RCRA Part B Post-Closure Permit Application

Book 1 of 3

Submitted to:

U.S. Environmental Protection Agency Region I
and
Connecticut Department of Environmental Protection

Submitted by:

TEXTRON Lycoming
550 Main Street
Stratford, Connecticut 06497

December 13, 1991

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TEXTRON Lycoming

Stratford Division
Textron Lycoming/
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550 Main Street
Stratford, CT 06497
203/385-2000

December 13, 1991

U.S. Environmental Protection Agency
Waste Management Division
JFK Federal Building
Boston, MA 02203
ATTN: CT RCRA (HEE CAN6)

Connecticut Department of
Environmental Protection
Waste Management Bureau
Permits Section
165 Capitol Avenue
Hartford, CT 06106

RE: EPA I.D. #CTD 001181502 Post Closure Part B Permit Call

Dear Sir:

In response to your letter regarding the above subject, Textron Lycoming is pleased to submit its completed Post-Closure Part B permit application for the Stratford Army Engine Plant.

As we discussed in the attached letter recently sent to Messrs. Hohman and Barlow, Textron Lycoming would like to bring to your attention the existence of an ongoing facility assessment that may influence substantially any future RCRA investigation or remediation at the Stratford Army Engine Plant.

Textron Lycoming, together with the U.S. Army Aviation Systems Command, the U.S. Army Corp of Engineers would like the opportunity to meet with representatives of the EPA and CT DEP to discuss the status of the Remedial Investigation Work Plan being developed pursuant to Army regulations dealing with potential sale/lease of Government property. We believe that there is merit in ensuring that the EPA and DEP are appraised of the progress in this work as these Agencies pursue consideration of RCRA Corrective Action.

Should you have any questions concerning technical matters included in this submission, please contact Mr. James Runstadler at (203) 385-3741.

Sincerely,

Robert F. Kelley

Robert F. Kelley
Mgr., Environmental Svcs.
(203) 385-5177

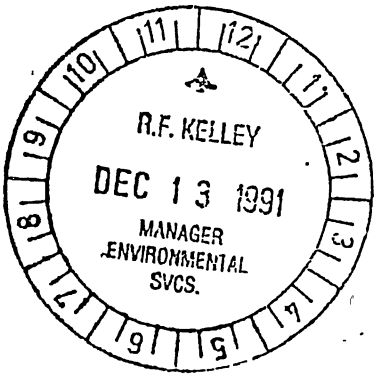
RFK/fc
L12-13

TEXTRON

Textron Inc.

40 Westminster Street
Providence, R.I. 02903
401/421-2800

December 9, 1991



U.S. Environmental Protection Agency
Waste Management Division
JFK Federal Building
Boston, MA 02203
Attention Merrill S. Hohman

Connecticut Department of
Environmental Protection
Waste Management Bureau
Permits Section
165 Capitol Avenue
Hartford, CT 06106
Attention Richard J. Barlow

RE: Request for a Meeting to Review Part B Permit Application

Dear Messrs. Hohman and Barlow:

In correspondence dated June 13, 1991, the United States Environmental Protection Agency (EPA) and Connecticut Department of Environmental Protection (DEP) requested the Textron Lycoming Division of Textron's Avco Corporate subsidiary (Textron Lycoming) to submit a Post-Closure Part B Permit application for the U.S. Government-owned Stratford Army Engine Plant (SAEP) located in Stratford, Connecticut. Textron Lycoming anticipates that submission of the application will occur on or before the December 16, 1991 due date. I would, however, like to bring to your attention the existence of an ongoing facility assessment that may significantly influence any future RCRA investigation or subsequent remediation at the SAEP.

The U.S. Army currently is considering the lease or sale of the SAEP. Army Regulation 200-1 requires that a Preliminary Assessment Screening (PAS) be completed for any real property for which such a transaction is being considered. In March, 1991, the Army Corps of Engineers (COE), on behalf of the Army Aviation Systems Command (AVSCOM), contracted Woodward-Clyde Consultants (WCC) to complete a PAS for the SAEP. Based on the results of this PAS, the Army has decided to complete a Remedial Investigation as described in Chapter 9 of AR 200-1. Woodward-Clyde currently is preparing a draft of the Remedial Investigation Work Plan, which will be submitted by AVSCOM to the EPA and DEP for review on or about December 18, 1991.

The Army's Remedial Investigation is significant in that it is being conducted in accordance with the requirements for a CERCLA Remedial Investigation, which has the same ultimate objective and utilizes the same or essentially the same criteria as a RCRA Facility Investigation.

In order to ensure a coordination of efforts between the Army's Remedial Investigation and the RCRA Corrective Action process, a team consisting of representatives from Textron Lycoming, AVSCOM, and the Army Corps of Engineers has been established. The team members believe that the RCRA Corrective Action process may not be necessary at the SAEP because the Army's Remedial Investigation, and subsequent remediation, if any, would satisfy the RCRA's corrective action process objectives. Indeed, the EPA in its preamble to the Proposed Rules for Corrective Action for Solid Waste Management Units anticipated this circumstance:

> [EPA] anticipated that there may be a number of facilities at which substantial CERCLA remedial studies and/or actual remediation will have been already conducted at the time a RCRA permit is issued (thereby triggering the Subpart S corrective action requirements). This situation is likely to be most common at Federal facilities. In such cases, if the remedial work has been conducted according to the CERCLA NCP, EPA would consider that work to be consistent with the requirements of Subpart S, and therefore additional or different studies or cleanup requirements would be unnecessary [F.R. 7/27/90, page 30852 (3rd column)].

Textron Lycoming, together with the U.S. Army Aviation Systems Command, and the U.S. Army Corps of Engineers would like the opportunity to meet with representatives of the EPA and DEP to discuss this matter at the same time the draft copy of Remedial Investigation Work Plan is submitted to you by the Army (AVSCOM). As noted above, the submittal of the Work Plan is tentatively scheduled for December 18, 1991, and those arrangements are being made through Captain Mark Peterson, EPA Region 1 Federal Facilities Coordinator for the SAEP. Mr. Robert Kelley, Manager of Environmental Services at Textron Lycoming, Stratford, will be contacting your office shortly to secure the name(s) of individuals who may represent EPA's and the DEP's RCRA interests in this matter. Mr. Kelley may be reached at (203) 385-5177.

I would like to thank you in advance for any assistance you might offer in this matter. I have asked Mr. Kelley to follow-up with a phone call to you or your staff to ensure that Textron Lycoming has done everything possible to expedite and facilitate the meeting described above.

Very truly yours,

Paul B. Duff
Director, Environmental Affairs

PBD/mbv
PBD430

RCRA Part B Post-Closure Permit Application

for

Textron Lycoming
Stratford, Connecticut

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RCRA Part B Post-Closure Permit Application

for

Textron Lycoming
Stratford, Connecticut

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RCRA Part B Post-Closure Permit Application

for

Textron Lycoming
Stratford, Connecticut

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Textron Lycoming
Stratford, Connecticut

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Introduction

The United States Environmental Protection Agency (EPA) hazardous waste permit program under the Resource Conservation and Recovery Act (RCRA) is referenced in the Code of Federal Regulations (CFR), Chapter 40, Part 270. In accordance with 40 CFR 270.1(c), operators of surface impoundments that received wastes after July 26, 1982, or that certified closure in accordance with an approved Closure Plan after January 26, 1983, are required to submit a RCRA Post-Closure Permit Application to conduct post-closure maintenance and monitoring for a period of up to 30 years.

AVCO Corporation, Textron Lycoming Division (Textron Lycoming) operates a facility located at 550 Main Street in Stratford, Connecticut. The site is owned by the United States Army and is also known as the "Stratford Army Engine Plant (SAEP)". RCRA closure of four on-site surface impoundments (one (1) equalization lagoon, and three (3) settling lagoons) was certified on May 22, 1990, in accordance with a Closure Plan approved by the Connecticut Department of Environmental Protection (DEP) and the United States Environmental Protection Agency (EPA) on April 5, 1988.

Textron Lycoming received written notification from EPA Region I dated June 13, 1991 (received June 19, 1991) stating that the facility had 180 days from receipt (until December 15, 1990) to submit a RCRA Part B Post-Closure Permit Application for the closed surface

impoundments in accordance with 40 CFR 270.1(c). In accordance with this request, the attached permit application has been prepared.

This RCRA Post-Closure Permit Application follows EPA's current guidance on the preparation and format of RCRA Part B Permit Applications. The RCRA Post-Closure Permit Application includes all applicable information required by EPA's "Checklist for Part B Application for Post-Closure Permit", which was included with EPA's letter dated June 13, 1991. Reference to specific sections of this permit application which satisfy the requirements presented in the checklist are indicated in the section entitled "RCRA Checklist." The post-closure activities described herein are in accordance with federal hazardous waste management regulations adopted in the Code of Federal Regulations (CFR) pursuant to RCRA, and the Regulations of Connecticut State Agencies (RCSA).

RCRA Checklist

This Section contains the EPA RCRA Post-Closure Permit Application checklist which has been completed specifically for this permit application. The checklist indicates the items which are included in this RCRA Post-Closure Permit Application for the former surface impoundments at the Textron Lycoming Stratford, Connecticut facility, and the location of each item within the permit application.

Checklist For Part B Application For Post-Closure Permit

EPA I.D. No. CTD001181502

Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
270.14(b)		Part B General Information Requirments	X		B	
270.14(b)(1)		- General description of the closed facility which existed and the facility as closed	X		B-1,B-1a	
270.14(b)(5)		- General Inspection Schedule and Procedures Description		X		
	264.15(b)(1)	- Written schedule		X		
	264.15(d)	- Inspection records		X		
	264.15(b)(2)	- Statement as to where, at the facility, inspection schedule and inspection records will be kept		X		
	264.15(b)(1)	- Identification of item or feature to be inspected		X		
	264.15(b)(3)	- Identification of types of problems for which each item or feature is to be checked		X		
	264.15(b)(4)	- Frequency of inspections by item or feature		X		
	264.15(c)	- Schedule of remedial action		X		
270.14(b)(5) 270.17(c)	264.226	- Specific Inspection Requirements for Surface Impoundments		X		
		- Description of procedures for Inspection of liners/covers		X		
270.17(d)	264.15(a) and 264.226	- Inspections weekly and after storms for				
		- Presence of liquid in leak detection system		X		
		- Integrity of dikes/containment devices		X		

EPA I.D. No. CTD001181502

Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
270.14(b)(5) and 270.18(e)	264.15(a) and 264.254	- Specific Inspection Requirements for Waste Piles		X		
		- Description of procedures for		X		
		- Inspection of liners/covers		X		
		- Inspections weekly and after storms for		X		
		- Operation of run-on/run-off controls		X		
		- Liquids in leak detection system		X		
		- Proper functioning of wind dispersal controls		X		
		- Leachate in and proper operation of leachate collection/removal system		X		
270.14(b)(5) and 270.21(d)	264.15(a) and 264.303	- Specific Inspection Requirements for Landfills		X		
		- Description of procedures for		X		
		- Inspection of liners/covers		X		
		- Inspections weekly and after storms for		X		
		- Operation of run-on/run-off controls		X		
		- Liquids in leak detection system		X		
		- Proper functioning of wind dispersal controls		X		
		- Leachate in and proper operation of leachate collection/removal system		X		
270.14(b)(11)(iii)-(v)	264.18(b)	- Documentation of facility location relative to 100-year flood plain level	X		B-3b	

Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
		- Documentation that facility within a 100-year flood plain can withstand the 100-year flood without washout of hazardous waste by:	X		B-3b	
		- Analysis of hydrodynamic/hydrostatic forces resulting at site from 100-year flood, and		X		
		- Presentation of operating units and flood protection devices design and how they will prevent washout, or	X		B-3b	
		- Plan for removal of waste before washout including,		X		
		- Timing of removal relative to flood levels		X		
		- Estimated time to remove all waste		X		
		- Location to which waste will be moved and proof of compliance with Parts 270 through 271 and 264 through 267 of this Chapter		X		
		- Detailed description of personnel, equipment and procedures for waste removal sufficient to insure availability in time for use		X		
		- Analysis of potential for discharge during waste movement		X		
		- A plan documenting how and on what time schedule the facility will comply with §264.18(b) if not in compliance (existing facilities only).		X		
270.14(b)(13)	264.112 264.114	- Closure Documentation	X		I-1	
		- Description of actual partial or final closure procedures. Closure Plan may be resubmitted or referenced (by date of submittal), with detailed description of exceptions to plan during implementation.	X		I-1	

EPA I.D. No. CTD001181502

Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
		- The closure performance standards (CPSs)	X		I-1a	
		- Soil and groundwater data showing that closing unit met the CPSs	X		I-1c(2)	
270.14(b) (13) and 270.17(g)	264.112 and 264.228(a)	- Specific Closure Documentation for Surface Impoundments	X		I-1	
		- Actual procedures for removal and/or decontamination of all wastes and materials associated with the impoundment, or	X		I-1	
		- A description of the following, actually accomplished:	X		I-1	
		- Elimination of free liquids	X		I-1	
		- Stabililization of remaining wastes	X		I-1	
		- Design of final cover demonstrating	X		I-1	
		- Liquid migration minimization	X		I-1	
		- Function with minimum maintenance	X		I-1	
		- Drainage promotion	X		I-1	
		- Erosion/abrasion minimization	X		I-1	
		- Settling/subsidence accomodation	X		I-1	
		- Permeability less than liner or subsoils		X		
270.14(b) (13) and 270.21(e)	264.112 and 264.310(a)	- Specific Closure Documentation for Landfills		X		
		- Detailed plans and an engineering report which describes the final cover components in detail				

EPA I.D. No. CTD001181502

Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
		- Documentation that the final cover will		X		
		- Provide long-term minimization of migration of liquids through closed landfill		X		
		- Function with minimum maintenance		X		
		- Promote drainage and minimize erosion/ abrasion		X		
		- Settle/subside without losing integrity		X		
		- Be less permeable than bottom liners or subsoils.		X		
270.14(b) (13)	264.117 and 264.118	- Post-Closure Plan Documentation	X		I-2	
		- Description of ground water monitoring activities and frequencies	X		I-2c	
		- Description of maintenance activities and frequencies for:	X		I-2b(2)	
		- Final containment structures	X		I-2b(2)(ii)	
		- Facility monitoring equipment	X		I-2b(2)(iii)	
		- Location(s) and number of copies of post-closure plan	X		I-2h	
		- Identification and location (address and phone number) of person responsible for filing and updating facility copy of post-closure plan during post-closure period	X		I-2e	
		- Procedure for updating all other copies of post-closure plan	X		I-2e	

EPA I.D. No. CTD001181502

Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
		- Specific Post-Closure Plan Requirements for Surface Impoundments	X		I-2	
270.14(b) (13) and 270.17(g) (a) & (f)	264.118 and 264.228(b)	- Procedures for maintenance of groundwater monitoring system.	X		I-2b(2)(iii)	
		- Procedures for compliance with Subpart F	X		I-2c	
		- Procedures for preventing run-on/run-off and final cover damage.	X		I-2b(2)(ii)	
		- Specific Post-Closure Plan Requirements for Waste Piles		X		
270.14(b) (13) and 270.18	264.118 and 264.258(b)	- Procedures for post-closure care that meet the requirments for landfills		X		
		- Specific Post-Closure Plan Requirements for Landfills		X		
270.14(b) (13) and 270.21(e)	264.118 and 264.310(b)	- Procedures for maintenance and repair of final cover		X		
		- Monitoring and maintenance procedures for leak detection system		X		
		- Procedure for leachate collection/removal system operation		X		
		- Procedures for maintainance of groundwater monitoring system		X		
		- Procedures for compliance with Subpart F		X		
		- Procedures for preventing final cap erosion due to run-on and run-off		X		
		- Procedures for protection and maintenance of benchmarks		X		

EPA I.D. No. CTD001181502

Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
	264.310(c)	- Procedures to be undertaken if liquid is found in leak detection system		X		
270.14(b)(14)	264.119(b)	- Documentation of Notice on Deed	X		I-3	
		- Statement that land used to manage wastes	X		I-3	
		- Statement of restricted use per §264.117(c)	X		I-3	
	264.119(a)	- Documentation of type, location, and quantity of wastes filed with local authority and EPA Regional Administrator	X		I-3	
270.14(b)(16)	264.144	- Post-Closure Cost Estimate	X		I-6	
	264.145 and 264.146	- Documentation of a financial assurance mechanism for post-closure that is;	X		I-7	
	264.151(a)	- Closure trust fund		X		
	264.151(b)	- Surety bond guaranteeing payment		X		
	264.151(c)	- Surety bond guaranteeing performance		X		
	264.151(d)	- Post-closure letter of credit		X		
	264.151(e)	- Post-closure insurance		X		
	264.151(f) and (h)	- Financial test and corporate guarantee		X		
		- Multiple financial mechanism for one facility		X		
		- Single financial mechanism for multiple facilities		X		

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Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
270.14(b) (19)		- Topographic map showing a distance of 1000 feet around facility at a scale of not more than 1 inch equals 200 feet that clearly shows	X		B-2	
		- Contours, with intervals not to exceed 5 feet.	X		B-2	
		- Map scale and date	X		B-2	
		- 100-year flood plain area	X		B-3b	
		- Surface waters and intermittent streams	X		B-2, B-3	
		- Surrounding land uses	X		B-1	
		- Wind rose	X		B-2	
		- North orientation	X		B-2	
		- Legal boundaries of facility site	X		B-2	
		- Access control	X		B-2	
		- Injection and withdrawal wells onsite and offsite	X		B-2	
		- Buildings and recreation areas	X		B-2	
		- Runoff control systems	X		B-2	
		- Access and internal roads	X		B-2	
		- Storm, sanitary, and process sewerage systems	X		B-2	
		- Barriers for drainage or flood control	X		B-2	
		- Location of past or present operational units and equipment cleanup areas	X		C	
270.17		Specific Part B Information Requirements for Surface Impoundments				

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Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
270.17(a)		- List of hazardous wastes placed in impoundment	X		B-1a,C-2	
270.18		Specific Part B Information Requirements for Waste Piles		X		
270.18(a)		- List of Hazardous wastes placed in each waste pile		X		
270.21		Specific Part B Information Requirements for Landfills		X		
270.21(a)		- List of hazardous wastes placed in each landfill cell		X		
270.21(b)(2)	274.301(c)	- System for control of run-on from peak discharge of a 25-year storm		X		
270.21(b)(3)	274.301(d)	- System for control of run-off water volume from a 24-hour, 25-year storm		X		
270.21(b)(4)	274.301(e)	- Procedures to manage collection and holding facilities associated with run-on and run-off control systems	X		E	
270.14(c)	Part 264 Subpart F	Part B Protection of Ground Water Information Requirements for Surface Impoundments, Waste Piles, and Landfills				
270.14(c)(1)		- Interim status period ground-water monitoring data summary	X		E-1,E-2	
270.14(c)(2)		- Indentification of uppermost and hydraulically interconnected aquifers under facility facility including,	X		E-2c	
		- Water flow rate and direction	X		E-2c	
		- Bases for identification	X		E-1	
270.14(c)(3) and 270.14(b)(19)		- Topographic map				

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Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
	264.95(b)	- Delineation of waste management area	X		E-1	
	264.95(a)	- Delineation of point of compliance	X		E-1	
		- Ground-water monitoring well locations			E-1a	
		- Location of aquifers	X		E-2c	
	264.97	- Location of GWM wells	X		E-1a	
270.14(c)(4)		- Descriptions of existing contamination	X		E-2d,E-2g	
		- Delineation of plume extent	X		E-2g	
		- Appendix IX constituent concentrations	X		E-2d	
		- Concentrations throughout plume	X		E-2d	
		- Maxium concentrations in plume	X		E-2d	
270.14(c)(5)	264.97	- Detailed plans and an engineering report of Ground Water Monitoring Program	X		E-3	
	264.97(a)	- Description of wells	X		E-3a	
		- Number of wells	X		E-3a	
		- Locations	X		E-3a	
		- Depths	X		E-3a	
		- Assurance of unaffected background water measurement	X		E-3a	
		- Assurance of compliance point ground water measurement	X		E-3a	
	264.97(c)	- Casing description	X		E-3b	
	264.97(d)	- Description of sampling/analysis procedures	X		E-3b	
		- Sample collection methods				

Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
		- Sample preservation/shipment	X		E-3b	
		- Analytical procedures	X		E-3c	
		- Chain of custody control	X		E-3b	
	264.97(e)	- Documentation of proper/adequate analytical procedures	X		E-3c	
	264.97(f)	- Procedure for determination of ground water elevation with each sample	X		E-3b	
270.14(c)(6)	264.91(a)(4) and 264.98	- Description of Detection Monitoring Program including,		X		
270.14(c)(6)(i)	264.93 and 264.98(a)	- List of indicator parameters, waste constituents, reaction products to be monitored for, including		X		
		- Type, quantities, concentrations expected in wastes		X		
		- Mobility, stability, persistence in unsaturated zone		X		
		- Detectability in ground-water		X		
270.14(c)(6)(iii)	264.98(a)(4) and 264.98(c)(1)	- Background ground-water concentration values and coefficients of variation established by		X		
	264.98(c)(3)	- Use of an appropriate ground water monitoring system, and		X		
	264.97(g)(1)	- Quarterly sampling of upgradient wells for one year, or		X		
	264.97(g)(3)	- Quarterly sampling of other wells for one year, and		X		
	264.97(g)(4)	- Data from a minimum of one sample/well and minimum of four samples per quarter, or		X		

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Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
		- Presentation of procedures to calculate such values		X		
270.14(c)(6)(ii)	264.98(b)	- Description of an appropriate ground-water monitoring system installed at the compliance point		X		
270.14(c)(6)(iv)	264.98(d)	- Procedures for collecting semi-annual ground-water samples at the compliance point during the Post-closure period		X		
	264.98(e)	- Procedure for annual determination of uppermost aquifer flow rate and direction		X		
	264.98(f)& 264.97(d) &(e)	- Documentation of sample collection and analysis procedures		X		
	264.98(g)	- Procedure for determining a statistically significant increase for any monitored parameter or constituent by		X		
		- Comparing compliance point data to background value data using the procedures in §264.97(h)(1) or (2), and		X		
		- Providing an estimate of the time period after sampling completion necessary to obtain results		X		
270.14(c)(6)	264.98(h)	- Procedure to be implemented if a statistically significant increase in any constituent or parameter is identified at any compliance point monitoring well, including		X		
	264.98(h)(1)	- Written notification to Regional Administrator		X		
	264.98(h)(2)	- Sample collection and analysis methods for all Appendix IX constituents at all monitoring wells		X		

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Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
	264.98(h)(3)	- Method for establishing Appendix IX constituent background values		X		
	264.98(h)(4)	- Preparation of an application for permit modification to establish compliance monitoring		X		
270.14(c)(7)	264.91(a)(1) and 264.99	- Description of Compliance Monitoring Program, including	X		E-3	
		- List of wastes previously handled at facility			B-1a,C-2	
		- Characterization of contaminated groundwater	X		E-2d,E-2g	
		- Hazardous constituents identified	X		E-2d	
		- Hazardous constituents concentration	X		E-2d	
	264.99(b)	- Description of compliance monitoring system at the compliance point	X		E-3a	
		- List of hazardous constituents to be compliance monitored	X		E-3c	
	264.98	- Proposed compliance period	X		E-3	
	264.99(d)	- Procedure for collecting quarterly samples at compliance point during compliance period	X		E-3b	
	264.99(c)(3)	- Procedures for establishing background concentration values for constituents that are based on	X		E-3e	
		- Use of an appropriate ground-water monitoring system, and	X		E-3a	
	264.97(g)	- Data that is available prior to post-closure permit issuance	X		E-3e	
		- Data that accounts for measurement errors in sampling and analysis	X		E-3e	

Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
		- Data that accounts for seasonal ground-water quality fluctations	X		E-3b	
		- Data from a minimum of one sample per well and a minimum of four samples from monitoring system, each time system is sampled	X		E-3b	
270.14(c)(7)(iv)	264.92 and 264.99(c)(1),(2)	- Proposed concentration limits for constituents with justification based on	X		E-3d	
		- §264.94(a)(1) and §264.97(g)	X		E-3d	
		- §264.94(a)(2)	X		E-3d	
		- §264.94(b) and §264.99(c)(1)	X		E-3e	
	264.99(e)	- Procedure for annual determination of upper-most aquifer flow rate and direction	X		E-3b, E-3c	
	264.99(f)	- Procedure for annual testing of all compliance point wells for Appendix IX constituents	X		E-3b	
	264.99(g)	- Documentation of all sampling and analysis procedures	X		E-3e	
	264.99(h)	- Procedures for determining a statistically significant increase for any monitored constituent by	X		E-3e	
		- Comparing compliance point data to the concentration limit using the procedure in §264.97(h)(2)	X		E-3e	
		- Providing an estimate of the time period after sampling completion necessary to obtain results	X		E-3f	
	264.99(i)	- Procedures to be implemented if the ground-water protection standard is exceeded at any compliance point monitoring well, including				

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Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
	264.99(1)(1)	- Written notification to Regional Administrator	X		E-3f	
	264.99(1)(2)	- Preparation of an application for permit modification to establish a corrective action program, including	X		E-3f	
		- Details of program to comply with ground-water protection standard	X		E-3g	
270.14(c)(7)(v)	264.99(1)(2)(ii)	- Details of ground-water monitoring to demonstrate effectiveness of program	X		E-3g	
270.14(c)(8)	264.91(a)(2) and 264.100	- Description of Corrective Action Program, including		X		
270.14(c)(8)(i)		- Characterization of contaminated groundwater		X		
	264.100(a)(1)	- Identified hazardous constituents		X		
		- Concentrations of hazardous constituents		X		
270.14(c)(8)(ii)	264.100(a)(2)	- Concentration limit for each hazardous constituent		X		
270.14(c)(8)(iii)	264.100(b)	- Detailed plan and an engineering report describing the corrective actions to be taken at the compliance point		X		
	264.100(c)	- Time period necessary to implement corrective action program		X		
270.14(c)(8)(iv)	264.100(d)	- Description of ground-water monitoring program that will be sufficient to assess the adequacy of corrective action		X		
	264.91(a)(3) and 264.100(e)	- Description of the corrective action to be taken for constituents in ground-water between compliance point and downgradient facility boundary		X		

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Part 270	Part 264	Subject Requirement	Provided	Not Applicable	Location in Application	Comments
	264.100(g)	- Procedure and content for semi-annually submitting written reports to the Regional Administrator on program effectiveness		X		
270.14(d)		Information Requirements for Solid Waste Management Units (SWMUs)	X		J	
270.14(d)(1)		- Description of SWMUs, including	X		J	
		- Location on topographical map	X		J	
		- Type of unit(s)	X		J	
		- Dimensions/Structure	X		J	
		- Period of unit operation	X		J	
		- Wastes managed in unit(s)	X		J	
	Part B Certification and Signatories		X		L	
270.11(d)		- Certification paragraph	X		L	
270.11(a)		- Appropriate signatory	X		L	

Section A
RCRA Part A Permit Application [40 CFR 270.13]

A copy of the original RCRA Part A Permit Application for Textron Lycoming's Stratford, Connecticut facility is presented in Appendix A-1. The original RCRA Part A Permit Application dated November 13, 1980 was submitted by the facility operator at that time, AVCO Corporation (AVCO Lycoming), Textron Lycoming's corporate predecessor. AVCO Corporation was purchased by Textron Corporation in 1986, and became its Textron Lycoming Division. Textron Lycoming has operated the facility since 1986.

The original RCRA Part A Permit Application (Form 1, Section II.E.) indicated that the Stratford Textron Lycoming plant was a hazardous waste treatment, storage, or disposal (TSD) facility. In addition, the original RCRA Part A Permit Application (Form 3, Section III.C.) indicated specifically that the Textron Lycoming would operate the following hazardous waste management TSD units:

- 504,000 gallon/day hazardous waste tank treatment (process code T01).
- 6,050 gallon capacity hazardous waste container storage area (process code S01).
- 908,940 gallon hazardous waste surface impoundment storage (process code S04).

At the time of the original RCRA Part A Permit Application filing in 1980, AVCO Corporation was uncertain of exactly how to report its operations in accordance with the new

RCRA hazardous waste management regulations. Therefore, the information as submitted on the original RCRA Part A Permit Application by AVCO Corporation in 1980 reflected a precautionary, conservative approach and actually overstated the facility's hazardous waste management practices.

The treatment activities (process code T01) reported in the original RCRA Part A Application referred to AVCO Lycoming's electroplating wastewater treatment system (NPDES permit number CT0002984). The electroplating wastewater treatment system treats wastewater from the facility's electroplating operation and produces a hazardous wastewater treatment sludge (EPA waste code F006). However, in accordance with 40 CFR 265.1(c)(10), this system is excluded from regulation as a RCRA regulated hazardous waste treatment unit since it is regulated under the Clean Water Act and meets the definition of a "wastewater treatment unit" per 40 CFR 260.10. Therefore, the electroplating wastewater treatment system should not have been reported in the RCRA Part A Permit Application.

The surface impoundment storage (process code S04) referenced in the original RCRA Part A Permit Application referred to the four (4) surface impoundments (one(1) equalization lagoon, three (3) settling lagoons) formerly operated at the facility. The equalization lagoon was used as a holding basin for wastewater influent to the facility's wastewater treatment system. Much of the wastewater influent to the equalization lagoon was generated by the facility's electroplating operations. The settling lagoons were used to settle out the wastewater treatment sludges (EPA waste code F006) from the treatment system's effluent. It is these former surface impoundments (which were certified closed on May 22, 1990 in

accordance with the DEP/EPA-approved Closure Plan) that are addressed in this RCRA Post-Closure Permit Application.

The original RCRA Part A Permit Application referred to the accumulation of hazardous wastes in containers (process code S01) in a drum accumulation area formerly located in a paved area adjacent to the east side of Building 13. This area was notified as an S01 container storage area in the original Part A Permit Application solely on a precautionary basis, as its actual intended use was to accumulate drums of hazardous waste for less than 90 days. Hazardous waste accumulation in this container accumulation area was discontinued in 1984, and the area is currently used for the storage of compressed gas cylinders.

On November 6, 1985, AVCO Corporation submitted a revised RCRA Part A Permit Application to EPA and DEP to correct those items identified above that were included in its original application submitted on November 13, 1980. Form 3, Section III.C. of the revised RCRA Part A Permit Application included only a single RCRA process code, S04, for the facility's surface impoundments. Consistent with their facility operations at that time (as described above), no other RCRA TSD units were reported in the revised RCRA Part A Permit Application.

In addition to the RCRA TSD units notified on the original and revised RCRA Part A permit Applications, the facility also formerly operated two small, roofed container accumulation areas (Container Accumulation Areas A and B) located west of Building 18. Use of Container Accumulation Areas A and B was discontinued in 1986. Although it never was

the policy or intent of Textron Lycoming to accumulate containers of hazardous waste for more than 90 days in this area, in 1989, at the request of DEP, a Closure Plan was submitted for these areas. Textron Lycoming is currently awaiting DEP approval of this Closure Plan. Upon receipt of DEP approval, Textron Lycoming will implement formal closure of these inactive container accumulation areas in accordance with the approved Closure Plan.

Textron Lycoming is not currently operating any hazardous waste TSD units at its Stratford facility and is operating only as a generator of hazardous waste. Textron Lycoming will be applying shortly for a change in RCRA status notification to DEP and EPA under separate cover. Post-Closure maintenance and monitoring of the closed surface impoundments will be managed under the RCRA permit issued in response to this RCRA Part B Permit Application, and the facility will continue to operate as a hazardous waste generator.

Appendix A-1

Original RCRA Part A Permit Application Dated November 13, 1980

1 GENERAL — EPA — GENERAL INFORMATION
Consolidated Permits Program
(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: CTD001181502

III. FACILITY NAME: AVCO CORPORATION

V. FACILITY MAILING ADDRESS: 550 MAIN ST, STRATFORD CT 06497

VI. FACILITY LOCATION: 550 MAIN ST, STRATFORD CT 06497

II. POLLUTANT CHARACTERISTICS

A.	X				X
B.	X	N.A.			X
C.	X	X			X
D.		X			X
E.		X			X

III. NAME OF FACILITY

AVCO LYCOMING STRATFORD ARMY ENGINE PLNT

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)

BONITATEBUS PETER CHF PLT UTIL 203 | 373 | 8211

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

550 SOUTH MAIN STREET

B. CITY OR TOWN

STRATFORD CT 06497

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

550 SOUTH MAIN STREET

B. COUNTY NAME

FAIRFIELD

C. CITY OR TOWN

STRATFORD CT 06497

EPA Form 3510-1 (6-80)

CONTINUE ON REVERSE

C. THIRD		D. FOURTH	
724 (specify)	JET ENGINES	3351 3 (specify)	TANK ENGINES
(specify)	—	(specify)	—

OPERATOR INFORMATION

A. NAME

AVCO CORPORATION

STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)

P (specify) —

203 552 1800

E. STREET OR P.O. BOX

1275 KING STREET

F. CITY OR TOWN

GREENWICH CT 06830

CT0002984	N.A.
N.A.	CT0173 series (specify) CT. D.E.P. APCC
FORM 3	(specify)

NATURE OF BUSINESS (provide a brief description)

ENGINE MANUFACTURE

- MACHINING, FINISHING, ASSEMBLY AND TESTING

CERTIFICATION (see instructions)

NAME & OFFICIAL TITLE (type or print)
D. H. Carpenter, Vice President
Industrial Resources & Planning

B. SIGNATURE [signature]

C. DATE SIGNED
12/13/80

COMMENTS FOR OFFICIAL USE ONLY

EPA Form 3510-1 (6-80) REVERSE

RCRA | EPA

Consolidated Permits Program

(This information is required under Section 3005 of RCRA

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

I. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

C	YR.	MO.	DAY
8	58		

[ ] 2. NEW FACILITY *(Complete item below.)*

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

YR.	MO.	DAY

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[ ] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR OR GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided: Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECTARES	Q

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S02	600	G	
X-2	T03	20	E	
1	S01	6050	G	
2	S04	908,940	G	
3	T01	504,000	U	
4				
5				
6				
7				
8				
9				
10				

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
5				
6				
7				
8				
9				
10				

CONTINUE ON REVERSE

...ICE OR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES (CODE ... FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. EPA HAZARDOUS WASTE NUMBER — Enter the four-digit number from 40 CFR, Subpart D, for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four-digit number(s) from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY — For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed wastes that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:
For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
For non-listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.
Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER — Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV (shown in line numbers X-1, X-2, X-3, and X-4 below) — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
X-1	K 0 5 4	900	P	T 0 3 D 8 0	[illegible]
	D 0 0 2	400	P	T 0 3 D 8 0	[illegible]
	D 0 0 1	100	P	T 0 3 D 8 0	[illegible]
X-4	D 0 0 2				included with above

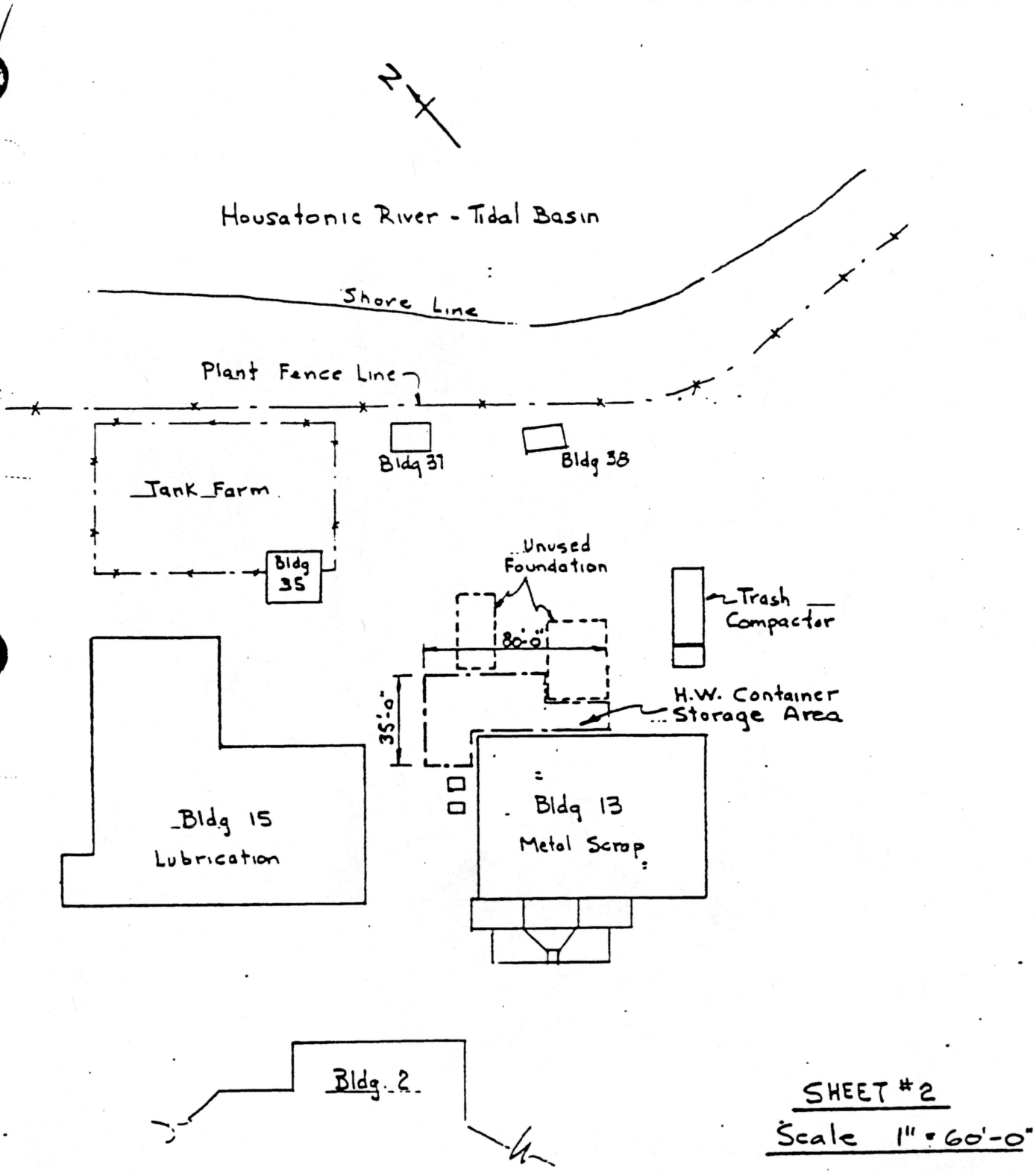
CONTINUE ON PAGE 3

EPA I.D. NUMBER (enter from page 1): C T D 0 0 1 1 8 1 5 0 2 — T/A: 1

FOR OFFICIAL USE ONLY: W — DUP — T/A: 2 — DUP

V. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	F001	24.8	T	S01	
2	F007	192,150	T	S04 T01	
3	F009				INCLUDED WITH LINE 2
4	F006	1000	T	S04	
5	[illegible]				
6	F008	1,100	P	S01	
7	F017	300	P	S01	
8					
9		The following wastes are presently held in the			
10		"Container Storage Area" – The type and amount of wastes			
11		in this area will vary from year to year.			
12	U031	4	T	S01	
13	U013			S01	INCLUDED WITH LINE 12
14	D002			S01	INCLUDED WITH LINE 12
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					



SHEET #2

Scale 1" = 60'-0"

EPA I.D. Nº CT D00118150 2 AVCO LYCOMING

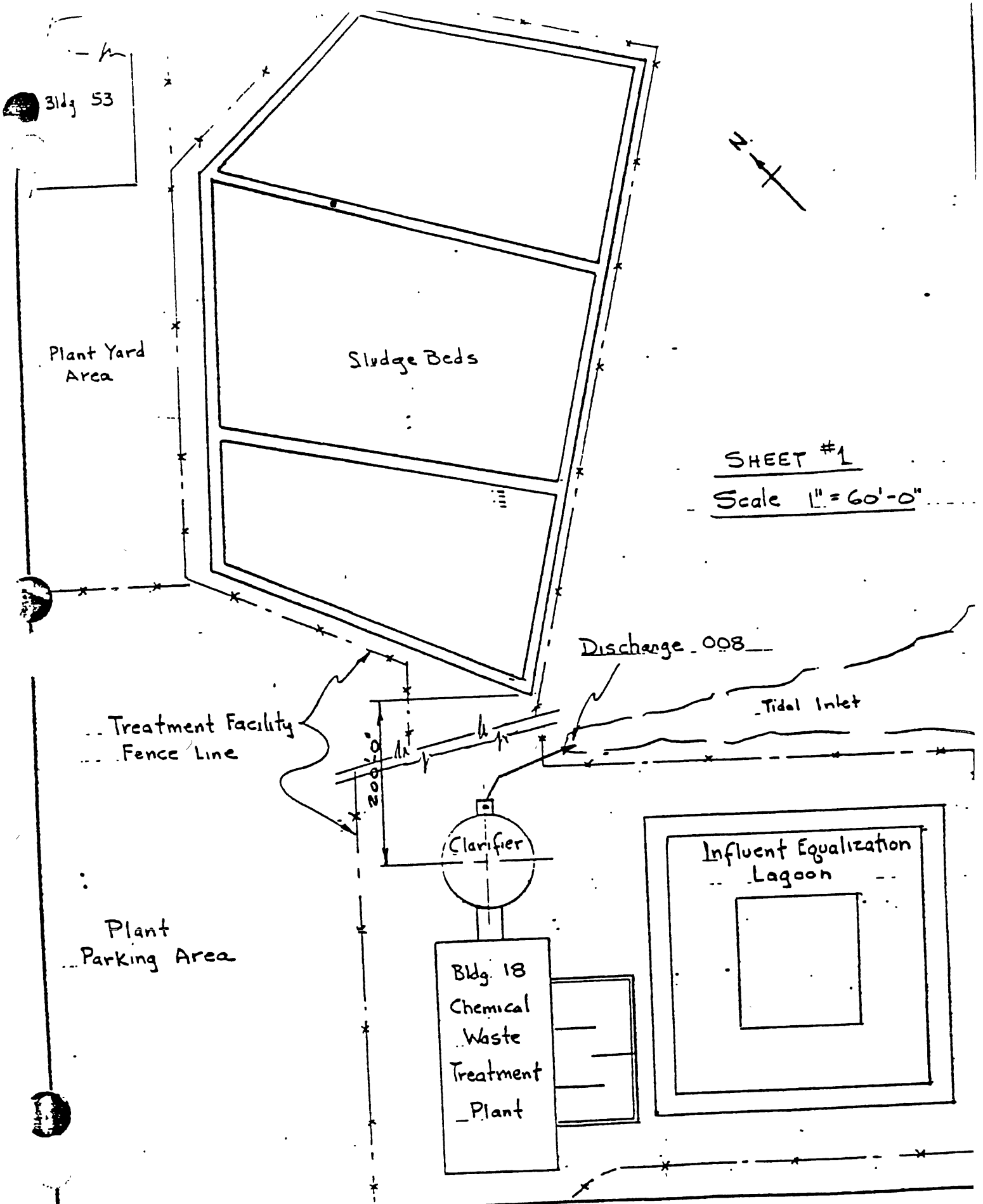
FORM 1 ITEM X - EXTENSION

EXISTING ENVIRONMENTAL PERMITS

CT. D.E.P. - APCC

REGISTRATION NUMBERS

± 0178 - 0087
" - 0090 THRU 0097
" - 0116
" - 0180
" - 0181
" - 0183 THRU 0212
" - 0271 THRU 0286
" - 8001


Bldg 53
Plant Yard Area
Sludge Beds
N
SHEET #1
Scale 1" = 60'-0"
Discharge 008
Tidal Inlet
Treatment Facility
Fence Line
Clarifier
Influent Equalization Lagoon
Plant Parking Area
Bldg. 18 Chemical Waste Treatment Plant

Appendix A-2

Revised RCRA Part A Permit Application Dated November 6, 1985

AVCO LYCOMING DIVISION 550 SO MAIN ST. STRATFORD. CONN 06497 TELEPHONE (203) 385-2000

November 25, 1985

Mr. Richard Boynton
Chief of CT/RI Waste Program Section
USEPA Region I
HSC-CAUS
JFK Federal Building
Boston, MA 02203

Dear Mr. Boynton:

Enclosed please find the amended RCRA Part A Permit Application for the Avco Lycoming Textron, Stratford Army Engine Plant, in Stratford, Connecticut.

The amended RCRA Part A Permit Application is being submitted because some of the operations that were listed in the Part A as being hazardous waste treatment or storage activities are no longer defined under RCRA or the Connecticut DEP as being hazardous waste treatment or storage activities. In addition, other minor changes have been incorporated into the amended Part A.

Very truly yours,

AVCO LYCOMING TEXTRON

John Fleming

John Fleming, Chief
Environmental Engineering

cc: Mr. Barry Circux
Connecticut DEP
State Office Building
165 Capitol Avenue
Hartford, CT 06106

Please print or type in the unshaded areas only (fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F C T D 0 0 1 1 8 1 5 0 2

I. EPA I.D. NUMBER: CTD001181502

III. FACILITY NAME: AVCO CORPORATION

V. FACILITY MAILING ADDRESS: 550 Main Street, Stratford, CT 06497

VI. FACILITY LOCATION: 550 Main Street, Stratford, CT 06497

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill—in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI (except VI-B which must be completed regardless). Complete all Items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X	
B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)	X		NA
D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	
J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP: AVCO LYCOMING STRATFORD ARMY ENGINE PLNT

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title): 2 FLEMING JOHN CHF ENV COMPL

B. PHONE (area code & no.): 203 385 3964

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX: 3 550 SOUTH MAIN STREET

B. CITY OR TOWN: 4 STRATFORD

C. STATE: CT D. ZIP CODE: 06497

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5 550 SOUTH MAIN STREET

B. COUNTY NAME: FAIRFIELD

C. CITY OR TOWN: 6 STRATFORD

D. STATE: CT E. ZIP CODE: 06497 F. COUNTY CODE (if known):

CONTINUE ON REV

CONTINUED FROM THE FRONT

VII SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
7 3 7 2 4 (specify) JET ENGINES	7 3 5 1 9 (specify) TANK ENGINES
C. THIRD	D. FOURTH
7 (specify) –	7 (specify) –

VIII. OPERATOR INFORMATION

A. NAME: AVCO LYCOMING TEXTRON

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☒ NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box: if "Other", specify.)
F = FEDERAL; M = PUBLIC (other than federal or state); S = STATE; O = OTHER (specify); P = PRIVATE — P (specify)

D. PHONE (area code & no.): A 203 552 1800

E. STREET OR P.O. BOX: 1275 KING STREET

F. CITY OR TOWN: B GREENWICH

G. STATE: CT — ZIP CODE: 06830

IX. INDIAN LAND
Is the facility located on Indian lands? ☐ YES ☒ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water): 9 N CT0002984	D. PSD (Air Emissions from Proposed Sources): 9 P NA
B. UIC (Underground Injection of Fluids): 9 U NA	E. OTHER (specify): 9 C T0178 series (specify) CT. D.E.P. APCC
C. RCRA (Hazardous Wastes): 9 R FORM 3	E. OTHER (specify): 9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

ENGINE MANUFACTURE

MACHINING, FINISHING, ASSEMBLY AND TESTING

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
D.H. Carpenter, Director of Plant Engineering & Maintenance	D H Carpenter	Nov. 6 1985

COMMENTS FOR OFFICIAL USE ONLY

EPA Form 3510-1 (6-80) REVERSE

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch)

Form Approved OMB No. 158-S80004

FORM 3 RCRA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER: F C I D 0 0 1 1 8 1 5 0 2

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr. mo. & day)

COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION (Place an "X" below and provide the appropriate date)

☐ 1. EXISTING FACILITY (See instructions for definition of "existing" facility. Complete item below.)

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED (use the boxes to the left)

C 8 5 8 | mo. | day

☐ 2. NEW FACILITY (Complete item below.)

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

yr. | mo. | day

B. REVISED APPLICATION (Place an "X" below and complete Item I above)

☐ 1. FACILITY HAS INTERIM STATUS

☐ 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided on the form (Item III-C).

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER (barrel, drum, etc.)	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET (the volume that would cover one acre to a depth of one foot) OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided: Item III-C.)	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G
LITERS	L
CUBIC YARDS	Y
CUBIC METERS	C
GALLONS PER DAY	U
LITERS PER DAY	V
TONS PER HOUR	D
METRIC TONS PER HOUR	W
GALLONS PER HOUR	E
LITERS PER HOUR	H
ACRE-FEET	A
HECTARE-METER	F
ACRES	B
HECTARES	Q

EXAMPLE FOR COMPLETING ITEM III (shown in line numbers X-1 and X-2 below): A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G	
X-2	T 0 3	20	E	
1				
2	S 0 4	90S,940	G	
3				
4				
5				
6				
7				
8				
9				
10				

CONTINUE ON PAGE

Continued from page 2.
NOTE. Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved. OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
WICTD001181502 1	W DUP 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	F007	192,150	T	S04	
2	F009				included with Line 1
3	F006	1,000	T	S04	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

CONTINUE ON REVERSE

EPA Form 3510-3 (6-80)

(enter "A", "B", "C" etc. below the "3" to identify additional pages)

Continued from the front

III. PROCESSES (continued)

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES (code T04). FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. EPA HAZARDOUS WASTE NUMBER — Enter the four-digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four-digit number(s) from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY — For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE
POUNDS	P
TONS	T

METRIC UNIT OF MEASURE	CODE
KILOGRAMS	K
METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:
   For listed hazardous wastes: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non-listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER — Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV (shown in line numbers X-1, X-2, X-3, and X-4 below) — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter codes)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	D005	900	P	T03 D80	
X-2	D006	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				included with above

CONTINUE ON PAGE 3

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. (enter from page 1)

F: C T D 0 0 1 1 8 1 5 0 2 | 16

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility (see instructions for more detail).

VI. PHOTOGRAPHS

All existing facilities must include photographs (aerial or ground—level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)	LONGITUDE (degrees, minutes, & seconds)
41 10 03.0	073 07 03.0

VIII. FACILITY OWNER

☐ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. (area code & no.)
E: US Army Aviation Systems Command	314-263-2273

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F: 4300 Goodfellow Boulevard	G: St. Louis	MO	63120

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

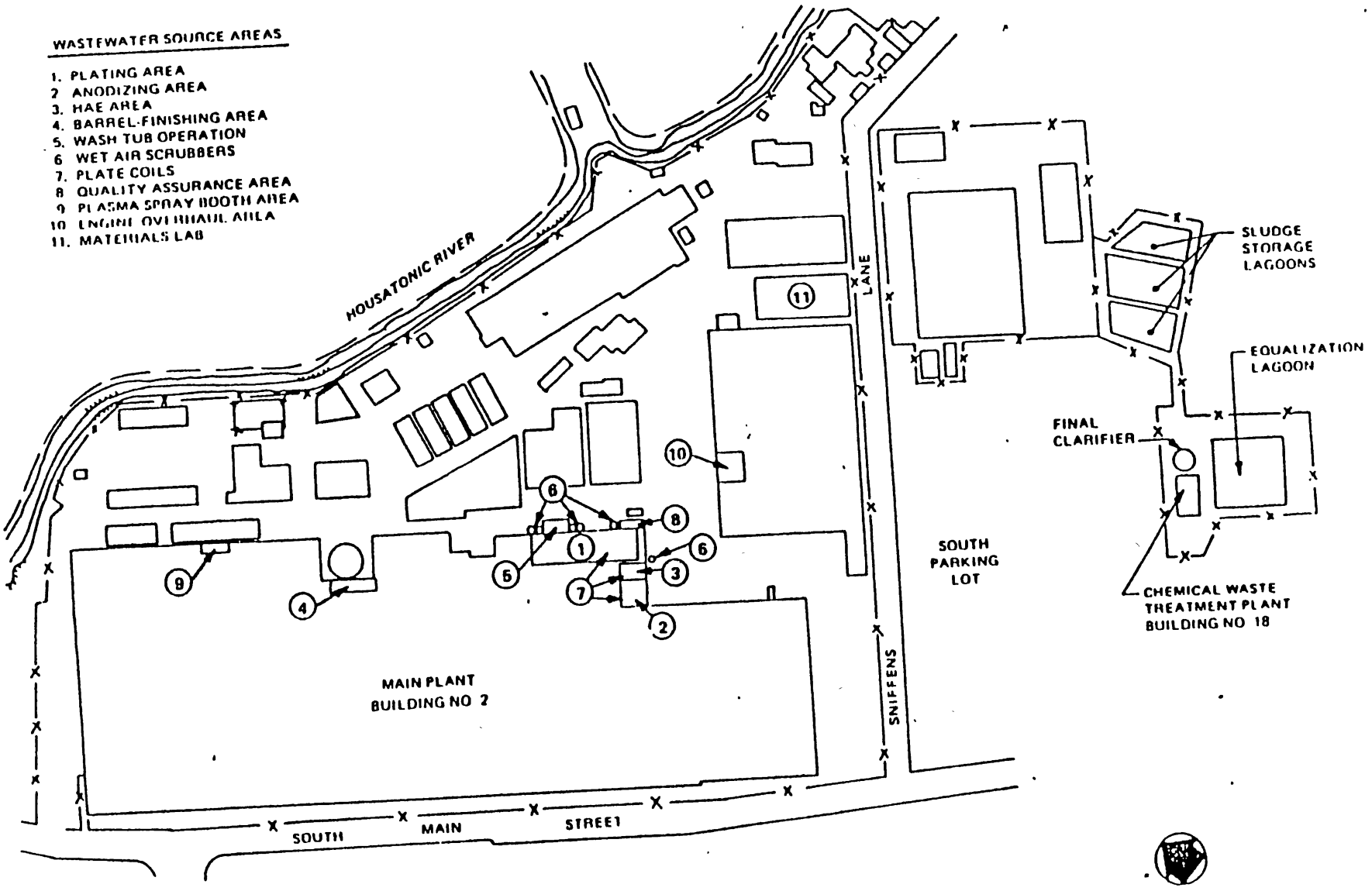
A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
CHARLES L. BROWN, JR., COL, GS Dep Cdr for Instl & Resr Mgt	Charles L. Brown Jr.	7 Nov 85

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

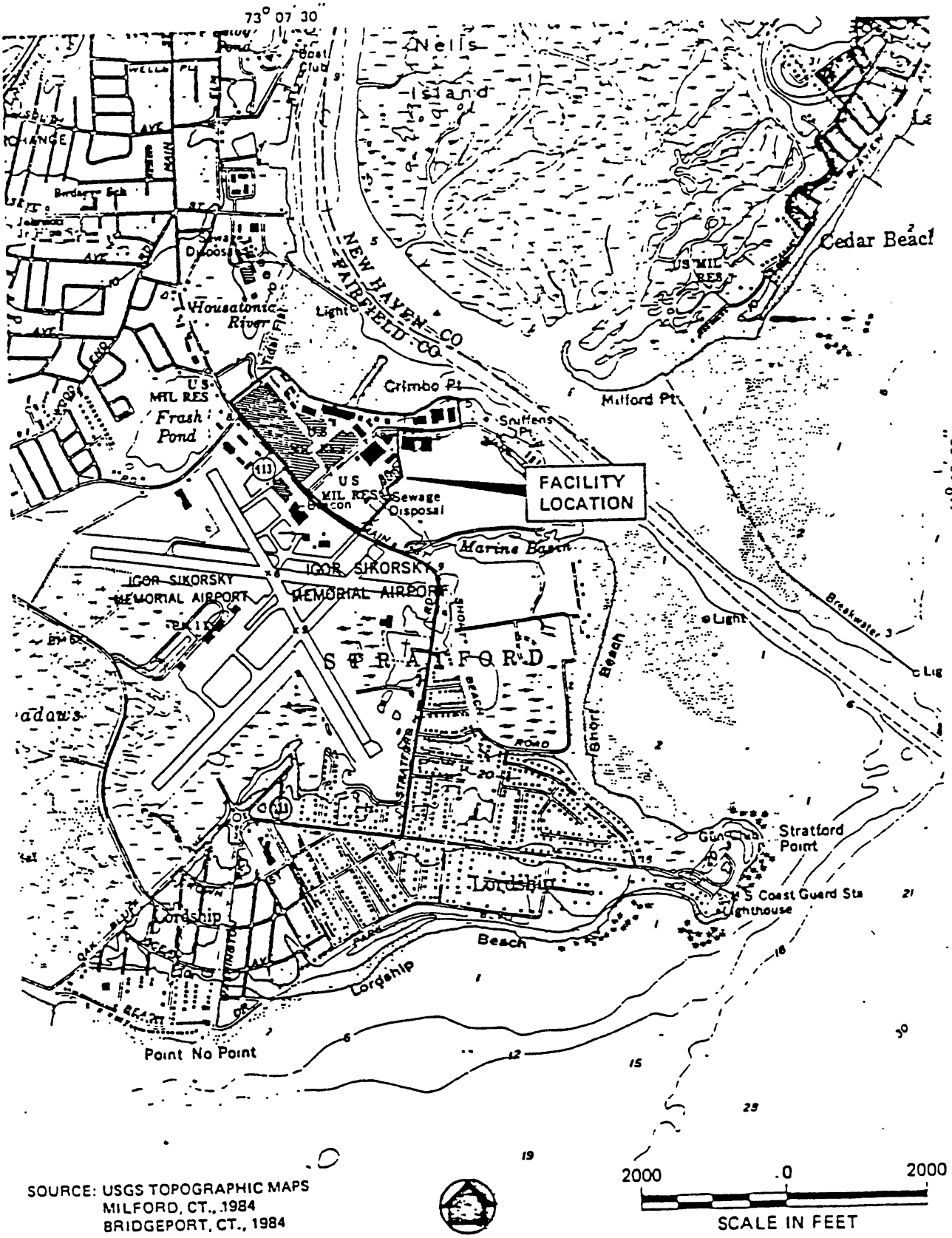
A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
D.H. Carpenter, Director of Plans, Engineering & Maintenance	D H Carpenter	Nov. 6 1985

CONTINUE ON PAGE 5



NOTE FROM CONCEPT ENGINEERING REPORT, SAFP CHEMICAL WASTE TREATMENT AND DISPOSAL, WESTON, 1982.

AVCO LYCOMING PLANT LAYOUT AND WASTEWATER SOURCE LOCATIONS



SOURCE: USGS TOPOGRAPHIC MAPS
MILFORD, CT., 1984
BRIDGEPORT, CT., 1984

LOCATION MAP – AVCO LYCOMING FACILITY

Section B
Facility Description

Table of Contents

Section	*Title*	*Page*
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B-3a	Seismic Considerations	B-16
B-3b	Floodplain Standard	B-16

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B-6	Topographic Map	B-14
B-7	Windrose	B-15
B-8	Floodplain Map	B-17

Section B
Facility Description

This section presents a general description of the AVCO Corporation, Textron Lycoming Division (Textron Lycoming) facility. A brief description of the facility's hazardous waste management operations including the former surface impoundments, and tank and container accumulation areas is presented. Topographic maps and figures containing the information required by 40 CFR 270.14(b)(19) are also presented. In addition, compliance with the seismic and floodplain standards of 40 CFR 270.14(b)(11) is demonstrated.

B-1 General Description [40 CFR 270.14(b)]

The Textron Lycoming facility (EPA Identification Number CTD001181502), which is owned by the U.S. Army and operated by Textron Lycoming, is a 75 acre site (with an additional 51 acres of riparian rights on the Housatonic River) located at 550 Main Street; Stratford, Connecticut. The facility is also known as the "Stratford Army Engine Plant (SAEP)." Textron Corporation took over operation of the facility after acquiring the site's previous operator, AVCO Corporation, in 1986

The land use immediately surrounding the property is residential, commercial, and industrial. The Textron Lycoming facility is bordered by a ballfield and beyond it, residences to the north; the Housatonic River to the east; Main Street, commercial property, and Sikorsky Memorial Airport to the west. The facility is bordered by a tidal marsh, marine basin, and few residences to the south, which are all adjacent to Long Island Sound.

Textron Lycoming manufactures and assembles turbine engines for tank and aircraft applications at its Stratford, Connecticut facility. The production processes for these engines include metal working operations and the plating of engine parts with chrome, copper, and nickel. Other baths associated with these plating operations include cleaning baths (such as acid and alkaline cleaners) and rinse (water) baths.

A site plan of the Textron Lycoming facility is presented in Figure B-1. The Textron Lycoming manufacturing operations are conducted primarily in Building 2. Other buildings

house ancillary production processes, engine testing and research facilities, warehousing, and other maintenance and support services, as indicated below:

• Building 16: Engine Test Facility	• Building 67: Warehouse
• Building 58: Flow Test Lab	• Building 61: Refrigeration Plant
• Building 48: Maintenance Shop	• Building 6: Engineering Research & Support Labs
• Building 3A: Quality/Materials Test Lab	• Building 17: Research Assembly
• Building 34: Fuel Pumping Station	• Building 18: Chemical Wastewater Treatment
• Building 19: Combustion Research Facility	• Building 71: Sludge Filter System

Figure B-1 also contains the following information:

- Legal boundaries of the hazardous waste management facility site
- Access control, including fences and gates
- Internal roads
- Building locations
- Loading and unloading areas for hazardous waste operations
- Former surface impoundments (TSD operations)

Hazardous waste generated at the Textron Lycoming facility is managed in several tank and container accumulation areas. All such waste accumulation areas are operated in accordance with 40 CFR 262.34, and maintained to ensure that all hazardous waste is removed from these storage areas within 90 days of the initial accumulation date for the tanks and containers. Information on these hazardous waste management units is presented in Section J.

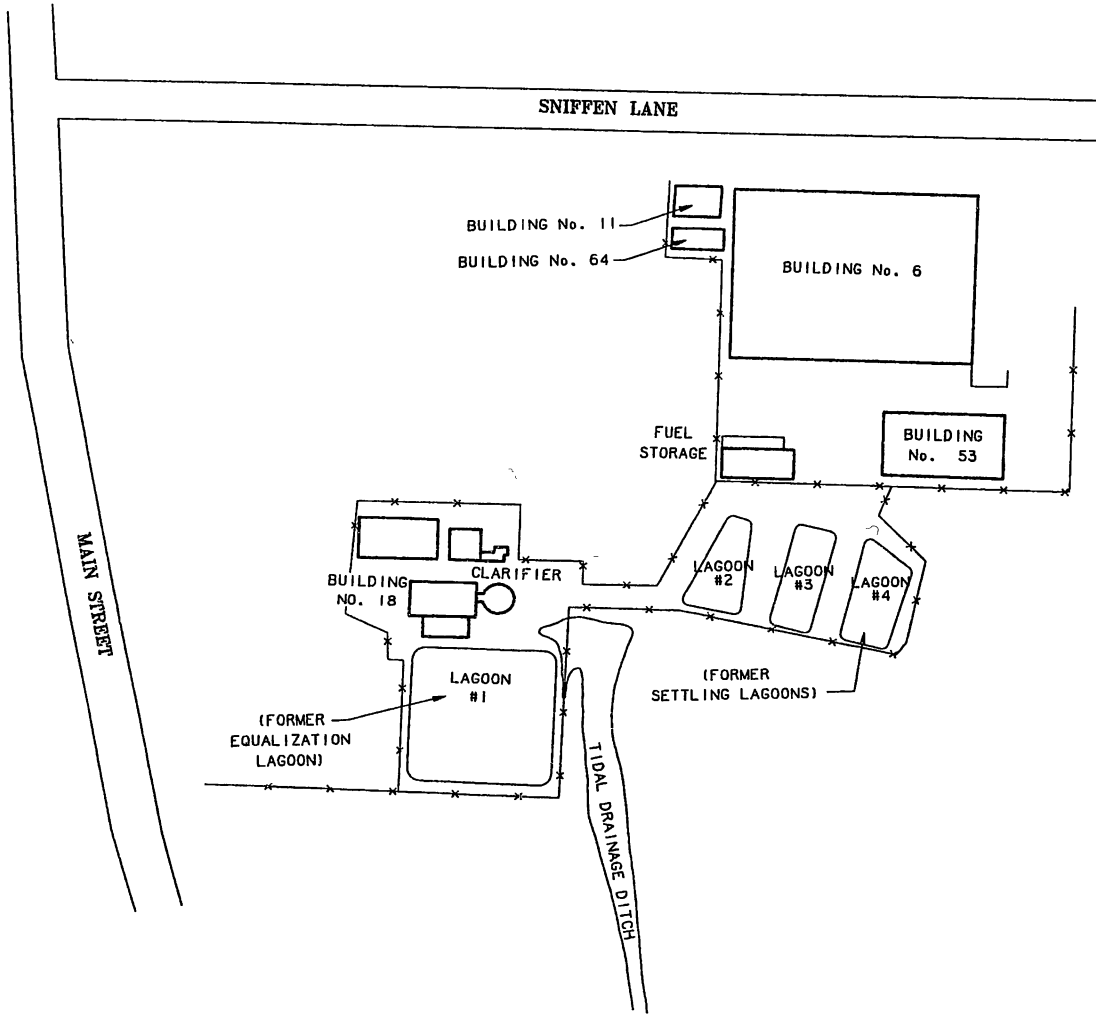
Additional information regarding the Textron Lycoming facility is presented in the following figures:

- Figure B-2 indicates the storm drains and sewer system
- Figure B-3 identifies the sanitary drains and sewer system
- Figure B-4 shows the process waste sewer lines serving the facility

B-1a Description of Former Surface Impoundments

AVCO Corporation formerly operated four surface impoundments in the southern portion of their Stratford facility. A plan view of the former surface impoundment area as it existed in 1984 is presented in Figure B-5. Wastewaters from metal plating and finishing operations were pumped to one of the former surface impoundments, an equalization lagoon. In addition, wastewaters from several other areas of the plant were piped to the equalization lagoon. The plant areas formerly contributing flow to the equalization lagoon are summarized below:

- Anodizing area
- HAE area
- Main plating area
- Materials lab
- Plasma spray booth area
- X-ray Department



LEGEND:

BUILDING

FENCE LINE

0 100 200

SCALE IN FEET

SCALE: 1" = 160'

FIGURE B-5

FORMER SURFACE IMPOUNDMENTS

TEXTRON LYCOMING
STRATFORD, CONNECTICUT

NO	DATE	REVISIONS	CHK BY:	DATE
0	11/14/91	ISSUED FOR PERMIT APPLICATION	JED	

WehranEnviroTech

ER SURFACE IMPROV DWG- LL119103

OCM-102215.04 H

- Tumbling machine effluent
- Wash tub operation
- Wet air scrubbers

Information on the composition of these wastewaters is provided in Section C.

These wastewaters were then treated in the facility's chemical waste treatment system in Building 15. Alkaline chlorination was used to first treat the cyanides contained in the wastewater. The chromium in the wastewater was then reduced to the trivalent state by the addition of sulfuric acid and sodium metabisulfite. Metals were precipitated as metal hydroxides with a lime treatment, after the cyanide destruct and chrome reduction treatment. The outflow from the treatment system clarifier was discharged to an outfall near the treatment plant in accordance with an NPDES permit under Section 402 of the Clean Water Act. The metal hydroxide sludge from the treatment system was then pumped to one of three sludge settling/drying lagoons.

The approximate surface areas of the four surface impoundments are presented below:

Lagoon #	Surface Impoundment	Surface Area (ft^2)
1	Equalization Lagoon	25,600
2	Sludge Storage Lagoon (South)	9,140
3	Sludge Storage Lagoon (Middle)	7,920
4	Sludge Storage Lagoon (North)	12,600

The total area occupied by these impoundments was approximately 1.3 acres.

The equalization lagoon was lined with a bentonite liner several feet in thickness to prevent the migration of untreated wastes to the underlying soils. The three sludge holding lagoons were unlined. The volume of sludge material in the four lagoons was estimated to be approximately 10,500 cubic yards. This volume was determined using the former lagoon topography (prior to closure) and knowledge of the base elevation of the lagoons.

The hazardous wastes managed in the former equalization lagoon consisted of the following:

- Spent cyanide plating bath solutions from electroplating operations (EPA Hazardous Waste Code #F007)
- Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process (EPA Hazardous Waste Code #F009)
- Wastewater treatment sludges from electroplating operations (EPA Hazardous Waste Code #F006)

The sources for these hazardous wastes were as follows:

- The volume of material discharged to the equalization lagoon that has the EPA Hazardous Waste Codes F007 and F009 was approximately 1,600 gallons per day. The majority of this wastewater was rinsewater used to clean pieces that had been plated.
- The amount of wastewater discharged to the equalization lagoon exhibiting the EP Toxicity Characteristic for cadmium and/or chrome was approximately 77,500 gallons per day. Wastewater treatment sludges were accumulated in the equalization lagoon because of the settling of suspended solids from the equalizing wastewater.

- The sludge generated in the chemical wastewater treatment system (EPA Hazardous Waste #F006) was discharged to one of the three sludge storage lagoons. The volume of this material discharged to the holding lagoons was approximately 7,700 pounds per day (960 gallons per day).

In 1986, a new chemical wastewater treatment system was installed. This new treatment system includes an equalization tank to replace the former equalization lagoon, and a filter press for sludge dewatering to replace the three sludge settling lagoons. Once this new system became operational, the equalization and sludge settling lagoons were closed in accordance with a DEP/EPA-approved Closure Plan. The former surface impoundments were certified closed on May 22, 1990.

Closure of the surface impoundments was accomplished by:

- removing standing liquids
- removing and de-watering contaminated sludge materials
- transporting de-watered sludge to an off-site permitted facility for treatment and landfilling by a licensed hauler
- capping the area with an impermeable final cover

Closure activities conducted for the surface impoundments are described in more detail in Section I-1.

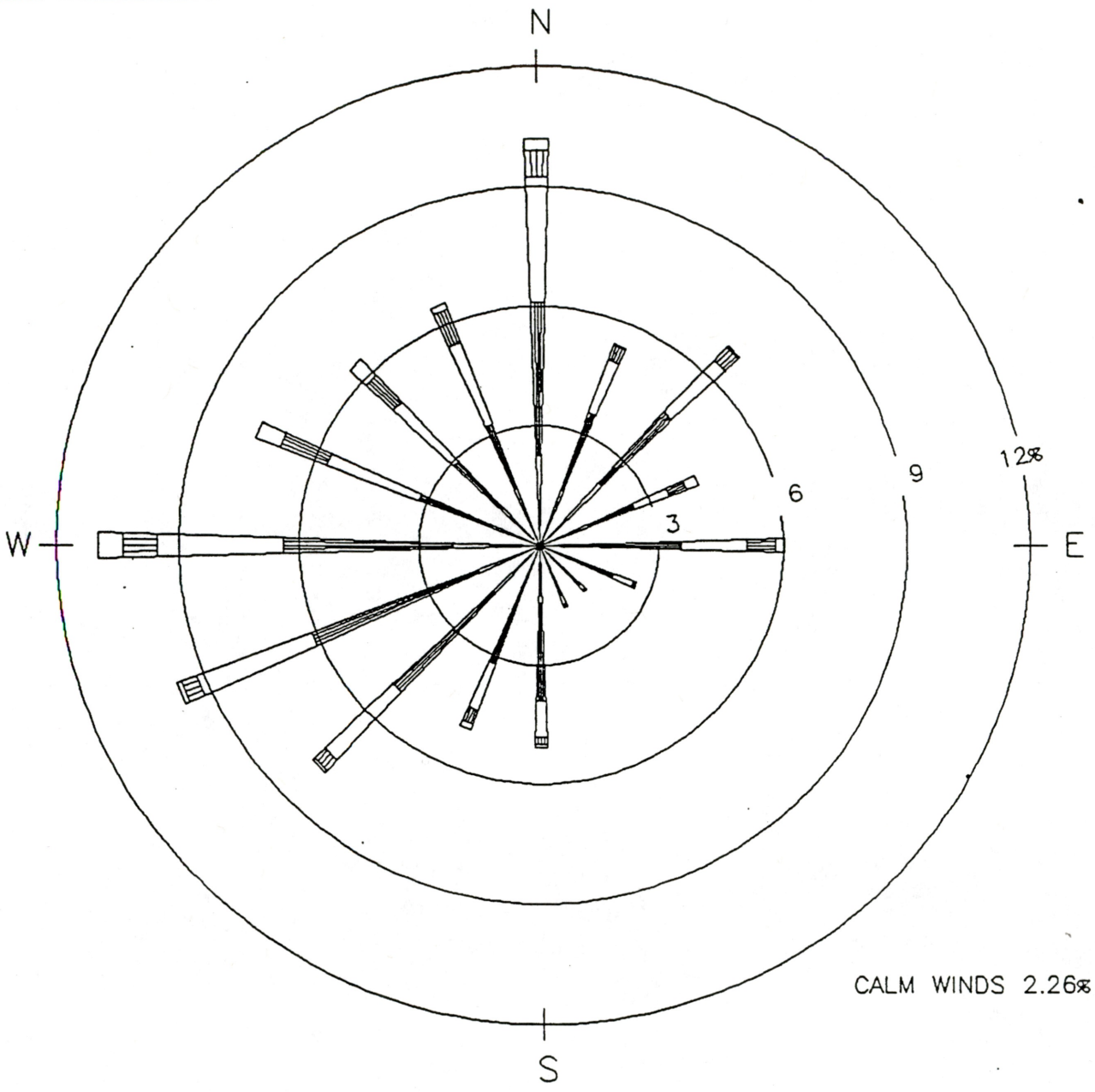
Currently, no wastes are stored in the area of the former surface impoundments. As a part of closure, the area was graded and seeded with grass. The closed surface impoundments are currently secured and maintained as required by the facility's existing Post-Closure Plan.

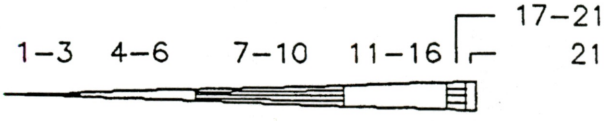
B-2 Topographic Map [40 CFR 270.14(b)(19)]

An enlarged excerpt from United States Geological Survey (USGS) topographic maps for the Milford, Connecticut quadrangle dated 1960, revised 1984, and Bridgeport, Connecticut quadrangle dated 1970, revised 1984, is presented in Figure B-6, which indicates the:

- location of the Textron Lycoming facility
- map scale, legend, and date
- surface waters
- orientation of the map (north arrow)
- contour lines for the facility and the off-site area within 1000′ of the facility

A wind rose is presented in Figure B-7 to show typical speed and direction of winds that can be expected to occur at the Textron Lycoming facility. The wind rose presented in Figure B-7 indicates the frequency of occurrence of wind speeds and directions for Sikorsky Memorial Airport in Stratford, Connecticut. The winds experienced at the Textron Lycoming facility will be identical to those occurring at the Sikorsky Memorial Airport since the airport is adjacent to the Textron Lycoming facility.





WIND SPEED CLASSES
(KNOTS)

WehranEnviroTech

Figure B-7

1974 Annual Windrose for Sikorsky Airport

Textron Lycoming • Stratford, Connecticut

Notes: Diagram of the frequency of occurrence for each wind direction. Wind direction is the direction from which the wind is blowing. Example — wind is blowing from the north 10.2% of the time.

B-3 Facility Location Information [40 CFR 270.14(b)(11)]

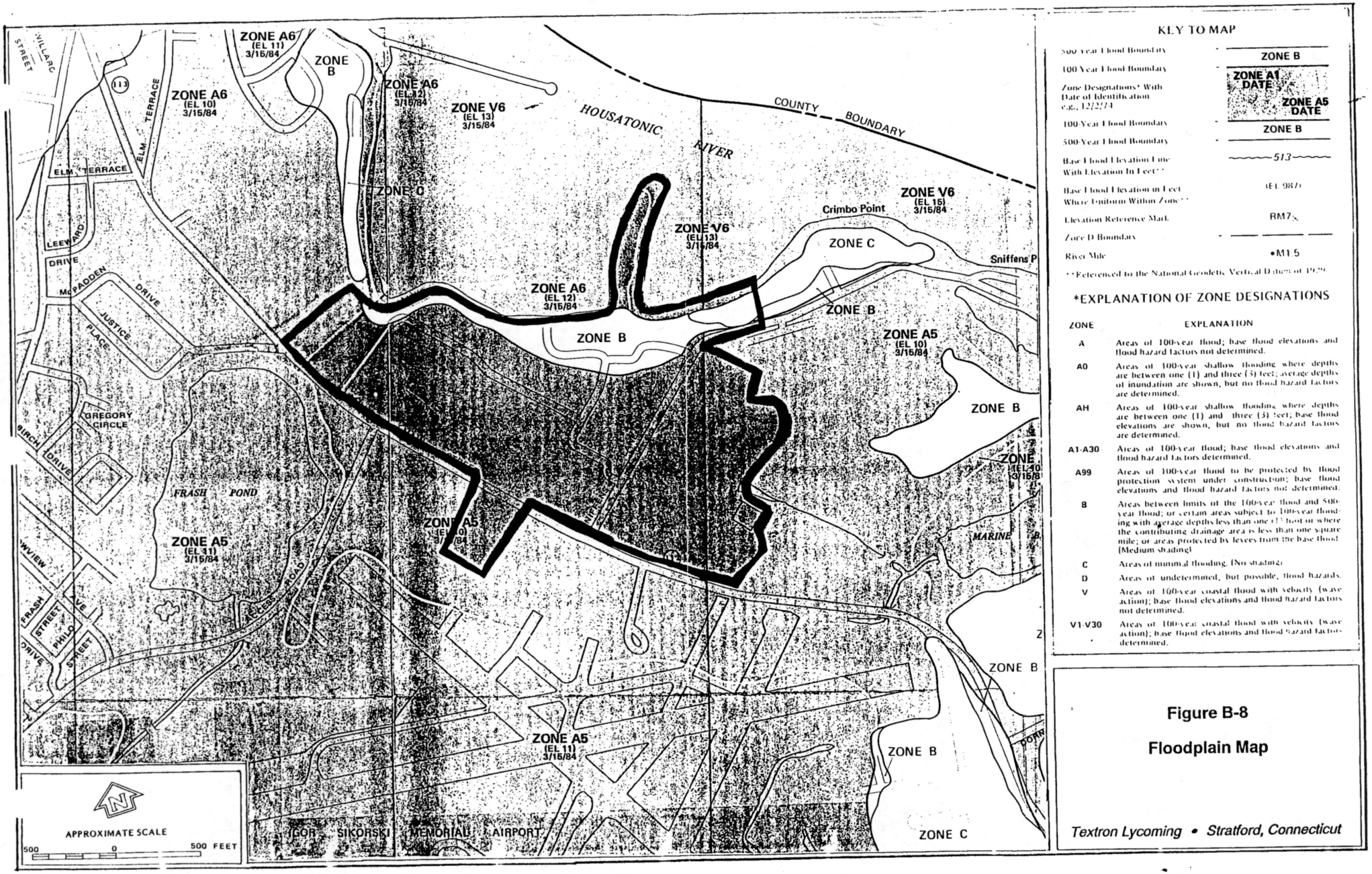
B-3a Seismic Considerations [40 CFR 270.14(b)(11)(i); 264.18(a); 264 Appendix VI]

The Textron Lycoming facility is located in Stratford, Connecticut. Since the facility location is not listed in 40 CFR 264 Appendix VI, no other information is required to demonstrate compliance with 40 CFR 264.18(a).

B-3b Floodplain Standard [40 CFR 270.14(b)(11)(iii)]

A Flood Insurance Study has been conducted by the Federal Emergency Management Agency (FEMA) for the Town of Stratford, Connecticut. This study region includes the Textron Lycoming facility.

In accordance with 40 CFR 270.14(b)(iii), a copy of the relevant portions of the FEMA, Flood Insurance Rate Maps, Panel Numbers [090016-0004C] are presented in Figure B-8. This map indicates that the location of the former surface impoundment area is designated as Zone A-5. The Zone A-5 designation indicates that the area of the former surface impoundment is within the 100-year floodplain.



KEY TO MAP

500-Year Flood Boundary	ZONE B
100-Year Flood Boundary	ZONE A1 DATE / ZONE A5 DATE
Zone Designations* With Date of Identification e.g., 12/2/74	
100-Year Flood Boundary	ZONE B
500-Year Flood Boundary	
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7x
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

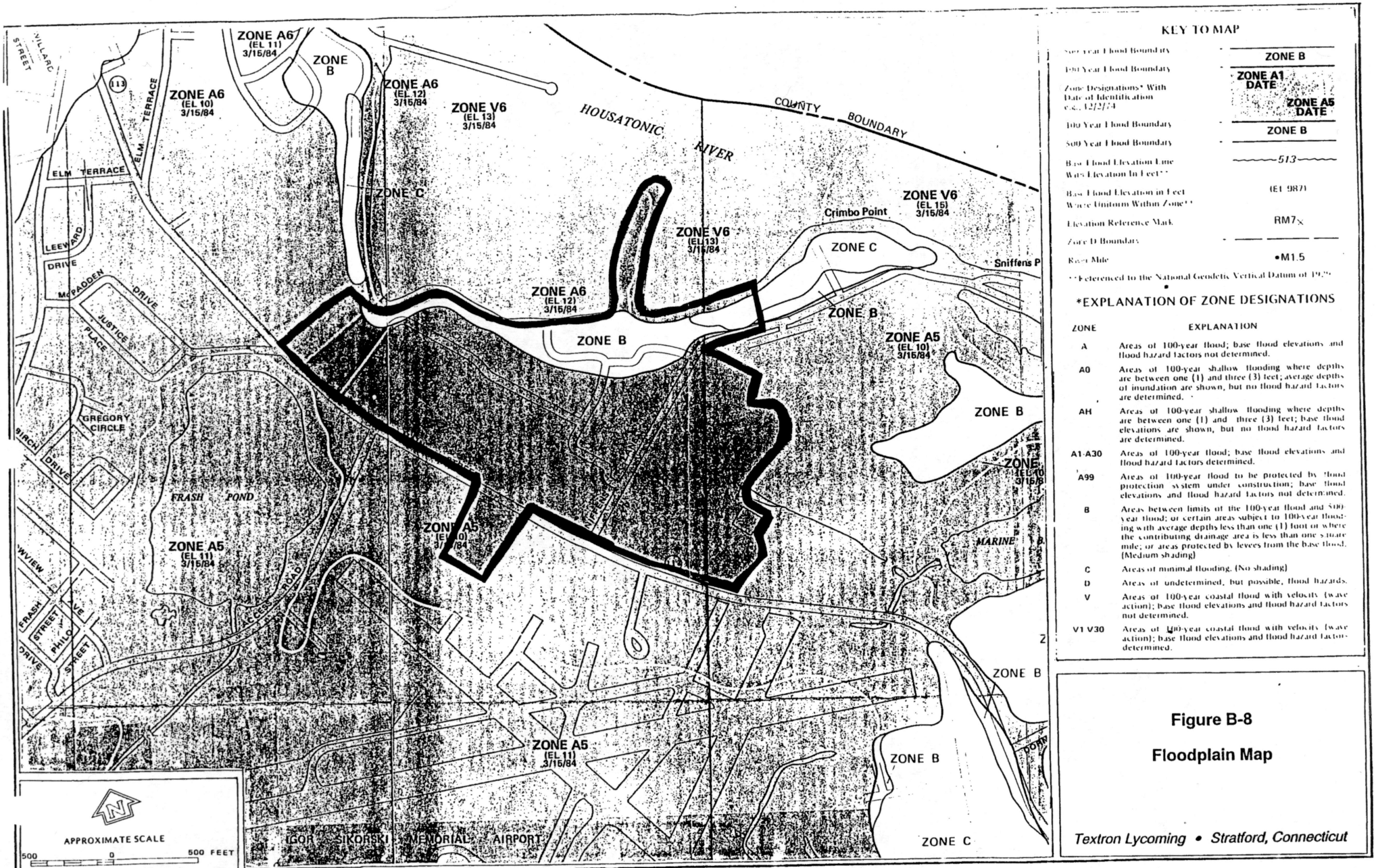
*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

Figure B-8

Floodplain Map

Textron Lycoming • Stratford, Connecticut



KEY TO MAP

500 Year Flood Boundary	ZONE B
100 Year Flood Boundary	ZONE A1 DATE / ZONE A5 DATE
Zone Designations* With Date of Identification e.g., 12/2/74	
100 Year Flood Boundary	ZONE B
500 Year Flood Boundary	
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

Referenced to the National Geodetic Vertical Datum of 19

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1 V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

Figure B-8

Floodplain Map

Textron Lycoming • Stratford, Connecticut

The 100-year flood elevation at the facility is 10 feet, with a maximum wave crest elevation of 13 feet. These elevations are with reference to the National Geodetic Vertical Datum (NGVD) of 1929. The facility is not within an area classified as having wave action velocity.

The Textron Lycoming facility is protected by a flood protection dike with six pump houses used to pump out drainage collected on the facility side of the dike. The top elevation of this dike is approximately 12 feet (NGVD 1929 datum). This is 2 feet above the 100-year flood elevation of 10 feet. Although the maximum 100-year wave crest elevation (13 feet) may overtop the dike, extensive flooding in the dike interior is not expected since the base flood elevation is 2 feet below the top of the dike wall and the flood waters would not be sustained at the maximum wave crest elevation. The facility is not classified as an area subject to velocity wave action in the Flood Insurance Study, and wave forces on the dike should not be excessive. The flood protection dike along the eastern property boundary bordering the Housatonic River is expected to prevent flood waters from significantly impacting the facility during a 100-year flood.

The requirements of 40 CFR 264.18(b) that pertain to issues concerning the "washout" of hazardous waste by a 100-year flood are satisfied since the closed surface impoundments currently contain no active portions or accumulations of waste.

Section C
Waste Characteristics

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Appendix	*Title*
C-1	Sludge Filter Cake Laboratory Report for Waste Sample Collected February 20, 1986

Section C
Waste Characteristics

This section characterizes the waste materials processed and stored in the former surface impoundments, and presents the results of chemical analyses of the wastes in accordance with 40 CFR 270.14(b)(2) and 270.18(a).

C-1 Description of Waste

Information on the chemical and physical characteristics of the surface impoundment wastes is submitted in accordance with the requirements of 40 CFR 270.14(b)(2) and 264.13(a). The influent to the equalization lagoon originated from various processes at the Textron Lycoming facility, including metal plating and finishing operations. The wastewater contained in the equalization lagoon was treated in the facility's chemical waste treatment system, and metal hydroxide sludge from this process was pumped to the sludge settling lagoons for settling and dewatering. More information on the processes that generated the waste stream influent to the equalization lagoon is included in Section B.

C-2 Chemical and Physical Analysis [40 CFR 270.14(b)(2); 270.18(a)]

The wastewater influent to the equalization lagoon was a RCRA regulated hazardous waste under 40 CFR 261.31 with applicable EPA waste codes F007 ("spent cyanide plating bath solutions from electroplating operations") and F009 ("spent stripping and cleaning bath solutions from electroplating operations where cyanides are used"). The metal hydroxide sludge settled from the chemical waste treatment system effluent in the settling lagoons was a RCRA regulated hazardous waste under 40 CFR 261.31 with EPA waste code F006 ("wastewater treatment sludges from electroplating operations"). The primary constituents of concern in the surface impoundment wastes included chromium, other heavy metals, and cyanide.

Sampling of these wastes was conducted as part of the preliminary design work for the new chemical waste treatment plant which was constructed and made operational in 1986. Composite samples were collected on May 14, 1981 at the influent and effluent of the equalization lagoon, and grab samples were collected of the sludge accumulated in the equalization lagoon and the sludge settling lagoons. All samples were analyzed for solids content, cyanide, and metals. In addition, sludge samples were analyzed for leaching characteristics via the EP toxicity test. Results of laboratory analysis for these samples are presented in Table C-1.

As indicated in Table C-1, the aqueous wastes from the equalization lagoon contained detectable concentration of cyanide, chromium, manganese, nickel, iron, zinc, and copper. The only constituents present at concentrations above 1.0 mg/ℓ in these aqueous samples were total and hexavalent chromium which ranged from 2.1 to 6.4 mg/ℓ and 2.0 to 6.3 mg/ℓ, respectively.

The data presented in Table C-1 indicates that the sludge samples contained detectable concentrations of cyanide, cadmium, chromium, cobalt, manganese, nickel, iron, zinc, and copper. Hexavalent chromium was not detected in the settling pond sludge sample which is located downstream of the chromium reduction unit. Hexavalent chromium was detected in the equalization lagoon which was located upstream of the chromium reduction unit. The concentration of all EP toxicity metals in the settling lagoon sludge sample were below their corresponding EP toxicity limits. Arsenic, lead, mercury, and silver were **not** detected in the EP toxicity leachate for the settling lagoon sludge sample. Concentrations of barium,

Table C-1

Summary of Analytical Results for Surface Impoundment Waste Samples Collected on May 14, 1981

Parameter	Equalization Lagoon Influent	Equalization Lagoon Effluent	Equalization Lagoon Sludge	Settling Lagoon Sludge
Constituent Analyses (mg/kg)				
Total Solids (%)			12.10	27.4
Suspended Solids	5.0	2.0		
Amenable Cyanide	0.08	0.014	120	13
Total Cyanide	0.111	0.031	149	108
Cadmium	< 0.05	< 0.05	63.0	18.0
Total Chromium	2.1	6.4	6,580	13,920
Hexavalent Chromium	2.0	6.3	17.4	< 4
Cobalt	< 0.05	< 0.05	3.6	6.8
Manganese	0.04	0.05	300	440
Nickel	0.21	0.16	460	560
Iron	0.33	0.33	1,480	2,560
Zinc	0.20	0.12	190	172
Copper	0.66	0.13	1,080	1,720
EP Toxicity Analysis (mg/l)				
Arsenic	NA	NA	< 0.01	< 0.01
Barium	NA	NA	0.10	0.13
Cadmium	NA	NA	0.27	0.12
Chromium	NA	NA	6.9	0.13
Lead	NA	NA	< 0.05	< 0.05
Mercury	NA	NA	< 0.001	< 0.001
Selenium	NA	NA	0.027	0.018
Silver	NA	NA	0.5	< 0.5

NA = Not analyzed.

cadmium, chromium, and selenium in the settling lagoon sludge were all an order of magnitude or more below their respective EP toxicity limits. A concentration of 6.9 mg/ℓ chromium was reported for the EP toxicity test on the equalization lagoon sludge, while all other EP toxicity metals were undetected or well below their corresponding EP toxicity limits.

A sample of sludge filter cake was also collected on February 20, 1986. This sample was submitted for volatile organic and acid extractable compounds via GC/MS. The results of these analyses indicate that volatile organic and acid extractable compounds were <u>not</u> present in the sludge. The laboratory analytical report for this sludge sample is included in Appendix C-1.

Appendix C-1

Sludge Filter Cake Laboratory Report for Waste Sample Collected February 20, 1986

Date submitted: 02-20-90 #W361202
Your ID: H084891

Subpart M: Total Metals, Cyanides and Phenols

Pollutant	mg/L	Pollutant	mg/L
Antimony		Mercury	
Arsenic		Nickel	
Beryllium		Selenium	
Cadmium		Silver	
Chromium		Thallium	
Copper		Zinc	
Lead		Cyanides	
		Phenols	

Subpart V: GC/MS Fraction-Volatiles

Pollutant	mg/L	Pollutant	mg/L
Acrolein	<0.05	1,2-Dichloropropane	<0.05
Acrylonitrile	<0.05	1,3-Dichloropropylene	<0.05
Benzene	<0.05	Ethylbenzene	<0.05
Bis(chloromethyl)ether	<0.05	Methylbromide	<0.05
Bromoform	<0.05	Methylchloride	<0.05
Carbon tetrachloride	<0.05	Methylenechloride	<0.05
Chlorobenzene	<0.05	1,1,2,2-Tetrachloroethane	<0.05
Chlorodibromomethane	<0.05	Tetrachloroethylene	<0.05
Chloroethane	<0.05	Toluene	<0.05
2-Chloroethylvinylether	<0.05	1,2-transDichloroethene	<0.05
Chloroform	<0.05	1,1,1-Trichloroethane	<0.05
Dichlorobromomethane	<0.05	1,1,2-Trichloroethane	<0.05
Dichlorofluoromethane	<0.05	Trichloroethylene	<0.05
1,1-Dichloroethane	<0.05	Trichlorofluoromethane	<0.05
1,2-Dichloroethane	<0.05	Vinylchloride	<0.05
1,1-Dichloroethylene	<0.05		

Subpart A: GC/MS Fraction-Acid Compounds

Pollutant	ug/L	Pollutant	ug/L
2-Chlorophenol		4-Nitrophenol	
2,4-Dichlorophenol		p-Chloro-m-cresol	
2,4-Dimethylphenol		Pentachlorophenol	
4,6-Dinitro-o-cresol		Phenol	
2,4-Dinitrophenol		2,4,6-Trichlorophenol	
2-Nitrophenol			

Jane D. Dunn, Ph.D.

PH-0508
CT DEPT HEALTH CERTIFICATION ENVIRONMENTAL MONITORING LABORATORY, INC. WALLINGFORD, CT

ENVIRONMENTAL MONITORING LABORATORY, INC.

100 Research Parkway
Meriden, CT 06450

Section D
Process Information

This section is not applicable to this Post-Closure Permit Application for the former surface impoundments. All waste disposal activities associated with the former surface impoundments for which process information would be required ceased in 1986. RCRA closure was certified on May 22, 1990 for the surface impoundments, in accordance with the Closure Plan approved by DEP and EPA on April 5, 1988.