Appendix X

Letter to Hazardous Materials Regulation Board, Department of Transportation, from William F. Romine

December 23, 1968 T-3-4 #4

Hazardous Materials Regulations Board
Department of Transportation
Washington, D.C. 20590

Gentlemen:

REQUEST FOR DOT SPECIAL PERMIT

We request that The Department of Transportation issue The Dow Chemical Company, Rocky Flats Division, a special permit for shipments of packages of radioactive and fissile materials transported in ATMX 600 series rail cars.

1. Specific portion(s) of the regulation for which the special permit is being requested.

Sections 173.395(c)(2) and 173.396(c)(3).

2. Justification for the permit, reasons why the regulations are not appropriate, why the public interest would be served and the basis upon which the proposal would provide at least an equivalent degree of safety to that provided by the regulation concerned.

We produce approximately 2000 drums and 60 crates of fissile material and radioactive contaminated equipment annually. Economic waste discard limits are established for our various processes; however, these limits far exceed the amounts of radioactive and fissile materials permitted in one container as specified in the current transportation regulations. Because of the volume of waste produced at Rocky Flats it is necessary that we maximize the use of a container that will give us the greatest carrying capacity. We have examined the use of a 30/55-gallon combination container and the Brookhaven concrete vault. Neither appear to be economically adaptable to the volume of waste generated at Rocky Flats. Neither of the above are specification containers and would require special permits. It seems to us that the use of the ATMX 600 series car would provide the most economical method of transporting our waste. The present transportation regulations are not appropriate in that the specification containers do not have sufficient volume for waste products.

Using a DOT Spec 6M container for our processed waste in lieu of a 55-gallon drum would increase the number of containers shipped by over a factor of twenty. Container costs would be increased by a factor of over two-hundred-and-fifty. The DOT Spec 6M container is a reusable container; however, since the waste is buried in the shipping container there is no opportunity to reduce container costs by reusing the containers. Also we must face the problem that in many instances the line-generated waste could not be packaged in the DOT Spec 6M container. There are no specific regulations that authorizes the use of wooden crates for equipment contaminated with plutonium in the amounts that are released by Rocky Flats. We believe that the public interest would be served by our spending the least amount of government money to provide a safe waste package. It is our conclusion that the proposed ATMX 600 series car would provide a safe package arrangement that would offer an equivalent degree of safety during transportation to that provided by the present regulations.

3. Detailed description of the ATMX 600 series rail car.

See the attached container description, evaluation and U.S. Atomic Energy Commission, Albuquerque Operation's certification.

4. The type, form, quantity, properties and characteristics of the material being transported.

The material involved is americium 241 and a mixture of several plutonium isotopes predominately Pu-239, Pu-240 and Pu-241 contained in sludges, greases, line-generated wastes or fixed on equipment, machinery, and miscellaneous process equipment. Specific activity of the plutonium when adjusted for isotopic ratios, is approximately 0.75 curies per gram plutonium.

In the grease, americium and plutonium may exist as either fine solids of metal or oxide, or dissolved in the organic materials at an average concentration of 5×10^{-10} g/g or 1.62×10^{-9} c/g for the americium, and 2×10^{-6} g/g or 1.5×10^{-6} c/g for the plutonium.

In the sludge, americium and plutonium exist as the hydroxide along with those of iron, aluminum, etc., at an average concentration of 1.07×10^{-5} g/g or 3.48×10^{-5} c/g for the americium and 4.71×10^{-5} g/g or $3/53 \times 10^{-5}$ c/g for the plutonium.

Line-generated wastes are graphite molds, filter sludge, insulation, glass, washables, combustibles, metals and miscellaneous residues with plutonium discard limits ranging from 7×10^{-3} g/g to $3 \times 10^{4-}$ g/g. Washables consist of such things as plastics and rubber gloves

impregnated with plutonium oxide. Combustibles include paper, rags and plastic bags generated in the plutonium processing areas. Miscellaneous residues consist of line-generated solids which cannot be ground for leaching and other small quantities of such things as metal, solid americium waste, filters and miscellaneous process equipment.

Crated wastes are large or bulky items that would not fit in a 55-gallon drum and include such things as pipe, lumber, equipment, plywood, windows, light fixtures, metal scrap, lathes, machines, hoods and air ducts. These objects are externally contaminated with plutonium to varying degrees. The contamination is fixed and is not readily dispersible.

The waste materials will be packaged as follows:

Sludge: A Quantity of dry portland cement is placed in a Specification 17-C or 17-H steel drum of at least 30-gallon capacity which is then lined with a 5-mil polyethylene liner. Additional dry portland cement is interspersed as the sludge fills the container. After filling, the liner is sealed and a quantity of dry portland cement is added. The drum is then closed with a 12-gauge bolted ring closure.

Grease: A quantity of oil-dry is placed in a Specification 17-C or 17-H steel drum of at least 30-gallon capacity which is then lined with a 5-mil polyethylene liner. After filling, the liner is sealed and the drum is closed with a 12-gauge bolted ring closure.

Line-Generated Waste: The material is bagged in a polyethylene bag and removed from the line into a Specification 17C or 17-H steel drum of at least 30-gallon capacity which has been lined with a 5-mil polyethylene liner. After filling, the liner is sealed and the drum is closed with a 12-gauge bolted ring closure. No more than 200-pounds of graphite is loaded in any one drum.

Crated Waste: The crate is constructed of at least 3/4" plywood according to Specification 19-A or 19-B, and is lined with an 8-mil polyethylene sheet. 6" x 6" or larger skids are used when the contents exceed 5,000 pounds and a 1" plywood floor is used. Heavier pieces of equipment is secured in the crate by being bolted to the skid. After filling, the crate is closed. After closing, the crate is banded with 1 1/4" steel strapping in at least four places.

Loading Limitations: In addition to the 200 pound per drum limitation on the graphite there is a 200 gram limitation on fissile material

loaded in a 55-gallon drum or a 100 gram limitation on fissile material loaded in drums of less than 55-gallon capacity Each drum is also limited to a thermal decay energy of 2-watts.

5. Shipping and accident experience with the container type being proposed.

None as this is a new concept of using the rail car as the outer container.

6. Name the proposed mode of transportation, and describe the transport controls needed.

We propose to ship in carload lots, exclusive use, via rail freight as Fissile Class II where the number of 30-gallon drums does not exceed 200 or the number of 55-gallon drums does not exceed 286. Intermixing of 30 and 55-gallon drums will be permitted provided that X/200 plus Y/286 is less than one where X equals the number of 30-gallon drums and Y equals the number of 55-gallon drums.

When the number of drums exceed the above stated number the shipment will move as Fissile Class III on an exclusive use basis. We are proposing to use one ATMX 600 series car and the car will be assigned to the sole use of The Dow Chemical Company, Rocky Flats Division.

The rail car will be sealed with a U.S. Government Red-Ball seal with an attached tag bearing the following inscription:

"Notice to Carriers
Government Seals
DO NOT BREAK!

If broken make immediate contact with:

Traffic Department
The Dow Chemical Company
Denver, Colorado
PHONE: 444-3311 (COLLECT)

The attached card (Form RF-26540) is attached to the shipping memo of each bill of lading.

The consignee is notified of the departure time of the car, its estimated time of arrival and the seal number applied to the car.

The carrier notifies us of the arrival at destination.

The rail car must be transported near the center of the train not closer than the sixteenth car from either the headend or rearend of the train whenever possible.

During switching the rail car must be shoved to rest and no other car(s) must be "humped" into it.

The rail car must not be transported next to cars of explosives or film or open-top cars loaded with lading such as poles or pipe that might act as projectiles during an accident.

7. State the name, address, and telephone number of the applicant.

The Dow Chemical Company, Rocky Flats Division, Post Office Box 888, Golden, Colorado, 80401, Telephone, 444-3311, Extension 2377. All inquiries should be directed to William F. Romine, Traffic Manager.

8. Loading Procedures: The ATMX 600 series car is divided into three bays. Drums and/or crates will be loaded on pallets which are secured within the car. Inflatable dunnage shall be used to prevent shifting. Crates over 3,000 pounds shall be loaded on the bottom tier. All loading and unloading will be done on AEC or AEC Contractor's property. The load limit per car will be 90,000 pounds.

9. Labeling and Radiation Levels: The containers will be labeled according to the provisions of 173.399. The rail car will be placarded according to the provisions of 174.541. Container radiation levels will comply with the provisions of 173.393.

10. Recommendations regarding any changes to the regulations which would be desirable to obviate the need for similar special permits.

None. Very few installations are capable of shipping or receiving radioactive waste in rail car shipments. The ATMX 600 series cars are owned by the U S Atomic Energy Commission, Albuquerque Operations, are limited in number (14), and are used in other applications. It is doubtful that all of these cars could be released for waste loading. If these cars had not been designed and built for explosive ordinance transport we probably would not have progressed with the idea to use the rail car as the outer package.

Your approval of the ATMX 600 series rail car as a special permit container will be appreciated.

ORIGINAL SIGNED BY
WILLIAM F. ROMINE
William F. Romine
Traffic Manager

WFR:
Orig. and 1 cc - Hazardous Materials Regulations Board
Encs.

Appendix Y

Packaging Certification by Atomic Energy Commission—ALO Contractor (Rev. 3-7-69)

CERTIFICATION OF APPROVAL FOR FISSILE-LARGE QUANTITY SHIPPING CONTAINERS

ALBUQUERQUE OPERATIONS OFFICE, USAEC

Rev. 3-7-69

I. ALO Contractor
The Dow Chemical Company
Rocky Flats Division
Post Office Box 888
Golden, Colorado 80401
Contact: Engr. - Frank E. Adcock
Traffic - W. F. Romine

II. Identification of Shipping Container
ATMX-600 Series Railcar
Serial No. ATMX-600 thru-614

ALO Designation: AL-R9
DOT Special Permit:

III. General Information Concerning Container :

A. Packaging shall consist of an ATMX-600 Series railcar loaded with drums or crates as described below. Inside dimensions of the car are 9'-4" width, 9'-2" height, and 50'-0" length. Useful load is 90,000 pounds.

B. Authorized contents shall consist of non-radioactive material contaminated with radioactive materials that are in a form such that they are not readily dispersible.

Process waste (hardened oils, sludges, greases, etc.) and line-generated waste (plastic, glass, ceramics, metals, etc.) shall be packaged in ICC-17C or-17H or equivalent steel drums of at least 30-gallon capacity.

Machinery, process apparatus, and other large items of plant equipment shall be packaged in nailed and glued crates of at least 3/4" plywood. Minimum size shall be 48"x48"x84".

C. Fissile Class I shipments are authorized provided the following restrictions are met:

Drums: Graphite shall be limited to 200-pounds and thermal decay energy to 2-watts per drum. Fissile material shall be limited to 100-grams for 30-gallon and 200-grams for 55-gallon drums.

Crates: Fissile material shall be limited to 5-grams in any cubic foot.

IV. Specific Limitations and Restrictions.
Car(s) to be positioned, when possible, not nearer than the 16th car from both engine or occupied caboose. Requirements of DOT paragraph 174.589 for placarded cars to be observed.

V. Additional Information. None.

VI. Certification of Approval.
Pursuant to Chapter AEC 0539, this container is approved subject to the limitations described above. This certification does not relieve the shipper of his responsibility to obtain DOT Special Permit and to comply with the requirements of other Federal Regulations as appropriate.

Date: _____

_____
Certification Official
Albuquerque Operations
U. S. Atomic Energy Commission

Appendix Z

Building 44 Discarded Waste Report—
Sources of Roaster Oxide

BUILDING 44
DISCARDED WASTE REPORT

Date February, 1962

Sources of Roaster Oxide

Doc. No. 654

Batch or Drum No.	Analytical Req. No.	MTC	Weight in Kilograms				Material Description
			Gross	Tare	Net	SS Net	
780496			273	17	256		Mach. Shop Oxide
780497			209	18	191		Mach. Shop Oxide
780498	Sampled		224	16	208		Mach. Shop Oxide
600735			261	15	246		Crucible Oxide
780499			244	16	228		Mach. Shop Oxide
780500			248	16	232		Mach. Shop Oxide
600736			218	15	203		Crucible Oxide
600737	Sampled		335	15	320		Crucible Oxide
780501			215	16	199		Mach. Shop Oxide
780502			215	16	199		Mach. Shop Oxide
0503			244	16	228		Mach. Shop Oxide
780504			238	16	222		Mach. Shop Oxide
780505			274	16	258		Mach. Shop Oxide
780506			276	16	260		Mach. Shop Oxide
610195	Sampled		219	15	204		Vacuum Oxide
600738			332	15	317		Crucible Oxide
780507			280	16	264		Mach. Shop Oxide
780508			272	16	256		Mach. Shop Oxide
780509			250	14	236		Mach. Shop Oxide
600739			397	15	382		Crucible Oxide
780510			207	16	191		Mach. Shop Oxide
780511			252	16	236		Mach. Shop Oxide

APPROVED
APC Department
CWM Date 3-5-62

Shipped by

Received by

BUILDING 44
DISCARDED WASTE REPORT

[redacted]

ıte May, 1962 Doc. No. 667

Batch or Drum No.	Analytical Req. No.	M T C	Weight in Kilograms				Material Description
			Gross	Tare	Net	SS Net	
780575 ✓	Sampled 416509		227	16	211		Mach. Shop Oxide
780576 ✓✓			290	16	274		Mach. Shop Oxide
780577 ✓✓			256	16	240		Mach. Shop Oxide
780578 ✓✓			240	16	224		Mach. Shop Oxide
600756 ✓✓			361	15	346		Cruc. Oxide
780579 ✓✓			282	16	266		Mach. Shop Oxide
780580 ✓✓			219	16	203		Mach. Shop Oxide
780581 ✓✓			242	16	226		Mach. Shop Oxide
780582 ✓✓			242	18	224		Mach. Shop Oxide
600757 ✓✓✓	Sampled		365	15	350		Cruc. Oxide
780583 ✓			221	17	204		Mach. Shop Oxide
780584 ✓			233	17	216		Mach. Shop Oxide
600758 ✓			348	15	333		Cruc. Oxide
780585 ✓			263	17	246		Mach. Shop Oxide
780586 ✓			250	17	233		Mach. Shop Oxide
780587 ✓			269	17	252		Mach. Shop Oxide
780588 ✓			250	17	233		Mach. Shop Oxide
600759 ✓			361	15	346		Cruc. Oxide
[illegible]0589 ✓			258	17	24[illegible]		Mach. Shop O[illegible]de
[illegible]0590 ✓			290	17	273		M[illegible]h. Shop Oxide
[illegible]591 ✓			294	16	278		Mach. Shop Oxide
780592 ✓✓			274	16	258		Mach. Shop Oxide
780593 ✓✓✓			315	17	298		Mach. Shop Oxide
780594 ✓			270	17	253		Mach. Shop Oxide
600760 ✓✓			364	15	349		Cruc. Oxide
600761 ✓			357	15	342		Cruc. Oxide
780595 ✓			280	17	263		Mach. Shop Oxide
780596 ✓			313	17	296		Mach. Shop Oxide
780597 ✓			271	16	255		Mach. Shop Oxide
780598 ✓			252	16	236		Mach. Shop Oxide
610200 ✓	Sampled		220	15	205		Vac. Oxide
			8677.00	503.00	8174.00		

E. E. Sutton Jr.
Shipped by

EAR

BUILDING 44
DISCARDED WASTE REPORT

[redacted]

ıte March, 1962 Doc. No. 660

Batch or Drum No.	Analytical Req. No.	M T C	Weight in Kilograms				Material Description
			Gross	Tare	Net	SS Net	
780518			232	16	216		Machine Shop Oxide
780519	Sampled		246	16	230		Machine Shop Oxide
780520			265	16	249		Machine Shop Oxide
780521			254	16	238		Machine Shop Oxide
600742	Sampled		410	15	395		Crucible Oxide
780522			273	16	257		Machine Shop Oxide
780523			253	16	237		Machine Shop Oxide
780524			302	16	286		Machine Shop Oxide
780525			267	16	251		Machine Shop Oxide
780526			295	16	279		Machine Shop Oxide
600743			358	15	343		Crucible Oxide
780527			281	16	265		Machine Shop Oxide
780528			290	18	272		Machine Shop Oxide
780529			298	17	281		Machine Shop Oxide
780530			257	19	238		Machine Shop Oxide
780531			266	17	249		Machine Shop Oxide
600744			352	15	337		Crucible Oxide
780532			291	17	274		Machine Shop Oxide
533			257	16	241		Machine Shop Oxide
534			329	18	311		Machine Shop Oxide
535			295	16	279		Machine Shop Oxide
780536			273	16	257		Machine Shop Oxide
600745			366	14	352		Crucible Oxide
780537			293	16	277		Machine Shop Oxide
780538			245	16	229		Machine Shop Oxide
780539			257	16	241		Machine Shop Oxide
780540			245	18	227		Machine Shop Oxide
780541			284	16	268		Machine Shop Oxide
780542			261	16	245		Machine Shop Oxide
600746			383	15	368		Crucible Oxide
610197	Sampled		273	15	258		Vacuum Oxide
780543			286	16	270		Machine Shop Oxide
780544			320	16	304		Machine Shop Oxide
780545			299	16	283		Machine Shop Oxide
780546			313	16	297		Machine Shop Oxide
600747			362	15	347		Crucible Oxide
610198			272	15	257		Vacuum Oxide
600748			352	15	337		Crucible Oxide
780547			284	15	269		Machine Shop Oxide
780548			271	14	257		Machine Shop Oxide
780549			266	16	250		Machine Shop Oxide
	TOTALS		~~16976~~ 17976	655	11321		

APPROVED
AEC Department
Date 1-2-64

Shipped by

EHR

BUILDING 44
DISCARDED WASTE
PLANT SITE

[redacted]

te August 1962 Destination

677

Batch No.	Analytical Req. No.	M* T C	A* M C	Gross Weight Kgs.	Tare Weight Kgs.	Net Weight Kgs.	SF Net* Weight Kgs.	Scale No.	Material Description
780617				244	14	230			Machine Shop Oxide
780618				~~220~~ 230	14	~~216~~			" "
780619	417085			233	14	219			" "
600768 #1	417116			254	14	240			Cruc Oxide
780620				222	14	208			Machine Shop Oxide
780621				247	14	233			" "
780622 #2				238	14	224			" "
610202 #2	417117			228	20	~~202~~ 208			House Vac Oxide
780623				209	14	195			Machine Shop Oxide
780624				242	14	228			" "
780625				244	14	230			" "
780626				241	14	227			" "
780627				239	14	225			" "
780628				239	14	225			" "
600769				215	14	201			Cruc Oxide

be filled in by APC

APPROVED
APC Department

Shipped by

BUILDING 44
DISCARDED WASTE REPORT

e September, 1962 Doc. No. 683

Batch or Drum No.	Analytical Req. No.	MTC	Weight in Kilograms Gross	Tare	Net	SS Net	Material Description
780629			226	17	209		Machine Shop Oxide
780630			235	14	221		" " "
780631			240	14	226		" " "
600770	Sampled 9-6-62		250	15	235		Cruc. Oxide
780632			270	20	250		Machine Shop Oxide
780633	Sampled 9-13-62		225	15	210		" " "
780634			240	17	223		Machine Shop Oxide
780635			235	17	218		" " "
780636			230	17	213		" " "
780637			258	17	241		" " "
780638			235	17	218		" " "
600771			314	14	300		Cruc. Oxide
600772			342	15	327		" "
780639			240	17	223		Machine Shop Oxide
780640			237	14	223		" " "
780641			231	14	217		" " "
780642			236	14	222		" " "
[illegible]43			231	14	217		" " "
[illegible]73			345	15	330		Cruc. Oxide
700644			235	14	221		Machine Shop Oxide
780645			258	17	241		" " "
620024			237	15	222		Fab. Oxide
780646			227	14	213		Machine Shop Oxide
780647			231	14	217		" " "
600774			340	15	325		Cruc. Oxide
610203	Sampled 10-1-62		317	15	302		House Vac. Oxide
780652			227	14	213		Machine Shop Oxide
780653	Sampled 10-1-62		228	14	214		" " "
780651			240	15	225		" " "
780648			231	14	217		" " "
780649			225	17	208		" " "
780650			233	14	219		" " "
780654			277	14	263		Machine Shop Oxide
780655			244	14	230		" " "
780656			273	14	259		Machine Shop Oxide

Total 8312

Shipped by

Received by

BUILDING 44
DISCARDED WASTE REPORT

Date November, 1962 Doc. No. 692

Batch or Drum No.	Analytical Req. No.	MTC	Weight in Kilograms				Material Description
			Gross	Tare	Net	SS Net	
600780 #1	417260		304	15	289		Crucible Oxide
610204 #1	417261		250	10	240		Vacuum Oxide
780682 #1	417293		246	15	231		Mach. Shop Oxide
600782 #1			318	15	303		Crucible Oxide
600781 #1			339	15	324		" "
780683 #1			241	15	226		Mach. Shop Oxide
780684 #1			289	15	274		" " "
780685 #1			221	15	206		" " "
780686 #2			250	15	235		" " "
780687 #2			273	15	258		" " "
780688 #2			238	15	223		" " "
600783 #2			299	15	284		Crucible Oxide
780689 #2			245	15	230		Mach. Shop Oxide
780690 #2			259	15	244		" " "
			[illegible]	[illegible]	Total 3567		

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Received by

BUILDING 44
DISCARDED WASTE REPORT

e December, 1962 Doc. No. 697

Batch or Drum No.	Analytical Req. No.	M T C	Weight in Kilograms Gross	Tare	Net	SS Net	Material Description
780691 #1	417352		235	15	220		Mach. Shop Oxide
780692 #3			241	15	226		" " "
600784 #1	417373		350	22	328		Crucible Oxide
780693 #3			254	15	239		Mach. Shop Oxide
620025 #4	417375		264	15	249		Fabrication Oxide
610205 #1	417381		302	15	287		House Oxide
600785 #4			318	16	302		Crucible Oxide
780694 #4			230	15	215		Mach. Shop Oxide
780695 #4			237	15	222		" " "
780696 #4			235	15	220		" " "
780697 #4			240	15	225		" " "
600786 #2			268	15	253		Crucible Oxide
600787 #2			342	15	327		" "
780698 #2			240	15	225		Mach. shop Oxide
780699 #2			263	15	248		" " "
780700 #1			244	15	229		Roaster Oxide
780701 #1			251	15	236		" "
780702 #1			270	15	255		" "
780703 #1			258	15	243		" "
			5042	293	Total 4749		

APPROVED
A. C. Department
Date 9 JAN 63

R L Dawson
Shipped by

E.A.R.
Received by

BUILDING 44
DISCARDED WASTE REPORT

Date 3-29-66 Doc. No.

Batch or Drum No.	Analytical Req. No.	M T C	Weight in Kilograms				Material Description
			Gross	Tare	Net	SS Net	
Drum no.4			197	14	183	165	U + 10% MO.Scrap
Drum no.6			198	14	184	166	U + 10% MO.Scrap
Drum no.3			199	14	185	166	U + 10% MO.Scrap
Drum no.5			188	14	174	157	U + 10% MO.Scrap
Drum no.2			196	14	182	164	U + 10% MO.Scrap
Drum no.1			203	14	189	170	U + 10% MO.Scrap

This is Joe Bolanda scrape.

From Ken Gallihan to 74 Bldg.

Ed Martella
Shipped by

Received by

Appendix AA

Letter to R. D. Gaskins from William F. Romine

T-3-6.3.1

December 19, 1969

R. D. Gaskins

cc:
M. A. Maas
E. A. Putzier

SHIPPING ION EXCHANGE RESIN

F. E. Adcock's letter dated December 12th on the above subject was in response to my query regarding the advisability of shipping ion exchange resins on a 1 to 1 basis.

Please follow his suggestion in mixing up to 1½ parts of resin to one part of cement for shipment in 55 gallon drums. These drums must be then shipped in the ATMX Cars.

William F. Romine

WFR:q

cc:
✓File 3-4#4

Appendix BB

Non-Salvable Contaminated Waste for Disposal, "B" Plant (July 1964–September 1965)

Building 881
Decommissioning Waste

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

July 17, 1964

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - JUNE

The following list of non-salvabel waste from "B" Plant is ready for disposal. All drums are of 55 gallon capacity.

Drum No.	Material	Gross Wt. Lbs.	Serial No.
78-S	Discard Oil	476	60-8829
79-S		483	"
80-S		314	"
81-S		418	"
82-S	Discard Perclene	768	60-8414
84-S		767	8413
83-S	Discard Triclene	695	60-8817
85-S AUG 15 1964	Discard Mud	300	60-8844
86-S AUG 15 1964		354	8830
89-S AUG 15 1964		274	8816
90-S AUG 15 1964		495	8815
91-S AUG 15 1964		500	8802
92-S AUG 15 1964		418	8802
87-S AUG 15 1964	Graphite	371	60-8827
88-S AUG 15 1964		349	8828

A. M. McNeill
Metal Production-81

AMc:mr

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

July 17, 1964

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - JUNE

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material	Gross Wt. Lbs.
81-74	Miscellaneous Dry	72
75	" "	76
76	" "	Box ?
77	" "	Box ?
78	" "	Box ?
79	" "	85

SEP 31 1965
SEP 31 1965

A. M. McNeill
Metal Production-81

AMc:mr

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

August 7, 1964

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - JULY

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums are of 55 gallon capacity.

Drum No.	Material	Gross Wt. Lbs.	Serial No.
	[redacted]		
93-S	Discard Oil		60-8858
94-S	" "		8858
95-S	" "		8845
96-S	" "		8858
97-S	" "		8845
98-S	" "		8845
99-S	" "		8871
100-S	" "		8871
101-S	" "		8872
102-S	" "		8872
103-S	" "		8872
107-S	" "		8892
110-S	" "		8892
111-S	" "	6,079	8892
104-S	Graphite		8894
105-S	"		8893
109-S	"	1,080	8873
106-S	Discard Mud		8875
108-S	" "	752	8876
112-S	Triclene	665	8874
		14,759	

A. M. McNeill
Metal Production-81

AMc:mr

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

August 7, 1964

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - JULY

The following list of non-salvable waste from "B" plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material	Gross Wt. Lbs.
81-80	Glass	239
81	Noncombustibles	
82	"	
84	"	
87 thru 102	"	5,944
		6,183
81-83	Miscellaneous Dry	Unknown
85	"	"
86	"	"

81-98

A. M. McNeill
Metal Production-81

AMc: mr

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

September 21, 1964

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - AUGUST

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums are of 55 gallon capacity.

Material Type	No. of Drums	Drum No.	Serial No.	Gross Wt. Lb.
Misc. Dry	1	103		77
Broken Glass	3	106 - 108		673
Misc Dry	2	104 - 105	Wooden Boxes	Unknown
Triclene		113-S	60-8955	
		114-S	8954	
		116-S	8929	
		119-S	8960	
		120-S	8961	
				3,333
Perclene		115-S	60-8941	
		117-S	8910	
		121-S	8959	
				2,284
Mud		118-S	60-8930	
		122-S	8956	
		123-S	8958	
		124-S	8957	
				1,040

A. M. McNeill
Metal Production-81

AMc:mr

DEC 1 3 1964 /08
DEC 1 3 1964 /07
DEC 1 3 1964 /06

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

October 15, 1964

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - SEPTEMBER

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Material Type	No. of Drums	Drum No.	Serial No.	Gross Wt. Lb.
Miscellaneous Dry	5 boxes	109 thru 112		Unknown
" "		119		"
" "		114		"
	3	117 thru 118		269
Glass	1	113		229
Plastics	2	115 thru 116		253
Graphite		125-S	8987	
	2	127-S	8988	644
Mud	1	126-S	9023	357
Perclene	1	128-S	8989	773
Triclene	1	129-S	8990	701
Oil	3	130-S	8975	
		131-S	8975	
		132-S	8975	1319
				4545

A.M. McNeill / R. Mullen

A. M. McNeill
Metal Production-81

AMc:mr

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

November 18, 1964

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - OCTOBER

The following list of non-salvable waste from "B" plant is ready for disposal. All drums listed are of 55 gallon capacity.

Material Type	No. of drums	Drum No.	Serial No.	Gross Wt. Lb.
Triclene	2	133-S	60-9038	687
"		134-S	60-9039	686
Mud	5	135-S	60-9034	354
"		136-S	60-9036	270
"		137-S	60-9033	196
"		138-S	60-9032	300
"		139-S	60-9035	250
Graphite	2	140-S	60-9076	367
"		141-S	60-9075	310
Misc. Dry	3	81-120		202
" "		81-121		93
" "		81-122		199
Pu Waste Dry	1	81-123		83
Misc. Dry	10	81-124		254
" "		81-125		Box
" "		81-126		"
" "		81-127		"
" "		81-128		"
" "		81-129		"
" "		81-130		"
" "		81-131		"
" "		81-132		250
" "		81-133		74
Pu Waste Dry	2	81-134		122
" " "		81-135		107

A. M. McNeill
Metal Production-81

AMc/mr

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

December 8, 1964

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - NOVEMBER

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material Type	Gross Wt. Lb.	Serial No.
81-136	Misc. Dry Pu	112	
137	" "	107	
138	" "	123	
139	" "	106	
140	" " Pu	104	
141 APR 10 1965	" "	240	
142 JUN 26 1965	" "	Box ?	
143 MAR 27 1965	" " 877-1236	Box ?	
144 JUN 26 1965	" "	Box ?	
145 APR 10 1965	" "	Box ?	
142-S	Discard Mud	315	60-9133
143-S	Graphite	306	60-9110
144-S	Discard Perclene	807	60-9106
145-S	Discard Triclene	734	60-9105
146-S	Discard Perclene	722	60-9108
147-S	Discard Perclene	807	60-9107
148-S	Discard Oil	410	60-9109
149-S	Discard Oil	459	60-9109
150-S	Discard Oil	448	60-9109
151-S	Oil from boiler room	421	
152-S APR 10 1965	Discard Mud	264	60-9088

A. M. McNeill
Metal Production-81

AMc/mr

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

January 18, 1965

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - DECEMBER

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material Type	Gross Wt. Lb.	Serial No.
153-S APR 1 0 1965	Discard Mud	301	60-9203
154-S APR 1 0 1965	Discard Mud	286	60-9204
155-S APR 1 0 1965	Discard Mud	215	60-9190
156-S APR 1 0 1965	Discard Mud	288	60-9152
157-S APR 1 0 1965	Discard Mud	284	60-9151
158-S APR 1 0 1965	Discard Mud	305	60-9150
159-S	Discard Oil	311	60-9149
160-S	Discard Oil	413	60-9149
161-S	Discard Oil	373	60-9149
162-S	Triclene	641	60-9189
163-S	Discard Oil	390	60-9226
164-S	Triclene	720	60-9253
165-S	Discard Oil	441	60-9205
166-S	Discard Oil	449	60-9206
167-S	Discard Oil	442	60-9206
168-S	Discard Oil	437	60-9226
169-S	Discard Oil	368	60-9208
170-S	Discard Oil	436	60-9208
171-S	Discard Oil	434	60-9208
172-S	Discard Oil	468	60-9207
173-S	Discard Oil	461	60-9207
174-S	Discard Oil	370	60-9206
175-S	Discard Oil	225	60-9207
176-S	Discard Oil	403	60-9205
177-S	Discard Oil	425	60-9226
178-S	Discard Oil	297	60-9188
179-S	Discard Oil	470	60-9188
180-S	Discard Oil	476	60-9188
181-S	Discard Perclene	775	60-9218
182-S	Discard Oil	453	60-9205

Drum No.	Material Type	Gross Wt. Lb.	Serial No.
146 APR 10 1965	Misc. Dry	Box ?	
147 APR 10 1965	Misc. Dry	Box ?	
148 APR 10 1965	Misc. Dry	Box ?	
149 APR 10 1965	Misc. Dry	Box ?	
150 APR 10 1965	Misc. Dry	Box ?	
151 APR 10 1965	Misc. Dry	Box ?	
152 APR 10 1965	Misc. Dry	Box ?	
153 APR 10 1965	P. U. Contaminated Waste	88	
154 APR 10 1965	P.U. Contaminated Waste	94	
155 APR 10 1965	P.U. Contaminated Waste	113	
156 APR 10 1965	P.U. Contaminated Waste	79	
157 APR 10 1965	P.U. Contaminated Waste	57	

A. M. McNeill
Metal Production - 81

AMc/ms

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

April 7, 1965

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - MARCH

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material Type	Gross Wt. Lb.	Serial No.
205-S JUL 27 1965	Discard Mud	347	60-9369
206-S JUL 27 1965	Discard Mud	312	60-9360
207-S JUL 27 1965	Discard Mud	357	60-9361
208-S JUL 27 1965	Discard Mud	270	60-9387
209-S	Discard Oil	465	60-8386
210-S	Discard Oil	473	60-9[illegible]5
211-S	Discard Oil	475	60-9332
212-S	Discard Oil	487	60-9332
213-S	Discard Oil	456	60-9332
214-S	Perclene	798	60-9363
215-S	Perclene	717	60-9362
216-S	Perclene	707	60-9366
217-S	Triclene	653	60-9364
218-S	Triclene	677	60-9365
219-S	Paint and Oil	500	
220-S	Paint and Oil	290	
81-191 JUN 26 1965	Miscellaneous Dry	Box ?	
192 AUG 3 1965	Miscellaneous Dry	Box ? Shipped 8-3-65 1600#	
193 8-3-65	Miscellaneous Dry	Box ? 1600#	
194	Miscellaneous Dry	Box ?	
195 8-3-65	Miscellaneous Dry	Box ? 1600#	
196 JUN 26 1965	Miscellaneous Dry	Box ?	
197 JUL 27 1965	Miscellaneous Dry P.U.	83	
198 JUL 27 1965	Miscellaneous Dry	257	
199 JUL 27 1965	Miscellaneous Dry P.U.	112	
200 JUL 27 1965	Miscellaneous Dry P.U.	59	
201 JUL 27 1965	Miscellaneous Dry P.U.	75	
202 JUL 27 1965	Miscellaneous Dry P.U.	69	

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

May 10, 1965

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - APRIL

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material Type	Gross Wt. Lb.	Serial No.
221-S JUL 27 1965	Discard Mud	261	60-9427
222-S JUL [illegible] 1965	Discard Mud	251	60-9401
223-S JUL 27 1965	Graphite	391	60-9406
224-S JUL 27 1965	Graphite	400	60-9404
225-S JUL [illegible] 1965	Graphite	341	60-9405
226-S	Discard Perc.	811	60-9426
227-S	Discard Perc.	784	60-9403
228-S	Discard Triclene	755	60-9402
229-S	Misc. Liquid	475	None
81-214 JUL 27 1965	P.U. Dry Waste	83	
215 JUL [illegible] 1965	Misc. Dry	274	
216 JUL 27 1965	Misc. Dry	83	
217 JUN 26 1965	Misc. Dry	Box ?	
218 JUN 26 1965	Misc. Dry	Box ?	
219 JUN 26 1965	Misc. Dry	Box ?	
220 JUN 26 1965	Misc. Dry	Box ?	
221 JUN 26 1965	Misc. Dry	Box ?	
222 JUN 26 1965	Misc. Dry	Box ?	
223 JUL 27 1965	Misc. Dry	83	
224 JUN 26 1965	Misc. Dry	Box ?	
225 JUN 26 1965	Misc. Dry	Box ?	

A. M. McNeill
Metal Production - 81

AMMcN/ms

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

June 9, 1965

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - MAY

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material	Gross Wt. Lbs.	Serial No.
230-S	Graphite	394	60-9451
231-S	Graphite	276	60-9562
232-S	Graphite	321	60-9563
233-S	Graphite	377	60-9459
234-S	Graphite	310	60-9460
235-S	Graphite	340	60-9458
236-S	Mud	325	60-9564
237-S	Mud	364	60-9456
238-S	Mud	360	60-9455
239-S	Discard Oil	367	60-
240-S	Discard Oil	405	60-
241-S	Discard Oil	457	60-
242-S	Discard Oil	400	60-
243-S	Discard Oil	437	60-
244-S	Triclene	798	60-9454
245-S	Triclene	598	60-9454
246-S	Discard Oil	455	60-9561
247-S	Discard Oil	474	60-9561
81-226	Waste	104	
227	"	117	
228	"	144	
229	"	221	
230	"	101	
231	"	110	
232	"	109	
233	"	104	
234	"	199	
235	"	133	
236	"	115	
237	"	114	
238	"	122	
239	"	117	

Non-Salvable Contaminated Waste for Disposal,
"B" Plant - May

June 9, 1965

Drum No.	Material	Gross Wt. Lbs.	Serial No.
81-240 MAY 2 2 1965	U^{233} Waste	96	
241	"	94	
242	"	127	
243	"	89	
244	"	115	
245	"	136	
246	"	85	
247	"	83	
248	"	239	
249	"	170	
250	"	138	
251	"	112	
252	"	112	
253	"	111	
254	"	100	
255	"	216	
256	"	101	
257	"	108	
258	"	106	
259	"	156	
260	"	106	
261	"	111	
262	"	101	
263	"	94	
264	"	)	
265	"	)	
266	"	)Bldg. 71 Drums	
267	"	)of 233 Waste -	
268	"	)No weight	
269	"	)available.	
270	"	)	
271 JUL 2 7 1965	Pu Waste	98	
272 JUL 2 7 1965	"	85	
273 JUL 2 7 1965	"	77	
274 JUL 2 7 1965	Dry Waste	270	
275	U^{233} Waste	64	
276 OCT 1965	"	Box?	
277 DEC 1 8 1965	"	Box? 1600 #	
278 JAN [illegible]	Misc. Dry Waste	Box?	
279 DEC 1 8 1965	"	Box? 9100 #	
280	"	Box?	
281 DEC 1 8 1965	"	Box? 1300 #	
282 [illegible] 1965	"	Box? 550 #	

U-233

A. M. McNeill

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

July 9, 1965

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT -JUNE

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material	Gross Wt. Lbs.	Serial No.
S-248	Discard perclene	718	60-9519
S-249	Discard oil	369	60-9520
S-250	Discard oil	312	60-9521
S-251	Discard perclene	787	60-9503
S-252	Discard perclene	756	60-9501
S-253	Discard perclene	740	60-9502
S-254	Discard perclene	766	60-9518
S-255 JUL 27 1965	Filter mud	341	60-9504
S-256	Discard oil	427	60-9538
S-257	Discard oil	375	60-9538
S-258	Discard oil	440	60-9538
S-259	Discard oil	418	60-9539
S-260	Discard oil	428	60-9539
S-261	Discard oil	446	60-9539
S-262	Discard perclene	734	60-9536
283 NOV 15 1965	Misc. Dry	Box 1000#	
284 DEC 13 1965	Misc. Dry	Box 2200#	
285 DEC 13 1965	Misc. Dry	Box 2400#	
286 DEC 13 1965	Misc. Dry	Box 1600#	
287 OCT 25 1965	Misc. Dry	Box 1700#	
288 OCT 25 1965	Misc. Dry	Box 1700#	
289 JUL 27 1965	P. U. Waste	56	
290 JUL 27 1965	P. U. Waste	101	
291 JUL 27 1965	P. U. Waste	97	
292 JUL 27 1965	U^{233}	64	
293 OCT 25 1965	Misc. Dry	Box 1700#	
294 OCT 25 1965	Misc. Dry	Box 1800#	
295 DEC 13 1965	Misc. Dry	Box 1300#	

A. M. McNeill
Metal Production-81

AMMcN:gs

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

August 5, 1965

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - JULY

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material Type	Gross Wt. Lb.	Serial No.
263-S	Discard Perclene	759	60-9583
264-S	Discard Perclene	767	60-9582
065-S	Discard Perclene	796	60-9537
266-S	Discard Oil	425	60-9565
267-S	Discard Oil	468	60-9550
268-S	Discard Oil	424	60-9565
269-S	Discard Oil	434	60-9565
270-S	Discard Oil	464	60-9550
271-S	Discard Oil	445	60-9550
272-S OCT 11 1965	Graphite	327	60-9554
273-S OCT 11 1965	Graphite	343	60-9558
274-S	Graphite	394	60-9560
275-S	Graphite	363	60-9557
276-S	Graphite	343	60-9555
277-S OCT 11 1965	Graphite	375	60-9556
278-S	Graphite	384	60-9559
279-S OCT 11 1965	Discard Mud	327	60-9584
280-S	Discard Mud Special	103	60-9548
281-S	Discard Mud Special	97	60-9548
282-S JUL 1965	Discard Mud Special	92	60-9548
283-S JUL 27 1965	Discard Mud Special	148	60-9554
284-S	Oil And Paint Thinner	524	
285-S OCT 11 1965	Discard Mud	420	60-9613
286-S	Discard Mud	395	60-9586
287-S	Discard Oil	397	60-9586
288-S	Discard Oil	398	60-9586
289-S	Discard Oil	436	60-9585

Drum No.	Material Type	Gross Wt. Lb.	Serial No.
290-S	Discard Oil	469	60-9585
291-S	Discard Oil	426	60-9585
292-S	Discard Oil	400	60-9586
293-S	Discard Mud	375	60-9614
81-296 OCT 11 1965	Miscellaneous Dry	137	
297 NOV 15 1965	Miscellaneous Dry	Box ? 1500#	
298 NOV 15 1965	Miscellaneous Dry	Box ? 1400#	
299 JAN 01 1966	Miscellaneous Dry	Box ?	
300 NOV 15 1965	Miscellaneous Dry	Box ? 1500#	
301 OCT 11 1965	Pu Waste	125	
302 OCT 11 1965	Pu Waste	82	
303 OCT 11 1965	Pu Waste	85	
304 OCT 11 1965	Pu Waste	100	
305 OCT 11 1965	Pu Waste	132	
306 OCT 11 1965	Pu Waste	90	
307 OCT 11 1965	Pu Waste	67	
308	Used Oil	456	

A. M. McNeill

A. M. McNeill
Metal Production - 81

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

September 14, 1965

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - AUGUST

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material Type	Gross Wt. Lb.	Serial No.
81-309 OCT 11 1965	P. U. Waste	85	
310 DEC 13 1965	Misc. Dry Waste 1500#	Box ?	
311 DEC 13 1965	" " " 2300#	"	
312 DEC 13 1965	" " " 2900	"	
313 DEC 13 1965	" " " 1700#	"	
314 DEC 13 1965	" " " 2100#	"	
315 DEC 13 1965	" " " 2450#	"	
316 OCT 11 1965	Misc. Dry Waste	100	
317 OCT 11 1965	" " "	103	
318 OCT 11 1965	" " "	90	
319 OCT 11 1965	" " "	85	
320 OCT 11 1965	" " "	102	
321 OCT 11 1965	P. U. Waste	76	
322 OCT 11 1965	" "	88	
323 OCT 11 1965	" "	72	
324 OCT 11 1965	" "	130	
325 OCT 11 1965	Misc. Dry Waste	107	
326 OCT 11 1965	" " "	82	
327 OCT 11 1965	" " "	88	
328 DEC 13 1965	" " " 1000#	Box ?	
329 DEC 13 1965	" " " 1700#	"	
293-S OCT 11 1965	Discard Mud	375	60-9614
294-S OCT 11 1965	" "	267	60-9615

A. M. McNeill
Metal Production - 81

AMM:jal

Appendix CC

Non-Salvable Contaminated Waste for Disposal, "B" Plant (February)

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO

March 5, 1965

E. S. Ryan

cc:
File

NON-SALVABLE CONTAMINATED WASTE FOR DISPOSAL, "B" PLANT - FEBRUARY

The following list of non-salvable waste from "B" Plant is ready for disposal. All drums listed are of 55 gallon capacity.

Drum No.	Material Type	Gross Wt. Lb.	Serial No.
193-S	Discard Oil	385	60-9317
194-S	Discard Oil	479	60-9317
195-S	Discard Oil	485	60-9317
196-S	Discard Oil	439	60-9318
197-S	Discard Oil	462	60-9314
198-S APR 10 1965	Discard Mud	250	60-9336
199-S APR 10 1965	Discard Mud	363	60-9315
200-S APR 10 1965	Discard Mud	265	60-9316
201-S	Discard perclene	795	60-9301
202-S	Discard Perclene	734	60-9298
203-S	Discard Triclene	600	60-9302
204-S	Discard Perclene	686	60-9273
81-177	P.U. Contaminated Waste	67	
178	P.U. Contaminated Waste	66	
179	P.U. Contaminated Waste	64	
180	P.U. Contaminated Waste	103	
181	P. U. Contaminated Waste	536	
182	Misc. Dry	81	
183	P.U. Contaminated Waste	87	
184	P.U. Contaminated Waste	111	
185	Misc. Dry	242	
186	Misc. Dry	Box ?	
187 APR 10 1965	Misc. Dry	Box ?	
188	Misc. Dry	Box ?	
189	Misc. Dry	Box ?	
190	Misc. Dry	Box ?	

A. M. McNeill
Metal Production - 81

AMMcN/ms

Appendix DD

Building 883 Crate Number 8716215

Bldg 883 - 6 crate

Crate Number 8716215 ✓

Capital Equipment Disposal

PDR 3243 R

HOIST, ELECTRIC, CHISOLM-MOORE 500# 2 EA

✓ D-83-266-41581

✓ D-83-755-63210

TROLLEY, ELECTRIC HOIST P & HARNISCHFEGER 2

✓ D-83-0774-70824

D-83-0785-74842

PDR 3722

HOIST AIR, KELLER (2 EA)

D-83-0763-065200

D-83-0762-065200

PDR 3765

HOIST 2 EA

TROLLEY 2 EA

D83-0267-41581

D83-0266-41581

D83-0731-058426

D83-0732-058426

PDR 3766

HOOD, DAG SPRAY BOOTH

HOOD, TABLE

D83-0386-000000 + (D83-0465-000000)

GONE

Numbers for Crates
8716 227
8716 223

PDR [illegible]

HOIST & TRACTOR MONORAIL, 1-TON
D-83-0350-000000
D-83-0351-000000

MONORAIL, 1-TON WINTERER
D-83-0347-000000

2 EA
EXCESS

CLEANER, OIL, ULTRASONIC
D-83-0133-000000

PDR 3826

SALT BATH
D-83-0145-0000

SALT BATH HOOD
D-83-0305-00000

PDR 3719

TABLE, DAG SPRAY BOOTH
D-83-0387-000000

BOOTH, SPRAY DAG DIVILBISS
D-83-0384-000000

INSTRUMENT PROTECTORANCE
✓ D-83-0064-032072

PDR 3724

FILTER, SALT S/S 6 EA

D83-0535-000000

D83-0536-000000

D83-0537-000000

D83-0538-000000

D83-0539-000000

D83-0540-000000

2 crates

Crates numbers {8716213, 8716214}

Bldg 84

PDR - 3555
77 - 1604 - 00000
77 - 1606 - 00000
77 - 876 - 96799
77 - 877 - 96799

CAPITAL EQUIPMENT IN WASTE BOXES

BOX NO. 883-24

PDR-4798
Burner Gas
D-83-0631-000
D-83-0632-000

PDR-4816
Pump
D-83-0219-034731

PDR-4972
Scaffold
D-83-285-45029
Cart
D-81- -7534

PDR-4976

Lincoln Welder
D-34-741-29231

BOX NO. 883-25
Salt Filters
PDR-4798
D-83-0541-000
D-83-0542-000
D-83-0602-000
D-83-0603-000
D-83-0604-000
D-83-0605-000
D-83-0606-000
D-83-0607-000
D-83-0608-000

Oil Filters

[redacted]
D-83-0553-000
D-83-0554-000
D-83-0612-000
D-83-0613-000
D-83-0614-000
D-83-0615-000
D-34-741-29231 — Lincoln Welder PDR 4976

D-83-0794-075029 S/N 105044
D-83-0674-047911 S/N 6843
D-83-285-45029 - Scaffold parts PDR 4972
D-81- -7534 - Cart parts PDR 4976

BOX NO. 883-33 - PDR 4972
D-83-285-45029 - Scaffold parts PDR 4972

Appendix EE

Crated Wastes

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO 80401

November 5, 1969

O. L. Burton
D. R. Gammel
P. T. Godesiabois
M. L. Hanrahan
A. L. Luman
W. L. Ramer

CRATED WASTES

Recent discussions have clarified the handling and labeling of crated wastes resulting from the decontamination of Buildings 776 and 777. The following pertains to the area uth of between column lines F & G and east of column line 12 only.

1. A conscientious effort has been made and must continue to package all wastes in 55 gallon drums whenever reasonably possible.

2. All items which will not fit into 55 gallon drums are to be packaged in wooden crates. The crates are to be surveyed for gamma radiation before they are sealed.

   a. If the gamma radiation is less than 0.5 mr/hr the label on the crate is to be marked 0 (zero) plutonium and the crate is to be stenciled LSA for normal shipment.

b. If the gamma radiation is greater than 0.5 mr/hr an attempt is made to locate the source of the radiation. If possible, the source of the radiation is to be removed from the crate and placed into a 55 gallon drum. If the gamma radiation remains greater than 0.5 mr/hr the label on the crate is to be marked 0 (zero) plutonium and the actual gamma reading is to be stenciled on the crate. Waste Disposal Coordination will attach a yellow Group III label to the crate. The crate will be shipped by ATMX car.

You will be provided with additional information when the decontamination of the area north of between column lines F & G and west of column line 12 is started.

J. B. Owen
J. B. Owen
Manager
Area Decontamination

JBO:bts

cc:
L. P. Ferris II
L. F. Grill
L. D. Hazelton
W. D. Kittinger
P. F. Kreizenbeck
E. A. Putzier

CRATED FIRE WASTE SHIPPED DURING OCTOBER, 1969

Shipped 10-10-69

776 - 1 (A000968)
- 5 (A000972)
- 11 (A001072)
- 14 (A001086)
- 19 (A001246)
- 20 (A001247)
- 21 (A001307)
- 28 (A001455)
- 36 (A001651)
- 48 (A001905)
- 61 (A002052)
- 65 (A002060)
- 71 (A002080)
- 72 (A002081)
- 87 (A002212)
- 97 (A002383)
-109 (A002340)
-141 (A002632)
-175 (A003101)

777 - 22 (A005741)
- 23 (A005757)
- 33 (A005838)
- 36 (A005919)
- 55 (A006334)
- 56 (A006335)
- 57 (A006336)
- 63 (A006367)
- 64 (A006374)
- 66 (A006378)
- 83 (A006474)
-101 (A006566)
-102 (A006572)
-103 (A006590)
-104 (A006591)
-116 (A006673)
-121 (A006720)

Shipped 10-21-69

776 - 8 (A001069)
- 9 (A001070)
- 10 (A001071)
- 22 (A001308)
- 25 (A001387)
- 26 (A001380)
- 27 (A001454)
- 29 (A001613)
- 34 (A001648)
- 66 (A001654)
- 83 (A002163)
- 84 (A002169)
- 90 (A002235)
- 95 (A002268)
- 96 (A002278)
- 98 (A002284)
-100 (A002298)
-101 (A002299)
-108 (A002339)
-111 (A002343)
-112 (A002349)
-113 (A002350)
-125 (A002400)
-140 (A002482)
-145 (A002730)
-148 (A002733)
-150 (A002738)
-168 (A003019)
-209 (A003266)

777 - 51 (A006278)
- 79 (A006452)
- 86 (A006477)
- 91 (A006510)
- 93 (A006512)
-120 (A006704)
-137 (A006945)

Shipped 10-28-69

776 - 31 (A001631)
- 33 (A001618)
- 58 (A002027)
- 73 (A002082)
- 82 (A002162)
- 85 (A002192)
- 93 (A002244)
- 94 (A002247)
- 99 (A002218)
-103 (A002329)
-104 (A002330)
-107 (A002338)
-132 (A002430)
-133 (A002431)
-144 (A002640)
-154 (A002784)
-155 (A002794)
-166 (A002996)
-182 (A003142)
-190 (A003167)
-199 (A003211)

777 - 39 (A006053)
- 41 (A006115)
- 45 (A006230)
- 48 (A006263)
- 52 (A006299)
- 53 (A006312)
- 59 (A006345)
- 61 (A006355)
- 73 (A006393)
- 76 (A006416)
- 77 (A006428)
- 95 (A006549)
- 98 (A006553)
-125 (A006766)
-131 (A006831)

Distribution:
L.F. Grill
L.D. Hazelton
~~L.B.~~ Owen NOV 17 1969

CRATED FIRE WASTES SHIPPED DECEMBER 1969

Sh pped 12 3 69*

A000707
A005371
A005395

776 16 (A001139)
776 17 (A001140)
777 26 (A005764)
777 27 (A005786)
777 28 (A005804)
777 29 (A005805)
777 30 (A005828)
777 31 (A005816)

Sh pped 12 10-69*

A000699

Sh pp d 12 16 69

A000880

776 18 (A001245)
776 37 (A001660)
776 45 (A001690)
776 53 (A001978)
776 60 (A002036)
776 79 (A002143)
776 81 (A002161)
776 88 (A002215)
776 92 (A002237)
776 106 (A002337)
776 114 (A002351)
776 117 (A002373)
776 121 (A002391)
776 124 (A002395)
776 127 (A002412)
776 142 (A002633)
776 149 (A002737)
776 152 (A002754)
776 160 (A002837)
776 165 (A002880)
776 167 (A002995)
776 172 (A003064)
776 179 (A003018)
776 180 (A003140)
776 181 (A003141)

777 40 (A006096)
777 43 (A006170)
777 65 (A006377)
777 72 (A006402)
777 80 (A006465)
777 99 (A006554)
777 100 (A006565)
777 114 (A006654)
777 127 (A006783)
777 135 (A006920)

Cop es

L F Gr ll
L D Haz lt
~~L.B. Owen~~

CRATED FIRE WASTES SHIPPED

January, 1970

January 9, 1970

776- 23 (A001315)
776- 30 (A001619)
776- 33 (A001667)
776- 42 (A001684
776- 43 (A001685)
776- 46 (A001691)
776- 50 (A001920)
776- 51 (A001659)
776- 52 (A001664)
776-105 (A002333)
776-110 (A002341)
776-118 (A002374)
776-120 (A002370)
776-137 (A002462)
776-171 (A003060)
776-176 (A003111)
776-186 (A003147)

777- 11 (A005619)
777- 38 (A005938)
777- 42 (A006143)
777- 44 (A006169)
777- 58 (A006339)
777- 69 (A006388)
777- 75 (A006415)
777- 78 (A006434)
777- 84 (A006475)
777-107 (A006597)
777-122 (A006721)
777-123 (A006747)
777-126 (A006782)
777-128 (A006784)
777-129 (A006790)
777-139 (A007003)
777-141 (A007018)

779- 5
779- 6

January 16, 1970

776- 41 (A001673)
776- 54 (A002017)
776- 55 (A002018)
776- 56 (A002019)
776- 62 (A002053)
776- 67 (A002064)
776-68-2(A002065)
776- 69 (A002066)
776- 74 (A002083)
776- 75 (A002120)
776- 76 (A002123)
776- 78 (A002131)
776- 80 (A002156)
776- 91 (A002336)
776-126 (A002411)
776-128 (A002413)
776-139 (A002481)
776-143 (A002639)
776-170 (A003032)
776-177 (A003112)
776-188 (A003156)

777- 85 (A006476)
777- 87 (A006505)
777- 88 (A006506)
777- 90 (A006509)
777- 92 (A006511)
777- 94 (A006548)
777- 96 (A006551)
777-117 (A006679)
777-124 (A006748)
777-130 (A006818)
777-133 (A006891)
777-138 (A006990)
777-140 (A007016)
777-142 (A007017)

779- 7

January 21, 1970

776- 24 (A001386)
776- 40 (A001672)
776- 44 (A001686)
776- 47 (A001904)
776-68-1(A002051)
776- 70 (A002072)
776- 77 (A002127)
776-119 (A002375)

776-122 (A002392)
776-123 (A002393)
776-130 (A002416)
776-134 (A002432)
776-135 (A002433)
776-169 (A003020)
776-184 (A003144)
776-185 (A003145)
776-187 (A003148)
776-214 (A003329)
776-227 (A003455)

777- 46 (A006240)
777- 47 (A006247)
777- 49 (A006276)
777- 70 (A006389)
777- 82 (A006473)
777- 89 (A006508)
777-109 (A006614)
777-110 (A006618)
777-115 (A006655)
777-118 (A006680)
777-119 (A006703)
777-121 (A006719)
777-132 (A006836)
777-134 (A006908)
777-136 (A006831)

779- 4
779- 8

January 23, 1970

776-129 (A002415)
776-136 (A002445)
776-147 (A002732)
776-153 (A002764)
776-156 (A002810)
776-157 (A002813)
776-158 (A002814)
776-159 (A002819)
776-161 (A002862)
776-162 (A002872)
776-163 (A002934)
776-203 (A003234)
776-204 (A003246)
776-208 (A003257)
776-211 (A003284)
776-212 (A003303)
776-217 (A003351)
776-218 (A003352)
776-221 (A003385)
776-222 (A003392)
776-225 (A003411)
776-231-1 (A003463)
776-231-2 (A003466)
776-232 (A003469)

777- 50 (A006277)
777- 54 (A006301)
777- 60 (A006348)
777- 62 (A006358)
777- 68 (A006380)
777- 71 (A006401)
777- 97 (A006552)
777-105 (A006592)
777-108 (A006612)
777-111 (A006626)
777-112 (A006627)
777-113 (A006631)

L.F. Grill
J.S. Owen
L.D. Hazelton

CRATED FIRE WASTES SHIPPED -- FEBRUARY, 1970

February 5, 1970

776-348 (A004351)
776-434 (A011124)
A000359
A000360
A000381
A000382
A000383
A005140

February 11, 1970

776-151 (A002744)
776-173 (A003095)
776-174 (A003096)
776-183 (A003143)
776-210 (A003132)
776-215 (A003332)
776-228 (A003460)
776-233 (A003476)
776-330 (A004241)
776-337 (A004305)
776-338 (A004316)
776-345 (A004340)
776-349 (A004352)
776-352 (A004375)
776-354 (A004377)
776-355 (A004378)
776-356 (A004398)
776-380 (A004856)
776-381 (A004857)
776-386 (A004950)
776-388 (A004999)
776-389 (A010008)
776-390 (A010048)
776-392 (A010266)
776-393 (A010267)
776-395 (A010351)
776-402 (A010493)
776-404 (A010538)
776-405 (A010550)
776-406 (A010617)

777-311 (A007774)
777-312 (A007775)
777-319 (A007839)
777-321 (A007860)

February 18, 1970

776-198 (A003210)
776-201 (A003218)
776-205 (A003247)
776-213 (A003306)
776-216 (A003350)
776-219 (A003370)
776-220 (A003377)
776-226 (A003452)
776-230 (A003465)
776-235 (A004035)
776-262 (A003643)
776-323 (A004192)
776-324 (A004193)
776-482 (A003963)

777-152 (A007106)
777-156 (A007143)
777-157 (A007149)
777-158 (A007150)
777-159 (A007166)
777-160 (A007191)
777-161 (A007197)
777-164 (A007295)
777-165 (A007309)
777-166 (A007310)
777-167 (A007311)
777-168 (A007315)
777-169 (A007316)
777-170 (A007317)
777-171 (A007320)
777-172 (A007321)
777-177 (A007340)
777-178 (A007341)
777-183 (A007387)
777-190 (A007394)
777-249 (A007592)
777-259 (A007609)
777-266 (A007633)
777-271 (A007644)
777-272 (A007645)
777-273 (A007646)

February 25, 1970

776-223 (A003395)
776-234 (A004003)
776-239 (A004071)
776-245 (A004101)
776-246 (A004102)
776-247 (A003532)
776-249 (A003541)
776-251 (A003555)
776-252 (A003572)
776-283 (A003784)
776-298 (A003902)
776-299 (A003903)
776-303 (A003932)
776-310 (A003974)
776-311 (A003975)
776-315 (A004116)
776-317 (A004134)
776-321 (A004160)
776-391 (A010057)
776-394 (A010268)
776-399 (A010392)

777-184 (A007388)
777-185 (A007389)
777-188 (A007392)
777-209 (A007477)
777-211 (A007484)
777-233 (A007534)
777-239 (A007548)
777-241 (A007550)
777-246 (A007577)
777-248 (A007591)
777-250 (A007593)
777-255 (A007598)
777-256 (A007599)
777-264 (A007621)
777-265 (A007622)
777-267 (A007634)
777-268 (A007635)
777-275 (A007648)
777-316 (A007799)

Copies: **L.F. Grill**
L.D. Hazelton
J.B. Owen
E.S. Ryan

RECEIVED
MAR 19 1970
AREA DECONTAMINATION

CRATED FIRE WASTES SHIPPED TO IDAHO FALLS, IDAHO -- MARCH, 1970

March 5, 1970

776-255 (A003605)
776-264 (A003650)
776-265 (A003651)
776-284 (A003786)
776-289 (A003807)
776-294 (A003834)
776-296 (A003891)
776-307 (A003963)
776-308 (A003964)
776-312 (A003979)
776-320 (A004161)
776-326 (A004208)
776-342 (A004337)
776-350 (A004365)
776-374 (A004731)
776-375 (A004751)
776-379 (A004855)
776-491 (A004721)
776- (A004335)

777-143 (A007019)
777-147 (A007036)
777-150 (A007056)
777-163 (A007289)
777-175 (A007338)
777-181 (A007384)
777-186 (A007390)
777-191 (A007405)
777-217 (A007504)
777-223 (A007522)
777-229 (A007526)
777-231 (A007532)
777-232 (A007533)
777-233 (A007547)
777-243 (A007569)
777-244 (A007570)
777-245 (A007576)
777-257 (A007605)
777-268 (A007700)

March 13, 1970

776-178 (A003115)
776-193 (A003177)
776-224 (A003404)
776-240 (A004077)
776-271 (A003696)
776-273 (A003714)
776-275 (A003729)
776-276 (A003732)
776-281 (A003759)
776-292 (A003825)
776-306 (A003954)
776-329 (A004233)
776-335 (A004257)
776-343 (A004338)
776-351 (A004367)
776-365 (A004639)
776-377 (A004839)
776-385 (A004943)
776-387 (A004952)
776-397 (A010385)
776-401 (A010444)
776-403 (A010535)

777-162 (A007249)
777-174 (A007335)
777-180 (A007381)
777-192 (A007412)
777-205 (A007453)
777-223 (A007517)
777-224 (A007518)
777-235 (A007544)
777-280 (A007670)
777-282 (A007673)
777-291 (A007706)
777-300 (A007741)
777-315 (A007797)
777-319 (A007839)

March 18, 1970

776- 89 (A002234)
776-164 (A002985)
776-194 (A003185)
776-236 (A004022)
776-238 (A004051)
776-241 (A004076)
776-242 (A004082)
776-253 (A003584)
776-256 (A003606)
776-261 (A003640)
776-267 (A003659)
776-274 (A003725)
776-279 (A003742)
776-280 (A003758)
776-285 (A003794)
776-287 (A003796)
776-288 (A003797)
776-291 (A003818)
776-295 (A003882)
776-[illegible]02 (A004163)
776[illegible]5 (A004196)
776-[illegible]27 (A004206)
776-328 (A004207)
776-331 (A004243)
776-333 (A004248)
776-339 (A004317)
776-341 (A004336)
776-346 (A004341)
776-360 (A004422)
776-361 (A004533)
776-363 (A004656)
776-366 (A004640)
776-368 (A004658)
776-369 (A004666)
776-373 (A004730)
776-384 (A004928)
776-396 (A010384)
776-398 (A010386)
776-400 (A010413)

777-144 (A007026)
777-154 (A007115)
777-182 (A007396)
777-194 (A007420)
777-198 (A007433)
777-206 (A007471)
777-207 (A007472)
777-210 (A007[illegible])
777-212 (A007498)
777-214 (A007498)
777-218 (A007512)
777-222 (A007516)
777-225 (A007519)
777-226 (A007520)
777-227 (A007521)
777-230 (A007531)
777-240 (A007549)
777-252 (A007[illegible])
777-262 (A007613)
777-263 (A007615)
777-270 (A007641)
777-274 (A007647)
777-279 (A007669)
777-281 (A007671)
777-283 (A007684)
777-286 (A007697)
777-289 (A007701)
777-293 (A007710)
777-299 (A007739)
777-301 (A007747)
777-302 (A007748)
777-305 (A007759)
777-306 (A007760)
777-310 (A007773)

March 25, 1970

776-189 (A003166)
776-200 (A003217)
776-244 (A004093)
776-248 (A003533)
776-250 (A003544)
776-270 (A003621)
776-282 (A003777)
776-302 (A003924)
776-304 (A003937)
776-318 (A004143)
776-347 (A004346)
776-357 (A004389)
776-358 (A004390)
776-359 (A004407)
776-367 (A004657)
776-370 (A004717)
776-372 (A004729)
776-382 (A004839)
776-383 (A004883)
776- (A003993)

777-149 (A007051)
777-173 (A007322)
777-195 (A007424)
777-197 (A007429)
777-199 (A007431)
777-202 (A007441)
777-[illegible] (A007514)
777-236 (A007545)
777-251 (A007594)
777-253 (A007596)
777-260 (A007610)
777-278 (A007662)
777-284 (A007695)
777-292 (A007709)
777-298 (A007734)
777-304 (A007758)
777-308 (A007771)

March 30, 1970

776-116 (A002372)
776-191 (A003168)
776-192 (A003176)
776-207 (A003256)
776-243 (A004083)
776-254 (A003591)
776-263 (A003645)
776-266 (A003652)
776-268 (A003668)
776-272 (A003697)
776-286 (A003795)
776-297 (A003892)
776-301 (A003918)
776-305 (A003940)
776-336 (A004258)
776-340 (A004319)
776-344 (A004339)
776-353 (A004376)
776-376 (A004824)
776-378 (A004854)

777-145 (A007027)
777-151 (A00[illegible]72)
777-153 (A007107)
777-187 (A007391)
777-213 (A007494)
777-215 (A007499)
777-219 (A007513)
777-242 (A007554)
777-247 (A007586)
777-261 (A007615)
777-277 (A007653)
777-290 (A007703)
777-294 (A007711)
777-295 (A007714)
777-296 (A007715)
777-297 (A007716)
777-303 (A007749)
777-307 (A007769)

Copies:
L.F. Grill
L.D. Hazelton
~~L.B.~~ Owen
E.S. Ryan

CRATED FIRE WASTES SHIPPED TO IDAHO FALLS, IDAHO -- APRIL, 1970

Shipped 4- 8-70

776-197 (A003195)
776-198 (A003210)
776-202 (A003222)
776-257 (A003608)
776-258 (A003627)
776-259 (A003630)
776-260 (A003638)
776-269 (A003683)
776-277 (A003737)
776-278 (A003738)
776-290 (A003817)
776-293-2 (A003833)
776-293-1 (A003826)
776-300 (A003906)
776-314 (A004118)
776-316 (A004117)
776-319 (A004156)
776-362 (A004546)
776-364 (A004638)
776-407 (A010678)
776-409 (A010717)
776-414 (A010921)
776-415 (A010922)
776-418 (A010928)
776-421 (A010966)
776-422 (A010997)
776-423 (A011023)
776-425 (A011046)
776-426 (A011047)
776-428 (A011073)
776-431 (A011105)
776-432 (A011108)
776-435 (A011125)
776-438 (A011170)
776-442 (A011223)
776-444 (A011266)
776-445 (A011267)
776-446 (A011275)
776-450 (A011310)
776-452 (A011357)
776-455 (A011360)
776-456 (A011383)
776-457 (A011384)
776-459 (A011396)
776-460 (A011412)
776-A003602
776-A010965

777-148 (A007048)
777-155 (A007119)
777-176 (A007339)
777-179 (A007366)
777-189 (A007393)
777-193 (A007419)
777-196 (A007428)
777-200 (A007438)
777-201 (A007440)
777-203 (A007445)
777-204 (A007452)
777-208 (A007474)
777-216 (A007500)
777-221 (A007515)
777-234 (A007528)
777-237 (A007546)
777-254 (A007597)
777-258 (A007608)
777-269 (A007638)
777-276 (A007652)
777-285 (A007696)
777-287-1 (A007698)
777-287-2 (A007699)
777-309 (A007772)
777-322 (A007888)

Shipped 4-15-70

776-408 (A010688)
776-410 (A010782)
776-411 (A010783)
776-412 (A010864)
776-413 (A010920)
776-416 (A010929)
776-417 (A010930)
776-419 (A010947)
776-424 (A011037)
776-429 (A011095)
776-430 (A011096)
776-433 (A011120)
776-436 (A011127)
776-437 (A011128)
776-440 (A011201)
776-441 (A011222)
776-448 (A011298)
776-449 (A011309)
776-454 (A011359)
776-461 (A011421)
776-462 (A011442)
776-465 (A011446)
776-467 (A011476)
776-474 (A011522)
776-475 (A011523)
776-480 (A011627)
776-485 (A011690)
776-487 (A011727)
776-489 (A011851)
776-492 (A011896)
776-493 (A011897)
776-509 (A012176)

777-317 (A007805)
777-318 (A007820)
777-320 (A007849)
777-325 (A008018)
777-326 (A008057)
777-327 (A008058)
777-328 (A008077)
777-329 (A008078)
777-330 (A008085)
777-331 (A008099)
777-332 (A008118)
777-333 (A008119)
777-335 (A008132)
777-336 (A008146)
777-337 (A008170)
777-338 (A008173)
777-339 (A008174)
777-340 (A008181)
777-341 (A008182)
777-342 (A008191)
777-343 (A008192)
777-344 (A008195)
777-345 (A008196)
777-346 (A008197)
777-347 (A008211)
777-348 (A008213)
777-349 (A008216)
777-351 (A008225)
777-352 (A008228)
777-354 (A008233)
777-355 (A008234)
777-360 (A008266)
777-361 (A008351)
777-364 (A008390)
777-366 (A008402)
777-369 (A008468)
777-371 (A008473)
777-373 (A008500)
777-374 (A008514)
777-375 (A008518)
777-378 (A008575)

Distribution: L.F. Grill
L.D. Hazelton
~~J.B. Owen~~
E.S. Ryan

Shipped 4-23-70

776-453 (A011358)
776-464 (A011445)
776-466 (A011447)
776-468 (A011477)
776-469 (A011495)
776-470 (A011498)
776-471 (A011502)
776-472 (A011506)
776-473 (A011511)
776-476 (A011524)
776-477 (A011525)
776-480 (A011628)
776-481 (A011629)
776-483 (A011688)
776-484 (A011689)
776-486 (A011726)
776-488 (A011805)
776-491 (A011895)
776-494 (A011905)
776-495 (A011957)
776-496 (A011978)
776-497 (A011993)
776-498 (A011994)
776-499 (A012005)
776-500 (A012076)
776-501 (A012077)
776-502 (A012107)
776-503 (A012108)
776-504 (A012109)
776-505 (A012110)
776-506 (A012113)
776-507 (A012157)
776-508 (A012158)
776-510 (A012196)
776-511 (A012216)
776-522 (A012268)
776-529 (A012372)
776-533 (A012443)
776-534 (A012444)
776-535 (A012481)
776-536 (A012483)
776-538 (A012525)
776-541 (A012640)
776-543 (A012642)
776-545 (A012732)
776-551 (A012819)
776-561 (A013266)
776-A000322

777-324 (A007953)
777-350 (A008224)
777-353 (A008232)
777-356 (A008235)
777-357 (A008247)
777-362 (A008369)
777-363 (A008370)
777-365 (A008400)
777-367 (A008436)
777-368 (A008450)
777-370 (A008498)
777-372 (A008499)
777-376 (A008519)
777-377 (A008560)

Shipped 4-30-70

776-332 (A004246)
776-334 (A004251)
776-427 (A011070)
776-443 (A011265)
776-458 (A011389)
776-478 (A011537)
776-490 (A011894)
776-512 (Filters)
776-513 (Filters)
776-514 (Filters)
776-515 (Filters)
776-516 (Filters)
776-518 (Filters)
776-519 (Filters)
776-520 (Filters)
776-521 (Filters)
776-540 (A012561)
776-553 (A012939)
776-555 (A012996)
776-563 (A013418)
776-564 (A013426)

777-379 (A008576)
777-382 (A008616)
777-386 (A008655)
777-389 (A008659)
777-390 (A008633)
777-393 (A003670)
777-394 (A003671)
777-401 (A008733)
777-488 (A008840)
777-410 (A008926)

L.F. Grill
L.D. Hazelwood
[illegible] Owen
E.S. Ryan

CRATED FIRE WASTES SHIPPED TO IDAHO FALLS, IDAHO -- MAY, 1970

May 7, 1970

776-523 (A012295)
776-539 (A012526)
776-552 (A012933)
776-554 (A012962)
776-557 (A013056)
776-559 (A013211)
776-562 (A013374)

777-313 (A007778)
777-314 (A007779)
777-383 (A008617)
777-384 (A008636)
777-387 (A008656)
777-388 (A008657)
777-391 (A008664)
777-397 (A008702)
777-398 (A008711)
777-399 (A008721)
777-405 (A008768)
777-409 (A008924)
777-411 (A008966)

May 14, 1970

776-530 (A012370)
776-537 (A012542)
776-542 (A012641)
776-565 (A013593)
776-566 (A013594)
776-567 (A013605)
776-568 (A012872)
776-569 (A013652)
776-570 (A013653)
776-571 (A013654)
776-572 (A013655)
776-573 (A013656)
776-575 (A013670)
776-576 (A013671)
776-577 (A013672)
776-578 (A013673)
776-579 (A013674)
776-580 (A013688)
776-581 (A013689)
776-582 (A013690)

May 20, 1970

777-402 (A008751)
777-403 (A008752)

May 26, 1970

776-[illegible] (A001770)
776-195 (A003107)
776-463 (A011[illegible])
776-524 (A012[illegible])
776-525 (A012307)
776-526 (A012316)
776-527 (A012343)
776-531 (A012374)
776-549 (A012784)
776-550 (A012785)
776-556 (A013055)
776-558 (A013139)
776-583 (A013694)
776-584 (A013695)
776-585 (A013696)
776-586 (A013747)
776-587 (A013751)
776-588 (A013752)
776-589 (A013753)
776-590 (A013754)
776-591 (A013827)
776-592 (A013851)
776-593 (A013863)
776-594 (A013867)
776-595 (A013871)
776-604 (A013935)
776-605 (A013936)
776-606 (A013972)
776-608 (A014041)
776-614 (A014119)

777-392 (A008667)
777-395 (A008672)
777-396 (A008673)
777-400 (A008727)
777-404 (A008761)
777-406 (A008784)
777-407 (A008798)
777-412 (A008967)
777-413 (A009018)
777-415 (A009035)
777-416 (A009064)
777-417 (A009081)

ADDITION TO FEBRUARY, 1970 LIST:

February 18, 1970

776-196 (A003192)

JUL 7 1970

CRATED FIRE WASTES SHIPPED TO ARCO, IDAHO

June, 1970

June 16, 1970	June 23, 1970	June 25, 1970
776-206 (A003251)	776-630 (A014199)	776-309 (A003973)
776-237 (A004034)	776-631 (A014200)	776-479 (A011572)
776-544 (A012712)		776-528 (A012344)
776-548 (A012783)	777-419 (A009122)	776-532 (A012409)
776-560 (A013265)	777-421 (A009149)	776-546 (A012751)
776-574 (A013657)	777-422 (A009150)	776-547 (A012752)
776-596 (A013908)	777-423 (A009170)	776-603 (A013933)
776-597 (A013927)	777-424 (A009173)	776-626 (A014195)
776-598 (A013928)	777-425 (A009186)	776-640 (A014367)
776-599 (A013929)	777-427 (A009268)	776-642 (A014369)
776-600 (A013930)	777-428 (A009269)	776-643 (A014370)
776-601 (A013931)	777-429 (A009270)	776-644 (A014371)
776-602 (A013932)	777-430 (A009271)	776-646 (A014404)
776-609 (A014042)	777-431 (A009307)	776-647 (A014405)
776-610 (A014043)	777-432 (A009322)	776-650 (A014449)
776-611 (A014044)	777-433 (A009323)	776-653 (A014517)
776-612 (A014045)	777-434 (A009416)	776-654 (A014518)
776-617 (A014153)	777-435 (A009461)	776-660 (A014570)
776-618 (A014156)	777-437 (A009513)	776-664 (A014575)
776-619 (A014157)	777-439 (A009527)	776-665 (A014584)
776-620 (A014158)	777-440 (A009543)	
776-621 (A014159)	777-442 (A009588)	777-381 (A008612)
776-622 (A014160)	777-443 (A009613)	777-436 (A009490)
776-623 (A014167)		777-438 (A009523)
776-624 (A014168)		
776-625 (A014169)		
776-627 (A014196)		
776-628 (A014197)		
776-632 (A014227)		
776-633 (A014234)		
777-146 (A007035)		
777-359 (A008256)		
777-380 (A008599)		
777-414 (A005030)		
777-418 (A009090)		

cc:
L.D. Hazelton
~~J.B.~~ Owen
E.S. Ryan

CRATED FIRE WASTES SHIPPED -- AUGUST, 1970

August 31, 1970

776-634 (A014235)
776-635 (A014275)
776-638 (A014365)
776-639 (A014366)
776-652 (A014451)
776-655 (A014522)
776-657 (A014524)
776-658 (A014555)
776-661 (A014571)
776-667 (A014586)
776-668 (A014590)
776-670 (A014622)
776-672 (A014668)
776-673 (A014673)
776-674 (A014674)
776-675 (A014684)
776-676 (A014709)
776-677 (A014717)
776-678 (A014727)

777-447 (A009701)
777-448 (A009708)
777-450 (A009723)
777-452 (A009744)
777-453 (A009771)
777-454 (A009803)
777-455 (A009802)
777-457 (A009839)
777-459 (A009857)
777-461 (A009885)
777-462 (A009922)

cc:
L.D. Hazelton
~~J.B.~~ Owen

ESR:ab 9-2-70

CRATED FIRE WASTE SHIPPED DURING OCTOBER, 1970

October 9, 1970	
776-659	(A014556)
776-680	Filters
776-682	Filters
776-686	Filters
776-687	Filters
776-696	(A014821)
776-699	(A014832)
776-700	(A014833)
776-701	(A014834)
776-703	(A014838)
776-704	(A014848)
776-705	(A014849)
776-707	(A014870)
776-708	(A014871)
776-709	(A014894)
776-711	(A014911)
776-712	(A014925)
776-715	(A014929)
776-716	(A014932)
776-717	(A014958)
777-445	(A009651)
777-463	(A009923)
777-465	(A009933)
777-466	(A009934)
777-467	(A009962)
777-468	(A009971)
777-469	(A009972)
777-473	(A019010)
777-474	(A019032)
777-475	(A019033)
777-476	(A019034)
777-477	(A019035)
777-478	(A019036)
777-479	(A019062)
777-480	(A019071)
777-481	(A019072)

October 21, 1970	
776-697	(A014823)
776-698	(A014824)
776-702	(A014835)
776-706	(A014850)
776-713	(A014927)
776-714	(A014928)
776-718	(A014978)
776-719	(A014979)
776-720	(A014994)
776-721	(A014995)
776-722	(A015029)
776-723	(A015030)
776-724	(A015042)
776-725	(A015043)
776-726	(A015049)
776-727	(A015069)
776-728	(A015070)
776-729	(A015087)
776-731	(A015112)
776-732	(A015124)
776-733	(A015130)
776-734	(A015131)
776-735	(A015143)
776-737	(A015145)
776-741	(A015198)
776-742	(A015199)
776-743	(A015224)
776-744	(A015241)
776-745	(A015276)
777-470	(A009995)
777-471	(A019003)
777-472	(A019009)

cc:
L.D. Hazelton
J.B. Owen

CRATED FIRE WASTES SHIPPED TO IDAHO FALLS, IDAHO

November, 1970

November 4, 1970

776-607 (A014023)
776-613 (A014113)
776-629 (A014198)
776-636 (A014289)
776-648 (A014424)
776-666 (A014585)
776-679 (A014756)
776-730 (A015088)
776-738 (A015169)

777-464 (A009932)
777-489 (A019116)
777-494 (A019169)
777-499 (A019200)

November 12, 1970

776-694 (A014799)
776-739 (A015192)
776-740 (A015197)
776-752 (A015343)
776-763 (A015615)
776-765 (A015638)
776-769 (A015686)
776-770 (A015692)
776-771 (A015708)

777-483 (A019077)
777-485 (A019096)
777-486 (A019097)
777-487 (A019098)
777-488 (A019115)
777-490 (A019128)
777-491 (A019131)
777-492 (A019152)
777-504 (A019252)
777-505 (A019253)
777-506 (A019254)
777-507 (A019255)
777-508 (A019264)
777-511 (A019280)
777-512 (A019281)
777-513 (A019285)
777-515 (A019293)
777-516 (A019299)
777-517 (A019300)
777-518 (A019310)
777-519 (A019311)
777-524 (A019335)
777-525 (A019338)

L.D. Hazelton
L.B. Owen

CRATED FIRE WASTE SHIPPED TO IDAHO FALLS, IDAHO

December, 1970

December 15, 1970

776-615 (A014144)
776-616 (A014146)
776-753 (A015355)
776-754 (A015411)

777-495 (A019170)
777-496 (A019182)
777-497 (A019192)
777-529 (A019353)
777-530 (A019361)
777-531 (A019363)
777-547 (A019507)
777-548 (A019508)

December 22, 1970

776-695 (A014808)
776-746 (A015294)
776-748 (A015301)
776-756 (A015442)
776-759 (A015504)
776-760 (A015505)
776-761 (A015539)
776-764 (A015624)
776-766 (A015643)
776-767 (A015669)
776-785 (A015899)
776-804 (A015983)

777-493 (A019153)
777-503 (A019224)
777-510 (A019279)
777-527 (A019351)
777-528 (A019352)
777-535 (A019388)
777-536 (A019389)
777-537 (A019397)
777-538 (A019403)
777-539 (A019404)
777-540 (A019410)
777-541 (A019450)
777-543 (A019459)
777-544 (A019474)
777-552 (A019565)
777-562 (A019663)
777-563 (A019668)
777-564 (A019676)
777-565 (A019677)

Distribution

L.F. Grill
L.D. Hazelton
J.B. Owen
E.S. Ryan

CRATED FIRE WASTE SHIPPED TO IDAHO FALLS, IDAHO

January, 1971

January 19, 1971		January 28, 1971	
776-762	(A015591)	776-777	(A015839)
776-772	(A015709)	776-778	(A015863)
776-773	(A015725)	776-779	(A015870)
776-774	(A015747)	776-780	(A015871)
776-775	(A015802)	776-781	(A015874)
776-776	(A015821)	776-782	(A015886)
		776-783	(A015888)
777-542	(A015591)	776-784	(A015889)
777-551	(A019558)	776-786	(A015900)
777-553	(A019580)	776-789	(A015916)
777-555	(A019614)	776-790	(A015926)
777-567	(A019638)	776-791	(A015927)
		776-792	(A015934)
		776-793	(A015935)
		776-794	(A015952)
		776-795	(A015955)
		776-796	(A015956)
		776-797	(A015967)
		776-798	(A015975)
		776-799	(A015976)
		776-805	(A016008)
		776-806	(A016009)
		776-808	(A016022)
		776-809	(A016025)

Distribution:

L.F. Grill
L.D. Hazelton
J.B. Owen
E.S. Ryan

Feb. 3, 1971

CRATED FIRE WASTE SHIPPED

February, 1971

February 22, 1971	February 23, 1971
776-692 (filters)	776-781 (A015914)
776-693 (filters)	776-811 (A016027)
776-694 (filters)	776-812 (A016028)
776-695 (filters)	776-813 (A016029)
776-800 (A015970)	776-815 (A016040)
776-802 (A015981)	776-833 (A016098)
776-820 (A016055)	776-834 (A016099)
776-821 (A016067)	776-835 (A016103)
776-822 (A016068)	776-839 (A016107)
776-823 (A016069)	
776-824 (A016070)	777-566 (A019691)
776-830 (A016086)	777-568 (A019704)
776-837 (A016105)	777-576 (A019779)
776-854 (A016233)	777-580 (A019803)
	777-582 (A019809)
777-558 (A019639)	777-586 (A019821)
777-559 (A019647)	777-589 (A019836)
777-572 (A019726)	777-595 (A019879)
	777-600 (A019890)
	777-601 (A019912)
	777-609 (A019954)

L.F. Grill
L.D. Hazelton
J.B. Owen
E.S. Ryan

3- 5-71

CRATED FIRE WASTE SHIPPED

March, 1971

March 3, 1971

776-816 (A016041)
776-817 (A016042)
776-818 (A016043)
776-819 (A016044)
776-828 (A016074)
776-831 (A016095)
776-832 (A016097)

777-561 (A019662)
777-567 (A019703)
777-577 (A019785)
777-584 (A019813)
777-590 (A019837)
777-591 (A019863)
777-592 (A019869)
777-593 (A019877)
777-596 (A019883)
777-605 (A019947)
777-606 (A019951)
777-610 (A019955)
777-611 (A019963)
777-615 (A019980)

March 31, 1971

776-801 (A015980)
776-803 (A015982)
776-807 (A016010)
776-826 (A016072)
776-827 (A016073)
776-855 (A016234)
776-857 (A016236)
776-871 (A016358)

777-587 (A019834)
777-588 (A019835)
777-608 (A019953)
777-636 (A018088)
777-637 (A018089)
777-638 (A018100)
777-639 (A018103)
777-646 (A018132)
777-648 (A018134)
777-656 (A018194)
777-678 (A018288)
777-681 (A018300)
777-685 (A018316)
777-687 (A018318)

L. F. Grill
L. D. Hazelton
✓J. B. Owen
E. S. Ryan

April 12, 1971

file copy

CRATED FIRE WASTE SHIPPED - APRIL, 1971

April 2, 1971

776-836 (A016104)
848 (A016207)
850 (A016214)
858 (A016237)
860 (A016279)
864 (A016292)
865 (A016319)
868 (A016342)
872 (A016359)
875 (A016381)
893 (A016457)
900 (A016481)
901 (A016482)
929 (A016547)
933 (A016554)
937 (A016561)
938 (A016562)

777-554 (A019601)
556 (A019625)
602 (A019915)
604 (A019940)
621 (A018015)
626 (A018035)
631 (A018054)
652 (A018168)
657 (A018206)
663 (A018227)
668 (A018250)
669 (A018258)
688 (A018319)
690 (A018334)
694 (A018346)
695 (A018358)
696 (A018359)
698 (A018361)

April 6, 1971

776-859 (A016265)
867 (A016329)
898 (A016474)
914 (A016522)
918 (A016526)
919 (A016527)
922 (A016530)
925 (A016536)
927 (A016545)

April 6, 1971

777-616 (A019981)
617 (A019982)
632 (A018055)
640 (A018112)
649 (A018144)
682 (A018301)
684 (A018308)

April 8, 1971

776- 870 (A016357)
877 (A016386)
896 (A016460)
931 (A016552)
942 (A016569)
950 (A016577)
961 (A016607)
971 (A016634)
979 (A016644)
990 (A016659)
1001 (A016681)
1002 (A016682)
1004 (A016684)
1007 (A016687)

777-619 (A018003)
654 (A018176)

April 16, 1971

776- 788 (A015915)
810 (A016026)
825 (A016071)
846 (A016192)
849 (A016213)
852 (A016231)
853 (A016232)
863 (A016291)
897 (A016461)
904 (A016486)
912 (A016509)
932 (A016553)
960 (A016606)
964 (A016615)
966 (A016617)
1012 (A016697)
1020 (A016708)

April 16, 1971

777-560 (A019661)
571 (A019716)
573 (A019735)
574 (A019762)
575 (A019763)
578 (A019795)
579 (A019796)
583 (A019801)
585 (A019820)
594 (A019878)
597 (A019886)
599 (A019888)
614 (A019979)
625 (A018034)
627 (A018036)
679 (A018291)
683 (A018305)
699 (A018376)

April 21, 1971

776-838 (A016106)
851 (A016215)
880 (A016396)
881 (A016397)
882 (A016398)
886 (A016418)
889 (A016439)
892 (A016445)
906 (A016498)
907 (A016499)
909 (A016501)
911 (A016508)
965 (A016616)

777-629 (A018038)
642 (A018114)
644 (A018116)
645 (A018131)
650 (A018145)
651 (A018150)
667 (A018249)
670 (A018263)
671 (A016264)
672 (A018265)
673 (A018268)
674 (A018269)
675 (A018270)
680 (A018293)

April 29, 1971

776- 814 (A016039)
895 (A016459)
903 (A016485)
934 (A016558)
935 (A016559)
936 (A016560)
939 (A016563)
940 (A016564)
941 (A016565)
943 (A016570)
967 (A016618)
975 (A016638)
977 (A016642)
978 (A016643)
981 (A016646)
985 (A016650)
987 (A016652)
989 (A016658)
1003 (A016683)

777-570 (A019714)
665 (A018240)

NOTE: On March, 1971, list delete 777-656 (A018194) and add 777-686 (A018317).

cc:
L. F. Grill
L. D. Hazelton
J. B. Owen
E. S. Ryan

CRATED FIRE WASTE SHIPPED - MAY, 1971

May 3, 1970

776- 866 (A016328)
876 (A016385)
878 (A016387)
885 (A016413)
887 (A016437)
888 (A016438)
891 (A016444)
899 (A016480)
905 (A016487)
928 (A016546)
962 (A016608)
973 (A016636)
986 (A016651)
996 (A016676)
997 (A016677)
1000 (A016680)
1008 (A016688)
777- 620 (A018014)
635 (A018085)
653 (A018174)
655 (A018190)
664 (A018239)
677 (A018276)
700 (A018377)

May 20, 1971

776- 842 (A016149)
844 (A016171)
847 (A016200)
902 (A016484)
908 (A016500)
910 (A016502)
913 (A016521)
915 (A016523)
917 (A016525)
921 (A016529)
926 (A016544)
930 (A016548)
949 (A016576)
972 (A016635)
976 (A016641)
980 (A016645)
988 (A016657)
992 (A016661)
998 (A016678)

May 20, 1971

776-1006 (A016686)
1009 (A016694)
1011 (A016696)
1014 (A016699)
1015 (A016700)
1016 (A016701)
1017 (A016705)
1019 (A016707)
1025 (A016716)
1026 (A016717)
1032 (A016723)
1033 (A016728)
1034 (A016729)
1038 (A016733)
1039 (A016734)
1040 (A016735)
1041 (A016736)
1042 (A016737)
1043 (A016738)
1044 (A016739)
1045 (A016740)
1055 (A016753)
1056 (A016754)
1062 (A016760)
1078 (A016779)
1081 (A016788)
777- 628 (A018037)
641 (A018113)
647 (A018133)
658 (A018207)
659 (A018208)
691 (A018341)
701 (A018378)

May 25, 1971

776- 840 (A016136)
841 (A016148)
856 (A016235)
862 (A016290)
879 (A016395)
883 (A016399)
884 (A016406)
890 (A016440)
923 (A016533)
924 (A016534)

May 25, 1971

776- 958 (A016604)
959 (A016605)
982 (A016647)
983 (A016648)
993 (A016662)
1010 (A016695)
1021 (A016709)
777- 603 (A019939)
643 (A018115)
656 (A018194)
660 (A018214)
666 (A018245)
676 (A018275)

cc:
L. F. Grill
L. D. Hazelton
J. B. Owen
E. S. Ryan

August 24, 1971

Building 776 Cont.

776-1119 (A016829)
776-1123 (A016833)
776-1129 (A016839)
776-1133 (A016843)
776-1137 (A016847)
776-1140 (A016850)
776-1153 (A016863)
776-1155 (A016865)
776-1159 (A016869)
776-1170 (A016830)
776-1178 (A016889)
776-1182 (A016903)
776-1190 (A031312)
776-1193 (A031430)
776-1197 (A030487)

Building 777

777-744 (A018458)
777-751 (A031546)
777-761 (A031582)
777-774 (A031660)

August 27, 1971

Building 776

776-994 (A016663)
776-1028 (A016719)
776-1029 (A016720)
776-1053 (A016751)
776-1054 (A016752)
776-1063 (A016761)
776-1064 (A016762)

August 27, 1971

Building 776 Cont.

776-1094 (A016801)
776-1096 (A016803)
776-1116 (A016826)
776-1147 (A016857)
776-1168 (A016878)

Building 777

777-630 (A018046)
777-633 (A018064)
777-737 (A018451)
777-738 (A018452)
777-748 (A031536)

cc:
L. F. Grill
L. D. Hazelton
✓J. B. Owen
E. S. Ryan

CRATED FIRE WASTE SHIPPED - AUGUST, 1971

August 3, 1971

Building 776

776-874 (A016372)
776-991 (A016660)
776-1027 (A016718)
776-1030 (A016721)
776-1036 (A016731)
776-1051 (A016749)
776-1059 (A016757)
776-1061 (A016759)
776-1080 (A016781)
776-1082 (A016789)
776-1084 (A016791)
776-1086 (A016793)
776-1088 (A016795)
776-1089 (A016796)
776-1122 (A016832)
776-1126 (A016836)

Building 777

777-693 (A018343)

August 6, 1971

Building 776

776-843 (A016168)
776-845 (A016191)
776-920 (A016528)
776-946 (A016573)
776-974 (A016637)
776-1006 (A016685)
776-1018 (A016706)
776-1023 (A016713)
776-1046 (A016741)

August 6, 1971

Building 776 Cont.

776-1047 (A016743)
776-1052 (A016750)
776-1057 (A016755)
776-1058 (A016756)
776-1110 (A016820)

Building 777

777-624 (A018033)
777-662 (A018224)

August 18, 1971

Building 776

776-894 (A016458)
776-1024 (A016715)
776-1120 (A01[illegible]30)
776-1134 (A016844)
776-1144 (A016854)
776-1145 (A016855)
776-1148 (A016858)
776-1167 (A016877)
776-1174 (A016884)
776-1184 (A031088)

Building 777

777-770 (A031632)

August 24, 1971

Building 776

776-1093 (A016800)
776-1102 (A016809)
776-1117 (A016827)

F 1
GM

CRATED FIRE WASTES SHIPPED - FEBRUARY, 1972

February 21, 1972

15-728 (A018436)

15-743 (A018457)

15-752 (A031553)

15-754 (A031560)

15-762 (A031582)

15-1013 (A016698)

15-1180 (A016890)

15-1204 (A032154)

cc:
B. A. Bowman
L. F. Grill
J. B. Owen
E. S. Ryan

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX 888
GOLDEN, COLORADO 80401

June 2, 1969

E. S. Ryan

DRUM COUNTED 776 FIRE WASTE FOR BURIAL

Please be informed that 628 drums from the 776 fire cleanup have been drum counted to date. All 628 drums were found to be less than the AEC discard limit. The drum numbers range from A00001 through A00630, excluding A00361 and A00366 that were voided. Of the 628 measured, 617 contain zero grams Pu. The 11 drums that contain quantities of Pu are as follows:

Drum Count No.	Gms Pu
A00002	1
A00017	1
A00080	2
A00[illegible]58	1
A00226	2
A00269	1
A00305	6
A00334	1
A00414	1
A00515	1
A00527	2
TOTAL	19

All 628 drums may be shipped off plant site to the burial grounds.

R. D. Mullet

R. D. Mullet

RDM:ejw

APPROVED:

L. F. Grill
MANAGER CHEMICAL OPERATIONS

cc:
L. F. Grill
L. D. Hazelton
H. E. Bowman

* Character in field (444) List is from Waste Mgt F ld East of
"Verification of UBC in 5967" Created R Taylor 12-1-7
by R Taylor

	B	I	A N	S			D sc t	
1	771	41		48	81	7		
2	77	612	019 6	63	52	78		
	777	5 1	A019808	5	1	6	E1	75
4	770	692	016742	4	7	83	H t t l	
5		514	PDP 1 6984	9	87	75	C t T t	
6	777	718	A019990	6	77	51	D y l	
7	776	692	A01674	45	78	83	H t t l	
8	777	613	A01 978	87	49	57	G1 b	
9	771	69		84	60	48		
10	771	7		84	60	48		
11	777	687	PD 777 1485	48	57	87		150
12	7 7	607	A019952	55	8	87		
13	777	598	A019 7	56	51	84		
14	771	404		42	72	53		
15	7 1	403		42	2	53		
16	771	02		42	72	53		
17	771	87		42	7	53		
18	771	01		42	2	53		
19	776	1113		75	59	56	D y	
20	7 6	951	\016 78	64	50	75	B 11 j F	10
21	77	752	031553	49	62	83	M t l	
22	551	10	N P	90	50	94		10
23	771	52		66	20	65		
24	76	3 4		53	18	77	B 1	
25	776	995	A016675	65	60	61		
26	771	21		48	60	4		
27	771	68		3	4	110		
28	771	90		84	49	72		100
29	776	1125	A016835	55	43	66		
30	77	716	A018124	63	63	54		
31	771	389		72	48	84		
32	777	54		49	81	56		

	P				D l	
3	771 0		4	60		
34	441	3	11	1	Sh ld g g	150
5	71 405	48		84		20
36	776 417	A011276	190	11	64 M h L th	100
37	957	A016 5	64	6	75 D y l	
8	776 945	A016 2	66	57	75 M t l	20
39	7 6074	A01 457	49	1	84 M t l	
40	776 94	A016 75	64	5	M 11 l	
41	777 703	A018 0	87	8	5 D yb	
42	776 44	016 1	5	56	66 B 11 j F	50
43	776 956	016585	75	61	56	5
44	776 952	A016 79	75	56	64 B 11 j F	50
45	551 166		96		63 Gl b	10
46	776 968	A016 19	4	65	53 D y l	
47	777 622	A018016	8	49	56 Gl b	20
48	771 391		75	9	57	
49	777 5	A00 2	35	51	49 A L I D t t	10
50	771 414		48	7	84 H d E l	
51	551 16	A	8	1	60	
52	551 168	A P	96	56	60	
53	776 769	A0316 1	48	72	84	10
54	776 953	A016 82	65	75	56	
55	88 8716 14	PD 55	63	52	9	1
56	777 762	A0 1 83	48	66	84 M t l	
57	777 782	A0 16 0	51	51	6	
58	776 51	A0113 5	184	116	63	100
59	77 1606		6	5	98	
60	776 768	A01 671	71	6	93	
61	7 9 014		9	68	42 W 1 l	20
62	771 357		48	48	96	20
63	889 178		82	56	15	20
64	776 1	A011200	16	112	6 M l l th	100

	F		S			D
65	77 9	A0 I 31	4		84	
6	7 1 58		0	44	100	
67	771 91		48	57	79	
68	7/1 21		48	60	84	
69	7/6 571		66	94	122	
70	776 6 5		4	105	57	B q g P 50
71			64	93	155	
72	70 07		51	78	124	
73	776 762		71	88	189	
74	20 5 61		67	73	79	
76	776 3		75	11	0	B B
77	77/ 771		51	8	87	B d 11
78	777 765		58	73	103	
79	/76 1192		72	87	189	
80	776 7 2		71	87	188	
81	776 513		74	112	111	
82	776 525		72	114	189	
83	A 0		64	4	172	
84	/C0		71	76	189	
85	207 21		44	0	117	E t F d C y -250
86			63	76	116	
87	77C 6 5		64	49	114	
88	777 75		84	86	130	
89	776 6 7		71		104	
90	77 72		60	86	141	
91	7/7 705		51	8	112	
92	207 168		49	/2	178	

2/24/70

February 24, 1970

C. A. Noble

LIMITATION ON SIZE OF WOODEN CRATES FOR WASTE SHIPMENTS

We have a problem with three wooden crates containing Monarch lathes from Building 776. The crates will not fit into ATMX cars. Ed Ryan's measurements indicate dimensions as follows:

15' 7" x 5' 3" x 9' 4"
15' 9" x 5' 3" x 9' 4"
15' 3" x 5' 3" x 9' 4"

Since these crates contain gram quantities of plutonium we cannot ship them in trailers.

You will recall my letter on September 6, 1968 which placed a limitation of 14' 10" x 8' x 8' on crates for ATMX cars. This assumed use of three bays per car. Two of our cars are altered for taking wooden crates and for proper use of dunnage and cables, the dimensions should now be held to less than 14' 2" by 8' 4" wide by 8' 9" high.

On January 14, 1969, I amended the September 6 letter to allow dimensions up to 22' by 8' by 8'. This assumed placing crates in the cars altered for cargo crates which have two bays. While we can accommodate the larger size, we prefer, if at all possible, to stay with the smaller since some alterations may be necessary in using the 2-bay cars for wooden crates.

E. A. Putzier
Health Physics

EAP:ab

cc:
J.B. Owen
E.S. Ryan

Appendix FF

Measuring Plutonium on Equipment and Machine Tools Removed from the Fire Area

THE DOW CHEMICAL COMPANY

ROCKY FLATS DIVISION
P. O. BOX [illegible]
GOLDEN, COLORADO 80401

June 10, 1969

H. E. Bowman
L. F. Grill
A. R. Konecny
J. B. Owen
C. H. Partington
A. T. Schutten
E. J. Walko
J. F. Willging
E. R. Young

MEASURING PLUTONIUM ON EQUIPMENT AND MACHINE TOOLS REMOVED FROM THE FIRE AREA

Attached is a copy of a procedure for determining the Plutonium on equipment removed from the fire area that has been accepted by Albuquerque Operations Office (Reference attached acceptance letter).

This procedure must be followed to measure the Plutonium content on machine tools and equipment (includes construction materials) removed from the immediate fire area. If the material cannot be measured by the approved procedure, it must be broken or cut into pieces and drummed. Drums will be assigned a fire control number and transferred to Building 771 for a Plutonium determination in the gamma/neutron drum counter.

L. F. Grill and J. B. Owen have agreed to the use of gamma counting all materials (including construction materials) outside the immediate fire area to establish that no Plutonium is present. The fire area for this purpose is defined as follows:

> That portion of Buildings 776/777 bordered on the south by column line D, on the west by column line 3, on the north by column line L and on the east by column line 25.

Materials disposed of from outside the immediate fire area containing no Plutonium will be boxed. The boxes will be moved by area decontamination crews in accordance with the procedure established by B. A. Bowman dated June 6, 1969. In addition, the label on each box noting "0" Plutonium will be signed as approved by either responsible supervision of the decontamination crew or a member of the Safeguards Committee.

If there are any questions concerning the procedures for determining Plutonium content on machine tools, equipment and construction materials, please contact L. F. Grill or J. B. Owen.

L. D. Hazelton
Accountability Representative

LDH/LFG:jb
Enclosures

cc:
C. H. Dompierre

DETERMINING PLUTONIUM ON EQUIPMENT REMOVED FROM THE FIRE AREA

There will be a large quantity of equipment and machine tools too large for measurement by drum counter taken out of the fire area in Buildings 776/777. The procedure for measuring the Plutonium remaining on this type material after extensive cleaning is as follows:

1. R&D personnel will calculate the quantity of Plutonium remaining on the equipment by the following techniques:
   a. Using Kem Wipes saturated with KW solution smear one or more square feet of the surface. (Number of square feet in sample determined by size of equipment.)
   b. Using Kem Wipes saturated with a OSPHO solution, smear the same square feet area wiped with the KW solution.
   c. Combine the Kem Wipes from both smears and send to the laboratory for a total Plutonium analysis.
   d. Calculate the total Plutonium remaining on the equipment by multiplying the total Plutonium content per square foot determined by laboratory analysis times the total number of square feet of surface.
2. Prepare a record listing type of equipment, number of square feet, Plutonium per square foot and total Plutonium. Send this record to the Manager of Chemical Operations (L. F. Grill) Building 771.
3. The Manager of Chemical Operations, the Accountability Representative (L. D. Hazelton) and a Senior Research Engineer (B. L. Kelchner) will review each item to determine whether additional cleaning would be economical. Their decision will be based upon past experience dealing with the following factors:
   a. Cost of further cleaning using actual direct labor costs (hourly wage plus variable burden).

b. Cost of cleaning materials.

c. Cost of recovering the Plutonium in cleaning residues.

d. Quantity of Plutonium expected to be removed by additional cleaning.

e. Estimated Plutonium recovery processing yield of 3.d quantity.

f. Value of Plutonium (current incremental value standard).

4. Those items on which further cleaning is determined uneconomical will be crated for disposal with the measured Plutonium content identified as the value to be reported as a Normal Operational Loss.

5. The listings of material discarded will be the source documents for entry of the Normal Operational Loss data into the Accountability control records.

Approved:

L. F. Grill, Manager
Chemical Operations

L. D. Hazelton
Accountability Representative

Appendix GG

Ventilation Filter Reports Available

Ventilation Filter Reports Available

Date	Report/Speech Title	Authors	ID Number Report/Speech
2/24/61	Evaluation of Filter Flammability and Filter Bank Fire Detection Systems	P. D. Erickson, J. A Geer and F. J. Linck	RFP-222 Speech
3/17/58	Absolute Air Filters Flammability and Fire Control Studies	P. D. Erickson and F. J. Linck	RFP-97 Speech
8/31/81	Volume Reduction of Used High Efficiency Particulate Air (HEPA) Filters	O. J. Butterdahl	RFP-3132 Speech
8/76	Exhaust Filtration on Gloveboxes used for Aqueous Processing of Plutonium	R. W. Woodard, K. J. Grossaint and T. L. McFetters	RFP-2495 Speech
10/20/76	Analysis of HEPA Filters from Six Stages of Filtration – 771 Building Plenum	K. J. Grossaint	MSL-76-684 Lab. Report
No date available	Disposal of HEPA Filters by Fluid Bed Incineration	D. L. Ziegler and A. J. Johnson	RFP-2769 Speech
7/25/78	Flander's Binder (for HEPA Filters)	R. S. Cichorz	PSL-78-482 Lab. Report
8/86	Characterization of Spent HEPA Filters from Rocky Flats Plant	P. M. Arnold and J. L. Blakeslee	PSD-86-056 Lab. Report
Unknown	IDC Description of Absolute Drybox (HEPA) Filters	Unknown	IDC 335 Description

Appendix HH

Extension of Useful Life of Exhaust Air Filters after Ammonium Nitrate Loading

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EXTENSION OF USEFUL LIFE OF EXHAUST AIR FILTERS AFTER AMMONIUM NITRATE LOADING. Report.

By
R. P. Craig
P. D. Erickson
J. A. Geer
F. J. Linck, Jr.

Descriptors
Air filters
Filters
Radioactive aerosols
Particles

October, 1956

Rocky Flats Plant
Dow Chemical Company
Denver, Colorado

~~Decontamination~~
Steam
Humidity

Technical Information Service Extension, Oak Ridge, Tenn.

Glass
Cellulose
Asbestos
Ammonium compounds
Nitrates

UNCLASSIFIED

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THE DOW CHEMICAL COMPANY

ROCKY FLATS PLANT

DENVER, COLORADO

U. S. ATOMIC ENERGY COMMISSION CONTRACT AT(29-1)-1106

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ABSTRACT:

CWS-6 type air filters, designed to filter radioactive particles from exhaust air streams, were found to plug rapidly with ammonium nitrate under conditions of operation. Humidification of the filter bank with steam has been found to remove the ammonium nitrate from the filter pores and reduce the pressure drop across the filter to near its original value. Microscopic observation showed dissolution of the ammonium nitrate and subsequent recrystallization along the filter fibers, leaving the filter pores open to air passage. Useful life of these filters has been extended by occasional humidification to more than four times the service life initially indicated. Glass filters have not been found amenable to rejuvenation in similar manner.

ACKNOWLEDGMENTS:

The urgency of finding a means of extending the useful life of filters in service prompted the cooperative efforts of numerous individuals in solving this problem. F. R. Niles and D. M. Bassler were responsible for direction of early stages of this work. J. A. McGlone also assisted in accumulating and recording data.

INTRODUCTION:

Exhaust air from an AEC facility passes through a bank of CWS-6 type filters (Cambridge Absolute and Mine Safety Appliances type E6) before release to the atmosphere. This type filter is made of cellulose and asbestos, 0.035 to 0.045 inches in thickness, folded around pleated separators to give approximately 64 square feet of filtering area per square foot of filter face area. The filter medium is water repellent to the extent that a single ply will support a column of water not less than 20 inches high without immediate penetration.

The filters remove small quantities of radioactive particles carried by the exhaust air stream. Under conditions of plant operation, the filters were found to plug more readily than expected, raising the pressure drop across the filter bank to the maximum tolerable value within a few months. Since considerable expense is involved in replacing the filters in such a bank, a means of extending the useful life of these filters for even a few weeks would result in a cost saving of several thousand dollars.

Chemical analysis showed the material plugging the filters to be mostly ammonium nitrate. Laboratory investigations then were undertaken in an effort to find some means of extending the useful life of the filters by prevention of

ammonium nitrate plugging or by removal of the plugging material from the filter pores. These investigations brought out the possibility of removing the ammonium nitrate from the pores, and thereby reducing the pressure drop across the filters to near its original value, by a simple humidification procedure.

On the strength of the success of initial laboratory tests, the entire bank of filters in service was humidified immediately, since the need for reduction of pressure drop across the bank was immediate. This treatment was eminently successful.

Results of the first humidification of the filter bank, as well as the earlier laboratory investigations, dictated construction of a test duct in which single air filters could be subjected to repeated humidification and other treatments as desired to test the long range effects of such treatment on pressure drop and filter life. A filter in the test duct could be loaded with ammonium nitrate in a few hours to the extent that it would be loaded after several months service in the exhaust filter bank. The test duct, therefore, allowed observation of effects of repeated loading and humidification treatments within a short time, and made possible the prediction of similar effects on the exhaust filter bank over a relatively long period of service.

Observations of the effects of repeated humidification of filters in service are not yet complete, and additional single filter tests are continuing. However, considering the tremendous savings involved in extending filter life by such simple means, it is felt this work should be reported at this time so others might possibly benefit immediately from this information.

It should be noted that the work herein reported is merely a production trouble-shooting type of investigation, and was not meant to be an exhaustive study of the field.

EXPERIMENTAL EQUIPMENT:

Preliminary Experiments:

Initial laboratory tests were made with a small filter chamber about four inches square, in which samples of filter media could be clamped into position and be studied under controlled filtering conditions. The pressure drop across the sample was measured as air from various fume or smoke-producing trains was passed through the sample at a controlled rate.

Single Filter Test Duct:

The duct used in testing single complete filters is shown in Figures 1 and 2. The duct is approximately two feet square in cross section, and exhausts directly into the building exhaust air plenum. Since air is pulled through the duct by the building exhaust fans, control of air flow could be achieved only through pneumatically operated dampers at the duct exit. Air flows ranged from 30 to 130 feet per minute, and were measured with an Alnor thermo-anemometer. Anemometer readings were recorded continuously on a Foxboro recorder. A Sola constant voltage transformer held instrument voltages constant.

Humidity of inlet air was determined with wet and dry bulb thermometers, the temperatures being recorded on a Brown Portable recorder. These instruments are visible in the photograph, Figure 1.

Figure 2 shows the position of a test filter in the duct. Gasketing prevented air passage around the filter. Pressure drops across the filter were measured with manometers.

The main purpose of the test duct was to allow loading of a filter in a few hours to the extent it would be loaded in service after several months usage. Loading with ammonium nitrate was accomplished by passing ammonia gas over a tray of nitric acid in the duct entrance. These loading rates were not absolutely constant nor reproducible. Pressure drops across the filter were used as a measure of the degree of loading.

RESULTS AND DISCUSSION:

Analysis of the material plugging the filters in the building exhaust filter bank had shown the material to be mostly ammonium nitrate. Microscopic examination of plugged filter paper from the exhaust bank showed the ammonium nitrate to be present as clusters of beads, each about two microns in diameter. The beads appeared to penetrate only about ten percent of the filter paper thickness.

Laboratory investigations, during which both plugged filter media from the exhaust bank and media plugged under controlled conditions in the laboratory apparatus were studied, showed that exposure to a humid atmosphere, after plugging by either method, caused droplets of solution to coalesce on the surface of the filter medium. Microscopic observation during

humidification of a test sample showed dissolution of the ammonium nitrate upon humidification, followed by coalescence of solution droplets and subsequent recrystallization of the ammonium nitrate. Rapid drying of the droplets left large crystals of ammonium nitrate adhering to the filter surface. Longer contact of the droplets with the filter medium seemed to allow localized wetting of filter fibers, causing the ammonium nitrate to crystallize along the fibers upon subsequent drying. In either case, the pressure drop upon passage of air through the filter medium after humidification and recrystallization was practically as low as the drop across unused medium.

These effects are shown in photomicrographs of figures 3 through 8, all of which were taken under 30X magnification, of CWS-6 type filter paper. Figure 3 shows a new filter paper before exposure to ammonium nitrate. Figure 4 shows the same type paper after ammonium nitrate loading. Figure 5 shows large droplets of solution formed upon humidification of the loaded filter paper. It can be seen here that most of the salt has been dissolved from the filter pores. It appears that condensing water, wetting the ammonium nitrate surface, deposits in a thin film until the ammonium nitrate dissolves. The solution does not immediately wet the paper and asbestos surface beneath, and surface tension then causes the liquid film to condense into droplets. A single

large droplet of solution is shown in Figure 6. The difference in appearance of Figure 5 and Figure 6 arises, of course, from a difference in location of focal plane; in Figure 5, the surface of the filter paper is shown in focus; in Figure 6, focus is upon the droplet itself.

Figure 7 shows a typical heavily loaded paper after humidification and partial drying. Some surface droplets remain as clear solution; others have clouded and are seen in varying stages of crystal formation. Figure 8 shows a completely dried sample after such treatment. Comparison of Figure 8 with Figures 3 and 4 indicates the extent to which the filter pores have actually been freed of plugging material by this treatment. Indeed, the pressure drop across paper such as shown in Figure 8 was found to be very little different from paper such as shown in Figure 3.

The effects shown in these figures were achieved merely by exposing the paper samples to a humid atmosphere. After using passage of damp air to reduce the pressure drop across a filter sample in the experimental laboratory apparatus, it was confirmed that subsequent passage of clean dried air did not cause the pressure drop to rise again.

Observation of the above effects suggested the possibility of reducing the pressure drop across the bank of filters in service by adding steam to the exhaust air before its passage

through the filters. Even a slight reduction in pressure drop would have brought it back to a tolerable level, and promised to extend the useful life of the filters perhaps by several weeks. Initial efforts, adding steam to an air duct leading into the exhaust air plenum, met with some success. The improvement, however, was limited and was restricted to particular sections of the filter bank. The next approach was to add steam directly into the filter plenum with all exhaust fans temporarily shut off, operating individual fans at low speed for short intervals to pull the steam into each section of the filter bank. In this treatment, steam was added through a single 80-pound steam line, directly into the exhaust plenum, at a rate of approximately two-thirds of a pound of steam per hour per square foot of filter face area. Steam was applied for an hour and 20 minutes, and then allowed to stand in the plenum, with fans off, for an additional 40 minutes. When normal operation was resumed, it was found that this treatment had reduced the pressure drop across the filter bank to the original value of new filters.

The practicality of reducing pressure drop by humidification is hinged upon the assumption that the filters are not damaged mechanically and filtration efficiency is not reduced appreciably by such treatment. Checks on a single filter in the test duct indicated no damage to the filter medium upon prolonged contact with much larger quantities of

steam than are used in a normal humidification treatment. A qualitative check with a dye smoke showed no evidence of passage of any dye particles through the dried filter after such treatment. A more quantitative efficiency check was obtained by measurements of air-borne radioactivity on both sides of the filter bank after several humidifications, as indicated below.

An indication of the number of times a filter which had been plugged with ammonium nitrate could be rejuvenated repeatedly was obtained from experiments in the test duct. Figure 11 shows the pressure drops observed during repeated loading and humidification of a CWS-6 type filter. Seven complete cycles of loading and humidification were achieved successfully, with little indication of reduced capacity of the filter for subsequent use. In evaluating the data of Figure 11, loading times cannot be correlated exactly with amounts of salt collected on the filter because the loading rate was not constant. However, loading times can be used as a rough comparative indication of the amounts of salt collected.

Marked decreases in pressure drop during loading cycles, as shown in Figure 11 during the fifth and sixth loading, were real and could be correlated directly in each case with rainy weather. The humidity of the air passing through the building and, therefore, that passing through the test duct

during the loading cycles was dependent upon atmospheric humidity. Rainfall outside the building, therefore, effected a certain degree of natural humidification of the filters, with corresponding pressure drop reductions. Intentional humidifications shown in Figure 11 were accomplished by steaming the filter for eight to ten minutes each time.

Figure 12 shows the service history of the filters in the exhaust bank after the initial humidification described above. Before the initial humidification it appeared necessary to replace these filters after only twenty-two weeks service. As seen in Figure 12, the initial treatment extended the useful life of the filters an additional thirty-four weeks. Subsequent humidification treatments have extended the life of these filters, at the time of this writing, to a total of eighty weeks. The degree of humidification achieved was not the same during each humidification treatment, for the amount of steam added and conditions prevailing were governed by convenience at the time treatment became necessary. Humidification treatments numbered 5 and 6 were completed in 25 minutes each using a total of one-half pound of steam per square foot of filter face area each time.

Again in Figure 12 as in Figure 11, effects of periods of rainy weather are evident as apparently spontaneous decreases in the pressure drop.

Also shown in Figure 12 is a record of the amount of radioactive material passing through the filter bank. The fact that the air count behind the filters maintained its extremely low value is good evidence that the filtration efficiency of the filters was not diminished by the humidification treatments. The radioactivity measurements indicated that a filtration efficiency in excess of 99% was maintained. The filter media also had suffered no apparent loss of mechanical strength.

An experiment has been conducted on the filter bank to see if a water spray would reduce the pressure drop as effectively as steam humidification. A fine spray from a garden nozzle was passed over the filters three times in rapid succession. This treatment did bring about a reduction in pressure drop of 0.3 inch of water. However, the front edges of the filter medium appeared mechanically damaged by the spray, and the pressure drop returned to its original value within a days time. These results indicated that only a small percentage of the area of the filter medium, perhaps just the front edges, had been affected by the spray treatment.

Although several filters with CWS-6 type filter media have been checked in the test duct, no difference in behavior of the filters upon humidification and reloading has been observed. Filters of this type tested were the Cambridge Absolute model A-1000 and MSA Type E-6. MSA filters made

with Bolivian asbestos were tested, as well as those made with African asbestos. (A different adhesive had been used with the Bolivian asbestos.)

Non-combustible filters made of glass fibers also have been tested briefly in the test duct. Interest in this type filter arose from concern over possibilities of fire in the present filter bank, particularly in view of the presence of an increasing load of ammonium nitrate on the filters. Experience at other installations gave dramatic proof of fire possibilities. Tests showed, however, that glass filters could not be rejuvenated effectively by humidification in the same manner as were the CWS-6 type filters. The Cambridge Absolute Non-combustible filter with metal frame, aluminum separators, and glass fiber filter medium, and the MSA Ultra Air Space filter with wooden frames and glass fiber filter medium were tested. The behavior of a Cambridge Non-combustible filter, shown in Figure 13, was rather typical of this type. The pressure drop could be reduced by humidification after the filter was plugged with ammonium nitrate. However, the subsequent rise in pressure drop on resumption of salt loading was so rapid that rejuvenation by such means for continued use was entirely impractical. Comparison of Figures 11 and 13 points out strikingly the difference in behavior of these types of filters.

For purposes of comparison with photomicrographs of the CWS-6 type filter medium, Figures 9 and 10, which are photomicrographs of type 1106B glass fiber medium from an MSA Ultra Air Space filter, are shown also at 30X magnification. This sample received treatment identical to that of the CWS-6 sample shown in Figures 3 through 8. Figure 9 shows new glass fiber medium at the top beside a sample which had been loaded with ammonium nitrate. The ammonium nitrate mat can be seen, although somewhat indistinctly, beneath the outermost loose glass fibers (bottom). Figure 10 shows the loaded sample after thorough humidification and subsequent drying. Apparently, wetting of the glass surface and/or capillary effects have not allowed extensive agglomeration of solution into droplets as occurred with the paper and asbestos filter media. The rapid replugging of humidified glass media, as shown in Figure 13, indicated that only a small fraction of the filter pore area had actually been freed of its ammonium nitrate content.

CONCLUSIONS:

Simple steam humidification can be used to extend the service life of CWS-6 type filters to a remarkable degree under conditions of ammonium nitrate loading. In areas of dry climate, or plants in which low humidity is maintained intentionally, such treatment could result in great monetary

savings by reduction of exhaust filter replacement costs.

Glass filters of types currently available are not amenable to rejuvenation by humidification under similar conditions.

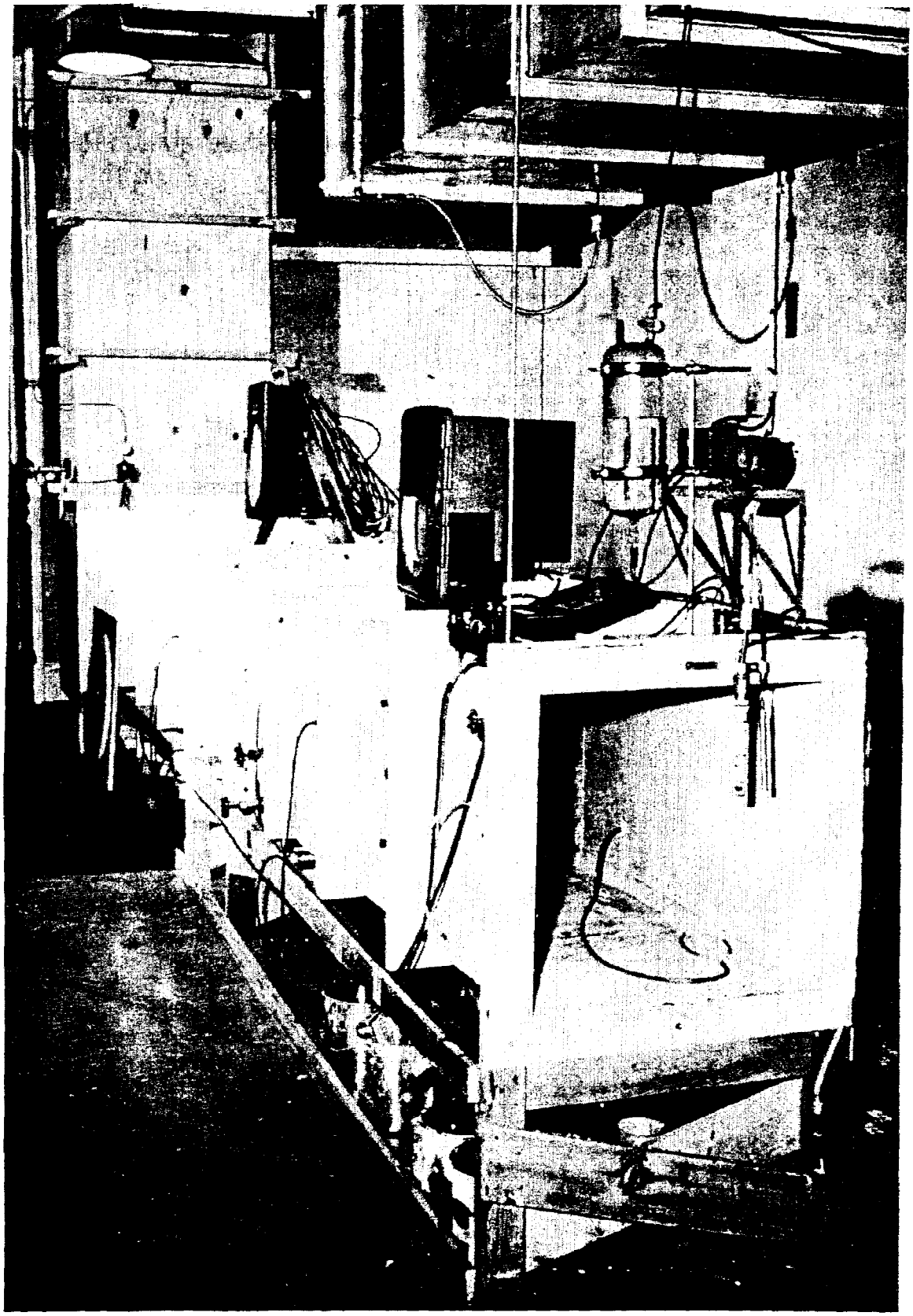


Figure 1
TEST DUCT

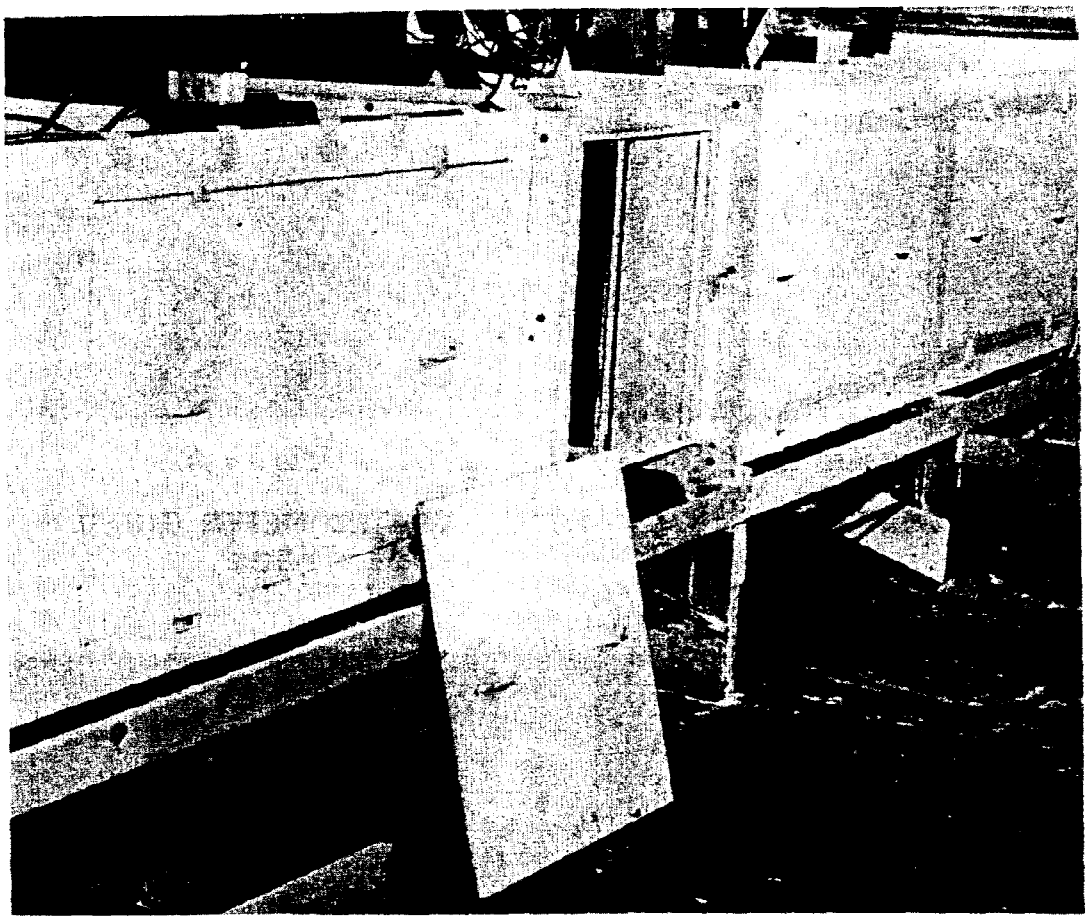


Figure 2
FILTER POSITION IN TEST DUCT

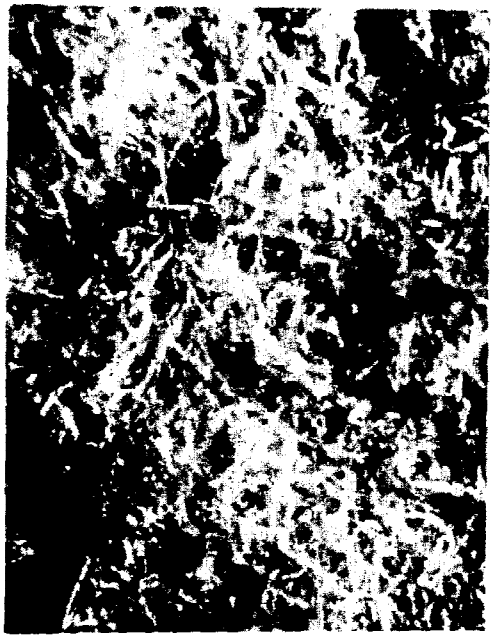


Figure 3

NEW FILTER PAPER
30X

Figure 4

COATED FILTER PAPER
30X

Figure 5
HUMIDIFIED FILTER PAPER
30X

Figure 6
HUMIDIFIED FILTER PAPER
30X

Figure 7
PARTIALLY DRIED
FILTER PAPER
30X

Figure 8
DRIED FILTER PAPER
30X

Figure 9
COATED (Lower) AND UNCOATED
(Upper) GLASS FILTER
30X

Figure 10
HUMIDIFIED AND DRIED
GLASS FILTER
30X

Figure 11

EFFECT OF REPEATED NH_4NO_3 LOADING AND STEAM HUMIDIFICATION ON COMBUSTIBLE FILTER

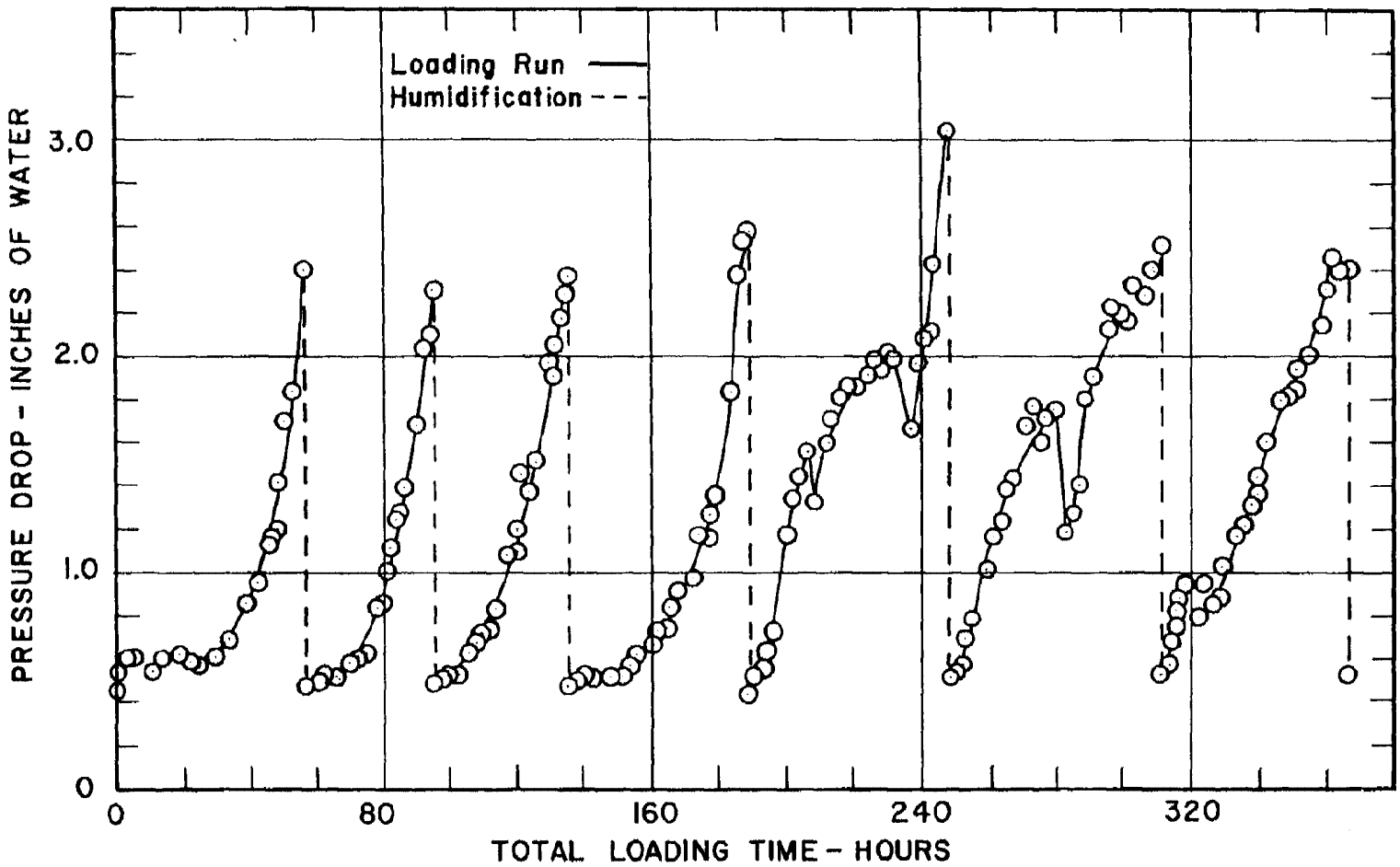


Figure 12

EFFECT OF REPEATED HUMIDIFICATIONS

ON FILTERS IN SERVICE

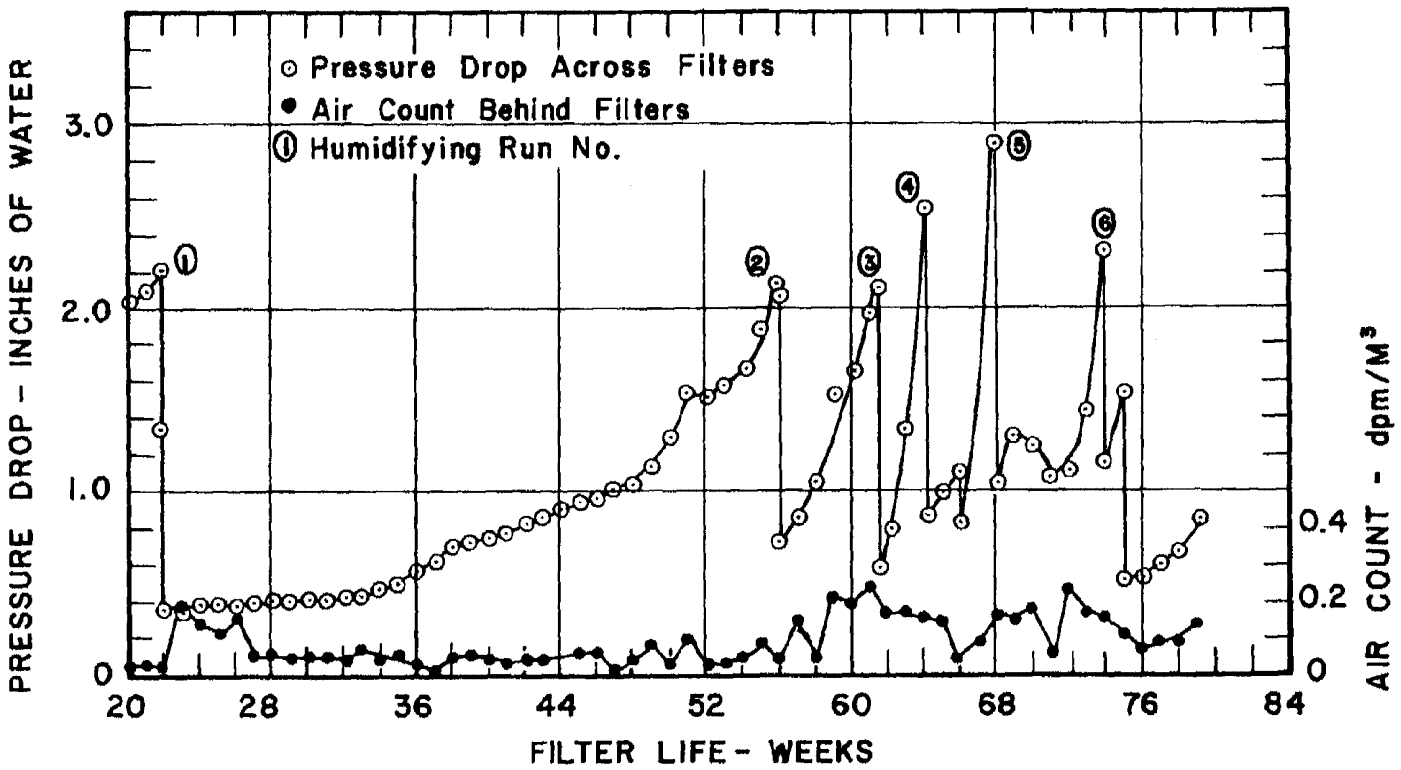
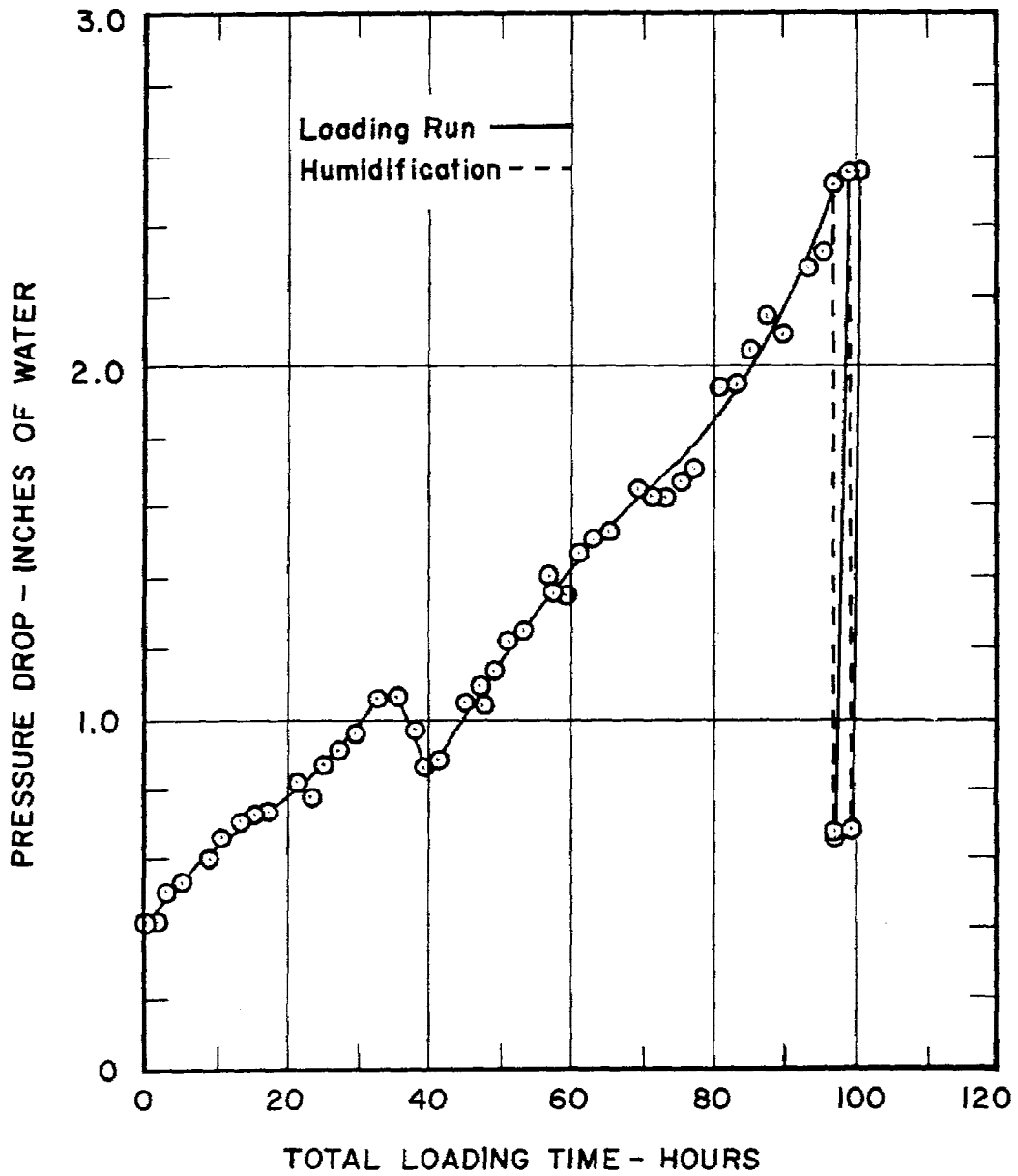


Figure 13

EFFECT OF REPEATED NH_4NO_3 LOADING

AND STEAM HUMIDIFICATION

ON CAMBRIDGE NON-COMBUSTIBLE FILTER