

ADDENDUM TO SECTION 3.3.3 PHASE I CLOSURE ACTIVITIES OF THE AREA I THERMAL
TREATMENT FACILITY REVISED CLOSURE PLAN

The following shall be added:

Metallic structures found to be hazardous shall be steam-cleaned in order to decontaminate. After steam cleaning, the structures shall be resampled. If the results of the sample analysis show that the samples are non-hazardous, it will be disposed of as non-hazardous waste. If the samples show that the structures remain hazardous, it shall be placed into Department of Transportation-specification (DOT-specification) 15-yard hazardous waste bins for transportation to an approved treatment, storage and disposal facility.

During all demolition and decontamination procedures, modified level D and level C safety protection will be required for all site workers. The level of protection required will depend on the hazardous waste involved. Personnel health and safety monitoring shall be conducted during the demolition and decontamination procedures.



BNA01368711

4.2 FINANCIAL ASSURANCE AND LIABILITY COVERAGE

Closure

Attachment V contains an originally signed duplicate of the financial assurance mechanism adopted for closure in accordance with Article 17, Title 22, California Administrative Code.

Liability

Attachment V contains an originally-signed duplicate of the documentation comprising compliance with liability requirements for sudden accidental occurrences of sections 67027 and 67028, Title 22, California Administrative Code.

4.3 CLOSURE SCHEDULE

Final closure activities are not projected to require longer than 180 days. The schedule of closure activities is provided in attachment VI. The Area I Thermal Treatment Facility is expected to complete final closure in 1992.

4.4 AMENDMENT OF CLOSURE PLAN

If it is determined from the sampling and analysis plan results that is not possible or reasonable to remove all contaminated soil, the closure plan and cost estimate will be revised and submitted to the EPA Region IX and to the Cal EPA-DTSC within 30 days.

If it becomes necessary to delay the closure activities from the timetable given in 40 CFR 264.113(b) the DTSC will be contacted and a request for additional time will be made. If it becomes necessary to increase the closure cost estimate, the DTSC will be notified within 30 days.

Copies of this plan and future revisions, if any, will be maintained at the Environmental Protection Department Office, Rockwell International Corporation, Plummer Facility, Canoga Park, California, until closure is completed and certified by an independent registered professional engineer and an authorized responsible corporate officer.

5.0 POST CLOSURE

All contamination shall either be removed or treated on site during closure activities. Therefore, no post closure activities are planned. If it is not possible to remove all contamination, then a revised closure plan will be prepared. This revised closure plan will include plans for post closure monitoring.



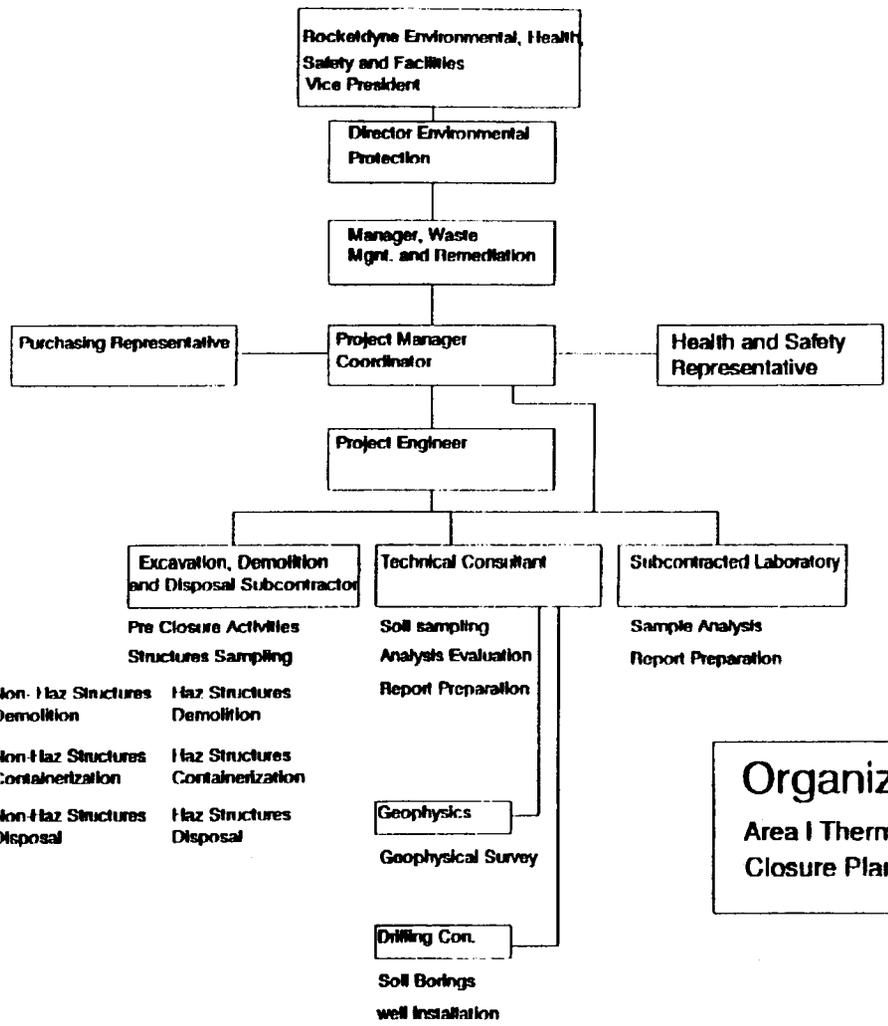
BNA01368712

Figure 1

Organization Chart
Area I Thermal Treatment Facility Closure Plan



BNA01368713



Organization Chart
 Area I Thermal Treatment Facility
 Closure Plan


 BNA01368714

Attachment I



BNA01368715

DEPARTMENT OF HEALTH SERVICES

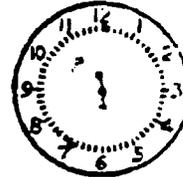
1000 SOUTH BROADWAY, ROOM 7128
LOS ANGELES, CA 90012

(310) 620-2380



September 3, 1982

SEP - 9 '82 AM

ROCKETDYNE
CORRESPONDENCEROCKWELL INTERNATIONAL
Rocketdyne Division
6633 Canoga Avenue
Canoga Park, CA 91304

Attn: J.A. Bowman, Manager - Facilities Engineering

Dear Mr. Bowman:

COMPLETION OF EXCAVATION AND REMOVAL OF HAZARDOUS WASTES, BURN PIT AREA
SANTA SUSANA FIELD LAB

Reference is made to the excavation of debris and wastes from your company's Burn Pit Area mandated by the California Regional Water Quality Control Board, Los Angeles Region.

During the course of that excavation, your company reported that significant deposits of hazardous wastes were unexpectedly encountered. Said hazardous wastes were excavated and disposed in accordance with the California Health and Safety Code under supervision of this office staff.

Laboratory analyses (copy attached) of soil samples taken confirmed that all significant deposits of hazardous waste has been removed. Therefore any of the tested soil which is removed from the site may be hauled as non-hazardous waste. It is recommended that the marginally contaminated soils be transported to a Class I disposal site.

Should further grading/excavation of the site disclose additional deposits of hazardous wastes, you are to contact this office immediately by telephone with written confirmation and evaluation of the situation within one week. Include details of mitigation measures proposed, together with a time schedule of implementation.

We sincerely appreciate the cooperation you have extended in the successful cleanup of this site. If you have any questions, please call Roy Thielking of my staff at the above number.

Sincerely yours,

Miller E. Chambers, P.E.
Permits, Surveillance and
Enforcement Section
Hazardous Waste Management Branch

U8510 RC

MEC:RT/gd



BNA01368716

cc: Thomas Jones
John A. Hinton
Raymond Hertel, CRWQCB-LAR
→ Rockwell International - Michael Francis



BNA01368717

12 December 1980

80FE-533

TO: J. A. Bowman
Rocketdyne-SSFL
541, 055-SS12
5014

FROM: R. D. Schmued
Rocketdyne-SSFL
541, 055-SS12
5915

Subject: Meeting with the Staff of the Regional Water Quality Control Board

An informal meeting was held on December 10, 1980 at Rocketdyne's request with members of the Staff of the Regional Water Quality Control Board. This meeting was held in compliance with our NPDES permit which requires that the Board be notified of changes in the permit holder's operations. Those present were Dennis Dasker, Hank Yacoub and Bryan Jo Choi, representing the Staff, and Rolf Schmued, Michael Francis and Paul Kleinsmith, representing Rockwell Divisions located at the Santa Susana Field Lab.

Several items were discussed on an informal basis. We indicated that we had not received a response to a letter dated June 14, 1979, in which we suggested submitting a monthly waste water treatment plant coliform analysis in lieu of such an analysis performed on a sample taken at the time of discharge. We pointed out that, during the dry season when no discharges are made, the Staff does not receive any information on the treatment plants to be assured of their proper operation. The advantage to Rocketdyne would be that analyses could be submitted which are already routinely being taken. Since the samples taken for NPDES permit compliance are intended to be representative of the actual discharge, the Rocketdyne proposal may not be acceptable. A response will be forthcoming.

The presence of cattle in the buffer zone was discussed. Since the owner provides his own water and all Rocketdyne water discharged through the buffer zone must comply with NPDES standards, there is no problem in grazing cattle in the buffer zone.

The problem of 13 out of 59 samples from waste water discharges exceeding the chromium discharge limit of 0.01 mg/l by as much as 400% was discussed. The Analytical Chemistry Lab reports which prove that chromium is leached from the soil were submitted to the Staff for their review. The Staff requested that we furnish location data identifying the sampling points to assure that these could not have been contaminated by Rocketdyne operations. The staff also asked if we had been able to establish upstream and downstream concentration relationships. We responded that we had been unable to do so since our flume and weir installations had been damaged by heavy rains during the past years. We also stated that the installations had been repaired again and that we hoped to get some data during the coming rain season.

Various facility changes were discussed. The materials used at Facility 705 were reviewed and determined not to pose any water pollution problems. The generation of airborne fluorides was discussed with reference made to the Air Monitoring Center modeling study, which shows that rapid in-air dispersion occurs so that no adverse ground level concentrations could be washed into discharge channels.



STL-IV operations were reviewed in the context of NTO and MMH which have been used for many years, and with which we have a great deal of experience in handling safely. However, volume and frequency would be increased in support of the MX Program. Existing control ponds and treatment methods using H_2O_2 would be continued, with weekly sampling. The fact that hydrazine was not limited specifically under the current NPDES permit was also brought out.

The new Propellant Loading Facility was reviewed. It was pointed out that extraordinary precautions are being taken to provide safety features so that accidents or spills would be self-limiting with the maximum possible being a 55-gal. drum. We explained that it was not our intent to contain an NTO spill if it should occur and that it would probably vaporize before reaching water bodies. We indicated that MMH would be held in an unlined pond where it would be treated in the event of an accidental discharge. The staff raised the question if it might not be preferable to line the pond in order to prevent the need, at some future time, to remove contaminated soil. However, the option was left up to Rocketdyne.

The planned use of the Engineering Chemistry Lab for the manufacture of GAP and nitroform in 1981 was discussed and the improvements made in ECL control systems were outlined, including the chemical waste pond, suspect water pond and the concentric chemical drain line from the reactor cells.

Paul Kleinsmith reviewed ESG operations, including PDU and Bowl operations. The review of the foregoing operations was well received and considered by the Staff not to pose any significant problems in need of immediate action. The upcoming NPDES renewal will be sufficiently timely to incorporate any new requirements. We were provided with the new EPA forms which the Staff will use for the renewal. These will be studied in January in order to determine the supporting data, particularly analytical data which will be required in support of the application.

The final item which was discussed was the Rocketdyne Burn Pit which was closed in 1971. The Staff plans to visit the site and to coordinate with us the further evaluation of this site. They indicate that a schedule should be developed for dealing with this. They also indicated a need to involve the State Department of Health. We reviewed steps taken to date to resolve the burn pit issue and requested that we continue on an informal basis to move toward a resolution, preferably without public attention. We pointed out that most disposals pertained to materials such as propellants, which were burned and that, for the most part, we expect very little residue other than the burned out containers. We will make every effort to cooperate with the regulatory agencies, thereby hoping to prevent the matter from becoming a public issue. We pointed out that the site was included in recent applications to the EPA for a Storage Treatment and Disposal Permit.



BNA02571099

J. A. Bowman
12 December 1980
Page 3

In summary - The Briefing was well received. Except for the planned visit by the Staff to the burn pit area, no immediate further action is required.



R. D. Schmued
Environmental Control Specialist
Facilities Engineering

RDS:ekv

cc: W. J. Baisley 598, 055-SS12
R. D. Barto 052, 055-AA89
A. R. Bjorklund 540, 055-BA65
R. L. Dunham 541, 055-SS12
S. Fischler 598, 055-SS12
M. B. Frankel 522, 055-SS12
N. S. Fujikawa 539, 055-SS11
L. R. Grant 578, 055-BA48
R. W. Hartzler 540, 055-BA67
K. H. Johns 031, 055-SS12
P. L. Kleinsmith 765, 071-J802
F. B. Lary 596, 055-SS12
J. H. Lieb 539, 055-AC10
D. E. Lockett 540, 055-EB10
D. J. O'Rourke 541, 055-SS12
C. E. Winzer 031, 055-SS12



BNA02571100

DEPARTMENT OF HEALTH SERVICES

107 SOUTH BROADWAY, ROOM 7128
LOS ANGELES, CA 90012

(213) 620-2380



May 19, 1982

ROCKWELL INTERNATIONAL
Rocketdyne Division
6633 Canoga Avenue
Canoga Park, CA 91304Attn: J.A. Bowman, Manager
Facilities Engineering

Dear Mr. Bowman:

This is to confirm the May 17, 1982 telecon between Michael Francis of your company and Roy Thielking of this office.

Our review of your report titled "Chemical Analysis of Contaminated Soil Samples "Burn Pit" Snata Susana Field Lab" dated April 28, 1982, indicates that none of the samples analyzed contain hazardous waste in any significant concentration. Therefore, it is permitted to excavate and transport any of the subject contaminated soil as non-hazardous material.

Should field observations during excavation indicate the presence of possible hazardous concentrations, either such material must be transported as hazardous, or further laboratory tests must be conducted first.

Please notify this office one week prior to excavation, so a staff member can arrange to be present to observe and advise.

If you have any questions, please call Roy Thielking of my staff.

Sincerely,

A handwritten signature in cursive script that reads "Miller E. Chambers".

Miller E. Chambers, P.E.
Permit, Surveillance and
Enforcement Section
Hazardous Waste Management Branch

MEC:RT/gd

cc: California Regional Water Quality Control Board
Attn: Raymond M. Hertel
William Jopling-HWMB
John Hinton-HWMB

BNA00377279

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD—
LOS ANGELES REGION107 SOUTH BROADWAY, SUITE 4027
LOS ANGELES, CALIFORNIA 90012-4596
(213)620-4460

May 28, 1982

BKK = owner's
name
= Benjamin
Kazarian

Rockwell International
6633 Canoga Avenue
Canoga Park, CA 91304ATTN: Mr. J.A. Bowman, Manager
Facilities Engineering

Gentlemen:

Reference is made to your letter dated April 22, 1982, and the accompanying report titled "Chemical Analysis of Contaminated Soil Samples, Santa Susana Field Lab".

We concur with your assessment of the laboratory results that only isolated instances of substances at marginally hazardous concentrations have been found in the "burn pit" soil testing areas.

Your request to dispose of the slightly contaminated soil at a Class I disposal site is hereby approved. *BKK in West Covina*

Please notify this office in writing when this material is removed and disposed of at a legal site, including a map showing the area(s) excavated, the quantities removed, and the name of the disposal facility receiving it and dates of disposal.

A staff member of the Department of Health Services, Los Angeles Office will arrange to be present at the site to observe the complete removal of the contaminated material.

Very truly yours,

RAYMOND M. HERTEL
Executive Officercc: Department of Health Services, Hazardous Material Management Services
ATTN: Mr. John Hinton, Regional Administrator

BNA00377278

DEPARTMENT OF HEALTH SERVICES

107 SOUTH BROADWAY, ROOM 7128
LOS ANGELES, CA 90012

3) 620-2380



September 3, 1982

ROCKWELL INTERNATIONAL
Rocketdyne Division
6633 Canoga Avenue
Canoga Park, CA 91304

Attn: J.A. Bowman, Manager - Facilities Engineering

Dear Mr. Bowman:

COMPLETION OF EXCAVATION AND REMOVAL OF HAZARDOUS WASTES, BURN PIT AREA
SANTA SUSANA FIELD LAB

Reference is made to the excavation of debris and wastes from your company's Burn Pit Area mandated by the California Regional Water Quality Control Board, Los Angeles Region.

During the course of that excavation, your company reported that significant deposits of hazardous wastes were unexpectedly encountered. Said hazardous wastes were excavated and disposed in accordance with the California Health and Safety Code under supervision of this office staff.

Laboratory analyses (copy attached) of soil samples taken confirmed that all significant deposits of hazardous waste has been removed. Therefore any of the tested soil which is removed from the site may be hauled as non-hazardous waste. It is recommended that the marginally contaminated soils be transported to a Class I disposal site.

Should further grading/excavation of the site disclose additional deposits of hazardous wastes, you are to contact this office immediately by telephone with written confirmation and evaluation of the situation within one week. Include details of mitigation measures proposed, together with a time schedule of implementation.

We sincerely appreciate the cooperation you have extended in the successful cleanup of this site. If you have any questions, please call Roy Thielking of my staff at the above number.

Sincerely yours,

Handwritten signature of Miller E. Chambers in cursive.

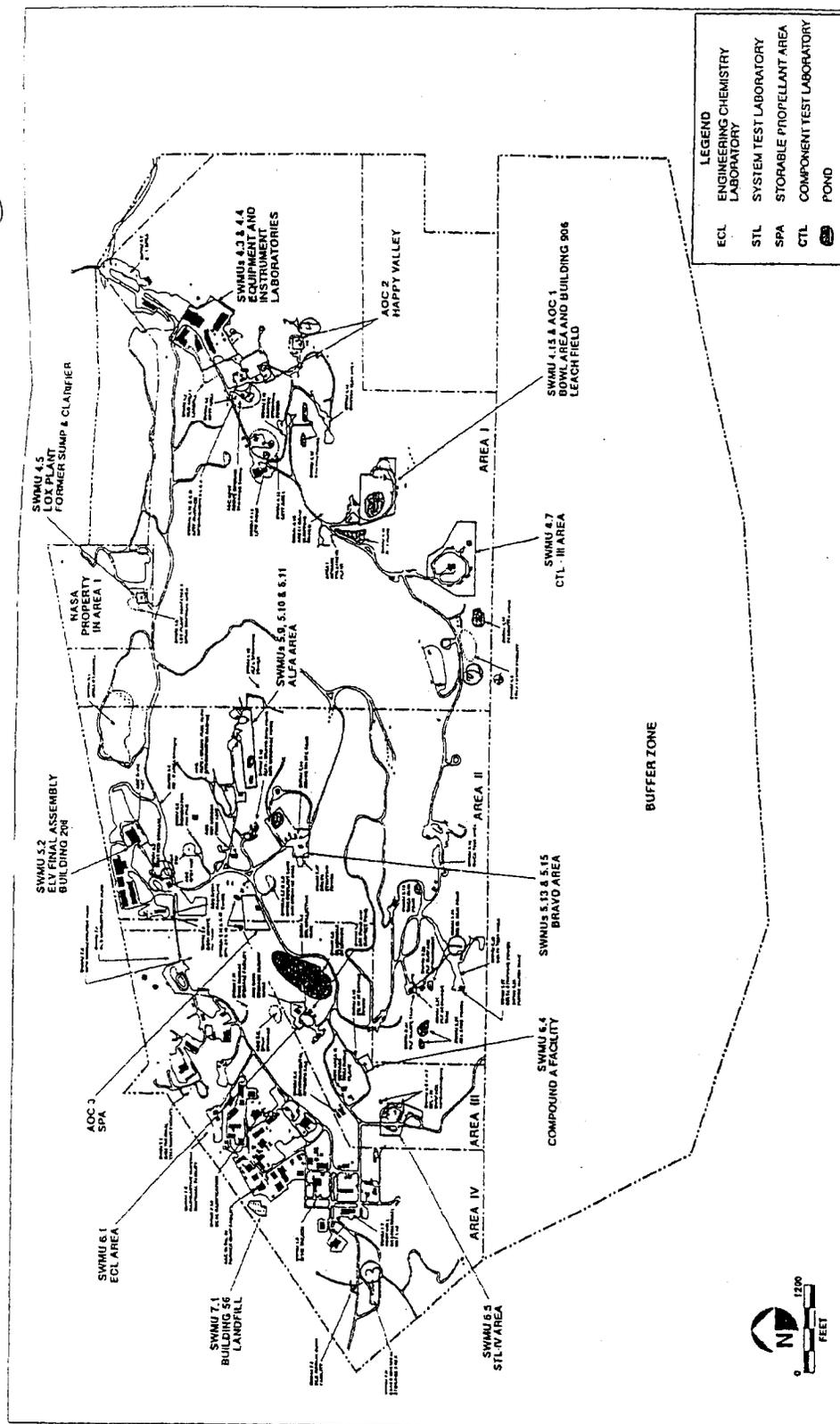
Miller E. Chambers, P.E.
Permits, Surveillance and
Enforcement Section
Hazardous Waste Management Branch

MEC:RT/gd



BNA03211218

7



LEGEND

ECL	ENGINEERING CHEMISTRY LABORATORY
STL	SYSTEM TEST LABORATORY
SPA	STORAGE PUFF/EFFLUENT AREA
CTL	COMPONENT TEST LABORATORY
	POND

FIGURE

1-3

SWMUs and AOCs
Santa Susana Field Laboratory Facility

OGDEN



BNA03856920

EXHIBIT SP-2
 Pro Men
 Department
 12-15-01
 Date
 Repair
 [Signature]

EXHIBIT
 7
 0251mex 4/4/02

5-21-70

List of Propellant Containers at Burn Pit for Disposal of Contents.

1 Ton NTO Cyl. - 3 Ea. SN 4998, 330220, 3381
1 K-Bottle SN Unknown.
55 Gal Drums of the Type IRFNA is stored
in - Believed to contain NTO. Possibly
2 with IRFNA. SN 4, 5, 6, 7, 8, 9, 10 - also 5
Drums marked - U.S. Property Alcoa Alum. with
no ser. numbers.

55 Gal. Drum IRFNA - 1 SN 30

250 lb K-Bottles of Pyroforic Liquids -
No Serial Numbers Obtained.

10-Yellow Bottles } Can obtain serial
10-Red Bottles } numbers if needed
5-Blue Bottles }

1 - 1/2 Ton Container SN 83035 RP0435
4 - Small Pots (similar to propane tanks)

5 - Very Small K-Bottles containing
Nitrosyl Chloride

1 - Large Dewar Type Container
Made By Cryenco SN 125
NASA S 5-39 320

3 - Very Small K-Bottles of
Bromine Trifluoride.

1 - Very Small K-Bottle of
Acetylene.

C.H. HEATH W/DIV 6A08 } 5-21-70
H.A. HUNTER W/DIV 6A08 }
EXT: 7370



BNA03134646

- 1 - Large Container - Contents Unknown!
Made for Dow Chemical Co. SN F021069
- 5 - K-Bottles of Dry Nitrogen
SN 240218, 45585, 484866, 858881, 163990.
- 5 - K-Bottles of zero Gas SN 27948, 62563,
50560, 53822, 21088.
- 3 - Very Small Pres. Bottles.
- 3 - K-Bottles of Methane Ethane
SN 3789, 3573, 26742.
- 2 - K-Bottles of Ammonia
SN 5887, 28002.
- 1 - Large K-Bottle of Hi-Cal-3
SN E-870
- 1 - 1/2 Ton Container of Hybaline and RP
SN OMCC-LOCW-57-773-0782
- 2 - K-Bottles of Methane
SN 919648, 5265 (RP 659571)
- 9 - 55 Gal. Drums of Hydrazine.
SN 2200, 4096, 2083, 5741, 3124, 1940,
4956, 895, 3422.
- 10 - Misc. K-Bottles - Contents Unknown -
Scattered around Burn Pit area. Some
near fire areas, some half buried
in the ground.

50
2
10
45



BNA03134647

CYLINDERS DESTROYED July 1970
1. F₂ - SERIAL FH 2540 ✓

2. BROMINE PENTA FLUORIDE
GEN. CHEMICAL - SERIAL R-579 ✓

3. FLUORIDE - MATHESON SERIAL ~~78542~~ 542

4. BROMINE PENTA FLUORIDE ✓ SERIAL - RS 0215

5. UNKNOWN RP 64-9208

6. UNKNOWN RP 4-920-

7. US NAVY MP 0607

8. FLUORINE ALLIED CHEM, 29-230411

9. HYDROGEN FLUORIDE RC 4463



BNA03134648

4-6-71

Tea - 1000 Lb/1000	51 each	Research
Ammonium Nitrate - Disc. 1000	Cabinet	Warehouse
Explosives A-F	Cabinet	Research
Flashing Caps	Cabinet	Research
Acids	4 drums	...
<u>ACIDS - HYDROCHLORIC</u>	2 CARBOYS	PDA
<u>ACID - CLEANING</u>	1 DRUM - PLASTIC (20 GAL SIZE)	PDA

Memo:
Items mentioned in red disposed
of by St Company 10 April 71
78



BNA03134636

1 Drum	Research
1 Iron cylinder	SI.
5 Gal container	Canoga
3 - 10 Gal containers	I.L.
1 Gal Glass container	E. Lab
10 Gal size	Canoga
2 - Cartons	PDA
2 - Boxes	Canoga
6 - 5 Gal size containers	Eng. Chem. Lab-PDA
10 ea. (1/2 cylinders)	Eng. Chem. Lab. PDA
6 - 1 Gal. Bottles	Energy Conversion Area
2 - 5 Gal. containers	Energy Conversion Area
1 - 5 Gal. containers	Energy Conversion Area
2 - Drums	
1 - 5 Gal. containers	I/O31
15 Drums - Full	SIPL
1 Drum - partial	SIPL
1 ea.	Alfa
10 Gal. container	SIPL
1 Drum container	Canoga
1 Unit (Cabinet)	Canoga
3 - bottles (1 qt) Cabinet	Canoga
11 - bottles (1 qt) Cabinet	Canoga
1 - cardboard type drum	Research
50 ea. cabinet	Research
1 Unit Cabinet.	Canoga
1 Unit Cabinet	Canoga
1 Drum	Comp. Facility
6 Drums	Research



BNA03134637

SPACE AND SYSTEMS GROUP

EAC 68-15

Date 20 September 1968

TO Those Concerned
Address

FROM E. F. C. Cain
Address D/991-350 SS11

Phone 5066

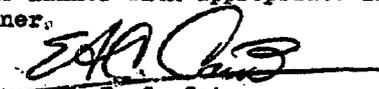
Subject WASTE DISPOSAL

The purpose of this I.L. is to remind each responsible program engineer and appropriate members of supervision that the disposal of waste products and/or excess chemicals arising from any program being carried out at SSFL is primarily the responsibility of the appropriate technical personnel and his supervision. This problem is not new, but it is becoming more acute as we increase our chemical processing work. Indiscriminate "tossing down a sink", venting, or "dumping into a water run-off" is not an acceptable procedure. Federal, state, local, and/or Rocketdyne regulations must be met.

In the past, most things were sent to the burn pit where they could be easily burned and would not result in the formation of toxic combustion products. In many instances, this is no longer a valid solution to our disposal problem.

Accordingly, it is the responsibility of the appropriate responsible program engineer to (1) determine what waste products will be formed or excess chemicals remain on his program, (2) determine the most economical and safe procedure for disposing of these materials, (3) acquire appropriate concurrence of proposed disposal procedures from Plant Protection Services, Industrial Engineering at SSFL, who are responsible for pollution control at SSFL, the Chemistry Safety Committee and the Chemical and Material Sciences resident manager at SSFL in addition to his own line supervision, and (4) see that the disposal is, in fact, accomplished.

It may be desirable in certain instances to store excess chemicals which could be useful in other programs. If this is the case, it is the responsibility of the same responsible program engineer to see that the materials are stored in an acceptable manner with appropriate labels and to maintain the material in this manner.



E. F. C. Cain
Manager
Engineering & Analytical Chemistry
Research Division

EFCC:alm



BNA02268630

6-Aug-1980

NORMA, this copy of the cumulative burn pit disposal inventory includes a classification column and indicates the Health department's classification of the listed materials.

H = HAZARDOUS WASTE
EH = EXTREMELY HAZARDOUS WASTE
T = TOXIC
C = CORROSIVE
I = IRRITANT/
F = FLAMABLE
S = STRONG SENSITIZER
P = PRESSURE GENERATING

M. G. Francis



BNA00377280

Copy # 4

2 copies - N. Fujikawa WA.

Material	Total Quantity	Classification	Notes
Acetic Acid	995 gal	H (T, F)	Copy # 2 A. E. Johnson
Acetonitrile	5 gal	H (T, F)	Copy # 4 N. Fujikawa
Acetylene	115 gal	H (C, I)	
Acids	3413 gal	H (T, C)	
Alcohols	15350 gal	H (T, F)	
Alkali Metals	310 lbs		
Aluminum	50 lbs	H (F)	
Aluminum Oxide	115 gal	H (T, C)	
Ammonia	2238 gal		
Ammonia Dichloride	650 lbs	H (I, F)	
Amyl Nitrate	2 gal	H (T, F)	
Asbestos	215 lbs		
BARIUM CHLORIDE	50 lbs	H (C)	
BENZENE	232 gal	H (T, F)	
Bermite Catalyst	72		
BLACK POWDER - $KNO_3, + C, S$	116		
Blasting CAPS	1 CABINET		
BORON	4 lbs		
Brown Fuel	166 gal	EH (T, F)	
Brown Tar	240 gal	5 lbs	H (T, F)
Bromine Hydroxide	1 lb		
Bromine Compounds	5 K. B. ...	H (T, C, F)	
Butadiene Polymer	5 lbs		
Calcium Hydroxide	15 lbs	H (C, F)	
Calcium Oxide	50 lbs		
Carbon	240 lbs		
Carbon Black	240 lbs		
Carbon Disulfide	156 gal	(T)	
Carbide	1051 gal	H (C, I)	
Cesium	7 lbs		
Chemicals Various	227 gal	H	
Chlorine	1930	EH (T, C, F)	
Chlorine Trifluoride	27 gal	EH (T, C, F, P)	
Chlorine Dioxide	80 lbs		
Chromic Acid	81 gal	H (T, C, F)	
Comp. A	5 lbs		
CONAX VAPORS - Explosive Actuator	3		
CTF IGNITERS	15	EH (T, C, F, P)	



BNA00377281

Material	Total Quantity	Classification
Decon Solution	330 gal	
Dicyclopentadiene	51 gal	H (T, I, S)
Diesel Fuel oil	1000 gal	H (F)
Dichlorocyclohexane	55 gal	H (T, F)
Diazotizing	30 gal	
Dibutyltoluene	1 lb	H (T, F, P)
Ditto Acid - ALCOHOL	116 gal	
Delta methyl	110 gal	
Dioxin	3 gal	EH (T)
Dynamite	30 lbs	
Electric Igniters	5297	
Ethylene Diamine	635 gal	H (T, I, S)
Electrolyte	200 gal	
Epoxy	30 gal	H
ETHANOL	10 gal	
Ethylene Oxide	1 cylinder	H (T, I, F, P)
EXPLOSIVE BARRAGE - like valve	5	H (P)
EXPLOSIVE WARRIOR	10 lbs	H (P)
FERROCENE - LIQUID IRON	5 lbs	
FIBRE	1820	
FLOROX	1 cylinder	
FLUORINE	117 lbs, 10,280 ST ³	
Flushing oil	385 gal	
FUEL WASTE	56,806 gal	H (T, F)
FERRON	15 gal	
GASOLINE	165 gal	H (T)
Glycerin	1 gal	
GEAR OIL - hydrocarbon	165 gal	
HEPTANE	2860 gal	H (T, F)
HEXANE - Be, Li	1795 gal	H (T, F)
Hybrid Motor GRAINS	160 lbs.	
Hybaline - hydraz. den	2 cylinders	
Hydraulic oil	55 gal	
Hydrazine	46,969 gal	
Hydrocarbon	130,473 gal	
Hydrochloric Acid	180 gal	
Hydrogen Gas	5040 ST ³	
Hydrogen Fluoride	10 ST ³	H (T, C)
HYPERCAL THERMOS	20	



BNA00377282

MATERIAL	QUANTITY	CLASSIFICATION
IR FNA	660	
Isopropyl Alcohol	285 gal	H (T, C)
Isocyanate Ester	110 gal	F (T, F)
TD-4	625 lbs	?
KETONES	4900 gal	
Lacquer Diluted	422 gal	H
LACHRYMATORY	55 gal	H (T, I, F)
LANCE GRAINS	70 gal	?
Lithium	345 lbs	?
LITHIUM CHLORIDE	70 gal --- 42 lbs	H (C, F)
Mercury	15 gal	H (C)
Methanol	2 gal	EH (T)
Misc. Chemicals	5800 gal	H (T, F)
Misc. Flammable	3200 gal	?
Misc. Oxidizing	2180 gal	?
Metrial - tri-nitrate - explosive	600 lbs	
Muriatic Acid	25 lbs	
Myxine	1470 gal	H (T, C)
NAK	5715 gal	
Napalm - Jellied Gasoline	152 lbs	
Nitric Acid	51 gal	
Nitrocellulose	61 gal	H (T, C, F)
Nitrocellulose Acid	45 gal	
Nitrocellulose	25 lbs	H (F, F)
Nitrocellulose	1 lb	H (T, C, G)
Nitrocellulose	1 lb	
NTO	23502 gal	H (T, F)
Nitrosyl Chloride	51 gal	?
Nitroglycerin	4 gal	H (T, F, P)
Oils	55,725 gal	H (F)
Oxygen	1680 gal	EH (T, C)
PAINT - Titanium oxide	3612 gal	
PAINT Thinner	189 gal	H (I, F)
Perchlorate	360 gal	H (T, I, F)
Perchlorate	1 gal	H (T, I, F)
PERMANGANATE MIX	55 gal	H (T, F)
PERMANGANATE	55 gal	

TMETN

Liq
in
explosive

sod-
sulfate



BNA00377283

MATERIAL	Quantity	Classification
PLASTISOL Nitrocellulose	5 lbs	H (F, P)
Phenols	?	H (T, C)
Phosphorus (white)	1 unit	EH (T, F, P)
POTASSIUM	25 lbs	H (G, F, P)
POTASSIUM Cyanide	1 pt.	EH (T)
Perchloroethylene	20 gal	H (T, I)
Petroleum	165 gal	
Potassium PERMANGANATE	10 lbs	H (T, C, F)
Propellant, solid	960 lbs	?
Pyrophoric Aluminum	6 lb	H (F)
Pyrophoric Iodides	418	
Pyrotechnic Iodides	374	
PYRIDINE	6 gal	H (T, F)
RFNA	4203 gal	H (T, C, F)
RAM SET CHARGE	300	H
RJ-1	3930 gal	H
RP-1	75,255 gal	H
Resin	150 gal	
Rifle Shells - double based prop	100	
Silicate of soda	50 gal	
Smoke flares - phosphorus	50	
SMOKE Mix	705 lbs	
Sodium	2941 lbs	H (C, F, P)
Sodium Acetate	1 pt.	EH (T)
Sodium Hydroxide	20 gal	H (T, C)
Sodium Iodide	10	H (T, I)
Sodium Nitrate	2271 gal	H (T, F, P)
Solvent	33 gal	H (F)
Sulfuric Acid <STANDARD solvent	415 gal	H (T, C)
TETA Isobutyrene	155 gal	
TRIBUTYLAMINE	1280 gal	
Tributylamine	100	
TEA	406 gal ; 846 lbs	
TEAB	237 gal ; 720 lbs	
TITANIUM	100 lbs	H (I)
TEB	150 gal	765 lbs
Tri fluorooctic Anhydride	1 gal	



BNA00377284

MATERIAL	QUANTITY	
TRICHLOROETHANE	200 gal	
Toluene	395 gal	H(T, F)
Triethylene Glycol - Dinitrate	6 lb	?
Tetrafluorane	2 gal	?
Titanium tetrachloride	1 pt	H(T, C)
Titanium trichloride	1 pt	?
VM&P Naptha	330 gal	H(T, F)
Xylene	10 gal	H(T, F)
ZERO GAS	480 ft ³	?
Zirconium Hydride Powder	100 lb	



BNA00377285

To: NORMA FUJIKAWA Copy #2

1961 → 1971

" DISPOSED OF "

Material	Total Quantity	
Acetic	995 gal	AT THE BURN PIT
ACETOACETAL	5 gal	
ACETYLENE	1175 ft ³	
Acids	3413 gal	
ALCOHOL	12830 gal	
ALKALI METALS	310 lbs	
ALUMINUM	50 lbs	
ALUMINUM CHLORIDE	115 gal	
AMMONIA	22.38 gal	
AMMONIUM BICHLORATE	630 lbs	
AMYL NITRATE	5 gal	
ANALYTICAL GAS	240 ft ³	
ANTHRACENE	50 lbs	
BENZENE	232 gal	
BERMITE CARTRIDGES	72	
BLACK POWDER	1 lb	
BIACTIC CASE	1 CABINET	
BINDER	4 lbs	
BURNING FUEL	166 gal	
BORON TRIFLUORIDE	240 ft ³ 5 lbs	
BORON Hydride	1 lb	
Bromine Compounds	5 KBr/L	
BUTADIENE Polymer	3 lbs	
Calcium Hydride	15 lbs	
Calcium Carbide	50 lbs	
Calc - 3	3 + 2	
Carbon Monoxide	240 ft ³	
Carbon tetrachloride	156 gal	
CAUSTIC SODA	1051 gal	
Cesium	7 lbs	
Chemicals, Unknown	377 gal	
Chlorine	1930	
Chlorine trifluoride	27 gal	
Chlorine trisulfide	30 lbs	
Chromic Acid	31 gal	
Comp. A	5 lbs	
CONAX VALVES	3	
CTF IGNITERS	15	
Cyclotetramethylene-Nitramine	500 gal	



BNA00377286

Material	Total Quantity
Decon Solution	330 gal
Diethylene Triamine	550 gal
Diesel Fuel oil	1000 gal
Diethyl cyclohexane	100 gal
Dynazine	100 gal
Dinitro toluene	1 lb
Ditto fluid	116 gal
Delta	110 gal
Dioxin	3 gal
Dynamite	50 lbs
Electric Igniters	5297
Ethylene Diamine	635 gal
Electrolyte	200 gal
Epoxy	30 gal
Ether	10 gal
Ethylene Oxide	1 cylinder
EXPLOSIVE BOLTS	5
EXPLOSIVE WRENCH	10 lbs & 1 magnet
FAIRBORNE	3 lbs
FLAME II	1820
FLOROX	1 cylinder
FLUORINE	117 lbs, 10,280 ft ³
FLUSHING oil	385 gal
Fuel waste	56,806 gal
FERRON	15 gal
GASOLINE	165 gal
Glycerin	1 gal
GEAR oil	165 gal
HEPTANE	2860 gal
HEXANE	1795 gal
Hybrid Motor GRAINS	160 lbs.
Hydrazine	1 gal
Hydraulic Oil	55 gal
Hydrazine	46,969 gal
Hydrocarbon	130,473 gal
Hydrochloric Acid	180 gal
Hydrogen GAS	5040 ft ³
Hydrogen FLUORIDE	10 ft ³
Hydrogen TETRASE	20



BNA00377287

MATERIAL	QUANTITY
IGNITERS	660
IR FNA	225 gal
Isopropyl Alcohol	110 gal
Isopropyl Butane	625 lbs
TD-4	4900 gal
KETONES	422 gal
LACQUER Diluted	55 gal
LACHRYMATORY	70 gal
LANCE GRAINS	345 lbs
Lithium	70 gal --- 42 lbs
LITHIUM Chloride	1320 gal
Magnesium	2000 lbs
MERCURY	2 gal 2 can
Methanol	5800 gal
Misc. Chemicals	3233 gal
Misc. Flammables	21855 gal
MIXED OXIDES	600 lbs
Metrial - tri-nitrate	25 lbs
Muriatic Acid	1470 gal
MYDYNE	5745 gal
NAK	152 lbs
NADALM	51 gal
Nitric Acid	61 gal
Neutralized Acid	115 gal
Nitrocellulose	26 lbs
Nitrocellulose	5 gal
Nitroamine	1 lb
NITRO	23502 gal
Nitrosyl Chloride	5 gal
Nitroglycerin	4 gal
Oils	55.775 gal
OXYGEN Diffusion	21 cylinders ; 1690 gal
Oxygen gas	3612 ft ³
PAINT	189 gal
PAINT Thinner	360 gal
Pentaerythritol	301 gal
PARA Xylene	55 gal
PERMANGANATE MIX	55 gal
PLATING SOLN	255 gal



BNA00377288

MATERIAL	Quantity
PLASTIC Nitrocellulose	5 lbs
Phenols	?
Phosphorus	1 unit
POTASSIUM	35 lbs
POTASSIUM CYANIDE	1 qt.
Perchloroethylene	30 gal
Polymers	1165 gal
POTASSIUM PERMANGANATE	10 lbs
Propellant, Solid	960 lbs
Pyrophoric Aluminum	6 lbs
Pyrophoric Igniters	448
Pyrotechnic Igniters	394
PYRIDINE	6 gal
RFNA	4 203 gal
RAM SET CHARGES	300
RJ-1	3930 gal
RP-1	95,255 gal
Resins	150 gal
Rifle Shells	100
Silicate of soda	50 gal
Smoke flares	50
Smoke Mix	705 lbs
Sodium	2944 lbs
Sodium Arsenite	1 qt.
Sodium Hydroxide	550 gal
Sodium Chloride	10 lbs
Sodium Nitrate	22 gal
Solvent	33 gal
Sulfuric Acid	155 gal
Tetra Iso butylene	1450 gal
Tributylamine	1 gal
Tributylborane	10 gal
TEA	406 gal ; 846 lbs.
TEAB	937 gal ; 920 lbs.
Titanium	100 lbs
TEB	156 gal ; 765 lbs
Tri fluoracetic Anhydride	1 gal
TRIMETHYL-BORANE-METHANOL	40 gal
TRIMETHYL-BORON	2 gal



BNA00377289

MATERIAL

Quantity

TRICHLOROETHANE	2.55 gal
Toluene	385 gal
TRIMETHYLENE-Glycol-Dinitrate	5 lbs
TETRA FLUORANE	2 gal
Titanium tetrachloride	1 pt.
Titanium trichloride	1 qt.
VM&P Naptha	337 gal
Xylene	10 gal
ZERO GAS	480 ft ³
ZIRCONIUM Hydride POWDER	1 CABINET



BNA00377290

Disposal
Area



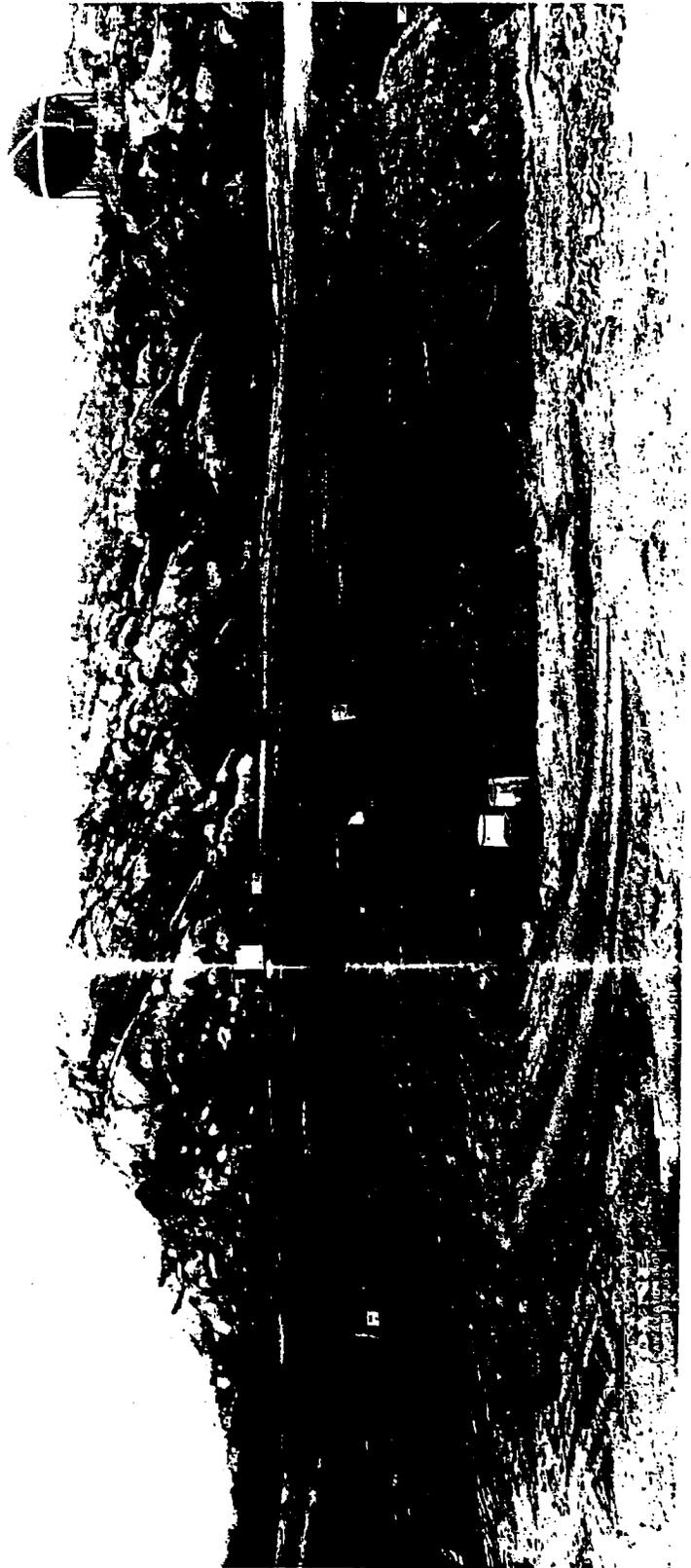
BNA01906227



9TE78-3128/67



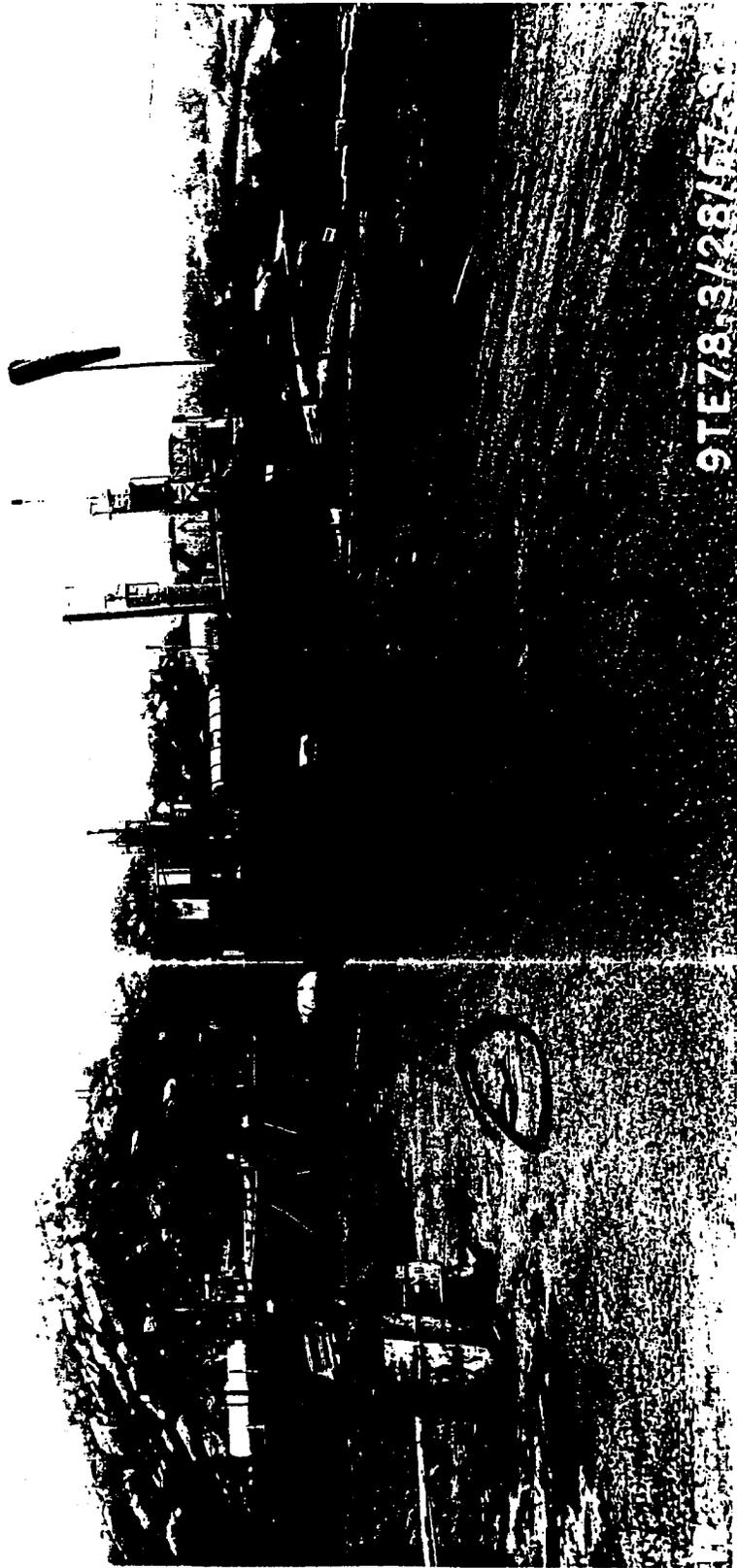
BNA01906228



BNA01906229



BNA01906230



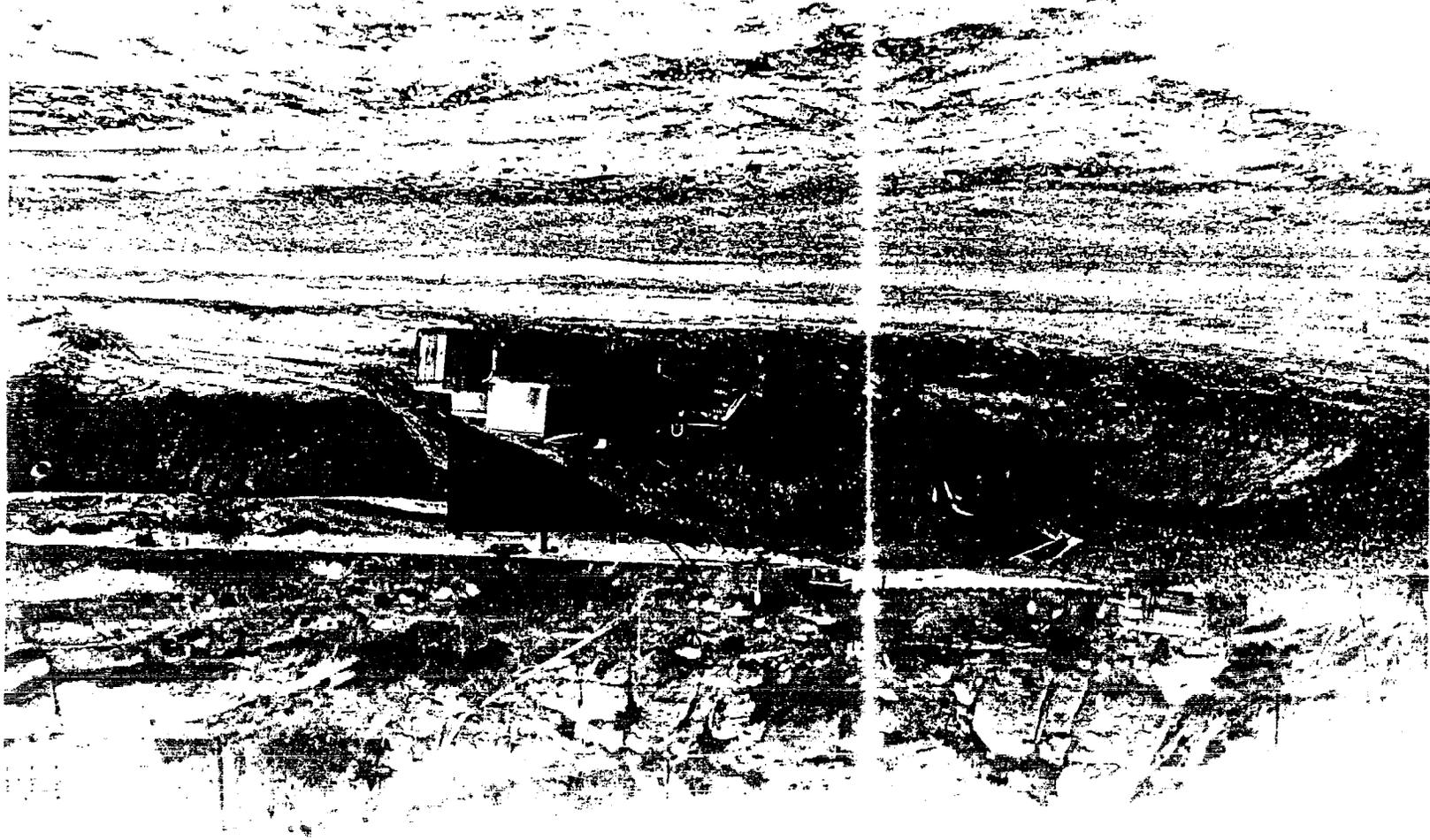
9TE78 3/28/67



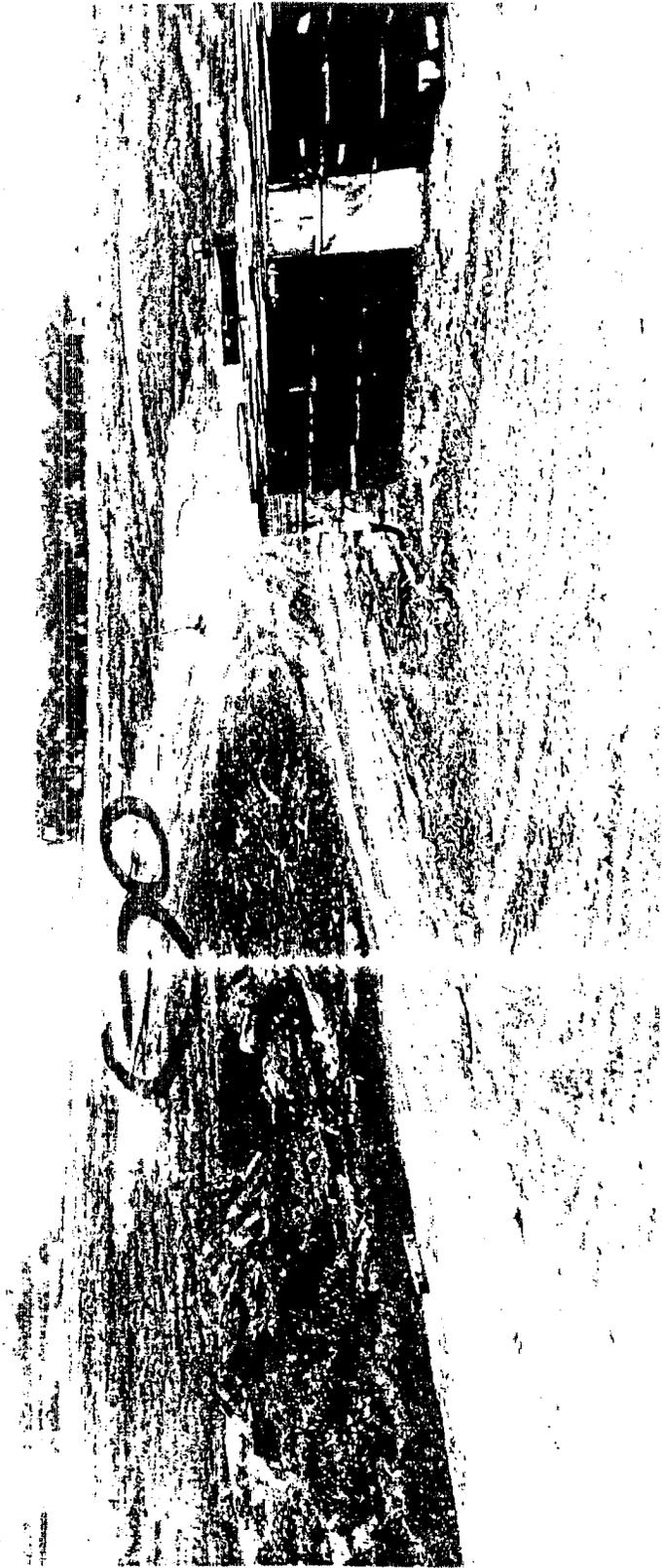
BNA01906231



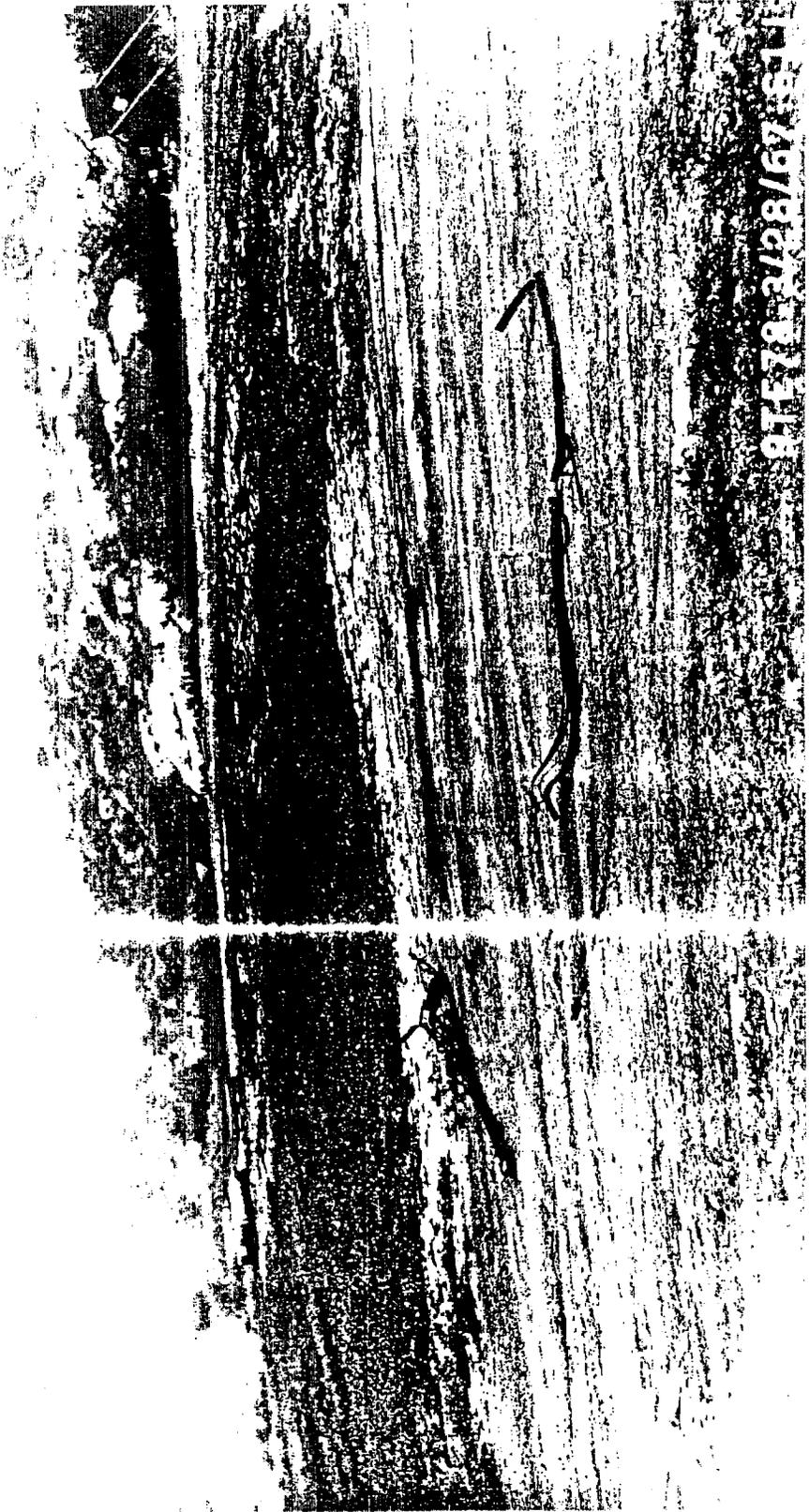
BNA01906232



BNA01906233



BNA01906234



19/09/82 28/67 81



BNA01906235



BNA01906237



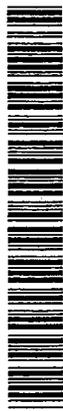
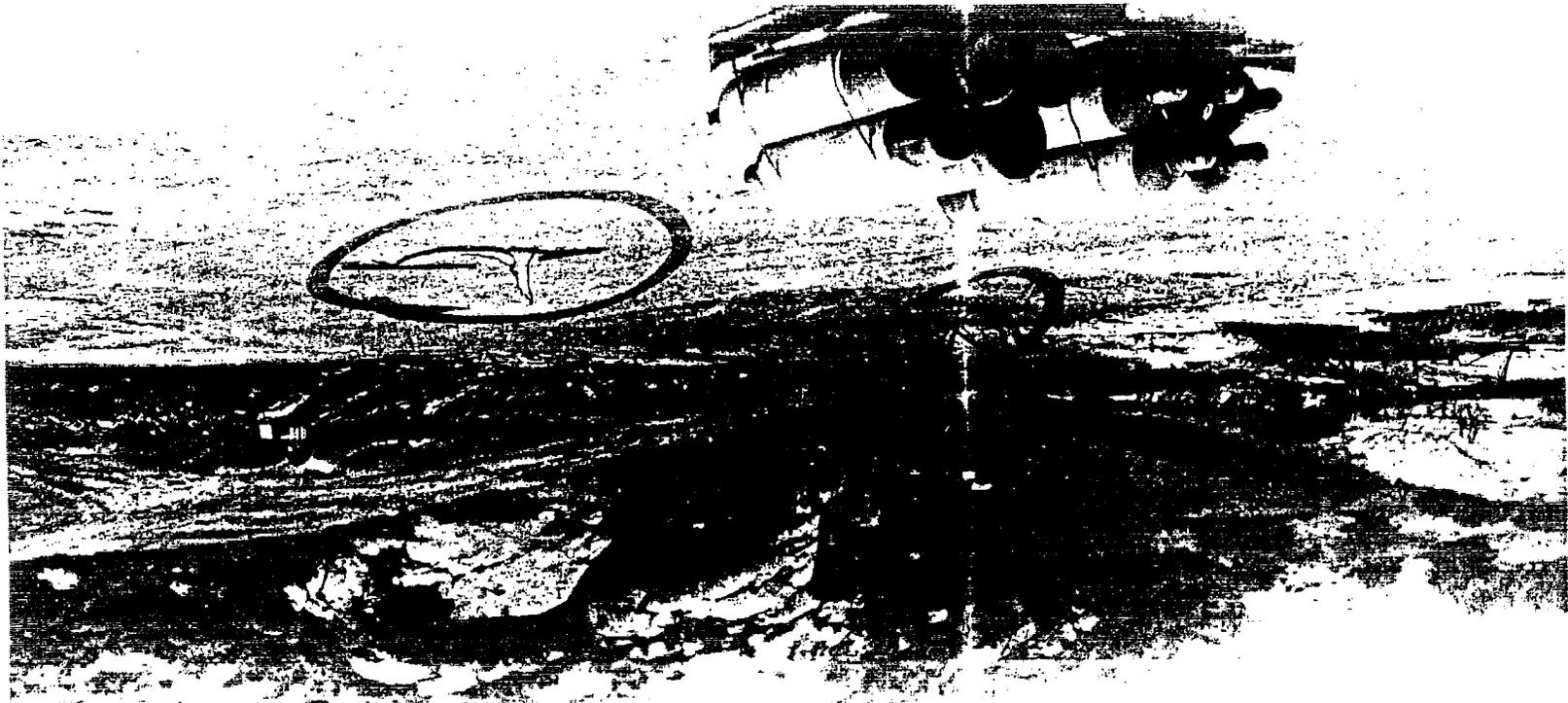
BNA01906238



BNA01906239



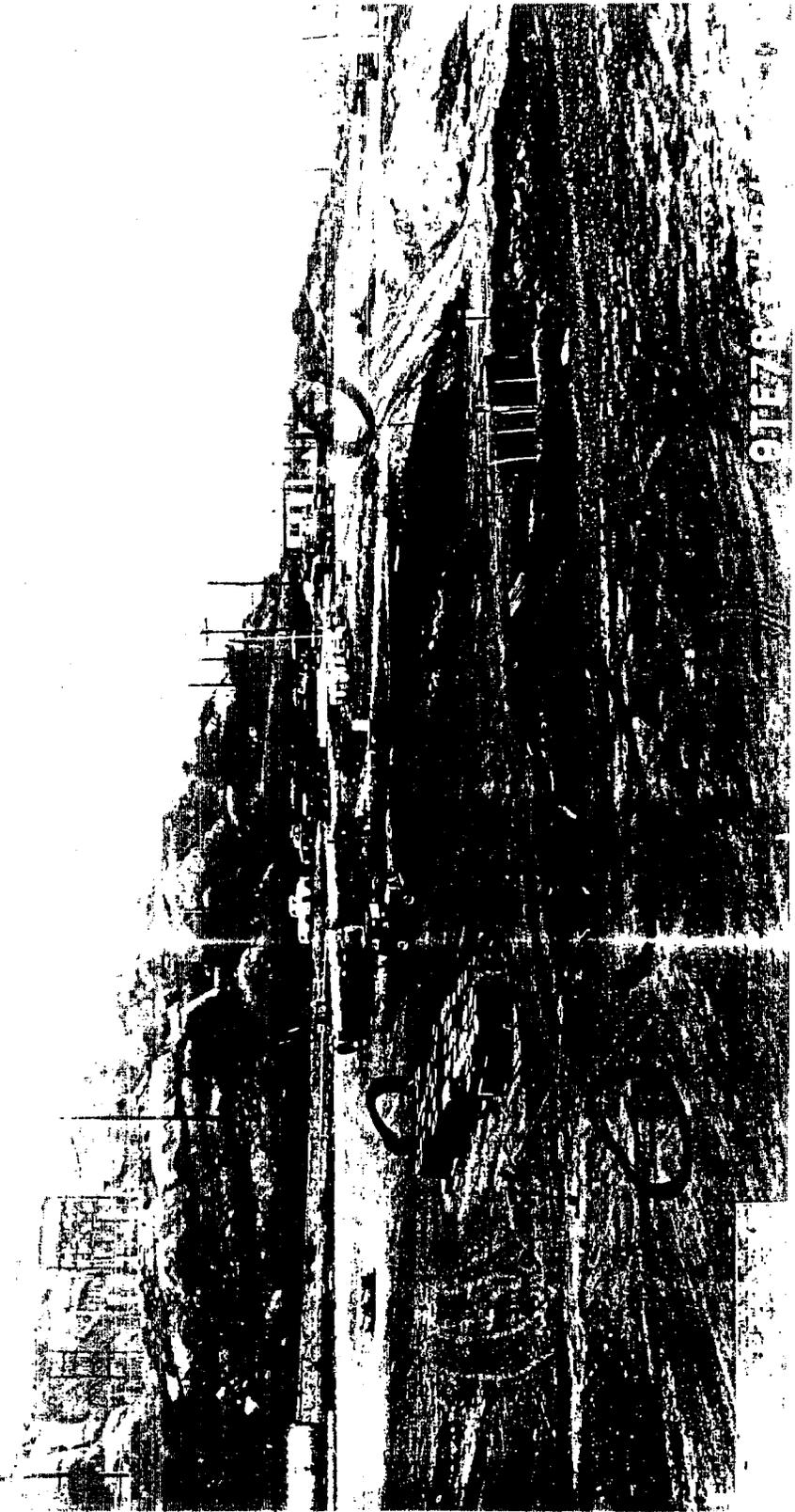
BNA01906240



BNA01906241



BNA01906242



BNA01906243

ROCKETDYNE

INTER-OFFICE LETTERS ONLY

TO R.J. Madden DEPARTMENT
FROM E.G. Addeo DEPARTMENT
PHONE 520 DATE
SUBJECT Monthly Report

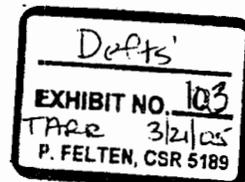
Time Consumed.

Inspections:	F/E Addeo	4 hrs	TOTAL TIME = 20 hrs
	J.S. Curican	4 6 hrs	
	R.E. Smith	10 hrs.	
Burning	F/E Addeo	4 Hrs	TOTAL TIME = 39½ hrs
	J.S. Curivan	18 hrs.	
	R.E. Smith	17½ hrs	
Drum Removal	J.S. Curican	3 hrs	TOTAL TIME = 6 hrs.
	R.E. Smith	3 hrs	
GRAND TOTAL TIME			65½ hrs.

Material on hand awaiting disposal;

NONE.

F/E E.G. Addeo



4 pages

To: Chief O. C. Ledbetter
From: Capt. A. W. Miller
Subject: LOX Spill; Bravo Area and Subsequent Events

Page -2-
8 September 1958

Wednesday afternoon, before the conclusion of the first shift, you will recall that the writer informed you of these events, and that the only additional temporary instructions the writer would issue to fire personnel would be at the time of tanking from truck to tanks. During this tanking, we would follow Mr. Lodge's request and close down flames and sparking devices in the area. This was done Wednesday night in two instances, and caused quite a lot of oppo-

Thursday, 4 September 1958, conference with Mr. W. R. Johnson, D/596-87 Group Leader. Mr. Johnson is in agreement with D/552, and feels that present fire regulations are sufficient to cover all unknown emergencies at FTL. He feels more strict control is necessary on tanking and transfer operations.

Thursday afternoon, conference at your office in Canoga. As a result, before the conclusion of the first shift, verbal and written instructions were issued to Police and Fire personnel to enforce only our own written regulations as we have done in the past, and if other departments have more strict requirements, they may enforce them, but we will not. The writer returned that evening and gave the same instructions to Police and Fire personnel at the beginning of the third shift, because of the illness of the third shift Fire Engineer, leaving a Police Sergeant in charge of fire operations.

Friday morning, 5 September 1958, conference with Mr. Lodge. It was agreed that instructions he had issued were only temporary, and that the whole matter would be turned over to the Propellant Field Applications Group headed by L. J. Weber, D/596-92. The writer phoned Mr. Weber, who is in complete agreement with D/552 fire regulations at present, and desires no change or additions to them at this time. A meeting was arranged for the first part of the week with Mr. Weber to confer on anything else necessary in regard to LOX transfers.

The writer had a meeting with W. J. Cocks, Senior Management Representative, regarding all the foregoing conversations, particularly with reference to Mr. Lodge's report, and Mr. Cocks was of the opinion that this would have to be changed and said that he would attend to the matter.

"ROCKETDYNE EXPOSURE EVALUATION COMMITTEE":

This new committee has been formed as of 25 August 1958. With the advent of new chemicals, fuels, oxidizers, etc., it is imperative that adequate protection of our personnel be made continuously effective in Test, Research and Manufacturing. For this purpose, the Rocketdyne Exposure Evaluation Committee is hereby activated and charged to establish adequate protective standards which, in turn, will be submitted to the Rocketdyne Management Safety Committee for final approval and acceptance.

To: Chief O. G. Ledbetter
From: Capt. A. W. Miller
Subject: LOX Spill; Bravo Area and Subsequent Events

Page -3-
8 September 1958

The minimum membership is appointed and is comprised of the following:

Chairman-Secretary - 596 Analysis and Equipment Group Leader -
D. J. Jolicœur

596 Propellant Field Applications Supervisor - L. D. Weber

592 Industrial Security - Capt. A. W. Miller

551 Medical Director - Dr. A. L. Waller

593 Plant Engineering - E. L. Spearman

551 Safety - Rex B. Gordon

851 Safety, Industrial Hygiene Consultant - J. B. Picklen

BURN PIT FOR THE DISPOSAL OF DANGEROUS MATERIALS:

Several months ago, while in the Inspection Office, the writer had a large earthen pit constructed near the west boundary line of FTL just below GIL III. This was, and has since been, used to dispose of dangerous chemicals, fuels, oxidizers, explosives, etc. These are burned with quantities of ordinary unoxidized fuels. This procedure eliminated the costly method in use at that time, of trucking them from the facility and dumping in the ocean, or by other complicated ways of disposal requiring permits from various official agencies, etc. This usually required from three to six months, and similar materials were accumulating everywhere as a result. Arrangements have been made with transportation regarding safety practices in handling. Inspection and conveying of these materials is done by the Fire Department. The writer has just been informed by Don Hatz, D/596-62, of the Propellant Field Applications Group that an official procedure is being written on the disposal of hazardous materials. This will incorporate the D/592 disposal method as standard procedure. Large amounts of Hydrazine, UDMH and other materials, which have required expensive neutralization methods, can be disposed of in this manner in the future. For example, 45 drums of assorted mixtures of UDMH and Hydrazine are being disposed of at this time. This would ordinarily require a large amount of Hydrogen Peroxide for the neutralization material.

CONTRACTORS' JUNGLE, AREA II:

This is the area set aside for contractors' sheds and various materials. It has always been an unsightly mess. A fire break has been constructed around this location and intervening brush and grass burned out. Large amounts of accumulated rubble from former contractors has been buried. The area is now safe and contractors will be allowed to burn a limited amount of small material under controls. The whole area is being cleaned up and will be policed regularly in the future.

To: Chief G. C. Ledbetter
From: Capt. A. W. Miller
Subject: ICK Spill; Bravo Area and Subsequent Events

Page 4
8 September 1958

.....

NITROGEN TRIOXIDE, TEMPORARY STORAGE LOCATION:

This has been located in Area II in the open land between the Silverdale Lake and the Contractors' Jungle. Brush and grass were burned from the perimeter and storage of about 30 tons of this material is now accomplished. This relieves the dangerous storage condition that existed around the SO-1 Area.

POWER FAILURE, EPL:

On Saturday evening, 6 September 1958, at 5:32 P.M., the entire facility suffered a power failure as a result of lightning. Edison Company power was off for about one hour. The writer was notified at home by the Control Center Operator and drove up to the facility immediately. Considerable difficulty was experienced in locating the proper Edison Company Office furnishing power to this facility. Telephone numbers listed were out of date. The procedure for notification in event of power failures, etc., at this facility was also found to be out of date, and should be rewritten. This will be taken care of in the immediate future.

A. W. MILLER
Fire Captain
Santa Rosa

AWM/ljk

H. Weiss

ROCKETDYNE

INTER-OFFICE LETTERS ONLY

TO Chairman, Management Safety Committee DEPARTMENT 577 Cano
 FROM Duncan Jolicoeur DEPARTMENT 596-62 SanSu
 PHONE 238 DATE 4 December 1958
 SUBJECT ACTIVITIES SUMMARY -
 ROCKETDYNE EXPOSURE EVALUATION COMMITTEE

The fifth meeting of the subject committee convened in the PFL Manager's Conference Room at 0830 Wednesday, 26 November 1958.

Those in attendance were:

- | | |
|--------------------|------------------------------------|
| J. B. Ficklen, III | Industrial Hygiene Consultant |
| R. B. Gordon | Safety Section |
| D. J. Jolicoeur | Engineering Test Sub-Division |
| A. W. Miller | Capt., Industrial Security |
| L. D. Weber | Propellant Field Applications Unit |
| A. L. Weller, M.D. | Medical Director |

Absent - E. L. Spearman Plant Engineering

Guests - W. J. Cecka, Jr., and R. Wilkins

DISCUSSION SUMMARY:

In response to a request for data on the physical geometry of the test systems and the fluid dynamics of the systems under test with toxic propellants, the chairman opened the meeting with a description of the characteristics and operational phenomena of a large thrust chamber stand and an engine stand. It was demonstrated that the test systems are well engineered to negate the possibility of inducing contamination with the following exceptions: a) leakage as a function of gasket failure, b) leakage as a function of valve "hang-up", and c) the exuding of effluent as a function of the "raw lead" of oxidizer before fuel, which is normal to the test configuration. The "double safety" techniques of the test stands were explained.

The committee then continued their discussion of the previous meeting on possible approaches to the establishment of quantitative levels of personnel exposure to contaminated atmospheres.



IOL To: Chairman, Management Safety Committee
From: Duncan Jolicoeur
Subject: ACTIVITIES SUMMARY -
ROCKETDYNE EXPOSURE EVALUATION COMMITTEE

4 December 1958

Page 2

The possible relationship of the problems of toxicity and blast were raised by Mr. Ficklen. His contention is that we may be able to establish a percentage value of the available propellant as that constituting a contaminant, and refine the percentages as additional data becomes available, as was the case in determining blast damage potential. At the inception of the blast problem, an estimated yield, of TNT equivalent, of 20% of available propellant was employed as design criteria. Later, as a result of thermo-chemical computations of the propellant combination, it was determined that 5.48# of LOX were required to reduce 1# of kerosene fuel to a gel yielding .56# of TNT, thereby reducing the available blast energy to approximately 6% of the total propellants involved. It was expressed that although the problems are dissimilar, the approach to problem solving may have strong similarities.

Dr. Weller briefly reviewed the progress of the medical surveillance program, including new equipment and laboratory techniques.

Messrs. Wilkins and Cecka reviewed the progress of the committee. The following expressions were developed:

- a) A more complete documentation of the meetings is desired for future reference and future action.
- b) The committee shall restrict its scope of cognizance to matters dealing with the health-physics aspects of toxic propellants.
- c) The accent shall continue to be placed on the development of criteria to prevent personnel injury from toxic exposure rather than considerations of liability in event of exposure.
- d) The committee membership, comprised of representatives from several departments, should consider themselves less from a departmental specialization standpoint, and more as a part of a homogeneous group working to solve a common problem.
- e) The committee has been successful in bringing together representation from the various departments affected to discuss the total problem and, in that each department is aware of impending action on the part of others, there should be no "surprises" to anyone in these departments as concerns the toxic propellant program.
- f) The question of publicizing the existence and nature of the committee for employee and public relations purposes will be placed before the Management Safety Committee.



BNA00879569



cc: The Committee Membership
Management Safety Committee Membership

Djind

[Handwritten Signature]
Duncan Jolicoeur
Chairman-Secretary
Rocketdyne Exposure Evaluation Committee

The agenda for the sixth meeting will consist of a discussion of toxicity detection devices; their applicability, value of the measurements, and recommendations as to the extent of PFL usage. Messrs. Sumnerfield, 596-62, and Weiss, 596-60, will participate.

The sixth meeting of the committee will be held in the PFL Manager's Conference Room at 0830 Wednesday, 10 December.

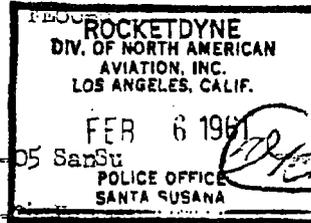
ROCKETDYNE EXPOSURE EVALUATION COMMITTEE

TO: Chairman, Management Safety Committee

From: Duncan Jolicoeur

Subject: ACTIVITIES SUMMARY -

REPRODUCTION PROHIBITED
ENCLOSURE LETTER ONLY



TO W. C. Wensel

DEPARTMENT

564-05 SanSu

FROM W. Bodnar

DEPARTMENT

583

PHONE 1451

DATE

20 October 1960

SUBJECT HAZARDOUS MATERIAL DISPOSAL FACILITY- PFL
Project 8000596

Add

REFERENCE IOL W. C. Wensel to A. E. Moore dated 7/1/60

A facility to meet present and anticipated needs for the disposal of contaminated and surplus propellants and chemicals is proposed. Estimated cost of the complete facility shown on the sketch "General Arrangement", page 5 is \$35,000.

The present disposal area, off CTL III Road in Area I, is assumed as the job site and components of the facility are arranged accordingly. The two existing "Solids Disposal Pits" are considered adequate and other than addition of lighting and paving thereto, are not further referred to in this proposal.

Features such as remotely controlled dumping and ignition, walls separating burn pits from operating personnel and storage areas, and fencing around the entire area are adopted to ensure that operation of this facility will be compatible with general safety standards at PFL. In addition to sketches, pages 5 through 9, the following describes the major facility components, their functions and operations.

BURN PITS, SPILLWAYS, AND SPILL AREAS

Two pits 10 ft. x 10 ft. x 4 ft. deep and 30 feet apart are provided for the burning of liquid propellants and general chemicals. Liquids are gravity fed to the pits from individual spill areas by open spillways 60 ft. long. One pit is intended for the exclusive burning of toxic high energy type liquid propellants and the other for admixtures of various liquid combustibles and general chemicals. Materials to be disposed of are separated into two groups for burning in the respective pits, since increasing quantities of the high energy type propellant are disposed of and cleanliness of surfaces contacted by these propellants is of paramount importance. In addition to a water flush and drainage system serving each pit, the pit used for disposal of general chemicals includes a sump and grates to retain unburned remnants of containers and packages. Admixtures of liquid propellants and chemicals may be disposed of by hand depositing containers and packages in the pit followed by liquid deposit using the spill area and spillway facilities.



BNA03134620