Track B: Autonomous Wildfire Response

Round 3: Finals

Rules and Regulations v3.0

Released 04 March 2026

The XPRIZE Wildfire Track B: Autonomous Wildfire Response ("Track B") is governed by these Rules and Regulations. **These Rules and Regulations supersede all previous versions of the rules and regulations** whilst also supplementing the Competition Guidelines (originally published April 21, 2023, currently Version 3.0 as of September 1, 2025). While the Guidelines remain in full effect as the primary document governing the competition, at each round of the competition, this document is published to provide necessary operational details specific to that round of the competition. All participating Teams must adhere to these Rules for the rounds of the Competition in which they compete, in order to progress through the competition milestones and be qualified for selection as a winner of the competition track. Failure to adhere to these Rules may result in consequences as detailed in the Competitor Agreement.

XPRIZE may revise these Rules and Regulations at any time during the course of the competition to provide additional information or to improve the quality of the competition. Future versions, amendments, technical notes, or other documents may continue to elaborate on the operation of the competition, including exact dates and locations of events, specific technical thresholds for performance testing, and operational information. Unanticipated issues, including restrictions to travel, may also necessitate modifications to these documents. XPRIZE reserves the right to revise these Rules and Regulations as it, in its sole discretion, deems necessary or desirable.

All active teams will be notified of any revisions in a timely manner. Please send any questions or communications about them to wildfire@xprize.org.

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1. COMPETITION OVERVIEW

XPRIZE Wildfire is a 4-year, $11 million competition incentivizing the innovation of firefighting technologies that will end destructive wildfires so that humanity and beneficial wildfire can safely co-exist. The prize aims to transform current wildfire management approaches through the development of new technologies that can rapidly and accurately detect, characterize, and respond to wildfires before they become destructive.

The $5M Autonomous Wildfire Response Track (Track B) will transform how fires are managed and fought by rapidly and autonomously detecting and completely suppressing a destructive, high-risk fire in an environmentally challenging area with dramatically greater speed, accuracy, and precision than current best-in-class solutions, leaving any decoy fires untouched.

The $3.5M Grand Prize will be awarded to the team that autonomously detects and suppresses a high-risk fire within 10 minutes of ignition, while ignoring decoy fires, in a 1,000 km^2 environmentally challenging area. Teams must monitor the area continuously for 8 hours. In the event that more than one team achieves suppression in under 10 minutes from ignition, the winning team will be the fastest team to achieve full suppression.

Teams in Track B: Autonomous Wildfire Response will simultaneously compete for the $1M Lockheed Martin Accurate Detection Intelligence Bonus Prize, which will complement the goals of the main Competition by *incentivizing breakthroughs in rapid, precise, and accurate detection of wildfires.* Teams will be automatically considered for the Bonus Prize as part of the competition unless they choose to opt out by informing XPRIZE in writing by May 4, 2026.

2. ELIGIBILITY

XPRIZE believes that solutions can come from anyone, anywhere. Scientists, engineers, academics, entrepreneurs, and other innovators from all over the world were invited to form a team and register to compete. Team registration was open from the launch of the prize until May 1st, 2024. To participate in XPRIZE Wildfire: Track B, competition teams were required to create an account in the **Prize Operations Platform (POP)**. POP is an online platform through which teams register for the competition, pay the required registration fee, and submit important documents throughout the competition. Teams are expected to maintain their POP profiles throughout the competition, ensuring their profile is up to date with the most recent team information. A Team may recruit and add additional experts and members as well as combine with other competing teams at any time throughout the Competition.

Team registration was open from the launch of the prize until May 1st, 2024. Registration opened at the competition launch, with a registration fee of $500 throughout (USD).

XPRIZE retained sole discretion to register and qualify additional teams up until the January 2025 Discretionary Late Registration deadline. Teams that registered during this period were required to meet all applicable registration and submission requirements and pay a late registration fee of $2,000 (USD).

3. ROLES AND RESPONSIBILITIES

The responsible party for each of these activities is listed below. This is not a comprehensive list; please contact XPRIZE if you have any questions about any activity.

Table 1: Responsibilities

Activity	Responsibility
Design and development of the Solution	Team
Coordination of Testing Location and operations of Finals Field Testing	XPRIZE
Transportation of the Solution to a test location and back	Team
Deployment and setup of the Solution before any test and removal of the Solution after the end of testing. Includes safety and security of personnel and equipment.	Team
Insurance of team owned equipment and personnel (medical and evacuation insurances)	Team
Cost of lodging, travel etc. for Teams	Team
Import/Export/Freight forwarding and storage of equipment in Alaska	Team
Visas and immigration	Team
Solution inspection and/or verification before and during testing	XPRIZE + Judging Panel
Collection of test data from Teams for consideration by the Judging Panel	XPRIZE and ACUASI (as testing partner)
Evaluation and scoring of Teams' solutions (based on test data and reports)	Judging Panel
Selection of winning teams	Judging Panel
Issuance of awards	XPRIZE

4. COMPETITION TIMELINE

The competition is structured into three rounds over three years. These are the milestones that Teams must accomplish in order to progress in the Competition. Qualifying, Semifinals and Finals rounds.

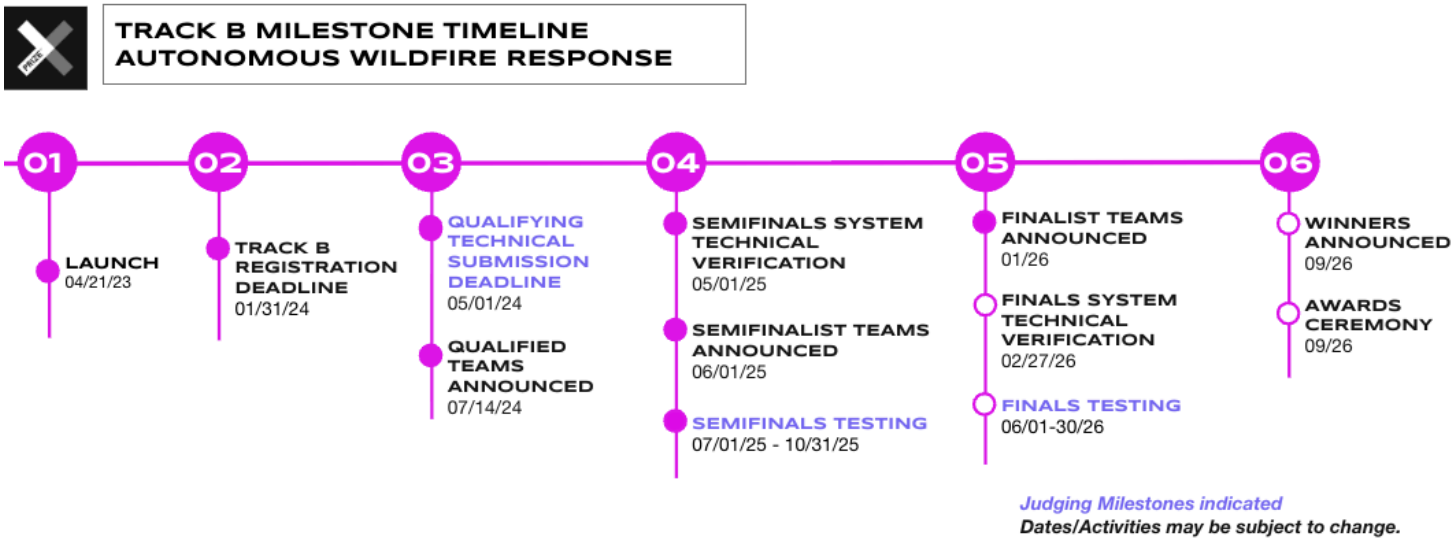


Figure 1: Competition Timeline

Table 2: Competition Calendar.
Dates may be subject to change.

TRACK B: AUTONOMOUS WILDFIRE RESPONSE COMPETITION CALENDAR		
Date	**Event**	**Details**
April 21, 2023	Official Competition Launch	Team Registration Opens, Competition Guidelines Released
April 21 - May 17, 2023	Competition Guidelines Public Comment Period	Comments may be sent to wildfire@xprize.org
April 21 - May 1, 2024	Registration Period	Registration Deadline: March 31, USD $500 Signed Competitor Agreement required with payment
May 1, 2024	Qualifying Technical Submission Deadline	Details provided in the Rules & Regulations
July 2024	Qualified Teams Announced	Advancing teams will share a milestone prize purse of USD $750K

TRACK B: AUTONOMOUS WILDFIRE RESPONSE COMPETITION CALENDAR		
Date	**Event**	**Details**
October 2024	Team Summit	In-person meetings to introduce teams to each other and foster collaboration opportunities
January 2025	Discretionary Late Registration Closes	Late Registration Fee USD $2,000
April 2025	Semifinals System Technical Verification Deadline	Detailed technical submission
June 2025	Semifinalist Teams Announced	Advancing teams will demonstrate their systems during the Semifinals site visits
July–October 2025	Semifinals Testing	Outdoor testing environment; 3rd party verification
January 2026	Finalist Teams Announced	Advancing teams will share a milestone prize purse
27 February 2026	Finals System Technical Verification Deadline	Detailed technical submission
30 May 2026	Shipping Window closes	All teams must have their equipment in Alaska no later than the end of May. Climate controlled equipment should arrive no earlier than 01 MAY 2026
1-13 June 2026	Solution Deployment Window	Installation and deployment of teams technologies prior to finals testing
14-25 June 2026	Finals Testing	Outdoor testing environment Includes Preparation, Installation,
September 2026	Final Award Ceremony and Winners Announced	The First Place Team will be awarded USD $3,500,000. Winning team will be awarded the grand prize; Lockheed Martin Accurate Detection Intelligence Bonus Prize of USD $1M Awarded

5. FINALS TESTING

Finals Testing for **Track B: Autonomous Wildfire Response** is scheduled for **June 15-25, 2026** and will be conducted in the Yukon-Koyukuk Census Area of Alaska, an **outdoor, open environment** under **variable natural weather conditions**, using **a managed, moving fire**, within the official **Competition Area.** See Annex A or GIS/KML Link for competition map.

During Finals System Testing, each team must **autonomously detect, locate, respond to, and suppress** a potentially destructive **incipient stage wildfire** within the required time window: the winning performance achieves suppression in **10 minutes**, in a **1,000 km^2 environmentally challenging area**, while **leaving all decoy fires/false positives untouched**. Full suppression includes extinguishing the target fire and **any spot fires**.

Teams will be evaluated on **speed and accuracy from ignition through full suppression**, including the ability to **recognize and not respond to decoy fires**, and to operate as a **fully autonomous integrated solution** under **human-on-the-loop** safety oversight (with the ability for supervising personnel to abort/override if needed).

Teams will test individually and have three attempts to autonomously detect, navigate to, and suppress an incipient stage wildfire. In each testing iteration, teams will encounter live, moving fires scenarios, testing the teams' repeatability across differing terrains (proximity to treelines and slopes) and ignition sources to replicate realistic incipient stage fire ecology. Each team's individual testing day will be 8 hours in duration and teams will have 24 hours prior to testing to prepare, test and adjust their solution and another 24 hours post-testing to disable systems for the next team to test unimpeded. Team members will not be authorized to be in the testing area during their 8 hour testing period, without express permission from XPRIZE. XPRIZE will only grant permission for teams to enter the testing area for emergency purposes.

Smart Detection is required: solutions must recognize and not respond to decoy fires simulating false positives.

All suppressants, especially novel formulations, must be listed and proven to meet or exceed globally recognized standards, including NFPA 1143, NFPA 1145, and EPA guidelines.

Where permitted by XPRIZE testing partners and applicable regulations, teams will be allowed **logistical forward deployment** (i.e., deploying technology in the testing area in advance of their allotted test time) on a **pre-scheduled date/time** communicated by XPRIZE and ACUASI, with access details shared on a per team basis.

Following Finals testing, the Judging Panel will select the **Winning Team(s)** and award a Prize of $3.5M (USD) for Track B and $1M (USD) for the Lockheed Martin Accurate Detection Intelligence Bonus Prize. Scoring criteria for each of these prizes is detailed within this document.

6. FINALS SYSTEM TECHNICAL VERIFICATION (STV)

As part of the Finals System Technical Verification (STV), teams are required to submit the following materials. These submissions are vital to enable the teams to compete and to enable XPRIZE and ACUASI to plan and execute Final's testing.

The Finals System Technical Verification (STV) consists of the following submissions , *Deadline is 27 March 2026*

1. **Unmanned Aircraft (UA) Registration.** All teams are required to submit UA and pilot details to ACUASI to obtain authority to operate UAs within the testing airspace. It is very unlikely that teams will be able to introduce new UAs or make significant changes to either the payload or the UA itself after this deadline. A template to complete for each aircraft asset can be downloaded here. *Deadline: 27 February 2026*

2. **Complete RF Emissions List**. Template provided by XPRIZE link. A list of solution equipment that uses a radio or emits RF radiation. Teams that are operating equipment outside of the ISM or public bands may need to apply for an Experimental Special Temporary Authorization from the US Federal Communications Commission sixty (60) days in advance and for the duration of testing. It is the team's responsibility to ensure that they have permission to operate their solutions legally. ACUASI are able to offer guidance following the completion of this RF emissions list. *Deadline: 27 March 2026*

7. FINALS APPLICATION

Prior to participating in **Finals Testing**, teams will be required to submit materials as part of the Final's application process. The Finals application will provide documentation that is required by XPRIZE and ACUASI to plan and execute Finals Testing and evaluation of the team's technologies. The application will also contain materials and documentation to update the judges on the latest developments to the team's technologies and be used for the assessment and verification of the teams technologies and processes. The **Finals Application** deadline is *04 May 2026*.

Finals Application consists of the following submissions,

1. **Concept of Operations**. Include an overall system concept of operations diagram and write-up of processes which correspond directly with the Finals testing site. Include the entire end-to-end solution from detection, verification, autonomous flight, suppression and confirmation of threat extinguishment. Include information on the use and operation of the system in different weather conditions, terrain, and times of day/night. Teams can resubmit documentation from previous submissions to accomplish this portion if there are no changes. *Deadline: 04 May 2026*

- Teams to use filename: **team name_ConOpsFinal**
- *If you are submitting updates, please add* ***_updateDDMMYY*** *to the end of the filename.*

2. **Deployment Planning Document**. Complements the Concept of Operations with a deployment plan of all equipment to be used/installed during Finals testing. Include within this plan: *Deadline: 04 May 2026*
    - Equipment list with weights and dimensions and any import/export restrictions (such as ITAR or Dual-Use)
    - Mapped deployment locations of all equipment (we understand that this may change during installation, however this aids in our understanding of the effort and scale required to meet the aim of the Finals competition.
    - How you intend to deploy each system, include field transport from Nenana Airfield to deployment location, include vehicles required and any land use or airspace requirements.
    - Risk Assessment - Complete risk assessment of deployment of the entire system in the field
    - List of personnel deploying and installing equipment - Template provided by XPRIZE (link), all personnel are to provide copies of either Passport, US driving license, US state ID or birth certificate.

3. **Promotional Video**. Short video (<2mins) showcasing the team's technology. For public release. XPRIZE will provide a media toolkit.

4. **Quad chart of the Solution**. Quad chart with updated milestones and Technology Readiness Level (TRL)[1]. Template provided by XPRIZE. Teams are welcome to provide additional quad charts for each sub-system. Teams can resubmit documentation from previous submissions if there are no changes. To remain competitive, technology should be at a minimum of TRL-7 for finals testing. *Deadline: 04 May 2026*

    - Teams to use filenames:
        - Main Quad: **team name_QuadChartFinal**
        - Subsystem Quads**: team name_QuadChartFinal_subsys1(2 etc)**
        - *If you are submitting updates, please add* ***_updateDDMMYY*** *to the end of the filename.*

4. **System diagram**. Include a complete system diagram, including subsystems such as detection technology/sensors, telecommunications, control, transport/payload delivery, Autonomous piloting system, fire suppression/extinguishing systems, data analysis, AI/ML, data storage, alerting systems. Teams can resubmit documentation from previous submissions if there are no changes. *Deadline: 04 May 2026*

    - Use filename: **team name_Finalsysdiag**
    - *If you are submitting updates, please add _updateDDMMYY to the end of the filename.*

[1] *It is recommended that technology be at minimum of TRL 7 for Finals testing.*

5. **AI/ML Plan**. Artificial Intelligence and/or Machine Learning Plan. To include a flow diagram of the data analysis and wildfire verification process. Include methodologies used to identify false positives and a description of the algorithms used within the autonomous detection process and decision process to launch suppression systems. Teams are welcome to use their own format that can include research papers, white papers or technical descriptions provided all of the data requested within the AI/ML Plan Template (found using this link) is included. Teams can resubmit documentation from previous submissions if there are no changes. *Deadline: 04 May 2026*

- Use filename: **team name_FinalAIplan**
- *If you are submitting updates, please add* ***_updateDDMMYY*** *to the end of the filename.*

6. **Personnel List**. List of personnel attending finals testing in Alaska. Template provided by XPRIZE . Include dietary requirements, any disabled accessibility requirements and links to copies of the bio page of passports. The template to be copied and resubmitted by each team can be found using this link. *Deadline: 01 April 2026*

7. **ROM Cost.** Provide a rough order of magnitude cost for the deployed solutions used by the team in finals testing. *Deadline: 04 May 2026*

8. **Team Attendance Confirmation - XPRIZE Wildfire Track B Finals 2026 Confirmation Form.** Complete the form. *Deadline: 04 May 2026*

9. **UA Maintenance Schedule Submission.** Each Team shall submit a written Uncrewed Aircraft (UA) maintenance and inspection schedule for all UAs and mission-critical subsystems used during competition testing. The schedule must be **based on the manufacturer's published maintenance program** (e.g., maintenance manual, service bulletins, inspection intervals, and recommended consumables replacement) and must be appropriate to the operational context of the competition (e.g., duty cycle, environmental conditions, payload configuration). **Timing requirement.** All routine and scheduled maintenance shall be conducted **outside the 8-hour testing window**, unless explicitly authorized by XPRIZE/ACUASI for safety or airworthiness reasons.
Minimum submission requirements: *Deadline: 04 May 2026*

1. **OEM basis and references.** Include the source document(s) and revision/date (or equivalent) that define each required check/interval.
2. **Intervals and tasks.** List tasks and intervals (flight hours, cycles, calendar time, pre/post-flight checks), including any required calibrations and firmware/software checks.
3. **Competition adaptations (if any).** Any deviation from OEM recommendations must be explicitly identified, technically justified, and approved by XPRIZE prior to testing.
4. **Maintenance log.** Teams shall maintain a dated log of completed maintenance/inspections and make it available to XPRIZE/ACUASI upon request.

8. FINALS TESTING VERIFICATION CRITERIA

These Track B Finals Rules & Regulations ("R&R") define how Track B Finals performance will be **tested, verified and scored**.

Track B requires Teams to **autonomously detect and suppress** a high-risk fire in a **1,000 km²** environmentally challenging area within **10 minutes**, leaving decoy fires untouched.

The most important judging criteria are **accuracy** and **time elapsed from ignition to full suppression** of a potentially destructive incipient stage wildfire and any subsequent spot fires, leaving false positives untouched (**Smart Detection**); this encompasses **quick, accurate and precise detection**, rapid response, and full suppression.

Solutions must operate as **fully autonomous integrated solutions** from detection to response and suppression with **Human-On-the-Loop** autonomy (no human input during the test; supervision and abort/override permitted if problems arise).

The scoring criteria includes anti-advantage measures to ensure like-for-like comparisons removing the chance advantages of teams who happen to have suppression systems deploying from closer locations than others and variations in weather and fire ecology.

SMART DETECTION SCORING CRITERIA AND REQUIRED TEAM OUTPUTS (TRACK B)

Detection of Fire	**Scoring Criteria:** Confirmed detection & fastest time to detect **Team Output: Smart Detection Time Gate:** The Team must issue a **Target Fire Alert** (TFA) **by T0 + 10:00 (ten minutes after ignition)** consistent with the requirement to autonomously detect within 10 minutes. Failure to detect within 10 minutes will result in a **Missed Detection** (**MD**). The team will be informed of the MD and will not be able to suppress the fire but will be able to continue to detect for a further 20 minutes. For the Bonus Prize, teams are scored on the speed, accuracy and precision of detection, therefore teams may choose to continue to detect, if desired. **Required Target Fire Alert Fields:** Each **Target Fire Alert** (TFA) must include, at minimum: ● Timestamp ● Sensor Type ● Location (GEOref) of detection system(s) actively detecting ● Location Estimate **(Localization Estimate (LEst))** with confidence level ● Fire Classification (e.g. moving fire, spot-fire, static fire, unknown) ● Unique alert ID ● Asset/system ● Optional further information *(additional intelligence considered beneficial to firefighters such as weather, fuel type, heat intensity, point and perimeter of burn, direction of spread, etc..)* **Optional Decoy Alert (DA):** Teams can optionally generate time-synchronized Decoy Alerts. These optional alerts demonstrate that the system is able to detect and categorize decoy fires or false positives and classify them as non destructive or not requiring any suppression activity. **Data Submission Timing and Format:** Teams shall demonstrate the TFA in real time. Teams are responsible for ensuring all outputs are machine-readable and complete by submitting data/logs in .csv format no later than the end of test day.
Accuracy of Detection	**Scoring Criteria:** Accuracy of detected fire, accuracy of valid fire (i.e. not a false positive). **Team Output: Smart Detection Requirement:** From **Ignition Timestamp** (**T0**) through run end, the Team's system shall autonomously detect, classify, and localize fire-like signals in the Competition Area, including discrimination between Target Fire and decoys/false positives. Teams are to provide evidence of these detections and classifications to the Judges or XPRIZE staff, in real-time and provide timestamped logs or a report post testing run. It is expected that teams submitting a TFA will deliver multiple TFA's as fields change or accuracy increases.

Fire Behavior	**Scoring Criteria:** Confirmed fire versus a decoy or false positive. **Team Output:** Teams are not to act on or suppress a decoy fire or a false positive. Time penalties (P_{decoy}) will be added for teams who identify a decoy fire as a destructive fire with the harshest of penalties for teams who suppress a decoy fire. Teams are expected to be able to categorize fire behaviour and prioritize their suppression urgency within the following fire categories • **Destructive Moving Fire** • **Spot-fire(s)** • **Static Fire**
Autonomy	**Scoring Criteria:** Degree of autonomy **Team Output: No Human Inputs:** Detection, classification, localization, and decision-making must occur autonomously (Human-On-the-Loop safety supervision only).

Alert Integrity: Teams shall not modify, delete, or retroactively edit alert logs post-run. Any tampering is grounds for Did Not Finish (DNF) and/or disqualification.

AUTONOMOUS NAVIGATION SCORING CRITERIA AND REQUIRED TEAM OUTPUTS (TRACK B)

Autonomous Mission Planning	**Scoring Criteria:** Fully autonomous handover of detection to suppression UA mission planner. **Team Output:** System autonomously plans and transfers mission plan to suppression UA following a Target Fire Alert
Autonomous Flight	**Scoring Criteria:** Fully autonomous flight with Human on the Loop **Team Output: Telemetry Streams (Continuous).** Teams must provide continuous, time-synchronized telemetry for each aerial asset throughout finals testing, including at minimum: • **GNSS position** altitude, heading, speed (at 1 second reporting rate), This is the expected transmission rate. It is understood that the real-time receive rate will be more than 1 second. • **Moving Map Indicator** of all UA location, Altitude, Heading, Speed with background imagery referenced from the FAI sectional chart (VFR). • **Lost Link** will be considered after 15 seconds without telemetry.

	• **Emergency Lost Link** (ELL) An emergency will be declared if lost link persists beyond 60 seconds (15 secs + 45 seconds). A time penalty (P_{ELL}) of 60 seconds will be applied to a team for each **Emergency Lost Link** + 1 second for every second the UA remains in **Emergency Lost Link** • **Fly Away** will be considered if the UA is in Lost Link and flies out of control of both manual control or autonomous/automated flight. A Fly Away will result in the immediate grounding of the UA and disqualification. • **Autonomy mode state** Autonomous, Automated, Manual • **Payload state** Full, empty etc • **Communications link RSSI or health** • **Faults**
Autonomous Reload/Refuel	**Scoring Criteria:** Autonomous suppressant reload and UA refuel **Team Output:** Top teams will demonstrate a fully autonomous system capable of suppressing incipient wildfires. Autonomous suppressant reload and UA refueling are expected, and are weighted most heavily for systems that must reload/refuel while suppressing a single fire. For systems that can fully suppress a fire without reloading/refueling, this criterion carries lower weight. UA System airworthiness and safety checks are not required or expected to be autonomous. Teams are to provide a checklist and schedule for airworthiness and safety checks to the judges at the beginning of testing.

Alert Integrity: Teams shall not modify, delete, or retroactively edit alert logs post-run. Any tampering is grounds for DNF and/or disqualification.

SUPPRESSION SYSTEM SCORING CRITERIA AND REQUIRED TEAM OUTPUTS

First Significant Suppression	Scoring Criteria: Total time from ignition to application of first significant suppression. **First Significant Suppression timestamp** (**T_FSS**) satisfying **Minimum Suppression Effectiveness Threshold** (**MSET)**, verified by XPRIZE, within **T0 + 10:00 (ten minutes after ignition)** via either: • **Direct Knockdown Delivery (DKD)** • **Preventative Spread Interruption Delivery (PSID)**

	• 'Other' previously confirmed suppression mode cleared with XPRIZE that satisfies MSET.

Suppression Methodology	Scoring Criteria: Efficacy of suppression
	
	Team Output:
	
	• **Autonomous operation:** All suppression planning, dispatch, delivery, and post-delivery assessment outputs shall be generated **autonomously** during the run. Human actions are limited to safety supervision and abort/override consistent with Human-On-the-Loop requirements.
	• **Autonomous Full Suppression of Fires in the priority order** The Team must demonstrate a triage methodology to their autonomous suppression system. Strongest teams demonstrate and prove their ability to autonomously detect, categorize and target destructive elements of fires and assign priority in the following order:
	  • **Destructive Moving Fire**
	  • **Spot-fire(s)**
	  • **Fire Crib**
	• **Suppression timing:** Teams are to provide timings as detailed within the Correlation of timings between teams and XPRIZE assessment and application of distance based handicap.
	• **Decoy non-response compliance:** Proves smart detection

Fire Out - Full Suppression	Scoring Criteria: **Total Corrected Time Score (CT_TOTAL)** from ignition to suppression/detection to suppression. See Scoring section which includes a handicap for distance advantages. Team Output: **Autonomous Full Suppression Time Gate (Extended):** The Team must achieve full suppression within **T0 + 20:00 (twenty minutes after ignition)**, Target Fire + any spot fires.

Minimum Required Outputs and Reporting Format. Each Team shall generate, retain, and provide to XPRIZE a complete, time-synchronized event record for each test run. At minimum, Teams must submit: (i) a machine-readable event log (CSV/JSON) with UTC timestamps; (ii) any derived mission outputs required for scoring; and (iii) sufficient metadata to correlate Team system time to official XPRIZE time. These outputs will be used by XPRIZE to verify performance, compliance, and scoring.

The submitted outputs shall enable XPRIZE to verify:

- **Autonomous operation**. Evidence that suppression planning, dispatch, delivery, and post-delivery assessment outputs were generated autonomously during the run. Human actions are limited to safety

supervision and abort/override consistent with Human-on-the-Loop requirements.

- **Suppression timing**. Time-correlated records sufficient to align Team-reported events with XPRIZE observations, including ignition, dispatch, arrival, suppressant delivery, and full suppression, and to support application of any distance-based handicap.
- **Spot-fire engagement**. Event and outcome data demonstrating detection, response, and suppression of spot fires (where applicable), including timestamps and geolocation.
- **Decoy non-response compliance**. Data demonstrating detection and classification sufficient to show appropriate non-engagement of decoy fires (i.e., "smart detection"), including decision logs and time-stamped alerts.
- **Minimum Suppression Effectiveness Threshold (MSET) achievement**. Evidence that required suppression effectiveness criteria were met, including measurements/indicators used by the Team system and associated timestamps.
- **Accurate scoring**. Data required to compute scoring corrections (e.g., proximity/positional corrections), including geospatial traces of UAs/suppression delivery and any internal confidence/quality flags.

Alert Integrity: Logs must be write-once. Teams shall not modify, delete, or retroactively edit logs post-run. Any tampering is grounds for DNF and/or disqualification.

Data Submission Timing: Teams shall submit the suppression event logs, delivery-event data products, and telemetry within **10 minutes** of run completion. Teams are responsible for ensuring all outputs are machine-readable, complete and submitted on time.

Required Suppression Events: Each Team shall generate a time-synchronized event log capturing, at minimum, the following suppression events

- **Suppression Mission Initiation (SMI):** first system event indicating suppression intent toward the Target Fire following a correct Target Fire Alert.
- **Dispatch Command (DISP):** autonomous dispatch of one or more Suppression-Capable Assets, including route/target assignment.
- **Ingress Start (ING):** asset begins ingress toward Suppression Zone.
- **Suppression Delivery Event (SDE):** each release/discharge of any suppression agent. Include required data product listed
- **Fully Suppressed (FS):** Suppression complete of target fire and all related spot fires
- **Abort/Override (ABORT):** any safety abort/override command, including initiator (XPRIZE safety only vs system) and reason.

Optional Suppression Events: Each Team can optionally generate time-synchronized event logs capturing the following optional suppression events. These optional events

demonstrate that the system is able to categorize and plan different suppression methodologies appropriate to the target fire(s).

- **Delivery Sequence Start/End (SEQ_START / SEQ_END):** start/end boundaries of a delivery sequence used for MSE/MSET evaluation.
- **Declared Suppression Mode (DSM):** DSM ensures the judging protocol matches the Team's intent. Providing this In advance of each suppression delivery event. Modes: **DKD** (Direct Knockdown), **PSID** (Preventive Spread Interruption), or '**other**' – teams to inform XPRIZE of any 'other' suppression modes by *04 May 2026*
- **Suppression Assessment (SA):** Demonstrates that the system is able to autonomously assess and plan suppression methodologies appropriate to the target fire(s)
- **Spot Fire Engagement (SPOT_ENG):** Demonstrates that the system is able to autonomously assess and plan suppression methodologies appropriate to the target Spot-fire(s)

Required Fields for Each Suppression Event: Each suppression event listed above shall include, at minimum:

- **Timestamp** (synchronized to GNSS reference clock)
- **Unique Event ID** and **Run ID**
- **Asset Identifier(s)** involved (unique ID per aerial platform)
- **Asset State Snapshot** at event time, including:
    - position (lat/long or local grid), altitude (AGL/MSL), heading, ground speed/air speed,
    - autonomy mode state (autonomous / safety-abort / hold / degraded)
    - remaining energy estimate (battery/fuel) and payload state (as applicable)
- **Target Reference:** link to the related Target Fire Alert ID (or Spot Fire ID for SPOT_ENG)
- **Delivery Modality Metadata:** Start timestamp, Suppressant type (e.g., water/foam/gel/retardant/other approved), delivery method (drop/spray/stream/other), volume/mass/quantity of suppressant and discharge duration/end timestamp
- **Confidence / Decision Rationale Codes:** system-generated reason codes (standardized enumerations) supporting why the action was taken (e.g., "Target confirmed," "Spread vector predicted," "PSID line placement," "Wind shift adaptation," "Safety margin exceeded")
- **Discharge Confirmation Signal(s):** internal telemetry signals used to confirm a discharge occurred (e.g., valve open, pump current, release actuator state)

MINIMUM SUPPRESSION EFFECTIVENESS THRESHOLD (MSET)

The Minimum Suppression Effectiveness Threshold (**MSET**) is a fire effect-based threshold measurement to establish a 'first significant suppression' and consists of four pathways. MSET can be achieved with more than a single suppression delivery system.

MSET - Direct Knockdown Delivery (DKD): To achieve a satisfactory MSET in DKD one of the following fire-effect criteria, verified by XPRIZE, must be achieved:

- **FRP** reduction ≥ 25% sustained ≥ 60 seconds, or
- Forward spread check across ≥ 10 m sustained ≥ 60 seconds, or
- Visible flaming area reduction ≥ 50% sustained ≥ 60 seconds**.**

MSET Pathway 2 - Preventive Spread Interruption Delivery (PSID): PSID exists to fairly score strategies where Teams do not aim to knock down active flame, but instead deliver suppression agent ahead of the fire front to interrupt spread (e.g., wetline / pretreatment / line-building / indirect attack). A PSID action may satisfy Significant Suppression only if it produces a **measurable, verifiable reduction in fire spread** attributable to the Team's treated zone, rather than environmental variability (wind lulls, fuel discontinuities) or unrelated suppression effects. Following fire contact with the PSID suppressant, the fire front must be **halted, redirected, or prevented from crossing** the **Preventive Treatment Zone (PTZ)**. To achieve a satisfactory MSET in PSID ALL of the following criteria, verified by XPRIZE, must be met:

- **Hold/check:** prevent crossing along ≥ [75% of PTZ length] for ≥ 60 seconds after contact, and
- **No-breach:** no breach for 5 minutes after contact. A breach occurs when sustained flaming crosses the PTZ boundary into the interior of the PTZ and persists for more than 60 seconds, or results in an established flame front on the far side of the treated area, or the area becomes surrounded by fire.

Preventive Spread Interruption (PSID) Examples

- **Qualifying PSID:** Team delivers suppressant 5m ahead of head fire, drops/sprays to create a wetline; flame front reaches the treated area within 2 minutes; front stops and does not cross the treated 10m line for 5 minutes.
- **Non-qualifying PSID (too far):** PTZ declared 20m ahead; fire doesn't reach PTZ during 20 minute run window, fails contact requirement.
- **Non-qualifying PSID (ineffective):** fire contacts PTZ but crosses within 30 seconds across treated segment, fails hold/check.

SCORING

The most important judging criteria, based on which the $3.5M Grand Prize will be awarded, are **accuracy and time elapsed** from ignition to **full suppression** of a potentially

destructive, high risk, **incipient stage wildfire** and any subsequent spot fires, leaving any false positives untouched. This will encompass quick, accurate and precise detection as well as rapid autonomous response and full suppression.

Primary Score (time to full suppression): Each valid run is scored by **Corrected Ignition-to-Full-Suppression Time (CT)** (lower is better), reflecting ignition-to-full suppression time. XPRIZE has devised a Handicap that removes advantages of teams that 'by chance' are closer to the fire than others yet does not reward teams for being farther away.

- **Corrected Ignition-to-Full-Suppression Time (CT)** Calculation**:**

$$CT = RT + DH$$

  - **RT** = ignition to full suppression time (seconds)
  - **DH** = Distance Handicap (seconds)
- **Distance Handicap (DH)** Calculation**:** $DH = max\left(0, \frac{Dref - D0}{Sref}\right)$

  - **D0** = straight-line distance of closest suppression system to fire ignition point. Calculated for each fire.
  - **S_ref** = a fixed reference speed applied uniformly across all Teams
  - **D_ref** = Median reference distance (across all teams) of closest suppression system to fire ignition point. Straight line distance.

$$Dref = median(D01, D02, D03, D04, D05)$$

Decoy Fire Penalties. XPRIZE is implementing a time penalty for any decoy fire events. Penalties can only be applied once, per decoy and not per detection. Penalties are added to the teams total **Corrected Ignition-to-Full-Suppression Time (CT)** across all three target fires.

- **Incorrect Decoy Identification (fixed penalty):** +120 seconds
- **Time to retract / confirm false positive (time penalty)**
  - Time (in seconds) from initial detection and classification to reclassification of decoy/false positive.
  - Maximum penalty + 600 seconds.
- **Suppressant delivered onto a decoy (Severe Penalty):** 1200 seconds
- P_{decoy}

Emergency Lost Link Penalty. For flight safety and operation, communications are vital to enable the transmission of location data and for human-on-the-loop interventions during emergency flight situations. An emergency lost link will be declared if lost link persists beyond 60 seconds. XPRIZE has implemented a time penalty for teams that enter into an emergency lost link scenario.

- **Emergency Lost Link Penalty** of 60 seconds will be applied to a team for each **Emergency Lost Link** + 1 second for every second the UA remains in **Emergency Lost Link**

- *Penalty example: UA has not communicated its GNSS data to the base location (ACUASI Hanger) for 80 seconds, Emergency Lost Link is declared at 60 seconds, UA re-establishes connectivity and base receives a GNSS position 20 seconds after Emergency Lost Link is declared. Penalty 60 seconds + 20 seconds = 80 second penalty.*
- P_{ELL}

Human Intervention Penalties. Competing teams are expected to deploy autonomous systems. Human intervention is limited to safety and compliance actions and must not be used to improve performance or influence autonomous decision-making.

1. Interventions during UA flight (DNF / grounding). Any human intervention that directly affects an aircraft **during flight operations**—including manual control inputs, flight path changes, mission re-tasking, or override of onboard autonomy, will result in a **DNF for that flight serial/fire run**. XPRIZE/ACUASI may also **ground the aircraft** pending a safety investigation and authorization to resume operations. *Note: This does not include avoidance of other non participating aircraft, or interventions expressly for the purpose of avoiding an accident/unsafe operating mode. Or complying with Federal Law relating to "Right of Way".*

2. Autonomy and fairness clause. Maintenance activities are permitted only to ensure airworthiness and safe operation and must not be used to obtain additional "hands-on" operational time that would otherwise be performed autonomously. **Maintenance schedules created or modified primarily to enable additional human interaction during the testing window are not permitted.** XPRIZE may require corrective action, impose time penalties where applicable, or disqualify flights if maintenance practices are found to be non-compliant or unsafe.

3. Timing requirement. All routine and scheduled maintenance shall be conducted **outside the 8-hour testing window**, unless explicitly authorized by XPRIZE for safety or airworthiness reasons.

4. Interventions outside UA flight (time penalties). Human interventions **outside flight operations** are not evaluated as part of competition performance. However, to preserve fairness and incentivize autonomy, XPRIZE will apply a **time penalty** for each human intervention event during the 8-hour testing window, including (but not limited to) **UA's and ground systems, reloading suppressant, refueling/recharging, fault-finding or resetting/servicing suppression subsystems**. A Human Intervention event begins when a team member physically contacts the UA, the suppression system, detection system or any components or parts thereof, for the purpose of restoring/continuing operations and ends when the system is ready to resume autonomous operation.

5. **Application of penalties.** A penalty is assessed **per intervention event**. All assessed penalties are added to the team's **total Corrected Ignition-to-Full-Suppression Time (CT)**.

- **Initial Human Intervention:** +60 seconds
- **Ongoing Human Intervention** Time (in seconds) from initial Human Intervention through to 'hands off and clear' continuation of autonomous operation.
- *Penalty example: Team manually reloads suppressant taking a total hands on time of 30 seconds. Penalty 60 seconds + 30 seconds = 90 second penalty.*
- P_{HUM}

Total Corrected Time Score (CT_TOTAL): The Team's overall Finals score shall be the sum of the three run CT values plus all decoy and emergency lost link penalties

$$CT_{TOTAL} = \left(CT_1 + CT_2 + CT_3\right) + \left(P_{decoy_1} + P_{decoy_2} + P_{decoy_3}\right) + P_{ELL} + P_{HUM}$$

Ranking: Teams shall be ranked in ascending order of **CT_Total** (lowest CT_Total wins).

9. HEALTH, SAFETY AND ENVIRONMENT

Developing and testing novel wildfire management technology is inherently dangerous. Safety is our top priority. XPRIZE works with an array of best-in-class professionals to design testing scenarios that achieve the appropriate balance of challenging and safe. Working closely with certified Fire Managers, we will take every precaution to ensure the safety of all participants, judges, and the public during testing. Safety controls stand as the most critical aspect of all testing rounds of this Competition.

XPRIZE acknowledges that there is a possibility that something does not go according to plan, and we develop comprehensive risk mitigation plans in partnership with the relevant testing partners and landowners. Although we believe solutions can come from anywhere, prior to advancing to later stages in the Competition, teams will be assessed on their safety planning and understanding of fire management and the inherent risks. Due to the nature of XPRIZE Wildfire testing, Teams are required to obtain Commercial General Liability insurance coverage. Teams should refer to Exhibit C of the **Competitor Agreement** for details on competition insurance requirements.

To minimize the impact of the Competition on the environment, Competition entries must minimize environmental harm and ensure safety of participants and surrounding communities. All teams must comply with the following requirements:

- Teams must research and obtain any necessary permits for operation in the Competition Area as it pertains to their tested solution. XPRIZE will collaborate with teams in this activity.
- All team members who are venturing into the competition testing area must complete the online AlaskaX: Bear Safety course prior to entering the competition area. Certificates are not required, however a screenshot showing completion of the course is required.
- All team members entering the competition testing area must be authorized by ACUASI and XPRIZE.
- All team members must abide by the rules of operating within the competition testing area and outfitted with the required safety equipment (outlined within the AlaskaX: Bear Safety course.
- Teams will comply with all relevant environmental, health, and safety regulations.
- Teams must ensure compliance with NFPA Wildfire Codes and Standards and/or comparable international codes and standards.
- Teams may not employ, influence, or harm any form of life in their approaches to the challenge, and should make every effort to avoid detrimental effects on all conservation values.
- Teams must ensure that solutions are fully functional and will not pose a risk to XPRIZE or ACUASI equipment (e.g. radar), other competitors, judges, safety personnel, or observers.
- Teams must recover equipment and supplies that are deployed within the **Competition Area**. Any disposable portions of the system must be declared and accepted by Judges as causing no harm prior to deployment in the Competition Area.

XPRIZE reserves the right to adjust the Competition Guidelines and Rules & Regulations based on the latest scientific and legal information available at the time to ensure personal and environmental safety. XPRIZE will make all final determinations on safe and acceptable operating conditions for Competition operations. XPRIZE reserves the right to disqualify teams who are found to be operating in an unsafe or unethical manner, whether at official testing sites or at their own facilities.

10. MODIFICATIONS TO ENTRY

Throughout the competition, except during testing, teams are welcome to continue to develop, iterate, and adapt their solutions; however, prior to Finals testing in 2026, any major changes to any Unmanned Aerial Systems or Vehicles (UAS/UAV) after the application for flight operations with the local/national aviation authorities will need to be re-approved by the relevant authority. It is recommended that teams limit any changes to UAS/UAVs platforms and limit the modifications to UAS/UAV platforms or payloads that

would alter the aerial performance, platform size, weight or power supply after civil aviation applications have been submitted. Teams are recommended to inform XPRIZE of any intended UAS/UAV platform changes as soon as possible. XPRIZE can provide advice on the current application process for civil aviation approvals and if changes can be permitted.

11. INTELLECTUAL PROPERTY (IP)

As of the date of submission, each Team must own, or hold appropriate license rights to, all technologies, methods, resources, and Intellectual Property included in its submission.

Teams will retain ownership of their Intellectual Property on any technology or data integration techniques and processes they bring to the Competition, and which they develop as part of their Competition entry. All details relating to team technology, innovations, or methods submitted to XPRIZE at the submission deadlines will remain strictly confidential unless clearly and specifically noted. Please refer to the Competitor Agreement for more details.

12. FREQUENTLY ASKED QUESTIONS

What is the timeline for the testing period and equipment setup?	There is an 8-hour period for the Finals test. This is preceded by a long logistics window (starting in May) which includes a two-week period to pre-deploy equipment in the field. Teams can leave equipment in the field during this time, with the understanding that certain items will be out there. Teams will have a whole day to prep prior to the 8-hour testing window. The actual testing day is anticipated to be in the third or fourth week of June.
Is there a deadline for declaring the aerial assets to be used in the Finals?	Yes, February 27th is the deadline to declare aerial assets. Please find the template to be filled out for each aircraft here.
Can teams perform a dry run during the deployment weeks?	Dry runs under visual line of sight (VLOS) are encouraged, provided proper equipment is set up to secure the airspace. Actual Beyond Visual Line of Sight (BVLOS) capability may come later, closer to the Finals (potentially the last week of the deployment phase).
When is the last expected snow day and what are the ground conditions like?	Snow is likely to stay until April. The thawing period is expected in late March/early April. The landscape is difficult, a combo of glacial silt and mud off the main road, which can cause vehicles to sink. The official road

	is navigable by economy car at low speeds, but gets unstable after Mile 4.
What is the altitude limit for drones?	XPRIZE is putting in a request for up to 18,000 ft MSL. Flights above this altitude will require significantly more paper approvals. Higher altitudes are difficult to track safely and face a barrier going above Class A airspace.
Can we fly on certified experimental drones?	There is no unified certification for UAS. XPRIZE is requesting paperwork (Aircraft Leasing Agreement) to admit teams to fly under the ACUASI authority, with ACUASI acting as the responsible party.
What are the requirements for Remote ID and Flight Termination Systems?	Remote ID is required for small equipment in particular, but not a requirement beyond 55 lbs. ACUASI will check on whether it becomes an overbearing requirement and may provide some on-site.
Is airlifting equipment into the area permissible?	Yes, there is no limitation on airlifting equipment in, though helicopter charters are hard to find and expensive. Helicopters are available with a fairly large minimum order quantity with prices starting at $1,415/hr for a minimum of 4 hours.
How should foreign-made drones and equipment be handled for customs/importation?	Temporary export using a Carnet is a common method. ACUASI has the authority to lease covered systems and assist with importation. It is recommended to contact an importer/customhouse brokerage in Alaska, with Anchorage as the recommended port of entry.
How to ensure compliance with restrictions under International Traffic in Arms Regulations ('ITAR')	If a team's asset is ITAR-controlled, please consult the Directorate of Defense Trade Controls.
Do you recommend any shipping methods?	Regardless of teams' shipping method, they'll likely contact the freight forwarding company in Alaska which will then handle it. Unwise to go through an Alaskan business. Recommending a broker. Likely to be ground shipping through Canada, possibly via ferry, depending on batteries being shipped. Containers will be on a cement pad. Climate-controlled environment is extremely limited. Teams have the ability to visit Alaska and ensure equipment has arrived intact. ACUASI/XPRIZE will not be held responsible for any damage occurred during transit.

	Recommending (1) Carlile or (2) Odyssey for any freight brokerage.
Is there access to topographical maps or other terrain data?	Alaska is a data desert. ACUASI has provided a GIS product to help teams with land assessment. There are no good maps with detailed trails outside of the official dirt road (Totchaket Rd). Teams are allowed to create their own maps.
The GIS product XPRIZE provided defines out-of-bound area for teams. Do you mean we can't put anything on the ground in all the areas marked pink and orange?	The colored land bound areas depicted on that GIS map are only for ground-system permitting issues where teams are not allowed to deploy ground equipment. Aerial assets are OK. Teams are able to pre-deploy on the road if needed. Keep in mind that it is not allowed to block the road, but there are easements on the side of the road that can be used.
How is cellular and internet connectivity at the site?	There are two cellular towers located at elevation, with fairly good LTE (primarily 4G with dropouts behind small hills). Starlink and Iridium work well. SIM cards for AT&T, Verizon, and the local GCI network will be available.
How far from the fire can people expect to be for safety?	XPRIZE Operations / ACUASI staff will be offset by approximately 600-700 meters from the fire. There will be no humans in the potential aircraft impact area, and they will not be in the camera frame for low-level flying.
What is the tree canopy coverage like?	No treeline is above 80 ft tall. It consists of young spruce and young birch, with some older growth patches.
How many fires and false positives (decoy fires) will there be during the 8-hour test?	There will be three (3) fires and between 3-6 decoy fires in any given block. Only one fire will be running at a time, with a time lag between events to allow for system reset/recharge.
What kind of fire and decoy fire fuel types can be expected?	The true fire fuel load is unlikely to change and will use wood chips, hay, and paper underlayment, with framing studs. Decoy fires will be a variety of common heat sources like campfires, barbecue grills, barrel fires, or solar panels—nothing that isn't plainly obvious that it's a decoy.
What is the size and spread of the fire expected to be?	The fire will generally stay within a size of 20x20 ft^2. The size has a potential to increase to 30x30 ft^2.

13. GLOSSARY

ABORT (Abort/Override): Any safety abort/override command, including initiator (XPRIZE safety only vs system) and reason.

ACUASI: Alaska Center for Unmanned Aircraft Systems Integration; the testing partner supporting Finals testing operations and UAS/airspace coordination.

Accurate (Accuracy, Accurately): The correctness (closeness to true value) and quality of the wildfire observation and intelligence (includes fire behavior characterization and false positives).

Advisory Board: A select group of prominent advisors who contribute their wisdom, knowledge and guidance to various aspects of the prize.

Alert Integrity: Logs must be write-once. Teams shall not modify, delete, or retroactively edit logs post-run. Any tampering is grounds for DNF and/or disqualification.

Autonomous Wildfire Response: One of two Competition tracks in the XPRIZE Wildfire, focused on the rapid and intelligent detection, response, and full suppression of an incipient stage destructive wildfire.

Autonomy mode state: The operational autonomy state reported in telemetry and/or event logs (e.g., Autonomous, Automated, Manual).

Base Camp: A camp that teams will use to manage their operations and launch their Solution into the Competition Area during testing.

Competition: Refers to XPRIZE Wildfire, including both or either tracks.

Competition Area: The location selected and/or approved by XPRIZE to conduct testing.

Competition Guidelines: Document for the public and for teams that describes the requirements and parameters of the competition.

Competitor Agreement: A legal and binding document that details the responsibilities of competitors for the prize.

Corrected Ignition-to-Full-Suppression Time (CT): Primary score for each valid run (lower is better). Calculated as **CT = RT + DH**.

CT_TOTAL (Total Corrected Time Score): The Team's overall Finals score; the sum of the three run CT values plus all decoy and emergency lost link penalties plus human intervention penalties.

DA (Decoy Alert) (Optional): Optional, time-synchronized alerts demonstrating the system detects and categorizes decoy fires or false positives and classifies them as non-destructive or not requiring suppression.

D0: Straight-line distance of the closest suppression system to the fire ignition point (calculated for each fire).

Dead Out (DO): The state of a fire being completely out, with no smoldering or burning areas.

Decoy fires: Safely contained fires and other false positives (e.g., solar panels, water vapor).

Declared Suppression Mode (DSM): Optional event indicating the Team's intended suppression mode in advance of each suppression delivery event (e.g., DKD, PSID, or other approved mode).

Delivery Sequence Start/End (SEQ_START / SEQ_END): Optional event log markers for the start/end boundaries of a delivery sequence used for MSE/MSET evaluation.

DH (Distance Handicap): A time adjustment applied to remove distance advantages. Calculated as **DH = max(0, (D_ref – D0) / S_ref)**.

Direct Knockdown Delivery (DKD): A suppression delivery mode that may satisfy MSET.

DISP (Dispatch Command): Autonomous dispatch of one or more suppression-capable assets, including route/target assignment.

Discretionary Late Registration: A limited opportunity to enable select teams to join the Competition after the standard registration deadline. Interested teams should contact XPRIZE for more details about entering at wildfire@xprize.org.

D_ref: Median reference distance (across all teams) of closest suppression system to fire ignition point (straight-line distance).

Emergency Lost Link (ELL): An emergency condition declared if Lost Link persists beyond 60 seconds; triggers time penalties.

Environmentally Challenging: In this Competition the definition is inclusive of man-made obstacles and/or structures, vegetation, terrain, and weather conditions. Specifically, fuel type (mixed fuel), terrain (steep, ≥45% slopes) and (near) Red Flag Weather.

Event ID (Unique Event ID): A unique identifier included with each logged event, used to link and audit events within a run.

Extreme Weather: Heavy rain, lightning, storms, snow, extreme winds (>30kmph/20mph) or hail that persists for more than 6 hours during a team's programmed demonstration activities.

FAA: Federal Aviation Administration; the U.S. authority referenced in relation to land-use/airspace-use permitting.

False Positives: Items and environmental features that can be mistaken for fires in detection. False positives are largely associated with hot spots—reflective and hot surfaces (such as water bodies and solar panels)—and include other environmental features such as water vapor, which can be mistaken for smoke.

Finalist Team: A team that has successfully completed Semifinals Testing and is approved by the Judging Panel to attend Finals Testing.

Finals System Technical Verification (STV): This is a mandatory update to ensure teams are prepared to proceed to Finals Testing. This will most likely consist of written and filmed components.

Finals Testing: The last set of testing events for the prize that will determine the Grand Prize winning team(s).

First Significant Suppression (FSS): The first suppression action that satisfies MSET, recorded at **T_FSS** and verified by XPRIZE.

Fly Away: A condition where the UA is in Lost Link and flies out of control of both manual control or autonomous/automated flight. A Fly Away results in immediate grounding and disqualification.

FS (Fully Suppressed): Suppression complete of target fire and all related spot fires.

Fuel: Plant material that acts as fuel for wildfires, including grass, shrubs, trees, dead leaves, and fallen pine needles.

Full suppression: Extinguish the fire (‘fire out’) and any spot fires.

GEOref (Georeferenced Location): A reported location in a georeferenced coordinate format for detections and/or system locations.

GNSS: Global Navigation Satellite System; used for position/time reference in telemetry and event logs (including GNSS reference clock synchronization).

High-Risk Fire: A fire that began moving or reached 2 meters in diameter.

Human-On-The-Loop: In this competition, the Human-on-the-Loop monitors the AI and autonomous systems and may intervene only when necessary to: (i) prevent a collision or crash; (ii) prevent harm to any person, animal, or the environment; or (iii) stop operations if the system is behaving unsafely, uncontrollably, or operating outside the limits of the applicable permissions or legal authority, including the ACUASI/FAA land-use and airspace-use permit. Intervention is limited to safety and compliance actions and must not be used to improve performance or influence autonomous decision-making.

Incipient Stage Wildfire: A fire which is in the initial or beginning stage and which can be controlled or extinguished by portable fire extinguishers, Class II standpipe or small hose systems without the need for protective clothing or breathing apparatus.

ING (Ingress Start): Event indicating an asset begins ingress toward the Suppression Zone.

Interested Team: A team or individual that is interested in participating in the Competition and has created a profile in the XPRIZE POP system.

Judging Panel: The subject matter and technical experts who serve as an impartial and independent evaluation team for all aspects of this prize. Judges score the team submissions and make the final award determinations in both the Semifinals and the Finals Competitions.

LEst (Localization Estimate): The estimated location of the detected fire (or fire-like signal), provided with a confidence level.

Lost Link: A condition identified after 15 seconds without telemetry.

MD (Missed Detection): Outcome assigned when the Team fails to detect the Target Fire within the required time window (Smart Detection Time Gate).

MSET (Minimum Suppression Effectiveness Threshold): The threshold used to verify that “first significant suppression” has occurred (used to score/verify suppression effectiveness and timing).

P_decoy (Decoy Penalty): Time penalty(ies) applied when a Team identifies a decoy fire as a destructive fire and/or otherwise fails decoy non-response requirements (including severe penalties for suppressant delivered onto a decoy).

P_ELL (Emergency Lost Link Penalty): A time penalty applied for each Emergency Lost Link event and for each second the UA remains in Emergency Lost Link (as specified).

P_HUM (Human Intervention Penalty): A time penalty applied per human intervention event (and associated hands-on time) as specified; added to the Team’s total corrected time score.

Practice Area: An area at the Finals Testing Location, not to overlap with the Competition Area, where teams will be permitted to trial and troubleshoot their Solutions during a period of time to be determined by XPRIZE prior to Testing.

Precise (Precision, Precisely): (Location) proximity to the target fire.

Preventive Spread Interruption Delivery (PSID): A suppression delivery mode that may satisfy MSET (as defined in the MSET section), generally involving interruption of fire spread by treatment ahead of the fire front.

Prize Operations Platform (POP): The standard internal XPRIZE portal for teams to input data for use in this Competition.

Prize Purse: This refers to money offered, won, or received as a prize. It also refers to the overall amount of funds allocated to all prizes in this competition.

Public Comment Period: Feedback about the Competition Guidelines may be submitted by any readers, including prospective competitors from April 21 - May 17, 2023. XPRIZE will review the comments and take any potential revisions to the guidelines into consideration.

Qualified Team: A team that has been selected by the Judging Panel from the pool of Registered Teams based on the strength of their Qualifying Submission.

Qualifying Technical Submission: This submission consists of a series of questions to be answered that outline the expertise, capabilities and plans for the functional technology that each team will create. It will also require an Executive Summary of up to two pages of text, and any supporting images, diagrams, or charts.

Red Flag Weather: Weather conditions that fuel extreme wildfire events. These conditions include low fuel moisture and relative humidity, sustained high winds around 30 km/h or gusts greater than 56 km/h, unstable atmosphere, and high temperatures.

Registered Team: A team that has paid the required registration fee, signed the Competitor Agreement, and is eligible to submit a Qualifying Submission for the Judging Panel's review.

Registration in Progress: A team that has completed registration but has not yet paid the fee and signed the Competitor Agreement.

RT (Raw Time): Ignition-to-full-suppression time in seconds (prior to handicap).

Round: A stage of the competition which includes a judged activity (submission or field testing) and results in a downselection of competing teams.

Rules and Regulations: A set of documents detailing the testing protocols, specific rules, dates/times, and other details that will govern the Competition and will be binding on teams for Track A and Track B.

Run ID: A unique identifier included with each logged event, used to link all events and telemetry to a specific test run.

SA (Suppression Assessment): Optional event indicating the system autonomously assessed and planned suppression methodologies appropriate to the target fire(s).

Semifinalist Team: A team that has successfully completed the necessary technical submission and is approved by the Judging Panel to advance in the Competition.

Semifinals System Technical Verification (STV): This is a mandatory team-provided update to ensure teams are prepared to proceed to Semifinals Testing and consists of written and filmed components which will be reviewed by the Judging Panel.

Semifinals Testing: The set of testing events for the prize that will help determine which teams progress to Finals Testing.

SDE (Suppression Delivery Event): Each release/discharge of any suppression agent.

S_ref: A fixed reference speed applied uniformly across all Teams (used in DH).

Smart Detection Time Gate: Requirement that the Team issue a Target Fire Alert (TFA) by **T0 + 10:00**; failure results in MD.

SMI (Suppression Mission Initiation): First system event indicating suppression intent toward the Target Fire following a correct Target Fire Alert.

Solution: This refers to a team's specific system (including the operator interface, all sensors, software and mechanical parts) that will be used in the competition.

SPOT_ENG (Spot Fire Engagement): Optional event indicating the system autonomously assessed and planned suppression methodologies appropriate to the target spot fire(s).

System Technical Verification (STV): The process by which Qualified Teams demonstrate they are prepared to proceed to Extreme Conditions Testing. This submission will consist of written and filmed components which the Judging Panel will review to verify each team's ability to participate in testing.

T0 (Ignition Timestamp): The ignition timestamp used as the reference time for time gates and scoring windows (e.g., T0 + 10:00).

Target Fire Alert (TFA): A time-stamped alert issued by the Team indicating detection of the Target Fire, including required fields such as timestamp, sensor type, location of detection system(s), localization estimate with confidence, fire classification, unique alert ID, and asset/system.

T_FSS (First Significant Suppression Timestamp): Timestamp of First Significant Suppression satisfying MSET, verified by XPRIZE.

Team Definitions

- **Interested Team**: A team or individual that is interested in participating in the Competition and has created a profile in the XPRIZE POP system.

- **Registration in Progress**: A team that has completed registration but has not yet paid the fee and signed the Competitor Agreement.
- **Registered Team**: A team that has paid the required registration fee, signed the Competitor Agreement, and is eligible to submit a Qualifying Submission for the Judging Panel's review.
- **Qualified Team**: A team that has been selected by the Judging Panel from the pool of Registered Teams based on the strength of their Qualifying Submission.
- **Semifinalist Team**: A team that has successfully completed the necessary technical submission and is approved by the Judging Panel to advance in the Competition.
- **Finalist Team**: A team that has successfully completed Semifinals Testing and is approved by the Judging Panel to attend Finals Testing.

Telemetry Streams (Continuous): Continuous, time-synchronized telemetry for each aerial asset throughout finals testing (including GNSS position, altitude, heading, speed, etc.).

Time Limit: The maximum amount of time teams will be allowed to collect data during Semifinals and Finals Testing.

Time to retract / confirm false positive: Time (in seconds) from initial detection and classification to reclassification of decoy/false positive (used for decoy penalties, up to a maximum penalty as specified).

UA: Uncrewed Aircraft, AKA; Drone, UAV, UAS.

UAS: Uncrewed Aerial System, AKA; Drone, UAV, UA.

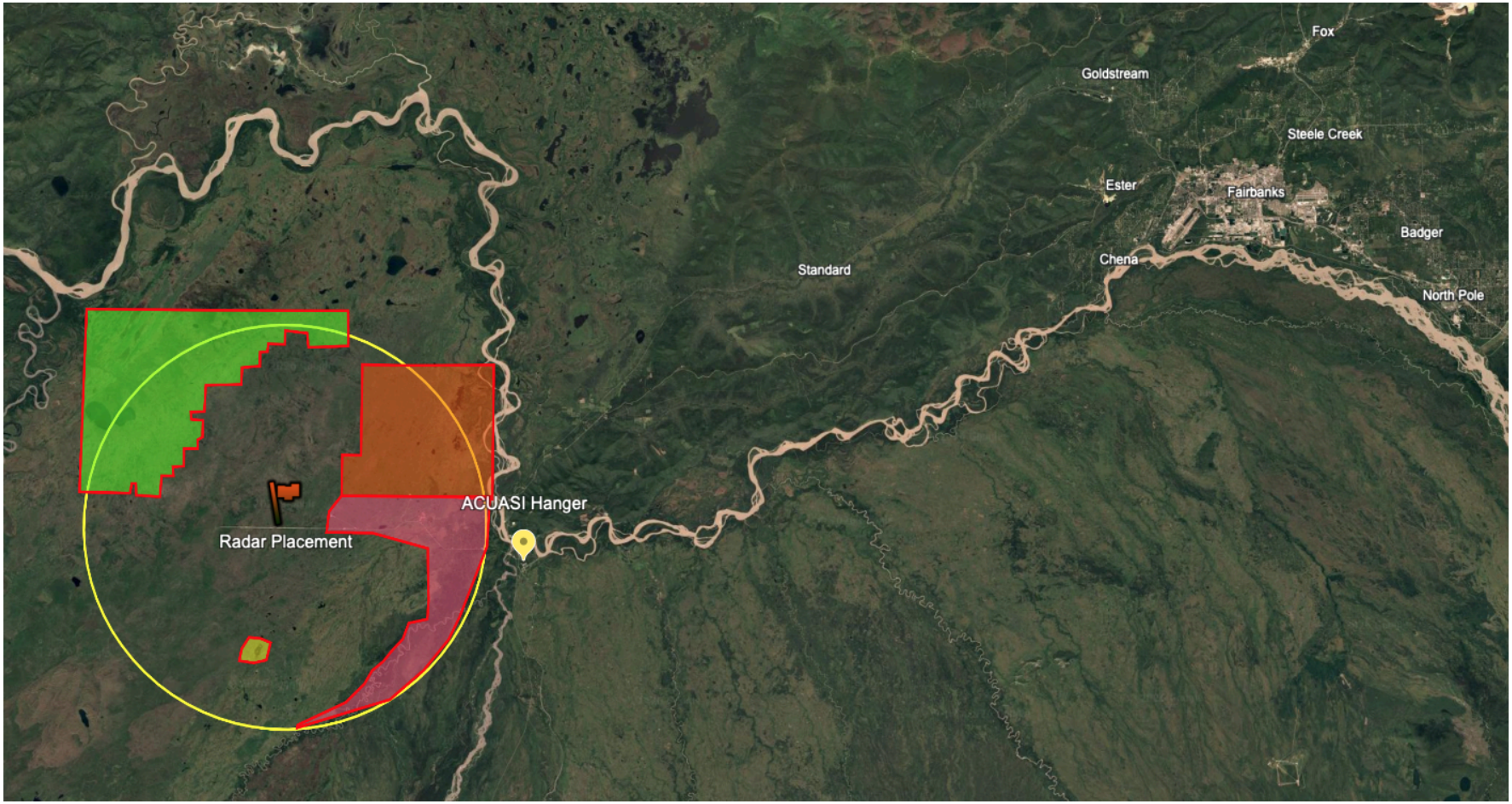
UAV: Uncrewed Aerial Vehicle, AKA; Drone, UAS, UA.

Unique alert ID: A unique identifier per Target Fire Alert update/instance, enabling auditability and correlation across detections and system actions.

Write-once logs: Logs that are non-editable after creation; no modification, deletion, or retroactive editing post-run.

Wildland-Urban Interface (WUI): The Wildland-Urban Interface (WUI) is where a community meets or mixes with the wildland; it is where the risk to life and assets is most heightened.

ANNEX A1 - COMPETITION AREA MAP IN GENERAL



Competition Area In General

ANNEX A2 - COMPETITION AREA MAP IN DETAIL

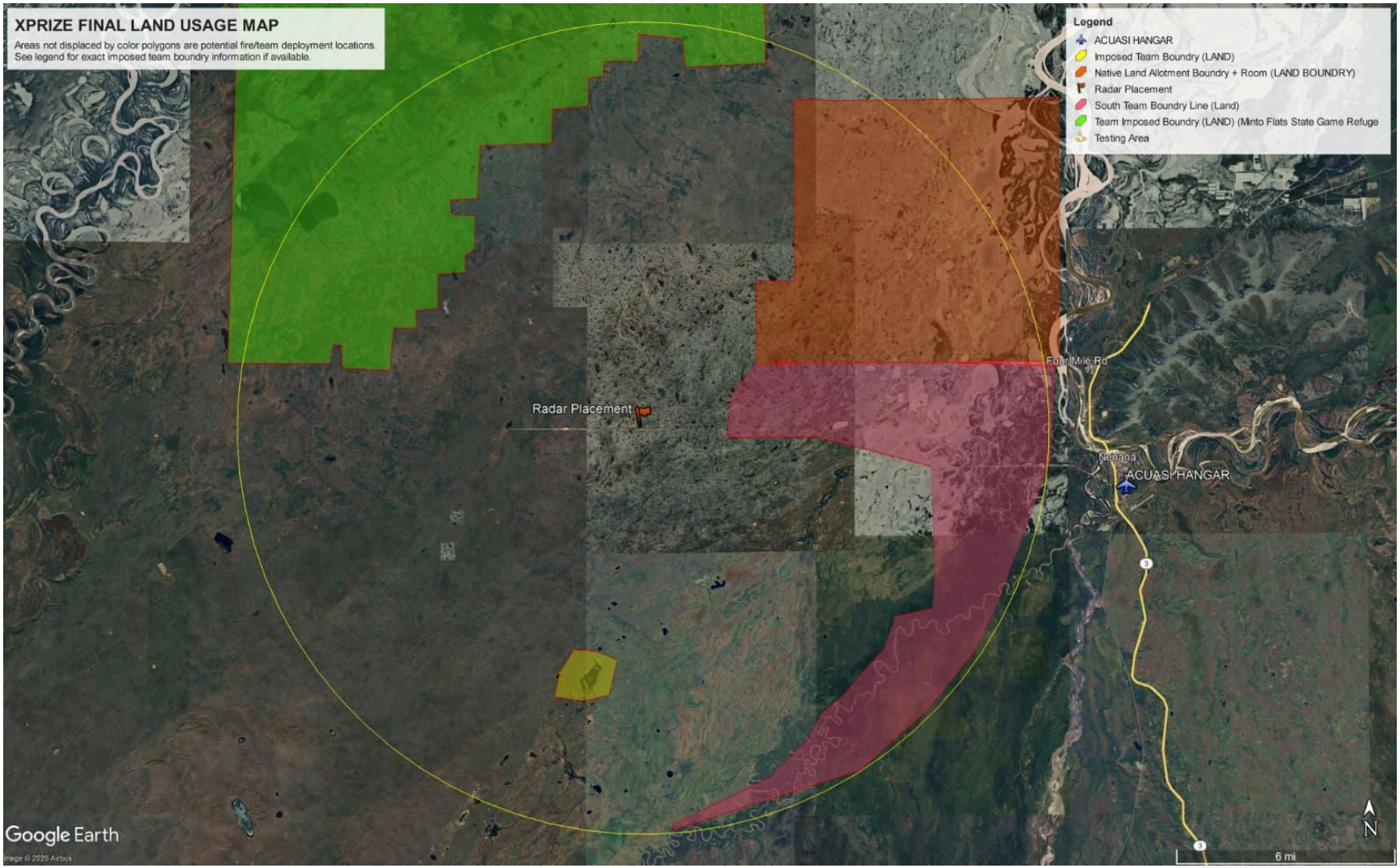


Figure 3: Competition Area in Detail
GIS/KML Link

ANNEX B - FIRE DESIGN

Fire Video (Not in real time) [Google Drive link]