

OFFICE MEMORANDUM

TO : ^{HGM} Dean Meyer, Group Leader, H-1

DATE: 1/27/66

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FROM : John Enders, H-1

SUBJECT: 1965 ANNUAL REPORT ON DISPOSAL OF SOLID RADIOACTIVE WASTE

SYMBOL :

1325 Report
Solid radioactive waste disposal activities for the fourth quarter of 1965 are incorporated in this report. Data for the report has been furnished by Eng-4; The Zia Parks and Refuse Dept.; SP-3; The Zia Tech Janitorial Dept.; and LA Notebooks #6905, 1065 and 12142.

As some of the data present is based on estimates, this should be kept in mind if any conclusions are to be made from this report.

BETA-GAMMA WASTE DISPOSAL : (AREA C)

Low level waste (less than 5R/Hr. at contact with the containing package) is placed in Dempster Dumpsters and unloaded at the Disposal Site at segregated locations as required. High level waste is put into shielded containers and transported to Area C where it is put into disposal wells. Seven 36" diameter wells and four 12" diameter, cement lined wells were filled this year.

After the wells are filled a cement plug is placed on top of the material. The depth of the cement plug is usually about three feet and it is rounded off on top so as to promote water drainage away from the well.

In August, 605 grams of U²³³ solid residues were picked up from ADPSF, DP West, and taken to Area C where they were placed in 12" diameter cement lined wells. A Standard Operating Procedure was written to use on this operation and disposal was made without incident or significant exposure to the personnel involved.



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As Area C is to be closed out when the remaining disposal wells are filled, ten new wells were dug in Area G this year. The transfer of disposal activities to one disposal area should simplify the personnel requirements in supervision of disposal activities.

As of the end of 1965, there were five 12" cement lined wells and one 36" diameter well left in Area C.

A cost write-off for Area C is reported by quarter as follows:

| | <u>1st.Qtr.</u> | <u>2nd.Qtr.</u> | <u>3rd.Qtr.</u> | <u>4th.Qtr.</u> | <u>1965 Total</u> |
|------------|-----------------|-----------------|-----------------|-----------------|-------------------|
| 1. Fencing | \$97 | \$97 | \$97 | \$906 | \$397 |
| 2. Labor | | | 50 | | 50 |
| 3. Cement | | | 100 | | <u>100</u> |
| | | | | | \$547 |

The cost of the fencing around this Area is now completely written off.

AREA C:(Mesita del Buey)

Two classified shipments, from Bendix Aviation Corp., Kansas City, Mo. were delivered in January and August. The material was off-loaded in pit #3 and buried. These disposal operations were completed without incident and it may be observed that no detectable contamination was found in the commercial vans used to transport the material. This indicates that there has been a marked improvement on the part of the shipper in packaging the material properly.

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1326
Report

As of the end of 1965, pit #3 was receiving material in the 8th. layer. There will be space for only a partial layer along the west side of the pit when the 8th. layer is completed. Pit #4 has received considerable non-routine material during the year and will begin to be used for routine material when pit #3 is filled.

Preliminary plans have been made for digging pit #5 alongside of pit #4. This will probably be the last pit that can be placed in this area.

The old D-7 Dozer, used for covering trash for at least 20 years, has finally been retired. It was thoroughly monitored and, because the cost of complete decontamination would have exceeded its salvage value, it was placed in pit #4 and will be buried later on.

A trailer, formerly located at Point Weather in old Bayo Site, has been located inside the fence at Area G. Protective clothing and other equipment which might be needed in event of an emergency at this area has been placed in the trailer. A motor-generator, on loan from H-8, is located beside the trailer which can provide electric power for heat and lights.

A request to provide a relief station at Area G has been tabled indefinitely because of the high cost involved.

Waste material packaging has been studied this year by Eng-4 and a large, plastic lined paper bag, supported by framework and covered with a metal lid has been evaluated at several Sites. The container can be

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used in areas where there is adequate space and because of this there are very few locations at the CMR Bld. where it can be used.

Early this year, new metal cans were placed in wing two of the CMR Bld. to hold radioactive waste. These cans are painted yellow and have the radiation symbol painted on the can. On the lid is the wording "for radioactive waste". As the lids to these cans open more widely it is much easier to fill and empty. The cans are now a stock item at SM-30. It is hoped that these cans may be used to replace the red metal ones now in wide use so that the yellow painted ones will be used for holding radioactive material.

EXPLANATION OF DATA:

The derivation of the data presented in this report is as follows:

1. Small plastic bags now cost 5¢ each and hold about 0.037 yd.³.
2. Large plastic bags are now priced at 20¢ each and hold 0.46yd.³.
3. Cardboard boxes cost 19¢ each and hold 0.87yd.³.
4. 55 gallon drums cost \$8.60 each and the volume is 0.3yd.³.
5. Two inch masking tape now costs 72¢ per roll, but for this report the old price of 64¢ will be used as the price increased late in the year. The estimated usage of 400 rolls per quarter is based on the amount to seal a cardboard box.
6. The Zia Janitor charge is based on a time study made of the amount of time required to package radioactive waste.

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A recent survey of the Janitor charge indicated that for 1965 this charge could be reduced about \$1400 per quarter. Accordingly, the new figure was used for 1965.

7. The charges made for the D-7 Dozer are based on information furnished by Eng-4 and The Zia Company.
8. Two H-1 vehicles are used for waste disposal activities(#5607 and #7747). Information as to the charges was furnished by the Zia Co.
9. The rental cost for the radio, used in #5607, was furnished by the AEC Communications Section.
10. The protective clothing charge is based on an estimate.
11. The charges reported for covering exposed trash at the disposal area are for wages and heavy equipment charges. The information is furnished by Eng-4.
12. The fencing around Area G is being written off at the rate of 1/10th of the original cost per year. The balance as of 12/31/65=\$1,308.
13. The Road and Ruin excavation charge is based on a cost retirement rate of 1/20 of the original cost per year. The charge includes the cost of construction of about two miles or road and excavation of Indian ruins in Area G. The balance remaining as of 12/31/65 equals \$6,543.00.
14. The cost write-off for pit #3 was completed during the first quarter of this year. The rate of write-off was based on a two year life for the pit.

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15. A cost write-off for pit #4 was started during the third quarter of this year based on a two year life for the pit. The balance remaining as of 12/31/65 amounted to \$11,250.
16. The charge for the Health Physics Surveyor is based on an estimated 6 man-hours per day spent on disposal activities and wages and overhead.
17. The Zia Rigger's charges are based on estimates of time needed to do the job and/or \$40 per hour per man.
18. The Zia Labor's charges are also based on estimates of time required to do the work and/or \$4 per hour per man.
19. The cost of transporting Dempster Dumpsters is furnished each quarter by the Zia Parks and Refuse Dept. and is based on an overall cost per mile figure times the total mileage for each quarter.

PACKAGING MATERIALS: (Quantities used)

| | <u>1st.Qtr.</u> | <u>2nd.Qtr.</u> | <u>3rd.Qtr.</u> | <u>4thQtr.</u> | <u>1965 Total</u> |
|--------------------|-----------------|-----------------|-----------------|----------------|-------------------|
| 1. Boxes | 5,156 | 5,742 | 5,949 | 5,446 | 22,303 |
| 2. Sm.Pl.Bags | 1,531 | 1,642 | 1,841 | 1,650 | 6,667 |
| 3. Lb.Pl.Bags | 496 | 607 | 779 | 700 | 2,582 |
| 4. 55 Gal. Drums | 532 | 718 | 690 | 604 | 2,744 |
| 5. 2" Tape(#rolls) | 400 | 400 | 400 | 400 | 1,600 |

1965 Waste Volume(Yd.³)

| | | | | | |
|---------------|-----|-----|-----|-----|-------|
| 1. Boxes | 449 | 500 | 518 | 474 | 1,941 |
| 2. Drums | 160 | 215 | 207 | 181 | 763 |
| 3. Sm.Pl.Bags | 57 | 61 | 68 | 61 | 247 |

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Waste Volume, Yd.³(continued from page 6)

| | <u>1st.Qtr.</u> | <u>2nd.Qtr.</u> | <u>3rd.Qtr.</u> | <u>4th.Qtr.</u> | <u>1965 Total</u> |
|---------------------------------------|-----------------|-----------------|-----------------|-----------------|-------------------|
| 4. Lg.Pl.Bags | 228 | 279 | 358 | 322 | 1,187 |
| 5. Scrap Material | <u>400</u> | <u>945</u> | <u>500</u> | <u>500</u> | <u>2,345</u> |
| Totals: | 1,249 | 2,000 | 1,651 | 1,538 | 6,483 |
| Cost per quarter: (per cubic yard) | \$17 | \$11 | \$16 | \$17 | 1965=\$15 |
| <u>Disposal Costs:</u> | | | | | |
| 1. Sm.Pl. Bags | \$ 138 | \$ 132 | \$ 147 | \$ 132 | \$ 549 |
| 2. Lg.Pl. Bags | 45 | 121 | 156 | 140 | 462 |
| 3. Boxes | 979 | 1,091 | 1,130 | 1,025 | 4,225 |
| 4. Drums | 4,390 | 6,536 | 5,934 | 5,294 | 22,154 |
| 5. 2" Tape | 256 | 256 | 256 | 256 | 1,024 |
| 6. Zia Janitors | 7,850 | 7,850 | 7,850 | 7,850 | 31,400 |
| 7. D-7 Dozer | 450 | 450 | 450 | 450 | 1,800 |
| 8. H-1 Vehicles | 240 | 240 | 240 | 240 | 960 |
| 9. H-1 Radio | 51 | 51 | 51 | 51 | 204 |
| 10. Clothing | 50 | 50 | 50 | 50 | 200 |
| 11. Cover trash | 400 | | 956 | 1,825 | 3,181 |
| 12. Fencing | 151 | 151 | 151 | 151 | 604 |
| 13. Rd.&Ruin Excav. | 135 | 135 | 135 | 135 | 540 |
| 14. Excav.Pit#3 | 1,935 | | | | 1,935 |
| 15. Excav.Pit#4 | | | 1,875 | 1,875 | 3,750 |
| 16. H.P.Surveyor | 2,625 | 2,625 | 2,625 | 2,625 | 10,500 |

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Disposal Costs(continued from page 7)

| | <u>1st.Qtr.</u> | <u>2nd.Qtr.</u> | <u>3rd.Qtr.</u> | <u>4thQtr.</u> | <u>1965 Total</u> |
|-------------------------|-----------------|-----------------|-----------------|----------------|-------------------|
| 17. Zia Riggers | \$ | \$ 960 | \$ 480 | \$2,080 | \$ 3,520 |
| 18. Zia Laborers | 368 | 1,472 | 896 | 1,152 | 3,888 |
| 19. Transport Dumpsters | 1,979 | 1,746 | 2,305 | 2,102 | 8,132 |
| Totals: | \$22,042 | \$23,866 | \$25,687 | \$27,433 | \$99,028 |

Comparison of volume and costs by year:

| <u>Year</u> | <u>Volume-Yd.³</u> | <u>Total Cost</u> | <u>Cost/Yd.⁴</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 |

cc: File