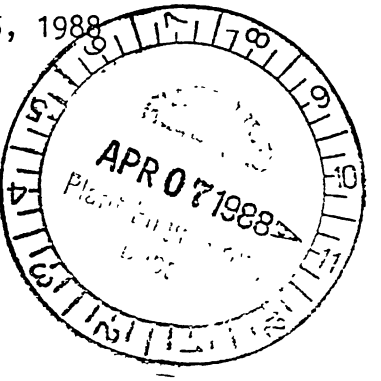
STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

April 5, 1988

APPROVAL



Mr. John Fleming, Chief
Environmental Compliance
Avco Lycoming Textron
550 Main Street
Stratford, Conn. 06497-2452

Re: Approval of Closure/Post Closure Plans for surface impoundments Avco Lycoming Textron CTD001181502

Dear Mr. Fleming:

The closure/post-closure plans dated September 1987 as amended September 30, 1987, January 5, 1988 and February 24, 1988 prepared for Avco Lycoming by Metcalf & Eddy, Inc. have been reviewed by the Connecticut Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (EPA), Region 1.

The DEP and EPA have determined that these plans comply with the closure/post closure requirements pursuant to section 22a-449(c)-29 of the regulations of Connecticut State Agencies and with Title 40 Part 265 Subparts G, K and N of the Code of Federal Regulations. Both agencies hereby approve the plans as modified by Attachment A.

Avco Lycoming Textron shall contact the DEP and the EPA for their review of the following closure/post-closure plan events at least 14 days prior to their implementation:

A. Prior to conducting verification soil and berm sampling;

B. Prior to placement of the Cap; and

C. Prior to final certification.

All work shall be subject to the review of the DEP and the EPA. They shall decide all questions as to interpretations of approved plans and specifications.

The Regional Administrator of the EPA and Commissioner of DEP may authorize changes to the approved closure/post-closure plans upon written request pursuant to 40 CFR 265.112(c) and 265.118(d), respectively.

This approval does not constitute approval of the groundwater monitoring program implemented pursuant to section 22a-449(c)-28 of Connecticut's Hazardous Waste Management Regulations or 40CFR 265 Subpart F.

This approval does not relieve the facility of the obligation to obtain any other authorizations as may be required by other provisions of the Connecticut General Statutes, Regulations of Connecticut State Agencies, Code of Federal Regulations, or Federal Statutes.

Sincerely,

Stephen W. Hitchcock, Director
Hazardous Materials Management Unit
Connecticut Department of Environmental Protection

Merrill S. Hohman Director
Waste Management Division
Region I
U.S. Environmental Protection Agency

attachment

cc: Robert Leger - USEPA
Kenneth Feathers - CTDEP

ATTACHMENT "A"

Modifications to Closure/Post-Closure Plans
AVCO-LYCOMING, Stratford
EPA I.D.# CTD001181502

1.) Page 4-8 paragraph 2 of the closure plan dated September 1987 is modified to read as follows:

Analyses of soil samples will be conducted by an EPA and DEP certified laboratory. All soil samples will be analyzed according to the methods presented in Table 4.1. The corrective action limits for contaminated soil removal will be health and environmental based standards or background for all exposure pathways. The leachate extraction procedure will be used for the groundwater pathway and mass analysis for the direct ingestion pathway. Any contaminated soil left in place will be closed as a landfill per section 265.310 of 40 CFR.

2.) Page 4-9 paragraph 1 of the closure plan dated September 1987 is revised to read as follows:

TABLE 4.1 Analytic Methods for Confirmation
Soil Sampling

Analysis	Method
Aromatic Volatile Organics	Method 5030/8020(1)
Halogenated Volatile Organics	Method 5030/8010(1)
Total Leachate Cyanide	Insoluble organic extraction(2)
	Cyanide distillation Method 9019(1)
Arsenic	Extraction Method 1310(1)
Barium	Extraction Method 1310(1)
Cadmium	Extraction Method 1310(1)
Chromium	Extraction Method 1310(1)

Lead	Extraction Method 1310(1)
Mercury	Extraction Method 1310(1)
Nickel	Extraction Method 1310(1)
Selenium	Extraction Method 1310(1)
Silver	Extraction Method 1310(1)
Hexavalent-Chromium	Extraction Method 1310(3)

1. Test Methods for Evaluating Solid Waste, USEPA, DSW, SW-846, third edition, September 1986.

2. Standard Methods for the Evaluation of Water and Wastewater, 16th, edition, p. 329, Cyanide in Solid Waste, b. Insoluble Cyanide.

3. Using EP toxicity test without acetic acid adjustment.

3.) Page 4-7 paragraph 3 and page 4-8 paragraph 1 are modified as follows:

Four samples, randomly selected, one from the floor of each of the surface impoundments and the equalization basin will be taken and analyzed for constituents listed in table 4.1 to comply with the requirements of section 265.119 of 40CFR. Samples will also be taken from the wall of the excavation. It is assumed that because of downward and lateral contaminant migration in the unsaturated zone, more contamination will be present in lower portions of the excavation. As a result, confirmation soil sampling will take place along an imaginary horizontal line located at one-third of the total excavation depth as measured from the bottom of the excavation. In each excavation, samples will be obtained at 35 foot intervals along that horizontal line. It has been assumed that the distribution of wastes within all the surface impoundments is fairly uniform over the long period of disposal, but to address the possibility for some waste segregation the 35 foot sampling interval was selected. This interval will produce a minimum of 21 confirmation samples from the 3 sludge lagoons and a minimum of 18 confirmation samples from the equalization lagoon. Considering a hazardous waste occupying only approximately 10 percent of the total area, the proposed sampling density would have a 90 percent probability of detecting a randomly located hazardous waste (Benson et. al., 1982).

Although differing rates of contaminant migration will affect the depth of penetration, the uniform distribution of waste in these surface impoundments is considered the controlling factor.

Additional soil sampling will take place at "hot spot" locations identified by either visual inspection or OVA screening. The soil sampling and decontamination procedures are outlined in Appendix B of this document.

4.) Page 4-10 paragraph 1 & 2 of the closure plan dated September 1987 are revised to read as follows:

1) Flush pipes at least once with water; 2) verify that there are not combustible gases in the pipe, and if gases are detected, the pipeline should be force-aerated or made inert with carbon dioxide or dry ice; 3) cut the pipe into sections similar to the length of transfer trucks, and 4) store on a 6 mil thick polyethylene ground cover which has been bermed or diked to control 25 yr.- 24 hr. storm run-off and run-on. The pipes will be covered with polyethylene at all times except as necessary to store or remove piping. Most of the piping lies under dirt and thus the surface will not require any special rehabilitation. The 10 inch effluent force main, however, lies under a parking lot which will require patching of the pavement after removal.

The pump station is approximately 70 square feet, 15 feet deep, and constructed of concrete block. The pump station, pump and other appurtenances will be removed and stored on a polyethylene ground cover. To address the possibility for contamination in the pipe trench, confirmation soil samples will be taken from the bottom of the trench at 50-foot intervals along the entire length of the trench. The soil sampling and decontamination procedures are outlined in Appendix B of this document.

5.) Page 4-12 paragraph 1 of the closure plan dated September 1987 is revised to read as follows:

If roll-off boxes are selected for temporary storage of the filter cake, they should have a total capacity of 600 cu. yd. This will allow for ample storage space should logistical problems develop while removing and dewatering the contaminated material. Roll off boxes are available in a variety of sizes and capacities. Typical roll off box dimensions adequate for filter cake storage would be 90 inches in height, 22 feet in length, 90 inches in width, with a capacity of 45.6 cu. yd. All roll-off boxes will contain a synthetic liner to prevent liquid leakage. Tops for the roll off boxes are also necessary. Therefore the contractor should make arrangements to have an adequate number of roll off boxes on site for the temporary storage.

6.) Page 7-2, paragraph 2, is modified to read as follows:

The existing groundwater monitoring system at Avco is made up of 13 monitoring wells, see Figure 5.1. It is likely that during the soils excavation, monitoring wells 1,2,3,5 and the well point may be damaged or destroyed. "As part of construction of the final cap, wells 1,3, and 5 will be replaced outside the limit of the landfill cap with three two - well clusters consisting of a well screened at the water table and a well screened at the same elevation as the previous well. The objective will be to make little or no changes in the well locations for the deeper wells so that the time series of groundwater remains comparable with past data.

Addendum to Surface Impoundment Closure Plan

AVCO-Lycoming TEXTRON

February 23, 1988

Amendment to Surface Impoundment Closure Plan dated September 1987.

The following changes shall be made to the plan:

1. Section 4-D, Page 4-7, Sampling and Analyses of Soils. Perimeter sampling and analyses of soils will be conducted at 35 foot intervals in order to achieve a 90 percent probability of detecting hazardous waste. For the two sides of the equalization lagoon that require sheeting, soil samples will be taken from test pits dug along the sheeting line. Sheeting will be installed only after confirmation sampling indicates that the sheeting is outside the range of hazardous material. Additional soil sampling shall be conducted according to the original plan.

2. Section 4-D, Page 4-8. The removal standards for metals, cyanide and chromium will be drinking water standards.

3. Create Appendix H and enclose the attached Hazardous Waste Substance List.

HAZARDOUS WASTE SUBSTANCE LIST

Textron Lycoming

Your sample ID See below
EML sample ID 71204-AVC

Date submitted 12-04-87
Date(s) analyzed 12-04 to 12-23-87

* * * ALL VALUES REPORTED IN ug/gm (wet weight) * * *

Method 8010/8020 via GC-PID/HECD. NOTE: not detected (nd) = <0.05 ppm

Sample ID:	871204-1	871204-2	871204-3
Compound:			
Benzene	<0.05	<0.05	<0.05
Benzyl chloride	<0.05	<0.05	<0.05
Bis (2-chloroethoxy)methane	<0.05	<0.05	<0.05
Bis (2-chloroisopropyl)ether	<0.05	<0.05	<0.05
Bromobenzene	<0.05	<0.05	<0.05
Bromodichloromethane	<0.05	<0.05	<0.05
Bromoform	<0.05	<0.05	<0.05
Bromomethane	<0.05	<0.05	<0.05
Carbon tetrachloride	<0.05	<0.05	<0.05
Chloracetaldehyde	<0.05	<0.05	<0.05
Chloral	<0.05	<0.05	<0.05
Chlorobenzene	<0.05	<0.05	<0.05
Chloroethane	<0.05	<0.05	<0.05
Chloroform	<0.05	<0.05	<0.05
1-Chlorohexane	<0.05	<0.05	<0.05
2-Chloroethyl vinyl ether	<0.05	<0.05	<0.05
Chloromethane	<0.05	<0.05	<0.05
Chloromethyl methyl ether	<0.05	<0.05	<0.05
Chlorotoluene	<0.05	<0.05	<0.05
Dibromochloromethane	<0.05	<0.05	<0.05
Dibromomethane	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	<0.05	<0.05	<0.05
Dichlorodifluoromethane	<0.05	<0.05	<0.05
1,1-Dichloroethane	<0.05	<0.05	<0.05
1,2-Dichloroethane	<0.05	<0.05	<0.05
1,1-Dichloroethylene	<0.05	<0.05	<0.05
trans-1,2-Dichloroethylene	<0.05	<0.05	<0.05
Dichloromethane	<0.05	<0.05	<0.05
1,2-Dichloropropane	<0.05	<0.05	<0.05
1,3-Dichloropropylene	<0.05	<0.05	<0.05
Ethylbenzene	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	<0.05	<0.05	<0.05
Tetrachloroethylene (PCE)	0.07	0.25	0.10
Toluene	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	<0.05	<0.05	<0.05
Trichloroethylene (TCE)	<0.05	<0.05	<0.05
Trichlorotrifluoromethane	<0.05	<0.05	<0.05
Trichloropropane	<0.05	<0.05	<0.05
Vinyl chloride	<0.05	<0.05	<0.05
Xylenes	<0.05	<0.05	<0.05
Dichloropropane	<0.05	<0.05	<0.05
Dichloropropylene	<0.05	<0.05	<0.05
Tetranitromethane	<5	<5	<5

Analyst

SUITE A • 59 NORTH PLAINS INDUSTRIAL PARK • WALLINGFORD, CT 06492 • (203) 284-0555

REPORT OF RESULTS

Your sample ID See below Date submitted 12-04-87

EML sample ID 71204-AVC Date(s) analyzed 12-04 to 12-23-87

* * * ALL VALUES REPORTED IN mg/kg * * *

METALS & METALLOIDS Method: flame AAS or ES, unless noted with *

Sample ID:	871204-1	871204-2	871204-3
aluminum			
arsenic			
barium			
cadmium	13.05	18.66	12.73
calcium	7.29%	8.59%	6.36%
hex. chrom.			
tot. chrom.	6.03%	6.65%	4.33%
copper	0.78%	1.01%	0.75%
gold			
iron			
lead	3.63	5.30	3.67
mercury	nd<0.0002	nd<0.0002	nd<0.0002
magnesium			
manganese			
nickel	0.30%	0.46%	0.35%
potassium	0.99%	1.31%	0.96%
selenium			
silver	20.34	22.9%	20.0
sodium	0.18%	0.17%	0.15%
tin			
zinc			

INORGANICS/NON-METALS Method: various (EPA-approved)

BOD/COD			
chloride			
sp.cond.(umhos)			
cyanide	100.0	106.25	18.75
fluoride	nd<0.5	nd<0.5	nd<0.5
hardness			
ammonia-N			
nitrate			
nitrite			
O & G			
phosphate			
pH			
TSS			
TOC			
TOX			
phenol	nd<0.5	nd<0.5	nd<0.5
hydrofluoric acid	nd	nd	nd

Analyst M. Fl

PH-0509 CT DEPT HEALTH CERTIFICATION ENVIRONMENTAL MONITORING LABORATORY, INC. WALLINGFORD, CT

Textron Lycoming

REPORT OF RESULTS

Your sample ID See below Date submitted 12-04-87

EML sample ID 71204-AVC Date(s) analyzed 12-04 to 12-23-87

METHOD 625 GC/MS FRACTION-ACID COMPOUNDS (PHENOLS)

* * * ALL VALUES REPORTED IN ug/gm (ppm) * * *

Sample ID:	871204-1	871204-2	871204-3
Compound			
2-Chlorophenol	nd<0.5	nd<0.5	nd<0.5
2,4-Dichlorophenol	nd<0.5	nd<0.5	nd<0.5
2,4-Dimethylphenol	nd<0.5	nd<0.5	nd<0.5
4,6-Dinitro-o-cresol	nd<1	nd<1	nd<1
2,4-Dinitrophenol	nd<1	nd<1	nd<1
2-Nitrophenol	nd<0.5	nd<0.5	nd<0.5
4-Nitrophenol	nd<0.5	nd<0.5	nd<0.5
p-Chloro-m-cresol	nd<0.5	nd<0.5	nd<0.5
Pentachlorophenol	nd<0.5	nd<0.5	nd<0.5
Phenol	nd<0.5	nd<0.5	nd<0.5
2,4,6-Trichlorophenol	nd<0.5	nd<0.5	nd<0.5

JAN 04 1988

CT DEPT HEALTH CERTIFICATION ENVIRONMENTAL MONITORING LABORATORY, INC. WALLINGFORD, CT

Analyst

EML

SUITE A. • 59 NORTH PLAINS INDUSTRIAL PARK • WALLINGFORD, CT 06492 • (203) 284-0555

Textron Lycoming

REPORT OF RESULTS

Your sample ID See below — Date submitted 12-04-87

EML sample ID 71204-AVC — Date(s) analyzed 12-04 to 12-23-87

METHOD 625: GC/MS FRACTION-BASE/NEUTRAL COMPOUNDS

* * * ALL RESULTS REPORTED IN ug/gm (ppm) * * *

Compound	871204-1	Compound	871204-1
Acenaphthene	nd<0.1	Diethylphthalate	nd<0.5
Acenaphthylene	nd<0.1	Dimethylphthalate	nd<0.5
Anthracene	nd<0.1	di-n-Butylphthalate	nd<0.5
Benzidine	nd<5	2,4-Dinitrotoluene	nd<0.5
Benzo(a)anthracene	nd<0.1	2,6-Dinitrotoluene	nd<0.5
Benzo(a)pyrene	nd<0.1	di-n-Octylphthalate	nd<0.5
Benzo(b)fluoranthene	nd<0.1	1,2-Diphenylhydrazine	nd<0.5
Benzo(ghi)perylene	nd<0.2	Fluoranthene	nd<0.1
Benzo(k)fluoranthene	nd<0.1	Fluorene	nd<0.1
bis(2-Chloroethoxy)methane	nd<0.5	Hexachlorobenzene	nd<0.5
bis(2-chloroethyl)ether	nd<0.5	Hexachlorobutadiene	nd<0.5
bis(2-ethylhexyl)phthalate	nd<0.5	Hexachlorocyclopentadiene	nd<0.5
4-Bromophenylphenylether	nd<0.5	Hexachloroethane	nd<0.5
Butylbenzylphthalate	nd<0.5	Indeno(1,2,3-cd)pyrene	nd<0.2
2-Chloronaphthalene	nd<0.5	Isophorone	nd<0.5
4-Chlorophenylphenylether	nd<0.5	Naphthalene	nd<0.1
Chrysene	nd<0.1	Nitrobenzene	nd<0.5
Dibenzo(ah)anthracene	nd<0.2	n-Nitrosodimethylamine	nd<5
1,2-Dichlorobenzene	nd<0.5	n-Nitrosodi-n-propylamine	nd<5
1,3-Dichlorobenzene	nd<0.5	n-Nitrosodiphenylamine	nd<5
1,4-Dichlorobenzene	nd<0.5	Phenanthrene	nd<0.1
3,3'-Dichlorobenzidine	nd<5	Pyrene	nd<0.1
bis(2-chloroisopropyl)ether	nd<0.5	1,2,4-Trichlorobenzene	nd<0.5

NOTE: nd = not detected

JAN 04 1988

Analyst

CT DEPT HEALTH CERTIFICATION ENVIRONMENTAL MONITORING LABORATORY, INC. WALLINGFORD, CT PH-0590

EML

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REPORT OF RESULTS

Your sample ID See below Date submitted 12-04-87

EML sample ID 71204-AVC Date(s) analyzed 12-04 to 12-23-87

METHOD 625: GC/MS FRACTION-BASE/NEUTRAL COMPOUNDS

* * * ALL RESULTS REPORTED IN ug/gm (ppm) * * *

Compound	871204-2	Compound	871204-2
Acenaphthene	nd<0.1	Diethylphthalate	nd<0.5
Acenaphthylene	nd<0.1	Dimethylphthalate	nd<0.5
Anthracene	nd<0.1	di-n-Butylphthalate	nd<0.5
Benzidine	nd<5	2,4-Dinitrotoluene	nd<0.5
Benzo(a)anthracene	nd<0.1	2,6-Dinitrotoluene	nd<0.5
Benzo(a)pyrene	nd<0.1	di-n-Octylphthalate	nd<0.5
Benzo(b)fluoranthene	nd<0.1	1,2-Diphenylhydrazine	nd<0.5
Benzo(ghi)perylene	nd<0.2	Fluoranthene	nd<0.1
Benzo(k)fluoranthene	nd<0.1	Fluorene	nd<0.1
bis(2-Chloroethoxy)methane	nd<0.5	Hexachlorobenzene	nd<0.5
bis(2-chloroethyl)ether	nd<0.5	Hexachlorobutadiene	nd<0.5
bis(2-ethylhexyl)phthalate	nd<0.5	Hexachlorocyclopentadiene	nd<0.5
4-Bromophenylphenylether	nd<0.5	Hexachloroethane	nd<0.5
Butylbenzylphthalate	nd<0.5	Indeno(1,2,3-cd)pyrene	nd<0.2
2-Chloronaphthalene	nd<0.5	Isophorone	nd<0.5
4-Chlorophenylphenylether	nd<0.5	Naphthalene	nd<0.1
Chrysene	nd<0.1	Nitrobenzene	nd<0.5
Dibenzo(ah)anthracene	nd<0.2	n-Nitrosodimethylamine	nd<5
1,2-Dichlorobenzene	nd<0.5	n-Nitrosodi-n-propylamine	nd<5
1,3-Dichlorobenzene	nd<0.5	n-Nitrosodiphenylamine	nd<5
1,4-Dichlorobenzene	nd<0.5	Phenanthrene	nd<0.1
3,3'-Dichlorobenzidine	nd<5	Pyrene	nd<0.1
bis(2-chloroisopropyl)ether	nd<0.5	1,2,4-Trichlorobenzene	nd<0.5

NOTE: nd = not detected

JAN 0 5

Analyst

PH-0566
CT DEPT HEALTH CERTIFICATION ENVIRONMENTAL MONITORING LABORATORY, INC. WALLINGFORD, CT

EML
SUITE A, • 59 NORTH PLAINS INDUSTRIAL PARK • WALLINGFORD, CT 06492 • (203) 284-0555

REPORT OF RESULTS

Your sample ID See below Date submitted 12-04-87

EML sample ID 71204-AVC Date(s) analyzed 12-04 to 12-23-87

METHOD 625: GC/MS FRACTION-BASE/NEUTRAL COMPOUNDS

* * * ALL RESULTS REPORTED IN ug/gm (ppm) * * *

Compound	871204-3	Compound	871204-3
Acenaphthene	nd<0.1	Diethylphthalate	nd<0.5
Acenaphthylene	nd<0.1	Dimethylphthalate	nd<0.5
Anthracene	nd<0.1	di-n-Butylphthalate	nd<0.5
Benzidine	nd<5	2,4-Dinitrotoluene	nd<0.5
Benzo(a)anthracene	nd<0.1	2,6-Dinitrotoluene	nd<0.5
Benzo(a)pyrene	nd<0.1	di-n-Octylphthalate	nd<0.5
Benzo(b)fluoranthene	nd<0.1	1,2-Diphenylhydrazine	nd<0.5
Benzo(ghi)perylene	nd<0.2	Fluoranthene	nd<0.1
Benzo(k)fluoranthene	nd<0.1	Fluorene	nd<0.1
bis(2-Chloroethoxy)methane	nd<0.5	Hexachlorobenzene	nd<0.5
bis(2-chloroethyl)ether	nd<0.5	Hexachlorobutadiene	nd<0.5
bis(2-ethylhexyl)phthalate	nd<0.5	Hexachlorocyclopentadiene	nd<0.5
4-Bromophenylphenylether	nd<0.5	Hexachloroethane	nd<0.5
Butylbenzylphthalate	nd<0.5	Indeno(1,2,3-cd)pyrene	nd<0.2
2-Chloronaphthalene	nd<0.5	Isophorone	nd<0.5
4-Chlorophenylphenylether	nd<0.5	Naphthalene	nd<0.1
Chrysene	nd<0.1	Nitrobenzene	nd<0.5
Dibenzo(ah)anthracene	nd<0.2	n-Nitrosodimethylamine	nd<5
1,2-Dichlorobenzene	nd<0.5	n-Nitrosodi-n-propylamine	nd<5
1,3-Dichlorobenzene	nd<0.5	n-Nitrosodiphenylamine	nd<5
1,4-Dichlorobenzene	nd<0.5	Phenanthrene	nd<0.1
3,3'-Dichlorobenzidine	nd<5	Pyrene	nd<0.1
bis(2-chloroisopropyl)ether	nd<0.5	1,2,4-Trichlorobenzene	nd<0.5

NOTE: nd = not detected

Analyst

EML
ENVIRONMENTAL MONITORING LABORATORY, INC

SUITE A. ● 59 NORTH PLAINS INDUSTRIAL PARK ● WALLINGFORD, CT 06492 ● (203) 284-0555