

START

(Fill in all areas are specified for all types of facilities.)

FORM 3	DANGEROUS WASTE PERMIT APPLICATION	I. EPA/STATE I.D. NUMBER
		W A 7 8 9 0 0 0 8 9 6 7

FOR OFFICIAL USE ONLY		
APPLICATION APPROVED	DATE RECEIVED (mo., day, & yr.)	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/STATE I.D. Number, or if this is a revised application, enter your facility's EPA/STATE I.D. Number in Section 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.)

2. NEW FACILITY (Complete item below.)

<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center;">MO.</td> <td style="width: 10%; text-align: center;">DAY</td> <td style="width: 10%; text-align: center;">YR.</td> </tr> <tr> <td style="text-align: center;">01</td> <td style="text-align: center;"> </td> <td style="text-align: center;">79</td> </tr> </table> <p>FOR EXISTING FACILITIES, PROVIDE THE DATE (mo., day, & yr.) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED (use the boxes to the left)</p>	MO.	DAY	YR.	01		79	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center;">MO.</td> <td style="width: 10%; text-align: center;">DAY</td> <td style="width: 10%; text-align: center;">YR.</td> </tr> <tr> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> <td style="text-align: center;"> </td> </tr> </table> <p>FOR NEW FACILITIES, PROVIDE THE DATE (mo., day, & yr.) OPERATION BEGAN OR IS EXPECTED TO BEGIN</p>	MO.	DAY	YR.			
MO.	DAY	YR.											
01		79											
MO.	DAY	YR.											

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

1. FACILITY HAS AN INTERIM STATUS PERMIT

2. FACILITY HAS A FINAL 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 (Section 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	PRO-CESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY	PROCESS	PRO-CESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:			Treatment:		
CONTAINER (barrel, drum, etc.)	301	GALLONS OR LITERS	TANK	T01	GALLONS PER DAY OR LITERS PER DAY
TANK	302	GALLONS OR LITERS	SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
WASTE PILE	303	CUBIC YARDS OR CUBIC METERS	INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
SURFACE IMPOUNDMENT	304	GALLONS OR LITERS	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; Section III-C.)	T04	GALLONS PER DAY OR LITERS PER DAY
Disposal:					
INJECTION WELL	D80	GALLONS OR LITERS			
LANDFILL	D81	ACRE-FEET (the volume that would cover one acre to a depth of one foot) OR HECTARE-METER			
LAND APPLICATION	D82	ACRES OR HECTARES			
OCEAN DISPOSAL	D83	GALLONS PER DAY OR LITERS PER DAY			
SURFACE IMPOUNDMENT	D84	GALLONS OR LITERS			
UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	S
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING SECTION 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. PRO-CESS CODE (from list above)	B. PROCESS DESIGN CAPACITY		FOR OFFICIAL USE ONLY	LINE NUMBER	A. PRO-CESS CODE (from list above)	B. PROCESS DESIGN CAPACITY		FOR OFFICIAL USE ONLY
		1. AMOUNT (specify)	2. UNIT OF MEASURE (enter code)				1. AMOUNT (specify)	2. UNIT OF MEASURE (enter code)	
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	*T 0 4	20,000 (max), (30 U avg)	U		7				
2					8				
3					9				
4	*This permit covers several treatment technologies/test facilities based upon guidance received from EPA and WHOE in February 1988.								

Continued from the front.

III. PROCESSES (continued)

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

T04

This permit application covers treatment of Radioactive Mixed Waste (RMW) and hazardous wastes via various physical and chemical treatment R&D processes. The primary processes are grout treatment and distillation.

In grouting, RMW and hazardous wastes are immobilized in a cementitious matrix and solidified in appropriate disposal containers. Processing can be performed in a continuous mixer (20,000 gal/day, design capacity), a batch mixer (30 gallons per batch), drums (50 gal/drum maximum), and laboratory mixers (3 gal/batch). This equipment includes feed tanks of 20,000 and 3,000 gallon capacities, a continuous solids feed system and a slurry pump. In some treatability studies with grout, vaults are poured and left in place for long term study, before being removed or designated as nonhazardous.

A pilot-scale distillation column is used to distill RMW, testing metal-acid separation and separation of radionuclides from organic solvents. RMW is distilled and both the still
(continued on following page)

IV. DESCRIPTION OF DANGEROUS WASTES

A. DANGEROUS WASTE NUMBER — Enter the four digit number from Chapter 173-303 WAC for each listed dangerous waste you will handle. If you handle dangerous wastes which are not listed in Chapter 173-303 WAC, enter the four digit number(s) that describes the characteristics and/or the toxic contaminants of those dangerous 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	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 dangerous waste: For each listed dangerous waste entered in column A select the code(s) from the list of process codes contained in Section III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed dangerous wastes: For each characteristic or toxic contaminant entered in Column A, select the code(s) from the list of process codes contained in Section III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed dangerous 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: DANGEROUS WASTES DESCRIBED BY MORE THAN ONE DANGEROUS WASTE NUMBER — Dangerous wastes that can be described by more than one Waste Number shall be described on the form as follows:

- Select one of the Dangerous 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.
- In column A of the next line enter the other Dangerous Waste Number that can be used to describe the waste. In column C(2) on that line enter "included with above" and make no other entries on that line.
- Repeat step 2 for each other Dangerous Waste Number that can be used to describe the dangerous waste.

EXAMPLE FOR COMPLETING SECTION 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.

L I N E	A. DANGEROUS WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEA- SURE (enter code)	D. PROCESSES	
				1. PROCESS CODES (enter)	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	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2			T 0 3 D 8 0	included with above

III. PROCESSES (continued)

bottoms and distillate are combined and returned to the storage tanks from which the test samples were taken. The design capacity of the distillation column is 250 gallons per day.

Other physical and chemical processes covered by this permit application include electropolishing, electrodisolvers, and other electrochemically-enhanced processes for decontaminating metals and oxidizing non-metals; ion-exchange for selective removal of contaminants from waste solutions; waste concentrators, waste dissolution, precipitation/filtration and solvent extraction systems for separation of contaminants from slurries and sludges; solids washing for separation of contaminants from sludges, waste retrieval from storage tanks, catalytic destruction methods, gamma-induced oxidation and decomposition, microwave treatment, sludge-to-oil conversion technology, lysimeter usage, and combination of the above technologies for treatment of liquids, slurries, and solids.

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 25 wastes to list.

IV. DESCRIPTION OF DANGEROUS WASTES (continued)											
LINE NO.	A. DANGEROUS WASTE NO. (enter code)				B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
							1. PROCESS CODES (enter)				2. PROCESS DESCRIPTION (if a code is not entered in D(1))
	I.D. NUMBER (enter from page 1)										
	WA7890008967										
1	K	0	4	8	3,500	P	T	0	4	Treatment	
2	K	0	4	9	included in above						
3	K	0	5	0	"						
4	K	0	5	1	"						
5	K	0	5	2	"						
6	U	1	6	1	48,000						
7	D	0	0	1	included in above						
8	D	0	0	2	110,000						
9	D	0	0	5	"						
10	D	0	0	6	"						
11	D	0	0	7	"						
12	D	0	1	1	"						
13	W	T	0	2	"						
14	U	1	3	4	250,000						
15	D	0	0	2	included in above						
16	U	1	6	1	20,000						
17	D	0	0	1	included in above						
18	D	0	0	4	"						
19	D	0	0	5	"						
20	D	0	0	6	"						
21	D	0	0	7	"						
22	D	0	0	8	"						
23	D	0	0	9	"						
24	D	0	1	0	"						
25	D	0	1	1	"						
26	D	0	1	2	"	✓	✓				

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 25 wastes to list.

I.D. NUMBER (enter from page 1)										
WA 7890008967										
IV. DESCRIPTION OF DANGEROUS WASTES (continued)										
LINE NO.	A. DANGEROUS WASTE NO. (enter code)			B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES				
						1. PROCESS CODES (enter)				2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	P	0	13	20,000	P	T	0	4		Treatment
2	P	0	14	included in above						
3	W	T	01	"						
4	W	T	02	"						
5	U	0	01	1,000 } through included in above						
6	U	2	47							
P 7	P	0	01	1,000 } through included in above						
8	P	1	23							
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										

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.

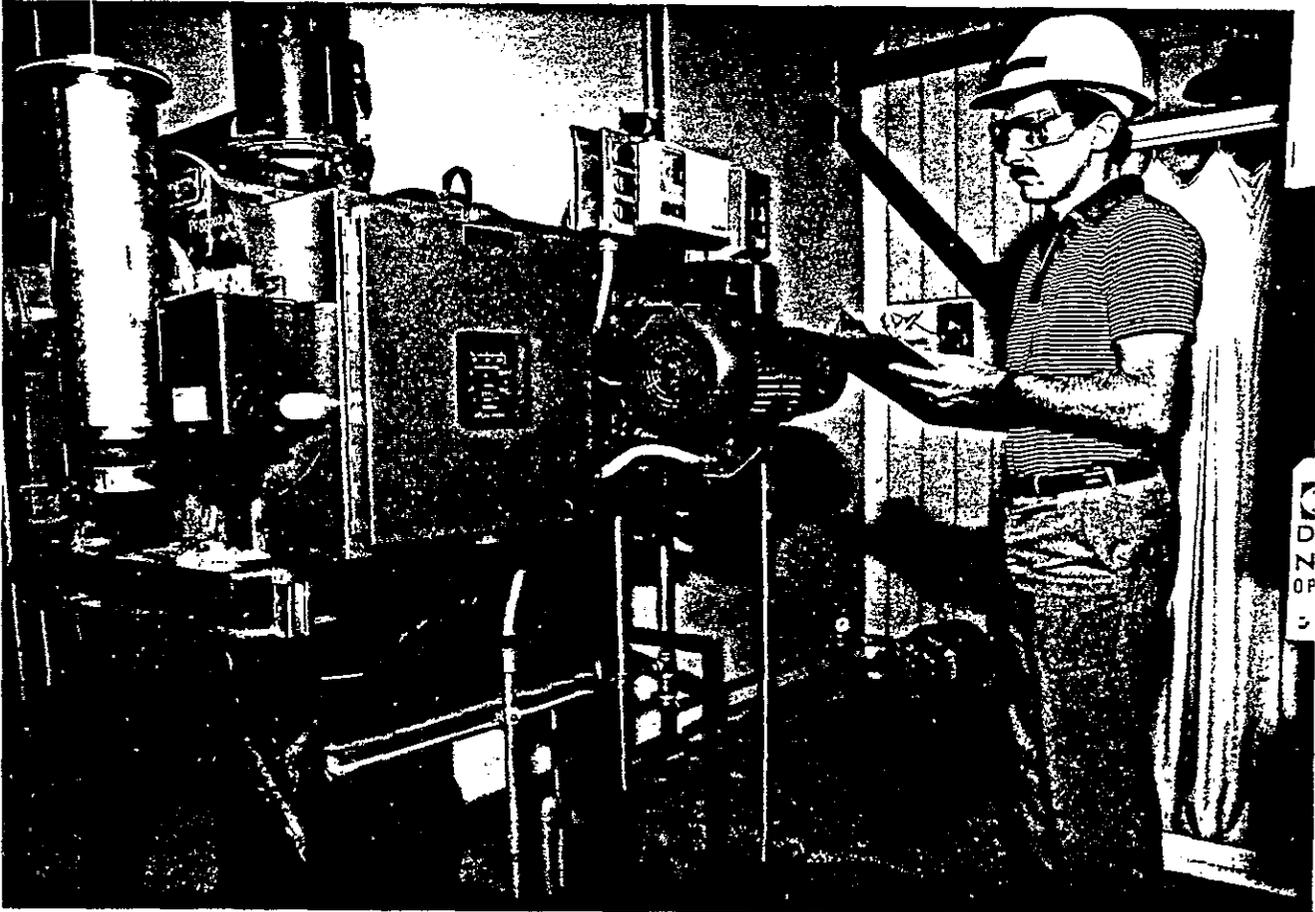
Michael J. Lawrence
Michael J. Lawrence, Manager
Department of Energy
Richland Operations Office

5-19-88
Date

William R. Wiley
William R. Wiley, Director
Pacific Northwest Laboratory

5/19/88
Date

Physical/Chemical Treatment Test Facilities Grout Mixer Controls



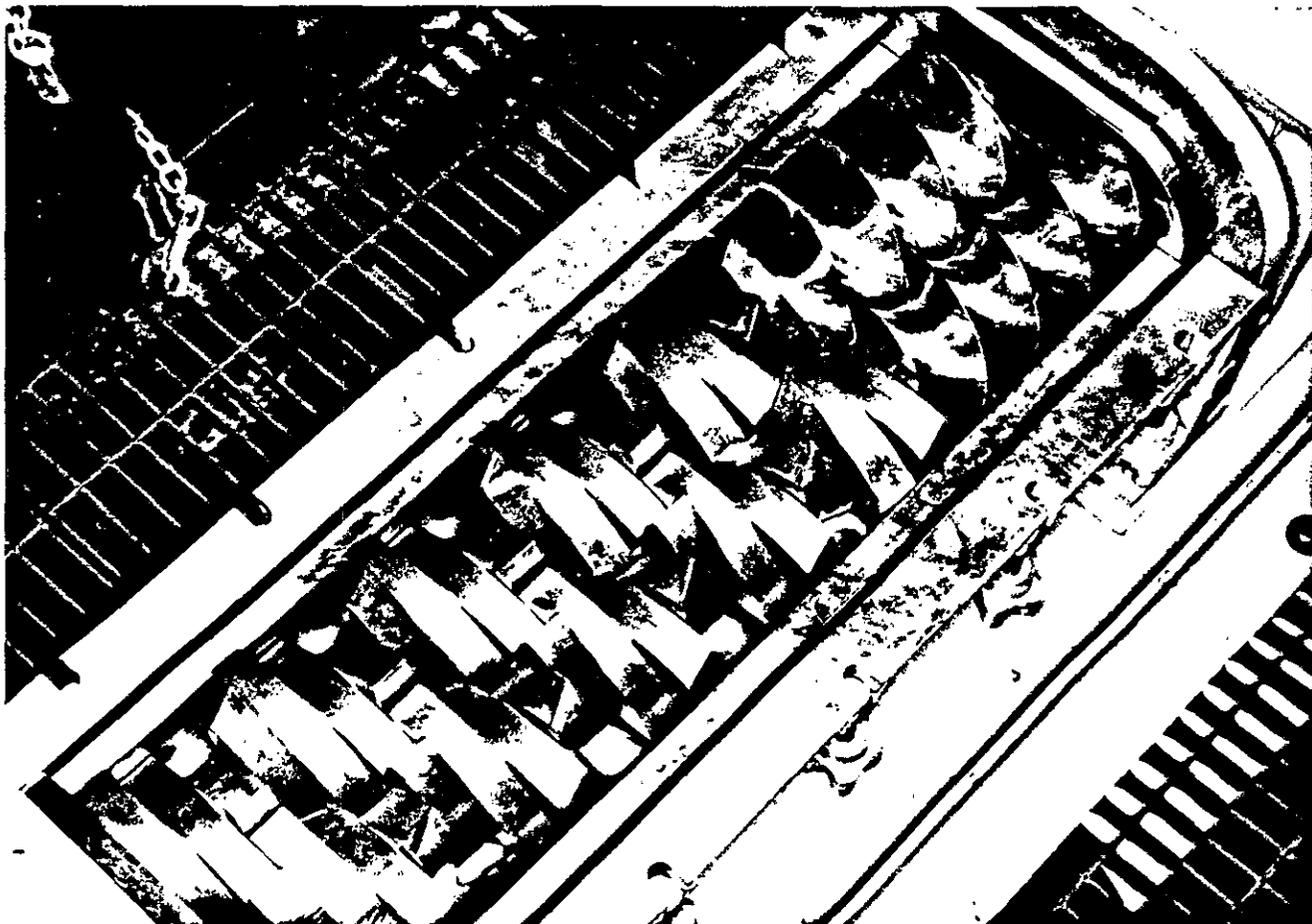
Longitude 119°16'37"

Latitude 46°22'20"

84B822-19CN

Photo Taken 1988

Physical/Chemical Treatment Test Facilities 15 GPM Continuous Grout Mixer



Longitude 119° 16' 37"

Latitude 46° 22' 20"

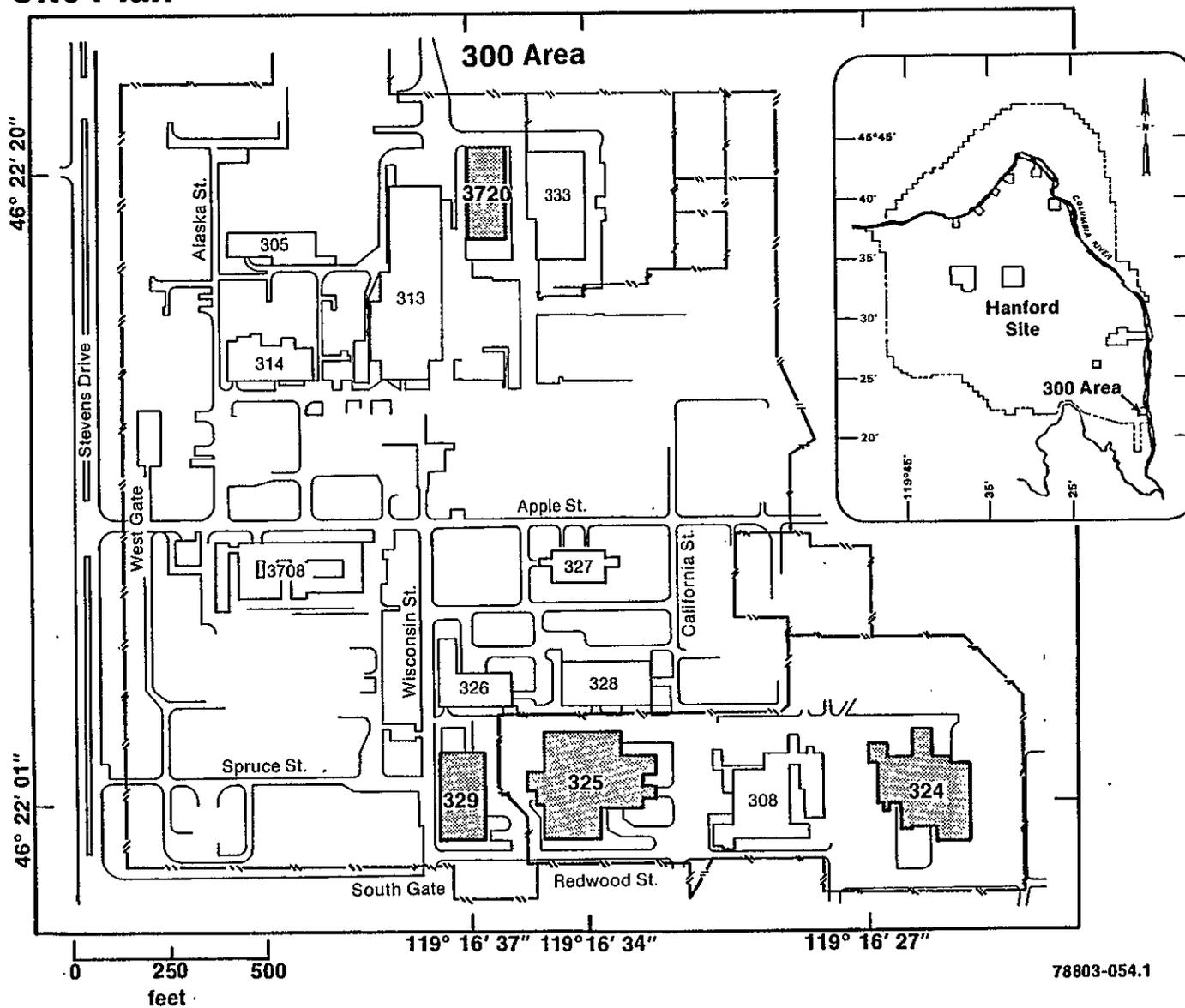
8406853-24CN

Photo Taken 1984

Physical/Chemical Treatment Test Facilities

Primary Support Building

Site Plan

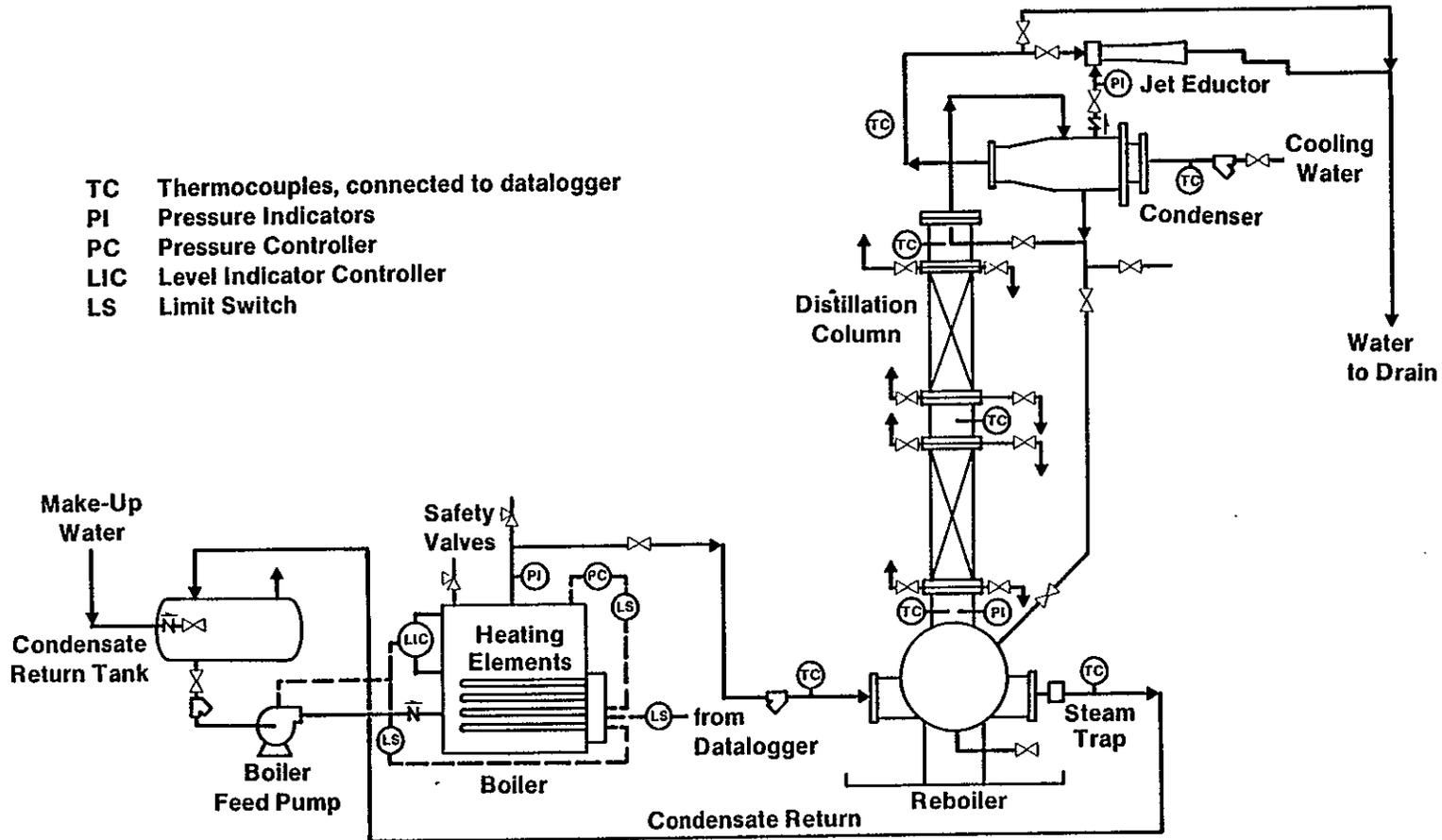


78803-054.1

WA7890008967

Physical/Chemical Treatment Test Facilities

Diagram of Large Scale Distillation System



78803-054.3

Physical/Chemical Treatment Test Facilities Continuous Grout Process

