Unmanned Air Vehicle (UAV) Systems

Scope
The Standard shall apply to the Oil Sands Region (including Oil Sands, In Situ, Fort Hills and Major Projects sites) for use of all Unmanned Air Vehicle (UAV) systems activities including business ventures, research, and surveillance, and under normal and abnormal business operating conditions.

Purpose
The purpose of this Standard is to support effective implementation and governance for use of all UAV systems within the Oil Sands Region. It also provides general guidance for operators of UAV systems.

Revision of this standard is expected following release of additional guidance documentation and regulations by Transport Canada (TC).

Target Audience
This Standard applies to all Oil Sands Region personnel.

As used in this document, the term personnel includes directors, officers, employees, contractors, consultants and vendors.

Conformance Expectations
The conformance expectations are as follows:

In addition to what is provided for in this Standard, personnel must comply with the requirements of their Special Flight Operator Certificate (SFOC) conditions as well as applicable laws and regulations relating to the matters covered by this Standard.

Where regulatory requirements for UAV systems differ from those outlined in this Standard, business areas shall develop procedures that comply with both requirements.
Roles and Responsibilities

The following individuals and groups have the following roles and responsibilities:

**Document Owner**
- Ensures this document is reviewed according to the required revision cycle.
- Ensures the document is updated to accommodate changes to Suncor, provincial, and federal regulation.
- Ensures the document is updated to mitigate risks found as the result of an incident.

**Document Approver**
- Ensures this standard is necessary and that it aligns with management and company direction.

**Management**
- Responsible for communicating and enforcing this standard within their areas.
- Responsible for reviewing the Operator’s SFOC, hazard assessment and flight plan(s) before operating the UAV system.

**UAV Owner/Operator**
- Assures all provisions of this standard are being met and takes action to support that effort.

**EH&S Advisor or Safety Advisor**
- Advises on anticipated hazards associated with operating a UAV system for aerial work.
- Assists in developing Safe Work Practices and Job Hazards Analysis (JHA) that will minimize potential hazards that are associated with operating a UAV system for aerial work.

**QA/Risk Management**
- Responsible for developing and implementing the UAV vendor approval process, and placing on an approved vendor list.
- Audits UAV system activities to ascertain the effectiveness of this Standard.

**SCM**
- Responsible for approving the UAV vendor based on the approved UAV vendor list.

**Permit Office**
- Verifies that the Operator’s SFOC, hazard assessment and flight plan are in place prior to operating the UAV system.

**Contractors / Employees**
- Abides by the requirements of this standard.

References

Most current versions of below will be used for reference:

- [Aeronautics Act (R.S., 1985, c. A-2)](#)
- [Canadian Aviation Regulations](#)
- [Transportation Canada Advisory Circular (AC 600-02; Z 5000-31)](#)
- [Transportation Canada: Knowledge Requirements for Pilots of UAVs](#)
- [Transportation Canada Staff Instruction (SI 623-001; Z 5000-32)](#)
Terms, Definitions and Acronyms

The following terms, definitions and acronyms are used in this standard:

Aerial Work
Aircraft operation in which an aircraft is used for specialized services such as construction, photography, surveying, observation, search and rescue, etc.

Fly-away
An interruption or loss of command to the control link where the pilot is unable to affect control of the aircraft and the aircraft is no longer following its pre-programmed procedures resulting in the UAV not operating in a predictable or planned manner.

Lost Link
The loss of command and control link contact with the UAV.

Operator
The person that has possession of the UAV system as owner, lessee or otherwise.

Payload
All elements of the aircraft that are not necessary for flights but are carried for the purpose of fulfilling specific objectives. This may include such subsystems as surveillance assets, communication relay equipment, sensors, and cargo.

Unmanned Air Vehicle (UAV)
A power-driven aircraft, other than a model aircraft, that is designed to fly without a human operator on-board.

Standard

1. Requirements to use UAVs on Sites

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<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>1.1</td>
<td>The operation of a UAV system within the Oil Sands Region may require:</td>
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<tr>
<td></td>
<td>• The Operator to apply for a Special Flight Operations Certificate (SFOC) as a Compliant Operator for the Operation of an UAV System through Transportation Canada (TC).</td>
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<tr>
<td></td>
<td>• Submittal of proof of a SFOC, hazard assessment and flight plan(s) to the Permit Office by the UAV operator prior to operation.</td>
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<td>• See Appendix 1 for more details.</td>
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2. Vendor Approved to Operate UAVs

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<tr>
<td>2.1</td>
<td>The operation of a UAV system will require approval of the UAV vendor as per the Suncor QA/Risk Management Business Unit audit process.</td>
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<tr>
<td>2.2</td>
<td>Accepted UAV system operation vendors will be placed on an approved vendor list.</td>
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3. UAV System/Payload – Portable Electronic Device (PED) Including Cameras

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<tr>
<th>Item</th>
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<tr>
<td>3.1</td>
<td>Portable Electronic Devices (PED) are items such as cellular phones, tablets, cameras, and hand-held Global Positioning System (GPS) / Global Navigation Satellite System (GNSS), which are not part of the UAV system inventory.</td>
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<tr>
<td>3.2</td>
<td>Use of a camera will require a camera permit.</td>
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4. Operation – Airspace and UAV Interaction

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<tr>
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<tbody>
<tr>
<td>4.1</td>
<td>It is the UAV Operator’s responsibility to ensure that UAVs avoid the pattern of traffic formed by manned aircraft operating at or in the vicinity of the Firebag Aerodrome and/or Canadian Natural Resources Limited (CNRL) Aerodrome.</td>
</tr>
<tr>
<td>4.2</td>
<td>It is the UAV Operator’s responsibility to manage communications in accordance with public airspace operators within the Regional Municipality of Wood Buffalo as per TC regulations.</td>
</tr>
<tr>
<td>4.3</td>
<td>It is the UAV Operator’s responsibility to ensure that operations are not affected by and do not interfere with plant operations, including but not limited to: flaring / stack conditions, and environmental airspace activities.</td>
</tr>
<tr>
<td>4.4</td>
<td>UAV Operators must coordinate emergency response requirements with the Firebag, Shell and/or CNRL Aerodrome mangers and/or authorities and identify any UAV unique requirements such as dangers posed by composite materials or ballistic parachutes.</td>
</tr>
</tbody>
</table>
| 4.5  | Before operation at Fort Hills, notification to the CNRL Aerodrome Manager and/or authority must occur at least 48 hours before use:  
  • Horizon Aerodrome Radio tower - (780) 828-2903 |
| 4.6  | Before operation at Firebag, notification to the Firebag Aerodrome Manager and/or authority must occur at least 48 hours before use:  
  • Firebag Aerodrome Communications tower – (780) 718-8009 |

5. Operation – Emergency Response

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| 5.1  | All Air Traffic Services (CNRL Aerodrome, Firebag Aerodrome and Shell Aerodrome) that are affected by a UAV fly-away and/or lost link must be contacted immediately and advised of the situation. The UAV operator shall contact the Edmonton Flight Centre:  
  • between 06:00 and 22:00 contact Edmonton Flight Centre Shift Manager at 1-877-342-2276  
  • between 22:01 and 05:59 and/or if contact with the Shift Manager is not established contact the Edmonton ITF at 1-888-358-7526 |
6. Operation – Night Operations

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<tr>
<th>Item</th>
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<tr>
<td>6.1</td>
<td>Night operations will not be permitted, unless approved by the area owner and the risk of night operations are mitigated.</td>
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<tr>
<td>6.2</td>
<td>Night time operations include any flights between 30 minutes prior to sunset and sunrise.</td>
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7. Operation – Control of a UAV from Moving Vehicles

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<tr>
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<tbody>
<tr>
<td>7.1</td>
<td>Operation of a UAV from moving vehicle is prohibited.</td>
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8. Operation – Manuals and Records

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<tbody>
<tr>
<td>8.1</td>
<td>Maintenance manuals, system flight manuals (for each type of UAV being operated), aircraft checklists, company operations manual, safety manual, and/or standard operating procedures, must be made readily available to the Suncor personnel requesting the records.</td>
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9. Operation – Incident Reporting

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<tr>
<td>9.1</td>
<td>The UAV operator shall report all incidents to the Suncor construction and/or operations personnel for whom the work is being performed (Management, EH&amp;S, Aviation and Permit Office) as soon as possible. Operation of the UAV following the incident shall stop until such time as the TC regional office and/or Suncor personnel approves further operation.</td>
</tr>
<tr>
<td>9.2</td>
<td>Communication of the specified incident (outlined in the operator’s SFOC) to the TC Inspector will be conducted by the respective Suncor personnel (EH&amp;S and/or Aviation).</td>
</tr>
<tr>
<td>9.3</td>
<td>Once the Suncor personnel and/or TC Inspector are made aware that an operator has experienced an incident, the Suncor personnel and Inspector may advise the operator to stop operations until the cause of the incident has been identified and measures have been taken to ensure the causal factors do not reoccur.</td>
</tr>
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</table>

End of Standard
Appendix 1 – Unmanned Air Vehicle (UAV) System Transport Canada Guidelines

Start

I use my aircraft for work or research (anything beyond the fun of flying)

Yes

It weighs more than 25 kg

No

It weighs less than 2 kg

Yes

I have read and can meet the exemption conditions for UAVs less than 2 kg

No

You don’t need permission but you must meet the exemption conditions

Yes

You don’t need permission but you do have to fly safely

You must apply for a Special Flight Operations Certificate

I have read and can meet the exemption conditions for UAVs from 2 kg up to and including 25 kg

No

You don’t need permissions, but you must meet the exemption conditions

AND notify TC with:
1. Contact Information
2. UAV model
3. Description of operation
4. Geographical boundaries of operation

Notify Transport Canada

WARNING - Uncontrolled when printed. The current revision of this document is available in LiveLink.

Approved By: Steve Stewart, General Manager, EH&S, MP/SCM/FL; Jim Chuey, General Manager, EH&S, Upstream
The following individuals have approved and signed this document.

UserName: Steve Stewart (sstewart)
Title: GM EH&S MP & Functions
Date: Wednesday, 26 October 2016, 07:08 AM   Mountain Time
Meaning: Approver 1 Signed
================================================

UserName: Jim Chuey (jchuey)
Title: GM EH&S Upstream
Date: Wednesday, 26 October 2016, 08:52 AM   Mountain Time
Meaning: Approver 2 Signed
=================================================================