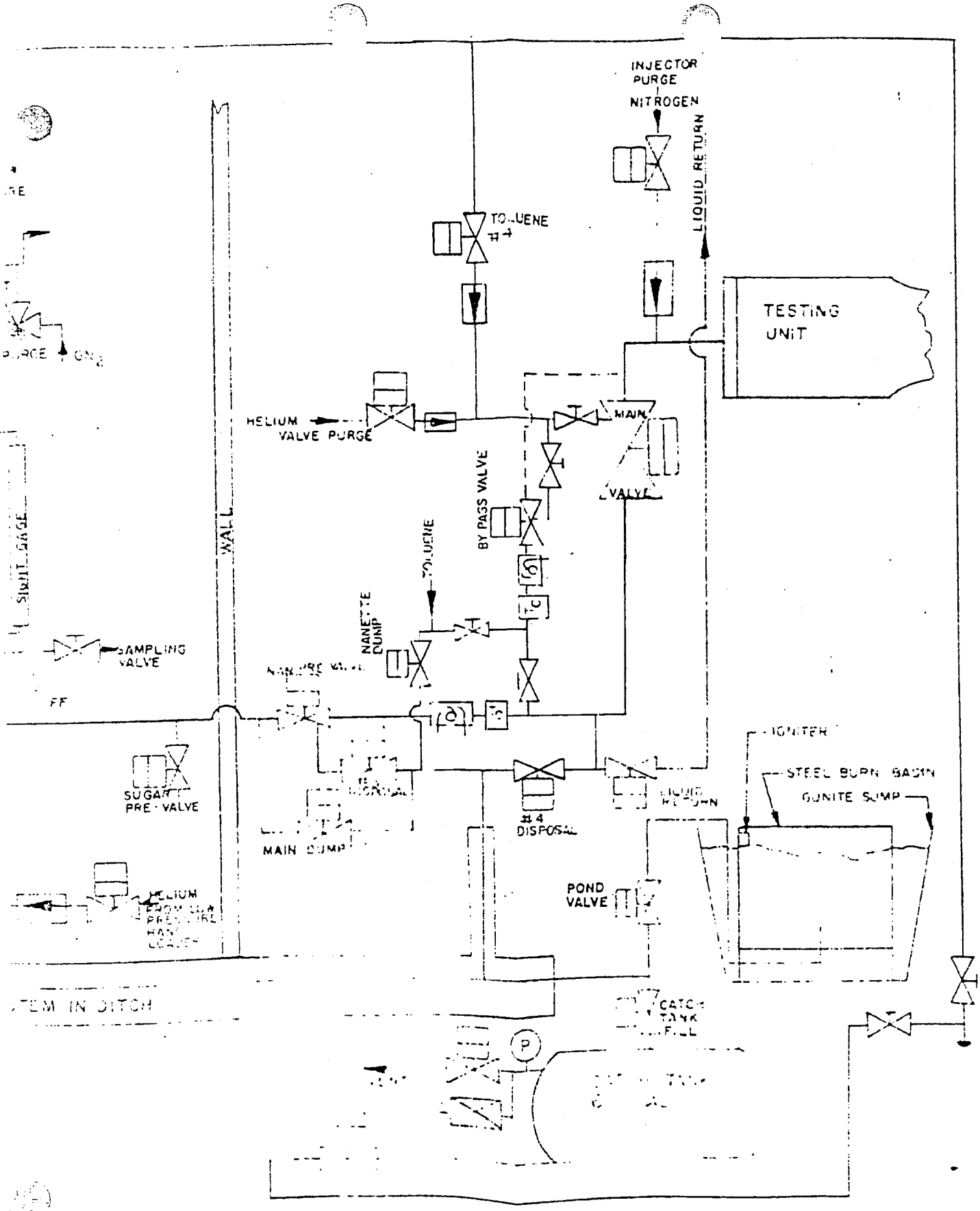


FIGURE 3

GURICAN
000199

Ex. 34 - 5284

A. 10K AND 30K PENTABORANE FLOW SYSTEM

Figure 3 illustrates a schematic of the pentaborane flow system designed to accomodate Man Stand. For the sake of clarity, none of the other propellant feed or ignition systems on Man Stand are shown since they are all conventionally gas pressurized.

The propellant storage tank incorporates dual burst diaphragms, dual vents, and a nitrogen gas purge for flushing the vent lines subsequent to a test firing. All valves on the pentaborane facility are normally closed, i.e., "fail safe", with the exception of the low pressure burst diaphragm closure. In the event of failure of the vent valves to relieve tank pressure, the tank is further pressurized and relieved through the rupture of the low pressure burst diaphragm. The normally open valve can then be closed to prevent pentaborane vapors from continually issuing from the system.

The ends of the vent lines are prevented from being a hazard source through using a nitrogen flush in the vents and sealing the vent lines at the conclusion of the test day's operations.

Once the shipping cylinders are connected, the filling operation is remotely handled. Photograph 1241-8/5/60-81Q shows the pentaborane shipping cylinders next to the 420 gallon propellant feed tank. The cylinders are not disconnected after the filling operation but remain "at the ready" to receive liquid from the run tank if it is desired to empty the pentaborane system. Not only can the pentaborane be

returned to the shipping cylinders, but it also can be transferred to a 600 gallon catch tank. This catch tank normally holds a dilute toluene-pentaborane solution, received during transfer or decontamination operations. Also provided is a steel burn basin which has been placed in the middle of a 35,000 gallon water sump. The burn basin will be used as required to dispose of the toluene-pentaborane solution. In the event of an emergency the total contents of the run tank can be disposed of in this manner.

A liquid return system has been provided to empty the line between the tank shutoff valve and the main valve at the end of the test day. Since the main propellant system consists of 2 and 3 inch pipe, a considerable quantity of pentaborane is removed from an area of potential danger created by other nearby stands firing. This operation reduces the potential spill hazards involved in the event the main propellant line is damaged by an external malfunction.

Toluene is used as the primary diluent and decontaminant. A gas pressurized tank has been installed and is capable of delivering toluene to any section of the propellant system. Not only is toluene used in the above fashion but it can be used as an inert lead during injector test operations. Photograph 12h1-8/5/60-S1C is a photograph of the main valve system showing the hydrazine and pentaborane main valves and the toluene, helium, nitrogen, and water flushes for the main valve complex.

The following procedures are actually used for test operations by well trained personnel. Because of the very dynamic nature of the PB program, they may not always be up to date in this manual, but generally, they will suffice to insure personnel security.

B. PENTABORANE FILLING PROCEDURE FOR 420 GALLON RUN TANK

See Figure 3.

1. Unplug vent lines and open vent closure.
2. Check PB tank pressure, if more than 20 psig, open emergency vent and vent tank.
3. Place 15 psig of helium on helium flush hand loader.
4. Open cylinder flush.
5. Connect helium pressurizing line to points G1 and G2.
6. Open cylinder by-pass.
7. Connect helium line to points L1 and L2.
8. Open catch tank valve.
9. Open catch tank vent.
10. Open #2 disposal. Adjust helium to 25 psig.
11. Open fill #1.
12. Close fill #1 and open fill #2.
13. Close fill #2.
14. Close catch tank vent.
15. Close cylinder by-pass and cylinder flush.
16. Close disposal #2.
17. Adjust helium pressure to 75 psig.
18. Open G1 and check pressure in bottle.
19. Vent bottle to 75 psig by cylinder vent if necessary.
20. Open L-1.
21. Open fill #1.

PENTABORANE FILLING PROCEDURE FOR 420 GALLON RUN TANK (Cont'd)

22. Open main-fill.
23. Open cylinder flush.
24. Empty bottle.
25. Close cylinder flush.
26. Close main fill.
27. Close fill #1.
28. Open G2 and check pressure in bottle #2.
29. Vent bottle to 75 psig by cylinder. Vent if necessary.
30. Open L2.
31. Open fill #2.
32. Open main-fill.
33. Open cylinder flush.
34. Close main fill.
35. Close fill #2.
36. Vent bottles to 10 psig.
37. Reduce helium pressure to 25 psig.
38. Open and close disposal #2.

C. PENTABORANE LIQUID RETURN TO CYLINDERS FROM 420 GALLON RUN TANK

See Figure 3.

1. Vent pentaborane tank to 10 psig max.
2. Check that G1, G2, and L1 and L2 are open.
3. Open main fill.
4. Open fill #1.
5. Fill bottle to desired level.
6. Close fill #1.
7. Open fill #2.
   Fill bottle to desired level.
8. Close fill #2.
9. Close main fill.
10. Close L1, L2, G1, and G2.

D. PENTABORANE CYLINDER DISCONNECTION FROM 420 GALLON RUN TANK FILL SYSTEM

See Figure 3.

1. Set helium to 25 psig.
2. Check that sufficient toluene in catch tank.
3. Open catch tank valve and catch tank vent.
4. Open disposal #2.
5. Open fill #1.
6. Open TOL #1.
7. Flow toluene for 15 seconds.
8. Close TOL #1.
9. Close fill #1.
10. Open fill #2.
11. Open TOL #2.
12. Flow for 15 seconds.
13. Close TOL #2.
14. Open cylinder flush and cylinder bypass.
15. Purge for 15 seconds.
16. Close fill #2 and open fill #1.
17. Purge for 15 seconds.
18. Close fill #1 and cylinder flush and cylinder bypass.
19. Repeat steps 5 through 18.
20. Close disposal #2 and catch tank valve and catch tank vent.
21. Reduce helium pressure to 15 psig.
22. Open cylinder bypass and cylinder flush.
23. Disconnect L1 and L2; cap and plug.
24. Close cylinder bypass.
25. Disconnect G1 and G2; cap and plug.
26. Close cylinder flush.

Ex. 34 - 5290

E. TRANSFER OF PENTABORANE TO CATCH TANK FROM 420 GALLON RUN TANK

See Figure 3.

1. Ascertain that PB tank pressure is vented to 50 psig or below.
2. Open catch tank fill.
3. Open emergency dump.
4. After emptying tank section, open tank shut-off and dump.
5. Open Man prevalve, close dump and open #3 disposal.
6. Close #3 disposal and open #4 disposal, then close #4 disposal.
7. Empty toluene tank into catch tank for diluent effect percentage of Pentaborane of at least no greater than 40%.
8. Close L1 and L2.
9. Open TOL #1.
10. Open TOL #2.
11. Open fill #1.
12. Open fill #2.
13. Open disposal #2.
14. Close valves in Steps 9 through 13.
15. Refill toluene tank if necessary and repeat Steps 9 through 14.
16. Vent catch tank if necessary during disposal.

F. DISPOSAL OF PENTABORANE FROM 420 GALLON RUN TANK INTO SUMP AND BURNING

See Figure 3.

1. In the event it is desired to dispose of the pentaborane directly into the sump and burn it, the following procedure should be followed:

   a. Transfer 30 gals of toluene into the sump burn off container by following steps b through f.

   b. Ascertain that I1 and I2 on PB cylinders are closed.

   c. Open TOL #1 and TOL #2.

   d. Open fill #1 and fill #2.

   e. Open disposal #2.

   f. Open pond valve to water sump.

   g. When approximately 30 gals are delivered to the sump, about 1/2 to 1 inch layer of toluene on the water surface, close valves opened in steps b through f.

   h. Remotely ignite surface of toluene floating on water by actuating igniter switch on consol, after placing ignitor in the sump.

   i. After flame is established, commence disposing of PB in small quantities as follows: (keep PB tank pressurized to between 10 and 20 psig).

   j. Cycle emergency dump.

   k. After completing the emptying of the tank section, close emergency dump, open tank shutoff and main dump.

   l. Open Nan prevalve, close main dump and open #3 disposal.

   m. Close #3 disposal and open #4 disposal.

   n. Close #4 disposal.

Ex. 34 - 5292

G. COMPLETE SYSTEM DECONTAMINATION IF REQUIRED AFTER DISPOSING OF PENTABORANE

The system should be completely filled with toluene and held for a sufficient period of time (3 to 8 hours) to insure that all PB is dissolved in toluene and disposed of by burning in the same manner as above.

The system should then be filled with the 3% NH_3 solution and held for two days. Since considerable hydrogen evolution will occur allowance must be made for the gas to escape.

The system should then be filled with an alcohol water solution and held for two more days.

The system can then be washed with water, dried, and monitored with PB detector.

H. DECONTAMINATION OF HARDWARE, HAND TOOLS, AND EQUIPMENT

1. Prior to test operations, containers of a decontamination solution are placed in PB contaminated drum storage area. The solution for brevity will be referred to as Decon.

2. After transfer or test firings are completed and tools or hardware are to be contaminated, the following procedures should be followed:

   a. Prime the PB injector dome with toluene before working on the motor.

   b. Purge PB dome at low purge pressures.

   c. Remove instrumentation and plug the PB injection pressure line.

   d. Disconnect CTF lines and plug.

   e. Disconnect hydrazine lines and plug.

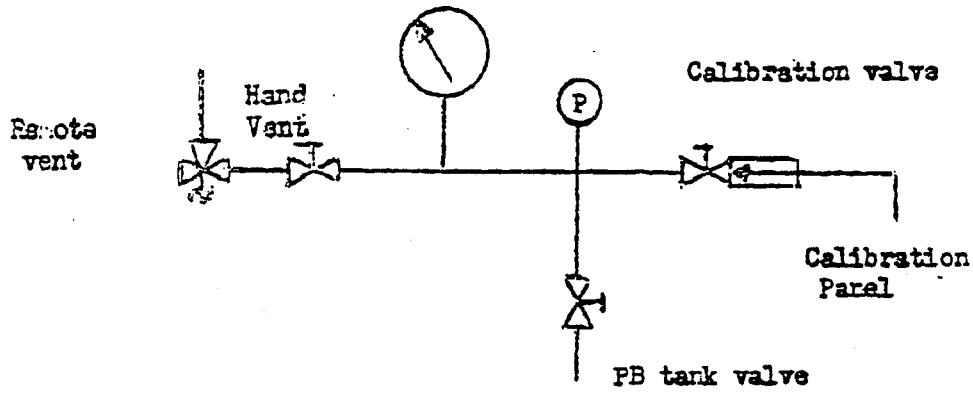
   f. Disconnect PB line and plug.

   g. Remove hardware and place in Decon.

   h. All tools used in the test operation are to be washed with water and then placed in Decon; then rinse tools with water and place in ethyl alcohol.

   i. The test area is ready for hosing down with Decon, See Part I-B.

I. CALIBRATION PROCEDURE FOR PENTABORANE TANK



1. Close PB tank valve.
2. Open hand vent.
3. Place calibration pressure on panel at higher value then in PB tank.
4. Open calibration hand valve.
5. Open remote vent and purge for 3 minutes.
6. Reduce calibration pressure to ZERO.
7. Commence calibration by closing remote vent and applying pressure from panel.
8. After calibration pressure reached, open remote vent <u>before</u> reducing pressure on calibration panel.
9. After calibration completed, close remote vent, calibration valve and hand vent.
10. Open PB tank valve.

J. PENTABORANE SYSTEM INSPECTION

Ex. 34 - 5295

All valves, fittings, flanges, etc., on the 10K and 30K pentaborane flow system will be inspected for pentaborane leakage, both visually and with the Demon borane monitor weekly. The responsible project engineer is responsible for setting up a weekly inspection schedule and for seeing that this system is free from leakage.

PART III

OTHER PROCEDURES

A. Equipment Laboratory*

1. Introduction

All items, such as valves, test hardware, etc., which have been used in Pentaborane must be decontaminated at the test site, packaged in open packages and properly tagged according to REPM IV-13 prior to shipment to E.L. for service.

REPM IV-13 specifies the general procedures that the test site and receiving organizations, such as E.L., will follow when receiving decontaminated items.

2. Special Test Site Decontamination Procedure for Items Used in Pentaborane: To be Performed by Test Site Personnel.

The following decontamination procedure will be used for decontaminating items used in Pentaborane:

a. Disassemble item, if there are several component parts, in 3% (weight) ammonium hydroxide plus 3% (weight) detergent solution. Immerse one piece items. Discard all non-metal parts in suitable contaminated containers for subsequent destruction.

b. Rinse with water.

c. Immerse in 92.5% ethyl alcohol.

d. Rinse with water.

e. GN_2 dry.

f. Examine with Denco Pentaborane detector.

Ex. 34 - 5297

g. Package in open container.

h. Tag according to REPM IV-13.

i. Ship to E.L. E.L. will take suitable precautions according to REPM IV-13 and the PFL Safety Department and subsequently service the items. Items will be returned to test site according to REPM IV-13.

---

* Reference: IOL dated 18 May 1960 to Those Concerned, From R. K. Hanks, Jr. and M. C. Blum, "Servicing, By the Equipment Laboratory (E.L.) of Items Used in Pentaborane".

Date _____

PENTABORANE CHECKOUT LIST

I - AREA CHECKOUT

A.-SUMP

1. Gates _____
2. Drain _____

B.-FIREX SYSTEM (Morning of Test)

1. Tank Farm _____
2. Pit #1 _____
3. Catch Tank _____
4. Floor Flush _____
5. Flame Bucket _____
6. Safety Showers _____

C.-DECON SYSTEM

1. Supply Tank (Gal) _____
2. Pump _____
3. Foot Bath _____
4. Hardware Bath _____
5. Tool Bath _____

D.-PRESSURIZING GAS SUPPLY

1. Helium Pressure _____
2. Open PRA Valve From CTL-I _____
3. Open Pit #1 & #2 Hand Valves _____
4. GN_2 Pressure _____
5. CTL-III GN_2 Bottles _____

E.-SAFETY

1. Breathing Bottle Bank
   (1)____ (2)____ (3)____ (4)____ (5)____
2. Scott Paks _____
3. Gra-Lite Clothing _____
4. Cotton Coveralls _____

F.-COMMUNICATIONS

1. Head Phones _____
2. CKT #1 _____
3. T.V. Camera _____

G.-MISCELLANEOUS

1. Boron Detector _____
2. Air Duct & Block House Vent _____
3. TCO _____
4. Fire Dept. Equipment _____

II - STAND CHECKOUT

A.-TANK FARM	Hydrazine	NTO or CTF	Toluene	Water
1. Bladder Pressures	____	____	____	____
2. Valve Checkout	____	____	____	____
3. Alarm Switch Light	____	____	____	____
4. Pressure to Pit or Line Pump	____	____	____	____
5. Breather	____	____	____	____
6. Pressure Gauge	____	____	____	____

Ex. 34 - 5299

PRELAUNCH CHECKOUT LIST

Page 2

B.-SKIRTER PRESSURES

1. Fuel & Oxidizer Main Valves _____
2. Tank Farm _____
3. Helium Flush _____
4. Vent Purges _____

C.-PURGES

1. Hand Selector Valves
2. HX Valve Purge _____
3. PB Valve Purge _____
4. HC Injector Purge _____
5. PB Injector Purge _____
6. NIC Valve Purge _____
7. Gas Sampling Purge _____

D.-CANNON PLUGS

_____
Signature, Engineer in Charge

Ex. 34 - 5300

TEST PROCEDURE

A. Pentaborane system valve checkout

1. Begin assembly of PB main line
2. Uncap PB vents
3. Purge vent lines
4. Open PB cylinder valves
5. Open dump tank fill (catch tank fill valve)
6. Check valve activation and micro switch indicators
7. Vent PB tank for zero
8. Open PB shut-off and Pre-valve
9. After 3 minutes pressurize PB tank to 200 psi
10. Check for PB leaks
11. Vent PB tank

B. Firing procedure

1. Vent all propellant tanks
2. Check that all purges are off
3. Take preliminary zeros
4. Set PB injector purge loader to 300 psi
5. Turn on PB transducer purge
6. Turn on GTP purge
7. Operate PB & HZ valve purges for 5 seconds simultaneously
8. Open PB injector purge
9. Open gas sample purge
10. Open HZ main - 1 second bursts until primed
11. Turn on HZ injector purge for 10 seconds
12. Turn off PB injector purge when clear

Ex. 34 - 5301

D. DECONTAMINATION SOLUTION SYSTEM IN PRA

A 9000 gallon decontamination ("Decon") solution (3% ammonia plus a.1% detergent - Lever Bros. DW 300-in water) storage and use system is now available in PRA. The solution is pumped from the 9000 gallon storage tank to the PRA test pit area, Man Stand, the pentaborane propellant feed system area, and the personnel decontamination facility. In the test pit area, two rainbirds are mounted and piped to both the "decon" system and to a fresh water system so the entire test pit and tank farm areas can be decontaminated and rinsed remotely from the PRA control center. Also, Man Stand has a remote "decon" system similar to the present firex system so the stand can be decontaminated remotely from the control center. The Man Stand firex system will be used to rinse away the "decon" solution. Also, hose bibs are located at strategic places throughout the test pit area to facilitate decontaminating of tools, hardware, transducers, etc.

E. PERSONNEL DECONTAMINATION IN PRA

A shower and change facility is available in PRA for personnel decontamination at the daily cessation of pentaborane test activities. The facility has four rooms, a "not contaminated" change room, a shower room, a "contaminated" change room, and a toilet. The contaminated room is only considered contaminated immediately after test activities and will be decontaminated as soon as is possible after each test activity.

The following procedures will be followed by all personnel engaged in pentaborane test activities; that is, by all personnel who will actually be in the control center during the pentaborane testing.

1. At the start of any pentaborane test activity, personnel will enter the "not contaminated" change room and change into flame-proof coveralls and neoprene boots.
2. They will then proceed to the "contaminated room" and get in the Gralite suits, hood, and gloves and proceed to their test activities.
3. After the test activities are over for the day, personnel will wash their Gralites in Dacon and water at the entry to the "contaminated" change room.
4. Personnel will then hang the Gralites to dry on the racks provided in the "contaminated" change room.
5. Neoprene boots will also be washed, and a washer and dryer are available to wash the flame-proof coveralls.

Ex. 34 - 5305

GURICAN
000220

6. Contaminated coveralls which will be soaked overnight in "Decon" solution can be washed the next day.
7. The "contaminated" change room will be washed down before leaving for the day.
8. Personnel will then proceed to the shower room and wash with green soap.
9. After showering, personnel can put on the "street" clothes.

Those Concerned

AVOID VERBAL ORDERS

INTER-OFFICE CORRESPONDENCE

FROM: M. C. Blum
591-361 PHONE 5667

SUBJECT: Securing of the Propulsion Research Area (PRA) Test Pit Area Outside of the Basic PRA Work Week

DATE: 28 October 1960

The basic PRA work week is from 7:00 A.M. to 4:00 P.M. Monday through Friday, holidays excepted.

In order to protect any personnel who might wish to work in the PRA test pit area from the potential hazards of the Pentaborane Storage and Use system, the following procedures are established for use outside of the basic PRA work week.

1. The PRA test pit area will be chained and posted at all entry points. The PRA Group 591-361 leadman or his designee will be responsible to see that this is done daily and on weekends.

2. Anyone desiring to work in the PRA test pit area must notify Industrial Security, X5485, upon entering and leaving the test pit area. He must leave the name of the person who is responsible for the work to be conducted and the total number of personnel involved.

M C Blum
M. C. Blum
Senior Research Engineer
Liquid Propulsion
Research

Approved:

G. S. Gill
Group Scientist
Liquid Propulsion
Research

MCB:rs

cc: Research Supervision
Maintenance
Industrial Engineers
Industrial Security
E. L.
Fire Dept.

W. Colwell D/591-361
R. Gordon D/551
E. Higgins D/551
H. Weiss D/596-161

Ex. 34 - 5307

GURICAN
000222

10-27-60

NAMETTE PROCEDURES

I. Area Checkout

A. See attached sheet

II. Pre-run Procedures

1. N_2H_4 and CTF Priming Operations

a. Open tank shut-off

b. Open hand valve

c. Open pre-valve (remote)

d. Open hand bleed valve and close

e. Close pre-valve (remote)

2. Prime CTF line

a. Hook up CTF bleed line to #4 Main valve

b. Open Nan tank shut-off and pre-valve

c. Open pre-valve (remote)

d. Pressurize CTF tank to 50 psi

e. Open main valve #4 until system is primed

f. Close pre-valve (remote)

3. Set gas and liquid purge pressures

a. N_2 for CTF - 100 psig

b. He for FS - set after run to 25 psig

c. He for P_2 - 300 psig

d. Pressurize water tank - 100 psig

e. Pressurize toluene tank - 100 psig

Ex. 34 - 5308

GURICAN
000223

#0.3

Copy #1

Location of Copy See back 1

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1961	Acetone	110 gal	Canoga	Burn
		110 gal	B lab	
1961	Ammonia	205 gal	photo	Dilution
1961	Boron Fuel	110 gal	Canoga	Burn
1961	Boron Trifluoride	240 ft^3	A I	Destruction
		5 lbs	A lab	
1961	Carbon Tetrachloride	110 gal	B lab	Burn
1961	Cesium	2 lbs	Canoga	Burn
1961	Decon. Soln.	110 gal	Canoga	Destruction
1961	Ditto Fluid	110 gal	Canoga	Burn
1961	Ethylene-Diamine	55 gal	SPA	Burn
1961	Flushing Oil	385 gal	Canoga	Burn
1961	Gasoline	110 gal	CTL 3	Burn
1961	Gear Oil	165 gal	Drum Storage	Burn
1961	Heptane	500 gal	Quick Mix	Burn
1961	Hexanes	1045 gal	Canoga	Burn
		55 gal	Drum Storage	
		55 gal	B lab	
	Total	1155 gal		
1961	Hydraulic Oil	55 gal	CTL 4	Burn
1961	Hydrazine	6845 gal	Canoga	Burn
		55 gal	Delta	
		55 gal	CTL 3	
	Total	6955 gal		
1961	Isopropyl Alcohol	110 gal	Canoga	Burn
1961	Lacquer Dilute	55 gal	Drum Storage	Burn
1961	Lithium Chloride	825 gal	Canoga	Dissipation in H_2O
1961	Magnesium	820 gal	SPA	Burn
1961	Methyl Alcohol	110 gal	B lab	Burn
1961	Misc. Flamables	2186.5 gal	Canoga	Burn
1961	Misc. Lab Chemicals	200 gal	Canoga Chem	Burn
1961	Mixed Oxides	300 lbs	SPA	Burn
		300 lbs	Canoga	
	Total	600 lbs		
1961	Mydyne	5200 gal	SPA	Burn
		420 gal	CTL-3	
	Total	5620 gal		

Defts'
EXHIBIT NO. 102
TARR 3/21/05
P. FELTEN, CSR 5189

78 pages

BNA03211286

BURN PIT DISPOSAL INVENTORY

YEAR	MATERIAL	QUANTITY	SOURCE	DISPOSAL METHOD
1961	Nitrogen tetroxide	6585 gal	Canoga	Dilution
		2150 gal	Bravo III	
		1000 gal	Eng. + Mat Service	
	Total	9735 gal		
1961	Pentaborane + RP-1	520 gal	"A" Lab	Burn
		865 gal	Canoga	
	Total	1385 gal		
1961	Permanganate Mix	55 gal	Inst. Lab	Burn
1961	Potassium	7 lbs	Canoga	Burn
1961	Red Fuming HNO_3	15 gal	SPA	Dilution
		1270 gal	Canoga EGA	
	Total	1285 gal		
1961	RP-1	220 gal	Canoga	Burn
		660 gal	Heat trans. lab	
	Total	880 gal		
1961	Sodium	830 lbs	Canoga	Burn
		50 lbs	Hot Fuel lab	
		25 lbs	SETF	
	Total	905 lbs		
1961	Solid Propellants	100 lbs	Quick Mix	Burn
1961	VM&P Naptha	330 gal	Drum Storage	Burn
1961	Grand Total gal.	54,535 gal		
	Grand Total lbs	3115 lbs		

BNA03211287

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1962	Alcohol	55 gal	SPA	Burn
		220 gal	Canoga	
	Total	275 gal		
1962	Ammonia	233 gal	Photo	Dilution
1962	Ammonia Perchlorate	225 lbs	NAKA	Detonation
1962	Blasting Caps	3	Edwards	Detonation
1962	Calcium Hydride	400 lbs	Canoga	Dilution
1962	Caustic Soda	10 gal	SPA	Dilution
1962	Chromic Acid	25 gal	Bowl Area	Off Site
1962	Decon.	220 gal	Canoga	Burn
1962	Diethylcyclohexane	165 gal	SPA	Burn
1962	Dinitrotoluene	1 lb	NAKA	Burn
1962	Electric Igniters	95	Warehouse	Burn
1962	Ethylene Diamine	375 gal	Canoga	Burn
1962	Fluorine	6 lbs	Canoga	Destruction
1962	Gasoline	55 gal	Neptune Proted	Burn
1962	Hybrid Motor Grains	160 lbs	NAKA	Burn
1962	Hydrazines	1450 gal	SPA	Burn
		1 lb	A lab	
		5 lb	NAKA	
		1315 gal	Canoga	
	Totals	2765 gal 6 lbs		
1962	Hydrocarbons	8030 gal	SPA	Burn
1962	JP-4	4000 gal	Engine Test	Burn
1962	Lithium Hydride	1 lb	SPA	Burn
	Lithium	5 lbs.	Cano	
	Total	6 lbs.		
1962	Metriol-tri-nitrate	25 lbs	NAKA	Burn / Destruction
1962	Misc. Waste Chem	50 gal	Inst. Lab	
		3 gal	A Lab	
		850 gal	NAKA	
		1975 gal	Canoga	
	Total	2878 gal		
1962	Myoyne	125 gal	Canoga	Burn
62	NTO	1800 gal	SPA	Dilution
		2 gal	B lab	
	Total	1802 gal		
1962	Nitroglycerin	4 gal	B Lab	Destruction
1962	Nitro-Guanidine	6 lbs	NAKA	Destruction / Burn

BNA03211288

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
62	Oxygen Difluoride	2 L cyl.	SPA	Detonation
		2 lbs.	PRA	
1962	Pentaborane	75 gal	PRA	Burn
		1090 gal	A lab	
		70 gal	SPA	
	Total	1235 gal		
1962	Plastisol Nitrocellulose	5 lbs	NAKA	Detonation
1962	Potassium	4 lbs	Canoga	Burn
1962	Potassium Perchlorate	25 lbs	NAKA	Burn
1962	Pyrophoric Aluminum	6 lbs	SPA	Burn
1962	Red Fume Nitric Acid	520 gal	SPA	Dilution
		1050 gal	Canoga	
	Total	1570 gal		
1962	RJ-1	3600 gal	Delta-1	Burn
		300 gal	Warehouse	
	Total	3900 gal		
1962	Stoddard Solvent	415 gal	ERS	Burn
	TEA	500 gal	A lab	Burn
1962	Turbine Spinner Grains	1550 lbs	Warehouse	Burn
1962	Sodium Nitrate	55 gal	ERS	Detonation
1962	UDMH	1790 gal	Canoga	Burn
1962	Waste oil	250 gal	Equip lab	Burn
		3025 gal		
	Total	3275 gal		
1962	Waste Polymers	175 gal	C lab	Burn
	Grand Totals	33,012 gal		
		2427 lbs		

BNA03211289

Burn Pit Disposal Inventory

Year	Material	Quality	Source	Disposal Method
3	Ammonia	145 gal	Photo	Dilution
1963	Barium Chloride	50 lbs	Conservation	Dilution
1963	Bermite Cartridge	72	Warehouse	Burn
1963	Boron 90%	1 gal	Canoga	Destruction
1963	Caustic Soda	650 gal	SPA	Dilution
1963	Cessium	5 lbs	Canoga	Burn
1963	Chemicals, Unknown	21 gal	Canoga	Burn
		35 gal	C lab	
	Total	56 gal		
1963	Chloride Trifluoride	10 gal	A lab	Destruction
1963	Chlorobutadiene	850 lbs	C lab	Destruction
1963	Cyclo-tetramethylene-Nitramine	5 lbs	Happy Valley	Destruction
1963	Diethylene Triamine	500 gal	SPA	Destruction
1963	Electric Igniter	555	Warehouse	Burn
		20	bowl Area	
	Total	575		
3	Ethylene Diamine	150 gal	SPA	Burn
1963	Fluoride	105 lbs	SPA	Destruction
		6 lbs	Canoga	
	Total	111 lbs		
1963	Hydrazine	5200 gal	SPA	Burn
		140 gal	B lab	
		5 lbs	Canoga	
	Total	5340 gal ; 5 lbs		
1963	Hydrocarbons	14800 gal	SPA	Burn
1963	Isopropyl Butane	625 lbs	Neptune Project	Burn
1963	JP-4	500 gal	SPA	Burn
1963	Magnesium	200 lbs	Canoga	Burn
1963	Metals, Alkali	5 lbs	Canoga	Burn
1963	Misc. Acids	155 gal	Canoga	Dilution
1963	Muriatic Acids	50 gal	Canoga	Dilution
1963	Nitrocellulose	25 lbs	Canoga	Destruction
3	NTO	100 gal	B lab	Dilution
		177 gal	SPA	
		2010 gal	Bravo	
	Total	2287 gal		
1963	Oil, waste	10 gal	Warehouse	Burn
1963	Polyethylene Glycol	55 gal	Happy Valley	Detonation

BNA03211290

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
3	Polymer, Waste	30 gal	C lab	Burn
1963	Penta Borane	175 gal	SPA	Burn
		5 gal	PRA	
		1 gal	Canoga	
	Total	181 gal		
1963	Potassium	33 lbs	Canoga	Burn
1963	Propellant, Solid	20 lbs	NAKA	Destruction/Burn
		600 lbs	L.A. Division	
		30 lbs	Happy Valley	
	Total	650 lbs		
1963	Pyrophoric Igniter	5	Bowl Area	Burn
		48	IDA	
	Total	53		
1963	Red Fume Nitric Acid	38 gal	B lab	Dilution
		165 gal	SPA	
		50 gal	Equip. lab	
		200 gal	HCTL	
	Total	273 gal		
1963	RP-1	40010 gal	Bravo	Burn
		48850 gal	SPA	
	Total	52850 gal		
1963	Sodium, Waste	30 lbs.	Canoga	Burn
1963	Sodium Fluoride	5 lbs	CTL-1	Distruction
1963	Solids, Unknown	10 lbs	C Lab	Burn
1963	Sulfuric Acid	55 gal	Canoga	Dilution
1963	TEA	15 gal	SPA	Burn
		5 gal	B lab	
		5 gal	IDA	
		22 lbs	?	
	Total	25 gal ; 22 lbs		
1963	Triethylborane	100 gal ; 765 lbs	SPA	Burn
1963	Triethylene-Glycol-Dinitrate	5 lbs	Happy Valley	Detonation
1963	TEAB	16 lbs	?	Burn
	Grand Total, gal	78323 gal		
		2622 lbs		

BNA03211291

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
4	Alcohol	250 gal	SPA	Burn
1964	Alkali Metals	10 lbs	Canoga	Burn
1964	Ammonia	175 gal	PHOTO	Dilution
1964	Ammonia Perchlorate	200 lbs	NAKA	Detonation
1964	Argon Gas	240 ft^3	Weld Shop	Vent
1964	Black Powder	1 lb	Explosive Forming	Burn
1964	Chemicals, Unknown.	310 gal	Canoga	Burn
		30 gal	C lab	
		10 gal	B lab	
		35 lbs	Canoga	
		12 lbs	C lab	
	Total	350 gal		
		47 lbs		
1964	Chlorine + O_2 gas	1630 ft^3	CTL-1	Destruction
1964	Electric Igniter	200	Warehouse	Burn
		50	IDA	
4	Fluorine	1220 ft^3	PRA	Destruction
4	Fuels, Cont.	44800 gal	SPA	Burn
		12.000 gal	Conservation	
	Total	56800 gal		
1964	Gases Unknown	340 ft^3	B 66	Destruction
1964	Hydrazine	264 gal	B lab	Burn
1964	Hydrogen Gas	720 ft^3	CHTL	Destruction
		240 ft^3	A lab	
		960 ft^3		
1964	Lithium	5 lbs	Canoga	Burn
1964	Magnesium	1400 lbs	Canoga	Burn
		450 lbs	Happy Valley	
	Total	1850 lbs		
1964	NTO	310 gal	B lab	Dilution
1964	Oxygen Difluoride	480 ft^3	PRA	Destruction
1964	Oxygen Gas	480 ft^3	CTL-I	Vent
1964	Pentaborane	20 gal	Canoga	Burn
4	Potassium	15 lbs	K Facility	Burn
1	Propellant, Solid	15 lbs	B lab	Destruction/Burn
		5 lbs	CHTL	
	Total	20 lbs		
1964	Red Fume Nitric Acid	30 gal	B lab	Dilution
1964	Sodium Fluoride	20 lbs	CTL-1	Burn

BNA03211292

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
64	Sulfuric Acid	100 gal	Canoga	Dilution
1964	TEA	50 gal	SPA	Burn
		25 gal	IDA	
		10 gal	B Lab	
	Total	85 gal		
	Grand Totals	58,384 gal 2,432 lbs 5,000 ft^3		

BNA03211293

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
[illegible]5	Acetone	55 gal	Canoga	Burn
		110 gal	Equip. Lab	
	Total	165 gal		
1965	Alcohol	7445 gal	SPA	Burn
		750 gal	Surplus Sales	
	Total	8195 gal		
1965	Ammonia	420 gal	Photo	Dilution
1965	Ammonia Perchlorate	5 lbs	NAKA	Detonation
1965	Chemicals Unknown	116 gal	Canoga	Burn
		1 lb	Canoga	
		15 gal	C lab	
		5 lbs	C lab	
	Total	131 gal; 6 lbs		
1965	Chromic Acid	5 gal	Canoga	Off Site
1965	Diesel Fuel Oil	1000 gal	CTL-3	Burn
1965	Electric Igniter	2350	Warehouse	Burn
[illegible]	Fluorine Gas	800 ft³	PRA	Destruction
[illegible]5	Hydrazine	18365 gal	SPA	Burn
		142 gal	B lab	
		125 gal	CTL-4	
	Total	18632 gal		
1965	Hydrocarbon ?	46855 gal	Surplus Sales	Burn
		12395 gal	Canoga	
		3500 gal	SPA	
		2200 gal	Happy Valley	
	Total	64950 gal		
1965	Hydrofluoric Acid	70 gal	Canoga	Dilution
1965	IRFNA	165 gal	SPA	Dilution
1965	Magnesium	2675 lbs	Canoga	Burn
		250 lbs	IDA	
	Total	2925 lbs		
1965	Muriatic Acid	5 gal	Canoga	Dilution
		175 gal	Photo	
		400 gal	CTL-3	
	Total	580 gal		
1965	NTO	145 gal	CTL-4	Dilution
		212 gal	B-Lab	
		150 gal	SPA	
	Total	507 gal		

BNA03211294

Year	Material	Quanity	Source	Disposal Method
1965	Oxygen Difluoride	240 ft^3	PRA	Destruction
1965	Potassium	5 lbs 1 lb	K facility CANOGA	BURN
	Total	6 lbs		
1965	Propellant, Solid	4 lbs	NAKA	Destruction/BURN
1965	Pyrophoric Igniter	200	IDA	
1965	RP-1	100 gal 33555 gal	Surplus Sales SPA	BURN
	Total	33655 gal		
1965	Sodium	10 lbs 1 lb	K loop CANOGA	BURN
	Total	11 lbs		
1965	Sodium Nitrite	350 gal	Surplus Sales	BURN
1965	TEA	40 gal	IDA	BURN
	Grand Totals	131,835 gal 2,957 lbs 800 ft^3		

BNA03211295

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
16	Acetone	200 gal	?	Burn
1966	Acetonitrile	5 gal	B Lab	Destruction
1966	Acids	20 gal	B lab	Dilution
		5 gal	Canoga	
		1850 gal	?	
	Total	1875 gal		
1966	Alcohol	355 gal	CTL-5	Burn
		410 gal	Surplus Sales	
		1800 gal	?	
	Total	2565 gal		
1966	Ammonia	5 gal	Bravo	Dilution
1966	Ammonia Perchlorate	200 lbs	NAKA	Destruction/Burn
1966	Chromic Acid	1 gal	B-Lab	off site
		500 gal	?	
1966	Chlorine trifluoride	5 gal	Canoga	Destruction
1966	Comp. A	4 lbs	Canoga	Destruction/Burn
16	Dimazine	450 gal	?	Burn
2	Electric Igniters	500	Warehouse	Burn
1966	Elec Squibb Igniters	75	Warehouse	Burn
		425	IDA	
	Total	500		
1966	Freon	15 gal	?	Destruction
1966	Heptane	1500 gal	Surplus Sales	Burn
1966	Hydrazine	3085 gal	SPA	Burn
		50 gal	B lab	
		25 gal	CTL-4	
	Total	3160 gal		
1966	Hydrocarbon	600 gal	CHTL	Burn
		3875 gal	Canoga	
		600 gal	CTL-2	
		17500 gal	Surplus Sales	
	Total	22575 gal		
1966	Lithium Chloride	495 gal	Surplus Sales	Destruction/Burn
1966	Magnesium	985 lbs.	Canoga	Burn
3	MMH	900 gal	?	Burn
1966	Muriatic Acid	400 gal	CTL4	Dilution
		440 gal	CTL5	
	Total	840 gal		

BNA03211296

BURN PIT DISPOSAL INVENTORY

YEAR	MATERIAL	QUANTITY	SOURCE	DISPOSAL METHOD
06	NTO	114 gal	B Lab	DILUTION
		276 gal	SPA	
		20 gal	CTL-4	
		2 gal	CANOGA	
	TOTAL	2901 gal		
1966	Oil	880 gal	AI	BURN
		600 gal	?	
		1625 gal	CTL-2	
		25 gal	PEI	
	TOTAL	3130 gal		
1966	PAINT THINNER	55 gal	?	BURN
1966	POTASSIUM	5 lbs	CHTL	BURN
		10 lbs	POTASSIUM loop	
	TOTAL	15 lbs		
1966	POTASSIUM PERMANGANATE	10 lbs	NAKA	DESTRUCTION / BURN
1966	PROPELLANT, Solid	150 lbs	NAKA	BURN
		5 lbs	CHTL	
	TOTAL	155 lbs		
1966	Polymer Scap oil	300 gal	?	BURN
1966	PYROPHORIC IGNITER	180	IDA	BURN
1966	Red Fume Nitric Acid	5 gal	B lab	DILUTION
		750 gal	?	
	TOTAL	755 gal		
1966	RP-1	4800 gal	TRANSPORTATION	BURN
		300 gal	SPA	
	TOTAL	5100 gal		
1966	Smoke Grenade Mat.	150 lbs	NAKA	BURN
1966	SODIUM NITRATE	1870 gal	SURPLUS SALES	DESTRUCTION/BURN
1966	SODIUM, WASTE	11 lbs	CANOGA	BURN
1966	TITANIUM	100 lbs	CANOGA	BURN
1966	TRICHLOR	200 gal	?	BURN
1966	TRIMETHYL BORON	2 gal	CANOGA	BURN
	GRAND TOTALS	48953 gal.		
		1485 lbs.		

BNA03211297

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
167	Acetone	5 gal	Photo	Burn
		110 gal	CTL-5	
		150 gal	PDA	
	Total	315 gal		
1967	Acetlyene	50 ft³	Bldg. 400	Burn
1967	Alcohol	1595 gal	Surplus Sales	Burn
1967	Ammonia	255 gal	Photo	Dilution
1967	Borol	4 lbs	Canoga	Destruction/Burn
1967	Butadiene	100 ft³	Canoga	Destruction
1967	Benzene	10 gal	Bldg 400	Burn
		2 gal	Photo	
	Total	12 gal		
1967	Calcium Chloride	50 lbs	Canoga	Dilution
1967	Carbon Tetrachloride	1 gal	PRA	Burn
		5 gal	B lab	
	Total	6 gal		
	Chemicals, ?	9 gal	B lab	Burn
		93 gal	Canoga	
	Total	102 gal		
1967	Chlorine	10 ft³	Canoga	Destruction
1967	Caustic Soda	10 gal	Canoga	Dilution
1967	Chlorine Trifluoride	1 gal	CTL-3	Burn
1967	Chloropropane	5 gal	Photo	Burn
1967	Comp. A	1 lb	Canoga	Destruction/Burn
1967	Ditto Fluid	6 gal	Canoga	Burn
1967	Electrolyte	1 qt.	Canoga	Dilution
1967	Electric Squibb	1	?	Burn
1967	Ether	75 gal	C lab	Burn
1967	Ethyl Deka Borane	1 lb	V.O. lab	Burn
1967	Fluorine Gas	3720 ft³	SPA	Destruction
		2160 ft³	PRA	
	Total	5880 ft³		
1967	Fuel	1 gal	Canoga	Burn
		5 gal	Inst lab	
	Total	6 gal		
1967	Hetane	550 gal	Happy Valley	Burn
1967	Hexane	330 gal	Happy Valley	Burn

BNA03211298

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
67	Hydrazine	40 gal	B-Lab	Burn
		140.5 gal	SPA	
		350 gal	CHTL	
		450 gal	?	
	Total	2645 gal		
1967	Hydrocarbons	705 gal	Canoga	Burn
		10 gal	Inst. Lab	
		100 gal	CTL-I	
		870 gal	Surplus Sales	
		300 gal	Coca	
		50 gal	Happy Valley	
		7530 gal	?	
	Total	9565 gal		
1967	Hydrochloric Acid	200 gal	Equip. Lab	Dilution
1967	Hydrogen Sulfide	10 gal	B lab	
		5 gal	Canoga	
	Total	15 gal		
1967	Hypergol Igniters	20	?	Burn
1967	Igniters	10	IDA	Burn
1967	IRFNA	4 gal	B lab	Dilution
1967	JP-4	300 gal	Eng. Test	Burn
1967	Ketones	15 gal	Bldg 400	Burn
		2 gal	IDA	
		100 gal	Bowl	
		5 gal	Canyon	
	Total	422 gal		
1967	Lithium	60 lbs	PRA	Burn
1967	Magnesium	200 lbs	Canoga	Burn
1967	Methyl Alcohol	220 gal	PDA	Burn
1967	Nitric Acid	59 gal	Canoga	Dilution
		2 gal	B lab	
	Total	61 gal		
1967	NTO	36 gal	B lab	Dilution
		3165 gal	SPA	
		20 gal	CTL-4	
	Total	3271 gal		

BNA03211299

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
1967	Oil	250 gal	Equip. lab	Burn
		480 gal	CTL-1	
		220 gal	Warehouse	
		640 gal	CTL-5	
		150 gal	Research Mach. Shop	
		150 gal	Surplus Sales	
	Total	1890 gal		
1967	Paint	22 gal	Canoga	Burn
		50 gal	Coca	
	Total	72 gal		
1967	Polymer	660 gal	Happy Valley	Burn
1967	Potassium	10 lbs	Potassium facility	Burn
		5 lbs	Canoga	
	Total	15 lbs		
1967	Red Fume Nitric Acid	1 gal	B lab	Dilution
1967	RP-1	10 gal	CTL5	Burn
		220 gal	Canoga	
		350 gal	Test Insp.	
		5 gal	IDA	
		2000 gal	Transportation	
	Total	2585 gal		
1967	SKL-4-DXE	9 gal	Bldg 400	Burn
1967	Smoke Powder	250 lbs	Happy Valley	Destruction
1967	Sodium	10 lbs	Canoga	Burn
1967	Solvent	6 gal	B lab	Burn
1967	Sulfuric Trioxide	1 gal	Canoga	Destruction
1967	Tetra Iso butylene	?	?	Burn
1967	Tributylamine	1 gal	photo	Burn
1967	Tributylborane	5 gal	C lab	Burn
		5 gal	IDA	
	Total	10 gal		
1967	Trifluoracetic Anahydride	1 gal	IDA	Destruction
1967	TEA	30 gal	IDA	Burn
1967	TEAB	30 gal	IDA	Burn
1967	TEB	5 gal	IDA	Burn
		10 gal	IDA	
		1 gal	B lab	
	Total	16 gal		

BNA03211300

Burn Pit Disposal Inventory

Year	Material	Quanity	Source	Disposal Method
67	Tolulene	275 gal	Happy Valley	Burn
1967	Waste Acid	3340 gal	?	Dilution
	Grand Totals	28913 gal 596 lbs 6040 ft^3		

BNA03211301

Burn Pit Disposal Inventory

Year	Material	Quantity	Source	Disposal Method
1968	Acetone	100 gal	Happy Valley	Burn
		5 gal	Canoga	
	Total	105 gal		
1968	Acetylene	285 ft^3	Weld Shop	Burn
		50 ft^3	C lab	
	Total	335 ft^3		
1968	Acids	313 gal	Canoga	Dilution
		230 gal	Conservation	
		250 gal	CTL-3	
		1 gal	Happy Valley	
	Total	794 gal		
1968	Aluminum Chloride	105 lbs	PDA	Burn
1968	Ammonia	201 gal	Photo	Dilution
1968	Amyl Nitrate	5 gal	CHTL	Destruction
1968	Benzene	23 gal	B lab	Burn
		1 gal	Naka	
	Total	24 gal		
1968	Boron Hydride	1 lb	Canoga	Destruction/Burn
1968	Butadiene Polymer	3 gal	V.O. lab	Burn
1968	CCl_4	33 gal	B lab	Burn
		7 gal	Canoga	
	Total	40 gal		
1968	Caustic Soda	6 gal	Conservation	Dilution
1968	Chemicals ?	48 gal	Canoga	Burn
		50 lbs.	Happy Valley	
		20 gal	B lab	
		100 lbs.	Naka	
	Totals	68 gal ; 150 lbs		
1968	CTF-Igniter	14	Tunnel	Burn
		1	CTL-3	
	Total	15		
1968	Dynamite	50 lbs	Plant Services	Destruction
1968	Electric Squibb	325	Warehouse	Burn
		24	IDA	
	Total	349		
1968	Epoxy	30 gal	S+ID Warehouse	Burn
1968	Ether	5 gal	Canoga	Burn
		10 gal	B lab	
	Total	15 gal		

BNA03211302

Year	Material	Quanity	Source	Disposal Method
68	Explosive Bolts	5	Warehouse	Detonation
1968	Explosive Wastes	10 lbs	Happy Valley	Detonation
1968	Ferrocene	5 lbs	CHTL	Burn
1968	Flare Mix	1320 lbs	Happy Valley	Destruction
1968	Fluorine	1920 ft^3	PRA	Destruction
1968	Glycerine	1 gal	CTL-1	Burn
1968	Heptane	1760 gal	Happy Valley	Burn
1968	Hexane	10 gal	PDA	Burn
1968	Hydrazines	350 gal	CTL-4	Burn
		150 gal	CHTL	
		615 gal	SPA	
		95 gal	B Lab	
		50 gal	Happy Valley	
		150 gal	PRA	
	Total	1410 gal		
1968	Hydrocarbons	3 gal	V.O. Lab	Burn
		20 gal	Explosive Forming	
	Total	23 gal		
1968	Hydrogen Gas	5040 ft^3	SPA	Burn/Destruction
1968	Igniter Class C	650	Warehouse	Burn
1968	TRFNA	1 gal	PRA	Dilution
1968	Lithium	1 lb.	Canoga	Burn
1968	Magnesium	470 lbs	Canoga	Burn
		2160 lbs	Autonetics	
		5 lbs	Happy Valley	
	Total	2635 lbs		
1968	Mercury Salts	.2 gal	B-lab	
1968	Methanol	3 gal	B-lab	Burn
		5 gal	ECL	
		4492 gal	PDA	
		150 gal	CTL-4	
		100 gal	Warehouse	
		600 gal	Transportation	
		15 gal	Canoga	
		100 gal	C-lab	
	Total	5470 gal		
1968	Napalm	1 gal	NAKA	Destruction
1968	Napthalene	5 gal	Canoga	Burn
1968	Nitramine	1 lbs	V.O. Lab	Destruction/Burn

BNA03211303

BURN PIT DISPOSAL INVENTORY

YEAR	MATERIAL	QUANTITY	SOURCE	DISPOSAL METHOD
68	Nitric Oxide	240 ft^3	CTL-4	Destruction
1968	Nitrocellulose	1 lbs	CANOGA	Destruction/BURN
1968	NTO	65 gal	B-LAB	Dilution
		40 gal	PDA	
		140 gal	ECL	
		250 gal	CTL-3	
		30 gal	PEL	
		5 gal	CANOGA	
		3 gal	COCA	
	TOTAL	533 gal		
1968	Oil, WASTE	900 gal	Equip LAB	BURN
		31110 gal	Surplus Sales	
		450 gal	COCA	
		5 gal	PDA	
		10 gal	CTL-4	
		50 gal	CHTL	
		100 gal	Plant Services	
		150 gal	SPA	
	TOTAL	32720 gal		
1968	Oxygen Cylinders	732 ft^3	PRA	VENT
1968	Oxygen - Nitrogen	1680 ft^3	SPA	Vent
1968	PAINT	7 gal	WAREHOUSE	BURN
		100 gal	COCA	
	TOTAL	107 gal		
1968	PAINT Thinner	305 gal	COCA	BURN
1968	Perchlorethylene	30 gal	WAREHOUSE STD	Burn
1968	PIPERIDINE	1 gal	CANOGA	
1968	PROPANE	50 ft^3	C-LAB	BURN
1968	PROPELLANT, Solid	10 lbs	NAKA	Destruction/BURN
1968	PYROPHORIC IGNITER	15	IDA	BURN
1968	PYROTECHNIC IGNITER	65	IDA	BURN
		190	WAREHOUSE	
		5	CTL-3	
		35	CHTL	
	Total	295		
1968	RED FUME Nitric Acid	189 gal	B LAB	Dilution
		50 gal	CTL-4	
		239 gal		
1968	RED PHOSPORUS	15 lbs	EXPLOSIVE [illegible]	BURN

BNA03211304