**** Standard ProcedureRevision 0 (New Document)

For Portable Station Site Determination SP -006

December 15, 2016

**Fort Air Partnership’s (FAP’s) Standard Process for selecting locations for the Portable air quality monitoring station**

**Overview**

Fort Air Partnership employs a *Portable Air Monitoring Station* for use throughout the airshed.

The portable station is similar in construction and layout to other FAP continuous air monitoring stations but the intention is that it is moved regularly as the need and issues arise. The portable requires connection to land power with a greater capacity than a conventional 15amp 110v household circuit necessitating arrangements for power availability previous to moving to a site. Analyzers are normally removed prior to a relocation and once on-site require warm-up and re calibration.

**Usage Guidelines**

The portable is equipped with the parameters required to calculate the Air Quality Health Index (AQHI) including NO/NOx/NO2, O3, PM2.5 SO2 and H2S. along with meteorological parameters including wind speed, wind direction, ambient temperature and relative humidity. NMHC, THC, CH4 Ethylene, NH3 and other analyzers or intermittent samplers may also be on board as the need dictates.

The portable can be used to:

* Address technical issues identified by the Technical Working Group (TWG).
* Monitor at locations in the Airshed that currently do not have monitoring (data gaps) or where little or no monitoring has ever been done.
* Monitor where the passive monitoring network has indicated there may be an air quality issue or a need for more comprehensive data.
* Identify transboundary air quality both entering and leaving the FAP airshed. This may involve deploying the portable in a community outside of the FAP airshed if it is expected that sources from within FAP boundaries may be causing or contributing to air quality issues in that area.
* Address requests from a government agency or industry members in response to a serious incident within or outside of FAP boundaries. If it is assumed that the duration of the incident or the after effects from it will be prolonged enough to accommodate the time to move the station the request will be considered.
* Address issues suggested by the general public, or groups, agencies or organizations not directly part of FAP

What the Portable is station is not:

It is worth noting the portable station is not intended to provide immediate response to issues or respond to quickly changing situations like emergencies. At least 3 days is required to shut down at a current site, move the station and set up and recalibrate the instruments. That is assuming its power connection requirements are readily met.

The Portable will be placed in a single location for a minimum period of 6 months initially. This timing will be reviewed once a track record for deployment and use of the portable has been established.

**Data Collection**

Collection of data from this site must follow monitoring and calibration requirements set out in the Air Monitoring Directive (AMD).

Reporting of data from this site must follow reporting requirements set out in the AMD and be subject to posting on the Alberta Government data warehouse.

Air Quality data collected by the Portable station will need to be evaluated / assessed in a timely fashion for relocation decision-making purposes.

**Scheduling**

Scheduling must be somewhat flexible to allow the portable station to remain at a site longer than originally planned should there be a need for more data to further evaluate or assess the issue or effects of any follow-up actions taken.

**Location Intake**

Candidate locations/issues will be gathered through various inputs including the TWG and the Public.

Any requests for use of the portable must be in writing to FAP. The content of the request must address the following;

* Identify concern or problem in which monitoring is requested,
* Identify how long the problem has been occurring,
* What you would like to accomplish with air monitoring,
* How you think FAP can help?
* Are you aware of any previous air monitoring in this area or for this concern, and
* Has the appropriate regulatory organization been notified of the problem? Provide the date and contact information*.*

The subcommittee of the TWG will convene annually to select the two locations for the next 12 months of monitoring, with ranked alternative locations should the initial selected locations not be available (i.e. if no suitable “on the ground” location to place the station can be found) or the previously identified issue and/or the urgency to respond to the issue have diminished sufficiently to no longer warrant monitoring by the time the portable is available to go there. The committee may meet more frequently should the need arise.

The subcommittee will consider the various candidate locations according to a scoring matrix that takes into account the original recommendations from the 2012 FAP Network Assessment, FAP’s monitoring objectives and the current FAP Monitoring Plan criteria for use of the Portable.

#### The scoring mechanism is a key tool to be used in the site selection, but will not be the sole means of ranking possible sites. Since not all factors supporting the selection of a site can be empirically recorded, the process should allow for other factors, some of which are not so easily measured or may not even be included in the Scoring Matrix at the time it is used The subcommittee and TWG may reprioritize the site selection, however there must be documented reasoning for the reprioritization.

**Site Selection Approval Process**

The sites recommended by the subcommittee will be presented to the TWG at a regular meeting. The TWG approves the site selection (normally once per year). Once the TWG approves the site selection, the FAP Board of Directors will be informed of the TWG’s decisions on siting, made as per this process.

The subcommittee will propose a ranked order of locations to the TWG who will make the final decision on sites. Recommendations to the TWG may include that additional monitoring capabilities be added to the Portable to fully address the air quality issue at a given site. Once the TWG selects the site or issue to be addressed, work will begin to identify suitable “on the ground” locations if not already determined.

Although the sites selection process directs FAP to an issue or area to monitor, ground -truthing must be completed to select an appropriate site that has readily accessible power, good access, free of other potential ambient sources and meets the AMD siting criteria as specified in the AMD and have appropriate site documentation prepared prior to the end of sampling at the site.

Once identified, the selected locations and monitoring schedule must be included in the subsequent Monitoring Plan updates submitted to Alberta Environment and Parks as required by the AMD.

**Decision Criteria**

A decision matrix (below) will rank each candidate location using a score of 0-4 for its applicability of each of the following criteria. The scores for criteria 1, 2 & 3 will be valued at 1/3 the value of those for criteria 4, 5 & 6.

* + - 1. **Address data gaps - spatial**   
         Add monitoring to parts of the airshed underserved by continuous air monitoring. Data generated from a Portable monitoring station could improve spatial characterization, characterize emissions/transport, and provide suitable input for air quality models. Additionally, they may help characterize sources and locations using triangulation.
      2. **Address Data gaps - temporal**  
         A continuation of monitoring at a previous location.
      3. **Transboundary**  
         Characterize air mass concentrations coming into the airshed by setting up a site upwind of most major emissions sources located inside of the FAP boundaries.
      4. **Population exposure**  
         Enable the characterization of air quality where people live by placing the portable in various communities.
      5. **Respond to issues identified by the general public, or groups or agencies or organizations not directly part of FAP**

Enable FAP to respond to issues or concerns identified by public or groups who are not direct FAP members throughout the airshed (could include sites outside of FAP boundary as noted on page 1).

* + - 1. **Response to Issues identified by FAP**  
         Enable FAP to respond to issues or concerns brought up throughout the airshed. (could include sites outside of FAP boundary as noted on page 1).

**Public Engagement**

The public has an on-going opportunity to bring to FAP’s attention air quality issues through a variety of means.  For the purposes of providing input into future portable station siting, FAP will engage in a formal process of gathering public input. A public engagement process has been developed alongside of this document and will be used in combination with the overall selection process. The focus will be identifying potential air quality issues – from the perspective of residents - in populated areas within the airshed that do not have a continuous air monitoring station.  The methods used will be:

* On line survey that can be accessed via FAP’s website and e-bulletin, and LITH social media.
* Town halls in or near communities that do not have a continuous air monitoring station.
* Opportunity for written input from community organizations such as Agricultural Societies and municipalities.

Locations of the town halls are to be determined but will likely take place in the northern and eastern parts of the airshed where continuous air monitoring does not occur. The engagement process will begin when resources become available, likely in 2017.

Issues may also be identified by the public and brought to FAPs attention through informal methods.

**Scoring Guide**

* Use the following as a guideline when scoring:
  + Score on a scale from 0-4.
  + No half points.
  + One aggregate score will be calculated for each candidate site.
* The quality of previous data, if any, must be considered:
  + How recent is the data?
  + Were the correct/same parameters measured?
  + Proximity to other continuous sites?
* Passives data is not considered in the scoring of data gaps.

To determine the appropriate score, not all bullets under a score for a given criterion may apply, or be known. Use any or all the bullets that apply to determine a score. Where stations may serve multiple purposes, place the appropriate score in each criteria. Non-applicable rows merit a score of 0.

NOTE: The scores for each of the Spatial Data Gap, Temporal Data Gap and Transboundary criteria will be multiplied by 1/3 prior to inclusion in the final total. Population Exposure, Public and FAP identified issues will be applied at full weight.

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| --- | --- | --- | --- | --- | --- |
| **Score**  **Criteria** | **0** | **1** | **2** | **3** | **4** |
| Spatial data Gap | Data exists from that location | Data exists from a location <5km away | Data exists from location nearby:  5 to 10 km away | Data exists from location nearby: 10 to 20km | No continuous data exists from a nearby location |
| Temporal data gap | Recent data exists  < 1yrs ago | Recent data exists  < 3yrs ago | Data exists but is dated 3-5 yrs. ago | Data exists but is dated >5 yrs. ago | No continuous data exists at location |
| Transboundary\* | * Not near a FAP boundary ~25km * Significant local sources present * Site not representative of incoming air mass | Not representative of a boundary, i.e. localized sources will likely confound the data | * Within 20 km of a FAP boundary * Limited local sources, low impact or moderate frequency expected | * Within 10 km of a FAP boundary * Very representative of a boundary air mass * Possibility of occasional impact from local sources | * Within 5 km of a FAP boundary * No significant local sources |
| Population exposure | No one lives within 0.5 km of proposed monitoring site or identified source | One or 2 families live within 0.5 km of proposed monitoring site or identified source | 2 to 10 families live within 0.5 km of proposed monitoring site or identified source | 10-40 families line within 0.5 km of proposed monitoring site or identified source | >50 families live within 0.5 km of proposed monitoring site or identified source |
| Respond to issues identified by “public” (not a member of FAP) | * No issue identified * Capability to address the issues identified cannot be addressed with current capability/analyzer complement or realistically added. * No action can be taken regardless of monitoring findings (i.e. FAP has no influence on decision makers) | * Other parameters needed to address issue can be added with significant cost to FAP or funding is unlikely from other sources for additional parameters | * Identified by some residents (i.e. one family) * Relatively new Issue with minimal impact, has only recently appeared on FAP radar * Other parameters needed to address issue can be added with some cost to FAP * Some consequences to not addressing it * If source is identified, some likely hood action will be taken | * Issue identified by group of residents or several complaints to AEP, local councils * Other parameters needed to address issue can be added with likely or promised funding from other sources | * Issue identified by an NGO, CAP, or government body * Has been ongoing for some time, FAP has previously not been able to address it or it has escalated recently * Potentially serious, concerning/damaging * Damaging to public perception if not addressed * Issue can be directly addressed once monitoring data is available |
| Response to Issues identified by FAP | * No issue identified * Capability to address the issues identified cannot be addressed with current capability/analyzer complement or realistically added. * No action can be taken regardless of monitoring findings (i.e. FAP has no influence on decision makers) | * FAP is pre-emptive and thinks this may become an issue * Other parameters needed to address issue can be added with significant cost to FAP or funding is unlikely from other sources for additional parameters | * Relatively new Issue with minimal impact, has only recently appeared on FAP radar * Other parameters needed to address issue can be added with some cost to FAP * Some consequences to not addressing it * If source is identified, likely hood action will be taken | * Other parameters needed to address issue can be added with likely or promised funding from other sources | * Has been ongoing for some time, FAP has previously not been able to address it or it has escalated recently * Potentially serious, concerning/damaging * Damaging to public perception if not addressed * Issue can be directly addressed once monitoring data is available |

\*FAP is approx. 56km x 85km

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