ALMD55043200369

7/14/55

55-4-32
2

4 5a

BULK MEASUREMENTS
CONSOLIDATED DATA AND SHIPPING DOCUMENT

Document No 1.

Date: April 12, 1955
Submitted by: G. A. Essig

1. Shipping container No. 1 Containing 252 Size 2" Cans containing Grade B Material from Batch Numbers C-22, C-23, C-24 and Marked Number (see attched lists).

2. All Cans are cured according to the specifications.

3. All Cans conform to dimensional specifications.

4. Chemical and Isotopic Analysis of the salt used in the above listed items.

a. Oak Ridge Raw Salt Analysis:

(1) $\frac{\text{grams of Lithium}}{\text{grams of salt}}$ = 0.7642

(2) $\frac{\text{grams of Deuterium}}{\text{grams of salt}}$ = 0.2177

(3) $\frac{\text{grams of OH}}{\text{grams of salt}}$ = 0.0069

(4) $\frac{\text{grams of } CO_3^{=}}{\text{grams of salt}}$ = 0.0038

(5) Alkali Metals:

Sodium	=	< 40	p.p.m.
Potassium	=	2000	p.p.m.
Calcium	=	920	p.p.m.

(6) $\frac{\text{Deuterium}}{\text{Hydrogen}}$ = -

b. Mound Laboratory Analysis of Same Material (Average Values):

(1) $\frac{\text{grams of Lithium}}{\text{grams of salt}}$ = 0.7645

(2) $\frac{\text{grams of Deuterium}}{\text{grams of salt}}$ = 0.2161

(3) $\frac{\text{grams of OH}}{\text{grams of salt}}$ = 0.00447 (Karl Fischer Method)

(4) $\frac{\text{grams of } CO_3^{=}}{\text{grams of salt}}$ = 0.00623

(5) Alkali Metals

Sodium	=	None	p.p.m.
Potassium	=	None	p.p.m.
Calcium	=	None	p.p.m.

(6) $\frac{\text{Deuterium}}{\text{Hydrogen}}$ = $\frac{98.61}{1.39}$

MOUND DECLASSIFICATION REVIEW
1ST REVIEW DATE 3/3/98
AUTHORITY ☐ADC ☒ADC ☐ADD
NAME T.M. Lindsay
2ND REVIEW DATE 3/3/98
AUTHORITY ADD
NAME W. Ratay
DETERMINATION (CIRCLE NUMBER(S))
1. CLASSIFICATION RETAINED
2. CLASSIFICATION CHANGED TO
3. CONTAINS NO DOE CLASSIFIED INFO
4. COORDINATE WITH:
5. CLASSIFICATION CANCELLED
6. CLASSIFIED INFO BRACKETED
7. OTHER (SPECIFY)

Released through the
MOUND LSDR PROJECT
(funded through DOE's OPENNESS INITIATIVE)
Record Copy held at Mound Facility

c. Mound Laboratory Analysis of Pressed Cans (Average Values):

(1) $\frac{\text{Grams of Lithium}}{\text{grams of salt}}$ = 0.7544 (rechecking this value)

(2) $\frac{\text{grams of Deuterium}}{\text{grams of salt}}$ = 0.2127

(3) $\frac{\text{grams of OH}}{\text{grams of salt}}$ = See LiOH Content

(4) $\frac{\text{grams of } CO_3^{=}}{\text{grams of salt}}$ = 0.00763

(5) Alkali Metals

Sodium	=	None	p.p.m.
Potassium	=	None	p.p.m.
Calcium	=	None	p.p.m.

(6) $\frac{\text{Deuterium}}{\text{Hydrogen}}$ = $\frac{98.91}{1.09}$ (This higher value indicates curing action)

d. LiOH content of canned blocks curing batch:

No. C-22 ~ 685 p.p.m.
No. C-23 ~ 634 p.p.m.
No. C-24 ~ 550 p.p.m.
(by Livermore analytical method)

e. Degradation of material resulting from handling and processing based on deuterium analysis 1.5%

5. The density of all fabricated procured units is equal or greater than 93% of theoretical density (accounting for detectable impurities), and is no greater than ± 1% of the arithmetical mean.

GAE:vrg

Distribution:
Copy 1 - O. Meadors - University of California
Radiation Laboratory
Livermore, California (1 inc.)
2 - E. A. Walker
3 - E. C. McCarthy
4 - G. A. Essig (1 inc.)
5 - Central Files

LITHIUM

SHIPMENT NUMBER 1

BATCH C-22

Canning Number	Gross Weight	Net Salt Weight
1001	30.1757	24.8427
1026	30.1548	24.7407
1037	30.3319	24.8626
1080	30.2659	24.9290
1097	30.5257	24.8678
1099	30.0735	24.8403
1102	30.6728	24.8534
1123	30.7211	24.8877
1135	30.2567	24.9119
1136	30.8801	24.8334
1138	30.4463	24.9192
1139	30.3129	24.8505
1140	30.4358	24.8498
1141	30.5758	24.9718
1142	30.4154	24.8984
1143	30.4363	24.8816
1144	30.4061	24.8135
1145	30.4975	24.8613
1146	30.3116	24.8005
1147	30.4015	24.8594
1149	30.4038	24.8437
1170	30.5846	24.8547
1220	30.3407	24.8232
1231	30.2685	24.8529
1237	30.2813	24.8913
1245	30.2384	24.8582
1247	30.2984	24.8880
1250	30.5573	24.9220
1252	30.4714	24.8437
1253	30.8346	24.7811
1257	30.5972	24.8128
1258	30.7273	24.8625
1259	30.6261	24.9170
1262	30.7885	24.8555
1264	30.5052	24.8384
1266	30.5631	24.8219
1268	30.6254	24.8480
1269	30.3635	24.8512
1270	30.6388	24.8207
1276	30.3388	24.9265
1278	30.9471	24.8090
1281	30.9578	24.8554
1283	30.6000	24.7939
1286	30.4035	24.7856
1288	30.6437	24.8787

LITHIUM SHIPMENT NUMBER 1 Batch C-22 Continued

Canning Number		Gross Weight	Net Salt Weight
1289		30.1013	24.7318
1291		30.2843	24.8809
1292		30.6632	24.8281
1294		30.5340	24.8569
1295		30.2449	24.8302
1296		30.6000	24.8511
1297		30.4112	24.8126
1300		30.3520	24.8507
1302		30.4333	24.8550
1303		30.7798	24.8560
1304		30.5120	24.9016
1306		30.3328	24.8193
1309		30.4431	24.8818
1310		30.6291	24.8795
1311	(Sample)	30.3186	24.8150
1312		30.5250	24.8450
1313		30.2456	24.8322
1314		30.3182	24.8215
1319		30.5410	24.8307
1323		30.1141	24.8375
1327		30.7782	24.8706
1330	(Sample)	30.7577	24.8269
1331		30.5068	24.7682
1349		30.5899	24.8503
Total		2102.9185	1714.6448

LITHIUM

SHIPMENT NUMBER 1

BATCH C-23

Canning Number	Gross Weight	Net Salt Weight
1100	31.0770	24.8857
1101	30.5400	24.8958
1103	30.4872	24.8751
1104	30.4586	24.8709
1106	30.6240	24.8852
1108	30.6050	24.8519
1110	30.3742	24.8541
1111	30.7932	24.8719
1113	30.8260	24.8623
1114	30.5456	24.8423
1115	30.7035	24.8910
1116	30.8670	24.8903
1117	30.6745	24.8657
1119	30.7790	24.8500
1120	30.4935	24.8774
1121	30.5102	24.8664
1122	30.6115	24.8266
1126	30.8620	24.8628
1128	30.3230	24.8574
1130	30.7115	24.8468
1131	30.5300	24.9267
1322	30.5300	24.7891
1328	30.3477	24.8863
1332	30.8338	24.9140
1333	30.5688	24.8602
1334	30.5869	24.7986
1335	30.8838	24.8601
1336	30.8637	24.8412
1337	30.7220	24.8237
1338	30.7182	24.8092
1341	30.4905	24.8074
1345	30.8640	24.8385
1347	30.1370	24.7906
1353	30.5342	24.8360
1356	30.6128	24.8934
1357	30.7936	24.8887
1358	30.8766	24.8337
1360	30.5275	24.8091
1362	30.4128	24.7518
1363	30.4850	24.8209
1364	30.6418	24.8844
1365	30.7545	24.8192
1367	30.6203	24.8614
1368	30.5187	24.8548

Canning Number		Gross Weight	Net Salt Weight
1369		30.6262	24.8643
1370		30.4108	24.8274
1371		30.8418	24.8614
1373		30.6223	24.8164
1375		30.2363	24.8885
1376		30.7180	24.8984
1377	(Sample)	30.6357	24.8539
1379		30.5037	24.8189
1380	(Sample)	30.5290	24.8500
1381		30.3256	24.8039
1383		31.0221	24.8155
1384		30.6365	24.8310
1386		30.6732	24.8486
1387		30.4855	24.8091
1388		30.9804	24.9467
1389		32.3510	24.8327
1390		30.9583	24.8265
1391		30.4360	24.8311
1392		30.8607	24.7637
1393		30.8307	24.8130
1394		30.6554	24.8419
1397		31.1590	24.8799
1398		30.8010	24.8586
1399		30.8580	24.8430
1402		30.9290	24.8962
1403		32.4400	24.8848
1404		30.8280	24.9153
1408		31.1032	24.8509
1411		30.8652	24.7450
1412		30.7840	24.8394
1416		30.7152	24.7754
1422		30.6100	24.8676
1424		30.6950	24.8523
1432		30.4581	24.8984
1435		30.8172	24.9038
1477		30.7190	24.8209
2001		30.8752	24.8572
2011		30.6010	24.7828
2015		30.6202	24.8153
2023		30.6280	24.8311
2034		30.5943	24.8481
2039		30.7132	24.8643
2044		30.6555	24.8610
2055		30.9669	24.8776

LIMKEN SHIPMENT NUMBER 1 Batch C-23 Continued

Canning Number	Gross Weight	Net Salt Weight
2056	30.6425	24.8184
2058	30.7820	24.9035
2061	30.7128	24.8910
Total	2794.5928	2261.2913

LITHIUM

SHIPMENT NUMBER 1

BATCH C-24

Canning Number	Gross Weight	Net Salt Weight
1405	30.9724	24.8843
1419	30.6695	24.7863
1429	30.5272	24.8365
1436	30.7080	24.8790
1438	30.9514	24.8576
1454	30.9262	24.8396
1456	30.6560	24.8136
1462	30.9535	24.7886
1464	30.4375	24.9120
1467	30.6481	24.8576
1469	31.0032	24.8702
1470	30.5567	24.8463
1471	30.8953	24.8711
1475	30.8818	24.8682
1479	30.7609	24.8550
1485	30.7451	24.8284
2000	30.8575	24.7961
2002	30.8005	24.8516
2003	30.8117	24.8871
2004	30.8454	24.8094
2005	30.7641	24.7813
2006	30.8659	24.7829
2008	30.8636	24.7989
2009	30.8643	24.7913
2010	31.0066	24.8555
2012	30.9443	24.7851
2013	30.4590	24.8065
2014	30.8344	24.7833
2016	30.7650	24.7904
2017	30.7900	24.9170
2018	30.8018	24.8548
2019	30.9226	24.8640
2020	30.4937	24.8750
2021	30.7677	24.8670
2022	30.6778	24.8830
2025	30.8148	24.9455
2026	30.4588	24.8290
2027	30.8248	24.7938
2028	30.7594	24.8145
2029	30.5534	24.8385
2030	30.8598	24.8739
2032	30.6959	24.8416
2033	30.5350	24.8867
2035	30.8465	24.8072
2036	30.6716	24.7269

LEMKUM SHIPMENT NUMBER 1 Batch C-24 Continued

Canning Number		Gross Weight	Net Salt Weight
2037		30.8424	24.8231
2038		30.7730	24.8595
2040		30.9110	24.8611
2041		30.8930	24.8059
2042		30.5392	24.7823
2043		30.4705	24.7243
2045		30.5897	24.7768
2047		30.3267	24.7371
2048		30.8792	24.7862
2049		30.7973	24.7806
2050		30.6204	24.7756
2051		30.9931	24.8348
2053		30.7451	24.8408
2054		30.6912	24.7894
2057		30.2658	24.7505
2059		30.7310	24.8108
2060		30.8238	24.7917
2062		30.7150	24.7908
2063		30.7886	24.8039
2064		30.7142	24.7566
2065		30.8369	24.7853
2066		30.6564	24.7703
2067		30.5377	24.8093
2069		30.7092	24.8872
2070		30.6084	24.8050
2071		30.8743	24.8988
2072		30.8505	24.9512
2074		30.6403	24.8411
2075	(Sample)	30.5609	24.8710
2077		30.7836	24.8735
2078		30.7784	24.8172
2079		30.7843	24.8564
2080		30.5814	24.9278
2081		30.6232	24.8840
2083		30.6767	24.8163
2084		30.5479	24.8172
2085		30.9302	24.8330
2086		30.6115	24.8280
2087		30.6548	24.8140
2088		30.4068	24.9015
2089		30.6137	24.8686
2093		30.5340	24.8963
2094		30.4733	24.8760

LITHIUM SHIPMENT NUMBER 1 Batch C-24 Continued

Canning Number		Gross Weight	Net Salt Weight
2095		30.7493	24.8815
2097	(Sample)	30.6645	24.8612
2098		30.4798	24.8682
2099		30.4799	24.9040
Total		2285.8068	2284.7578

Net Weight Totals

Batch C-22	-	1714.6448	grams
Batch C-23	-	2261.2913	"
Batch C-24	-	2284.7578	"
		6260.6939	

6260.6939 x 0.2127 = 1331.6496 grams D_2