Carson, Katie

From: Taylor, Sheree L.
Sent: October 16, 2012 4:24 PM
To: Carson, Katie
Subject: FW: Transport Canada directed the creation of the big toxic mess of PFCs/PFOS/PFOA at the Hamilton International Airport
Attachments: Paterson_E.pdf

From: Joe Minor
Sent: October 16, 2012 4:18 PM
To: clerk@hamilton.ca
Subject: Transport Canada directed the creation of the big toxic mess of PFCs/PFOS/PFOA at the Hamilton International Airport

-------- Original Message --------
Subject: Transport Canada directed the creation of the big toxic mess of PFCs/PFOS/PFOA a the Hamilton International Airport
Date: Tue, 16 Oct 2012 16:10:12 -0400
From: Joe Minor
To: clerk@hamilton.ca, Joe Minor

To: the Mayor and All Members of City Council c/o the Clerk

Please include this communication in the official (publicly posted) proceedings of Council.

The big toxic mess of PFCs/PFOS/PFOA at the Hamilton International Airport happened as a direct result of policies promulgated by Transport Canada in 1981.

For details, please see the attachments of this and the following eMAILs ("Annex 3" of the Transport Canada's response to federal petition #332 from the office of the Auditor General).

I apologize for taking up your time with all of this detail. None of this would be necessary if 1) the public was being adequately informed of the risks of PFCs, and 2) the big toxic mess was being cleaned up. Since neither of these is occurring, all I can do is try to figure out why the governmental response has been, and continues to be, so awful. Until the public is properly informed and the mess is cleaned up, it is my intention to publicly detail all of the ways that the system both has failed and is continuing to fail.

I wish that there was a single error that caused this big toxic mess, so that we could fix it and this type of mess would not reoccur. Unfortunately, the mess seems to be caused by "distributed errors": a series of poor decisions scattered both over time and over multiple branches of government and multiple areas of the private sector.

The topic for today is the policy promulgated by Transport Canada that required airports to spray huge quantities of PFCs (including PFOS/PFOA) into the environment every year in order to keep their firefighters "qualified". Some of the details of the requirements are detailed

in the "Annex 3" attachments to these eMAILs.

Every two years, the giant multibillion dollar "Federal Contaminated Sites" bureaucracy/consultancy meets to discuss clean up policies. The full content of these meetings are effectively secret, in part because the running of these meetings has been "privatized". The private sector operator of the 2012 meeting decided that the cost of admission to the meeting was $1101.75 (and that the $1101.75 cost applied even to the people being polluted). This high cost is not a problem for the consultants, who simply include the fee in their expense accounts. Many federal bureaucrats also attend these meetings, and it is unclear whether taxpayers pay their fees, or if federal policymakers are allowed in for free. Even if one could spare $1101.75 (I can't), all forms of recording equipment are banned from the meetings, effectively keeping most of the contents of these meetings secret.

There are many problems with this "arrangement". One is that federal officials are being effectively lobbied by consultants (largely off the record) to set policies concerning things like "What levels of pollution are safe?" One reason this is problematic is that virtually all aspects of pollution clean up are being privatized, frequently to the same consultant. A single consultant (or consulting company) can be paid to not only decide what levels of pollution are "safe", but also to measure levels of pollution, decide what type of cleanup will be done, purchase, install, and operate the cleanup equipment, measure the levels of pollution post cleanup, and decide whether the overall work was adequate. The potential for conflict of interest is very high.

This hyper-privatization of virtually all aspects of pollution cleanup is highly advanced in British Columbia, where it actually has been given a name: "devolution". In B.C., private consultants (paid directly by the polluters) not only perform all of the above mentioned tasks, but have also have arranged that their work is not even reviewed by government – but rather is reviewed by a very small select group of the consultants themselves.

This devolution model (with its inherent shortcomings) is slowly permeating the "Federal Contaminated Sites" system. While one would hope that the federal government would provide independent oversight, the problem is that when is comes to "Federal Contaminated Sites" the federal government is in a clear conflict with respect to balancing cost (e.g., what level to clean up to) against public health (e.g., what level is safe). The devolving FCS system raises serious concerns about the balance that has been decided largely behind closed doors.

For example, please see the attached pdf file (Paterson_E). It is the powerpoint summary regarding the Williams Lake, B.C. PFC cleanup from the 2012 meeting. There are many problems with the 2006-2012 failed cleanup of PFCs at Williams Lake that will be the subject of future communications. (The quality of the public discourse of these future communications could be greatly improved if all of the data would be released to the public.) For now, please note that the summary does not mention the location of the pollution (even though this cleanup is many years old). This is standard practice for clean up consultants. Hiding the location means that people are being needlessly exposed to contaminants: both at and around the secret locations and at other locations that would be more rapidly discovered if the communications were more complete and public (e.g., Hamilton).

This presentation (by four people: two consultants, a Transport Canada official, and a Public Works and Government Services official) says:

"AFFF
• 1981 Transport Canada Guidelines:
– 680 L AFFF annually for 1st year firefighter
– 340 L AFFF annually for other firefighters
…
• PFC content in AFFF estimated to range
from 0.5 % (Hekster et al, Vecitis et al) to
16% (Paul et al)"

The presentation is referring to the 1981 policies promulgated by Transport Canada (see the "Annex 3" attachments). It is misleading to label these standards/policies as "guidelines": in reality the use of the PFCs was not optional. Unless every firefighter sprayed at least 340 L of the AFFF/PFC on the ground every year, the fire fighting

squad would not be certified, and the airport would loose its license.

The language in the Transport Canada promulgated policies is quite clear:

"Airport Emergency Services…AES training program shall be conducted"
"The program shall encompass … extinguishing agents. Quantities of fuel and extinguishants allocated annually are considered the minimum required to meet the standard and shall be used during the twelve-month period."
"A fully-charged and manned fire vehicle shall be in a stand-by position at all times while fuel is being dispensed or when foam is being scraped from the burning area."

In addition to the promulgated use of AFFF/PFCs, Transport Canada included schematics showing how the airplane "mock-up" is to be constructed. Please see Annex3Be.pdf, pages 44-46 of the manual. The fake airplane fuselage at the Hamilton International Airport (43.166880°, -79.939772°) that was the mandated target for the PFCs was constructed to conform to Transport Canada's instructions.

Considering that the big toxic mess of PFCs at the Hamilton International Airport was created by complying with Transport Canada's directives, it is irresponsible for the federal government to do so little to fix the mess that it directed to be created. Even worse was the federal government's immorality in secretly working on PFC cleanup in Williams Lake for years (2006-), all the while never bothering to pick up the phone and give Hamilton a head's up. As a result, people in Hamilton have been eating badly contaminated fish for years. The carp downstream from the airport are the most heavily PFOS contaminated carp in the world. Carp over 20 inches long average 1750 ng/g in their fillets (the part you eat). That's now: nobody knows how much higher the levels were back in 2006 when the federal government was conducting its secret PFC clean up research in Williams Lake.

It is time for the federal government to step up and begin to take responsibility for the mess that it created. This means both better communication about the risks (e.g., of eating PFOS contaminated fish), and also getting the cleanup moving.

Transport Canada | Transports Canada

Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

SLR

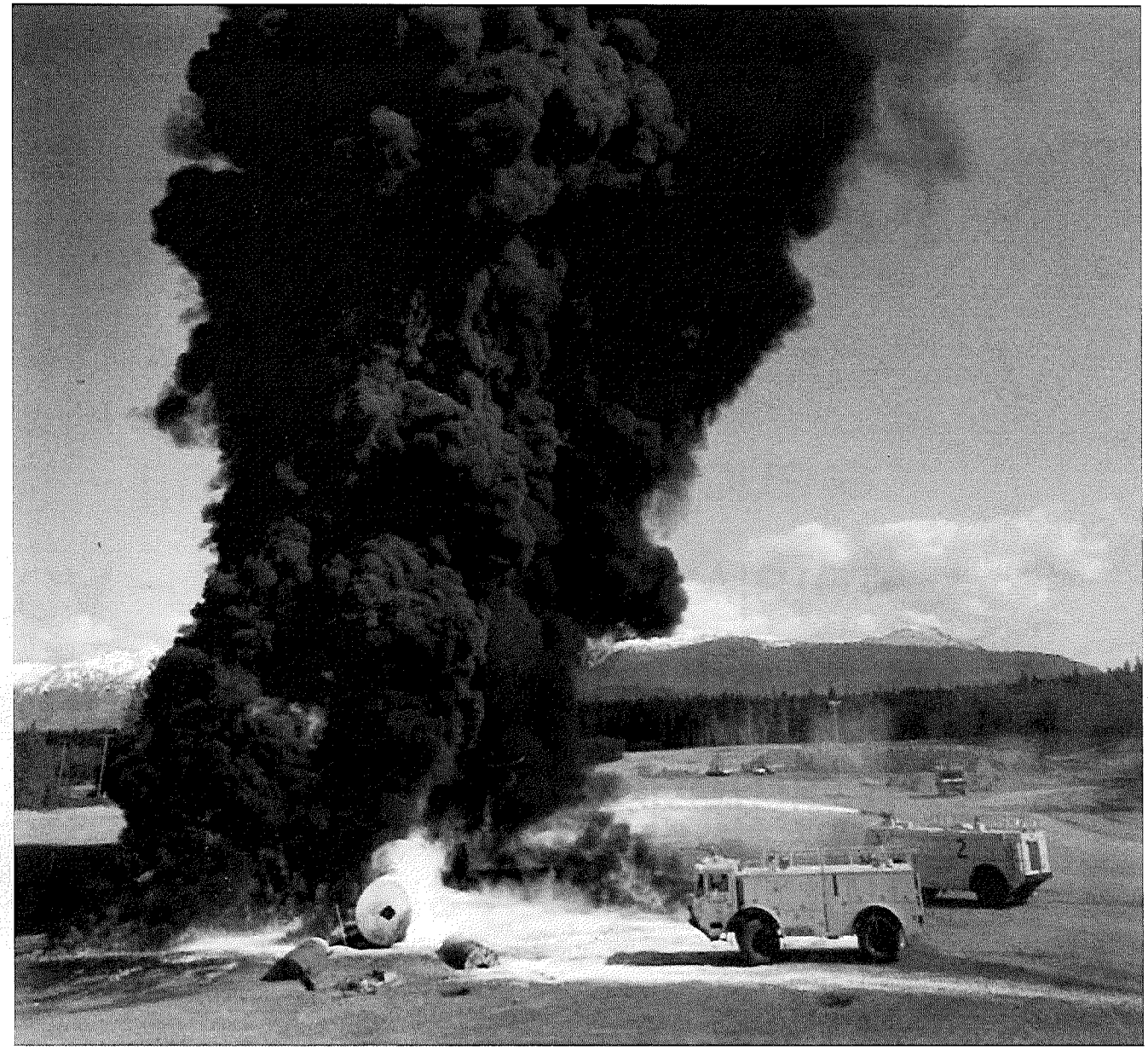
global environmental solutions

Evaluation of Groundwater Transport of Perfluorinated Chemicals at a Former Fire-Fighting Training Area

Lindsay Paterson – SLR Consulting (Canada) Ltd.
Ian Mitchell – SLR Consulting (Canada) Ltd.
Ian Chatwell – Transport Canada
Raman Birk - PWGSC

Overview

- Introduction to AFFF and PFCs
- Physical-Chemical Properties/Partitioning
- Groundwater Investigations
- Analytical Modeling



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Acronyms

- AFFF – aqueous film-forming foam
- PFC – perfluorinated chemical
- PFSA – perfluorosulfonate
- PFCA – perfluorocarboxylate
- FTS – fluorotelomer sulfonate

Acronyms (continued)

- PFOS – perfluorooctane sulfonate
- PFHxS – perfluorohexane sulfonate
- PFBS – perfluorobutane sulfonate
- PFNA – perfluorononanoate
- PFOA – perfluorooctanoate
- PFHpA – perfluoroheptanoate
- PFHxA – perfluorohexanoate
- PFPeA - perfluoropentanoate
- PFBA - perfluorobutanoate

AFFF

- 1981 Transport Canada Guidelines:
  - 680 L AFFF annually for 1st year firefighter
  - 340 L AFFF annually for other firefighters
- Current guidelines do not specify AFFF training quantities
- PFC content in AFFF estimated to range from 0.5 % (Hekster et al, Vecitis et al) to 16% (Paul et al)

Types of PFCs in AFFF

- Perfluorosulfonates (PFSAs): fully fluorinated carbon chains with sulfonate end group (e.g. PFOS)
- Perfluorocarboxylates (PFCAs): fully fluorinated carbon chains with carboxylate end group (e.g. PFOA)
- Fluorotelomer Sulfonates (FTS): fully fluorinated carbon chain connected to alkyl chain with sulfonate end group (e.g. 6:2 FTS)

Properties – PFSAs/PFCAs

- Generally in ionized form
- Solubility decreases and sorption increases with increasing chain length
- PFSAs more sorptive than PFCAs
- Non-volatile
- Can sorb to organic carbon, soil particles, iron oxides
- No evidence of biodegradation, photolysis

Groundwater Investigations

Groundwater Investigations

- Initial groundwater testing: 2006
- Groundwater delineation: 2008-2011
- Groundwater modeling: 2008-2011

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Groundwater Targets

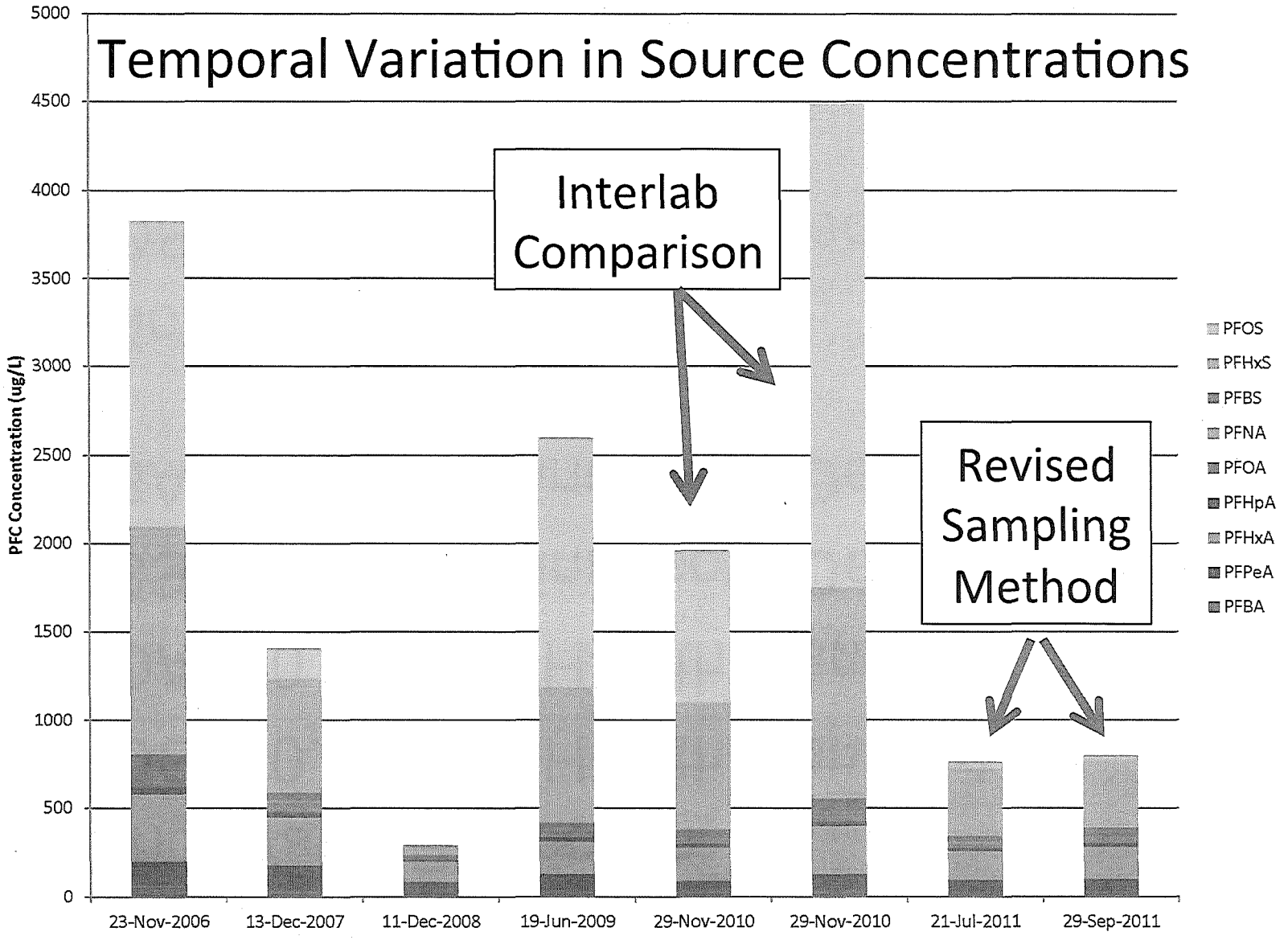
Drinking Water Protection

- PFOS – 0.3 ug/L (Health Canada)
- PFOA – 0.7 ug/L (Health Canada)
- PFBS – 7 ug/L (Minnesota Dept. of Health)
- PFBA – 7 ug/L (Minnesota Dept. of Health)

Aquatic Life Protection

- PFOS – 50 ug/L (SLR derived value based on direct exposure)

Temporal Variation in Source Concentrations



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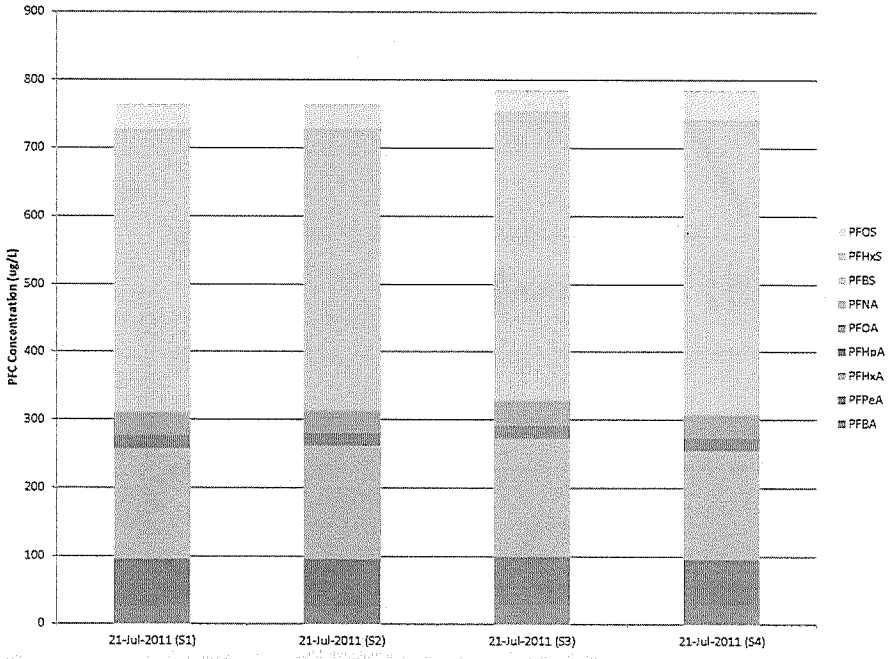
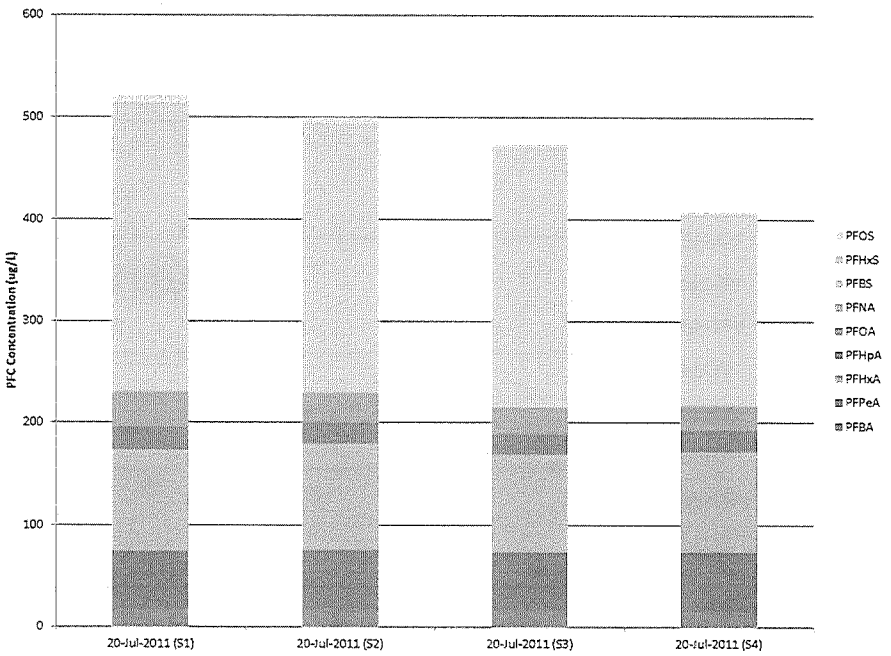
Bailer Sampling Study





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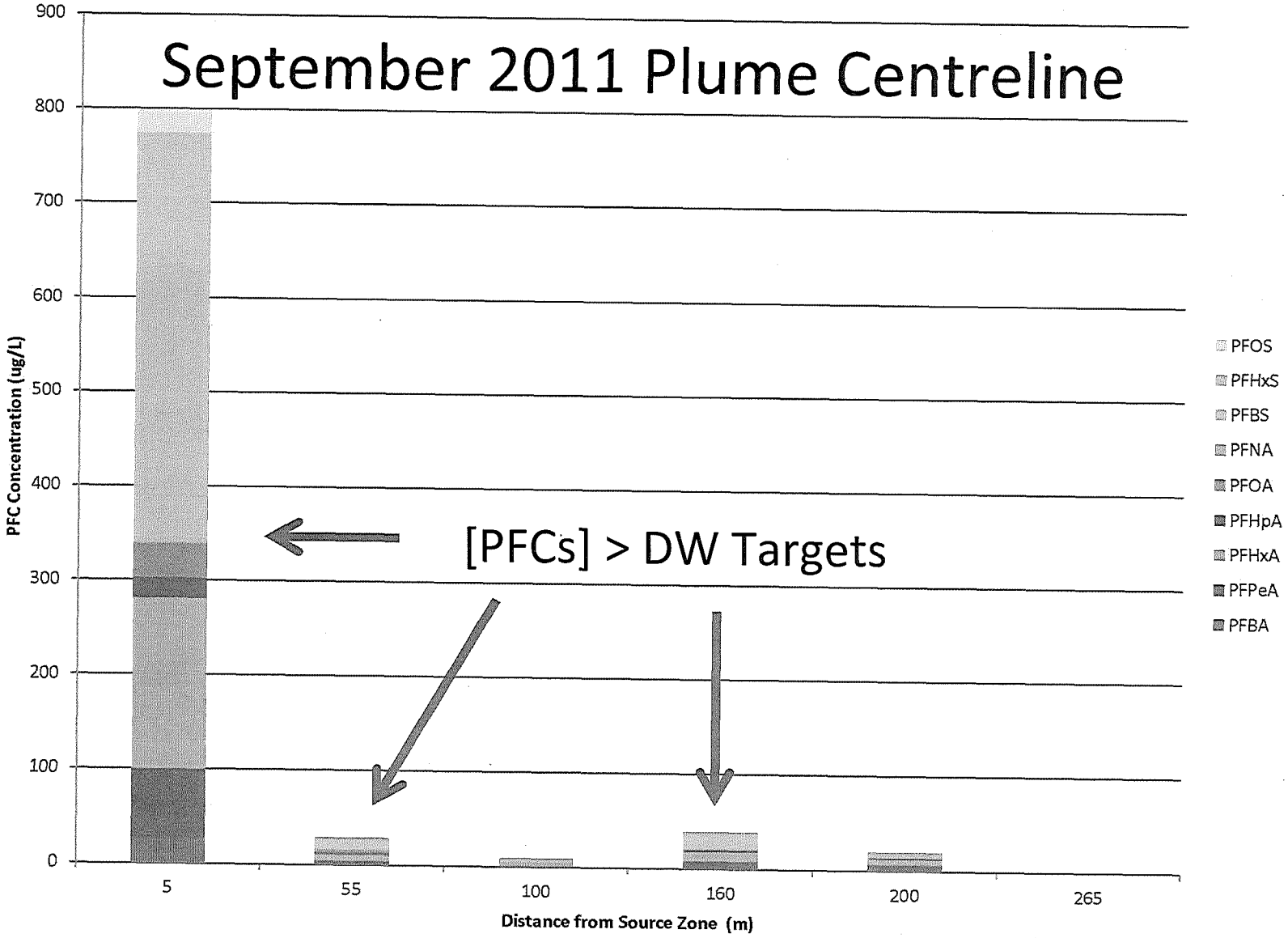

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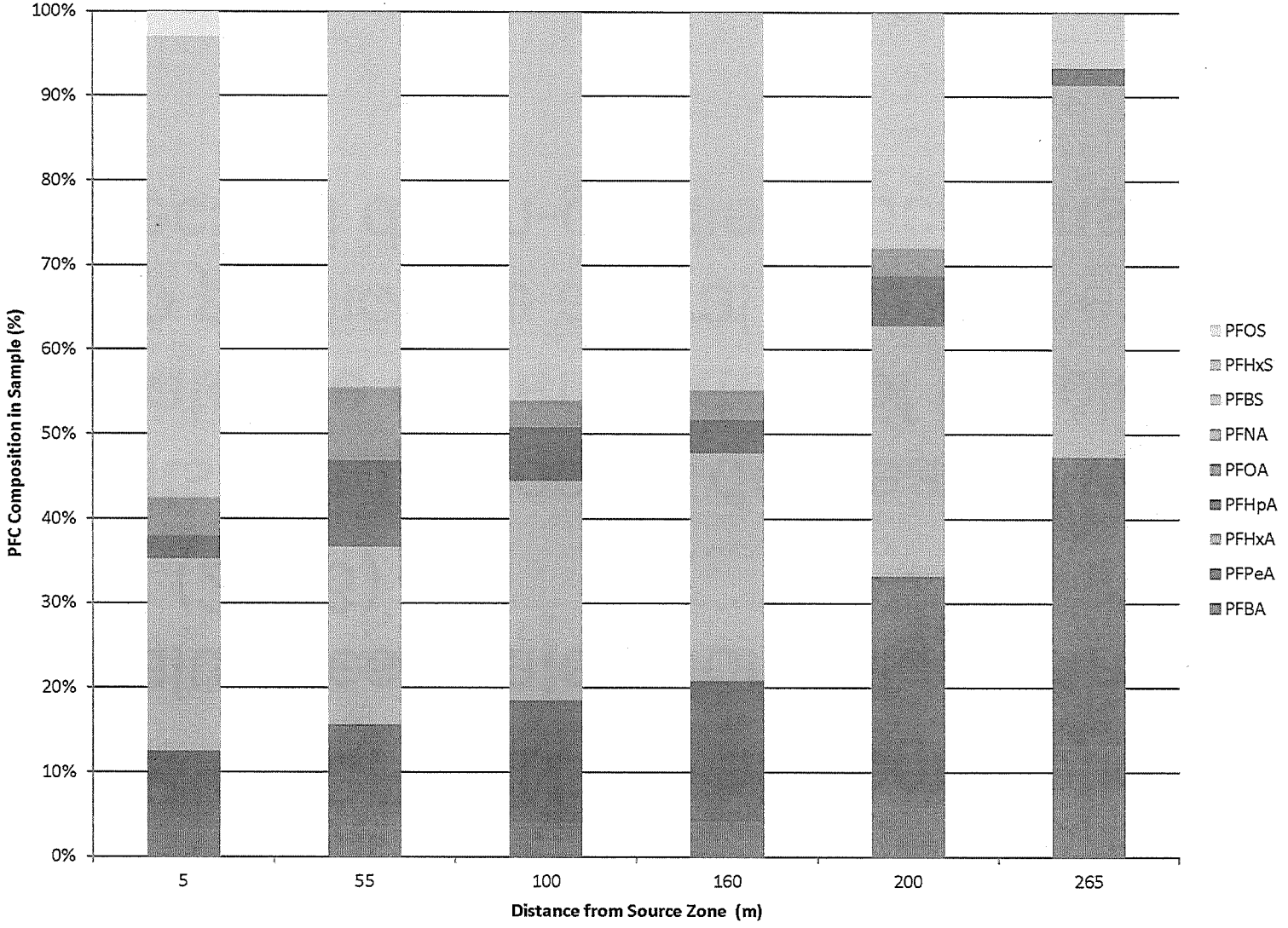
September 2011 Plume Centreline



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PFC Groundwater Modeling

- EPA BIOSCREEN (no biodegradation)
- K_{oc} values estimated from Higgins and Luthy (2006)
- Results used to locate delineation wells, to estimate the current extent of the plumes and to predict the arrival date of the plume at specified down-gradient locations

Conclusions

- Near source PFHxS and PFOS groundwater data collected prior to 2011 may not be reliable due to stratification effects
- Bailer sampling provides consistent results throughout the water column
- PFCAs are more mobile than PFSAs and should be considered in hydrogeological evaluations
- PFC plumes will be more extensive than other contaminant plumes associated with fire training areas (i.e. hydrocarbons) and will likely be the risk-management driver at the site

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- Raman Birk: Raman.Birk@pwgsc-tpsgc.gc.ca

ANNEX 3
AIRPORT EMERGENCY SERVICES FIREFIGHTER TRAINING POLICY AND AIRCRAFT EMERGENCY AND FIRE TRAINING MANUAL PART II

TP 3193

AIRPORT EMERGENCY SERVICES FIREFIGHTER TRAINING

AK-12-06-002

SERVICES D'URGENCE AÉROPORTUAIRES FORMATION DES POMPIERS

Airports and Construction Services Directorate
Airport Services and Security Branch
Airport Emergency Services Division

Direction générale des services des aéroports et de la construction
Direction des services et sûreté aéroportuaires
Division des services d'urgence aéroportuaires

OPR/BPR: DGK/DKS/KSET

NOVEMBER/NOVEMRRE 1981

Transport Canada / Transports Canada

Air / Air

Your file *Votre référence*

Our file *Notre référence*

Ottawa, Ontario
K1A 0N8
November 25 / 25 novembre 1981

A2204-1764

LETTER OF PROMULGATION

This document, AK-12-06-002, AIRPORT EMERGENCY SERVICES — FIREFIGHTER TRAINING, is published under the authority of the Director General, Airports and Construction Services Directorate.

It is part of the DGK Document Series and should be maintained as such.

This FINAL document supersedes all draft documents formerly issued and is effective upon receipt.

Implementation of the policy/Standards/guidelines contained in this document will not necessitate any increase in expenditure to CATA.

Any suggestions or proposed amendments to this document should be addressed to the Director, Airport Services and Security Branch.
Attention: KSET

LETTRE DE PROMULGATION

Ce document, AK-12-06-002, SERVICES D'URGENCE AÉROPORTUAIRES — FORMATION DES POMPIERS, est publié en vertu des pouvoirs conférés au Directeur général, Services des aéroports et de la construction.

Il fait partie de la Série de documents de la DGK et devra être maintenu comme tel.

Ce document FINAL annule tous les brouillons distribués antérieurement. Il entre en vigueur à sa reception.

La mise en oeuvre des politiques, normes ou lignes directrices énoncées dans ce document n'impliquera pas de dépenses supplémentaires de la part de l'ACTA.

Veuillez adresser vos Commentaires ou suggestions au Directeur, Direction des services et sûreté aéroportuaires.

À l'attention de: KSET

G.Y. Sebastyan

Director General
Airports and Construction Services

Directeur général
Services des aéroports et de la construction

FOREWORD

We are fortunate in Canada not to have aircraft accidents in numbers sufficient to keep our firefighters constantly active. Months or even years may pass before the knowledge and skills of our firefighters are challenged by an actual aircraft accident. Obviously, these workers maintain their high level of competence by some other means and that means, of course is training.

Just as athletes must stay in shape during the off season, so must firefighters between accidents and fires continue to hone their skills through a training program both challenging and demanding.

An aircraft accident, particularly one involving fire, must be confronted with high efficiency if the occupants are to survive. Firefighters must not only know what to do, but how to do it quickly and efficiently even under appalling conditions. Such a degree of proficiency can only be achieved by regular theoretical and practical training.

Training should be the second most important activity that firefighters participate in and should be exceeded in importance only by their activity in saving lives and property in an actual emergency.

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AK-12-06-002

AIRPORT EMERGENCY SERVICES

FIREFIGHTER TRAINING

1.00 OBJECTIVE

The objective of this policy is to provide highly trained AES personnel capable of carrying out fire prevention, control, and suppression. This is in support of the AES objective "to save lives and property in the event of an aircraft or airport accident/incident."

2.00 POLICY

An on-going AES training program shall he conducted at all airports staffed by Airport Emergency Services personnel. Airport Emergency Services personnel shall be defined as encompassing both Firefighters (FRs) and auxiliaries appointed from other occupational groups. The types and level of training conducted shall conform to the standards established by Transport Canada. Managers shall ensure that personnel appointed as auxiliaries are granted sufficient time for training during normal working hours to meet and maintain these standards.

2.01 Regional Training

The Regional Emergency Services staff shall conduct annual AES training courses. When course loading exceeds ten AES personnel, the course duration shall be ten working days. When course loading is ten or fewer AES personnel, course duration shall be five working days.

3.00 STANDARDS

3.01 General

The training program shall elevate AES personnel to and maintain them at a high level of knowledge and skills relevant to fire prevention, control, and suppression. The program shall encompass technological changes in aircraft, firefighting vehicles, and extinguishing agents. Quantities of fuel and extinguishants allocated annually are considered the minimum required to meet the standard and shall be used during the twelve-month period.

3.02 Airport Emergency Services Vehicles

AES personnel shall possess a comprehensive knowledge of and be highly skilled in the operation of all AES vehicles at their respective airports. On appointment to the AES or on acquisition of a new vehicle, personnel shall, through training and independent study, acquaint themselves with the operator's handbook accompanying the vehicle(s). The Fire Chief will ensure by written or oral examination that they possess essential knowledge of the vehicle(s).

The AES member will then commence a driver familiarization program and will continue driving under supervision until his/her driving ability is satisfactory on all ground surfaces to be encountered on his/her airport. The AES member shall then commence operations training. In the case of foam vehicles, the. operator shall use water only operations until he/she demonstrates competency. The final stages of training will involve tactical positioning, foam operations, and hot fire training.

3.03 Aircraft

AES personnel shall possess a comprehensive knowledge of all aircraft in continuing and regular use at their respective airports. This knowledge shall he acquired through training and independent study. The required knowledge will include configurations, construction, passenger capacity, fuel capacity, and location of exits. An associated requirement is a detailed knowledge of the hazards associated with aircraft, i.e., aviation fuels, jet engines, propellors, wheel fires, explosives, helicopter rotors, etc. The Fire Chief shall, through regular testing, ensure that each person is current and adequate in his/her knowledge. Firefighters shall have a detailed knowledge of the various types of aircraft incidents, their peculiarities, and generally accepted practices in approaching each. Based on the required knowledge of aircraft, airports, and accepted basic tactics, appropriate tactics shall be developed by the Fire Chief.

3.04 Airport

AES personnel shall possess a detailed knowledge of their airports and those areas immediately surrounding the airport. Map reading and radio procedures shall constitute a part of this training. AES personnel shall be aware of all natural and man-made hazards and obstacles in their area of operations. AES personnel shall acquire, through training and study, a knowledge of the most direct and secondary routes to all points within their area of operations. They must also know all predetermined stand-by positions. Further to this, AES personnel must be thoroughly familiar with

airport lighting and visual signalling (Light Gun). Regular drills shall be held to ensure that all personnel are knowledgeable and skilled. The Airport Manager and/or Tower Chief should be included in these drills.

3.05 Structural

AES personnel shall possess knowledge and skills in structural firefighting commensurate with their role and equipment at their respective airports. A good general knowledge of structural firefighting is essential at all airports. This knowledge will be acquired from training and independent study. Such training and study will include pump operations, hydraulics, hose and ladder drills, ventilation, knots and hitches, forcible entry, overhaul, and salvage and rescue operations. A good knowledge of detection and protection systems on their respective airports is also essential. Fire Chiefs shall determine that their personnel are current and adequate in their knowledge and skills by means of testing.

3.06 Training Aids and Materials

A training area, complete with mock-up, shall be established at each airport that has one or more emergency services vehicles. Training materials in quantities stated in the appropriate standards are considered the minimum required to meet the essential level of skills. other training aids, such as video-tape machines, projectors, simulators, etc., are to be provided as determined by Headquarters and Regional AES personnel.

3.07 Training Records

All training and qualifications received or acquired by AES personnel shall be recorded. Day-to-day, on-the-job training shall be recorded in the daily diary. All formal training received by AES personnel shall be recorded on the individual% personal file.

3.08 Training Reports

Semi-annual training reports from all airports having AES personnel shall be completed and forwarded in order to reach Regional headquarters no later than May 1 and November 1 and to reach Ottawa Headquarters complete with Regional comments no later than June 1 and December 1.

3.09 Hot Fire Training

Hot fire training shall be conducted as frequently as training material allocations will permit. Fires should be of such size as to make the exercise realistic and challenging.

3.10 Validation

Training shall be validated by Airport Managers, Fire Chiefs, Regional and Headquarters AES personnel. The Fire Chief, along with the Airport Manager and/or Tower Chief, shall hold unannounced drills at least quarterly. On airports having no classified Fire Chief, the Airport Manager shall hold such drills. Points to check on these drills will include: the route taken to the scene, the type of equipment responding, the time lapse from the sounding of the alarm until arrival at the scene, and the observance of all standard and accepted practices. A debriefing by responsible persons shall follow each drill. Such drills shall involve all areas of the airport.

The Regional Supervisor of Emergency Services or one of his officers shall conduct an AES evaluation at all Transport Canada or Transport Canada-subsidized airports in his Region at least annually or more frequently when required. The evaluation shall include drills, a review of the training program, and other aspects of the AES function. A debriefing will be conducted by the reviewing officer and will include the Airport Manager, Fire Chief, and other officials required by the Regional AES representative. A written report will be compiled by Regional staff, one copy of which will be forwarded to the appropriate airport and one copy placed on the Regional file. The Superintendent, Firefighter Training, shall conduct a Regional review during each 12-month period. In the course of the review, an airport evaluation shall take place and training records will be scrutinized. Discussions will be held with Regional AES staff related to the national training program. A written report will be compiled by the Superintendent, one copy of which will be sent to the Regional Supervisor of Emergency Services of the Region concerned.

Fire Chiefs shall conduct examinations semi-annually. Headquarters shall administer an examination simultaneously at all sites once annually.

3.11 Training Program

Fire Chiefs shall ensure that details of training programs (type of training, date, name of the instructor, etc.) are posted well in advance to allow adequate preparation by the instructor. The training program will be evaluated by the Regional and Headquarters AES staff.

3.12 Training

Training shall be scheduled for 2 hours per shift and practical sessions shall be conducted at the rate of one per month in which all crew members must participate.

TABLE 1

MINIMUM ANNUAL TRAINING MATERIALS ALLOTMENT

ON-SITE TRAINING

First-year firefighters or auxiliaries:

Fuel	9,000 L
Foam	900 L protein and/or 680 L AFFF
Dry chemical	Two recharges for the truck with the largest capacity on site.

Firefighters or auxiliaries with more than one year's experience:

Fuel	4,500 L
Foam	450 L protein and/or 340 L AFFF
Dry chemical	One recharge for the truck with the largest capacity on site.

REGIONALLY CONDUCTED TRAINING

Each firefighter or auxiliary undergoing regionally conducted training shall have training materials allocations as follows:

Fuel	13,620 L
Foam	1,362 L protein and/or 680 L AFFF
Dry chemical	Two recharges for the dry chemical vehicle being used in the training exercise.

Note: One-third of all site training shall be carried out under adverse weather conditions. This does not apply to regionally conducted training courses.

TP 2044

AIRCRAFT EMERGENCY AND FIRE TRAINING MANUAL — PART II

AK-12-06-003

MANUEL D'INSTRUCTION EN CAS D'INCENDIE OU D'URGENCE À BORD D'UN AVION PARTIE II

Airports and Construction Services Directorate
Airport Services and Security Branch
Airport Emergency Services Division

Direction générale des services des aéroports et de la construction
Direction des services et sûreté aéroportuaires
Division des services d'urgence aéroportuaires

OPR/BPR: DGK/DKS/KSE

APRIL /AVRIL 1981

Transport Canada / Transports Canada

Air / Air

Your file *Votre référence*

Our file *Notre référence*

A2262-64(KSET/A)

Ottawa, Ontario
K1A 0N8
April 21 / 21 avril 1981

LETTER OF PROMULGATION

This document, AK-12-06-003, AIRCRAFT EMERGENCY AND FIRE TRAINING MANUAL — PART II, is published under the authority of the Director General, Airports and Construction Services Directorate.

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Any suggestions or proposed amendments to this document should be addressed to the Director, Airport Services and Security Branch.
Attention: KSE

LETTRE DE PROMULGATION

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Veuillez adresser vos commentaires ou suggestions au Directeur, Direction des services et sûreté aéroportuaires.

À l'attention de: KSE

G.Y. Sebastyan

Director General
Airports and Construction Services

Directeur général
Services des aéroports et de la construction

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Figures **Page**

AK-12-06-003

AIRCRAFT EMERGENCY AND FIRE TRAINING MANUAL — PART II

1.00 GENERAL DIRECTIVES

1.01 Usage

This syllabus is to be used as a guide in the preparation of lesson plans and the selection of training aids.

1.02 Training Times

Theoretical training shall be conducted in periods of 60 minutes. Fifty minutes shall be instructional with a lo-minute relaxed period. All training shall be conducted during normal working hours.

1.03 Training Program

The time allotted each subject shall be considered as minimum and fire chiefs shall ensure that additional time is allotted to bring personnel to an acceptable level of knowledge and skills.

1.04 Topic Presentation

Topics shall be presented using the best method as it applies to a given topic. Because instructional techniques are an ever-changing art, it is impractical to suggest a fixed format for any particular topic. Fire officers must make every effort to keep current on instructional technique developments and ensure that this knowledge is passed on to all AES personnel.

1.05 Training Schedules

Fire chiefs shall ensure that their training schedules are drawn up in such a manner as to guarantee that all shifts train to the same level. Shift officers shall ensure that all of their personnel receive identical instructional subject matter. The foregoing will ensure complete fairness when personnel are evaluated by Headquarters and/or Regional Headquarters, in either theoretical or practical training.

1.06 Instructional Periods

Instructional periods shall be scheduled by fire officers in such a manner as to ensure continuity of subject matter. Every member should have equal opportunity to participate in the instructional aspect of the training program. The fire chief shall ensure that all instructional periods are presented to an acceptable lesson plan.

1.07 Theory Examinations

Written theory examinations will be conducted following the completion of each subject. Following the completion of all initial examinations, personnel will be required to write an examination every six months. The fire chief, with the assistance of his officers, shall prepare the examinations and the fire chief will administer all examinations. The type of examination will be in accordance with the best current method in use at the time of the examination. A mark of 60 per cent shall be the lowest acceptable standard. Every effort shall be made to ensure confidentiality of examination material among personnel.

1.08 Practical Assessments

A continuous assessment will be made of all firefighter personnel below the position of fire chief when participating in practical training. This assessment shall be conducted in accordance with current guidelines and the results reflected in the employee's annual performance evaluation.

1.09 Reference Material

Reference material for all lesson plans should be relevant and current. With ever-changing sources of reference, the acquisition of new equipment, and the introduction of new airplanes it is advisable to constantly update reference material. Fire chiefs shall ensure that all personnel use identical reference material. It is pointed out that reference material is to be used in the preparation of and not as a substitute for a lesson plan.

1.10 Practical Training

Practical training shall be an ongoing part of the overall program and fire chiefs shall ensure equal participation by all personnel. Training exercises shall be challenging and imaginative and shall be conducted under all weather conditions. A minimum of one-third of all practical training shall be conducted under adverse conditions, such as darkness, snow, rain, or winds, and shall be identified and recorded as such.

1.11 Limitation

The training syllabus contained in this manual must be viewed as representing minimum guidelines for initial AES training. On completion of training to this syllabus, an ongoing training program of a more comprehensive, intensive, and diversified nature shall follow. In the ongoing advanced training program, all official reference materials listed in this manual, as well as audio/visual presentations developed both within and outside the AES, shall be used.

1.12 Responsibility

The ultimate responsibility for training rests with the fire chief. He must ensure that proper training schedules are prepared and posted and further ensure that reference material and training are readily available at all times. The fire chief must also ensure that lesson plans are properly prepared and followed for all training presentations.

1.13 Official References

(a) Fire Prevention Instructions Manual;

(b) Aircraft Emergency and Fire Training manuals;

(c) International Fire Service Training Association manuals;

(d) Airport Emergency Services, policies, standards, and procedures documents;

(e) National Fire Protection Association Inspection Manual;

(f) National Fire Protection Association specialized publication "400" series;

(g) National Fire Protection Association Fireman Magazine;

(h) Fire Engineering Journal;

(i) The Concise Oxford Dictionary;

(j) all Dominion Fire Commission publications;

(k) fire equipment manufacturers' handbooks and manuals;

(l) aircraft manufacturers and user airline aircraft information manuals, charts, etc.

2.00 SYLLABUS OF TRAINING

2.01 Emergency Services Organization and Administration

SUBJECT	ITEM	HOURS	TOPIC
Headquarters AES	1		General organization and responsibilities. Fire Prevention Committee.
Regional AES	2		Organization and responsibilities. Regional Fire Protection Officer. Regional Fire Committee.
Airport AES	3		Airport AES organization and responsibilities. Fire Prevention Committee.
TOTAL		4	

Objectives: To familiarize firefighters with the organization and responsibilities of Transport Canada - Airport Emergency Services.

Training Aids: Chalkboard, organization charts.

2.02 AES Reports and Returns

SUBJECT	ITEM	HOURS	TOPIC
Fire Reports	1		Fire Inspection Report 25-0064. Fire Hazard Report 25-0100. D.F.C. 451, Initial Report 0014, D.F.C. 453
Aircraft Crash Reports	2		Initial Report 0014. Aircraft Crash Rescue Report 25-0012.
Fire Training and Response Report	3		Fire Training Report 25-0050. Emergency Services Response Report 25-01111 (25-0112)
TOTAL		6	

Objectives: To acquaint firefighters with various forms and reports used by Emergency Services.

References: AK-12-06 series, Aircraft Emergency and Fire Training Manual. Air Services Fire Prevention Instructions, Section 4.

Training Aids: Sample forms, chalkboard.

2.03 Practical Training Aids and Materials — Precautions

SUBJECT	ITEM	HOURS	TOPIC
Precautions — Practical Training	1		General precautions, personnel safety.
Training Aids and Materials	2		Training area, fuel system, training materials, aircraft mock-up.
TOTAL		4	

Objectives: To familiarize firefighters with the safety precautions that must be taken during training exercises and training materials requirements/entitlements for practical training.

References: AK-12-06 series, Aircraft Emergency and Fire Training Manual.
AK-70-11-900, Construction and Maintenance of Airport Fire Training Areas.

Training Aids: Chalkboard, training area maps and drawings.

2.04 Airport Emergency Procedures

SUBJECT	ITEM	HOURS	TOPIC
Airport Emergency Procedures	1	2	Airport emergency procedures.
	2	2	Pre-incident planning.
	3	1	Post-incident operations.
TOTAL		5	

Objectives: To acquaint firefighters with:

(a) airport emergency procedures,
(b) pre-incident planning,
(c) post-incident operations.

References: International Fire Service Training Association (IFSTA) 206:

Pre-incident planning,
Post-incident operations,
Guidelines and Recommended Practices.

Air Services, Objectives, Policies and Standards, Volume II, Part IX, A.O. 82.1.

Training Aids: Chalkboard, airport grid map, maps/drawings of adjacent areas.

2.05 Types of Aircraft Crashes

SUBJECT	ITEM	HOURS	TOPIC
Types of Aircraft Crashes	1	3	General, firefighting/prevention at an incident crash situation, helicopter crashes.

Objectives: To familiarize firefighters with the types of crash situations that may be encountered.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, photos, and files on actual crashes.

2.06 Aircraft Construction

SUBJECT	ITEM	HOURS	TOPIC
Aircraft Construction	1		Glossary of terms, aircraft components, colour coding of tubing.
	2		Aircraft systems, anti/de-icing, fuel system, engines, landing gear, electrical systems.
	3		Aircraft hazards, fire zones, jet engines, fuselage, propellor, turbo prop, jet aircraft, helicopters.
TOTAL		12	

Objectives: To familiarize firefighters with terms applied to aircraft, construction materials, various systems, and other necessary information to enable crash crews to be effective in the event of an incident.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, aircraft drawings, crash crew charts, tours of aircraft, lectures by airline engineering staff.

2.07 Aviation Fuels

SUBJECT	ITEM	HOURS	TOPIC
Aviation Fuels	1	4	General, gasoline flame spread and expansion rate, jet fuel and flame spread, extinguishing agents, oil.

Objectives: To familiarize firefighters with the hazardous properties of aviation fuels.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, films (if available).

2.08 Firefighting Information

SUBJECT	ITEM	HOURS	TOPIC
Foam Characteristics	1	2	Protein, fluoro-protein, aqueous film forming foam.
Firefighting Tactics	2	4	General procedures, crew action, first response trucks, foam trucks, multi-truck attack.
TOTAL		6	

Objectives: To familiarize firefighters with the prime responsibilities when combatting aircraft crash fires and with the basic principle of fire combat tactics.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, films (if available).

2.09 Aircraft Emergency Procedures

SUBJECT	ITEM	HOURS	TOPIC
Aircraft Emergency Procedure	1	4	General, response to alarms, rescue assistance.
	2	2	Techniques of entry through doors, plexiglass windows, safety glass, window bays or frames.
	3	1	Entering pressurized aircraft, fuselage wall entry, line of cut, forcible entry.
	4	1	Escape chutes, ropes, jacobs ladder, over wing exit.
	5	1	Movement of wreckage, crash crew conduct, jet engine fires, electrical hazard, landing gear difficulty.
TOTAL		9	

Objectives: To familiarize firefighters with the problems that may be encountered in an aircraft incident and to achieve a high degree of proficiency as a firefighter.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, actual aircraft, forcible entry tools, aircraft chart, schematics, drawings, and airline engineers/technical staff where available.

2.10 Brake and Wheel Fires

SUBJECT	ITEM	HOURS	TOPIC
Brake and Wheel Fires	1	3	Fire in brakes or hydraulic systems, causes of wheel failures, fusible plugs, braking problems, brake or wheel fires, types, use of dry chemical, water spray restricted use.
	2	1	Skydrol.
TOTAL		4	

Objectives: To familiarize firefighters with the causes of brake and wheel fires, proper approach, and correct extinguishing agent.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, available films, Volkswagen transmission, Magnesium, Met-l-x, and other hand extinguishers.

2.11 Military Aircraft and Nuclear Weapons

SUBJECT	ITEM	HOURS	TOPIC
Military Aircraft and Nuclear Weapons	1	4	All material as presented in chapter 7 (p. 3-10), Aircraft and Emergency Fire Training Manual.

Objectives: To familiarize firefighters with military aircraft, hazards of nuclear and conventional weapons, time factors, precautionary measures and Canadian Armed Forces radio communications procedures.

Reference: AK-12-06 series, Aircraft and Emergency Fire Training Manual.

Training Aids: Chalkboard, aircraft charts and drawings.

2.12 Air Traffic Control, Radio Procedures, and Grid Maps

SUBJECT	ITEM	HOURS	TOPIC
Air Traffic Control	1	2	General responsibilities, lighting system, methods of control, signal lights.
Radio Procedures	2	2	General procedures, phonetic alphabet, standard words and phrases, glossary of airport terms.
Grid Maps	3	2	Identification of locations, study of area, access to areas, runway numbering.
TOTAL		6	

Objectives: To familiarize firefighters with:

(a) some of the duties of the air traffic controller;
(b) uses and purposes of various coloured field lighting;
(c) various airport terms and phonetic alphabet;
(d) purpose and use of airport grid maps.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, simple grid maps, radio operator's handbook.

2.13 Airport Emergency Vehicles — General

SUBJECT	ITEM	HOURS	TOPIC
AES Vehicles — General	1	2	Dry chemical, foam vehicles, nurse vehicles, other vehicles.
On-site Vehicles	2	40	Detailed study and thorough knowledge of AES vehicles presently stationed on the student firefighter's airport.
TOTAL		42	

Objectives: To familiarize firefighters with the Airport Emergency Services vehicles stationed on their particular airport.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, drawings, photos, sketches, vehicle manuals (parts and operator's), actual vehicle parts, site mechanics.

2.14 Aircraft Schematics

SUBJECT	ITEM	HOURS	TOPIC
Aircraft Schematics	1	8	Civil, military (Canadian and U.S.) general.
	2	40	Detailed study and thorough knowledge of aircraft that use the student firefighters' airport.
TOTAL		48	

Objectives: To familiarize the firefighters with the aircraft that could and regularly do use their particular airport.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Aircraft schematics, aircraft company charts, airline maintenance personnel, actual aircraft.

2.15 Fundamentals of Science Applied to Firefighting

SUBJECT	ITEM	HOURS	TOPIC
Fundamentals of Science Applied to Firefighting	1	1	Theory of fire.
	2	2	Properties of flammable liquids, gases, and volatile solids.
	3	2	Extinguishing agents.
	4	2	Classification of fire and rating of portable fire extinguishers.
TOTAL		7	

Objectives: To familiarize firefighters with basic fundamentals of structural firefighting.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Fire Tetrahedron, chalkboard.

2.16 Fire Apparatus Practices

SUBJECT	ITEM	HOURS	TOPIC
Fire Apparatus Practices	1	2	Driving fire vehicles.
	2	6	Pumps for fire apparatus, pumping operations.
	3	2	Tachometers, gauges, auxiliary cooling systems.
TOTAL		10	

Objectives: To familiarize firefighters with the operations of fire vehicles, fire pumps, and associated equipment.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, pump diagrams/drawings.

2.17 Fire Hose and Stream Practices

SUBJECT	ITEM	HOURS	TOPIC
Fire Hose and Stream Practices	1	2	Types and sizes of fire hose, handling fire hose, care of fire hose, testing of fire hose, fire stream practices.

Objectives: To familiarize firefighters with use and care of fire hose.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Various types and sizes of hose.

2.18 Ladder Practices

SUBJECT	ITEM	HOURS	TOPIC
Ladder Practices	1	2	Spacing ladders, safety measures, inspecting and repairing ladders.

Objectives: To familiarize firefighters with ladder practices.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, ladders.

2.19 Fire Service Ropes

SUBJECT	ITEM	HOURS	TOPIC
Fire Service Ropes	1	4	Knots and hitches.
	2	1	Rope strength, inspection and care of rope.
TOTAL		5	

Objectives: To familiarize firefighters with the various knots and hitches commonly used in the Airport Emergency Service.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Knot board, short length of rope for each firefighter.

2.20 Forcible Entry

SUBJECT	ITEM	HOURS	TOPIC
Forcible Entry	1	4	Forcible entry tools, forcing doors and windows, emergency elevator procedures.

Objectives: To familiarize firefighters with the skills required for forcible entry.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, forcible entry tools.

2.21 Ventilation

SUBJECT	ITEM	HOURS	TOPIC
Ventilation	1	4	Objective, advantages, and principles; backdraft or smoke explosion; requirements for ventilation; fire control; top, vertical, and cross ventilation; forced ventilation.

Objectives: To familiarize firefighters with the required skills to enable them to perform ventilation practices skillfully.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, films.

2.22 Rescue Techniques

SUBJECT	ITEM	HOURS	TOPIC
Rescue Techniques	1	4	Functions, respiratory and body protection; searching buildings; carrying/dragging victims; rescue from burning/demolished buildings; rescue from gaseous areas and electrical.

Objective: To familiarize firefighters with rescue techniques to enable them to perform their function effectively.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Ropes, breathing apparatus, old unused building if available, smoke bombs.

2.23 Salvage and Overhaul

SUBJECT	ITEM	HOURS	TOPIC
Salvage and Overhaul	1	2	Salvage equipment, arranging material to be covered, folding and spreading salvage covers, re-storing the premises.

Objectives: To familiarize firefighters with the techniques of salvage and overhaul skills.

Reference: AK-12-06 series, Aircraft and Emergency Fire Training Manual.

Training Aids: Salvage covers, chalkboard.

2.24 Breathing Apparatus

SUBJECT	ITEM	HOURS	TOPIC
Breathing Apparatus	1	2	Products of combustion, smoke inhalation, types and uses of breathing apparatus, training program.

Objectives: To familiarize firefighters with the importance of and how to use and maintain breathing apparatus.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Chalkboard, breathing apparatus, smoke bombs.

2.25 The Instructor -- Objectives

SUBJECT	ITEM	HOURS	TOPIC
The Instructor	1		General, advantages.
Objectives	2		General, action, conditions, standards, objectives for a lesson.
TOTAL		1	

Objectives: To familiarize firefighters with the prerequisites required to be an effective instructor.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Aircraft Emergency and Fire Training Manual.

2.26 Principles of Learning

SUBJECT	ITEM	HOURS	TOPIC
Principles of Learning	1	1	Learning through senses, principles of learning, readiness, exercise, effect, belonging, recency, intensity, ways in which we learn.

Objectives: To familiarize firefighters with the principles of learning.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Aircraft Emergency and Fire Training Manual.

2.27 Principles of Instruction

SUBJECT	ITEM	HOURS	TOPIC
Principles of Instruction	1	1	First, second, third, fourth, fifth, and sixth principles of instruction, conclusion.

Objectives: To familiarize firefighters with the principles of instruction.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Aircraft Emergency and Fire Training Manual.

2.28 Visual Support

SUBJECT	ITEM	HOURS	TOPIC
Visual Support	1	2	General, advantages, sources of ideas, types and guidelines for use of visual support, uses of various boards, charts, graphics, mockups.

Objectives: To familiarize firefighters with types, uses, and advantages of visual support in training.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Various boards, displays, cut-away objects, projects.

2.29 Overhead and Film Projection

SUBJECT	ITEM	HOURS	TOPIC
Overhead Projection	1	1	Transparencies.
Film Projection	2	3	Setting up, operating, film damage, maintenance.
TOTAL		4	

Objectives: To familiarize firefighters with the operation of overhead and film projection.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Overhead and film projectors, instruction and service manuals.

2.30 Verbal Support and Classroom Delivery

SUBJECT	ITEM	HOURS	TOPIC
Verbal Support	1	1	Types of verbal support, restatement, repetition.
Classroom Delivery	2	1	Effective speech, how and what the instructor says and does.
TOTAL		2	

Objectives: To familiarize firefighters with the importance of verbal support and classroom delivery in instructing students.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Aircraft Emergency and Fire Training Manual.

2.31 Lesson Planning

SUBJECT	ITEM	HOURS	TOPIC
Lesson Planning	1	2	Preparation, introduction, sequence planning, practising, testing, using prepared plan, hints for planning and resenting lessons.

Objectives: To familiarize firefighters with all phases of lesson planning.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Sample lesson plans, chalkboard.

2.32 Classroom Testing and Questioning Technique

SUBJECT	ITEM	HOURS	TOPIC
Classroom Testing	1	1	What to measure, means and qualities of good tests, suggestions.
Questioning Technique	2	1	Purposes and types of questions, qualities of good questions, techniques.
TOTAL		2	

Objectives: To familiarize firefighters with accepted testing practices and questioning techniques.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Sample exams and questions.

2.33 The Developmental Approach — Lectures, Demonstrations, and Guided Discussions

SUBJECT	ITEM	HOURS	TOPIC
Developmental Approach	1	1	Philosophy of learning and teaching.
The Lecture Method	2	1	Use, preparation, delivery, participation.
The Demonstration — Performance Method	3	1	Explanation, demonstration, trainee performance/instructor supervision, evaluation.
The Guided Discussion Method	4		Planning, leading, concluding.
TOTAL		4	

Objectives: To familiarize firefighters with the Canadian Forces School of Instructional Techniques (C.F.S.I.T.) developmental approach of instruction through lectures, demonstrations, and guided discussions.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Aircraft Emergency and Fire Training Manual.

2.34 Problem Trainees

SUBJECT	ITEM	HOURS	TOPIC
Problem Trainees	1		Problem trainees, types, cautions.
The Counselling Interview	2		Traits of a good counsellor, guidelines, desirable outcome.
TOTAL		2	

Objectives: To familiarize firefighters who aspire to higher rank with the problem trainees and how to cope effectively.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Aircraft Emergency and Fire Training Manual.

2.35 Studying to Learn and Dynamic Listening

SUBJECT	ITEM	HOURS	TOPIC
Studying to learn	1		Trainee need, preparations for study, terminal point motivation, reading, note taking, SQ3R.
Dynamic Listening	2		Figure - ground thinking.
TOTAL		1	

Objectives: To familiarize firefighters with methods of studying to learn.

Reference: AK-12-06 series, Aircraft Emergency and Fire Training Manual.

Training Aids: Aircraft Emergency Fire Training Manual.

2.36 Acknowledgement

The contribution of Regional AES staff to the development of this section is acknowledged and appreciated.

3.00 AIRCRAFT CRASH FIREFIGHTING PRACTICAL TRAINING

3.01 Object of Instruction

To elevate firefighters to and maintain them at a high level of efficiency in the operation of Airport Emergency Services vehicles. The object is also to develop and maintain skills in the tactical placement of such vehicles and the control, suppression, and, where possible, total extinguishment of aircraft fires.

3.02 New Employees -- Vehicle Familiarization, Operation, and Driver Training

Newly appointed or re-appointed AES personnel shall receive thorough vehicle familiarization training prior to commencing driver training. Such familiarization shall take place by training sessions conducted by qualified personnel and self-study by the newly appointed personnel of the vehicle manufacturers' handbooks or manuals. Newly appointed personnel shall also avail themselves of every opportunity to physically examine the vehicle(s). The firefighter (FR) supervisor tasked with this familiarization training shall determine by accepted testing practices when the newly appointed personnel are ready to proceed with more advanced training.

When driver training is begun, such training will progress from vehicle handling on and off hard surfaces, to approach and positioning, then to water only operations, and finally on to hot drills. The supervisor conducting such training shall determine the time required to be spent on each stage of the training based on the individual's ability to perform the various functions. Training both in the initial and on-going stages shall be conducted in all types of weather conditions and in darkness as well as daylight.

3.03 Crash Firefighting — One-Truck Operation

Application, tactics, and procedures using one truck on fuel fires around the mock-up are as follows.

(a) A fuel spill of such size as allocations permit that will be challenging to the operator's skill and within the capability of the vehicle shall be poured.

(b) The initial objective shall be to establish a fire-free area in the immediate area adjacent to exit points to facilitate safe evacuation.

(c) The supervisor conducting the exercise shall determine when a satisfactory safe area has been established and the feasibility of total extinguishment.

(d) The supervisor and any support staff he may have will conduct a critique following each run. Video equipment when available shall be used during the critique as a means of reinforcement.

(e) Training shall continue until the supervisor is satisfied with the competency of the personnel undergoing training.

3.04 Two-Truck Operation -- First Response (R.I.V.) and Foam Truck

Application, tactics, and procedures using two trucks on fuel fires around the mock-up are as follows.

(a) A fuel spill of such size as allocations permit that will be challenging to the operators' skill and within the capability of the vehicles shall be poured.

(b) Vehicles will be manned in accordance with current manning standards.

(c) The initial objective shall be to establish a fire-free area or areas in the immediate area(s) adjacent to exit points to facilitate safe evacuation.

(d) The first vehicle in will initiate control and extinguishment in the most critical area. The second vehicle will reinforce and expand the fire-free area.

(e) The supervisor will determine the feasibility of total extinguishment.

(f) The supervisor and any support staff he may have will conduct a critique following each run. Video equipment when available shall be used during the critique as a means of reinforcement.

(g) Training shall continue until the supervisor is satisfied with the competency of the personnel undergoing training.

3.05 Crash Fire-fighting -- All Crash Trucks

Applications, tactics, and procedures using all crash trucks on fuel fires around the mock-up are as follows.

(a) A fuel spill of such size as allocations permit that will be challenging to the operators' skill and within the capability of the vehicles shall be poured.

(b) Vehicles will be manned in accordance with current manning standards.

(c) The initial objective will be to establish a fire-free area or areas in the immediate areas adjacent to exit points to facilitate safe evacuation.

(d) The first vehicle in will initiate control of the fire in the area most critical to safe evacuation. The second and subsequent vehicles will be positioned strategically and shall reinforce and expand the fire-free areas.

(e) The supervisor will determine the feasibility of total extinguishment.

(f) The supervisor and any support staff he may have will conduct a critique following each run. Video equipment when available shall be used during the critique as a means of reinforcement.

(g) Training shall continue until the supervisor is satisfied as to the competency of the personnel undergoing training.

3.06 Practical Assessments

Practical assessments will be made on all personnel during all phases of practical training. Such assessments, together with theoretical assessments and day-to-day performance, shall be reflected in the annual Employee's Appraisal Report.

3.07 Auxiliary Firefighters

At airports where both classified and auxiliary firefighters are employed, the auxiliary firefighters can be integrated into the regular training program. At airports with only auxiliary firefighters and a variety of vehicle configurations, it is only possible to broadly outline a syllabus of training. The following will provide guidance.

(a) A fuel spill of such size as allocations will permit that will be challenging to the skill of the operator and within the capability of the vehicle shall be poured.

(b) The initial objective shall be to establish a fire-free area to facilitate safe evacuation.

(c) The supervisor shall determine when a safe area is established and the feasibility of total extinguishment.

(d) Training shall continue until the person designated as trainer is satisfied with the competency of the personnel undergoing training.

(e) Initial training at these airports will be carried out by the Regional Supervisor of Emergency Services (R.S.E.S.) or the Regional Emergency Services Officer (R.E.S.O.), and then the Airport Manager will appoint a volunteer as fire chief who will carry on the training. The effectiveness of this training will be checked by

annual training evaluations carried out by the R.S.E.S. or R.E.S.O. It is stressed that the auxiliary firefighters shall conduct their own practical training program.

4.00 PRECAUTIONS — PRACTICAL TRAINING

The following precautions are to be observed at all times when carrying out practical training exercises.

4.01 General Precautions

(a) Pertinent personnel shall be advised when practical training is to be conducted in order to minimize the chances of false alarms being transmitted and so as not to cause undue concern.

(b) Reserve stocks of extinguishing agents shall be maintained at a minimum level of three complete recharges for each vehicle on the site.

(c) Vehicles used in a training exercise shall be recharged and readied to stand-by posture immediately following the exercise.

(d) The aircraft mock-up training aid shall be firmly positioned on the ground and adequately vented to prevent pressure build-up within.

(e) Residual fuel in the training area shall be burned off each day at the end of training. Fuel storage tanks shall be secured against possible vandalism.

4.02 Personnel Safety Precautions

(a) All participating personnel shall be properly dressed in protective clothing while in the training area.

(b) Smoking in the training area shall be restricted to a safe, designated zone.

(c) A fully-charged and manned fire vehicle shall be in a stand-by position at all times while fuel is being dispensed or when foam is being scraped from the burning area. A charged fire vehicle or wheeled extinguisher shall be in a stand-by posture during actual firefighting operations to afford protection should a malfunction occur on the vehicle(s) involved.

(d) Vehicles shall be positioned upwind of the spill area when fuel is being dispensed.

(e) Fires may be ignited using a suitable safe means, such as flares or a 3-m extension torch. Hand-held items, such as matches or lighters,

shall not be used. Full protective clothing shall be worn when igniting training fires.

(f) Personnel suffering any injury or burn during training shall report such injury or burn to the officer in charge as soon as possible following the suffering of such injury or burn.

5.00 TRAINING AIDS AND MATERIALS

5.01 Training Area

A training area complete with mock-up and fuel dispensing system shall be provided in accordance with AK-70-11-900, Construction and Maintenance of Airport Fire Training Areas.

5.02 Training Materials

Training materials shall continue to be allocated to the existing standard pending approval and promulgation of a new AES training policy, objective, and standard.

Current Standard

(a) Training Materials For One Year To Reach The Required Level

Foam per FR	900 L
Fuel per FR	9,000 L
Dry Chemical per FR	900 kg

(b) Training Materials For One Year To Maintain The Required Level

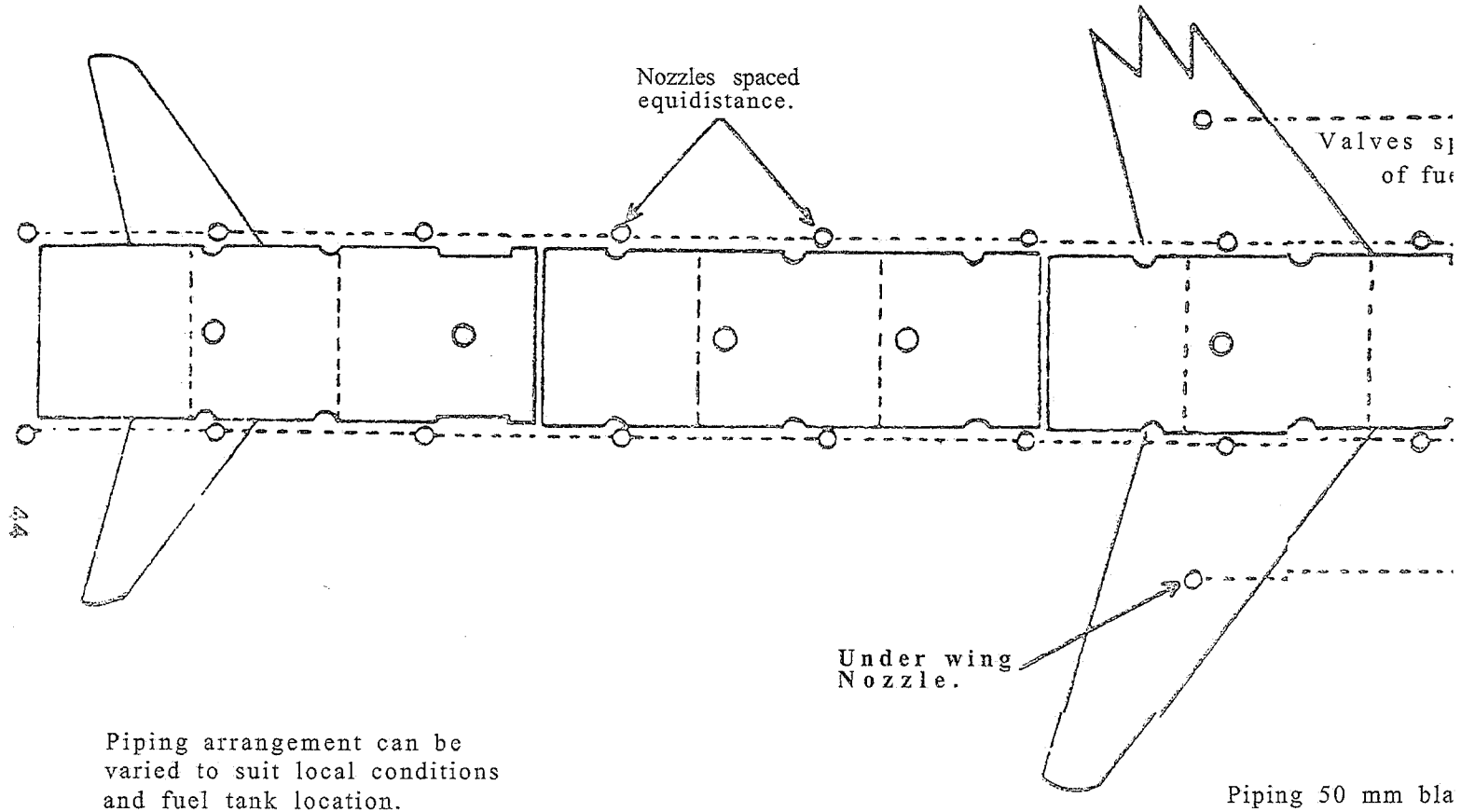
Foam per FR	450 L
Fuel per FR	4500 L
Dry chemical per FR	450 kg

Note: FR shall be interpreted as being classified or auxiliary.

AK-12-06-003

FIGURE 1

TYPICAL FUEL DISTRIBUTION SYSTEM



Piping arrangement can be varied to suit local conditions and fuel tank location.

Piping 50 mm bla
underground fron
nozzles where possib

Note: Those drawings represent a basic design. Larger models may be constructed by adding sections, wings and other obstructions and extending fuel distribution system accordingly.

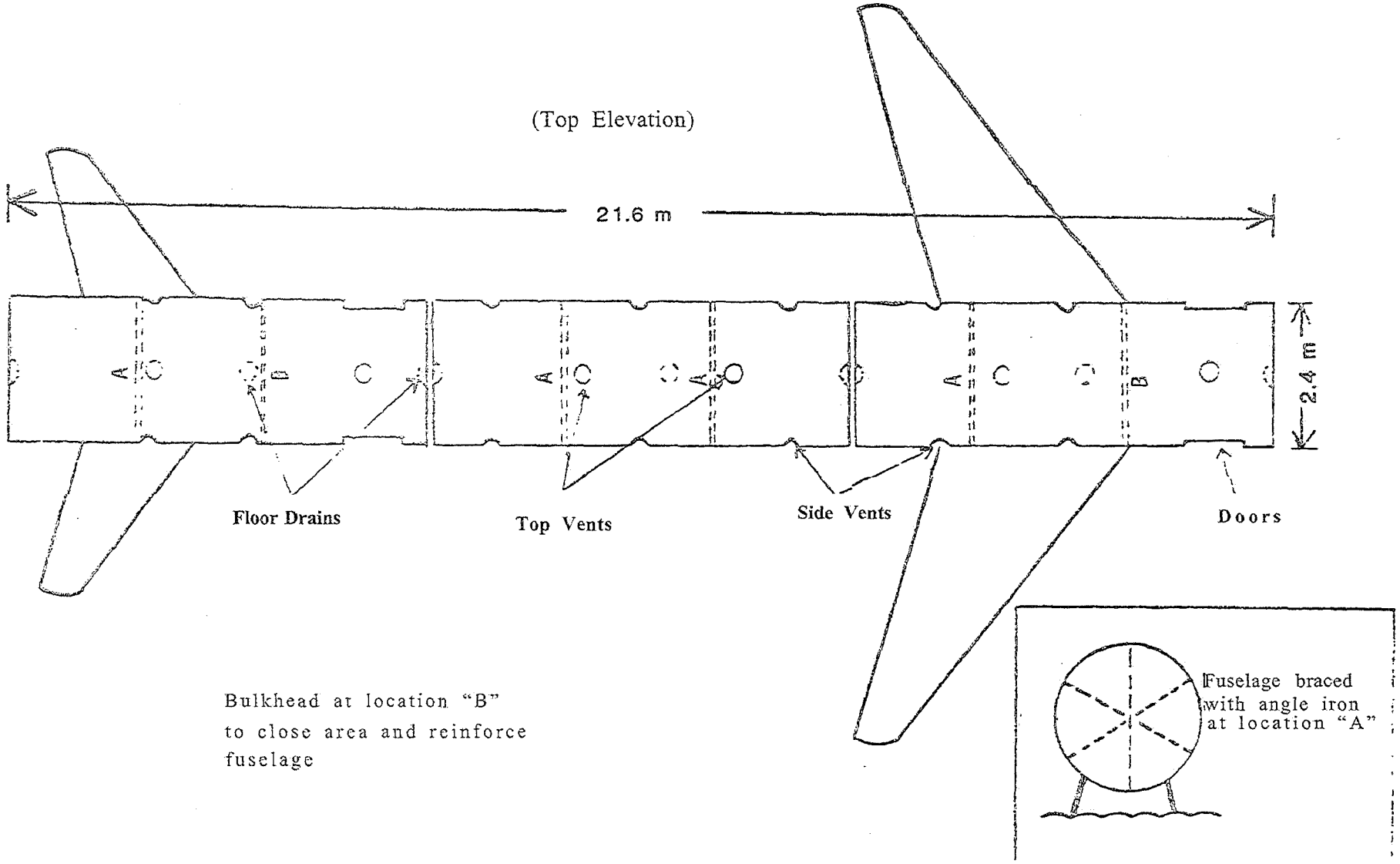
Pump capacity 225 litres per minute minimum

Tank and pump located as
as practical from fuel spill a

AK-12-06-003

FIGURE 2

FIRE TRAINING MOCK-UP SCHEMATICS



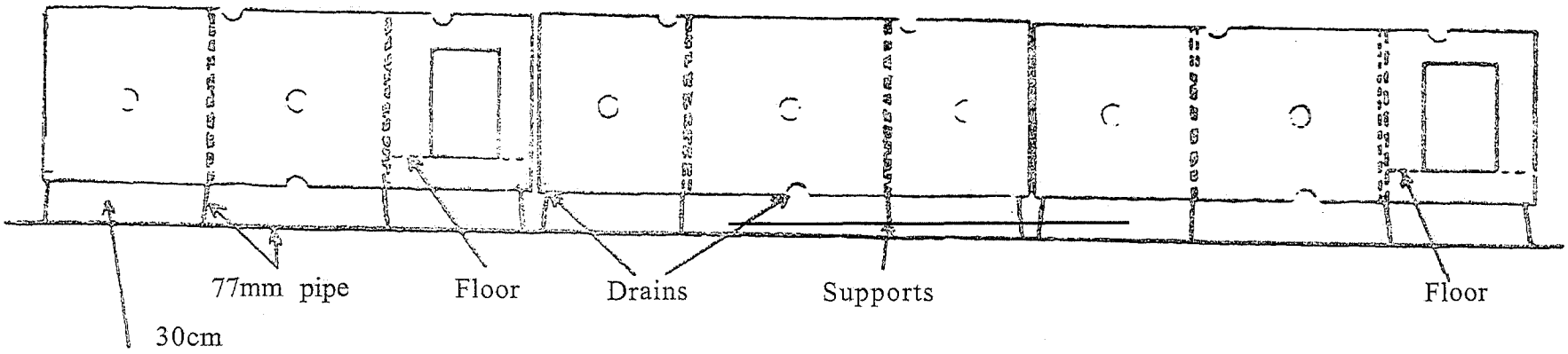
Mock-up fuselage made from three 8m X 3m steel culvert sections or equivalent. Ends blocked. Wings made from suitable metal.

AK-12-06-003

FIGURE 3

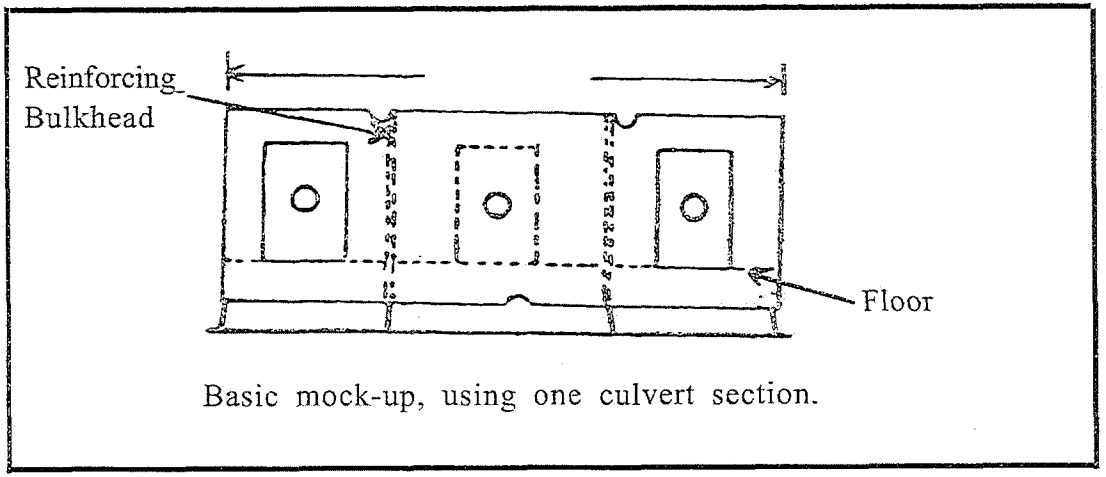
EMERGENCY SERVICE TRAINING MOCK-UP

(Side Elevation)



Floor section made from expanded metal mesh suitably supported.

Doors may be made from cut-out sections of fuselage or left off mock-up entirely.



Basic mock-up, using one culvert section.

6.00 PHYSICAL FITNESS

6.01 General

Maintaining physical fitness is an individual responsibility, subject to annual verification. This verification is in the form of an annual medical examination in accordance with the Public Service Standard, "Periodic Health Evaluations".

To assist AES personnel in maintaining the required level of fitness, a suggested program follows. Personnel are advised to consult a physician prior to commencing the program. This consultation can take place during the annual medical examination.

This program was initially introduced at Montreal International Airport (Mirabel) and results to date are most encouraging. The Civil Aviation Medicine Division of Transport Canada has evaluated and subsequently endorsed the program.

The program as presented contains changes from the original, resulting from observations made by the medical review division. These changes permit individuals to progress at their own rate.

6.02 Fitness Program

Equipment Required: A skipping rope (sash cord or similar cordage) of sufficient length to reach armpit to armpit, passing under the feet.

Stage 1: To warm up it is recommended that you stand, without rope, feet together, and jump 50 to 100 times, moving the arms to simulate skipping. Now take the rope, and feet together, skip 50 times at a comfortable rate. On your second and subsequent days you should attempt to add 10 skips per day. Maintain this level until you have reached 90 skips without a break.

Stage 2: Same warm-up session. Now try alternating feet while skipping, one on the left, one on the right. Try 100 skips and again increase by 10 skips until you reach 140 skips per session.

Stage 3: Same warm-up session. Skip 100 times, rest for 15 to 30 seconds and repeat.

Stage 4: Same warm-up session. Now skip as long and as fast as you can until you experience shortness of breath - then stop.

Stage 5: Your final objective is a series of 500 skips, non-stop, in 5 minutes. When you reach and maintain this level you are in good shape. Your arm movements should be very limited as your wrists will act as swivels. Stand straight, eyes to the front, and relax while skipping.

Note: The National Fire Protection Association publication, "Physical Fitness and The Fire Service", is recommended for a more comprehensive and beneficial program.