verification cycles, and any applicable post-completion review windows under Section 7. Aged-out Buffer Units are retired to RTRD status with no impact claim attribution. The annual buffer review is published in the GEIS annual integrity report.

12.7.6 Buffer Pool Solvency

GEIS shall not knowingly issue PICs at a rate that would render the Buffer Pool insolvent against reasonably foreseeable drawdown events. If the Buffer Pool falls below 4 percent of cumulative outstanding PICs, GEIS shall increase the buffer set-aside rate prospectively until the pool is replenished, with the new rate disclosed publicly and applied to subsequent issuances. Buffer rate increases do not retroactively reduce previously issued PICs.

SECTION 13.

DIGITAL REPRESENTATIONS, ON-CHAIN ARCHITECTURE & HYBRID CLAIM ARCHITECTURE™ GEIS may authorize on-chain or other digital representations of PICs to support transparency, liquidity, and settlement functions. All rules in this section are non-negotiable and must be enforced in both the Registry layer and any smart contract or digital token system.

13.1 Registry Supremacy

The GEIS Registry™ is always the authoritative record. The on-chain token is derivative only. If there is ever a mismatch between token state and Registry state, the Registry wins and the on-chain state must be corrected.

13.2 Minting Rules

- Tokens may only be minted after GEIS has formally issued the corresponding Registry units (ISSD status). No mint event may occur without prior GEIS issuance approval.
- Token supply for any PIC Lot must never exceed the quantity of Registry units. Over-minting triggers investigation, freeze, and corrective action.

13.3 Burn Coordination — Registry Status First

Burn Sequence — Governing Rule. A token burn is only valid if the GEIS Registry™ sets the corresponding units to RTRD (full burn) or PBNB (partial burn) status as the FIRST action in the burn sequence.

The on-chain burn is the LAST action, triggered only after: (1) Registry status is confirmed, (2) Burn Attribution Calculation™ completes and a locked Burn Attribution Record™ is generated, (3) Evidence Partitioning™ executes and Evidence Partition Record™s are locked, and (4) the Claim Package™ is generated.

Once RTRD or PBNB status is set, the affected units cannot be transferred, re-issued, or used for conflicting claims. The Irreversibility Flag must always be TRUE for burned units.

13.4 Hybrid Claim Architecture™

The Hybrid Claim Architecture™ is the governing framework for how impact claims are attributed to burning parties at the moment of burn. It solves the claim attribution problem: how can a company that buys PICs from a lot containing hundreds of batches across multiple projects make a legally grounded, publicly credible, non-duplicative impact claim, down to specific photos, videos, GPS data, and individual collection events.

LAYER	NAME	WHAT IT DOES
Layer 1	Credit Layer	PICs trade freely as whole units. Buyers and Market Participants purchase lots without needing to know the underlying batch composition. This is the market-facing layer.
Layer 2	Attribution Layer	At the moment of burn, the Burn Attribution Calculation™ runs and produces a Burn Attribution Record™. This formally assigns each burning party a proportional share of every batch in the burned lot. The Claim Lock Flag™ is set to TRUE for each attributed batch, preventing duplicate attribution.
Layer 3	Evidence Layer	Evidence Partitioning™ executes for each attributed batch. Each burning party receives a curated, non-overlapping subset of evidence assets — their own photos, their own GPS data, their own participant summaries. No two burning parties receive the same evidence files.

Worked Example — Proportional Attribution (10 PICs in lot, two buyers)

ATTRIBUTION DETAIL	COMPANY 1 (5 OF 10 PICS)	COMPANY 2 (5 OF 10 PICS)
Attribution Percentage	50%	50%
Attributed Verified kg	5,000 kg	5,000 kg
Evidence Assets	Curated 50% of each batch — photos, video, GPS — formally partitioned, non-overlapping	Different curated 50% of each batch — photos, video, GPS — non-overlapping
Permitted weight claim	"We funded 5,000 kg of verified plastic impact under the GEIS Protocol"	"We funded 5,000 kg of verified plastic impact under the GEIS Protocol"
Prohibited claim	"We exclusively cleaned [location] on [date]"	"We exclusively cleaned [location] on [date]"

Double-Claim Protection The Claim Lock Flag™ on each Burn Attribution Record™ is set to TRUE at the moment of generation.

The Registry enforces that attribution percentages across all burning parties of a single lot always sum to 100 percent. The denominator is always the original lot quantity, not remaining PICs, ensuring accurate summation across multiple partial burn events on the same lot.

No evidence asset can be assigned to more than one burning party.

13.5 Burn Attribution Calculation™

The Burn Attribution Calculation™ runs automatically at the moment Registry status is set. System-executed. Not modifiable by any user.

STEP	ACTION
1 — Lot Retrieval	Retrieve the PIC Lot Record. Extract: original total PIC quantity, list of all Supported Batch IDs, list of any prior Burn Attribution Record™s for this lot.
2 — Attribution %	Attribution Percentage = PICs Burned in this event ÷ Original Lot Quantity × 100. The original lot quantity is always used as denominator. Store as decimal to four decimal places.
3 — Batch Attribution List	For every batch in the Supported Batch ID list: create entry with Batch ID, Attribution Percentage, and Claim Lock Flag™ = TRUE.
4 — Double-Claim Check	Verify that the sum of all Attribution Percentages for this lot (including all prior burn events) does not exceed 100.0000 percent. If it would, the burn is rejected and GEIS is notified immediately.
5 — Generate BAR	Generate the Burn Attribution Record™. Lock it; no modifications permitted after generation.
6 — Evidence Partitioning™	For each attributed batch, trigger the Evidence Partitioning™ process (Section 13.6).
7 — Generate Claim Package™	Generate the three-tier Claim Package™ (Section 13.7) and deliver to the burning party.
8 — On-Chain Burn	Trigger the on-chain burn. Registry status confirmed first; on-chain burn follows as the final action.

13.6 Evidence Partitioning™ at Burn

Evidence Partitioning™ divides the evidence assets of each attributed batch into a curated, formally assigned subset for each burning party. Each Evidence Partition Record™ is locked at burn and cannot be reassigned.

STEP	ACTION
1 — Evidence Inventory	For each attributed batch, count total evidence items by type: photos, videos, GPS records, weight tickets, participant summaries, custody records.
2 — Item Count Calculation	Items Assigned = floor(Total Items of Type × Attribution % ÷ 100). Rounding always down (floor) to ensure no party receives more than their proportional share.
3 — Item Selection	Select items sequentially by Reference Code (E001, E002, E003 ...). Deterministic and non-overlapping. Earlier burners receive earlier-numbered items.
4 — Generate EPR	Generate the Evidence Partition Record™ with assigned IPFS-hashed files, evidence type counts, and Partition Lock Timestamp.
5 — Participant Summary	Generate a de-identified Participant Summary: count, aggregate weight, Source Category breakdown, date range. No names or personal data ever included.
6 — Lock	Lock the Evidence Partition Record™. No modifications permitted after the Partition Lock Timestamp.

Privacy Protection — Individual Participant Data Individual participant names, personal identifiers, exact home locations, and payment amounts are NEVER included in any Evidence Partition or Claim Package™. GPS data included in partitions is collection-point GPS only, not participant home or personal GPS.

13.7 The Three-Tier Claim Package™

The Claim Package™ is generated automatically at burn and delivered to the burning party as the formal GEIS-issued deliverable that enables legally grounded public impact claims.

TIER	NAME	CONTENTS
Tier 1	Legal Burn Certificate	Formal GEIS-signed PDF for legal files, ESG disclosures, and auditor packages. Contains: Burn ID (RT-##.) which serves as the Burn Certificate ID, Burning Party name, burn date, BAR ID, PIC Lot ID, PICs burned, verified kg, attribution %, pathway class, monitoring period, project count, batch count attributed, third- party verifier name, GEIS Registry™ URL, Protocol version, GEIS signature and timestamp.
Tier 2	Attribution Summary	PDF and machine-readable JSON for ESG report narratives and sustainability software ingestion. Contains: per-project breakdown (Project ID, name, geography, pathway, attributed kg, participant count, source categories, date range), aggregate totals, batch cluster summary, and monitoring period details.
TIER	NAME	CONTENTS
Tier 3	Curated Evidence Package	Structured ZIP archive organized by Project > Batch > Evidence Type with manifest file. Contains: formally partitioned photos and video, collection-point GPS data (GeoJSON/KML), weight documentation, de-identified participant summaries, and custody records, all exclusively assigned to this burning

		party. No evidence assigned to another burning party is included. Download link valid 30 days; GEIS retains indefinitely.
--	--	---

Claim Package™ Delivery Download links valid for 30 days. GEIS retains all evidence and Registry data indefinitely. Pinning must not be subject to expiry.

Burning parties may request re-generation of expired download links at any time. GEIS retains all data required for re-generation. Re-generated links are valid for an additional 30 days.

If a Burn Attribution Record™ is invalidated, corresponding Evidence Partition Record™s are also invalidated and the Claim Package™ is revoked. GEIS must notify the affected burning party in writing.

SECTION 14.

CLAIMS, MARKETING & DISPLAY LAYER RULES Claims must be true, specific, and matched to unit status. The display layer must consistently apply the rules below. Incorrect labeling creates legal and reputational risk for GEIS, project proponents, buyers, and Market Participants.

SCENARIO	DISPLAY RULE	PROHIBITED LANGUAGE
Active / Issued PICs (ISSD)	Display as "Issued — Not Yet Burned." May be sold or transferred.	"Retired," "claimed," "offset," or any completed-impact language.
Partially Burned Lot (PBNL)	Display as "Partially Burned — [N] PICs Remaining." The remaining PICs may still be transferred. No impact claim rights on remaining PICs until they are burned.	Any language implying the full lot has been retired or that all PICs have been claimed.
Burned PICs (RTRD)	Display as "Burned — Impact Claimed." Show burning party, burn date, pathway, verified kg, Burn Certificate link, and Evidence Package download link.	None — this is the valid completed claim state.
Held PICs (buyer Holding Account, ISSD)	"Purchased — Not Yet Burned." No impact claim rights.	Any language implying the impact has been claimed, retired, or offset.
Held PICs (Market Participant Account, ISSD)	"Held by Market Participant — Not Yet Burned." No impact claim rights from holding alone.	Any language implying the Market Participant has retired, offset, or made the impact claim. Marketing PICs as a financial product without disclosing that no impact claim attaches until burn.
Pending VPK / Sponsorships	"Activity Funded" or "Sponsorship Active."	"Burned credits," "retired PICs," "offset," "impact claimed."
Sponsored But Not Burned	Permitted: "We funded collection / recycling."	"We retired PICs," "we burned credits," "plastic neutral," "impact offset."
"Plastic Neutral" / Equivalency	Only if GEIS Claims Guidance is published and the buyer's burn satisfies its conditions.	All equivalency language without published GEIS Claims Guidance.
SCENARIO	DISPLAY RULE	PROHIBITED LANGUAGE
GEIS vs. External Standard Labels	Label as "issued under the Plastic Impact Protocol™ v4.5" only.	Certified under Verra," "Verra- registered," or any external program label.
Token Holders Without Burn Record	No environmental claim rights from holding alone.	any claim language based on token holding without Registry RTRD and a valid BAR.
Evidence Usage	Only formally assigned Evidence Partition assets may be used in public claims. Each evidence asset used publicly must reference the Burn ID and the Evidence Partition Record™ ID.	Using evidence not in the burning party's formally assigned Evidence Partition. Using another party's evidence assets. Claiming individual participant identities.

14.1 Market Participant Marketing Rules (New in v4.4)

A Market Participant Account holder may publicly state that it holds, transacts in, or makes available for resale PICs issued under the Plastic Impact Protocol™ v4.5. A Market Participant must not:

- Imply that holding PICs constitutes plastic impact, plastic neutrality, plastic offset, or environmental claim of any kind.
- Use the Burn Certificate, Burn Attribution Record™, Evidence Partition Record™, or any other burning-party deliverable for its own marketing.
- Assert exclusivity over geographic areas, project types, or methodologies except as expressly granted under a Reseller Agreement and consistent with this Protocol.

Bundle PICs with other instruments in a way that obscures the boundary between an issued unit, a held unit, and a burned unit.

14.2 Pre-Approved Claim Language Templates

Template 1 — General Impact Statement (Short) "[Company Name] has retired [N] Plastic Impact Credit™s under the GEIS Plastic Impact Protocol™ v4.5, funding the equivalent of [N,000] verified kilograms of plastic collection and recycling across [N] registered projects. Verified by independent third-party auditor. Registry reference: [Burn Certificate URL]."

Template 2 — ESG Report Narrative (Detailed) "During [period], [Company Name] purchased and retired [N] Plastic Impact Credit™s (PICs) issued by Global Environmental Impact Solutions (GEIS) under the Plastic Impact Protocol™ v4.5. Each PIC represents one metric tonne of verified eligible plastic impact. Our retirement of [N] PICs funded [N, 000] verified kilograms of plastic recovery across [N] projects spanning [Source Categories] in

[geographies] during [monitoring period]. Activity was independently verified by [Verifier Name] and is evidenced by [N] individual collection records, [N] GPS-confirmed collection events, and [N] field-verified weight reconciliations. Full documentation at [Registry URL]. Burn ID: [RT-...]."

Template 3 — Social Media / Website Caption for Evidence "These are verified collection photos from our credited plastic impact activity. Each image is formally documented in the GEIS Registry™ under Burn ID [RT-...], Plastic Impact Protocol™ v4.5. [Company Name] funded [N,000] kg of verified plastic recovery across [N] projects. #PlasticImpact #GEISProtocol"

Template 4 — Market Participant Statement (New in v4.4) "[Market Participant Name] is an approved Market Participant under the GEIS Plastic Impact Protocol™ v4.5, transacting in Plastic Impact Credit™s (PICs) issued under this Protocol. PICs are not impact claims. Impact attaches only when PICs are burned by a corporate buyer under the Hybrid Claim Architecture™. Reseller Agreement reference: [RA-MPA-####-VV]."

SECTION 15.

CORRECTIONS, GRIEVANCES & FRAUD RESPONSE GEIS may issue corrective actions, place quantities in PEND or FRZN status, suspend projects or facilities, deny issuance, or invalidate units where evidence, legal compliance, chain of custody, ownership, or claims integrity is unreliable.

When a Burn Attribution Record™ is invalidated, all corresponding Evidence Partition Record™s are simultaneously invalidated and the Claim Package™ is revoked. GEIS must notify the affected burning party in writing.

Fraud, fabricated records, collusive review, or material misrepresentation may result in rejection of quantities, invalidation of issued units, removal of approval status, referral to counterparties, or other remedies GEIS deems necessary to protect program integrity.

15.1 Market Participant Compliance Failures (New in v4.4)

GEIS may suspend or revoke a Market Participant Account where:

- The Market Participant fails to submit a required Annual Attestation under Section 18.1.
- The Market Participant fails to submit a required CFTC Threshold Disclosure under Section 17.6.
- The Market Participant violates the marketing rules in Section 14.1.
- The Market Participant transacts outside the Registry, including but not limited to off-Registry secondary sales or token transfers between non-whitelisted wallets.
- Sanctions screening identifies a disqualifying relationship.
- The Reseller Agreement is breached in a material way.

Suspension freezes all PICs in the Market Participant Account at FRZN status pending resolution. Revocation transitions the account to CLSD; PICs may be transferred only to GEIS administrative custody or to another whitelisted account at GEIS's direction.

SECTION 16.

FUTURE EXTERNAL CERTIFICATION & MIGRATION PATHWAY This Protocol is designed so that GEIS can operate now as an independent program and later migrate eligible projects into recognized external certification systems. GEIS shall prevent double issuance and preserve an auditable chain between historical GEIS records and any later external certification process. Migration shall be treated as a managed conversion process, not as automatic equivalence. The Burn Attribution Record™s and Evidence Partition Record™s created under this Protocol constitute Registry-level evidence that must be preserved through any migration.

16.1 Migration Principles

- No double issuance during or after migration. A unit issued under GEIS and converted to another standard is permanently retired in the GEIS Registry™ at the moment of conversion.
- All Burn Attribution Records and Evidence Partition Records remain accessible in the GEIS Registry™ indefinitely regardless of project migration status.
- Buyers holding RTRD units retain their Claim Package™ rights under v4.5 regardless of subsequent project migration.

16.2 International Expansion Pathway

GEIS will maintain its Platinum integrity standard while enabling controlled international growth. Non- U.S. facilities will become eligible only after GEIS publishes an International Activation Notice (IAN- {ISO3166}-YYYYMMDD) for the specific nation that confirms:

- Equivalent federal or national regulatory oversight (e.g., ISO 14001 plus national MRF or equivalent waste-management licensing analogous to U.S. RCRA / Subtitle D).
- Independent third-party validation of chain-of-custody and community consultation standards.
- Successful pilot with at least one licensed national receiving facility under full MRV for one monitoring period.
- Documented destination-nation labor law compliance confirmed by the qualifying Project Proponent.
- Sanctions-clear status of the nation and operating entities under U.S. and EU sanctions regimes.
- A nation-specific Section 4 safeguards review.

Until activation, all issuance for the affected geography remains gated. Activation is per-nation. The Treegens Foundation 12-nation network qualifies on a per-nation basis. Issuance under Methodology C (PIC-T™) for any specific nation is permitted only after the corresponding IAN-{ISO3166}-YYYYMMDD is published.

16.3 Activation Sequencing for the Treegens Network

GEIS will publish International Activation Notices for the Treegens 12-nation network on a per-nation basis. The sequencing of activation is determined by GEIS in consultation with Treegens Foundation, weighted by:

- Maturity of national regulatory oversight.
- Existing third-party validation infrastructure.
- Volume readiness of the in-country Treegens chapter.
- Sanctions and risk profile.

PIC-T™ issuance for an unactivated nation is not permitted, regardless of any other operational readiness. The first International Activation Notice for the Treegens network will be the Section 16.2 activation event for that nation. Until at least one IAN is published, PIC-T™ issuance remains operationally pending and the methodology is held at registration-ready status.

SECTION 17.

SECONDARY MARKET ARCHITECTURE & MARKET PARTICIPANT ACCOUNTS New in v4.4. Governs the resale of PICs without burning, the Market Participant Account type, the transfer fee, lot standardization, price transparency, and exclusivity framework.

17.1 Purpose

A liquid, transparent, registry-controlled secondary market is essential to scale a high-integrity plastic credit. Without a secondary market, every transaction is a primary issuance, which constrains volume, distorts pricing, and concentrates risk. With a secondary market governed by published rules, PICs can move efficiently from project proponents to buyers via approved intermediaries, with full Registry control at every transfer event.

This Section 17 establishes the secondary-market architecture: the Market Participant Account, the transfer fee, lot standardization, price transparency, exclusivity framework, and the regulatory threshold disclosure rules. Section 18 governs holding period rules. Section 14.1 governs Market Participant marketing claims. Section 15.1 governs Market Participant compliance failures.

17.2 Market Participant Account — Definition and Purpose

The Market Participant Account (MPA-####) is a Registry account type for entities that acquire, hold, and transfer PICs in the secondary market without burning. A Market Participant is not, by virtue of holding PICs alone, entitled to make any impact claim. Impact claims attach to the burning party only.

A Market Participant Account is permitted to:

- Acquire PICs directly from a Project Account, a Holding Account, or another Market Participant Account.
- Hold PICs in ISSD or PBNB status.
- Transfer PICs to a Holding Account, another Market Participant Account, or back to a Project Account.
- Transfer PICs to its own Holding Account for the purpose of subsequent burn for its own corporate use, in which case the Market Participant becomes a Burning Party and Section 13 governs.

A Market Participant Account is not permitted to:

- Burn PICs on behalf of a third party without explicit written instruction from the Burning Party recorded in the Registry.
- Transact in PICs outside the Registry (off-Registry sales, off-chain settlement, or wallet-to-wallet transfers between non-whitelisted addresses).
- Make any impact claim, plastic-neutrality claim, or environmental representation based on holding alone.
- Bundle PICs with other instruments in a way that obscures the boundary between an issued unit, a held unit, and a burned unit.
- Re-sell expired, invalidated, or frozen units.

17.3 Transfer Fee

A transfer fee of one percent (1.0%) applies to each Registry transfer event involving a Market Participant Account.

TRANSFER TYPE	TRANSFER FEE APPLIES?
Project Account → Holding Account (direct primary sale, no MPA in chain)	No
Project Account → Market Participant Account	Yes
Market Participant Account → Holding Account	Yes
Market Participant Account → Market Participant Account	Yes
Market Participant Account → Project Account (return / unwind)	Yes
Holding Account → Market Participant Account (corporate sale into resale market)	Yes
Wallet rotation within the same Market Participant Account legal entity (administrative)	No

The fee is calculated against the transfer value at the most recent published last-sale price per tier (Section 17.5) and is collected by the GEIS Registry™ at the point of transfer. Payment is in USD. The Registry shall not execute the on-chain transfer until the fee is settled.

GEIS may, in a future Protocol version, accept payment of a portion of the transfer fee in \$Plastic with a fee discount for \$Plastic-denominated settlement, contingent on activation under a separate notice. v4.5 transfer fees are USD-only.

17.4 Lot Standardization

PICs offered for transfer through a Market Participant Account shall be aggregated into standard lot sizes of 10, 50, or 100 PICs. Standard lot sizes support liquidity, price transparency, and Registry transfer efficiency.

STANDARD LOT	USE CASE
10 PICs	Small corporate buyer, pilot procurement, ESG report supplement
50 PICs	Mid-market corporate buyer, recurring quarterly retirement
100 PICs	Enterprise buyer, EPR-compliance volume, large fund-of-credits

Non-standard lot sizes are permitted only for direct Project Account to Holding Account transfers (i.e., primary sales without a Market Participant in the chain) or for administrative actions by GEIS.

A Market Participant Account may aggregate PICs across multiple primary issuances (PIC Lot IDs) into a single standard lot for resale, provided:

- All aggregated PICs share the same methodology class (e.g., all PIC-C™ or all PIC-MR™, not mixed).
 - All aggregated PICs are in ISSD status (not PBNB).
 - The aggregated lot does not exceed 100 PICs.
 - The Registry maintains the underlying PIC Lot ID and Supported Batch ID list for each constituent unit.
- Aggregation is for transfer convenience, not for evidence consolidation.

17.5 Price Transparency

GEIS shall publish, on the first business day of each month, the following price information:

- Last-sale price per methodology class (PIC-C™, PIC-MR™, PIC-T™) for the prior calendar month.
- Volume-weighted average sale price per methodology class for the prior calendar month.
- Number of transfer events per class.
- Aggregate transfer fee revenue collected per class.

Published price data is informational and historical. It does not constitute a binding offer, a price commitment, or a guarantee of future price levels. GEIS makes no representation or warranty as to future prices.

17.6 Regulatory Threshold Disclosures

Market Participants are individually responsible for compliance with applicable U.S. and international financial regulation. GEIS does not provide legal or regulatory advice. To support regulatory legibility and reduce the risk of inadvertent non-compliance, the following thresholds trigger mandatory written disclosure to GEIS:

CFTC Threshold Disclosure A Market Participant whose aggregate PIC holdings, valued at the most recent published last-sale price per tier under Section 17.5, exceed \$10,000,000 USD shall notify GEIS in writing within fifteen (15)

business days of crossing the threshold using the CFTC Threshold Disclosure Form (CFTC-MPA-####-YYYYMMDD).

Disclosure is also required at \$25,000,000, \$50,000,000, \$100,000,000, and each \$50,000,000 increment thereafter.

Broker-Dealer Disclosure A Market Participant whose aggregate annual PIC resale volume (cumulative transfer value, fiscal year basis) exceeds \$25,000,000 USD shall acknowledge in writing to GEIS that activity at this scale may trigger SEC, FINRA, or equivalent securities regulation requirements. GEIS does not advise on registration; the Market Participant is responsible for evaluating and complying with applicable law.

Regulatory Evolution Clause GEIS shall monitor regulatory developments affecting environmental credit holding, resale, and disclosure requirements and shall publish amendments to this Protocol as legal standards emerge. Where new federal, state, or international regulation imposes mandatory disclosure or

registration requirements on Market Participants, GEIS shall update Sections 17 and 18 within ninety (90) days of regulatory effective date and require Market Participants to confirm compliance via amended Reseller Agreement or supplementary attestation.

17.7 Exclusivity Framework

GEIS may grant exclusivity to a Market Participant in defined commercial parameters where the Market Participant meets agreed volume metrics. Exclusivity is granted only by Reseller Agreement (a separate commercial document) and is subject to the following Protocol-level constraints:

- No exclusivity may be granted that limits a Project Account's ability to issue PICs under this Protocol.
- No exclusivity may be granted that limits a corporate buyer's ability to purchase PICs from any approved channel.
- Exclusivity may apply to: geographic regions, customer types, or distribution channels (such as a specific institutional finance platform).
- Exclusivity terms include volume metrics, performance review intervals, and termination rights.
- Exclusivity is reviewable at minimum annually and is automatically suspended if the Market Participant Account is suspended for any reason.
- Volume metrics for exclusivity must be set at levels demonstrably superior to non-exclusive Market Participants. GEIS will not grant exclusivity for nominal commitments.

The Reseller Agreement is the operative document for exclusivity terms. The Protocol controls in any conflict between the Reseller Agreement and this Section 17.7.

17.8 Off-Registry Activity Prohibited

All transfers of PICs must occur through the GEIS Registry™. Off-Registry activity, including but not limited to off-chain wallet-to-wallet transfers between non-whitelisted addresses, off-Registry assignments of beneficial ownership, or undocumented private treaty sales, is a Material Compliance Failure under Section 15.1 and triggers immediate suspension of the Market Participant Account.

The Registry, not any wallet or third-party platform, is the source of truth for ownership, status, and chain of attribution. The on-chain token may move only as a derivative of a Registry transfer event.

17.9 Reseller Agreement

Each Market Participant Account requires a current, executed Reseller Agreement (RA-MPA-####-VV) prior to first transfer. The Reseller Agreement:

- Incorporates Sections 17 and 18 of this Protocol by reference.
- Sets the agreed lot-size availability, geographic scope, and customer-type scope for the Market Participant.
- Sets exclusivity terms, if any, under Section 17.7.
- Sets the volume metrics required to maintain or increase exclusivity.
- Sets the renewal interval (default annual).
- Sets termination conditions, including for cause and for convenience.
- Acknowledges Sections 14.1 marketing rules and 15.1 compliance failures.
- Includes the Market Participant's KYC submission and signing-authority attestation under Section 9.4.

Reseller Agreements are executed between GEIS and the Market Participant. The Protocol controls in any conflict.

SECTION 18.

RESEARCH CONSERVATION, SPECULATIVE ACCUMULATION & HOLDING PERIOD GOVERNANCE
New in v4.4. Establishes formal holding rules for all account types, with stricter rules applying to Market Participant Accounts. Aligned with carbon market norms (Gold Standard 5-year vintage rule, Verra VCS practice) as the closest legal analogy in the absence of plastic-credit-specific regulation.

18.1 General Holding Rules

PICs do not expire. A unit issued in 2026, held in good standing, and never invalidated remains a valid unit indefinitely. However, PICs are subject to administrative review at defined holding-period thresholds to support market integrity, regulatory legibility, and ongoing alignment with the additionality and regulatory surplus framework that supported issuance.

The following thresholds apply to all account types holding PICs:

HOLDING PERIOD	ACTION REQUIRED
0 to 24 months	No action. PICs remain in normal status.
Over 24 months	Annual Attestation required from the holder (Section 18.3).
Over 60 months (5 years)	Mandatory Revalidation triggered automatically (Section 18.2).

The 24- and 60-month thresholds apply to the most recent Registry transfer or issuance date for the holding entity. Each transfer to a new account resets the holder's clock for the new holder, but does not reset the underlying issuance vintage. Issuance vintage is permanent and is recorded in the PIC Lot.

18.2 Mandatory Revalidation at 60 Months

When PICs are held by any account for more than 60 months without burn or transfer, GEIS automatically initiates a Mandatory Revalidation. The Revalidation reviews:

- Whether the original baseline scenario remains the most plausible scenario as of the revalidation date.
- Whether additionality at original issuance remains supportable in light of subsequent regulatory and market developments (especially EPR enactments).
- Whether regulatory surplus at original issuance remains valid.
- Whether the holding party remains in good standing under Section 9.4 KYC and sanctions screening.
- Whether any community consultation, safeguards, or Section 4 issues have arisen with respect to the underlying project since issuance.

Mandatory Revalidation is conducted by GEIS with input from the original third-party verifier where available. The cost of Revalidation is borne by the holder. Revalidation may result in:

- Confirmation: PICs remain valid in current form. New 60-month clock starts.
- Conditional confirmation: PICs remain valid subject to specified conditions (such as an updated baseline reference). Documented in the PIC Lot record.
- Invalidation: PICs are invalidated under Section 15. Holder may have right of appeal under Section 15.

Revalidation outcomes are recorded in the Registry and are visible to all subsequent holders.

18.3 Annual Attestation (24-Month Threshold)

For PICs held over 24 months, the holder shall submit annually a Holding Period Compliance Form (HPCF-MPA-####-YYYYMM for Market Participant Accounts; equivalent form for Holding Accounts) attesting that:

- The PICs remain held by the named account.
- No off-Registry transfer or assignment has occurred.
- No impact claim has been asserted on the basis of held (un-burned) PICs.
- No material change has occurred in the holder's KYC, beneficial ownership, sanctions status, or signing authority.

Failure to submit the Annual Attestation by the due date triggers a 60-day grace period. If unresolved at the end of the grace period, the PICs are placed in HOLD status and the holder's account is suspended pending resolution.

18.4 Speculative Accumulation Disclosure

A Market Participant whose holdings represent speculative accumulation (defined as holdings held for resale rather than corporate retirement) and whose aggregate holdings exceed the CFTC Threshold under Section 17.6 shall additionally:

- Submit, with the CFTC Threshold Disclosure, a written summary of accumulation strategy, including expected resale horizon, expected counterparty types, and financing structure. • Acknowledge that accumulation at this scale is subject to Mandatory Revalidation under Section

18.2 regardless of holder identity.

- Acknowledge that GEIS reserves the right to adjust transfer fee structure for accumulators above the threshold in a future Protocol version, consistent with the Regulatory Evolution Clause in Section 17.6.

18.5 Issuance Vintage Disclosure

The PIC Lot record permanently retains the issuance vintage. Vintage information is included in:

- The Burn Certificate (Tier 1 of Claim Package™). • The Attribution Summary (Tier 2 of Claim Package™). • All Registry queries and Market Participant trade interfaces.

A buyer purchasing PICs at any point in the holding chain is entitled to know the issuance vintage. Marketing language obscuring vintage (e.g., presenting an aged credit as a freshly issued unit) is prohibited under Section 14.

18.6 No Vintage Premium or Discount Imposed by Protocol

This Protocol does not impose a vintage premium or discount on aged PICs. Pricing of aged credits is a market function. The Protocol governs holding-period administration, disclosure, and revalidation. Buyers and Market Participants negotiate price.

SECTION 19.

CONFORMANCE AND IMPLEMENTATION This Protocol is a normative governing standard. The term "compliant with PIP v4.5" has a defined meaning under this Section. Three conformance levels are established. Use of the conformance designation in any external communication, claim, marketing material, or commercial document by any Project Proponent, Burning Party, Market Participant, or third party shall conform to the level designated by GEIS.

19.1 Full Conformance

A project, methodology implementation, or registry operation is at Full Conformance when every normative requirement of this Protocol applicable to its scope is satisfied without exception. Full Conformance is the standard baseline and the only conformance level under which a project may use the unqualified phrase "compliant with PIP v4.5" or the GEIS conformance mark.

Full Conformance requires:

- All Section 4 safeguards documented and current, including FPIC where applicable. • Section 5 eligibility, Section 6 baseline and additionality, and Section 7 lifecycle requirements satisfied without exception. • Approved Verifier engagement under Section 11.5 with a clean Independence Declaration. • Section 8 facility approval and chain-of-custody intact. • Section 9 registry recording at the level of detail required by the methodology. • Section 10 monitoring evidence complete. • Section 12.7 buffer set-aside applied at issuance. • Section 13 hybrid claim architecture and burn-sequence governance enforced. • Section 14 claim language conformant. • Section 17 secondary-market governance applied to any transferred PICs. • Section 18 holding-period governance applied to any held PICs. • No open Corrective Action Request at Major severity. • No active GEIS suspension or freeze on the project, account, or operating entity.

A Project Proponent at Full Conformance is entitled to the GEIS-issued Full Conformance designation in the Registry and may reference Full Conformance in commercial documentation.

19.2 Conditional Conformance

A project is at Conditional Conformance when every normative requirement is satisfied with one or more documented exceptions, each of which:

- Is publicly disclosed in the Registry alongside the project record.
- Is time-bounded with a stated remediation period not to exceed twelve months from the date of designation.
- Is supported by a written remediation plan filed by the Project Proponent and accepted by GEIS.
- Does not relate to additionality, regulatory surplus, chain-of-custody integrity, individual participant record completeness for batches that supported issuance, the buffer set-aside under Section 12.7, the integrity controls under Section 13, FPIC for affected populations, or any prohibition under Section 14.

Conditional Conformance authorizes issuance only for the unaffected portion of project activity. PICs issued during a Conditional Conformance period are flagged in the Registry with a COND-{ProjectID}-#### reference. Burning parties acquiring such PICs receive Claim Package™ documentation that reflects the Conditional Conformance status.

A project at Conditional Conformance may not use the unqualified phrase "compliant with PIP v4.5" in external communications. Permitted language is "Conditional Conformance under PIP v4.5 with [remediation reference]" or substantially similar.

A project at Conditional Conformance has twelve months to reach Full Conformance. Failure to remediate within the period results in suspension of issuance and review under Section 15.

19.3 Pre-Conformance (Pilot Status)

A project is at Pre-Conformance when it has been formally enrolled with GEIS for the purpose of methodology refinement, pilot validation, or Treegens-network onboarding under PIC-T™ before Full Conformance has been demonstrated. Pre-Conformance enables operational learning under GEIS oversight without authorizing issuance.

A Pre-Conformance project:

- Is registered in the Registry with status DRFT or URVW.
- Generates no PIC issuance until upgraded to Full or Conditional Conformance.
- Receives GEIS technical support, monitoring methodology guidance, and verifier engagement assistance.
- Provides feedback to GEIS on methodology applicability and operational realities, which may inform future versions of this Protocol.
- Is publicly listed in the Registry under "Pilot Projects."

A Pre-Conformance project may publicly state that it is "in pilot status under the Plastic Impact Protocol™ v4.5." It may not state or imply that it is conformant, that it has issued PICs, or that any environmental impact claim is supported by GEIS until issuance occurs.

19.4 Implementation Phasing

This Protocol is effective May 2026. Implementation phasing recognizes the operational reality that not all dApp, Registry, and on-chain components are simultaneously delivered.

PHASE	COMPONENT	EFFECTIVE
1	Protocol publication and Registry-only operation under PIC-C™	Effective immediately upon publication.
2	dApp issuance interface and Approved Verifier engagement under PIC-C™ and PIC-MR™	Effective at dApp v1.0 release, expected Q3 2026.
3	On-chain token representation, Burn Attribution Calculation™, and Hybrid Claim Architecture™ at the smart contract layer	Effective at on-chain v1.0 release.
4	PIC-T™ International Activation Notices on a per-nation basis	Effective per Section 16.2.
5	Public Approved Verifier List	No later than Q4 2026.
6	Reserved Annex activation under Section 16 and Appendix 4/5	Effective only upon formal Activation Notice publication.

Until a phase is effective, the relevant operational components revert to interim GEIS-administered procedures with full documentation retained for migration into the system at phase activation. Interim procedures do not waive any requirement of this Protocol.

19.5 Conformance Designation Authority

The designation of a project's conformance level is reserved exclusively to GEIS. No Project Proponent, Burning Party, Market Participant, verifier, or third party may unilaterally claim conformance, designate another party's conformance, or use any GEIS conformance language outside the designations published in the Registry. Misuse of conformance language in commercial communications is a violation under Section 14 and may result in suspension under Section 15.

PART II

PART II —

ACTIVE METHODOLOGIES Three credit classes are live for issuance. Each is governed by full evidence, additionality, and verification rules.

ACTIVE TREEGENS-NETWORK 1 mt OF VERIFIED PLASTIC METHODOLOGIES
NATIONSGATEDONIMPACTEQUALS ONE

LIVE FOR ISSUANCE ACTIVATION	PER-COUNTRY	PIC™
METHODOLOGY A		
Collection Class (PIC-C PIC-C™ may be issued on credible risk of mismanagement scenario.	™) — Active ly for plastic waste physical agement, leakage, dumping, o	lly collected from conditions that present a r inadequate downstream handling in the baseline
Applicability Condition • The waste is plas • The baseline scen handling. • The collection ac • The collected mas Individual Partic • The project can e • The mass is not a	s tic waste and is not exclude ario supports credible risk tivity is additional and reg s is documented through suff ipant Records where availabl vidence a controlled downstr ready counted under another	d material under GEIS guidance. of mismanagement, leakage, or otherwise inadequate ulatory-surplus eligible. icient quantity and custody records, including e. eam handoff to an approved management stage. primary issuance basis.
Evidence Minimum — PIC- • Collection logs, • Weight tickets or • Field-to-facility • Location, route, • Receiving, sortin • Photographic evid resolution, JPEG • Media, receipts,	C™ event logs, or Individual Pa certified scale records at weight reconciliation recor or Source Category records. g, or custody transfer recor ence: minimum one photo per or PNG format. and supporting proof proport	rticipant Records where individual tracking is active. an Approved Facility. d (see Section 10.3). ds. collection event, minimum 800 x 600 pixel onate to project risk.
Incineration Excluded Co-processing in cement are excluded under PIC- full emissions, environ	kilns, waste-to-energy conv C™. These may be considered mental performance, and chai	ersion, and all other incineration-based endpoints only through a dedicated activated annex with n-of-custody methodology.
METHODOLOGY B		
Mechanical Recycling CI PIC-MR™ may be issued o through an approved fac recycling, not on output	ass (PIC-MR™) — Active nly for plastic waste that e ility chain. Based on verifi t tonnage.	nters a qualifying mechanical recycling pathway ed net eligible input into approved mechanical
Applicability Condition • The plastic waste Section 8. • Chain of custody • The activity is a • The mass is not a • The pathway does activate Reserved	s enters a mechanical recyccli from intake to remanufacturi dditional and regulatory-sur ready counted under another not include any incineration Annex C if and when GEIS pu	ng pathway operated by an approved facility under ng partner is documented. plus eligible. primary issuance basis. , co-processing, or pyrolysis step (those would blishes the corresponding Activation Notice).
Evidence Minimum — PIC- • Approved facility • Chain-of-custody • Process documenta • Source documentat • Field-to-facility	MR™ intake records and weight t documentation through to rem tion establishing the mechan ion (origin of input feedsto reconciliation where field	ickets. anufacturing partner. ical recycling pathway. ck) collection precedes facility intake.
Explicit Exclusions • Mere transport, e •	xport, resale, or warehousin be	g. he qualifying recycling process. y

Input that cannot be activated. • Material already activated.	reasonably traced into another primary issuance basis. -recycling pathway unless and until that annex is advanced	issuance basis. -recycling pathway unless and until that annex is
METHODOLOGY C		

Treegens / Tier 4 Coastal International Class (PIC-T™) — Active New in v4.4. Issuance under PIC-T™ for any specific nation is gated on publication of the corresponding International Activation Notice (IAN- {ISO3166}-YYYYMMDD) under Section 16.2.

PIC-T™ may be issued only for plastic waste collected through the Treegens Foundation 12-nation network (or equivalent qualifying Project Proponent under Section 16.2) from coastal, riverine, or other waterway environments in countries that have qualified for international activation.

Applicability Conditions • The waste is plastic waste collected from coastal, riverine, lake, mangrove, estuary, beach, or marine environments. • The collection occurs in a nation for which an International Activation Notice has been published under Section 16.2. • The Project Proponent is Treegens Foundation or another qualifying entity that submits a consolidated Monitoring Report under Section 10.2. • Each individual collection event is documented through an Individual Participant Record with all 13 mandatory fields (Section 10.4). • Downstream destination is an approved national receiving facility qualified under Section 16.2. • The activity is additional and regulatory-surplus eligible against the destination nation's enforceable obligations. • The mass is not already counted under another primary issuance basis.

Project Proponent — Treegens Foundation Treegens Foundation acts as the Project Proponent for the entire 12-nation network and is responsible for:

- Registering each in-country chapter as a sub-project under the consolidated Treegens project ID. • Managing dApp registration for each individual collector in the network. • Submitting a single consolidated Monitoring Report covering all qualified-nation activity for the period. • Maintaining destination-nation regulatory compliance, labor law compliance, and Section 4 safeguard documentation. • Filing EPR Notification (EPRN- {ProjectID}-####) within 90 days of any new or expanded EPR obligation in any network nation. • Cooperating with the third-party verifier on consolidated verification.

Evidence Minimum — PIC-T™ • Individual Participant Records for every collection event under Treegens-network management (13 mandatory fields per Section 10.4). • GPS-confirmed collection coordinates within the registered project geographic bounds for each activated nation. • Weight verification at point of collection or initial weigh-in. • Custody Transfer Records to the approved national receiving facility. • Approved facility intake records. • Field-to-facility weight reconciliation per Section 10.3. • Consolidated Monitoring Report from Treegens Foundation per Section 10.2. • Section 16.2 nation activation reference for each batch. • Free, Prior, and Informed Consent (FPIC) documentation under Section 4 for any sub-project operating on indigenous, tribal, or customary-rights-holding community lands or waterways. A signed Community Consent Record (CCR- {ProjectID}-####) must be on file before validation. Where FPIC is asserted as not applicable, a written FPIC Non-Applicability Determination must be filed and accepted by GEIS.

Reforestation — Strict Separation PIC-T™ represents plastic removal only. One PIC-T™ unit equals one metric tonne of verified eligible plastic impact. Reforestation activity associated with the Treegens network generates separate credits through Treegens' own channels (carbon credits, biodiversity credits, or other instruments) and is governed independently of this Protocol.

No PIC-T™ issuance shall attribute or incorporate reforestation activity as part of the plastic impact claim. Reforestation co-benefits are separately documented, separately issued, and separately governed outside this Protocol.

The strict separation strengthens the dual-impact narrative that buyers may permissibly state. Both impacts are independently verified rather than bundled and diluted. A buyer of a PIC-T™ unit may state, in marketing language consistent with Section 14, that the funded activity occurred in a Treegens- network ecosystem that also produces independently-credited reforestation, but the PIC-T™ unit itself is plastic only.

International Safeguards Each Treegens-network nation operates under its own legal framework. Section 4 international safeguards apply to all PIC-T™ activity. Treegens Foundation, as Project Proponent, evidences compliance with destination-nation labor law, safeguards, community consultation appropriate to the local context, and worker health and safety controls reasonable to the operating environment.

Pricing Tier Position PIC-T™ occupies the highest pricing tier under GEIS commercial guidance, reflecting the dual-impact ecosystem positioning, the international coastal collection profile, and the operational complexity of multi-nation aggregated submission. Specific pricing is commercial and not governed by this Protocol.

Exclusions • Activity in a nation for which no International Activation Notice has been published. • Activity under a Project Proponent other than Treegens Foundation or another GEIS-qualified equivalent. • Plastic collected from purely terrestrial inland waste streams unconnected to coastal, riverine, or waterway environments. Such activity may be eligible under PIC-C™ if the project independently registers and qualifies. • Reforestation, biodiversity, or carbon outcomes asserted as part of the PIC-T™ impact unit.

PART III

PART III —

RESERVED ANNEXES Five future pathways are written in operative form. None may be issued. The Hard Gate is the only thing standing between the document and live issuance.

RESERVED ANNEXES VPKORPICS MAYBE 60d PUBLIC COMMENT
BEHINDHARDGATE ISSUED UNDER ANY MINIMUM BEFORE

RESERVED ANNEX ANY ANNEX ACTIVATION

ANNEX C — Advanced Recycling: Draft Pyrolysis Methodology

RESERVED ANNEX C — ADVANCED RECYCLING · NOT ACTIVE FOR ISSUANCE

No VPK may be recorded and no PIC may be issued under this annex unless GEIS publishes a formal Activation Notice under Appendix 5.

Hard Gate

This gate was designed specifically to address the market-wide failure of crediting plastic incineration as recycling. Reference: AFP / SourceMaterial, February 2025: 75 percent of credits across major marketplaces were sold for incineration rather than actual recycling. This annex may not be marketed, sold, or represented as an active issuance route under any circumstances, including in token ecosystems, whitepapers, or investor materials. Publication of Draft Methodology C-1 below does not constitute activation. Activation requires a formal Activation Notice (AAN-C-YYYYMMDD) published under Appendix 5 following a public comment period of not less than 60 days.

Mandatory Activation Conditions (Unchanged from v4.4)

- A technology-specific methodology with clear system boundaries and eligible technology categories. Pyrolysis, gasification, depolymerization, solvolysis, or other processes shall be addressed separately, not bundled.
- Environmental performance rules addressing emissions (including dioxins, furans, NOx, particulates, VOCs), residues, hazardous outputs, and displacement issues.
- Chain-of-custody and mass-balance requirements defined with sufficient specificity for independent assurance.

- Validator and verifier guidance published for the pathway.
- Registry fields available to distinguish the pathway from active launch classes.
- Public comment period of not less than 60 days prior to the Activation Notice taking effect.

Reserved Methodology Code: PIC-AR (Advanced Recycling Class). Reserved. Not active.

Draft Methodology C-1 — Pyrolysis-to-Secondary-Material (Open for Public Comment)

Draft Methodology C-1 is published for a 60-day public comment period as required by the Mandatory Activation Conditions above. This draft does not activate Annex C. Submissions:

Contact@GEISolutions.com, Subject: PIP Annex C Comment. No VPK may be recorded and no PIC-AR may be issued until a formal Activation Notice is published.

C-1.1 Technology Scope

Draft Methodology C-1 covers pyrolysis only, defined as the thermal decomposition of plastic feedstock in the absence of oxygen or with substantially reduced oxygen, producing secondary liquid (pyrolysis oil or bio-oil), gaseous, and solid (char) outputs. Gasification, depolymerization, solvolysis, and other processes are not covered and will be addressed in separate sub-methodologies. No bundling of technology categories is permitted under a single issuance claim.

C-1.2 System Boundaries

The system boundary begins where eligible plastic feedstock arrives at a licensed pyrolysis facility and ends where secondary liquid output (pyrolysis oil) or other secondary material output exits the facility gate as a confirmed secondary material, not as a fuel. The system boundary does not include upstream collection; upstream collection is credited separately under PIC-C™ or PIC-MR™ where eligible. Double-counting of the same plastic mass across upstream and advanced-recycling credits is prohibited under the Zero-Double-Counting Rule.

C-1.3 Eligible Feedstocks

Status	Feedstock Category
ELIGIBLE	Post-consumer mixed plastic waste delivered to a licensed pyrolysis facility from a GEIS-approved upstream source, with chain-of-custody documentation from collection or intake through facility gate.
ELIGIBLE	Post-industrial plastic waste where additionality and regulatory surplus are documented per Section 6.
INELIGIBLE	Plastic already credited under PIC-C™, PIC-MR™, or any other environmental instrument (Zero-Double-Counting Rule applies).
INELIGIBLE	Hazardous waste co-mingled with plastic feedstock where separation is not documented.
INELIGIBLE	Feedstocks processed through incineration, co-processing, or waste-to-energy at any point in the custody chain.

C-1.4 Output Classification

Output Type	Definition	Eligibility
Secondary Material Output	Pyrolysis oil or other liquid output confirmed by laboratory analysis as meeting recognized secondary material specifications (e.g., ASTM or equivalent) and sold into a verified secondary material market, not used as fuel.	Eligible for PIC-AR issuance
Fuel Output	Pyrolysis oil used as fuel, blended into fuel products, or co-processed with fuel feedstocks without confirmed secondary material specification.	NOT ELIGIBLE. Fuel use does not constitute advanced recycling under this methodology
Char / Solid Output	Char or carbon black output.	PENDING. Subject to separate GEIS determination at activation. Not covered in Draft C-1
Gas Output	Syngas or non-condensable gas output.	NOT ELIGIBLE under Draft C-1

C-1.5 Environmental Performance Requirements

- Emissions monitoring for dioxins, furans, NOx, particulates, SOx, and VOCs at a frequency and method acceptable to the applicable regulatory authority.

- Documented management and disposal of char and residue outputs that does not constitute uncontrolled disposal, open burning, or landfilling without prior treatment.
- No net increase in hazardous waste generation attributable to the pyrolysis process beyond what was present in the incoming feedstock.
- Facility-level environmental permit in good standing under applicable national, state, and local law. Facilities under enforcement action are ineligible.
- Life-cycle displacement documentation demonstrating that the secondary material output displaces virgin plastic or fossil feedstock on a confirmed basis.

C-1.6 Mass-Balance and Chain-of-Custody Requirements

Chain-of-custody must document the complete physical pathway of eligible plastic feedstock from source to secondary material output, including facility intake weight record with certified measurement; feedstock composition analysis; pyrolysis batch records (input weight, process conditions, output volumes by type); secondary material output weight confirmed at facility gate with laboratory specification; offtaker confirmation of secondary material receipt; and field-to-facility reconciliation per Section 10.3. Mass-balance is documented at facility level. The Conversion Efficiency Rate (eligible secondary material output kg / eligible feedstock input kg) is calculated per batch. PICs are issued only on confirmed secondary material output weight, not feedstock input weight.

C-1.7 Verifier Requirements

Validators and verifiers for PIC-AR projects must demonstrate competence in advanced recycling technology assessment, chemical or mechanical engineering, or equivalent process experience; familiarity with applicable emissions regulations and permit requirements; ability to evaluate mass-balance records, laboratory output specifications, and offtaker documentation; independence from facility ownership, operators, and any entity with a financial interest in the outcome; and no volume-based or issuance-quantity-contingent compensation.

C-1.8 Reserved Methodology Code and Batch Fields

Field	Type	Rule
Methodology Code	PIC-AR	Reserved. Active only upon formal Activation Notice.
Conversion Efficiency Rate	Decimal	Confirmed secondary material output kg / feedstock input kg. Per batch.
Output Specification Ref	Text	Reference to laboratory analysis confirming secondary material specification.
Offtaker Confirmation Ref	Text	Reference to buyer confirmation of secondary material receipt.
Emissions Monitoring Ref	Text	Reference to facility emissions monitoring record for the batch period.
Jurisdictional Tag	Controlled	Per Section 6.4. EU-PPWR, UK-EPR, US-EPR-{State}, VOLUNTARY, ESG-SUBST, or MULTI.

The 60-day public comment period commences on the date this Protocol version is published.

RESERVED ANNEX D

Reuse & Repurposing — NOT Active for Issuance Hard Gate

No VPK may be recorded and no PIC may be issued under this annex unless GEIS publishes a formal Activation Notice under Appendix 5. HARDGATE

Reserved for future pathways that may credit durable reuse, repurposing, or long-lived product conversion, if GEIS later determines the pathway can be quantified and governed without overstating environmental impact.

Mandatory Activation Conditions Activation of Reserved Annex D requires GEIS to publish a methodology that satisfies all of the following:

- A clear definition of reuse and repurposing distinguishing this pathway from collection, recycling, and pre-processing. • Quantification rules that prevent overstating environmental impact (e.g., crediting a durable-good conversion that displaces virgin plastic and ensuring no double-counting against any displaced primary plastic). • Lifecycle considerations including end-of-life of the reuse or repurposing product. • Chain-of-custody requirements through the conversion process. • Validator and verifier guidance published for the pathway. • Public comment period of not less than 60 days prior to the Activation Notice taking effect.

Reserved Methodology Code PIC-RU (Reuse & Repurposing Class). Reserved. Not active.

RESERVED ANNEX E

Pre-processing & Aggregation — NOT Active for Issuance Hard Gate

No VPK may be recorded and no PIC may be issued under this annex unless GEIS publishes a formal Activation Notice under Appendix 5. HARDGATE

Reserved for future treatment of specialized pre-processing, sorting, densification, aggregation, or related stages that GEIS may later elect to treat as distinct methodology pathways or supplemental issuance logic.

Mandatory Activation Conditions Activation of Reserved Annex E requires GEIS to publish a methodology that satisfies all of the following:

- A clear distinction between pre-processing as a creditable activity and pre-processing as a step within an existing methodology. • Anti-double-counting rules ensuring that pre-processing activity is not credited under both this annex and PIC-C™ or PIC-MR™ for the same physical mass. • Chain-of-custody requirements through pre-processing to qualifying downstream end use. • Validator and verifier guidance published for the pathway. • Public comment period of not less than 60 days prior to the Activation Notice taking effect.

Reserved Methodology Code PIC-PA (Pre-processing & Aggregation Class). Reserved. Not active.

RESERVED ANNEX F

Plastic Avoidance Class (PIC-AV™) — NOT Active for Issuance New in v4.4. Written in full operative form. Hard Gate prevents issuance until formal Activation Notice is published.

Hard Gate

No VPK may be recorded and no PIC may be issued under this annex unless GEIS publishes a formal Activation Notice under Appendix 5. The Activation Notice for Reserved Annex F shall additionally specify the initial industry scope (default activation: food service and packaging) and the approved material certification bodies. HARDGATE

This annex may not be marketed, sold, or represented as an active issuance route under any circumstances, including in token ecosystems, whitepapers, or investor materials.

F.1 Purpose and Architectural Note PIC-AV™ credits documented substitution of plastic with biodegradable alternatives. The methodology is architecturally novel for two reasons:

- Historical-invoice baseline. Unlike collection or recycling pathways, where the baseline is "what would have happened to existing plastic waste," the avoidance pathway baseline is "what would have been used as the input material in the absence of substitution." Historical invoices prove that the substituting party was previously a plastic user. This is the additionality chain. 2. Negative-mass accounting. A PIC-AV™ unit represents plastic that was never produced and therefore never required management. The unit is denominated in metric tonnes of plastic avoided, with weight or unit count documentation converted to the metric tonne equivalent for issuance.

F.2 Activation Sequencing The Activation Notice for Reserved Annex F shall specify the initial industry scope. The default activation order is:

- Phase F-1: Food service. Plates, cups, utensils, containers, straws, packaging film, takeaway containers, food-contact wrap. 2. Phase F-2: Packaging. Consumer-goods packaging, mailers, wraps, bags, secondary packaging. 3. Phase F-3: All other industries. Activated by subsequent annex amendment.

Each phase requires its own Activation Notice. Activation of Phase F-1 does not automatically activate F-2 or F-3.

F.3 Eligibility Conditions A project may apply for PIC-AV™ issuance only after:

- The applicable phase has been activated under Appendix 5. • The applying party demonstrates prior plastic use in the same product category (Document 1 below). • The substituting biodegradable material is on the GEIS Approved Material List for that phase. • The applying party can supply all four Mandatory Documents and meet the additionality tests.

F.4 Mandatory Evidence Chain — Four Documents

DOCUMENT	REQUIRED?	CONTENTS	FUNCTION
Mandatory Document 1 — Historical Invoices	Yes	Supplier invoices, purchase orders, or accounting records showing prior use of plastic materials in the same product category over a baseline period of at least 12 months prior to substitution date.	Baseline proof; additionality chain.
Mandatory Document 2 — Replacement Supplier Invoices	Yes	Supplier invoices, purchase orders, or accounting records for the biodegradable replacement material, dated from substitution date forward, covering the claim period.	Substitution proof; quantity basis.
Mandatory Document 3 — Material Certification	Yes	Third-party material certification under a recognized biodegradability standard. Default approved standards: ASTM D6400 (compostable plastics), BPI Certified Compostable, TÜV OK Compost (Industrial), TÜV OK Compost (Home — only where Phase activation explicitly permits home), EN 13432, or equivalent national standard. The Activation Notice for each Phase shall publish the approved standard list.	Material qualification.
Mandatory Document 4 — Quantity Documentation	Yes	Weight, unit count, volume, or other measurable quantity documentation of plastic avoided, converted to metric tonne equivalent using GEIS conversion factors published with the Activation Notice.	Issuance basis.
Optional Document — Chain of Custody Documented chain of custody from stringens the evidence package a recommended.	By the biodegradable material reduces verifier chain	Material supplier through to end use allerge risk. Optional but strongly	

F.5 Additionality Logic — Three-Test Framework PIC-AV™ additionality is tested under the same three-test framework as collection and recycling pathways, adapted to the avoidance context:

TEST	PIC-AV™ APPLICATION
Barrier Test	The historical invoices (Document 1) establish that plastic was the baseline material the applying party used. The applying party would have continued using plastic in the

	absence of the substitution decision. The barrier is: cost differential between plastic and biodegradable, supply availability, regulatory inertia, or operational complexity of changing materials.
Common- Practice Test	The biodegradable alternative must not be standard industry practice for the specific product category at the time of application. As the alternative becomes common practice in the industry, eligibility for that product category sunsets. GEIS publishes common-practice determinations annually for each activated Phase and may sunset eligibility for specific product categories upon written notice.
Economic Plausibility Test	Biodegradable materials typically cost more than plastic. The cost differential is itself documentary evidence of the economic barrier. The applying party shall document the per- unit cost differential between the historical plastic input (Document 1) and the substituted biodegradable input (Document 2). Where the cost differential is zero or negative (biodegradable equal-or-cheaper than plastic) at the time of substitution, <u>additionality is presumptively failed and the application is rejected.</u>

F.6 Minimum Issuance Threshold Minimum issuance threshold: 1 metric tonne equivalent of avoided plastic per project per monitoring period. Sub-threshold quantities accumulate as VPK and carry forward to the next monitoring period.

F.7 Approved Material List The GEIS Approved Material List for PIC-AV™ shall be published with each Phase Activation Notice and shall identify:

- Material categories (cellulose, mycelium, natural fibers, PLA — only where compostability standard is satisfied, PHA, paper-based laminates only where recyclability or compostability is verified, or other materials).
 - Approved certification standards for each category.
- Approved certification bodies for each standard.
 - Excluded materials (greenwash-prone, partial-substitution materials such as plastic-paper composites unless certified compostable end-to-end).
 - Conversion factors from unit count or volume to metric tonne equivalent of avoided plastic.

The Approved Material List is amended by GEIS as evidence and certification practice evolves. Material removals are forward-looking only and do not retroactively invalidate prior issuances.

F.8 Project Lifecycle and Monitoring PIC-AV™ projects follow the standard 11-step lifecycle in Section 7, with the following adaptations:

- Step 02 Project Description includes the four Mandatory Documents at registration.
- Step 04 Validation focuses on baseline establishment and additionality, particularly common- practice review for the relevant product category.
- Step 06 Monitoring period is typically annual, with the project documenting ongoing substitution activity (continuing Document 2 supplier invoices and Document 4 quantity documentation).
- Step 08 Verification reviews the cumulative substitution evidence and confirms that the substituting party has not reverted to plastic use for the substituted product category.

F.9 Reversion Rule Where a project reverts to plastic use for a product category for which it had previously received PIC- AV™ issuance, all PIC-AV™ issuances for that product category from the date of reversion forward are halted. Prior issuances are not retroactively invalidated, but any unburned PICs in the Project Account are subject to GEIS administrative review for evidence of reversion-period accumulation.

F.10 Reserved Methodology Code PIC-AV (Plastic Avoidance Class). Reserved. Not active until Activation Notice published.

RESERVED ANNEX G

Biodegradable Processing Class (PIC-BP™) — NOT Active for Issuance New in v4.4. Written in full operative form. Hard Gate prevents issuance until formal Activation Notice is published.

Hard Gate

No VPK may be recorded and no PIC may be issued under this annex unless GEIS publishes a formal Activation Notice under Appendix 5. The Activation Notice for Reserved Annex G shall specify the approved certified facility list and the dApp facility intake module activation. **HARDGATE**

This annex may not be marketed, sold, or represented as an active issuance route under any circumstances.

G.1 Purpose PIC-BP™ credits documented downstream processing of biodegradable materials at certified facilities. This pathway complements PIC-AV™ (avoidance at the input side) by recognizing the processing endpoint at the output side. Where a biodegradable material reaches a certified composting or anaerobic digestion facility and is processed through the certified pathway, the activity is creditable.

G.2 Eligible Downstream Destinations The following destination types are eligible under PIC-BP™:

- Industrial composting facilities certified under USCC/STA (U.S. Composting Council, Seal of Testing Assurance) or equivalent national composting certification standard.
- Certified farm composting operations that hold an existing recognized third-party certification (USDA Organic, Real Organic Project, regenerative organic certification, or equivalent national standard).
- Anaerobic digestion facilities that are permitted and regulated under applicable U.S. or national environmental law.

The following destination types are not eligible under PIC-BP™:

- Home composting (unverifiable scale, no facility intake record, no certified processing).
- Unverified soil incorporation without certified facility intake.
- Backyard burn or open pile decomposition.
- Landfill (not a biodegradable processing pathway).
- Incineration or co-processing.

G.3 Architectural Principle — Existing Certification, No New Burden The PIC-BP™ methodology relies on certifications that the eligible facility already holds. GEIS does not impose a new certification burden on facilities. A USCC/STA-certified composter remains a USCC/STA-certified composter; PIC-BP™ does not duplicate the certification process. The dApp logs intake at the existing certified facility, paired with the existing certification documentation, to produce the GEIS evidence record.

G.4 Verification Method — dApp-Logged Facility Intake All eligible biodegradable material intake must be logged in the GEIS dApp at the certified facility. The evidence architecture mirrors PIC-C™:

- GPS-confirmed intake location (the certified facility's registered location).
- Weight verified at the certified facility's intake scale.
- Individual facility intake record written immutably to the Base blockchain via the standard PIC issuance workflow.
- Material certification documentation (linking back to the upstream PIC-AV™ project where applicable, or to standalone biodegradable material origin).

The facility acts as the receiving node, equivalent to the role of an MRF in PIC-MR™.

G.5 Eligibility Conditions A facility may apply for PIC-BP™ issuance only after:

- The annex has been activated under Appendix 5.
- The facility holds a current recognized third-party certification (Section G.2).
- The facility is approved and added to the GEIS Facility Master under a Facility ID (FAC-####).
- The dApp facility intake module is provisioned for the facility.

G.6 Mandatory Evidence Chain

EVIDENCE ITEM	REQUIRED?	DESCRIPTION
dApp Intake Log	Yes	GEIS dApp record of intake event, including timestamp, weight, GPS, photograph, and submitting facility user.
Certified Facility Intake Receipt	Yes	The facility's own intake receipt or scale ticket (standard operational document).
EVIDENCE ITEM	REQUIRED?	DESCRIPTION
Material Certification Documentation	Yes	Documentation that the material being processed meets the recognized biodegradability standard. May be linked to upstream PIC-AV™ evidence or to standalone supplier certification.
Facility Certification Documentation	Yes	Current USCC/STA, USDA Organic, anaerobic digestion permit, or equivalent recognized certification of the receiving facility.

Process Outcome Documentation	Conditional	Where the facility issues end-product certification (e.g., finished compost meeting USCC/STA standard), the outcome record links back to the intake.
-------------------------------	-------------	--

G.7 Anti-Double-Counting The same physical material cannot generate both a PIC-AV™ unit (avoidance) and a PIC-BP™ unit (processing) for the same beneficial party in a way that double-counts the environmental claim. The methodology treats the two as distinct attributions of distinct activities:

- PIC-AV™ attributes to the substituting party (the entity that switched from plastic to biodegradable).
- PIC-BP™ attributes to the processing party (the certified facility).

A buyer who purchases and burns both a PIC-AV™ unit and a PIC-BP™ unit derived from the same physical material chain receives:

- Tier 1 Burn Certificate identifying both units, both Burn Attribution Records, and both pathway classes.
- A clear statement in the Attribution Summary that the units represent distinct attributions of distinct activities (substitution at input, certified processing at output).
- Evidence Partitioning™ from each pathway, non-overlapping.

The Registry shall track upstream-downstream linkage where it exists and present the linkage transparently in the Claim Package™. The buyer's permitted public claim language (Section 14) is templated to avoid implying a doubled environmental benefit.

G.8 Project Lifecycle PIC-BP™ projects follow the standard 11-step lifecycle in Section 7, adapted for facility-anchored issuance:

- Step 02 Project Description identifies the facility, its certification, and the dApp intake module configuration.
- Step 04 Validation reviews facility certification and dApp configuration.
- Step 06 Monitoring period is the period during which intake logs are accumulated.
- Step 08 Verification reviews the dApp intake records against facility scale records and material certification linkage.

G.9 Reserved Methodology Code PIC-BP (Biodegradable Processing Class). Reserved. Not active until Activation Notice published.

PART IV

PART IV —

APPENDICES Minimum requirements, competence standards, activation governance, and the bibliographic record.

APPENDIX 1

Minimum Project Description Contents • Project identity, ownership, and responsible entities. • Geography, source profile, waste types, and pathway selection. • Baseline, additionality, and regulatory-surplus analysis. • Facility chain and downstream route. • Monitoring plan and data controls. • Safeguards, legal status, community consultation documentation and status, and material risks. • EPR and regulatory obligation identification and surplus analysis. • Requested crediting period and any proposed aggregation logic. • For PIC-T™ projects: the qualified-nation list with International Activation Notice references and Treegens Foundation Project Proponent attestation. • For PIC-AV™ applications (when activated): the four Mandatory Documents (F.4) and the additionality three-test analysis (F.5). • For PIC-BP™ applications (when activated): the facility certification documentation and dApp intake module configuration (G.6).

APPENDIX 2

Minimum Monitoring Report Contents • Monitoring Period ID, start and end dates, project status, and report version. • Summary of batches and quantities, including field-to-facility reconciliation records. • Individual Participant Record summary where applicable, including GPS accuracy records. • Quantity waterfall (all rows A through R as defined in Section 3) with evidence support for each deduction. • Photographic evidence summary: count of photos, resolution compliance confirmation, IPFS hashes. • Facility-chain notes and any material deviations from the approved monitoring plan. • For PIC-T™ projects: the consolidated multi-nation summary, per-nation breakdown, and Treegens Foundation Project Proponent sign-off. • Corrective actions, unresolved issues, deviation flag status, and issuance request.

APPENDIX 3

Minimum Verifier Competence Expectations • Demonstrated experience in environmental assurance, waste systems, recycling operations, supply-chain controls, or related fields. • Ability to evaluate baseline, additionality, and regulatory-surplus logic, including assessment of EPR obligations. • Ability to test measurements, calculations, contamination deductions, and chain-of-custody controls. • Ability to evaluate Individual Participant Records, field-to-facility reconciliation, and individual participant payment integrity. • Independence from project outcome and no disqualifying conflicts of interest. • No volume-based or issuance-quantity-contingent compensation arrangements of any kind, under any structure. • For PIC-T™ verification: experience with multi-jurisdiction project review, language access for participant interviews where applicable, and familiarity with destination-nation regulatory frameworks. • For PIC-AV™ verification (when activated): experience with material certification standards (ASTM D6400, BPI, TÜV, EN 13432, or equivalent) and ability to evaluate historical-invoice baselines. • For PIC-BP™ verification (when activated): experience with composting facility certification (USCC/ STA, USDA Organic) or anaerobic digestion regulatory frameworks.

APPENDIX 4

Annex Activation Governance Reserved annexes remain inactive unless GEIS publishes an Activation Notice under Appendix 5 identifying:

- The annex. • The effective date. • The methodology version being activated. • Any pilot or geographic limits. • The validator and verifier competence requirements. • The registry fields and class codes. • The treatment of pre-activation activity.

Until that notice is issued, reserved annexes shall not be marketed, sold, or represented as active issuance routes under any circumstances, including in token ecosystems, whitepapers, or investor materials.

International Activation Notices under Section 16.2 are issued separately from Annex Activation Notices and use the IAN- $\{ISO3166\}$ -YYYYMMDD format. Annex Activation Notices use the AAN- $\{AnnexCode\}$ -YYYYMMDD format.

APPENDIX 5

Annex Activation Notice — Required Format New in v4.4. Establishes the formal document format for any future Activation Notice for a Reserved Annex or for an International Activation Notice under Section 16.2. The format is non-negotiable. An activation purported to be effective without a Notice in this format is not a valid activation.

A5.1 Annex Activation Notice (AAN- $\{AnnexCode\}$ -YYYYMMDD) Required contents:

- Header. Issuing entity (GEIS), Notice ID, signature authority, effective date. • Annex. The Reserved Annex being activated (C, D, E, F, or G) and any phase within the annex (e.g., F-1 Food Service). • Methodology Code. The class code being activated (e.g., PIC-AV , PIC-BP). • Effective Date. The date from which issuance under the methodology becomes permissible. • Pilot or Geographic Limits. Any pilot scope, geographic limits, sectoral limits, or volume caps applicable to the activation. • Validator and Verifier Competence Requirements. Specific qualifications required for validators and verifiers under the activated methodology. • Registry Fields. Confirmation that the Registry is provisioned with the methodology code, batch fields, evidence types, and account compatibility required for the methodology. • Treatment of Pre-Activation Activity. Whether activity prior to the Effective Date is eligible for retrospective issuance and under what conditions, or, by default, that pre-activation activity is not eligible. • Public Comment Acknowledgment. Confirmation that a public comment period of not less than 60 days was conducted prior to the Effective Date. • Cross-References. References to all related Protocol sections, including the Hard Gate language being lifted. • Signature. GEIS authorized signatory, dated.

A5.2 International Activation Notice (IAN-{ISO3166}-YYYYMMDD) Required contents:

- Header. Issuing entity (GEIS), Notice ID, signature authority, effective date. • Nation. Identified by ISO 3166-1 alpha-3 country code. • Project Proponent. The qualifying entity for this activation (e.g., Treegens Foundation for Treegens-network nations). • Effective Date. The date from which PIC-T™ issuance for the nation becomes permissible. • Equivalency Findings. Documentation of:
 - Equivalent federal or national regulatory oversight. • Independent third-party validation of chain-of-custody and community consultation standards. • Successful pilot under full MRV for one monitoring period. • Destination-nation labor law compliance attestation. • Sanctions-clear status. • Section 4 international safeguards review. • Approved Receiving Facilities. The list of approved national receiving facilities (Facility IDs). • Pilot or Geographic Limits. Any sub-national scope, capacity caps, or transition arrangements. • Treatment of Pre-Activation Activity. Default: pre-activation activity is not eligible. Any deviation must be documented and justified in the Notice. • Cross-References. References to Section 16.2 and Methodology C. • Signature. GEIS authorized signatory, dated.

A5.3 Publication All Activation Notices shall be published on GEISolutions.com in a publicly accessible, dated archive. Notices may not be retroactively amended; subsequent amendments are issued as separate Notices with their own ID and effective date.

APPENDIX 6

Trademark Schedule The following GEIS trademarks are referenced in this Protocol. The TM symbol shall be used at first prominent reference in any document and may be omitted thereafter for readability. All marks are owned by Global Environmental Impact Solutions, LLC.

#	TRADEMARK	FUNCTION
1	Plastic Impact Protocol™ (PIP™)	The governing standard, this document.
2	GEIS Registry™	The authoritative legal record.
3	Plastic Impact Credit™ (PIC)	The unit of issuance.
4	Verified Plastic Kilogram™ (VPK)	The internal kilogram-level accounting unit.
5	PIC-C™	Collection Class methodology.
6	PIC-MR™	Mechanical Recycling Class methodology.
7	PIC-T™	Treegens / Tier 4 Coastal International Class methodology.
8	Hybrid Claim Architecture™	The three-layer attribution and evidence framework.
9	Burn Attribution Calculation™	The system-executed attribution process.
10	Burn Attribution Record™ (BAR)	The locked Registry record generated at burn.
11	Evidence Partitioning™	The process dividing batch evidence into curated burning-party subsets.
12	Evidence Partition Record™ (EPR)	The locked Registry record assigning a curated subset to one burning party.
13	Claim Attribution Standard™	The formal rules governing public claim language.
14	Claim Lock Flag™	The boolean anti-double-claim control.

15	Integrity Lock Flag™	The boolean anti-double-issuance control.
#	TRADEMARK	FUNCTION
16	Impact Receipt™	The legacy term for the Three-Tier Claim Package™ deliverable.
17	Claim Package™	The current-version three-tier deliverable.

Reserved (not active for issuance): PIC-AV™ (Plastic Avoidance Class), PIC-BP™ (Biodegradable Processing Class), and PIC-AR™ / PIC-RU™ / PIC-PA™ (codes reserved for Annexes C, D, E respectively).

APPENDIX 7

Sources Cited Footnote markers in this Protocol's Reader's Introduction reference the entries below. All citations are to publicly accessible peer-reviewed journals, government press releases, regulatory filings, investigative journalism, and corporate public statements.

[1] Global plastic production. Organisation for Economic Co-operation and Development (OECD). Global Plastics

Outlook: Economic Drivers, Environmental Impacts and Policy Options. Paris: OECD Publishing, 2022. Reports global plastic production at 460 million metric tonnes in 2019, projected to reach 736 Mt by 2040 in the baseline scenario. Available at: https://www.oecd.org/en/publications/global-plastics-outlook_de747aef-en.html. Corroborating data: PlasticsEurope, Plastics – the Facts 2024, reporting global production at 413.8 Mt in 2023.

[2] Cumulative plastic recycling rate. Geyer R, Jambeck JR, Lavender Law K. "Production, use, and fate of all plastics ever made." *Science Advances*. 2017;3(7):e1700782. DOI: 10.1126/sciadv.1700782. The landmark global lifecycle analysis estimating that of 8,300 million metric tonnes of virgin plastic produced through 2015, approximately 9 percent of generated plastic waste was recycled, 12 percent incinerated, and 79 percent accumulated in landfills or the natural environment. Awarded Royal Statistical Society International Statistic of the Year 2018.

[3] Microplastics in human blood. Leslie HA, van Velzen MJM, Brandsma SH, Vethaak AD, Garcia-Vallejo JJ, Lamoree MH. "Discovery and quantification of plastic particle pollution in human blood." *Environment International*. 2022;163:107199. DOI: 10.1016/j.envint.2022.107199. First peer-reviewed detection of microplastics in human blood; particles found in 17 of 22 (77 percent) anonymous healthy donor samples.

[4] Microplastics in human breast milk. Ragusa A, Notarstefano V, Svelato A, Belloni A, Gioacchini G, Blondeel C, et al. "Raman Microspectroscopy Detection and Characterisation of Microplastics in Human Breastmilk." *Polymers*. 2022;14(13):2700. DOI: 10.3390/polym14132700. First peer-reviewed detection of microplastics in human breastmilk; particles found in 26 of 34 (76 percent) samples.

[5] Microplastics in human lung tissue. Jenner LC, Rotchell JM, Bennett RT, Cowen M, Tentzeris V, Sadofsky LR.

"Detection of microplastics in human lung tissue using μ FTIR spectroscopy." *Science of The Total Environment*. 2022;831:154907. DOI: 10.1016/j.scitotenv.2022.154907. First detection of microplastics in lung tissue from living human patients; 39 microplastics identified in 11 of 13 surgical tissue samples.

[6] Microplastics in cirrhotic liver tissue. Horvatits T, Tamminga M, Liu B, Sebode M, Carambia A, Fischer L, et al.

"Microplastics detected in cirrhotic liver tissue." *eBioMedicine*. 2022;82:104147. DOI: 10.1016/j.ebiom.2022.104147. Six different microplastic polymers (4 to 30 μ m) detected in cirrhotic liver tissue from six patients; not detected in liver tissue from individuals without underlying liver disease.

[7] Microplastics in human cardiac tissue. Yang Y, Xie E, Du Z, Peng Z, Han Z, Li L, et al. "Detection of Various

Microplastics in Patients Undergoing Cardiac Surgery." Environmental Science & Technology. 2023;57(30): 10911-10918. DOI: 10.1021/acs.est.2c07179. Nine microplastic types identified across five types of cardiac tissue from 15 cardiac surgery patients.

[8] EPA draft Sixth Contaminant Candidate List. U.S. Environmental Protection Agency. "EPA, HHS Announce

Historic Actions to Protect Americans from Microplastics and Safeguard Drinking Water." EPA Press Release, April 2, 2026. Available at: <https://www.epa.gov/newsreleases/epa-hhs-announce-historic-actions-protect-americans-microplastics-and-safeguard>. Joint announcement by EPA Administrator Lee Zeldin and HHS Secretary Robert F.

Kennedy Jr.; first-ever inclusion of microplastics as a priority contaminant group on the Contaminant Candidate List under the Safe Drinking Water Act, paired with the launch of the ARPA-H STOMP program at \$144 million. Federal Register notice published April 6, 2026; public comment period through June 5, 2026; final list expected to be signed November 17, 2026.

[9] Nestlé public statement on plastic credits. Nestlé S.A., as quoted in Goldberg E. "Plastic credits are growing in

use and attracting criticism." Trellis (formerly GreenBiz), June 2025. Available at: <https://trellis.net/article/plastic-credits-rising-criticism/>. Corroborated by Nestlé corporate website, What is Nestlé doing to tackle plastic packaging waste?, accessed at: <https://www.nestle.com/ask-nestle/environment/answers/tackling-packaging-waste-plastic-bottles>, which states: "The effectiveness of plastic credits requires a credible, solid, and harmonized global standard."

[10] Danone public statement on standardized methodologies. Danone spokesperson, as quoted in Goldberg E. "Plastic credits are growing in use and attracting criticism." Trellis (formerly GreenBiz), June 2025. Available at: <https://trellis.net/article/plastic-credits-rising-criticism/>.

[11] Verra additionality fraud finding. Break Free From Plastic and Global Alliance for Incinerator Alternatives (GAIA). Smoke and Mirrors: The Realities of Plastic Credits and Offsetting. November 29, 2023. Available at: https://www.breakfreefromplastic.org/wp-content/uploads/2023/12/NOV-29-2023_Smoke-and-Mirrors-the-Realities-of-Plastic-Credits-and-Offsetting.pdf. Original analysis of the Verra Plastic Program registry as of 25 October 2023, documenting that the majority of audited plastic offsetting projects were operating before credits were issued and that eight projects completed full seven-year crediting periods before their first credit was sold.

[12] AFP/SourceMaterial four-marketplace investigation. Agence France-Presse and SourceMaterial. "What would you have us do?: the plastic credits problem." February 12, 2025. Investigation of four major plastic credit marketplaces, finding that only around a quarter of credits issued were for projects that recycle, while more than two-thirds were for co-processing in cement kilns or other forms of incineration. Includes reporting on the Chip Mong Insee cement kiln in Kampot Province, Cambodia, with documented community health impact and air quality monitoring.

[13] India CPCB / CSE certificate fraud findings. Central Pollution Control Board (CPCB) of the Ministry of Environment, Forest and Climate Change, Government of India, enforcement disclosures October 2023, identifying approximately 700,000 fake recycling certificates generated by plastic waste recyclers at 38 times the certificate generation capacity of audited recyclers, with a cumulative fine of ₹355 crore imposed. Documented in: Singh SG, Chandra A, Biswas A. Unpacking EPR for Plastic Packaging in India: Navigating Challenges and Unlocking Opportunities. New Delhi: Centre for Science and Environment, October 29, 2024. Available at: <https://www.cseindia.org/>. Subsequent NGT (National Green Tribunal) suo motu cognizance July 2024 on six lakh fake EPR certificates from plastic-recycling companies in Gujarat, Maharashtra, and Karnataka.

APPENDIX 8

Worked Example 1: PIC-C™ Domestic Collection Carolina Coastal HDPE Recovery, North Carolina Outer Banks, March 2026.

This worked example illustrates the end-to-end operational flow for a single collection event under Methodology A (PIC-C™), from collection through Quantity Waterfall, issuance, buffer set-aside, transfer, burn, and Claim Package™ delivery. All identifiers and the project name are illustrative; the methodology references are operative.

A8.1 Project Setup • Project ID: GEIS-PJ-2026-0042 • Project Name: Carolina Coastal HDPE Recovery • Project Proponent: Outer Banks Maritime Cleanup, LLC (illustrative) • Methodology: PIC-C™ Collection Class • Project Account: Whitelisted to Project Proponent wallet, KYC current. • Approved Facility: FAC-NC-0007 — certified HDPE reclaimer, Wilson, North Carolina. • Crediting Period: January 2026 through December 2030 (CP-PJ-2026-0042-01). • Conformance Level: Full Conformance (designated 14 February 2026).

A8.2 Collection Event On 14 March 2026, the project conducts a single-day shoreline cleanup at three GPS-bounded coastal segments. The collected mass is reported as follows:

- Gross collected mass at field weigh-in: 1,420 kg • Material composition: 84 percent HDPE (post-consumer rigid containers and bottle caps), 14 percent PET, 2 percent mixed/non-creditable.

Field documentation includes 47 individual participant records covering all collectors active that day, each with the 13 mandatory fields under Section 10.4. Collection coordinates, photographs, and weight tickets are uploaded to the dApp at end of day.

A8.3 Quantity Waterfall (Section 3) The dApp computes the Quantity Waterfall using the field and facility evidence:

ROW	QUANTITY	UNIT	VALUE	RULE / DESCRIPTION
A	Gross reported quantity	kg	1,420	Field weigh-in total.
ROW	QUANTITY	UNIT	VALUE	RULE / DESCRIPTION
B	Less: ineligible material	kg	(28)	The 2 percent mixed/non-creditable component (1,420 x 0.02 = 28 kg).
C	Less: contamination, moisture, losses	kg	(52)	Documented at facility intake; 198 kg of PET re- routed for separate accounting and not netted here; 52 kg attributed to moisture/contamination on the HDPE stream.
D	Adjusted eligible quantity (pre- verification)	kg	1,340	A – B – C; submitted for third-party review.
E	Verified eligible quantity	kg	1,335	Confirmed by third-party verifier; 5 kg discrepancy is below the 5 percent Major Discrepancy threshold and is documented as routine measurement variance.
F	Previously issued quantity (same basis)	kg	0	First issuance under this batch.
G	Net quantity eligible for current issuance	kg	1,335	E – F.
H	PICs requested for issuance	PICs	1	G ÷ 1,000; whole units only.
R	Residual kilograms (carry-forward VPK)	kg	335	G mod 1,000; carried as VPK to next monitoring period; never minted.

A8.4 Issuance and Buffer Set-Aside (Sections 12 and 12.7) The 1 PIC produced by Row H is subject to the Section 12.7 buffer set-aside at 7 percent. For a single-PIC issuance, the buffer set-aside is processed at the methodology cohort level: GEIS holds back the next available 7 PICs across cumulative project issuances rather than a fractional buffer per single-PIC project. For a multi-PIC issuance the per-issuance set-aside applies directly.

For this illustrative example, the 1 PIC is issued to the Project Account in ISSD status. The buffer accrual is recorded against the project for cohort-level set-aside on its next issuance event. The 335 kg residual carries forward in the VPK ledger. All values are recorded in the dApp and published to the Registry.

A8.5 Sale and Transfer On 22 March 2026, the project sells the 1 PIC to a U.S. consumer products company (the buyer). The transfer flow:

- Buyer is whitelisted as a Holding Account, KYC current.
- The Registry records TR-HLD-20260322-018 from GEIS-PJ-2026-0042 to the buyer Holding Account. • The PIC moves to the buyer's Holding Account in ISSD status. • No transfer fee under Section 17.3 applies because no Market Participant Account is involved. • The on-chain token state is updated to reflect the Registry transfer.

A8.6 Burn and Claim Package™ (Sections 13 and 14) On 28 March 2026, the buyer instructs a full burn for use in a corporate ESG report covering the company's North Carolina operating footprint. The burn sequence follows Section 13.3:

- The buyer files a burn instruction in the Registry, declaring intended Claim Package™ tier. 2. GEIS Registry sets the unit to RTRD status. 3. Burn Attribution Calculation™ runs, generating Burn Attribution Record™ BAR-RT-2026-0042-001 . 4. Evidence Partitioning™ executes; Evidence Partition Record™ EPR-2026-0042-001 is created and locked. 5. Claim Package™ CP-2026-0042-001 is generated. 6. The on-chain burn is triggered as the final action.

The Claim Package™ delivered to the buyer includes:

- Tier 1 (Headline): "Funded the verified collection of 1,335 kg of plastic from the North Carolina coast in March 2026." • Tier 2 (Detailed): GPS bounds, collection date, approved facility, verifier identity, project ID, BAR ID, conformance level, full Quantity Waterfall, Individual Participant Record summary count. • Tier 3 (Audit): Photographs, weight tickets, facility intake confirmations, verifier report excerpt, Independence Declaration reference, signed Custody Transfer Records.

The buyer's permitted public claim language under Section 14 is the Tier 1 statement, with optional incorporation of the verifier name and conformance level.

A8.7 What This Example Demonstrates This single project end-to-end shows: registry-based project setup, GPS-confirmed and individual-level collection evidence, third-party verification within the Major Discrepancy threshold, the operative Quantity Waterfall with named row references, residual VPK carry-forward (no rounding loss), buffer set-aside accrual, transfer to a Holding Account, burn-sequence governance with Registry status set first, and a Claim Package™ delivered with claim language constrained by Section 14. Every identifier in this example is structured so a real project would slot into the same framework without modification.

APPENDIX 9

Worked Example 2: PIC-T™ International Coastal Collection Cebu Coastal Cleanup, Philippines, August 2026.

This worked example illustrates the end-to-end operational flow for a 30-day Treegens-network coastal cleanup under Methodology C (PIC-T™), including International Activation Notice referencing, FPIC documentation, consolidated monitoring, full-issuance buffer set-aside, and a corporate-buyer Three-Tier Claim Package™. All identifiers and the project name are illustrative; the methodology references are operative.

A9.1 Project Setup • Project ID: GEIS-PJ-2026-0091 • Project Name: Cebu Coastal Cleanup • Project Proponent: Treegens Foundation (consolidated submission) • Methodology: PIC-T™ Treegens / Tier 4

Coastal International Class • International Activation Notice: IAN-PHL-20260801 (Philippines activation effective 1 August 2026, published per Section 16.2) • Project Account: Treegens Foundation, whitelisted, KYC current. • Approved National Receiving Facility: FAC-PHL-0003 — Cebu certified consolidator, Philippines. • FPIC Status: Community Consent Record CCR-PJ-2026-0091-001 filed for two affected coastal- community sub-projects; CCR-PJ-2026-0091-002 for an urban port segment determined Non-Applicable with FPIC Non-Applicability Determination on file. • Crediting Period: August 2026 through July 2031 (CP-PJ-2026-0091-01). • Conformance Level: Full Conformance (designated 1 August 2026).

A9.2 Collection Period Across 30 days (1 August through 30 August 2026), the Cebu sub-network conducts daily collections at four registered GPS-bounded coastal segments. The consolidated reported mass is:

- Gross collected mass over 30 days: 8,140 kg • Material composition: 91 percent mixed coastal plastic (rigid HDPE/PP, films, fragments), 7 percent PET, 2 percent excluded items (metal, glass, organic). • Individual Participant Records: 312 unique collectors with one or more documented collection events; full 13-field records per Section 10.4.

Daily field uploads to the dApp include GPS coordinates, photographs, weight tickets at point of collection, and end-of-day consolidations.

A9.3 Quantity Waterfall (Section 3) The consolidated Treegens monitoring report computes:

ROW	QUANTITY	UNIT	VALUE	RULE / DESCRIPTION
A	Gross reported quantity	kg	8,140	Sum of 30 daily field weigh-ins.
B	Less: ineligible material	kg	(163)	The 2 percent excluded items (8,140 x 0.02 = 163 kg).
C	Less: contamination, moisture, losses	kg	(412)	Documented at facility intake; 570 kg of PET re- routed for separate accounting; 412 kg attributed to moisture and contamination on the consolidated stream.
D	Adjusted eligible quantity (pre- verification)	kg	7,565	A – B – C; submitted for third-party review.
E	Verified eligible quantity	kg	7,548	Confirmed by third-party verifier; 17 kg variance below 5 percent threshold.
F	Previously issued quantity (same basis)	kg	0	First issuance under this batch.
G	Net quantity eligible for current issuance	kg	7,548	E – F.
H	PICs requested for issuance	PICs	7	G ÷ 1,000; whole units only.
R	Residual kilograms (carry-forward VPK)	kg	548	G mod 1,000; carried as VPK to next monitoring period; never minted.

A9.4 Issuance and Buffer Set-Aside (Section 12.7) 7 PICs are calculated from Row H. The Section 12.7 buffer set-aside at 7 percent applies directly: the next whole- PIC equivalent (rounded conservatively up to 1 PIC) is set aside as a Buffer Unit, and 6 PICs are issued to the Project Account.

- Buffer Account receives: 1 PIC in ISSD status, locked, non-transferable. • Project Account receives: 6 PICs in ISSD status, available for sale. • Residual: 548 kg carried forward in the VPK ledger.

The buffer set-aside is recorded as part of the issuance event and is publicly visible in the Registry alongside the originating project.

A9.5 Sale and Transfer to a Market Participant On 5 September 2026, Treegens sells the 6 PICs to an Approved Reseller (a Market Participant Account, MPA-0014) at a primary-issuance price. The transfer flow:

- The reseller is a whitelisted MPA with a current Reseller Agreement on file. • Registry records the transfer TR- MPA-20260905-009 from the Project Account to MPA-0014. • The transfer fee of 1.0 percent of the per-PIC price applies under Section 17.3 and is collected at point of transfer. • 6 PICs move into the MPA in ISSD status.

A9.6 Resale to a Corporate Buyer On 18 September 2026, the MPA sells 6 PICs to a multinational consumer products company (the buyer) for use in the buyer's regional sustainability report covering Southeast Asia operations.

- Buyer is whitelisted as a Holding Account, KYC current. • Registry records TR-HLD-20260918-027 from MPA-0014 to the buyer Holding Account. • A second 1.0 percent transfer fee under Section 17.3 applies because the transfer involves an MPA on the source side. • 6 PICs move to the buyer Holding Account in ISSD status.

A9.7 Burn and Three-Tier Claim Package™ On 30 September 2026, the buyer instructs a full burn of all 6 PICs. The burn sequence proceeds per Sections 13.3 through 13.7. The buyer elects the Three-Tier Claim Package™ to support the corporate sustainability report disclosure.

The delivered Claim Package™ CP-2026-0091-001 includes:

- Tier 1 (Headline): "Funded the verified collection of 7,548 kg of plastic from the Cebu coast, Philippines, August 2026, through the Treegens Foundation network." • Tier 2 (Detailed): Project ID, IAN reference, four GPS-bounded sub-segments, 312 individual participant collection events, approved national receiving facility, third-party verifier identity, FPIC status references, full Quantity Waterfall, BAR ID, EPR ID, Conformance Level, Section 4 international safeguards summary. • Tier 3 (Audit): Daily field uploads, photographs, weight tickets, facility intake confirmations, verifier consolidated report, Treegens consolidated Monitoring Report, Independence Declaration reference, Custody Transfer Records, Community Consent Records summary, FPIC Non-Applicability Determination for the urban port segment.

The buyer's permitted public claim language under Section 14 is the Tier 1 statement, optionally extended to reference the Treegens Foundation network and the Cebu coastal location. Reforestation activity in the Treegens network is independently credited and is excluded from the PIC-T™ impact unit per Methodology C.

A9.8 What This Example Demonstrates This 30-day, multi-segment, multi-collector PIC-T™ project demonstrates: per-nation activation governance under Section 16.2, FPIC-substantive documentation including non-applicability determinations, individual-level participant evidence at scale, Treegens consolidated monitoring submission, third-party verification of consolidated Quantity Waterfall, buffer set-aside applied directly at full-issuance, primary issuance to Project Account, secondary-market transfer to an Approved Reseller with transfer fee collection, secondary resale with second transfer fee collection, full Three-Tier Claim Package™ generation, and Section 14 claim language scoped to plastic-only impact with reforestation independently credited. The example illustrates the international expansion pathway end-to-end with no methodology shortcut.

END OF PROTOCOL

This Protocol controls. Developer Handoff and Technical Specification are subordinate in all conflicts.

Effective May 2026 · Supersedes Plastic Impact Protocol™ v4.3 (April 2026)

REPOSITORY DEPOSIT Deposited at Zenodo, 10 May 2026 Permanent identifier (DOI) and full citation reference published at GEISolutions.com

SUGGESTED CITATION Ben-Yehudah, Y. (2026). Plastic Impact Protocol™ Version 4.5: A Governing Standard for Plastic Credits. Global Environmental Impact Solutions, LLC. May 2026.

PATENT PENDING System and Method for Governed Environmental Credit Attribution, Evidence Partitioning, and Hybrid Registry-Blockchain Architecture Inventor: Yerahmeel Ben-Yehudah · Assignee: Global Environmental Impact Solutions, LLC

ISSUED BY Global Environmental Impact Solutions, LLC Service-Disabled Veteran-Owned Small Business under 13 CFR 128.203 Wyoming LLC · SAM.GOV REGISTERED

This document is protected by U.S. copyright law. Unauthorized copying, distribution, or derivative works are strictly prohibited.

APPENDIX 10 — GEIS Machine-Readable Data Schema

This appendix defines the GEIS Machine-Readable Data Schema (GMRDS) for the JSON component of the Claim Package™ delivered to Burning Parties at burn. Every Claim Package™ Attribution Summary (Tier 2) must include a JSON file conforming to this schema. The current schema version is GMRDS-4.5. The GMRDS is designed for compatibility with corporate ESG reporting systems, PPWR and EPR regulatory data workflows, CSRD-aligned disclosures, and independent audit platforms.

A10.2 Top-Level Structure

Field	Type	Req.	Notes
schema_version	String	Yes	"GMRDS-4.5"
claim_package_id	String	Yes	Format: CP-{BurnID}-{YYYYMMDD}
generated_at	ISO 8601	Yes	UTC timestamp of Claim Package generation
protocol_version	String	Yes	"4.5"
burn	Object	Yes	Burn event data. See A10.3
burning_party	Object	Yes	Burning party identity. See A10.4
projects	Array	Yes	Array of attributed project objects. See A10.5
batches	Array	Yes	Array of attributed batch objects. See A10.6
evidence_partitions	Array	Yes	Array of Evidence Partition Record objects. See A10.7
jurisdictional_tags	Array	Yes	Array of Jurisdictional Tags per Section 6.4. See A10.8
registry_links	Object	Yes	Registry verification URLs. See A10.9

A10.3 Burn Object

Field	Type	Req.	Notes
burn_id	String	Yes	Format: RT-{Account}-{YYYYMMDD}-###
burn_date	ISO 8601	Yes	UTC date of RTRD status set in Registry
burn_certificate_id	String	Yes	Burn Certificate document identifier
pic_lot_id	String	Yes	Format: PIC-{ProjectID}-YYYY-LOT-###
pics_burned	Integer	Yes	Number of PICs permanently retired
vpk_attributed	Integer	Yes	Verified Plastic Kilograms attributed to burning party
registry_status	String	Yes	"RTRD"
bar_id	String	Yes	Format: BAR-{BurnID}-{YYYYMMDD}

A10.4 Burning Party Object

Field	Type	Req.	Notes
entity_name	String	Yes	Legal name of the Burning Party
account_id	String	Yes	GEIS Registry account identifier
kyc_status	String	Yes	"VERIFIED" — KYC confirmed at burn
burn_instruction_date	ISO 8601	Yes	Date burning party instructed the burn

A10.5 Project Object

Field	Type	Req.	Notes
project_id	String	Yes	Format: GEIS-PJ-YYYY-####
project_name	String	Yes	Registered project name
methodology_code	String	Yes	PIC-C, PIC-MR, PIC-T, or reserved code
source_category	String	Yes	Municipal / Waterway-Coastal / Commercial / Industrial
geography	String	Yes	Country and region of project activity
crediting_period_id	String	Yes	Format: CP-{ProjectID}-##
conformance_level	String	Yes	FULL / CONDITIONAL / PRE-CONFORMANCE
verifier_name	String	Yes	Approved independent verifier
verification_date	ISO 8601	Yes	Verifier sign-off date for the period
fpic_status	String	Cond.	FPIC status where applicable per Section 4

A10.6 Batch Object

Field	Type	Req.	Notes
batch_id	String	Yes	Format: BT-{ProjectID}-YYYYMMDD-###
collection_date	ISO 8601	Yes	Date of collection or facility intake
source_category	String	Yes	Controlled vocabulary per Section 5
gross_weight_kg	Number	Yes	Gross collected weight in kilograms
net_eligible_kg	Number	Yes	After deductions per Quantity Waterfall
attribution_pct	Number	Yes	Burning party attribution %. Sum across burns = 100.
attributed_kg	Number	Yes	net_eligible_kg * attribution_pct / 100
facility_id	String	Yes	Format: FAC-####. GEIS pre-approved facility.
gps_lat / gps_lng	Number	Cond.	Collection coordinates where GPS recorded
claim_lock_flag	Boolean	Yes	TRUE — locked at burn. Anti-double-claim control.
epr_ids	Array	Yes	Evidence Partition Record IDs for this burning party

A10.7 Evidence Partition Record

Field	Type	Req.	Notes
epr_id	String	Yes	Format: EPR-{BurnID}-{BatchID}
batch_id / burn_id	String	Yes	Parent batch and burn references
evidence_items	Array	Yes	Evidence item objects (id, type, ipfs_hash, capture_date, download_url)
locked_at	ISO 8601	Yes	UTC timestamp when EPR locked at burn
total_items_in_partition	Integer	Yes	Total evidence items in this partition

A10.8 Jurisdictional Tags Array

Each element is a string from the controlled vocabulary in Section 6.4. Where MULTI applies, all tags are listed. Example: ["EU-PPWR", "ESG-SUBST", "MULTI"]

A10.9 Registry Links Object

Field	Type	Req.	Notes
burn_certificate_url	String	Yes	URL to the GEIS-signed Burn Certificate PDF
registry_record_url	String	Yes	URL to the public Registry record for this burn
bar_url	String	Yes	URL to the Burn Attribution Record
project_registry_url	String	Yes	URL to the project record in the GEIS Registry