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AQRB-83-M-004

1983/84 Integrated Programs

Mid-Term Overview

By

J.W.S. Young

and

E.E. Wilson



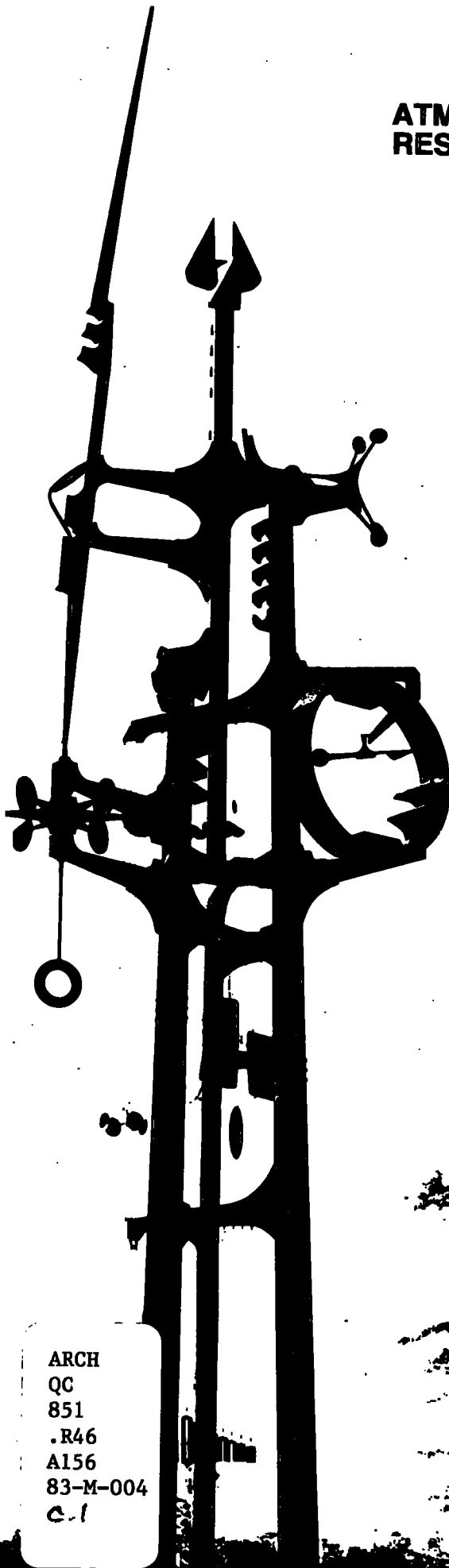
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1983/84 INTEGRATED PROGRAMS

MID-TERM OVERVIEW

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J. W.S. Young

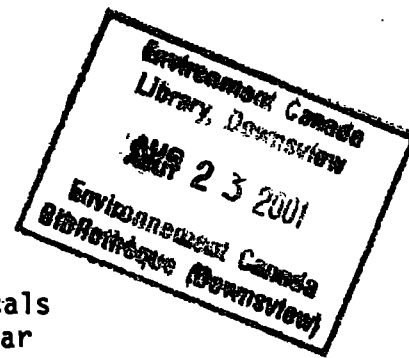
and

E.E. Wilson

October 1983

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Introduction

The mid-term reviews of the 1983-84 AES LRTAP and Toxic Chemicals programs were held October 6 and 7, 1983, respectively. Current year activities were reviewed, by a management committee, with respect to progress achieved, milestones (on schedule or delayed) and resources commitments (insufficient or lapsing funds). Although intended to be fundamentally a management review exercise, the mid-term review does provide overall program evaluation and direction by addressing the following questions:

1. Do we have the best program in the atmospheric sector this fiscal year?
2. What have we learned that can help us plan for the future?

Program Overviews

AES LRTAP Program

The departmental objective is to reduce wet sulphate loadings towards an interim target of 20 kilograms per hectare per year and to validate and refine the adequacy of this target with respect to ecosystem processes. Towards this objective, the atmospheric LRTAP program, conducted by AES, is directed to achieving the following two goals:

1. The capability to measure wet and dry deposition, with appropriate spatial and temporal resolution to within a specified uncertainty; and
2. The modelling capability to specify where emission reductions must be made to achieve the desired target loading, within a specified uncertainty.

The current year program includes the investigation of atmospheric processes (cloud chemistry and dry deposition), measurements and modelling associated with regional to global scale transport and deposition of primarily acidic substances.

AES Toxic Chemicals Program

The atmospheric Toxic Chemicals program, conducted by AES, addresses the following two goals:

1. To determine the types and quantities of toxic chemicals that are being deposited to ecosystems from the atmosphere; and
2. To determine where these toxic chemicals are coming from.

Towards these goals, the current year's program includes the investigation of atmospheric processes (chemical and physical transformations and transport), modelling of atmospheric transport, transformation and deposition, and a measurement program to enable (i) the identification of

those toxic chemicals for which the atmosphere is a significant pathway, and (ii) the determination of deposition of toxic chemicals in both wet and dry forms.

Mid-Term Review Process

The Review Committee consisted of the following individuals

83-84 LRTAP Mid-Term Review:

October 6, 1983

Dr. J.W.S. Young, Director, AQRB - Chairman
Dr. D.M. Whelpdale, ARQT
Dr. H.E. Turner, ARQT
Dr. M.L. Phillips, ARQM
Dr. J.D. Reid, ARQL
Dr. H.P. Sanderson, ARQA
Dr. G. Isaac, ARPP
R.B. Saunders, AFWC
F. MacNeil, Atlantic Region (SSD/FSD)
J.H. McBride, Observer (FSD)
E.E. Wilson, ARQD

83-84 Toxic Chemicals Mid-Term Review:

October 7, 1983

Dr. J.W.S. Young, Director, AQRB - Chairman
Dr. H.E. Turner, ARQT
Dr. M.L. Phillips, ARQM
Dr. J.D. Reid, ARQL
Dr. H.P. Sanderson, ARQA
Dr. W.H. Schroeder, ARQA
R.B. Saunders, AFWC
R.L. Berry, AFOO
Dr. P.E. Merilees, CCRD (Observer)
E.E. Wilson, ARQD

The review centered on the following program components identified on the 1983-84 Air Quality and Inter-Environmental Research Branch Work Plans:

LRTAP under five categories (Modelling, Monitoring, Research, Regional Studies and Coordination); and

Toxic Chemicals under three categories (Research, Monitoring and Great Lakes Water Quality).

The individual projects were presented by the responsible project leaders. Based on these presentations and following discussions with committee members, problems were identified and recommendations were made. These recommendations and proposed actions required are summarized in the following sections.

Detailed reviews for each project are given in a companion document "1983/1984 Integrated Programs Individual Project Mid-Term Review".

LRTAP Mid-term Review

SUMMARY

ARD Projects

<u>Project</u>	<u>Leader</u>	<u>Actions Required</u>
20026 Lagrangian Model	Olson	<ul style="list-style-type: none">• Continue
80207 Control Strategy	Young	<ul style="list-style-type: none">• Continue• Circulate paper
80252 Eulerian	Christie	<ul style="list-style-type: none">• Emissions area potentially weak and should be chased• better integration with scientists• organize a full day workshop to improve scientist to modeller interchanges
80206 Complex Terrain	Walmsley	<ul style="list-style-type: none">• Continue
20025 Snowmelt Shock	Louie	<ul style="list-style-type: none">• Continue• Chemical analysis of snowmelt should be undertaken
80209 Advanced Chemistry	Bottenheim	<ul style="list-style-type: none">• Continue• Box model for general use important and should be completed• request 0.1 PY CS
80210 PAN	Bottenheim	<ul style="list-style-type: none">• requires \$4-5 K for integrator• \$10 K O&M lapse available for re-distribution• requests use of \$10 K
20027 CAPMoN (T, C, N)	Still	<ul style="list-style-type: none">• Continue• QA/QC weak

ARD Projects

<u>Project</u>	<u>Leader</u>	<u>Actions Required</u>
80208 CAPMoN (A, P)	Still	<ul style="list-style-type: none">• ARQD write letter of funding understanding for AFDG• Continue• QA/QC must be addressed urgently• possible \$5 K O&M lapse (3rd quarter)
80257 CAPMoN Upgrade	Still	<ul style="list-style-type: none">• some delays with FSD and eastern start-up• balance of O&M to be redirected to purchase all supplies for total West upgrade if delays in siting continue.• request 0.5 PY for QA/QC
20030 Oxidant Climatology	Mukammel	<ul style="list-style-type: none">• prepare seminar• \$8.5 K O&M possible lapse (ARQD to confirm)
20031 CAPMoN (A, P) Analysis	Sirois	<ul style="list-style-type: none">• Continue
20033 CAPMoN (N) Analysis	Barrie	<ul style="list-style-type: none">• Continue
80201 CAPMoN (A) Lab	Wiebe	<ul style="list-style-type: none">• Continue• EG support required since vacant EG-6
80202 Aerosol Acidity	Wiebe	<ul style="list-style-type: none">• Continue• Field work integrated with 80204
80204 Cloud Chemistry Res.	Wiebe	<ul style="list-style-type: none">• Continue• request \$6 K O&M• project description to be re-written
80203/80250 Atm. Nitrogen/Monitor	Anlauf	<ul style="list-style-type: none">• Continue• Circulate papers
20028 CAPMoN (A) Trajectory	Anlauf	<ul style="list-style-type: none">• lapse \$3.3 K O&M• requires PY support (try Ahmed).

ARD Projects

<u>Project</u>	<u>Leader</u>	<u>Actions Required</u>
20034 Oxidant Co-ordination	Anlauf	<ul style="list-style-type: none">• report from Chung on stratospheric injection required• \$2.9 K O&M lapse• Continue
80255 Cloud Chem. Field Proj.	Isaac	<ul style="list-style-type: none">• no real project leader therefore potential field problems• Continue
80253 CAPTEX	Summers	<ul style="list-style-type: none">• Potentially \$2 K O&M overbudget• Continue
80254 Precip. Chemistry	McBean	<ul style="list-style-type: none">• integrate with Pacific region project• Continue
80256 Dry Deposition	den Hartog	<ul style="list-style-type: none">• require 0.5 PY support (EG or RS)• integrate with Voldner/Sirois and Eulerian
20032 WATOX	Whelpdale	<ul style="list-style-type: none">• Continue
80258 Scientific Liaison	Whelpdale	<ul style="list-style-type: none">• Continue

FSD Projects

<u>Project</u>	<u>Leader</u>	<u>Actions Required</u>
20029-14	Pacific	<ul style="list-style-type: none">• Continue
20029-10	Western	<ul style="list-style-type: none">• lapse of \$3 K O&M
20029-11	Western	<ul style="list-style-type: none">• lapse of \$1.5 K O&M
20029-12	Western	<ul style="list-style-type: none">• lapse of \$5.2 K O&M
20029-13 + 3 new	Western	<ul style="list-style-type: none">• request \$5.2 K O&M

20029-4	Quebec	<ul style="list-style-type: none">• milestones slipped• continue
20029-5	Quebec	<ul style="list-style-type: none">• continue
20029-6	Quebec	<ul style="list-style-type: none">• continue
20029-7	Quebec	<ul style="list-style-type: none">• lapse \$1 K O&M• project should be completed

FSD Projects

<u>Project</u>	<u>Leader</u>	<u>Actions Required</u>
20029-8	Quebec	<ul style="list-style-type: none">• continue• review end 3rd quarter (possible lapse of \$1 K)
20029-3	Atlantic	<ul style="list-style-type: none">• Continue
20029-1	Atlantic	<ul style="list-style-type: none">• Continue
20029-2	Atlantic	<ul style="list-style-type: none">• overlap with ARP• discuss with Isaac

TOTAL O&M LAPSED =	\$26.9 K
POTENTIAL ADDITIONAL O&M LAPSE =	15.5 K (3rd quarter)
POTENTIAL O&M OVERBUDGET =	2.0 K (3rd quarter)
TOTAL CAP LAPSE =	0 K

TOTAL O&M REQUESTED =	21.2 K
TOTAL CAP REQUESTED =	4.0 K
TOTAL PY REQUESTED =	1.1

General Comments (LRTAP)

<u>Item</u>	<u>Action</u>
• EG allocations not being followed in AQRB	• devise a better allocation system for tech. support
• funding confused for regional projects	• ARQD to determine status
• 3 new FSD projects submitted requiring ~ \$5.2 K O&M	• LRTAP Science Review Committee to examine
• better co-ordination required with regional projects	• ARQD to bring up at ARD/ FSD meeting
• BIBS sheet one being altered without consultation	• ARQD to lock in first page except quarterly updates
• reviewers felt that quarterly updates and copy of budget in advance would be useful	• ARQD to ensure this happens in the future
• useful exercise to see if things are going as planned	• continue
• for projects costing less than \$5 K no presentation required	• ARQD to review
• generally there are too many projects	• attempt to combine projects next year
• next year's program should focus on fewer projects with longer effort on each one	• ARQD to advise scientific review committees
• improved regional co-ordination required	• ARQD investigate methods and perhaps provide travel funds
• tie each regional project to a major AQRB project	• ARQD to bring up at ARD/ FSD Meeting
• use of BIBS quarterly reporting to be encouraged regionally	• ARQD to bring up at ARD/ FSD Meeting
• more clearly specify the purpose of the mid-term review as a management review	• ARQD to ensure this focus presented in the future

LRTAP RECOMMENDATIONS

Recommendation Tabled

Review Committee
Proposed Action

- | | |
|--|---|
| <p>1. Encourage scientist to scientist exchanges with Eulerian Modellers [80252]</p> <p>2. Drop box advanced chemistry model [80209]</p> <p>3. Re-direct \$10 K O&M in a PAN monitoring system (\$3 K - monitor \$7 K contract) + add \$4 K CAP for monitor [80210]</p> <p>4. Re-allocate \$6 K to Cloud Chemistry for field project (ARQA portion) [80204]</p> <p>5. Establish field project leader for Cloud Chemistry project [80204] [80255]</p> <p>6. Require PY support for dry deposition project [80256]</p> <p>7. Support 3 new Western projects (FSD) [20029-x]</p> <p>8. All projects costing less than \$5 K O&M require no presentation next year</p> | <ul style="list-style-type: none">• ADC to organize a full day workshop at AES within the 3rd quarter.• delay development to 4th quarter• support with some CS help on O/T (ARQD to pay)• proceed to develop real-time A/C monitor @ \$3 K and \$4 K CAP• clarify contract O&M \$7 K request• allocate \$6 K O&M for field project• G. Isaac to approve all further expenditures on this project including field O/T.• divert PY support to this project (max. of 0.5 PY)• action required by QMC• support upon recommendation of Science Review Committee but no funds pending clarification of use.• continue to review all projects but expand time allotted to larger projects. |
|--|---|

Resource Summary

Money re-allocated to date =	\$ 9.0 K O&M 4.0 K CAP*
Money re-allocated pending clarification =	12.2 K O&M
Money remaining for re-allocation to this and other thrusts =	5.7 K O&M 46.0 K CAP*

* from Eulerian disk drive re-claim (= \$50 K)

TOXICS Mid-term Review

SUMMARY

<u>Project</u>	<u>Leader</u>	<u>Actions Required</u>
20042 Air-Water Partitioning	Schroeder	<ul style="list-style-type: none">• Continue
20043 Chemical Speciation	Schroeder	<ul style="list-style-type: none">• scope reduced to funding• continue
20046 Program Coordination	Schroeder	<ul style="list-style-type: none">• may require more travel money• regional chemists must be pushed
20053 Pathways - GLWQA	Schroeder	<ul style="list-style-type: none">• continue
20041 Pilot Station Ops	Lane	<ul style="list-style-type: none">• lapse \$4.7 K CAP• continue• requires PY support (technical ~ 0.1)
20040 Organic Desorption	Lane	<ul style="list-style-type: none">• Continue• O&M will be spent late and must be reviewed again at end of 3rd quarter
20039 GC-MS Lab	Lane	<ul style="list-style-type: none">• Continue• space originally requested = 500 ft² (actual allocated = 289 ft²) - review requirements
20036 Forest Canopy Turbulence	Reid	<ul style="list-style-type: none">• continue• terminate at end of year
20037 Remote Sensing O ₃ /SO ₂	Hoff	<ul style="list-style-type: none">• Continue• not a toxics project• requires \$27 K CAP for digitizer/spectrometer
20038 Organic Dispersion	Hoff	<ul style="list-style-type: none">• part 3 slightly delayed• continue

<u>Project</u>	<u>Leader</u>	<u>Actions Required</u>
20044 Organics Deposition	Kerman	<ul style="list-style-type: none">• continue• \$5 K O&M request (contract)• \$10 K CAP request (recorder)
20054 Toxaphene Model	Voldner	<ul style="list-style-type: none">• behind schedule due to staffing problem• continue
20055 Nutrients & Trace	Voldner	<ul style="list-style-type: none">• continue• 0.4 PY requested

TOTAL O&M LAPSED = \$ 0. K
TOTAL CAP LAPSED = 4.7 K

TOTAL O&M REQUESTED = 5.0 K
TOTAL CAP REQUESTED = 37.0 K
TOTAL PY REQUESTED = 0.5

General Comments (TOXICS)

<u>Item</u>	<u>Action</u>
• revise BIBS to alternate milestone representation with start/stop dates	• ARQD to ensure BIBS project sheet one changed
• space requirements for toxics not adequate	• ARQD/ARQA action underway to address long term needs
• Puckett lichen mapping not reviewed	• ARQM to follow up
• content of program is better than we sell in Ottawa	• ARQD reselling in progress
• an assembly of solitudes	• needs integration
• regional focus necessary/better?	• QMC to evaluate
• management paper required on juggling priorities in toxic chemicals (location vs. chemical priorities, etc.)	• B. Schroeder/ARQD to draft
• project 20014 (St. Lawrence River) incorrectly associated with GLWQP	• E. Wilson to remove from GLWQP
• generally program is under-resourced	• ARQD to include in reselling
• further developments in lichen mapping required to meet ADMA's requirements	• M.L. Phillips to design approach in consultation with K.J. Puckett
• update BIBS to reflect new description and milestones as a result of TOXFUND allocation	• scientists to update as required
• program be more integrated with emphasis on 1-2 major projects	• QMC to discuss further

TOXICS RECOMMENDATIONS

<u>Recommendation Tabled</u>	<u>Review Committee Proposed Action</u>
1. More emphasis required on regional chemists to contribute to toxics program [20046]	• ARQD to include in resell
2. Technical support for Pilot Station Ops [20041]	• use O/T • ARQD to pay
3. Acquire suitable laboratory/office space for toxics [20039]	• action already underway for long-term • explore Woodbridge Radar facility on short term
4. Supply extra \$27 K CAP to support digitizer/spectrometer for remote sensing [20037]	• \$27 K CAP allocated from ARQD re-claim
5. Contract to support Johnston (approx. \$5 K O&M) [20044]	• ARDG agrees to hold remaining science subvention pot pending submission of request
6. Re-allocate \$10 K CAP for new recorder [20044]	• \$10 K CAP allocated from ARQD re-claim
7. 0.4 PY CS by contract [20055]	• support with O/T • ARQD to pay
8. Consider conducting all toxic chemicals projects in the Niagara River area (since a TCMP priority issue).	• QMC to examine

Final Resource Summary

Money re-allocated to LRTAP = \$ 9.0 K O&M
= \$ 4.0 K CAP

Money pending reallocation to LRTAP = \$12.2 K O&M
= 0.0 K CAP

Money re-allocated to Toxics = \$ 0.0 K O&M
= 37.0 K CAP

Money pending re-allocation to Toxics = \$ 5.0 K O&M*

Money remaining for re-allocation
to this and other thrusts = \$ 0.7 K O&M
= \$ 9.0 K CAP

* if not covered by Science Subvention pot

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