

OFFICE MEMORANDUM

TO : Dean Meyer, Group Leader, H-1

DATE: February 2, 1972

FROM : John Enders, Leader, CMR BLDG. Monitoring Section, H-1

SUBJECT: 1971 ANNUAL REPORT ON DISPOSAL OF SOLID RADIOACTIVE WASTE

SYMBOL : H-1-CMR

1335
Report

Data for the fourth quarter of 1971 is included in this report. Information for the report was furnished by The Zia Refuse Department, SP Department, ENG-4, ENG-5, and LA Notebooks #15953, #12442, #17338, #17337 and #17339.

The fact that some of the data is based on estimates should be kept in mind if any conclusions are to be drawn from the report.

Beta-Gamma Waste:

Eighteen disposal shafts were used during the year of disposal of this type of material. A request for additional shafts has been made and it is hoped they may be available next year.

Low Level Waste:

Five new disposal pits were completed during the last quarter of 1971. Additional perimeter fencing was installed at Area G that encloses the new pit area. These new pits are being used as follows: Pit #8 is receiving 55 gallon drums of sludge from TA-50, Pit #12 is used for storing drums and crates of ²³⁹Pu contaminated material that has estimated activity in excess of 10 nanocuries per gram. Pit #16 is used for uranium contaminated material, either crated or in 55 gallon drums. Pit #17 will be used for low level plutonium waste and Pit #21 will be used for uranium waste. Currently, Pit #6 is being used for receiving both types of low level waste while Pit #5 is being used to store ²³⁸Plutonium waste, D-38 chips, and turnings from the Shops Department and uranium contaminated graphite from Sigma.

It had been planned to stack the 55 gallon drums stored in Pit #8. As of the end of the year, 153 drums have been delivered to the pit, but the stacking has not started. Unless the drums are stacked soon, there will be a very real problem in delivering the drums to the pit.



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Volume and Cost Data:

The estimated volume and costs reported are based on the following conditions:

Packaged waste delivered by Dempster Dumpsters includes small and large plastic bags and cardboard boxes. Small plastic bags have a volume of 0.037 yd.³ and costs 8¢ each. Large plastic bags hold 0.46 yd.³ and costs 24¢ each. Cardboard boxes hold 0.087 yd.³ and cost 20¢ each. New 55 gallon drums cost \$8.60 each and hold 0.3 yd.³. Two inch masking tape useage is based on an estimate. The cost per roll is \$1.00. The estimation of volume of unpackaged scrap is based on the assumption of a truck bed volume of 12 yd.³ (4' x 8' x 10').

The Zia Janitor charge is based on a time study and includes wages and overhead. The Zia Labor and Riggers charges are estimates of the time needed, number of men used and a man/hour charge of \$12.25 for the Laborers and \$13.00 per man/hour for the Riggers.

Protective clothing charges are based on an estimate. Protective clothing is required to be worn by Zia personnel during delivery operations, and covering operations.

The charges for the H-1 vehicles and radios are based on information furnished by Supply and Property Department and ENG-5. The Health Physics Surveyor charge is based on an estimate of the time spent on waste disposal activities.

Road and Ruin excavation charges are a cost write off over a 20 year period. The balance remaining as of 12/31/71 amounts to \$3,393.

The charge for covering exposed trash is based on an estimate of two day's time required to do the job and \$15.00 per hour for heavy equipment and \$12.00 per man hour for operators as well as transportation costs.

Transportation charges for hauling Dempster Dumpsters are furnished by the Zia Refuse Department. The charge is based on a cost per mile times the total mileage.

The cost write off for fencing at Area G was increased for the fourth quarter of 1971. The increase was made in order to retire fencing costs sooner. The new balance, as of 12/31/71, of \$14,732, includes the cost of the additional fencing installed around the new pit area.

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Volume and Cost Data Cont.:

The cost of excavating the five new pits was estimated at \$24,000. A write off of 1/8 per quarter or 3,000 is being used as it is possible these pits may be filled within two years.

Compliance with AEC-IAD-0511-21:

More complete compliance with this Directive was achieved during the last quarter of 1971 with the use of Pits #8, #12, and #16. The material placed in these pits is considered to be retrievable.

The decision as to what material should be crated and/or packed into drums is based on estimates made by H-1 using monitoring data and information concerning the use of the equipment and other information to determine the activity/mass category.

It is of interest to note that whenever material must be crated, the disposal cost increases considerably. The current cost of a 4' x 4' x 8' plywood crate is about \$75.00 and if a mobile crane is used during off-loading this brings the cost up even higher.

Other procedures that were started in 1970 and continued during 1971 include:

1. Encasement of tritium contaminated material and disposal into a 6 ft. diameter shaft.
2. Segregation, where possible, of uranium and transuranium material in disposal shafts.
3. Use of a 6 ft. diameter shaft for contaminated oil disposal.
4. Storage of D-38 and ²³⁸Pu material in Pit #5.

The segregation of low-level waste into uranium and plutonium categories has not yet started. This will require additional Dempster Dumpsters for some Sites and very close supervision of the loading operations.

Low level waste is currently packaged into boxes and plastic bags. If there is a requirement to store this material, more durable packaging will be required. Also, currently, scrap material is not usually packaged, and it, too, would require durable containers if it is to be stored for up to twenty years.

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Packaging Materials:

	<u>1st qtr</u>	<u>2nd qtr</u>	<u>3rd qtr</u>	<u>4th qtr</u>	<u>TOTALS</u>
1. Small plastic bags	1,553	1,972	1,571	1,819	6,915
2. Large plastic bags	700	842	845	566	2,953
3. Boxes	4,891	5,458	5,891	7,282	23,522
4. 55 gal. drums	336	208	199	301	1,044
5. Rolls, masking tape	500	500	500	500	2,000
6. Plywood crates				25	25
	<u>1st qtr</u>	<u>2nd qtr</u>	<u>3rd qtr</u>	<u>4th qtr</u>	<u>TOTALS YD³</u>
1. ²³⁸ Pu scrap				30	30
2. ²³⁹ Pu scrap, Pit #12				75	75
3. U scrap, Pit #16				15	15
4. D-38 Drums	39	20	8	5	72
5. Small plastic bags	57	73	60	67	257
6. Large plastic bags	322	387	389	260	1,358
7. Boxes	425	475	513	634	2,047
8. Drums	101	62	60	46	269
9. Misc. scrap	600	644	400	564	2,208
TOTALS	1,544	1,661	1,430	1,696	6,331
	<u>1st qtr</u>	<u>2nd qtr</u>	<u>3rd qtr</u>	<u>4th qtr</u>	<u>TOTAL</u>
1. Small plastic bags	124	158	126	145	553
2. Large plastic bags	168	202	203	136	709
3. Boxes	978	1,092	1,178	1,456	4,704
4. 55 gal. drums	2,889	1,789	1,711	1,342	7,731
5. Tape	500	500	500	500	2,000
6. Zia Janitor	7,850	7,850	7,850	7,850	31,400
7. H-1 vehicles	240	240	240	240	960
8. H-1 radios	166	166	166	166	664
9. HPS	2,625	2,625	2,625	2,625	10,500
10. Protective Clothing	50	50	50	50	200
11. Rd. & Ruin Excav.	135	135	135	135	540
12. Zia Labor	2,688	1,000	864	1,764	6,316
13. Zia Riggers	350	800	320	624	2,094
14. Cover trash	3,024	450	1,500	750	5,724
15. Transport D. D.	3,100	3,469	3,761	2,273	12,603
16. New pit excav.				3,000	3,000

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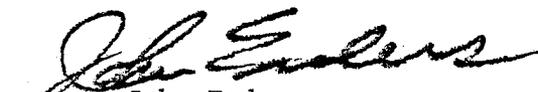
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Packaging Materials Cont.:

	<u>COSTS</u>	<u>1st qtr</u>	<u>2nd qtr</u>	<u>3rd qtr</u>	<u>4th qtr</u>	<u>TOTAL</u>
17. Fencing		218	218	218	1,218	1,872
18. Plywood crates					1,875	1,875
19. Excav. Pit #6		2,164	2,164	2,162		6,490
20. Ready Mix Cement			250			250
21. Asphalt		200				200
TOTALS		\$27,469	\$23,158	\$23,609	\$26,149	\$100,385
Cost per yd. ³		\$ 18	\$ 14	\$ 17	\$ 15	

Comparison of waste volume and costs by year:

<u>YEAR</u>	<u>VOLUME (YD.³)</u>	<u>ANNUAL COST</u>	<u>COST/YD.³</u>
1956	2,537	\$ 71,745	\$28
1957	3,164	75,548	24
1958	3,459	61,800	18
1959	4,838	61,801	13
1960	5,777	74,794	13
1961	7,170	94,110	13
1962	7,144	102,242	14
1963	7,872	117,974	15
1964	10,132	110,926	11
1965	6,483	99,028	15
1966	8,305	106,621	13
1967	8,951	115,409	13
1968	8,234	95,401	12
1969	6,915	93,766	14
1970	8,434	112,669	13
1971	6,331	100,385	16


John Enders

JE/skv

xc: File
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