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**ANALYSIS OF HISTORICAL ARTILLERY
EXPENDITURES
(AHART) STUDY - CY 87**

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**PREPARED BY
MAJOR FRANCIS L. DOUGHERTY**

**US ARMY CONCEPTS ANALYSIS AGENCY
8120 WOODMONT AVENUE
BETHESDA, MARYLAND 20814-2797**

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Prepared by

MAJOR FRANCIS L. DOUGHERTY

US Army Concepts Analysis Agency
8120 Woodmont Avenue
Bethesda, Maryland 20814-2797

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**AN ANALYSIS OF HISTORICAL
ARTILLERY EXPENDITURES
(AHART) STUDY - CY 87**

**STUDY
SUMMARY
CAA-TP-87-6**

THE REASONS FOR PERFORMING THE STUDY were:

(1) To conduct research into the availability of historical field artillery ammunition expenditure data and to assemble the available data into a data base.

(2) To determine if the historical data can be used for meaningful comparisons with a wartime requirements combat simulation process.

THE STUDY AUDIENCES are: analysts responsible for the conduct of wartime requirements combat simulations; decisionmakers who desire to use historical data and information in the process of determining requirements for artillery ammunition; and historians interested in deriving historical information through application of quantitative methods.

THE PRINCIPAL FINDINGS of the work are:

(1) There exists a great amount of available historical data on field artillery ammunition expenditures. The AHART data base, assembled through this study, is now available for use, wider dissemination, and enhancement.

(2) The assembled historical data provides very useful comparisons with the results of the wartime requirements combat simulation process, WARRAMP, and with other combat simulations as well.

THE MAIN ASSUMPTIONS were as follows:

(1) Historical data found in primary sources were accepted as reliable unless accompanying documentation strongly indicated otherwise. The difficulties of assembling such data under wartime conditions is acknowledged.

(2) Historical data in secondary sources not verifiable through primary sources were accepted as reliable if taken from a reasonably well-based source (i.e., government analytical agencies, military historical offices, relevant Department of the Army (DA) Staff activities).

(3) Historical information can be quantified and meaningfully subjected to quantitative analysis.

(4) Factors affecting historical artillery ammunition expenditures apply to current and future artillery ammunition expenditures.

THE PRINCIPAL LIMITATIONS which affect the findings are: the study will be limited to conventional, nondevelopmental field artillery munitions; the majority of data is limited to US data, with some British and French data for WWI; the study variables were limited to those for which historical data is available and those considered applicable to comparison with the specific combat simulation used in the study; and the study is limited to exploratory analysis of the data.

THE SCOPE OF THE STUDY

(1) The study is a pilot effort in assembling, from a multitude of fragments, a single source of data on field artillery ammunition expenditures.

(2) Using BMDP statistical software, an analysis of the data is performed. For each study variable, an evaluation is made of the applicability of the available data for comparison with combat simulation.

(3) A combat simulation process used for determination of wartime ammunition requirements is used as a vehicle for comparison with the historical data. Employing the defined study variables, numerous comparisons are made. Regression analysis is performed to determine the ability of the chosen variables to explain the variability of the historical rates and to determine the order of importance of the variables for continued research.

THE STUDY OBJECTIVES were:

(1) Assemble in data base format a set of historical data points for conventional field artillery expenditures.

(2) Define a set of variables with which to examine historical data and determine the availability of relevant data for each variable.

(3) Determine the capability of the study variables to explain historical rates.

(4) Compare historical rates with the results of the combat simulation process.

(5) Determine priorities for further research/analysis.

THE STUDY EFFORT was an in-house project at the US Army Concepts Analysis Agency. The study was performed as an individual research fellowship.

COMMENTS AND QUESTIONS may be directed to the Director, US Army Concepts Analysis Agency, ATTN: CSCA-RQ, 8120 Woodmont Avenue, Bethesda, Maryland 20814-2797.

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CHAPTER 1

INTRODUCTION

1-1. PROBLEM/BACKGROUND

a. Being able to deter war or win if war occurs is essential to the security of any nation. Readiness to do so requires continuous update of that nation's concept of deterrence and continuous update of the conditions under which combat will be assumed to take place. Requiring commensurate update are the calculations concerning resources in ammunition required to support deterrence or the decision to go to war.

b. A major component of the process of revision and update of these ammunition requirements is the computer combat simulation. Current combat simulations depict the nation's forces as complex, large-scale systems with clearly defined operational and organizational levels, each with varying degrees of detail, and each with varying forms of relationships to one another. The accuracy with which these systems and their relationships are understood and simulated is critical to accurate, meaningful revision and update of ammunition requirements.

c. Under the pressure of constrained fiscal resources for national defense, computer combat simulation has come under increasing scrutiny. This process, which once enjoyed relatively unchallenged credibility, at least among formerly computer-illiterate executives and intermediate action officers, is now challenged in various ways for its fidelity in describing the "actual situation." It is being recognized that as a system of analysis, the combat simulation process has no feedback mechanism; no means of identifying unreasonable results or making adjustments for variations in the conditions under which it can be assumed to operate properly. In an attempt to provide a feedback or control mechanism, means are being sought to "validate" or at least place the combat simulations in a meaningful, explainable context. Among the many possible means of doing so is comparison of the results of combat simulation with actual historical experience.

1-2. PURPOSE OF THE STUDY. It is the purpose of this study to determine if sufficient historical data for field artillery ammunition expenditures is available to warrant assembly into a data base. If such a data base can be assembled AHART seeks to determine if the data base is useful for comparisons with the results of theater-level wartime requirements studies. It is intended that the data base be made available to the analytic community for use in other areas of research and study.

1-3. SCOPE/LIMITATIONS/TIMEFRAME

a. Scope

(1) This study is a pilot effort in assembling from a multitude of small fragments a single source of data on field artillery ammunition expenditures. A data base is constructed around the types

of data available in historical documents. Data base fields are defined to accommodate the available data and then to facilitate comparison with combat simulations. Data analysis is performed on the data base. Then, using the results of the analysis, comparisons are made with a combat simulation process. Not by any means a validation effort, this study seeks only to place the results of a combat simulation in some reasonably defined historical context. The information derived from the study offers a measure of feedback with which analysts and decisionmakers can interpret the results of the combat simulation.

(2) Initially a more ambitious plan was envisioned, aimed at using historical data to forecast artillery expenditures. However, the amount of data available was greater than expected and required additional time and effort to assemble and properly understand. The iterative nature of statistical analysis became very evident. As more was learned about the data, more work in data analysis was called for. This report provides the results of the first iteration, that of collection and data analysis. It is expected that these results will inspire continued research into and use of this data.

b. Limitations

(1) In consideration of the limited time available for this study, this work is limited first to artillery indirect fire weapons and then to data for conventional ammunition requirements. Limiting the study to indirect fire systems immediately eliminates the many direct fire systems for which there is great, if not greater, interest relative to historical data. The limitation to conventional ammunition not only differentiates this data from nuclear and chemical munitions data but also from the many developmental improved conventional and "smart/terminally-guided" munitions.

(2) As an observational study, the work is limited to the availability of data and to the subset of data that is collected. In comparison with designed experiments, the analytical resources are likewise limited.

(3) The preponderance of the data currently in the data base is US data. This is a matter of immediate availability and prioritization of the data collection effort but should not be interpreted as a limitation of the ultimate availability of such data or even a permanent limitation on the AHART data base. Data for allied forces is available with some additional effort. Studies done in Germany, Japan, Israel, and England are available as time and effort permit.

(4) The choice of variables with which to analyze the data is limited to those which relate most directly to the computer simulation used for comparison, WARRAMP, and for which historical data seemed at the outset of the study to be available. The choice of variables should certainly be expanded in future efforts.

(5) Finally, the study is limited to exploratory analysis of the data base. Distributions of observations for each defined study

variable are examined for acceptability for use in comparison with the combat simulation. The ability of the study variables to account for variability in the data is examined providing insight into the additional data collection and subsequent analysis.

c. **Timeframe.** Because of the shift in employment of artillery from a direct to an indirect fire system following the American Civil War, this study limits the timeframe for which data was collected to the 20th century.

1-4. KEY ASSUMPTIONS/CRITICAL TERMS

a. Assumptions

(1) It is assumed that the data included in the data base is reliable. Every effort is made to include the best data available; however, the very conditions under which combat data is recorded and preserved makes completeness and accuracy in reporting extremely difficult. Determining the reliability of data is an art in itself, one true historians seek to develop with experience. Through the use of primary sources and the use of secondary sources whose authors shared the same need for reliable data, an effort is made to increase as much as possible the reliability of this data base.

(2) For the purpose of exploratory analysis, it is assumed that the distribution of each of the variables is normal. It is also assumed that the relationships among the variables are linear. These assumptions are tested during the regression analysis. Means of grouped data are examined for these assumptions and various nonlinear transformations of the data are tested.

b. Critical Terms

(1) Throughout the remainder of the study, the terms "rate" and "RTD" are key to proper understanding of the study. For the purposes of this study, the term "rate" applies to combat simulations. The term "RTD," short for rounds per tube per day applies only to historical data.

(2) A "rate" is the total number of rounds fired by artillery tubes from start to finish of a combat simulation, divided by the number of days that the simulation represents, divided again by the number of tubes placed in the input files of that simulation. This produces the number of rounds fired "on average" by a single tube. This rate is further classified as belonging to one of two possible subsets. They are either operational rates or theater rates. The difference between the two lies in the composition of the tubes used in the denominator of the calculation. If only tubes which were engaged/fired in the simulation are used in the calculation, an "operational rate" is being defined. If the entire number of tubes available to the theater force are included or in some way represented in the calculations, a "theater rate" is defined.

(3) The term RTD has a parallel definition to the term rate but is strictly used in this study to denote historical data for rounds per tube per day fired by a single tube in a single day during actual combat operations. Instead of the duration of the combat operations represented by the simulation, RTD is defined by the number of days for which the historian/logistician has aggregated the data. This is often, but not always, the duration of the battle or the length of the reporting period. Rather than the number of the tubes placed in input files, it is the total number of tubes for which the data was recorded. The distinction between operational and theater subsets remains completely intact. If the number of tubes in the denominator of the historical calculation approximates the total number of tubes in a theater of operations, it is a "theater RTD." If not, an "operational RTD" is defined.

1-5. APPROACH/METHODOLOGY

a. The study is conducted in the following sequence:

(1) Conduct a thorough literature search using Defense Technical Information Center (DTIC) and Defense Logistics Studies Information Exchange (DLSIE) data bases.

(2) Conduct interviews and request data from Department of Defense and US Army analytical, historical, scientific, and technical communities.

(3) Develop a computerized historical data base which uses commonly available microcomputers and is transferrable to mainframe computers.

(4) Develop a series of analytic routines on both micro and mainframe computers specifically for use in analysis of this data. Use commonly available statistical software packages as much as possible.

(5) Define specific variables to be used for analysis of the data base.

(6) Conduct exploratory analysis of the data base to gain insight into the defined variables and to determine the interrelationships of the variables. The exploratory analysis provides an evaluation of their order of importance in explaining the variability in the data. Exploratory analysis will include statistical description of the data, linear regression on each of the variables, multiple linear regression of the variables, and transformations of the data to determine nonlinear properties.

(7) Produce location parameters for the dependent variable, RTD, and plot them together with WARRAMP results. Make some initial comparisons of the historical data with WARRAMP rates.

(8) Present findings that result from the analysis. Include suggestions for the next steps in the process.

b. The Combat Simulation Process

(1) As a vehicle for comparison, the combat simulation process WARRAMP will be used. The acronym represents the words wartime requirements for ammunition, materiel, and petroleum. As its name indicates, WARRAMP is designed to determine requirements not only for ammunition but for major end items of combat equipment and the petroleum stocks necessary to sustain the force. Comparisons made in AHART will concentrate strictly on indirect fire ammunition requirements.

(2) WARRAMP is not a single combat simulation. WARRAMP describes a system of analysis employing two primary combat simulations, a calibration routine to match the two and a series of pre- and post-processing routines. Among the results of this process are expenditure rates for artillery ammunition which are provided to decisionmakers to support budget requests to Congress. A description of WARRAMP relevant to this study is provided in Appendix G.

1-6. ESSENTIAL ELEMENTS OF ANALYSIS (EEA) AND ANSWERS

a. Do available historical documents provide sufficient data, in usable form, for analytical research of theater-level artillery expenditures? As evidenced in the bibliography, numerous analytical efforts have been conducted employing limited amounts of historical data. Due to the great effort required to assemble such data, no comprehensive effort has yet been published. AHART demonstrates that with the necessary effort sufficient usable historical data is available for a comprehensive quantitative analysis of theater-level artillery expenditures. The AHART data base will not yet support acceptable measures of confidence for estimates of theater-level artillery expenditures in the 20th century, but this shortcoming can be resolved with additional time for data collection directed to specific deficiencies identified in the study. In its present form, the AHART data base provides a significant amount of information useful in analysis of combat simulation. Many of the results included in this report can be used immediately by analysts and decisionmakers to make better use of combat simulations.

b. Do the sample of observations for each study variable in the AHART data base support comparisons with artillery expenditure rates resulting from theater-level combat simulations? AHART identifies artillery expenditure rates as a dependent variable and identifies eight independent variables. Criteria for comparison of each study variable with theater-level combat simulations are defined. The AHART data base included data on five of the variables that provided clear comparisons with theater-level rates. Two variables would require only limited directed data collection. The data for the remaining variable was completely inadequate and would require extensive research to acquire. Evaluation of the acceptability of each is found in Chapter 2.

c. Do the relationships among the variables conform to the assumptions of linearity and normality? Residual analysis of the results of multiple linear regression indicates a major departure from the normality assumption for the relationship of the variables to expenditure rates. A square root transformation of the data resulted in a much more normal distribution and will better facilitate analysis requiring adherence to assumptions of normality. Residual analysis also indicated a departure from the assumption of linearity which was likewise overcome best by use of a square root transformation.

d. Do trends and other relationships derived from the historical data base confirm or contradict those found in the combat simulations? The directions of the linear trends for artillery expenditure rates over each of the independent variables were all as experienced in past requirements studies. The slopes were generally less than expected. Overall the rates for each artillery weapon were much lower than expected. The same is true for the artillery weapons grouped as light, medium, and heavy. It was found that among the variables commonly used for analysis of combat simulations none were truly independent of the others. Regression analysis revealed that none of the variables, whether singularly or among the others in multiple correlation analysis, were very highly correlated with expenditure rates. All were significantly correlated but none very highly. Much work remains to be done in examining the cause and effect relationships in the data. The information available from analysis of the AHART data base extends far beyond that which has been included in this report.

e. Do the variables chosen for the study explain the variability of the dependent variable sufficiently for use of this data in prediction or forecasting? At this point no combination of variables used in the study produce an acceptable explanation of the variability of the data - the coefficient of determination, for the best results achieved, is less than .3. Refinement of the variables as well as additional data will be necessary to produce better results. The AHART data base can provide verification for use of rates in modeling or forecasting.

CHAPTER 2

DEFINITION OF DATA FIELDS/DATA DESCRIPTION

2-1. **PURPOSE.** The purpose of this chapter is to familiarize the reader with the contents of the data base, to define the field names and the study variables, and to provide a statistical description of the data contained in each. Suggested ways in which the reader can most efficiently master the contents of the data base are presented at the end of the chapter.

2-2. DATA BASE FORMAT

a. To facilitate distribution of the AHART data base and data entry, the DBASEIII Plus software was employed to build and store the data base. Records in the AHART data base are arranged (indexed) first by tube type, then chronologically within like tube types.

b. Documentation for use in accessing the AHART data base on DBASEIII is included in Appendix E.

c. The fields in the data base were chosen for their usefulness in recording data found in source material of varied formats. They are very much dictated by the form of the data available.

d. The variables were chosen for their applicability to the WARRAMP process and for their usefulness in comparing the historical data with the combat simulation methodology. They are by no means the only variables that can be defined for use in analysis of this data. An understanding of these variables and their limitations undoubtedly leads to defining other useful variables for which additional research into historical sources could prove fruitful.

e. The order of presentation of these fields and variables in this chapter is the order in which they appear in the data base in Appendix F. The definitions of selected variables are followed by a histogram of observations of that variable. For those variables which are grouped for purposes of analysis, a descriptive table is provided. Also, the x-axis of the histogram is labeled as the variable is grouped in the quantitative analysis. Analysis of the primary information to be gained from the statistical description of the data, accomplished through use of the BMDP statistical software routines, is provided in brief narrative form together with an evaluation of the acceptability of the sample data for use in comparison with WARRAMP results.

f. A printed version of the data base appears in its entirety as Appendix F.

2-3. THE DATA ENTRY FORM. To define precisely the data being collected, it is instructive to study the AHART data entry form used to enter data into the DBASEIII formatted data base. Figure 2-1 is a copy of the DBASEIII data entry form. Table 2-1 provides additional details of the AHART data fields that are otherwise embedded in the data entry form.

AHART DATA ENTRY FORM
CONCEPTS ANALYSIS AGENCY

BATTLE: XXXXXXXXXXXX ARTYUNIT: XXXXXXXXXXXX

SOURCE: XXXXXXXXXXXXXXXXXXXX START DATE: 99/99/99 # OF DAYS: 999

BLUE UNIT: XXXXXXXXXXXX	UNIT SIZE XXXXXXXX	BLUE OPERATION: XXXXXXXX
TYPE TUBE: XXXXXXXXXXXX	# OF TUBES: 9999999999	TUBE CATEGORY: XXXXXXXX
TYPE ROUND: XXXXXX	AVG RDS PER DAY: 99999999.9	TOTAL ROUNDS: 9999999999
COST PER RD(1): 9999	AVG COST PER DAY: 9999999.99 (X1000)	TOTAL COST: 99999999.99 (X1000)
WT. PER RD(LBS): 999.9	AVG WT. PER DAY: 9999999.99 (TONS)	TOTAL WT.: 99999999.99 (TONS)
AVG RD/TUBE/DAY: 9999.9		
NOTES: MEMO		

RED UNIT: XXXXXXXXXXXX	RED UNIT SIZE XXXXXXXX	RED OPERATION: XXXXXXXX
TYPE TUBE: XXXXXXXXXXXX	# OF TUBES: 9999999999	
TYPE ROUND: XXXXXX	AVG RDS PER DAY: 9999999999	TOTAL ROUNDS: 999999999999
COST PER RD(1): 9999	AVG COST PER DAY: 9999999.99 (X1000)	TOTAL COST: 9999999.99 (X1000)
WT. PER RD(LBS): 999.9	AVG WT. PER DAY: 9999999.99 (TONS)	TOTAL WT.: 9999999.99 (TONS)
AVG RD/TUBE/DAY: 9999.9		
NOTES: MEMO		

Figure 2-1. AHART DBASEIII Plus Data Entry Form

Table 2-1. AHART DBASEIII Plus Data Fields

Field name	Field type	Width	Dec	Field name	Field type	Width	Dec
1 SOURCE	Character	20		16 RDWTDAY	Numeric	10	2
2 BATTLE	Character	12		17 TOTALWT	Numeric	12	2
3 UNIT	Character	12		18 RDTUBEDAY	Numeric	6	1
4 SIZE	Character	8		19 ROUNDCOST	Numeric	4	0
5 DATE	Date	8		20 RDCOSTDAY	Numeric	10	2
6 ARTYUNIT	Character	12		21 TOTALCOST	Numeric	12	2
7 TUBETYPE	Character	11		22 NOTES	Memo	10	
8 TUBECAT	Character	7		23 REDUNIT	Character	12	
9 TUBEQUANT	Numeric	12	0	24 RSIZE	Character	8	
10 TYPERD	Character	6		25 REDOPN	Character	10	
11 RDPERDAY	Numeric	16	1	26 RTYPE TUBE	Character	12	
12 ROUNDQUANT	Numeric	8	0	27 RTUBEQUANT	Numeric	10	0
13 DAYSQUANT	Numeric	3	0	28 RTYPERD	Character	6	
14 OPERATION	Character	9		29 RRDPERDAY	Numeric	10	0
15 ROUNDWT	Numeric	5	1	30 RRDQUANT	Numeric	12	0

Field names begin with a letter and may contain letters, digits, and underscores.

2-4. THE SELECTED DATA BASE. The AHART data base contains over 3,600 records. A large portion (2,520 records) contains operational rates of 1-day duration. These records are stripped from the data base prior to analysis. Most of these 1-day rates are accounted for in more aggregate monthly and yearly figures, and those not so accounted for clearly fall outside the definition of theater rates. Of the remaining 1,808 records, 213 contained no data for RTD, the dependent variable, and so were also eliminated prior to analysis. The remaining 787 records become the selected data base.

2-5. SOURCE FIELD

a. Description. The large number of documents and individual data sources required to build and analyze the data base necessitated a method of cataloging to manage them. The catalog then required coding to permit entry into the data base. Space provided in the source field permits entry of the source referenced by a code to the annotated bibliography (Appendix D). The codes are not intentionally cryptic and can be understood with minimal effort.

b. **Construction of Source Codes.** The data source codes are constructed in three parts. First appears the abbreviation for the organization or activity from which the document was received. The second part is an abbreviation for the war for which the data is recorded. An "S" in the second position denotes a study not directly associated with a particular war; ALL denotes data for three or more wars. Third is an arbitrary sequence number for that document distinguishing it from others of the same organization and war.

2-6. BATTLE IDENTIFICATION FIELD. Enough space has been provided to preclude coding or destructive abbreviation of the name of the battle. The term battle is used very broadly and is inclusive of every size operation from company to theater-level war. At times, no more specific reference will be given in an historical document than that the data came from, for example, WWII or the US offensive in Germany. When this occurs, as detailed as possible a reference is made to the theater in which the event occurred.

2-7. UNIT FIELD. The unit's number, its type, and its organizational size are recorded here. This field, together with the battle identification field, provides enough information to pinpoint a particular event in history. It is intended that sufficient information is recorded for further research into additional factors that may influence the specific event. Suffix letters, i.e., "th" or "nd", are not included. Standard abbreviations from Field Manual 101-5-1, Operational Terms and Symbols, are used to identify unit types and sizes.

2-8. SIZE FIELD AND VARIABLE SIZE

a. **Description.** Isolation of the size of the supported unit apart from unit number and type unit permits use of this data as a separate variable for analysis. The variable SIZE is defined to be the number of company sized maneuver units in a force being supported by artillery, as shown in Table 2-2. Regiments are relabeled for size as a brigade-size force which they more correctly are. With the exception of the battalion task force, no other level task force is separately identified. This is primarily a result of the lack of data with which to do so. If such detail is needed, many hours of research in the National Archives may reveal it.

Table 2-2. BMDP Codes and Limits for the Variable SIZE - Selected Data Base

Variable name	Minimum limit	Maximum limit	BMDP code/scale	Category name
Size	1.0	999.0	1.0	Company
			2.0	2 Companies
			3.0	Battalion
			4.0	Battalion task force
			6.0	2 Battalions
			9.0	Brigade
			18.0	2 Brigades
			27.0	Division
			54.0	2 Divisions
			81.0	Corps
			162.0	2 Corps
			243.0	1 Army
			486.0	2 Army
			729.0	Army group
			900.0	Theater

b. Analysis of the Variable SIZE

(1) All 787 points of the selected data base were clearly defined for size of the supported force. In the distribution of observations for size:

MEDIAN = 1 ARMY
MODE = THEATER

(2) As shown in Figure 2-2, data for theater-size forces composed 51 percent of the data base. Division-size forces (29 percent) and Army-size supported forces (10 percent) make up most of the remaining points, with corps-size supported forces making up 7 percent.

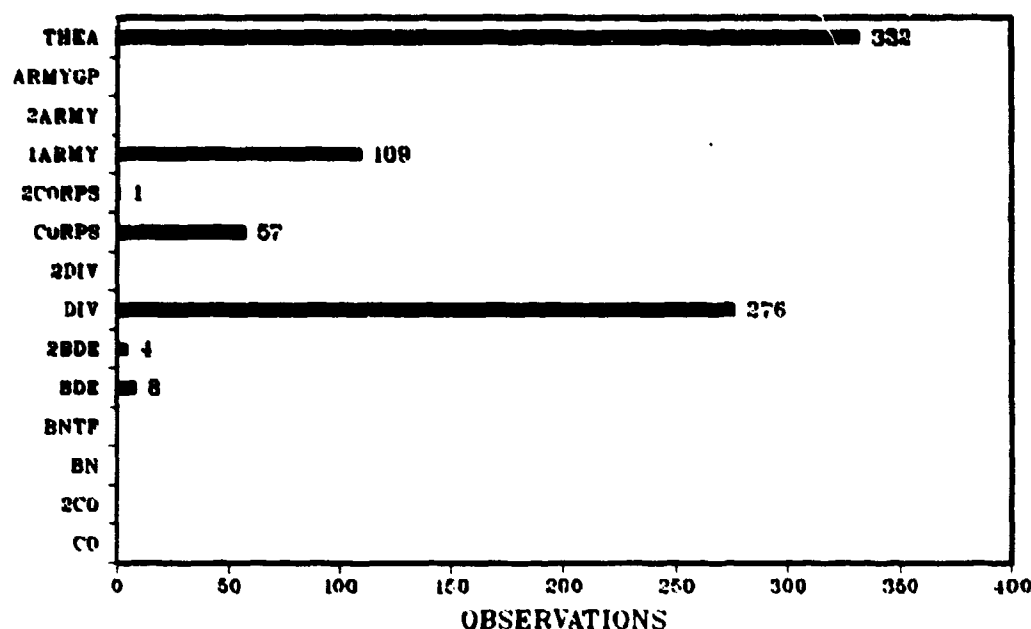


Figure 2-2. Histogram of Observations for SIZE - Selected Data Base

c. Acceptability of the Data for the Variable SIZE

(1) Given that the WARRAMP process is focused on theater-level results, this distribution of data points is very desirable. Since the WARRAMP theater model is also driven by a division-level model, the proportion of division-level historical data is especially pleasing. To conduct comparisons of the individual models in the WARRAMP process, these data points would have to be properly segregated. The theater force points in the data base are directly comparable with the final rates produced by WARRAMP.

(2) Included in the data base are monthly theater-size force data for every month in both the Vietnam War and the Korean War. Theater-level data for the Yom Kippur War of 1973 is available in classified form [WSEG-AI-1]. This distribution of data points is quite acceptable for analysis of the variable SIZE and comparison with the WARRAMP process.

2-9. DATE FIELD AND THE VARIABLE YEAR

a. Description. The DATE field in the data base provides the month, day, and year of the start of the battle. Month and day are of little value to this study. YEAR provides a means of determining in each case which war the record refers to. DBASEIII rules call for

month/day/year order. All three are two-digit numbers, the first digit being a zero when necessary. In DBASEIII the year is assumed to be the 20th century. There was no need to modify this structure for the AHART Study. The date can be reordered, separated, and used in almost any other form by the other software packages in the AHART data base management system by use of convenient translation routines inherent in each. Figure 2-3 displays the number of observations in the data base for each year/war. Chapter 3 of this report is completely dedicated to presentation of the historical data over time.

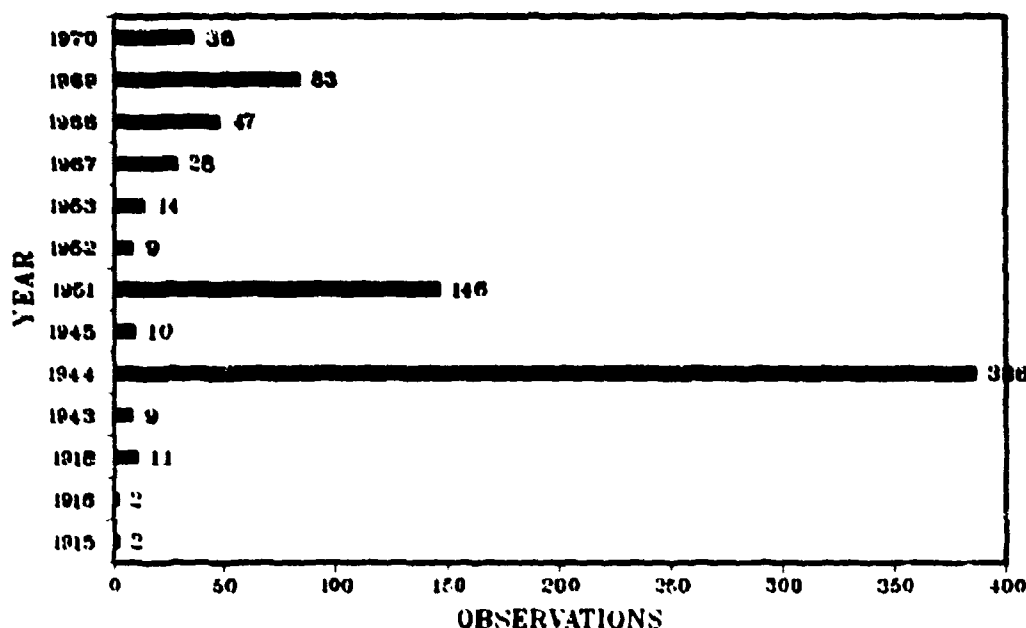


Figure 2-3. Histogram of the Variable YEAR - Selected Data Base

b. Analysis of YEAR

(1) Of the 787 points in the selected data base, all were clearly defined for year. The historical data collected to the present time for YEAR is reasonably well-distributed with the preponderance of records falling into WWII (51 percent) and Korea (22 percent). In the distribution of observations for the variable YEAR:

MEDIAN = 1944
MODE = 1944

(2) While ordnance personnel and logisticians have always attempted to keep records of their inventory, it was not until after WWI that records were maintained with the express purpose of analysis for future planning, and it was not until after the Korean War that data was maintained with the express purpose of quantitative analysis.

As a result, the quantity and quality of the points in the data base are largely a function of availability. Additionally, it is true of all wars that many records were destroyed due to movement, damage, or destruction of unit, depot, or headquarters records facilities, reducing the overall availability of data to a level below that needed to feel that a population statistic can be established for any war.

(3) More data, especially British and French data, is available for WWI expenditures; however, in the time allotted, efforts were concentrated on data for more recent wars.

(4) Histories of WWII are primarily anecdotal with only limited numerical data recorded outside unit histories and after-action reports. The volume of data from these histories and reports is large for division and corps-level events with limited data on army or theater-level numbers. This accounts for the large volume of WWII data at these levels.

(5) For Korea an effort was made by logisticians [CMH-K-1] at consolidating theater-level data, but the effort was incomplete, failing to include many relevant facts such as the number of tubes in theater or differentiating between various types of munitions. While there is less Korean War data than WWII data, the value of each Korean War record is greater to a study of theater-level rates. Larger proportions of the Korean data are directly comparable to theater-level rates.

(6) For Vietnam the data is in excruciating detail, greater detail than is needed in the AHART data base. The detail beyond that in the data base is lost on any comparison to the older data. Data on the 17 days of the Yom Kippur War is in sufficient detail to define all variables in the AHART data base (not included in this report due to its classification level).

c. Acceptability of the Data for YEAR

(1) Current planners will naturally (but not necessarily properly) place greater value on data that is most like current conditions. For the variable YEAR, that translates to data that is most recent.

(2) It is most unfortunate that to maintain the unclassified nature of the report, data from the Yom Kippur War cannot be included. Many place great value of the high tech nature of that war. On the other hand, recent thought is that the short duration of that war and the methods of collecting data (primarily interview with limited access to Israeli documents) reduces what may be presently over-valued data. Trevor Dupuy has stated in his book Elusive Victory that the results of this high tech war were not all that startling and that the quantitative data indicated rates not much different from intense periods of operation in WWII. Were it not classified, it would be desirable to have that data included in the AHART data to possibly support or refute COL Dupuy's statement.

(3) The acceptability of Vietnam data is often not as high even as some WWII data in that most consider Vietnam to be of a markedly different nature. The types of missions fired in Vietnam are considered to be other than conventional set-piece combat, more often being ambushes or harassing fires not directed against a conventional target. On the other hand, the data for the Tet offensive and several other battles could easily be accepted as conventional warfare. The effort to differentiate among them is beyond the scope of AHART for the moment. Some effort is made in this direction using operational intensity as a variable.

(4) Later work with this data can attempt various weighting schemes to give greater value to more recent data. Additional efforts at data collection can concentrate on data from other recent conflicts outside the US experience. Finally, releasing a classified version of this effort will permit use of the most valuable recent data.

2-10. TUBE TYPE (TUBETYPE) FIELD AND THE VARIABLE TUBETYPE

a. Description. Artillery weapons are identified here by their "caliber," in millimeters. This field is used to identify a separate variable in the analysis which is arranged in increasing order of caliber. When the commonly used caliber is in other dimensions, it is converted to millimeters, i.e., a 4.5-inch gun is listed as a 114mm gun. Figure 2-4 displays the distribution of observations present in the data base for each tube type.

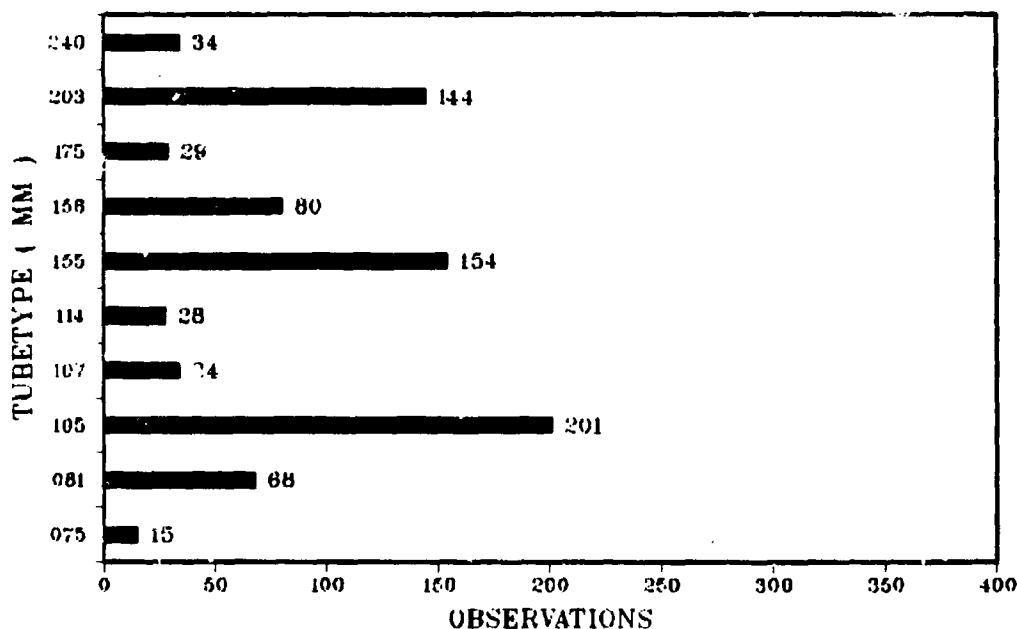


Figure 2-4. Histogram of the Variable TUBETYPE - Selected Data Base

b. Analysis of TUBETYPE

(1) All records for which no tube type is specified have been separated from the AHART data base to the selected data base. As a result, all of the 787 observations can be clearly identified for tube type. The major systems of interest to WARRAMP compose the majority of this data and are fairly evenly distributed--105mm (26 percent), 155mm (20 percent), and 203mm (18 percent).

(2) Records with no tube type specified (unspecified (UNSP)) have been separated from the selected data base to avoid confounding tube types. Through some earlier versions of this analysis, it was found that these samples for which no tube type is specified are aggregate data for several tube types. This is such a large number of samples and they are so commonly found in historical reports that these records are worthy of separate analysis. Such analysis would permit use of this large number of samples in the AHART analysis, or at least allow comparison of the separate analysis with the results of AHART.

(3) The distribution of observations across the increasing caliber of the tube is not to be interpreted as the distribution with which the population of tube types was employed in combat. The distribution of observations among tube types in the selected data base is only the distribution of the available data.

c. Acceptability of the Data for the Variable TUBETYPE

(1) The WARRAMP process accounts for each tube type separately and, therefore, produces a separate rate for each one. The current inventory of conventional artillery tubes in the US arsenal is primarily 105mm, 155mm, and 203mm. In the AHART data base these are likewise the weapons for which there is most data. The distribution among these three tube types is reasonably even.

(2) A fortunate occurrence in the view of the analyst is that in many of the events in this data base, data was available for all three tube types. In the historical data, most of these systems were found together on the same battlefield and so are often sampled under the same conditions, each having an influence on the expenditures of the other. This increases the value of the data beyond simply having a fortunate distribution of tube types.

2-11. TUBE CATEGORY (TUBECAT) FIELD AND THE VARIABLE TUBECAT

a. Description. The same artillery weapons are grouped into three categories--light, medium, and heavy. Table 2-3 presents the regrouped observations. Records containing data on artillery expenditures for which no tube type was specified were labeled as UNSP and placed in a separate file for analysis. UNSP was not used as a tube category.

(1) Light artillery includes all tube types up to and including 120mm.

Table 2-3. BMDP Codes and Limits for the Variable TUBECAT

Variable name	Minimum limit	Maximum limit	BMDP code/scale	Category name
TUBECAT	30	203	105	Light
			155	Medium
			203	Heavy

(2) Medium artillery includes 122mm to 155mm howitzer tubes, inclusive.

(3) Heavy artillery includes 155mm guns and all other tube types above 155mm.

b. Analysis of the Observations for the Variable TUBECAT. All 787 records remaining in the selected data base could be clearly identified according to one of the tube categories. As shown in Figure 2-5, the light category contains 44 percent of the records. Medium and heavy categories contained 20 percent and 36 percent of the selected data base, respectively. Including 155mm guns in the heavy category greatly increased the proportion of heavy samples in the data base but reduced the proportion of medium samples. The use of the 155mm gun for purposes of very long-range fires is clearly in line with the mission of heavy artillery despite the medium caliber.

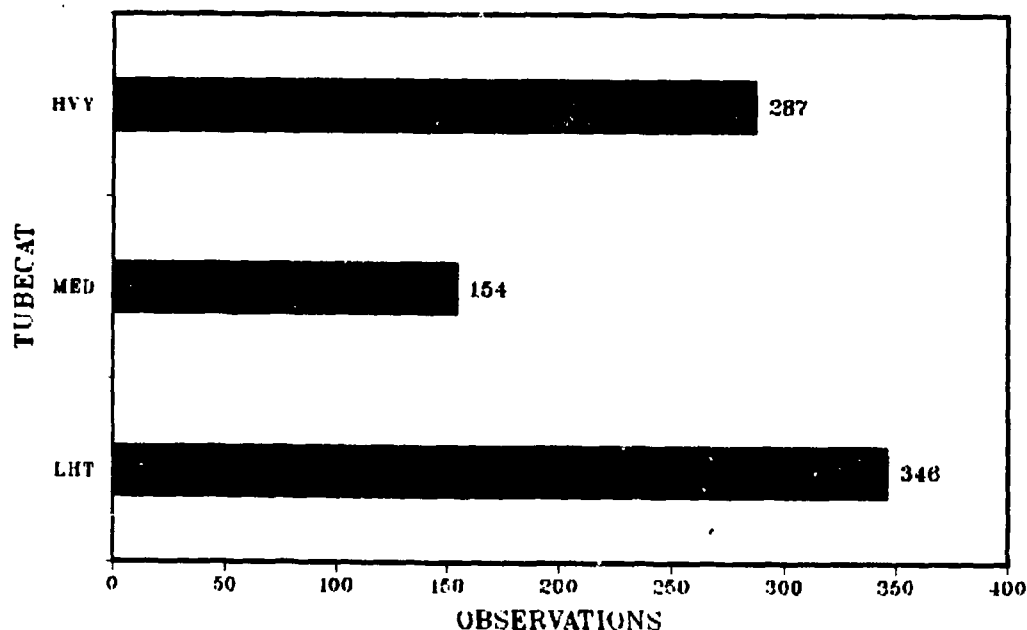


Figure 2-5. Histogram of the Variable TUBECAT - Selected Data Base

c. **Acceptability of the Data for the Variable TUBECAT.** Use of this field permits increased sample sizes and therefore increased confidence for analysis that does not require grouping by tube type. These categories are directly aligned with the major artillery weapons used in the WARRAMP process.

2-12. TUBE QUANTITY (TUBEQUANT) FIELD AND THE VARIABLE TUBEQTY

a. **Description.** This field provides the total number of tubes available to support the operation and is scaled as shown in Table 2-4. In operations below army level, the number available is assumed to be a measure of the number of tubes that actually fired or were poised to fire in support of the operation. At army or theater level, it is assumed that some tubes may for various reasons never reach the battle. At theater level, these numbers include tubes in maintenance or delivered to the theater but not necessarily to a unit in the field. This number then is a measure of the number of tubes that were in the entire army area of operations or within the entire theater during the operation.

Table 2-4. BMDP Codes and Limits for the Variable TUBEQTY

Variable name	Minimum limit	Maximum limit	BMDP code/scale	Category name	BMDP code/scale	Category name
TUBEQTY	1 0	2000.0	3 0	Platoon	72 0	4 Battalions
			6 0	Battery	78 0	13 Batteries
			12 0	2 Batteries	84 0	14 Batteries
			18.0	Battalion	90 0	5 Battalions
			24.0	4 Batteries	96 0	16 Batteries
			30.0	5 Batteries	114 0	17 Batteries
			36.0	2 Battalions	132 0	7 Battalions
			42.0	7 Batteries	150 0	8 Battalions
			48.0	8 Batteries	168 0	9 Battalions
			54 0	3 Battalions	186 0	10 Battalions
			60 0	10 Batteries	187 0	10 Battalions +
			66 0	11 Batteries		

b. **Rate versus RTD.** The ability to properly interpret this variable is a major key to understanding historical RTD. It is the composition of tubes incorporated in the entry for TUBEQTY that distinguishes theater from operational rates. For operational RTD in the AHART data base, the number of tubes available will be assumed to equal the number of tubes engaged in the battle. For theater RTD, the number of tubes in the entire army or theater area are assumed to be

included. This is occasionally difficult to discern from the historical documents, but most often it can be determined in some way. When a departure from this rule exists, the number is recorded in the data base and the distinction noted in the field provided by DBASE III. A tangential issue concerning the variable TUBEQTY is the use of the recorded number of tubes to define a de facto weighting of any particular event. Because the number of tubes is not equal, each record of TUBEQTY should not be assumed to have equal value. The RTD for a single tube in a single sample should not have the weight of a theater-level number of tubes in a given sample. This has not been done to this point in the AHART analysis.

c. Analysis of the Variable TUBEQTY

(1) Only 395 of the 787 observations in the selected data base included data on the number of tubes used to calculate the RTD. The distribution of these 395 observations varies greatly. As shown in Figure 2-6, tube quantities of six tubes or less make up 31 percent of the sample. Tube quantities below 87 compose 63 percent of the observations. The number 87 is a rough approximation of the number of tubes that would support a corps level operation--a crude line dividing operational samples from those usable for theater-level comparisons.

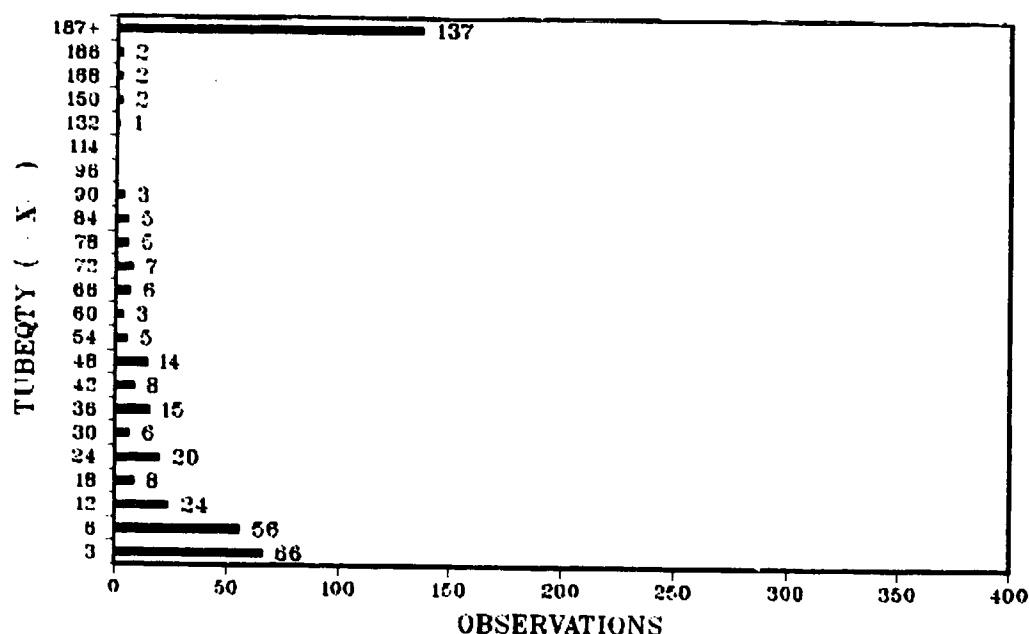


Figure 2-6. Histogram of the Variable TUBEQTY - Selected Data Base

(2) A large number of records in the selected data base does not include data on the number of tubes in the event, meaning that the data for RTD was given directly without providing the denominator value for the calculation.

d. Acceptability for the Observations for the Variable TUBEQTY

(1) The definition of theater rate *vis-a-vis* the operational rate explained in Chapter 1 is essential to understanding the variable TUBEQTY. The interpretation of the historical data explaining each observation for this variable is the major ingredient in classifying each data record as a theater or an operational rate. If, in the historical data, it is clear that all systems in an army area of operation or theater of operation were considered in computing the rounds per tube per day (RTD), then this number is directly comparable with the final results of the WARRAMP process. If it is clear that only those weapons which fired were considered, then that data is not directly comparable to final WARRAMP results but may instead be directly comparable to the division simulation, Combat Sample Generator (COSAGE) results. Fortunately, the field for SIZE of the supported unit can also be used for this purpose; in which case, over 50 percent of the records in the data base can be classified as theater rates.

(2) The definition of tube quantity in the data provided for historical battles requires very close scrutiny to ensure the proper distinction between theater and operational rates. To increase the acceptability of this data base for comparison with WARRAMP rates, a priority should be given to finding additional samples calculated on the basis of all the tubes in a theater of war.

2-13. TYPE ROUND (TYPERO) FIELD AND THE VARIABLE TYPERO

a. This field provides a place to differentiate among the types of munitions fired by a particular artillery tube type. Prior to WWI, metal and high explosives (HE) composed the major ingredients in munitions technology. Historical documents prior to WWII therefore seldom differentiate among types of rounds. Even in WWII and the Korean War data, the type round is very poorly documented.

b. Since the technological advances in munitions of the post-WWII period, it is believed that the type of round fired takes on great significance in determining rates of fire. In addition to the obvious influence of entirely new munitions such as improved conventional munitions (ICM), seek and destroy armor (SADARM,) and terminally guided weapons (TGW), the vast improvements in the traditional metal (fragmentation) and high explosive munitions are considered to be significant. Indeed, the pronounced effect of the newer high technology munitions and improved high explosive munitions, some believe, makes analysis of recent artillery expenditures as different from analysis of pre-Arab-Israeli War data as the analysis of Civil War data is from the analysis of WWI and WWII data.

c. No analysis is attempted on this variable in AHART. The lack of available data prevents any useful analysis in this study. It is a subject worthy of separate investigation. Because of its current importance, TYPED is maintained in the data base. The variable TYPED was maintained as a variable in the study because its removal was not worth the time and effort required.

d. No histogram of observations is provided here since all samples fall within two groups--HE and UNSP. When possible, data clearly identified as HE only was recorded as such. Otherwise, the field was labeled as unspecified and was assumed to include firing data for all types of munitions available to that artillery tube type. Some testing with scatter plots and some investigation support this assumption.

2-14. ROUNDS PER DAY (RPERDAY) FIELD. This is the average rounds of the TYPED, TUBETYPE, TUBECAT, etc., specified in the previous fields that are fired in 1 day by the number of tubes specified in the TUBEQTY field over the period specified in the DURATION field. This must not be confused with the total rounds fired in a day or with the rounds per tube per day. Occasionally, this is the only data provided. From it, rounds per tube per day may have to be computed separately.

2-15. TOTAL ROUNDS (ROUNDQUANT) FIELD. This is the total rounds fired for the whole period specified in the DURATION field for the number, type, and other conditions specified in all previous fields. Again, this may be the only data provided from which rounds per tube per day must be separately calculated.

2-16. DURATION (DAYSQUANT) FIELD AND THE VARIABLE DURATION

a. **Description.** The number of days over which the battle, campaign, war, etc., specified in the OPERATION field, took place becomes the denominator in the calculation of RTD. If a record is otherwise classified as a theater-level rate, this variable assists in further defining the number of days included in the theater rate (15-, 30-, 180-day rate, etc.). This number is closely related to the number of days of actual firing but it is not the same. On occasion, rates have been computed using only "firing days." This is not done in AHART. In AHART, rates were computed over the entire period of the operation whether or not artillery was used on any one particular day. The AHART data presented in Figure 2-7 includes all days of the operation as it is most consistent with the way theater rates are determined.

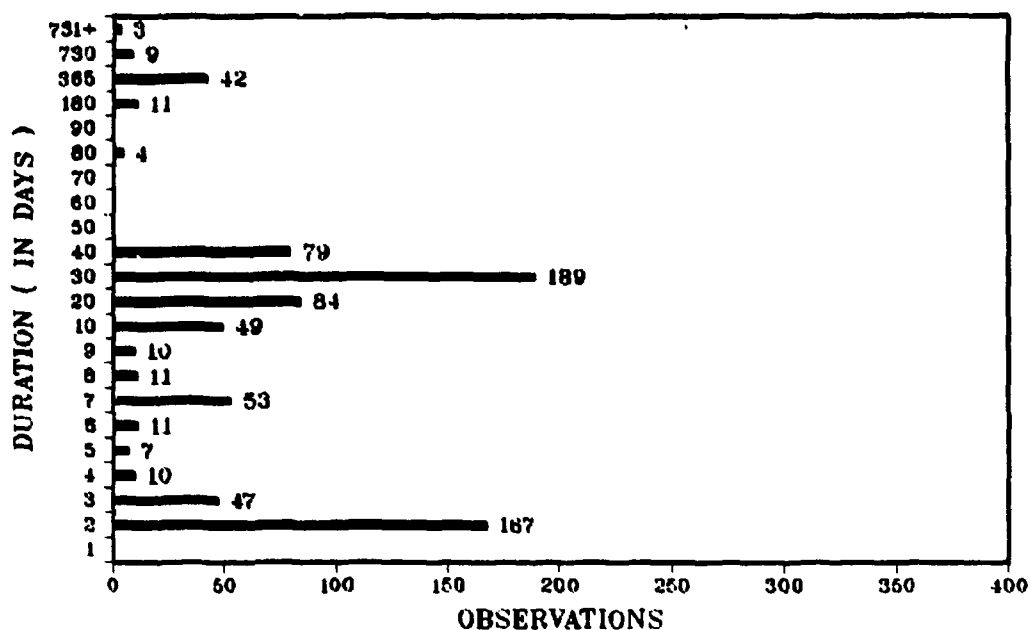


Figure 2-7. Histogram of the Variable DURATION - Selected Data Base

b. **Analysis of Data for the Variable DURATION.** Of the 787 records in the selected data base, only one has no recorded DURATION. Of the 786 records, 268 (34 percent) were for operations of 21 to 40 days (aggregated monthly expenditure rates); 295 (38 percent) were for operations of from 2 to 7 days. In the selected data base, records of 1-day duration were taken out. With only a few trivial exceptions, all records of this duration were duplicate data included elsewhere in more aggregate numbers. The study of the 1-day rates would be a worthwhile separate analysis and could illuminate day-to-day variability, but is only indirectly useful in understanding theater-level rates.

c. **Acceptability of Observations for the Variable DURATION.** Theater rates in WARRAMP are computed in increments of 15 or 30 days up to 180 days. Since only 65 (7 percent) of the records can be compared to 180-day rates, the data base would benefit from additional data of this kind for this comparison. The available data most readily lends itself to comparison with 30- or 45-day rates.

2-17. OPERATION FIELD AND THE VARIABLE OPN

a. **Description.** The operational types used in this study and displayed in Table 2-5 are those defined by Table 7-1, FM 101-10-1, Staff Officers' Field Manual Organizational, Technical, and Logistic Data. The operational types in the field manual are primarily oriented to division- and brigade-level planning, but the definitions are extended to other organizational levels without loss in meaning. The operation specified in the AHART data base is the predominant mission of the unit described in the UNIT field at the level specified in the SIZE field, i.e., battalion attack heavy, or division protracted medium, or army attack light. For campaigns and theater wars for which data on numerous operations were aggregated, the operation is labeled as unspecified (UNSP). The scale on which these operations are placed for the analysis is shown in Table 2-6.

Table 2-5. Levels of Operation

Level of operation	Percent of commitment		Intensity of combat	Commitment of higher headquarters reserves
	Maneuver	Fire support		
Heavy	60 +	100	All-out	Probable
Medium	30 +	50 +	Continuous	Not anticipated
Light	30-	50-	Sporadic	No

Table 2-6. BMDP Codes and Limits for the Variable OPN

Variable name	Minimum limit	Maximum limit	BMDP code/scale	Category name
OPN	1.0	10.0	1.0	Protracted - light (PROL)
			2.0	Attack - light (ATKL)
			3.0	Defense - light (DEFL)
			4.0	Protracted - med (PROM)
			5.0	Unspecified (UNSP)
			6.0	Attack - medium (ATKM)
			7.0	Defense - medium (DEFM)
			8.0	Protracted - heavy (PROH)
			9.0	Attack - heavy (ATKH)
			10.0	Defense - heavy (DEFH)

b. Analysis of Observations for the Variable OPN

(1) Figure 2-8 displays the distribution of observations of this variable. Only 413 (40 percent) of the 787 records in the selected data base can be clearly identified for a specific operation and operational intensity; 289 (70 percent) of the 413 observations are classified as heavy intensity operations. The attack operations (light, medium, and heavy) together make up 343 (83 percent) of the 413 observations. The remainder are, as previously explained, aggregate data for several types of operations.

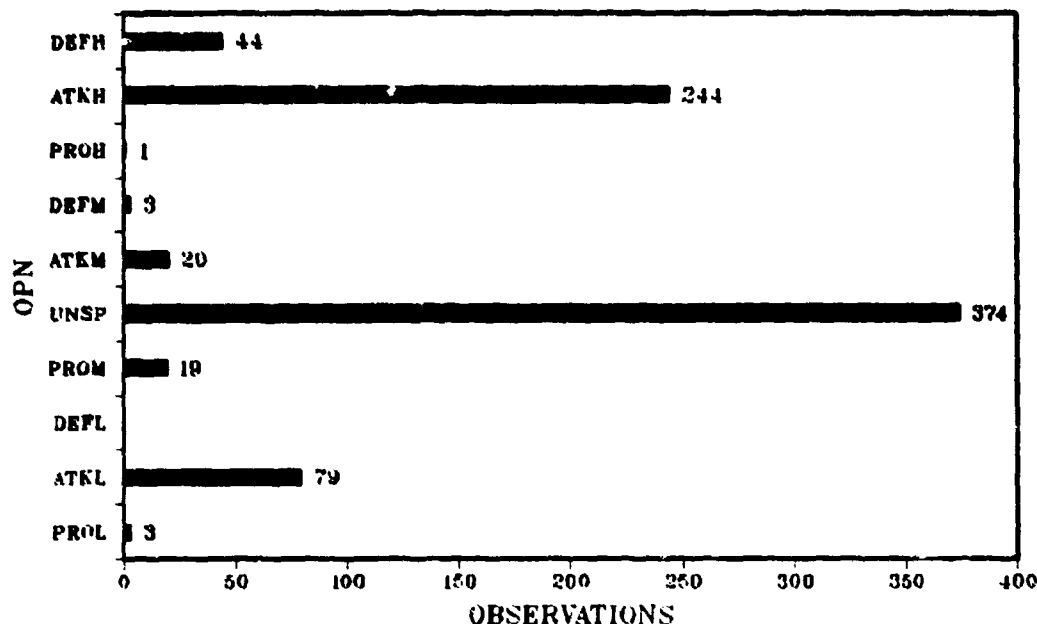


Figure 2-8. Histogram of the variable OPN - Selected Data Base

(2) The unspecified observations were initially taken out of any analysis of the variable OPN. This also eliminated a significant portion of the data base for the multiple linear regression analysis. After separate analysis provided in paragraph 4-3c, it was determined that these observations were clearly composite figures and fit closely the distribution for operations of "medium" intensity. As a result, they were again included in the selected data base and placed on the spectrum of operations where the separate analysis showed them as a group to be; that is between PROM and ATKM.

c. Acceptability of the Observations for OPN

(1) The rates produced by the WARRAMP process are aggregate rates for all types of operations and operational intensities. The unspecified records actually come closer than the other records to the definition of a theater rate. The distribution of observations for each specified operational type is heavily weighted to the attack and the heavy intensity operations.

(2) If it is assumed that the sample distribution of operations and intensities are representative of the distribution of all type operations, then the data would be sufficient. If the distribution is not representative (which it most likely is not), this data must be understood as representing primarily the heavy and the attack operations. Comparisons with theater rates would have to recognize this distributional effect.

2-18. **ROUND WEIGHT (ROUNDWT) FIELD.** The weight of a single round divided into the total weight of rounds in a battle (TOTAL WEIGHT) may be the only means of determining from the data available the total number of rounds to be included in the numerator of the rounds per tube per day calculation.

2-19. **ROUND WEIGHT PER DAY (RDWTDAY) FIELD.** As with the ROUNDS PER DAY field, this is the weight of the rounds fired each day, totaled then averaged over the entire duration of the battle. It is not necessary to calculate this field from others unless desired for reasons outside this study. The field is included to allow for entry of data which may not be provided in any other form.

2-20. **TOTAL WEIGHT (TOTALWT) FIELD.** This is the total weight of the type round, specified previously, fired over the entire duration of the battle. As with other fields, this data may have to be used in the absence of other data to separately calculate rounds per tube per day.

2-21. **ROUND COST (ROUND COST) FIELD.** The cost of a single round divided into the total cost of rounds in a battle (TOTAL COST) may be the only means of determining from the data available the rounds per tube per day. Knowing the dollar value at the time the cost was recorded is usually more difficult than finding the original data.

2-22. **ROUND COST PER DAY (RDCOSTDAY) FIELD.** As with the ROUNDS PER DAY field, this is the cost of the rounds fired each day, totaled then averaged over the entire duration of the battle. It is not necessary to calculate this field from others unless desired for reasons outside this study. The field is included to allow for entry of data which may not be provided in any other form.

2-23. **TOTAL COST (TOTALCOST) FIELD.** This is the total cost of all like rounds, specified by previous fields, fired over the entire duration of the battle. As with other fields, this data may have to be used in the absence of other data to separately calculate rounds per tube per day.

2-24. ROUND PER TUBE PER DAY (RDTUBEDAY) FIELD AND THE VARIABLE RTD

a. **Description.** By its definition, RTD is a variable that attempts to reduce numerous other data into a single understandable value. This term seeks to reduce total rounds fired by any given number of tubes over any number of days into what a single "average" tube fired in one "average" day of an operation. As such, it is used almost universally in the simulation community to measure artillery expenditures. Its popularity stems from its simplicity compared to dealing with what each tube fires on each day, especially if the number of tubes or the number of days in the comparison differs.

- For purposes of entry into the AHART data base, RTD is the TOTAL RGUNDS fired in a BATTLE divided by the DURATION of the battle, then divided by the TUBEQTY in the battle.
- For this study, RTD is the dependent variable and therefore the single most important number sought after in the historical documents. All other fields in the data base have the express purpose of qualifying the conditions under which the rounds per tube per day were actually fired.
- It must be remembered that while the term round per tube per day places all samples on a common standard, each observation is influenced also by the number of tubes in the sample. The common standard does not imply that each observation is of equal weight.

b. Analysis of Observations for the Variable Round per Tube per Day

(1) As explained in paragraph 2-4, once the records with 1-day DURATION and the records for which TUBETYPE is unspecified were eliminated from the data base (because they were included in more aggregate data and to prevent confounding, respectively), there remained 1,083 records. Of these, 296 were incomplete for the field RDTUBEDAY; therefore, only 787 of the 3,590 records in the AHART data base have been selected for analysis of this variable.

(2) The resulting distribution of RTD becomes a significant result of the study effort. The histogram of observations and relevant location parameters are included in Figure 2-9.

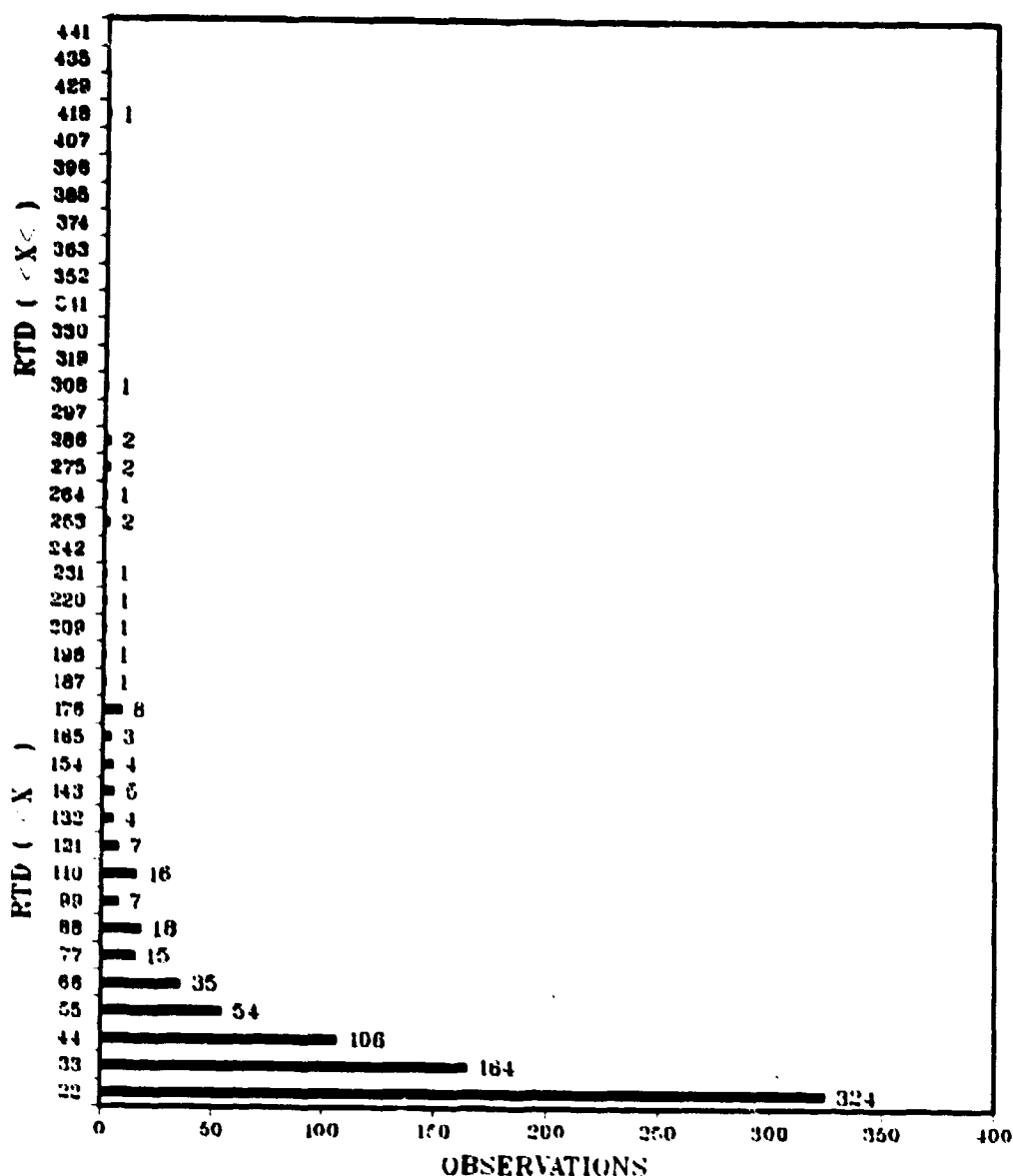


Figure 2-9. Histogram of Observations for the Variable RTD

c. Acceptability of the Data for RTD

(1) The acceptability of the data for this variable is completely dependent on the acceptability of the observations for the other variables. As described earlier, these 787 records include useful theater-level rates for Korea and Vietnam and useful operational rates for WWII, Korea, and Vietnam. Complete sets of data exist for artillery expenditures in the Yom Kippur War [WSEG-AI-1] but are not included in this analysis because of classification. Those records which are specified for OPN are predominantly heavy and attack type operations. Samples among tube types are well-distributed among the relevant types in the WARRAMP (US) arsenal.

(2) The AHART data base cannot yet be accepted as the definitive measure of historical RTD. At this point in the analysis, some useful information can be gained, some preconceptions evaluated but not conclusively proven or refuted. The analysis does, for the first time, make this amount of data available in a form that can be examined for the user's purpose. As such, it is a useful means of becoming well acquainted with the historical data on this subject and provides a start point, which previously did not exist, with which to do more complete work.

2-25. RED FIELD NAMES. With the exception of the BATTLE, DATE, and DURATION fields, which are not repeated, Red field names are the same as those for the Blue force. The field names are preceded with the letter "R."

2-26. RED (OPPOSING) FORCE

a. Non-US forces, not allied with the US, are normally labeled Red; however, the distinction is arbitrary and is primarily for the purpose of defining opposing forces in a particular battle. In any given simulation, any force could be assigned either color. The convention of assigning the color green to Third World countries in simulations is becoming generally accepted.

b. The Red fields are maintained in the data base under the assumption that sufficient data may at some time be available for both sides in any particular battle. Presently there is very little data for Red forces in the data base. In this version of the study, no comparisons are made among nationalities; therefore, the choice of describing a particular nation as Red or Blue is moot.

c. The Red fields of the data base are not included in Appendix F.

d. A relevant West German study (FRG-WWII-1) on Hitler's army is presently being completed that will add greatly to the opposing force data for WWII. Future improvements to the data base should certainly include Czarist Russian, Soviet, and Chinese data.

2-27. LEARNING TO USE THE DATA BASE

a. The AHART data base is available in printed form or on hard or floppy disk through DBASEIII Plus software. The best way to review the data base is on the microcomputer using the DBASEIII software in either the browse or the edit mode.

b. For the purpose of this study, it is most useful to arrange (index) the data base by type of tube, then order the records for each type of tube by date. However, through use of the DBASEIII software, the data base can be arranged in any order.

c. Understanding of the data base can most efficiently be achieved by studying the DBASEIII data entry format of Figure 2-1 printed above or shown on the microcomputer monitor and by using the definitions provided in this chapter.

d. Once familiarity with the data base has been achieved, a study of selected records will be more fruitful. The number of fields in each record (36) precludes printing of the entire record, even on long paper. The most useful fields to select for printing are those used as variables in the study.

e. Only those fields that are used in the analysis are printed in Appendix F. This results in loss of some, but not a significant amount of, information. So little opposing force data has been collected that none is printed here.

f. Appendix F includes Blue force data with the following fields:

SOURCE
BATTLE
UNIT
SIZE
DATE
TUBETYPE

TUBECAT
TUBEQUANT
TYPERD
DAYSQUANT
OPERATION
RDTUBEDAY

CHAPTER 3

DISTRIBUTION OF HISTORICAL ROUNDS PER TUBE PER DAY (RTD) OVER TIME

3-1. PURPOSE. The purpose of this chapter is to present graphic displays of the raw data for the dependent variable (RTD) grouped by selected tube types and tube categories. These plots of the raw data over time increase the reader's intuitive understanding of the data in terms of their volume, magnitude, and location.

3-2. DISTRIBUTION OF RTD OVER TIME FOR THE SELECTED DATA BASE

a. Figure 3-1 presents all 787 points of the raw data for the dependent variable (RTD) in the selected data base plotted over time. The data is clustered by year of major US wars. Many of the data points plot over each other and are therefore not separately identifiable. Events of RTD greater than 200 occurred in WWI, WWII, and Korea. Events greater than 300 RTD occurred only in WWI and WWII. (One-day rates greater than 500 RTD occurred in all wars, but among the points in the selected data base, those rates for duration of 2-plus days, none were greater than 415 RTD.)

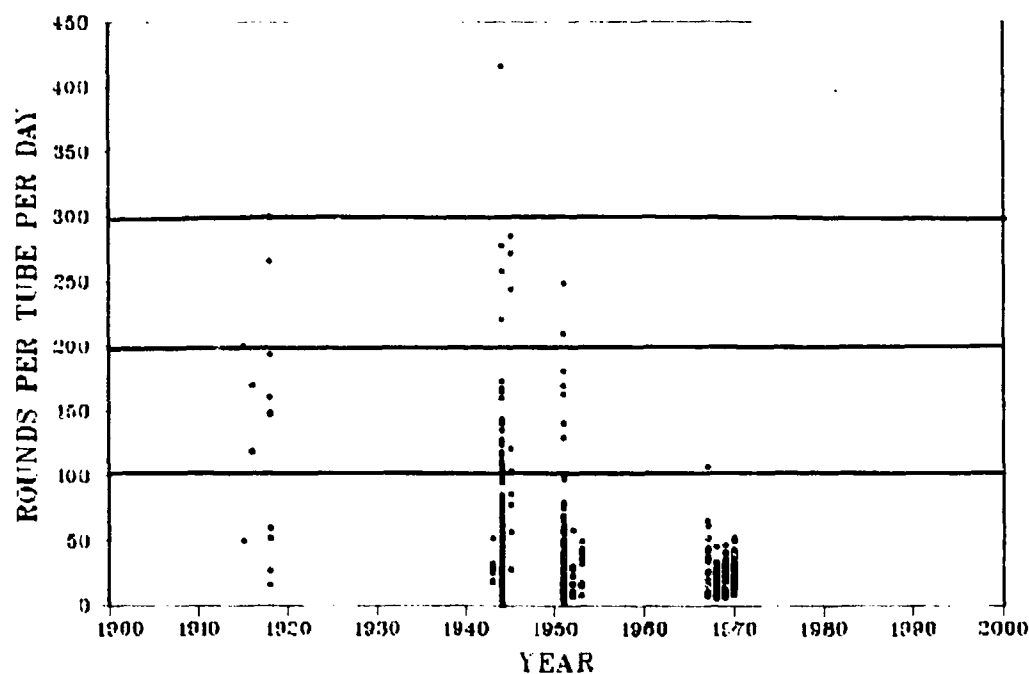


Figure 3-1. Distribution of RTD Over Time - All Tube Types

b. The variability of the data is greatest in WWI and WWII. Historians and logisticians of the WWI period express great surprise at the unprecedented extremes in the volume of fire, attributing it to advances in rapid fire artillery and the nature of the combat. The variability of the data then appears to decrease to a very noticeable near convergence in the Vietnam War.

3-3. **RTD GROUPED BY TUBE CATEGORY.** Figure 3-2 shows that light tubes account for much of the highest RTD in the data base. Light tubes also account for the extreme variability found among the tubes in the data base. The variability is reduced for medium tubes with a maximum RTD found historically to be less than 180 (Figure 3-3). The variability of the data for heavy tubes is reduced still further with only two events in this historical sample producing RTD greater than 90, and none more than 140 RTD (Figure 3-4). As defined for this study, heavy weapons did not exist prior to WWII. Several very large-caliber weapons such as large railroad guns, coastal defense cannons, naval guns, and siege artillery existed but are not included among field artillery weapons. The 155mm was in use during that time and played both the traditional medium support role and what was later separately identified as the heavy support role. The means of RTD by year and other location variables for RTD grouped by war are examined in Chapter 5.

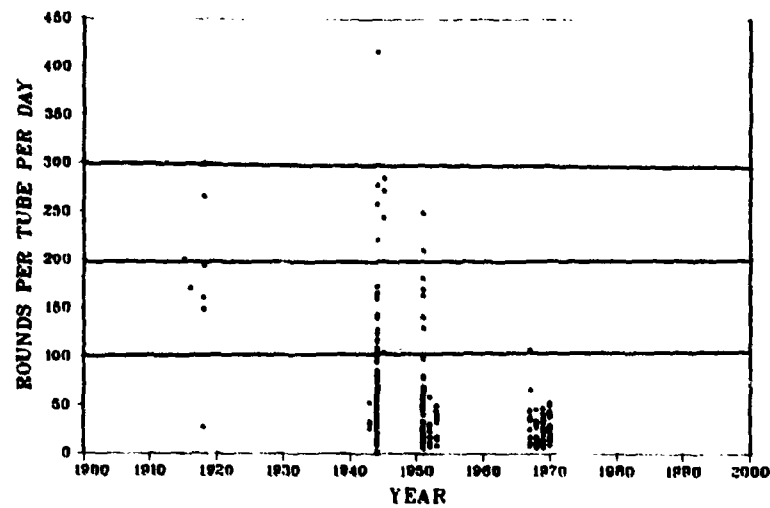


Figure 3-2. Distribution of RTD Over Time - Light Artillery

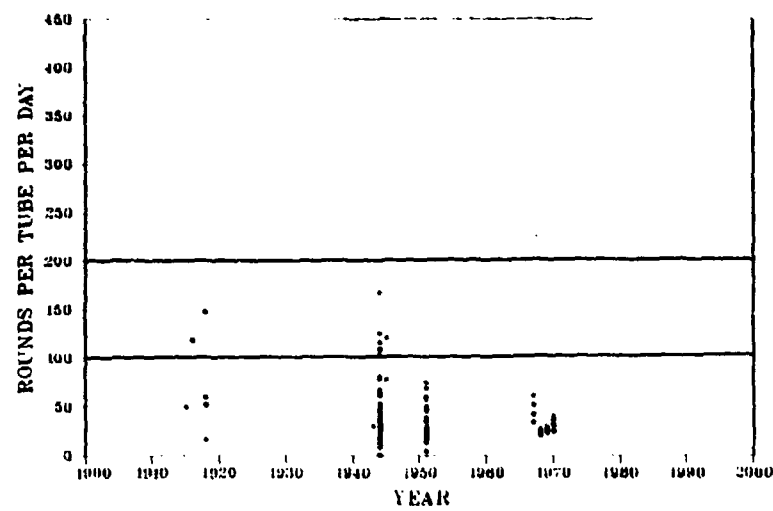


Figure 3-3. Distribution of RTD Over Time - Medium Artillery

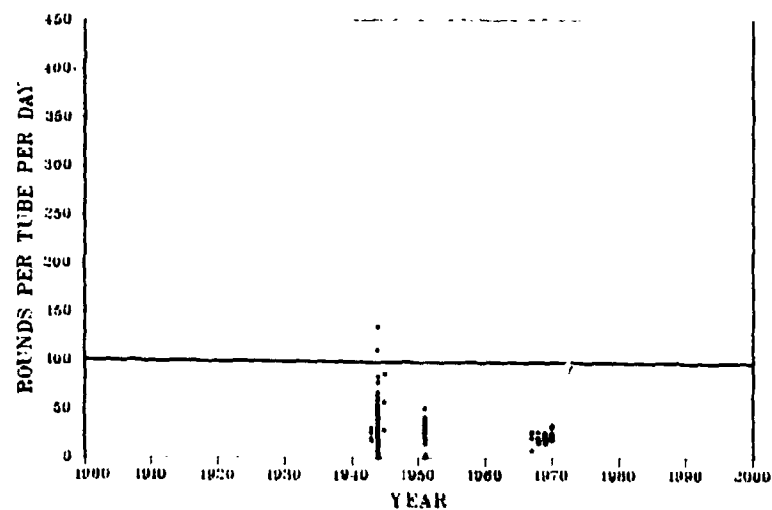


Figure 3-4. Distribution of RTD Over Time - Heavy Artillery

3-4. RTD GROUPED BY TUBE TYPE

a. Separated out as representative of each tube category, the 105mm, 155mm, and the 203mm artillery can be examined distinct from others of their category. As displayed in Figure 3-5, the 105mm is seen as the weapon having the single highest average RTD in the AHART selected data base, this occurring in WWII. Only one sample of the 105mm was found in WWI as it was a new weapon for that period, the 75mm being the primary direct support artillery of the war. The 105mm displays the extremes in variability in WWII and Korea but converges greatly in the Vietnam data. Excluded from the data are the 75mm, 81mm mortar, 107mm mortar, and the 114mm gun (4.5-in gun). The RTD for the other light systems fall within the 105mm experience, making the 105mm a satisfactory representative of all.

b. The plot of the 155mm (Figure 3-6) is identical to that of the medium tube category since this is the only tube type in the medium category for the AHART selected data base.

c. Excluded from the heavy category are the 155mm gun and 175mm and 240mm tubes. It would appear (Figure 3-7) that few points are eliminated, but it is, in fact, the number of points in common that causes the illusion. The 203mm tube type is an excellent representative of the category. As such, it appears to maintain a relatively constant usage across wars and has relatively low variability. It would seem that role of the 203mm tube has remained the same since its inception and that this role produces a relatively constant RTD over the period.

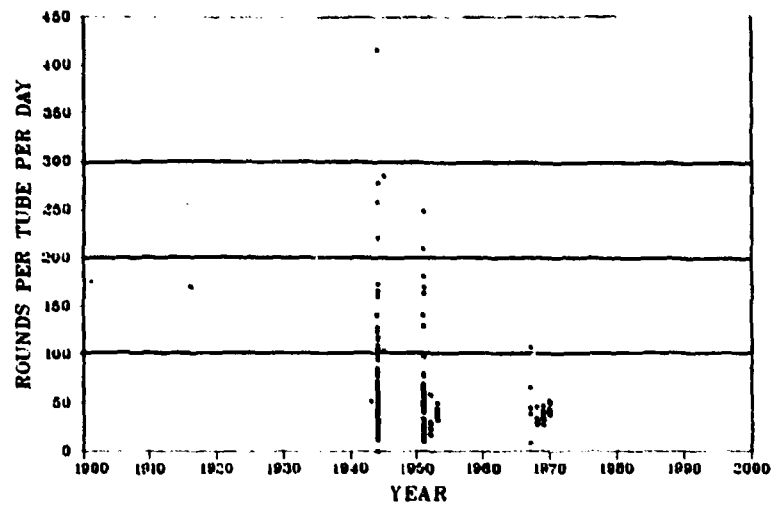


Figure 3-5. Distribution of RTD Over Time - 105mm

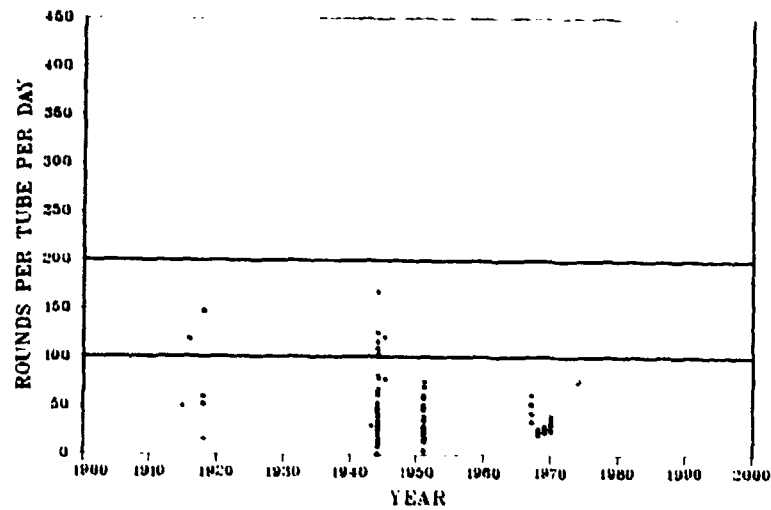


Figure 3-6. Distribution of RTD Over Time - 155mm

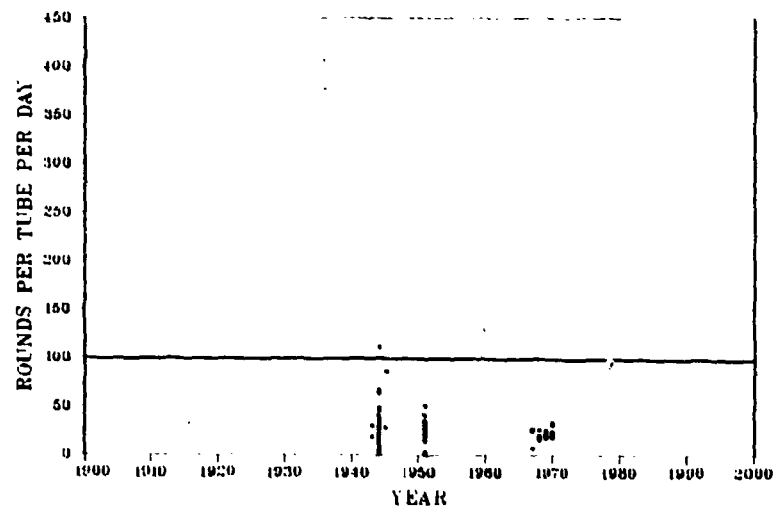


Figure 3-7. Distribution of RTD Over Time - 203mm

CHAPTER 4

EXPLORATORY ANALYSIS OF HISTORICAL RATES

4-1. PURPOSE. The purpose of this chapter is to present an analysis of the relationships among the chosen variables and their relative importance in explaining historical rates. This chapter also provides an analysis of the value of the AHART data base for use in prediction.

4-2. LINEAR TRENDS FOR RTD WITH CHANGES IN SINGLE INDEPENDENT VARIABLES

a. Linear Trend for RTD with Increasing Year

(1) Figure 4-1 repeats the presentation of all selected data points over time (Figure 3-1, Chapter 3), improving the capability to discern points that were plotted over one another. The negative slope of the regression line is as some might expect. It is suggested that as time progresses, and along with it technology, doctrine, target acquisition, etc., fewer rounds are being fired. As the nature of warfare has changed, the overall effect, according to this data, continues downward. (For an explanation of numerical and letter plotted symbols, see the BMDP Guide. Letters simply indicate increasing multiples of points plotted on the same point.)

(2) The synergistic effects of improved target acquisition, improved accuracy, increased dispersion, changed tactics, increased lethality, and improved cover all are somehow imbedded in this result. Each are subjects of closely related individual studies but are beyond the scope of this study to analyze.

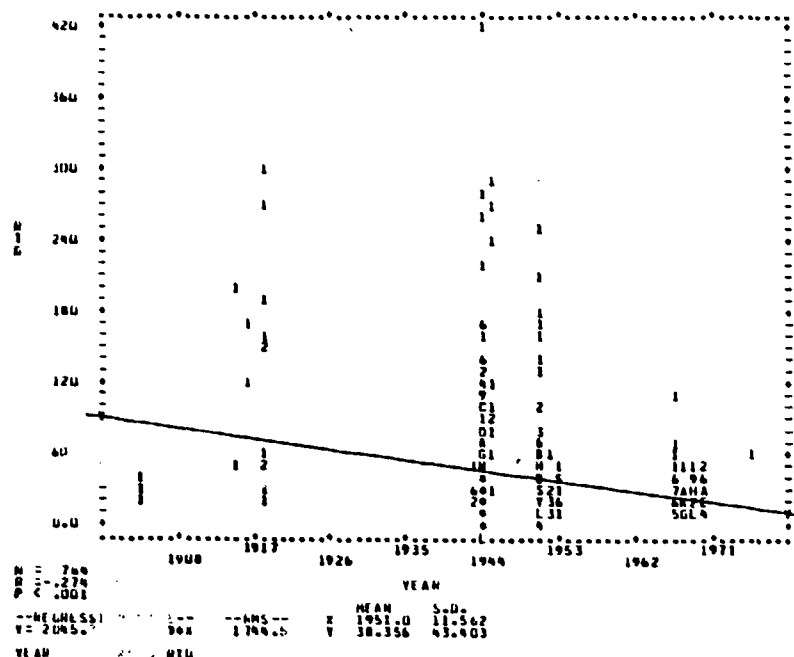


Figure 4-1. Linear Trend for RTD with Increasing Year

(3) There is no readily available means with which to judge the magnitude of the slope. It does not seem severe for a linear trend of a single variable.

(4) It is obvious from the correlation coefficient (R) in Figure 4-2 that the linear regression of this one variable is grossly inadequate to explain the variability of the data. From the appearance of the amount of dispersion in any one year, it is unlikely this or any one variable will explain much of variability. The general trend is nevertheless useful information.

b. Linear Trend for RTD with Increasing Caliber (TUBETYPE)

(1) Figure 4-2a suggests that as the caliber of the weapon increases the RTD decreases. This is as expected, consistent with the traditional role of each weapon system. The 75mm and 105mm tubes are historically the direct support tube types, those weapons which are called on first to support the maneuver units. Increased caliber tubes fire specialized missions and fire in support of the maneuver units only when the direct support weapons cannot handle the volume of fire required. In all but light infantry units, 155mm artillery has recently begun to assume the direct support role. This change, generally after the Korean War, will have an influence on the analysis of this data.

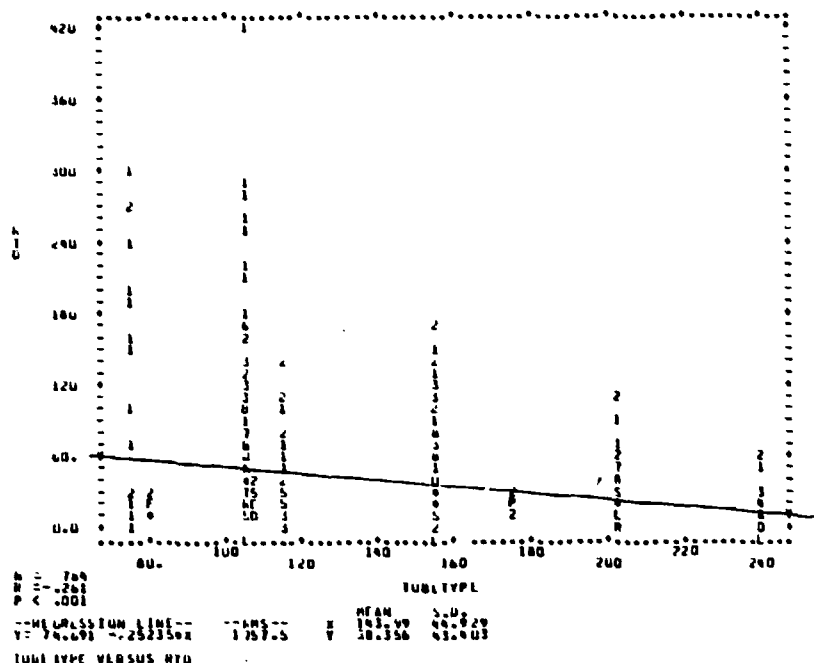


Figure 4-2a. Linear Trend for RTD with Increasing Caliber of Tube Type

(2) The maximum RTD of 420 should not be considered as an outlier. Numerous 1-day RTD (in the AHART data base; not included in the selected data base) are in excess of this number--as high as 827 RTD.

(3) Again the variability of the data is far beyond the ability of this single variable to explain.

(4) Figure 4-2b shows that, when grouped by tube category, the slope of the curve is only slightly less. Use of this different grouping arrangement to present more concise, readable charts and graphs is feasible with little loss or distortion of information.

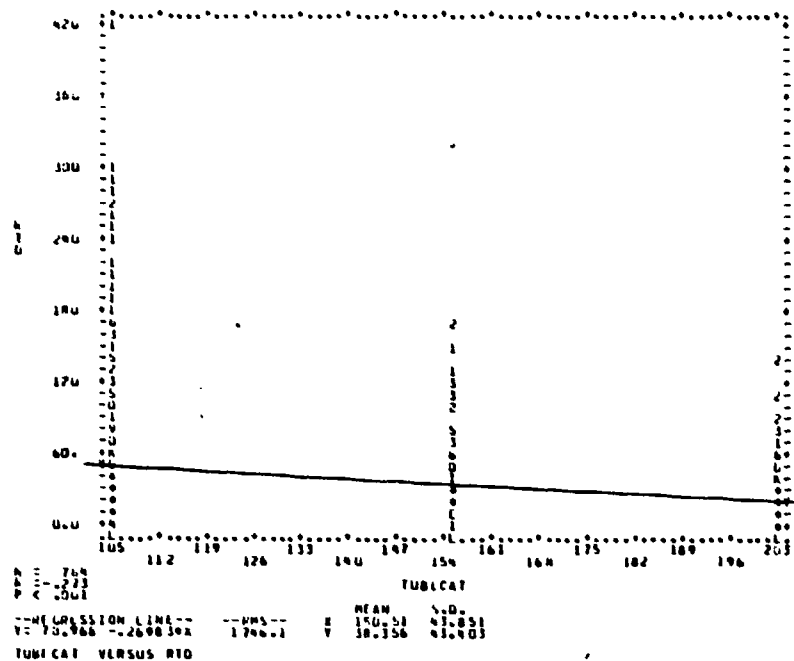


Figure 4-2b. Linear Trend for RTD with Increasing Tube Category

c. Linear Trend for RTD with Increasing Tube Quantity (TUBEQTY)

(1) Figure 4-3 suggests that as the number of tubes considered in an event increases, the RTD decreases. This seems consistent with what is found in the WARRAMP process. In the division-level model, a larger number of tubes must share the same number of generated missions. In computation of the theater rate, the same number of expenditures is divided by all tubes in the theater, many of which rarely fire. Therefore, as the number of tubes in the division-level model increases or as the number of tubes in a theater increases, it is expected that there would be a decrease in the number of rounds each tube would, on the average, fire.

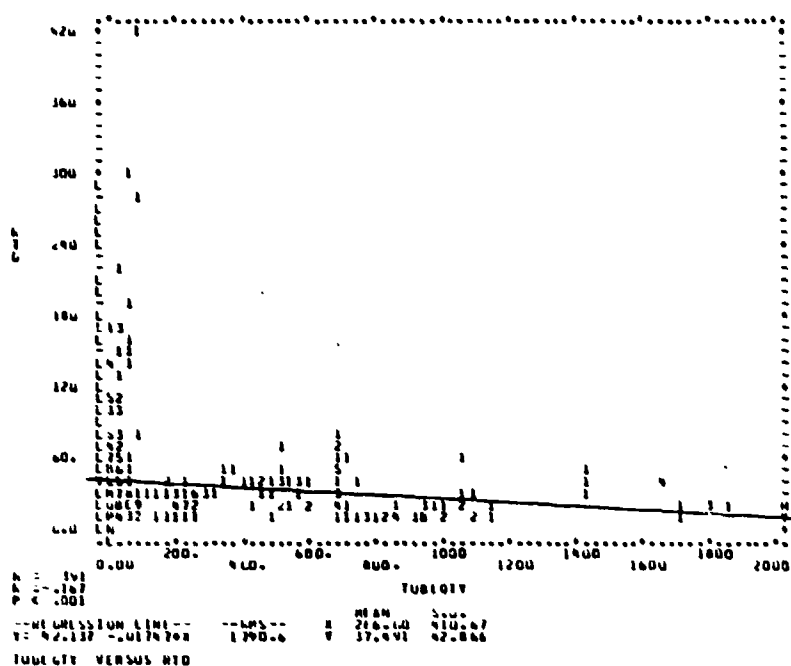


Figure 4-3. Linear Trend for RTD with Increasing Tube Quantity (TUBEQTY)

(2) The large variability is again very poorly explained by this trend alone.

(3) There is a mixing here of samples for operational RTD and theater RTD. The rapid decrease in RTD after a tube quantity of 87 weapons indicates the general dividing line between operational and theater RTD with respect to this variable. The figure is roughly equivalent to the tubes available to a corps-size operation. In future analysis, the data for the two types of rates should be maintained and analyzed separately.

d. Linear Trend for RTD with Increasing Intensity of the Operation (OPN)

(1) Figure 4-4 shows a positive trend for the change of RTD with increased operational intensity. This is as expected. More intense fighting would be expected to produce higher artillery expenditures. The magnitude of the slope, however, is not as great as expected. The RTD in light protracted combat would be expected to be much less than those of a heavy defense of a prepared position.

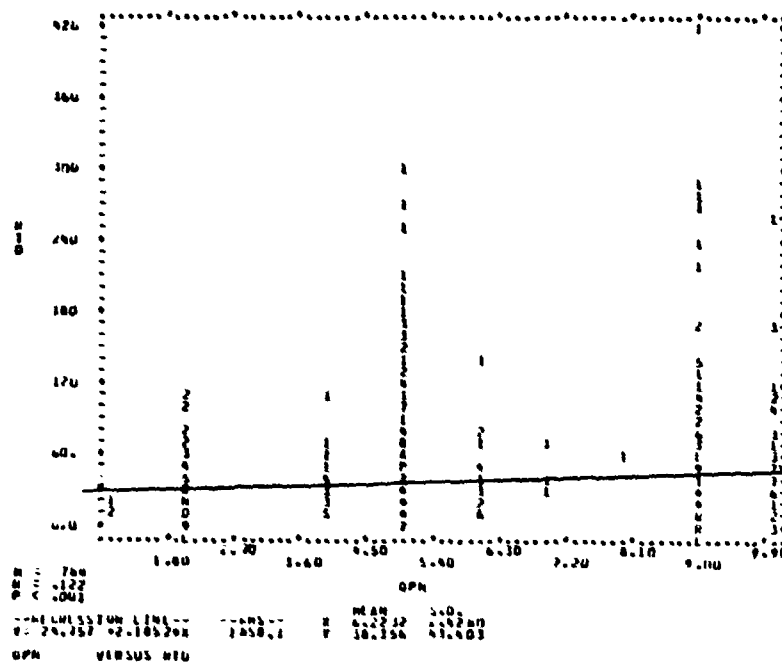


Figure 4-4. Linear Trend for RTD with Increasing Operational Intensity

(2) Several explanations are conceivable. If the expected magnitude of the slope were, in fact, true, the problem could be in the sampling. The AHART data base has a very poor distribution over the spectrum of operational intensities, most points being concentrated in the heavy intensity battles. It is possible, however, that this is a true result. Because of increased movement during more intense battles, or the use of increased harassing fires during lighter, more protracted battles, RTD in higher intensity battles may not be as different as might have been expected.

(3) Between attack operations and defensive operations of the same intensity, it is expected that defensive operations would have a greater RTD. This is the result found in historical data.

(4) The variable OPN is notably different from the other variables examined in that, if increasing scales for the independent variables are used, it is the only one with a positive influence on RTD.

e. Linear Trend for RTD with Increasing Duration of the Operation (DURATION)

(1) Figure 4-5 suggests that as the period of time over which the RTD is computed increases, the RTD decreases. The direction of the trend is as expected, but the slope is considerably less than expected. An increase in the number of days over which RTD is computed increases the likelihood that a number of those days were reduced firing or even nonfiring days. Seldom do units fire continuously for days on end. It has happened, but it is the exception. It would be expected, therefore, that a more rapid decrease in the slope would be closer to the actual events.

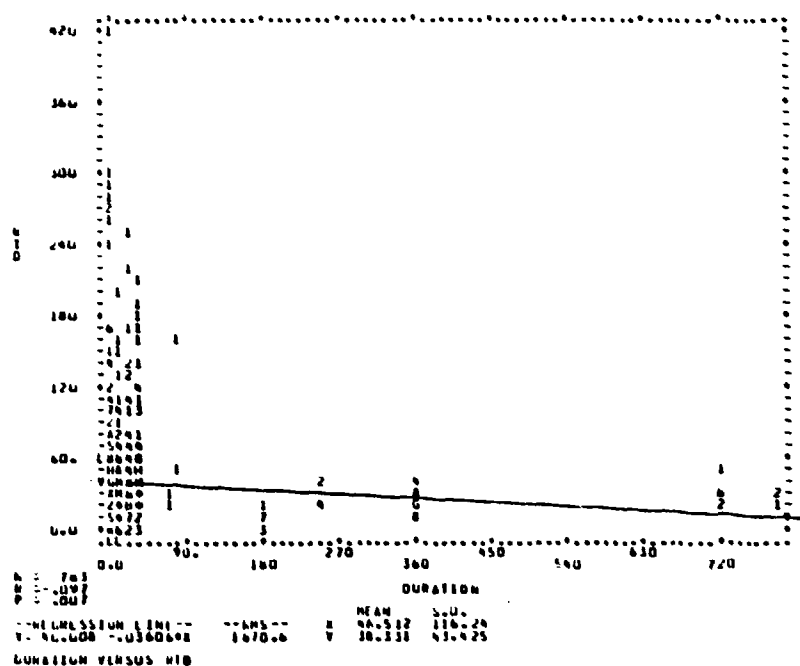


Figure 4-5. Linear Trend for RTD with Increasing Duration

(2) The sample itself may again account for the less than expected slope. The great majority of samples are under 40 days in duration. The magnitude of the slope is, by default, heavily influenced by a few number of points at the 180-day-plus end of the scale. Despite the elimination of the 1-day duration samples, the trend is mostly determined by samples of duration less than 10 days. (Note: those samples of 1-day duration were eliminated when forming the selected data base.)

(3) There is also a larger than desired correlation between DURATION and the variable SIZE (Table 4-1). That is, the larger forces are also those points for which data is aggregated over longer periods of time. Since larger forces also tend to have a greater number of tubes, the influence will be to reduce the RTD for increased durations. Some additional work will be required to isolate these effects.

(4) The less than expected means for RTD may be an additional explanation as to why the slope is lower than expected (Figure 4-5). The trend projected over a long x-axis will produce a reduced slope, with a small mean RTD of 38 on the corresponding y-axis.

(5) DURATION has the least correlation with RTD of the variables included in the analysis, indicating a possible opportunity to redefine or eliminate DURATION as a variable.

f. Linear Trend for RTD with Increasing Size of the Supported Force (SIZE)

(1) Among the variables chosen for this analysis, SIZE has the greatest correlation with RTD, if only by a small amount. The trend, as shown in Figure 4-6, suggests that as the size of the supported force increases, the RTD decreases. This is consistent with the WARRAMP process. As the size of the force increases, the proportion of subordinate units actually engaged in fighting decreases. The artillery supporting the engaged units experiences high single day rates, but the artillery supporting units not engaged do not.

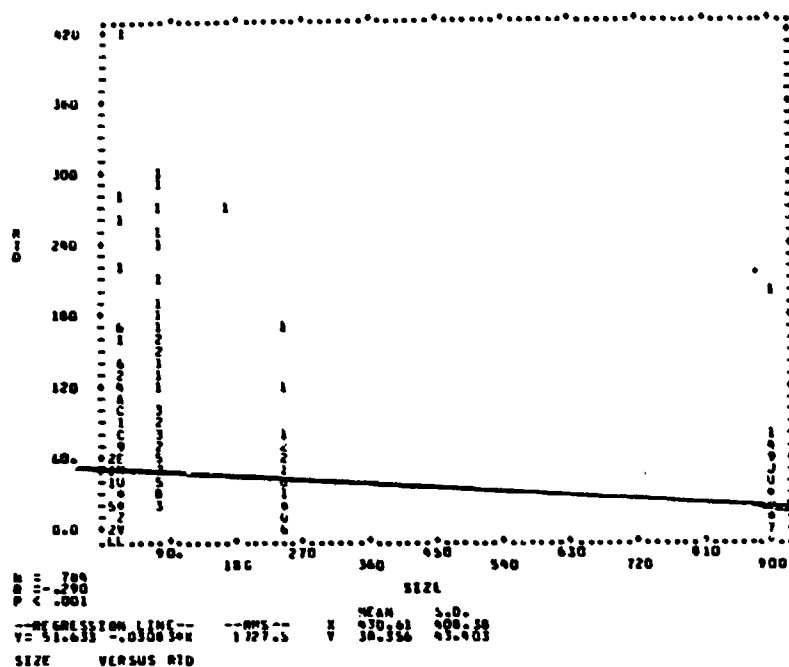


Figure 4-6. Linear Trend for RTD with Increasing Size of Supported Unit

(2) SIZE as a variable offers the most efficient way to isolate rates for which theater rates can be directly compared. Division and corps RTD fall primarily into the scope of operational rates. Army and theater RTD are directly comparable with the WARRAMP process rates.

(3) There were no samples included in the data base for units less than battalion task force size. Subordinate unit actions are of limited value for comparison with theater-level studies.

(4) It is suggested then from this data that WARRAMP rates, being theater rates, should almost always be lower than any of the operational rates to be found in historical data. When comparisons are made between historical and WARRAMP results, the WARRAMP results would be expected to be lower. This, however, is not the case, as Chapter 5 will show.

g. Correlation Among Individual Variables

(1) Within the AHART data base there are over 3,600 data points. Once samples of 1-day duration are eliminated, the selected data base retains 1,080 points. There are 213 records from the 1,080 for which no data for the dependent variable (RTD) was recorded. Upon elimination of these 213 records, there remained 787 records in the selected data base. Of the 787 records in the selected data base, some variables still had missing data and therefore could not be included in the calculations for the simple linear correlation coefficients involving that variable.

(2) Differences found between this matrix (Table 4-1) and the multiple linear correlation matrix (Table 4-2, shown later) are due to the difference in the number of records employed in the calculation and by the difference in the number of variables included in the calculations.

Table 4-1. Simple Correlation Matrix

Variable	YEAR	TUBETYPE	TUBEQTY	OPN	DURATION	SIZE
YEAR	1.0					
TUBETYPE	-.1181	1.0				
TUBEQTY	.2976	-.5914	1.0			
OPN	-.2816	.1223	-.1536	1.0		
DURATION	.1869	-.0281	.0778	-.0400	1.0	
SIZE	.6639	-.2495	.7103	-.2884	.2071	1.0
RTD	-.2741	-.2612	-.1674	.1222	-.0965	-.2901

(3) The matrix demonstrates the lack of true independence among most of the chosen variables. There is a very high correlation between the variable SIZE and both TUBEQTY and YEAR. For a sample size of 394 records (the lowest number of records used in any of the calculations), the correlation is statistically significant if the coefficient is greater than .09, which most are. Only the variable DURATION is relatively uncorrelated with the other variables.

(4) While none of the correlations are very strong, all of the chosen variables are correlated with the dependent variable. The correlation with DURATION is weakest.

4-3. LINEAR TRENDS FOR RTD WITH CHANGES IN TWO SELECTED INDEPENDENT VARIABLES

a. Linear Trend for RTD with Change in Year and Tube Category

(1) Observed as raw data, it appears possible that RTD for WWII is as great as for the data from WWI (Figure 4-1). Reduced to mean RTD for each war, the graphics display a dramatic drop in RTD from WWI to WWII (Figure 4-7). There are decidedly fewer observations for WWI, decreasing the confidence in these figures compared to WWII data; however, narrative accounts and contemporary analysis indicate that very high rates of fire for WWI were possibly the rule rather than the exception. Figure 4-7 demonstrates the change in the mean RTD for each war by tube category.

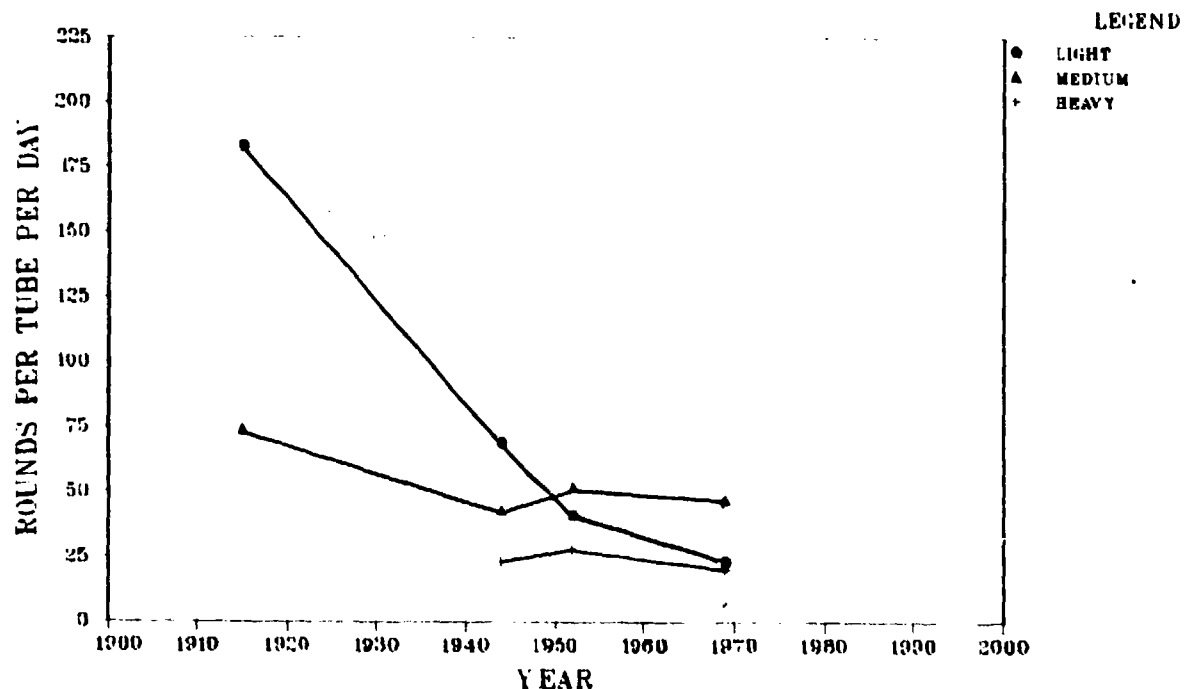


Figure 4-7. RTD for Year by Tube Category

(2) The change in RTD for medium tubes is not as dramatic but is significant.

(3) Following WWII the RTD for light weapons declined and became nearly identical to RTD for heavy tubes in Vietnam.

(4) It is the medium tubes that actually increase and diverge slightly from the others after Korea.

(5) In WWII and Korea, tube types maintained traditional roles, light tubes having less range and providing direct support fires, medium tubes having less range than heavy tubes and more often supporting the fires of the direct support artillery.

(6) Heavy tubes remained in specialized roles and fired long range less accurate missions less often.

(7) By the 1960s, 155mm tubes had achieved greater range capability and were nearly as mobile as light tubes, therefore assuming a greater share of the targets which even in the past would have been better served with greater shell weights.

b. Linear Trend for RTD with Changes in Operational Intensity and Tube Category (Figure 4-8)

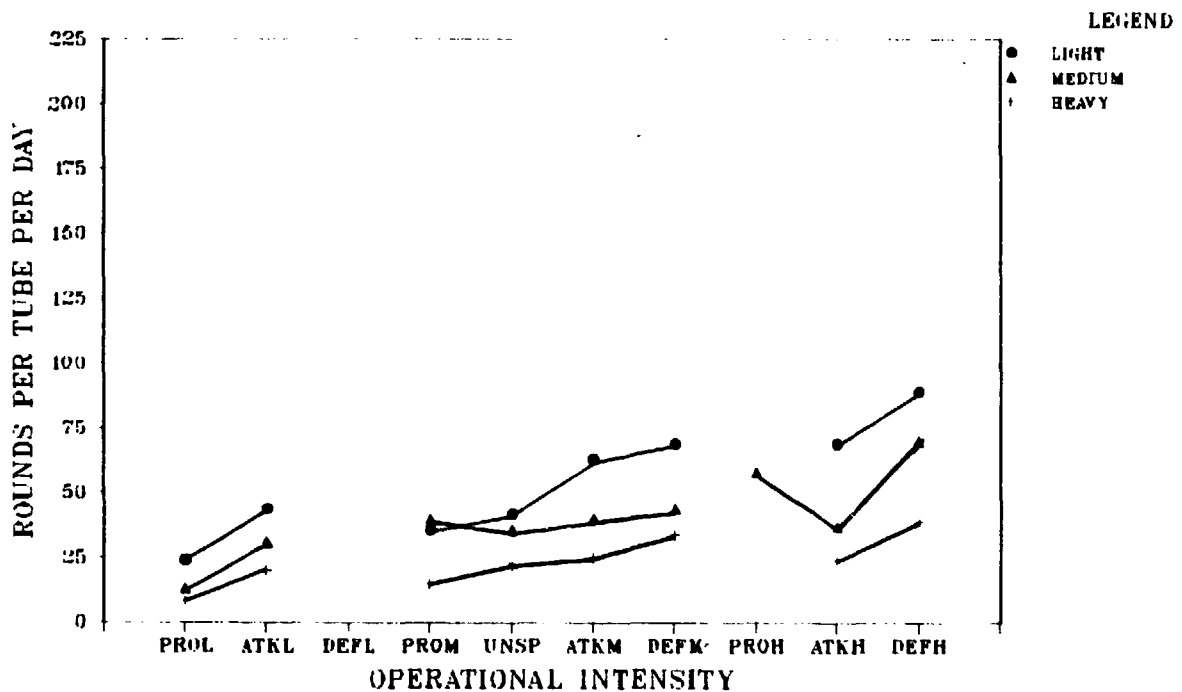


Figure 4-8. RTD For Operational Intensity By Tube Category

(1) With the notable exception of attack heavy (ATKH), RTD continually increases, even if not significantly, from the previous operation for like tube categories. This supports the order chosen for investigating this variable.

(2) As expected, attack rates are greater than protracted combat rates.

(3) Also as expected, expenditure rates are greater for defense operations than for either prolonged or attack operations. This is generally consistent with FM 101-10-1.

(4) From initial versions of this analysis it was found that the large number of unspecified (UNSP) operations in this data base fell generally between protracted medium (PROM) and attack medium (ATKM) and supports its location on the scale of operational intensities. This further supports the assumption that these UNSP operations were data consolidated over disparate types of operations. They are nearly central enough to be considered a measure of the central tendency of the sample.

(5) The decrease in RTD for ATKH, compared to operations both above and below it, is an interesting result in that it is consistent with what has been true in the division model of the WARRAMP process. A conceivable explanation is that the amount of movement required of the force in a deliberate intense attack is great enough to reduce the artillery's ability to support. A continued effort is warranted to acquire data on protracted operations for light and heavy tube types and to confirm this result.

(6) As shown in Chapter 2, the sample for this variable is heavily weighted to attack operations and particularly to heavy attack operations. This fact should not be lost in the aesthetically pleasing results of these graphics. Several of these points are based on sample sizes of less than five events.

c. Linear Trend for RTD with Changes in Duration and Tube Category

(1) Duration of battle can be divided into three general categories--first, battles, which are of the "come as you are" variety or are strictly of short length (less than 10 days long); campaigns which are longer, preconceived, and for which logistic preparations are made; and third, theater operations which are generally longer than 90 days and which may include numerous campaigns and individual battles.

(2) In Figure 4-9 it is the RTD for DURATION greater than 30 days that is most directly comparable to the WARRAMP process. This is so, not because duration of battles determines whether or not the expenditure is a theater-level RTD, but because this is the way historical data is generally found. Historical documents that provide the details needed in this analysis have often been consolidated into monthly, quarterly, semiannual, and annual periods. Seldom are theater-level expenditure data consolidated in less than the 30-day figures. For Korea, monthly theater data is available but lacks the theater tube quantity data needed for determination of RTD. This level of detail exists in sufficient detail only for Vietnam.

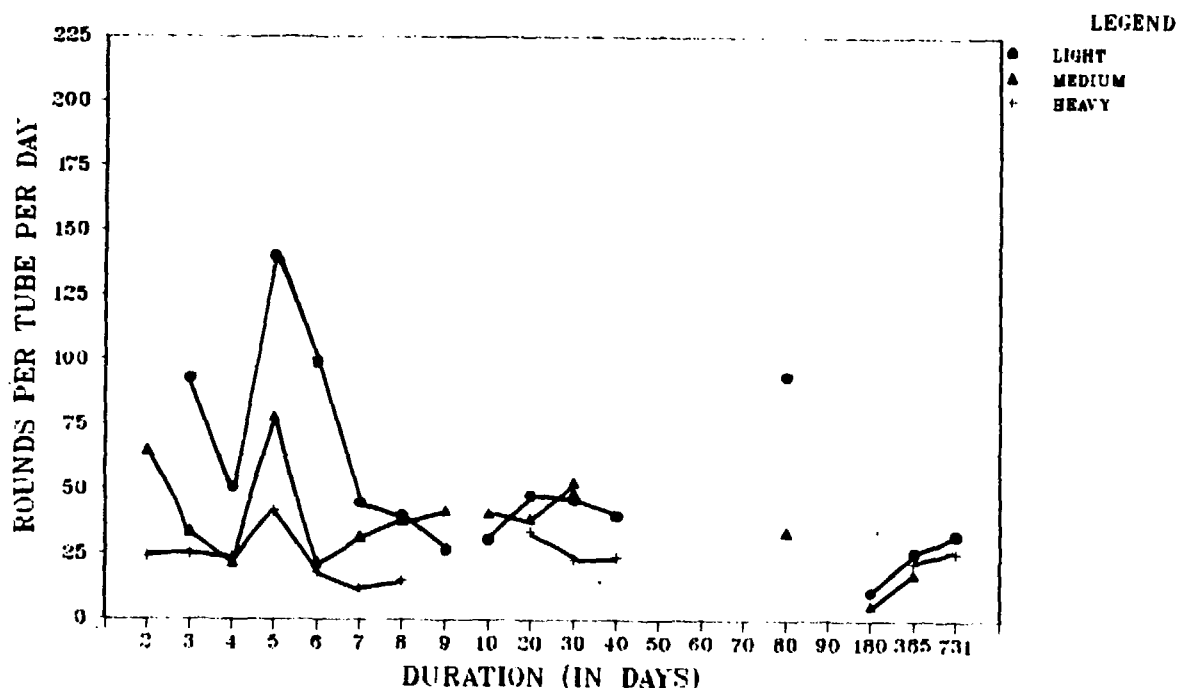


Figure 4-9. RTD For Duration By Tube Category

(3) In the WARRAMP process, theater rates are produced for any number of days, 1 to 180. But for the data in AHART, the three general categories described above roughly approximate each type rate and are therefore useful in the analysis. It may be worthwhile in a revised version of the data base to identify historical data points according to one of these three categories.

(4) With the notable exception of the 5-day RTD (for which there are only five observations), there is a decreasing trend from 2 to 10 days, leveling off for RTD of 20-, 30-, and 40-day duration. The 80-day RTD for light tubes (again with very few samples) leaps dramatically. RTD for light and medium tube categories with duration greater than 180 days is obviously less than their counterparts of less duration. Heavy tube RTD is generally constant.

4-4. MULTIPLE LINEAR REGRESSION ANALYSIS

a. Multiple Correlation Among the Variables

(1) Among the 787 points in the selected data base, 396 had values outside the acceptable limits (smaller or greater than limits defined for each variable). Only 391 complete records remain. It is with these records that the multiple regression analysis is done. It is unfortunate that the difficulty in finding even reasonable approximations for tube quantity eliminates nearly half of the records in the selected data base from this analysis. Future work would be well spent on ameliorating this problem.

(2) For this sample size, the correlation is significant if the absolute value of the correlation coefficient exceeds 0.09, which most do. As shown in Table 4-2, YEAR, TUBETYPE, OPN, and SIZE all have significant linear correlations with RTD. DURATION does not appear to be significantly correlated with RTD.

Table 4-2. Multiple Linear Correlation Matrix

Variable	YEAR	TUBETYPE	TUBEQTY	OPN	DURATION	SIZE
YEAR	1.0					
TUBETYPE	-.135	1.0				
TUBEQTY	.296	-.594	1.0			
OPN	-.136	.106	-.158	1.0		
DURATION	.216	-.113	.076	-.144	1.0	
SIZE	.748	-.439	.709	-.235	.268	1.0
RTD	-.249	-.214	-.167	.169	-.036	-.231

(3) The variables are, however, also significantly correlated with each other. High correlations exist between SIZE and both YEAR and TUBEQTY. With the exception of the correlation between DURATION and both RTD and TUBEQTY, all variables are significantly related to one another. The lack of independence among the variables is a major feature of the data base. With continued analysis and increased study

into individual historical events, more independent variables may be developed.

(4) The variables chosen for this study were those for which historical data seemed accessible in the time allotted and were those which also seemed to be the most commonly used in previous analyses of the WARRAMP process. It would appear that several of the factors analysts most often look for in the analysis of WARRAMP results, i.e., operational intensity, size of the maneuver forces, duration of the battles, may be so dependent on each other that the analysis is at best intricate and possibly redundant. Continued work in the determination of truly independent variables and continued investigation into their relationship with selected dependent variables would seem to be needed. The difficulty experienced in explaining WARRAMP results may stem in part from the lack of independence in the variables commonly used to do so.

(5) None of the coefficients exceeds .80 and therefore suggests no multicollinearity. None of the variables is completely defined by another.

b. All-possible Subset Regression

(1) The order in which the variables appear in the single variable subsets is a first cut at the order of importance of each of the variables for explaining the variability of the data. In Table 4-3 the variables appear in an order slightly different from the order shown in the simple linear regression matrix. The discrepancy may be due to the difference in the number of records used in the analysis. (Only complete records are used in the all-possible subset regression.) Most notably, YEAR is transposed with SIZE, and TUBEQTY is transposed with OPN.

Table 4-3. Results - All-possible Subset Regression for Single Variables

R-square	Variable
.0623	YEAR
.0533	SIZE
.0457	TUBETYPE
.0286	OPN
.0280	TYPEQTY
.0013	DURATION

(2) Table 4-4 presents the best results for each number of variables included. "Best" is defined as the combination of variables having the highest multiple correlation coefficient for the number of variables included. The results of the regression for each variable are provided.

(3) The largest correlation coefficient was achieved with a combination of four variables, each contributing to the explanation of the variability as shown in Table 4-4.

Table 4-4. Coefficient Values from Best All-possible Subset Regression

Variable name	Standardized regression coefficient	T-stat	Contribution RSQ
Intercept	33.3	4.23	
YEAR	-0.185	-3.94	.0308
TUBETYPE	-0.474	-8.55	.1452
TUBEQTY	-0.373	-6.45	.0827
OPN	0.135	2.99	.0177

Squared multiple correlation	.2328
Numerator degrees of freedom	4
Denominator degrees of freedom	386

(4) The overall correlation coefficient, even for the best combination, demonstrates that no combination of variables offers a very useful explanation of all the variability in the RTD value. The best information to be gained from this number is that more work needs to be done, either in definition of variables or in data collection, or in both, before this data base can be used to make high-confidence predictions. The correlation coefficient is low, compared to scientific experiments, but is not unusual in sociological research work. No attempt at prediction should be made at this point.

(5) The relative rank of the variables in terms of their contribution to the correlation coefficient does offer a suggested priority for further investigation, but the historical data in the data base at the present time does not sufficiently explain enough of the variability of the data to allow prediction.

(6) Analysis of the normalized probability plot (Figure 4-10) for standardized residuals demonstrates some departure from the assumption of normality for plots for this combination of variables. Both tails decay very rapidly. Analysis of the residuals themselves (Figure 4-11) displays a modest, wedge-shaped plot indicating some degree of nonlinearity even in the multiple effects of the variables.

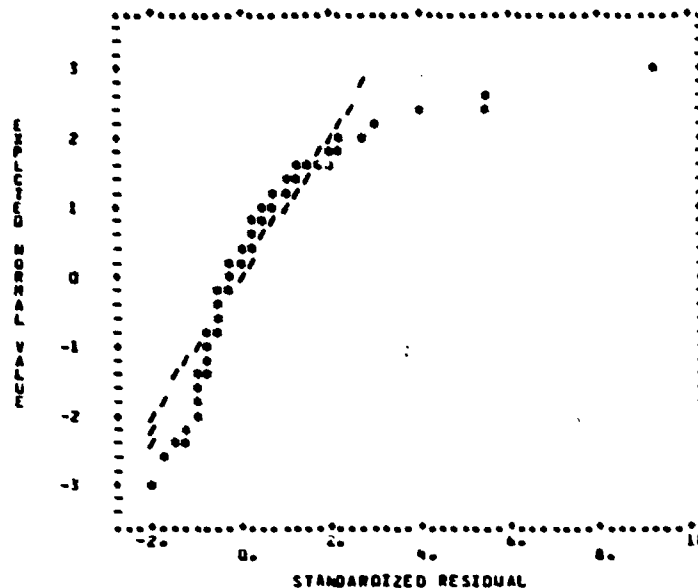


Figure 4-10. Normal Probability Plot for Standardized Residuals of the Best All-possible Subset Regression

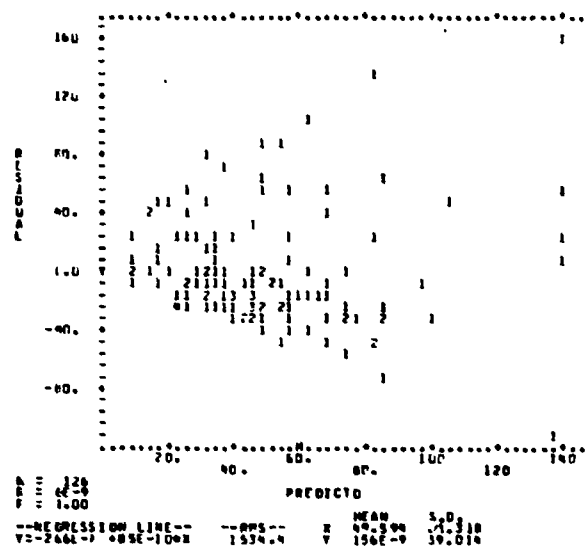


Figure 4-11. Residuals for Best All-possible Subset Regression

c. Stepwise Linear Multiple Regression

(1) Using forward-stepping techniques, four variables entered the regression that were not later eliminated. Table 4-5 shows the small changes to the correlation coefficient produced by each variable. The overall coefficient of determination, as in the all-possible subset regression, again demonstrates the inadequacy of the AHART data base for explaining the variability of the data and therefore its inadequacy for use in high-confidence prediction for individual cases.

(2) The resulting regression coefficients and their correlation are presented in Table 4-6. Except for OPN, all variables included have an effect of decreasing RTD. The correlations between TUBEQTY and the other variables are much greater than desirable.

Table 4-5. Summary Table - Stepwise Linear Multiple Regression

Step no	Variable entered	Multiple		Change in RSQ
		R	RSQ	
1	YEAR	.2496	.0623	.0623
2	TUBETYPE	.3531	.1247	.0624
3	TUBEQTY	.4638	.2151	.0904
4	OPN	.4825	.2328	.0177

Table 4-6. Coefficient Values from Stepwise Regression

Step	Y-INTCPT	YEAR	TUBETYPE	TUBEQTY	OPN	DURATION	SIZE
0	37.5	-.9232	-.1929	-.0175	2.7443	-.0663	-.0244
1	1836.9	-.9232*	-.2275	-.0107	2.2366	.0334	-.0106
2	2214.8	-.10491*	-.2275*	-.0405	2.6210	-.0072	-.0422
3	1538.1	-.7332*	-.4250*	-.0405*	2.1963	-.0338	-.0085
4	1429.0	-.6839*	-.4280*	-.0389*	2.1963*	-.0048	-.0029

NOTES:

1. Regression coefficients for variables in the equation are indicated by an asterisk.
2. The remaining coefficients are those which would be obtained if that variable were entered in the next step.

(3) The following plots (Figures 4-12 and 4-13) demonstrate the same results found in the all-possible subset regression; that is, some amount of departure from the linearity and/or normality assumption and a definite wedge-shaped plot of residuals indicating a change in the variability of the data with increasing magnitude of the dependent variable (RTD). Therefore, an investigation of some nonlinear relationships is indicated.

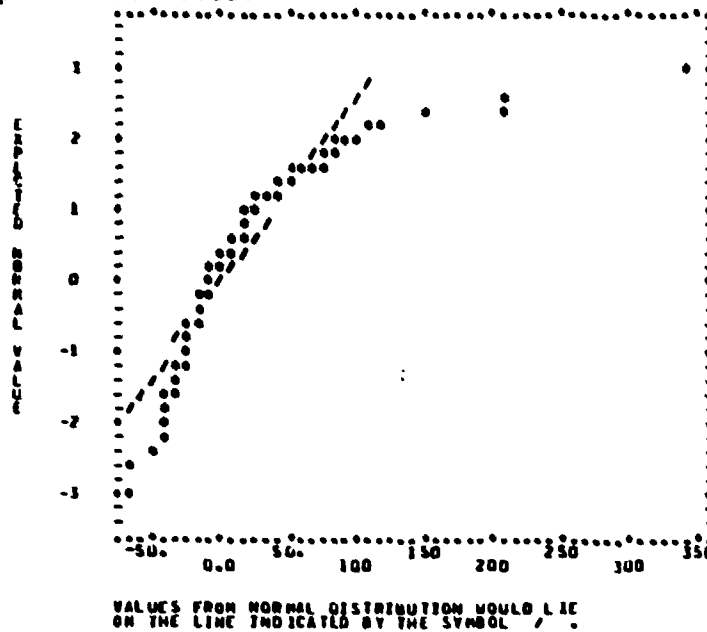


Figure 4-12. Normal Probability Plot for Standardized Residuals of the Stepwise Linear Multiple Regression

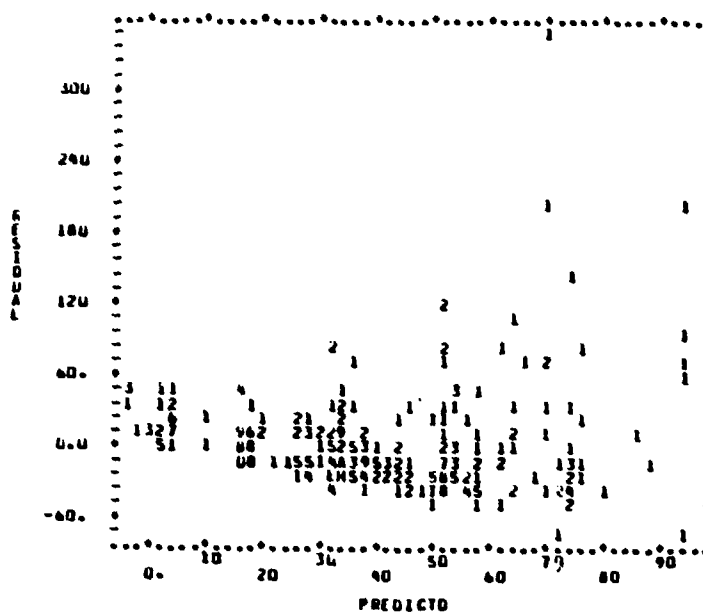


Figure 4-13. Residuals for Stepwise Linear Multiple Regression

d. Multiple Linear Regression on Nonlinear Transformations

(1) From the linear regression that was conducted, no combination of variables seemed adequate to explain the variability of the data. Several transforms of the data were attempted. Only one improved the overall correlation coefficients, then only slightly. Tables 4-7 and 4-8 present the results of a square root transformation of the data and application of the multiple linear regression techniques used on the transformed data.

Table 4-7. Summary Table - Stepwise Linear Multiple Regression, Square Root Transform

Step no	Variable entered	Multiple		Change in RSQ
		R	RSQ	
1	TUBETYPE	.3338	.1115	.1115
2	TUBEQTY	.4968	.2468	.1353
3	OPN	.5067	.2567	.0099

Table 4-8. Regression Coefficients from Stepwise Regression, Square Root Transformation

Step	Y-INTCPT	YEAR	TUBETYPE	TUBEQTY	OPN	DURATION	SIZE
0	1.3782*	-.0041	-.0031	-.0001	.0176	.0011	-.0001
1	1.8182*	-.0060	-.0031*	-.0005	.0237	.0004	-.0003
2	2.3054*	-.0023	-.0056*	-.0005*	.0167	.0004	-.0001
3	2.2057*	-.0020	-.0056*	-.0005*	.0167*	.0007	.0000

NOTES:

1. Regression coefficients for variables in the equation are indicated by an asterisk.
2. The remaining coefficients are those which would be obtained if that variable were entered in the next step.

(2) The residuals shown in Figures 4-14 and 4-15 demonstrate a superior adherence to assumptions of both normality and linearity. The regression coefficients, however, demonstrate that no significant improvement is made in the ability of these variables to explain the variability.

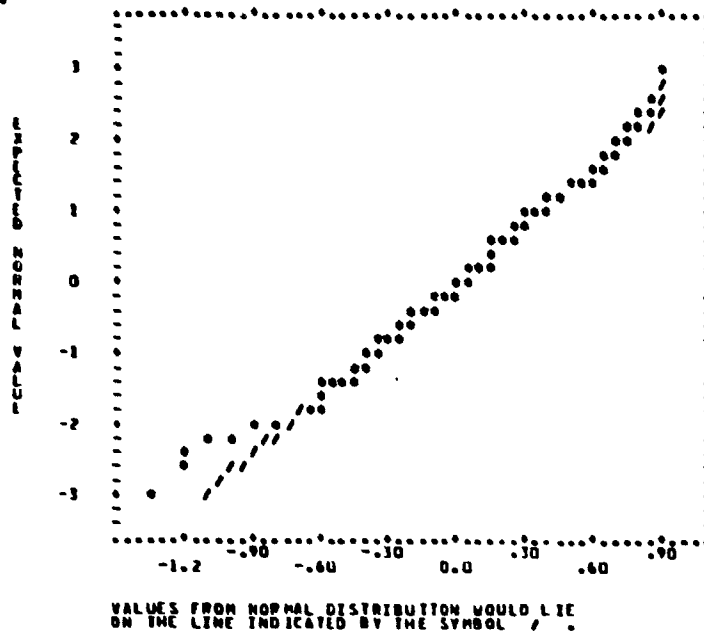


Figure 4-14. Normal Probability Plot for Standardized Residuals of the Stepwise Linear Multiple Regression, Square Root Transformation

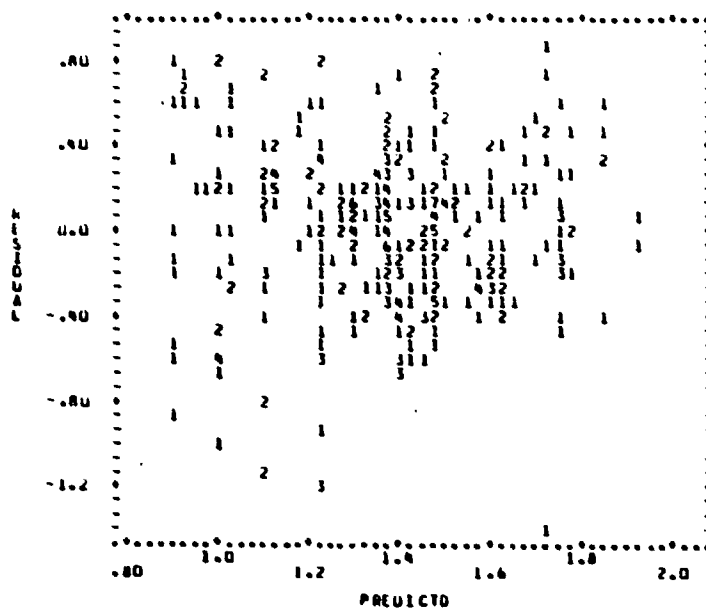


Figure 4-15. Residuals - Stepwise Linear Multiple Regression, Square Root Transformation

(3) The evidence becomes stronger that the variables included in the AHART data base, while useful in numerous other ways, are not yet ready for use in predicting RTD for individual events. It would appear that transformation of data to improve the usefulness of linear techniques in understanding the data provides no additional information and is not worthy of continued effort. Numerous other transformations, i.e., power, reciprocal, arcsine, were attempted with no better results; the need for improvement lies in the definition of the variables and the data itself.

CHAPTER 5

COMPARISON OF HISTORICAL RATES WITH WARRAMP RATES

5-1. PURPOSE

a. The purpose of this chapter is to present the results of comparisons made between selected WARRAMP rates and the RTD determined using historical data.

b. The definitions of rates and applicability of the data in this data base to comparisons with WARRAMP results are discussed in Chapters 1 and 2.

c. The WARRAMP results in this chapter are not identified with the specific requirements study from which they were taken and have been modified considerably to maintain the unclassified nature of the report without changing the nature of the comparison. Actual numbers are taken from among the Wartime Requirements Studies, FY 90 and FY 93 series, and can be obtained by authorized individuals or activities through the US Army Concepts Analysis Agency.

d. A follow-on study of this data conducted at CAA is planned in classified form.

5-2. ADDITIONAL CONSIDERATIONS AFFECTING COMPARISONS

a. Comparisons of this nature are subject to tremendous abuse. The presentation out of context and the occasional selective use of only favorable findings have created, in some circles, an attitude of mistrust and, in the extreme, a rejection of the use of historical data to compare with combat simulations. The list of additional considerations is presented here as a reminder to those who would misuse this data and to provide a broader perspective with which to judge the results of this study.

b. The very existence of the field of quantitative analysis attests to the belief that no single historical event is ever likely to match the precise conditions required for highly confident comparisons with a current or future situation. The procedures established to assemble data from many historical events, to draw conclusions, and to isolate comparable attributes are well established. But even these procedures can never duplicate a given situation with sufficient precision to overcome the objections of the cynic or the uninformed critic. For those, however, who respect the capabilities of such analysis and are able to accept its limitations as well as its strengths for what they are, no more and no less, a great deal of useful information is available.

c. Along these lines it is necessary to enumerate, without proceeding far into topics worthy of separate studies, the major attributes of the WARRAMP process which cannot be accounted for with the historical data in the AHART data base. Recall that only a limited

number of relevant factors affecting the WARRAMP process were chosen as variables in AHART. Additional historical data is available to examine additional variables, including some of the considerations listed below in Table 5-1.

Table 5-1. Considerations Affecting Comparisons

The WARRAMP process:

- Has an unconstrained supply of ammunition
- Has undegraded command, control, and communications (C3)
- Has state-of-the-art target acquisition capabilities
- Has state-of-the-art weapon and munition technology
- Always simulates theater densities of weapons and equipment

(1) **Constrained versus Unconstrained Ammunition.** In the WARRAMP process, no constraint is imposed on the availability of rounds that can be fired. The stated purpose of the process is to determine how many rounds would be needed if the combatants had all the ammunition they could use. However, in historical events there are numerous physical constraints in production, transportation, and loss due to accident or enemy action. As a result of these physical constraints, commanders often impose artificial constraints by imposing ammunition rationing. On occasion, historical events can be classified as practically unconstrained (i.e., at least one side had all the ammunition it could use effectively), but the preponderance of historical events occurs under conditions of rationing.

(2) **Undegraded versus Degraded Communications.** The WARRAMP process does not model the effects of degraded command, control, and communications (C3). There is no electronic jamming, no terrain interference or masking, and no loss of control due to destruction of headquarters units. Additionally, the processing of intelligence, once collected in WARRAMP, is in like manner undegraded. The intention of the WARRAMP process is to make no attempt to represent the variation of such effects, by default then assuming them to ultimately be of equal effect on both sides. This may be very objectionable to some, and may be at great variance from reality. The effects of undegraded communications and its effect on the use of intelligence is a major departure from historical experience.

(3) **Improved Target Acquisition.** A concentrated effort has been made over the last decade to improve the Army's target acquisition capabilities. Indeed, new technology has given commanders hope of reducing what has been one of their greatest weaknesses--the inability to acquire real-time intelligence and the resulting inability to target enemy maneuver and artillery units on a real-time basis. This new capability is reflected directly in current WARRAMP requirements studies. Real-time target acquisition and intelligence are expected to have significant effects on almost all factors influencing artillery expenditures. No historical data is available with which to measure or compare this influence. Even the recent Arab-Israeli Wars do not employ these systems sufficiently to permit comparisons with WARRAMP requirements studies for FY 93 and beyond.

(4) **Improved Weapon and Munitions Technology.** The range, accuracy, and reliability of artillery tubes have all improved markedly in this century. The most recent advances have never been tried outside test range conditions. In the arena of munition improvements, some analysts believe we have entered into a new age of artillery as different from 20th century historical experience as Napoleonic Wars and the American Civil War experience is from WWI and post-WWI historical experience. Artillery, formerly only an area fire weapon able to conduct precision firing on a specific target only with great effort and under very favorable conditions, can, with the development of laser guided and other terminally-guided munitions, attack specific targets with great accuracy as a matter of course. This effect is modeled in increasing detail in the WARRAMP process and has no historical experience.

(5) **Theater Rate versus Historical RTD.** As explained earlier, it is essential in any study of artillery expenditures to define clearly which type of rate is being observed and compared. Both operational and theater rates are available in historical data. Theater rates are by definition the lowest rates possible to compute since they use in the denominator all tubes available in a theater and not only those available to a specific area of operations.

(6) **Current Level of the Analysis.** Statistical analysis is an iterative process. This study is only the first step at data description and exploratory analysis. As the work progresses and other relevant variables are added or are taken away, the ability to account for the variation in historical data will improve. As it does so, the ability to compare WARRAMP and historical results will improve. Not that the rates will necessarily draw closer, but the confidence in the difference and the certainty with which we accept the information derived will increase.

5-3. COMPARISON OF WARRAMP RATES WITH HISTORICAL RTD

a. **Reduced Scope of the Comparisons.** At the outset of this study, it was intended that the comparisons of WARRAMP and historical data be a major result of the work. However, up to this point, the variables used in the analysis do not provide sufficient explanation of the variability to fit equations for RTD with any confidence in predictions

of individual events. As a result, the comparisons made in this chapter are mostly for illustrative purposes. These comparisons provide a start point but are of such low confidence levels that they can only be considered early iterations of what will, with continued analysis, be useful comparisons. An attempt to present any greater array of detailed comparisons at this point would be meaningless.

b. **WARRAMP Rates versus Historical RTD.** From Table 5-2 it can be seen that the most pronounced difference found in this comparison exists for 105mm/light tube types. The difference is greater at the 30-day rate than the 180-day rate. 155mm/medium rates compare more closely with AHART results, 203mm/heavy still closer. None, however, fall within the 95 percent confidence limits of a normal linear distribution.

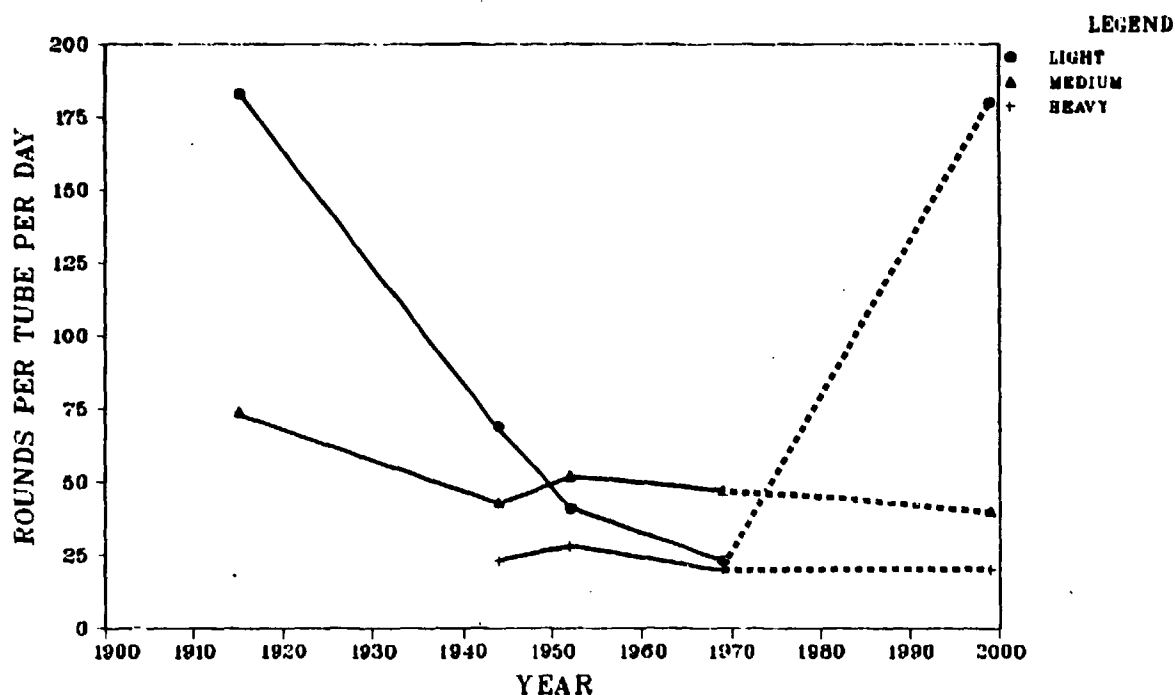
Table 5-2. WARRAMP Rates vs Historical RTD

TUBETYPE	Average RTD	95% Confidence interval	Standard deviation	WARRAMP rate	
				30-day	180-day
105mm	62.9	3.9	55.9	200	180
155mm	39.0	2.4	30.2	100	45
203mm	21.9	1.5	18.6	30	20
Light	50.2	3.0	56.8		
Medium	39.0	2.4	30.2		
Heavy	23.7	1.2	20.1		
All	38.4	1.5	43.4		

- As a result of considerations in Table 5-1, WARRAMP rates should be expected to be less than average RTD.

c. WARRAMP Rates versus RTD Over YEAR by TUBECAT

(1) Data collected from the requirements studies are plotted in Figure 5-1 together with the historical data as a point of departure for further analysis. No attempt is made here to extend the distribution of historical RTD beyond their place in time. When confidence in the data increases, a worthwhile attempt to do so can be made.

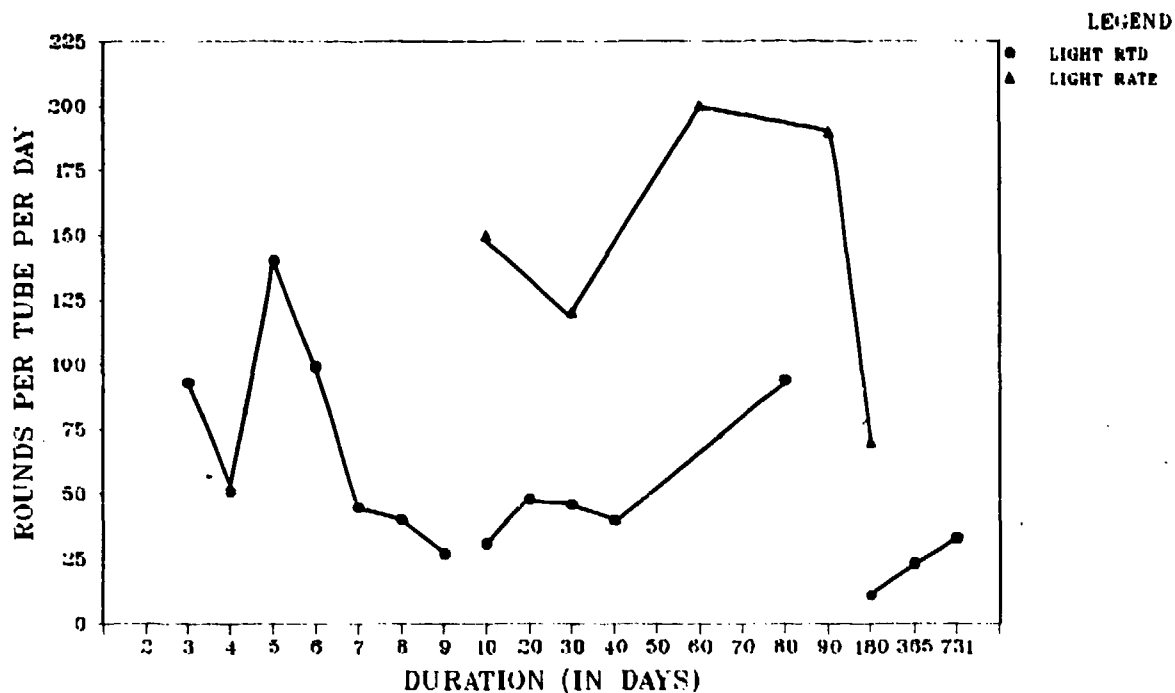


NOTE: Values plotted for 1999 are WARRAMP rates. Both continuous and broken lines are to aid observation only.

Figure 5-1. WARRAMP Rates vs RTD Over YEAR by TUBECAT

(2) Once again the 105mm/light tube types depart most dramatically from what was found in this historical data base. The light tube type historical curve would have to reverse itself dramatically for some reason to meet what WARRAMP predicts. The medium and heavy tube types do not seem to deviate greatly. It seems possible that such rates could actually occur.

d. WARRAMP Rates versus RTD for DURATION by TUBETYPE/TUBECAT. Figures 5-2, 5-3, and 5-4 provide additional comparisons for rates and RTD over various DURATIONS. Light tube types remain at great variance from historical data. Medium and heavy tube types seem much closer to historical experience throughout.



NOTE: Scale for DURATION changes; connecting lines are to aid observation only.

Figure 5-2. WARRAMP Rates vs RTD for DURATION by TUBECAT - Light Tubes

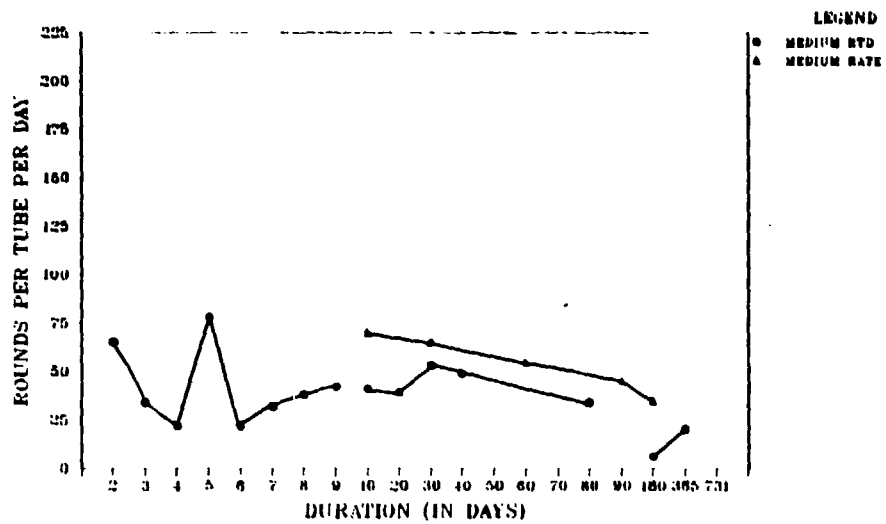


Figure 5-3. WARRAMP Rates vs RTD for DURATION BY TUBECAT - Medium Tubes

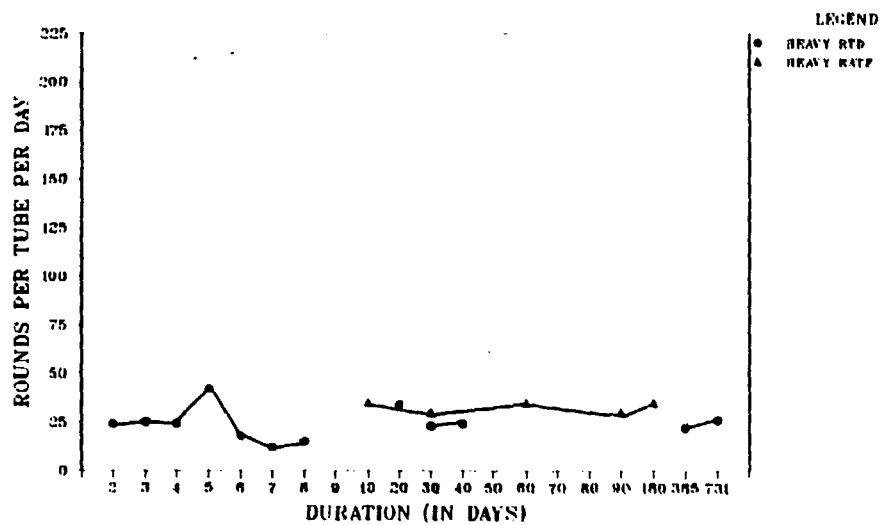


Figure 5-4. WARRAMP Rates vs RTD for DURATION by TUBECAT - Heavy Tubes

e. WARRAMP Rates versus RTD Over OPN by TUBECAT

(1) Final WARRAMP results intentionally are rates which are aggregate results of the spectrum of combat operations. To compare RTD with rates for individual operations within WARRAMP, it is necessary to extract the rates from the division-level simulation (COSAGE).

(2) The rates shown in Figures 5-5, 5-6, and 5-7 for the UNSP group are, as described in Chapter 4, those most comparable to theater rates. To provide additional information here, the WARRAMP theater rates and the historical UNSP RTD are also plotted. RTD are plotted and connected by like level of intensity (i.e., light, medium, heavy) to make observation easier.

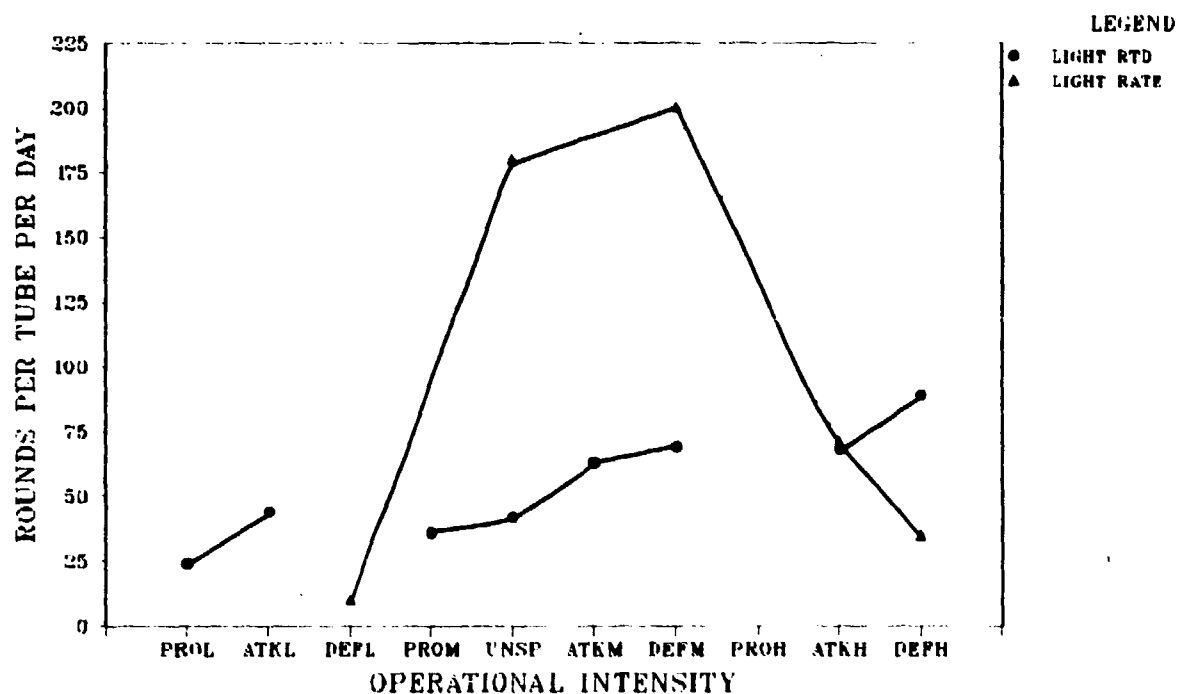


Figure 5-5. Division-level WARRAMP Rates vs RTD Over OPN by TUBECAT - Light Tubes.

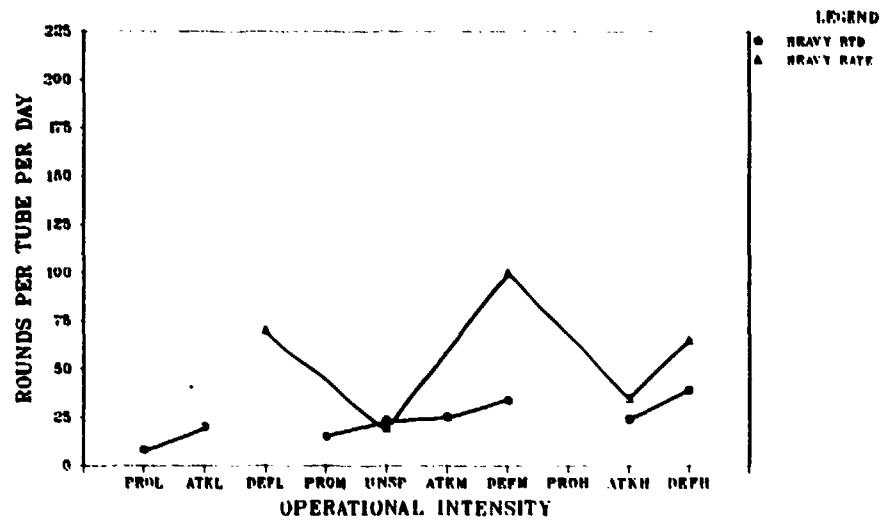


Figure 5-6. Division-level WARRAMP Rates vs RTD Over OPN by TUBECAT - Medium Tubes

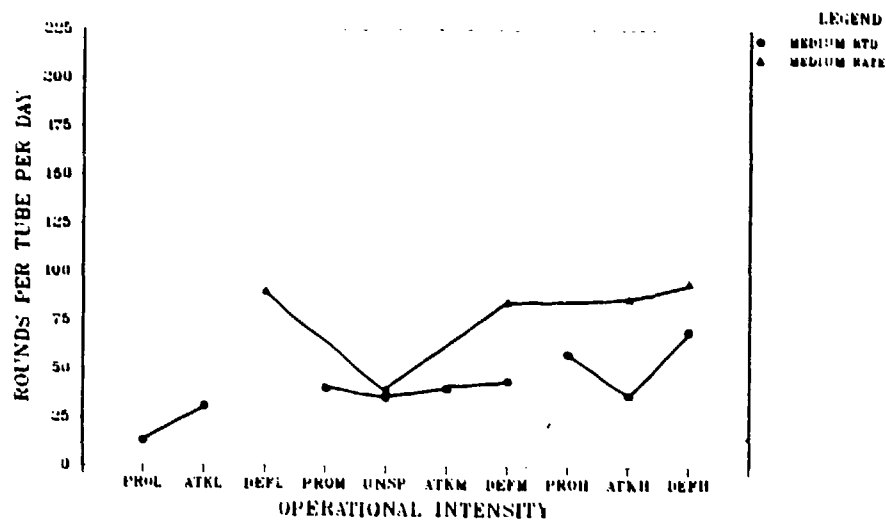


Figure 5-7. Division-level WARRAMP Rates vs RTD Over OPN by TUBECAT - Heavy Tubes

(3) The defense light operation (DEFL), for which there is no historical RTD in AHART, is an operation for which WARRAMP rates are developed. Assuming it is in correct alignment with the other postures, based on historical experience, WARRAMP rates appear quite different. None of the three tube categories follows the traditional roles. Medium and heavy tube types have higher rates than expected, light tube types actually have less than expected.

(4) For the defense medium (DEFM) posture, the WARRAMP rates for all three tube types seem very high. Light tubes regain their expected role, but heavy tube types fire more than the medium types, contrary to their expected roles. For the attack heavy (ATKH) posture, the WARRAMP rates seem only slightly higher than expected. Light tubes would normally be expected to fire more than medium. For the defense heavy (DEFH) posture, the light tubes are again out of order. WARRAMP rates for both medium and heavy tube types seem higher than expected.

(5) In the light and heavy tube types, WARRAMP rates are higher for defense than attack, as expected. Light tube types are the reverse, contrary to the historical data.

(6) Having been processed through the Attrition Calibration (ATCAL) Model and Concepts Evaluation Model (CEM), the WARRAMP theater rates shown in the UNSP group are much closer to historical experience and conform to traditional roles as well. The causes of these results are worthy topics for additional study.

APPENDIX A

STUDY CONTRIBUTORS

The AHART Study is a one-man, six programming staff month effort generously assisted by a number of other individuals.

Author. MAJ Francis L. Dougherty

GMU Faculty Advisor. Dr. Irwin Greenberg

CAA Supervisor. Mr. Philip Louer

CAA Fellowship Screening Board

COL Daniel D. Clark, Chairman
Mr. Gerry Cooper, Member
Mr. Daniel J. Shedlowski, Member

Chief, Math/Stat Team, CAA. Mr. Carl Bates

Included in Appendix C of the report is a very long list of those throughout the analytical, historical, and scientific communities who willingly provided research assistance, personal papers, and bibliographies as well as time to this study effort. Individual names are included, not solely for reference, but in recognition of their willing assistance.

Particularly generous assistance was provided by Dr. Robert Helmbold. Dr. Helmbold's willingness to share his perspective on the use of historical data in analysis of combat simulation and early research assistance were very encouraging and very instructive.

A special note of appreciation is made to COL William Owen and LTC John Bondanella for their assistance in defining the objectives of the study and demonstrating its place in the work of the Requirements Directorate, and to Mr. E. B. Vandiver III for his willingness to sponsor historical comparisons in the analysis of combat simulation.

One last expression of appreciation to Dr. Greenberg for his guidance, for his aid in solving problems in the methodology, and for his willingness to support my fledgling efforts in this field.

Errors of omission or commission made in this study are solely the responsibility of the author, all made despite the willing assistance and advice of those just named.

APPENDIX B
STUDY DIRECTIVE

This study is conducted under the auspices of the US Army Concepts Analysis Agency Fellowship Program for the twofold purpose of first providing research of value to the Agency that has never been accomplished and second, conducting research to be submitted as the final work toward a Master's Research Project of interest to the study director. The work is done in accordance with requirements for completion of a Master's in Systems Engineering at George Mason University.

Study proposals were submitted to both an Agency selection board and to Dr. Irwin Greenberg of the Department of Statistics and Operations Research at George Mason University. Upon selection for the fellowship, an Agency Review Board made up of the Agency's Director and Assistant Directors examined and approved the research objectives and methodology. Dr. Greenberg approved the proposal and accepted the study as a Master's Research Project.

APPENDIX C

DATA COLLECTION

C-1. PURPOSE. The purpose of this appendix is to highlight those resource activities surveyed during the data collection process. Use of this appendix will provide an appreciation for the nature of this work and the nature of the community that is involved in the process of applying scientific methods to historical data. Use of this appendix will aid in efficient retrieval of the AHART sources and permit greater in-depth study of the data used in this study. For anyone continuing in this work, the appendix provides a guide to what has been done and offers a place from which to continue.

C-2. INITIAL SOURCES

a. Defense Technical Information Center (DTIC). Accessed through the CAA Technical Library, this activity maintains a data base which includes a current list of all completed and ongoing technical studies. In addition to referencing related studies, this data base alerts others doing work in the same field to the fact that the AHART Study is in progress. Interested parties may wish to assist unsolicited.

b. Defense Logistics Studies Information Exchange (DLSIE). Accessed through the CAA Technical Library, this activity provides a source of technical data for various logistics systems, including ammunition distribution, and maintains catalogs of completed and ongoing studies in the logistics field.

c. DIALOG. "The Supermarket of Data Bases" provides access to statistical indices, Congressional and private information services, dissertation indices, etc.

d. NEXIS. This resource did provide access to newspaper, magazine, wire service, and current newsletters for relevant fields. In this study there is some limited use of periodicals.

e. Online Computer Library Center (OCLC). Provides access to bibliographic data bases of books from nearly any library in the US. Titles found in other sources are available to CAA through interlibrary loan.

f. Compendium of Key Field Activity Scientific and Technical Capabilities. This document is not an activity but provides organization charts for nearly every Department of the Army activity that is needed for studies of this nature. From the compendium it was possible to begin the series of inquiries and interviews that lead to the greatest amount of data for AHART. These activities are grouped by function and are listed with relevant annotation in the next paragraph of this chapter.

C-3. SOURCES BY FUNCTIONALLY GROUPED COMMUNITIES

a. For purposes of this study, the list of contributing activities is divided into three functional groups. The first group includes staff, doctrinal, and analytic activities. The second includes major library staffs and various command historical offices. The third group identifies specialized scientific and technical activities that assisted with the study. Unless stated in the narrative, for a particular activity any future research should renew contact with these activities to determine whether they are currently in possession of additional usable historical data or relevant studies.

b. **Staff, Doctrinal, Analytical Community.** The first community into which these resource activities are grouped is the staff structure that supports the major Army headquarters, those who are responsible for near- and long-term planning, updating, and publication of doctrinal issues and those responsible for analytic studies. By definition, this is a large, diverse group. Table C-1 (following page) provides an overview of the activities included in this group. Included here are not only those who contributed valuable data or bibliographic material, but also those whose interest in the subject was clear but for the reasons stated were not in possession of relevant historical data. Information on those activities which should not be sought out further is as valuable as knowing those worthy of continued inquiry.

(1) Department of Defense (DOD)

(a) **Office of the Secretary of Defense (OSD).** Mr. Glenn Stockton provided access to the study Historical Data on Wartime Ammunition Usage [OUSD-ALL-1]. In a subordinate office to the OSD is Mr. Royce Kneese, whose interests lie in historical comparisons and who maintains institutional knowledge of such information. Mr. Sal Kohozy maintains this type of data for the OSD Sustainability Study [OSD-S-1].

(b) **Joint and Combined Arms.** Exemplary of so many other activities, this activity expressed great interest in the nature of the project as well as a need for the results. Work being done at this activity is focused on current projects. None require any maintenance of data useful to AHART. This condition could change. This activity and many like them should be contacted periodically for relevant data.

(c) **Theater Operations and Planning.** Sponsors of the OSD Sustainability Study. Among other actions, the study calls for comparison of the current combat simulations with historical data. This activity is interested in historical comparisons but is currently unable to commit the assets to produce an historical data base.

Table C-1. Data Collection Staff, Doctrinal, Analytical Community

DOD Office of the Secretary of Defense Joint and Combined Operations Theater Operations and Planning	DIA Soviet Division
DAS PA&E CAA	TRADOC HQ Combat Systems Branch Program Developments Estimates Division Firepower Directorate FA Branch
ODCSOPS Tech Office DAMO-FDL	TRAC Ammo Planning Factors Div
ODCSLOG DAMO-SMA	CAC Combat Studies Institute Department of Sustainability FA Representative Joint and Combined Arms Operation
ODCSRDA Combat Support Systems Munitions Division DOD Armaments/Munitions Requirements Comm.	CGSC School of Advanced Military Studies
Field Artillery Center Combat Developments Weapons Department Doctrine Division Concepts and Studies Division	National Defense University Wargaming and Simulation Division
Infantry Center FA Branch Maneuver Branch	Research Analysis Corp (RAC)
Army Logistics Management Center Operations Analysis Directorate Literature Division	Operations Research Office (ORO)

(2) Director of the Army Staff (DAS)

(a) US Army Concepts Analysis Agency (CAA). The primary sponsors of AHART are now willing to commit considerable manpower to historical research. Primarily responsible to the Director of the Army Staff for theater-level analysis, CAA recognizes the value of historical research for comparison with their many combat simulations. The Director, Mr. E. B. Vandiver, has done work in historical comparisons with combat simulations while Director of the ODCSOPS Tech Office. Mr. Phil Louer, Acting Deputy Director, CAA, supervises the AHART Study. Dr. Robert Helmbold is conducting a far more detailed analysis on a computer data base of historical information on 601 battles developed jointly by CAA and the Historical Evaluation and Research

Organization (HERO) office. All three have provided support, invaluable advice, and resources to conduct the AHART Study.

(b) **Program, Analysis, and Evaluation (PA&E).** Interested in use of historical research but not staffed to ever conduct their own studies. Mr. Don Whitfield is presently in search of data to explain past expenditure rates and days of supply computations. With the Combat Service Support Division of ODCSOPS (DAMO-FDL), this office has great impact on the development and acceptance of wartime requirements in ammunition.

(3) Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS)

(a) **Technical Office.** This office uses combat simulation results to support both requirements studies and operational planning studies. For this reason they maintain data that tracks the progress of the WARRAMP process. They recognize the value of historical comparisons and have done some limited data collection but have not ever had a sufficiently complete data base to maintain any records usable outside their office. Mr. John Riente assisted in a search of Tech Office safes and files for any remaining data with negative results.

(b) **Combat Service Support Division (DAMO-FDL).** This office is the focal point within ODCSOPS for research done in support of determining ammunition requirements. LTC John Bondanella, as the primary action officer for this work, provided invaluable assistance in understanding the process of determining requirements. As action officer he is often questioned concerning historical comparisons with combat simulation, and to the present time has had no usable source of information. He assisted with introductions to relevant activities and opened his files to the search for historical and WARRAMP data.

(4) Office of the Deputy Chief of Staff for Logistics (ODCSLOG) (Ammunition Logistics Office (DALO-SMA)). This office is the focal point within ODCSLOG for use of the Worldwide Ammunition Supply Report (WARS). This report provides data on the authorized production levels of ammunition and on comparative expenditures. Mr. Dean Turner maintains institutional knowledge of historical information.

(5) Office of the Deputy Chief of Staff for Research, Development, and Acquisition (ODCSRDA)

(a) **Combat Support Division.** Has not maintained historical data but seeks such data for applicable studies. At this time LTC Denny Morin has assumed control over Mr. Joe Byron's papers, including the paper Days of Supply - Ammunition [ROA-S-1]. This division is likely to have additional data in the future.

(b) **Munitions Division.** Mr. Joe Byron, while a member of this division, produced the paper Days of Supply - Ammunition [ROA-S-1] at the request of the Secretary of the Army, John Marsh. This division maintains close coordination with ODCSOPS (DAMO-FDL) to influence the wartime requirements process and to receive the results.

(c) **DOD Armaments and Munitions Division.** LTC Clinton Smith of the Requirements Committee maintains information on determination of wartime requirements produced by combat simulations. The effects of rationing on requirements have received some attention from this office.

(6) **Defense Intelligence Agency (DIA).** Able to provide analysis of non-US methods for determining ammunition requirements by country. Has access to studies done by foreign analytic activities comparable to AHART. Of primary interest is the use of historical analysis in the Soviet planning system.

(7) **US Army Training and Doctrine Command Headquarters (TRADOC HQ)**

(a) **Combat Studies Branch.** The office seeks to use such data but has never been able to achieve reasonable access to very useful data. Therefore, no attempt is made to maintain data beyond that included on slides for specific presentations.

(b) **Program Development Office.** Doctrinal input from the various Army schools and centers is required to be approved by Mr. Richard Ware before use in the WARRAMP process. Historical comparisons have been made in the past but primarily for direct fire weapon systems.

(c) **Estimates Division.** Uses almost exclusively data produced by combat simulation. Within the Theater Directorate, Mr. Tom Redman has used historical data received from Mr. Wolf Prow, whose avocation it is to research historical data on such requirements.

(d) **Firepower Directorate.** The Field Artillery Branch of this office makes limited use of historical artillery expenditure data but has no resources to assemble or maintain such numbers. Members of this office seek assistance from the TRADOC Headquarters Library when such data is required.

(8) **Combined Arms Center (CAC), Fort Leavenworth, Kansas**

(a) **Combat Studies Institute.** The Institute supports research for the commander of the Combined Arms Center. Studies unique to the Institute were more tactically oriented and not technically detailed enough in the area of ammunition expenditures to include operational or theater rates. Dr. Gawyrich has recently traveled extensively throughout the Middle East and has accumulated an extensive bibliography on the area. He provided portions of his bibliography that were relevant to artillery expenditures.

(b) **Department of Joint and Combined Arms Operations.** This organization includes a Committee for Theater and Operational Planning but is primarily interested in current and future operations. Little was done to maintain historical data for comparisons, at least in the area of ammunition expenditures.

(c) **Department of Sustainability.** This activity is responsible for assembly of FM 101-10-1 as its contents are collected from throughout the TRADOC community. No audit trail of historical data is maintained here.

(d) **School of Advanced Military Studies.** This school is the focal point for students of the Command and General Staff College who continue on to do research toward a Master's Degree in military history studies. The research covers a broad range of subjects, some of which relate to artillery expenditures. None of the work surveyed had any additional detail on artillery ammunition expenditures beyond what is locally available. As these studies begin and are completed, they are included in the DTIC database.

(e) **Field Artillery Representative.** This individual represents the Artillery Center for input to combat simulations at the Combined Arms Center but has not employed historical data of ammunition expenditures in the work.

(9) **TRADOC Analysis Command (TRAC) - Ammunition Planning Factors Division.** This division is attempting to complete a landmark study designed to standardize the definitions and methods used in determining wartime requirements. The effort has concentrated on simulation results. Recently, however, they have been required to assemble historical data for comparison. Once accepted, the study will have major impact on the way the Army determines wartime requirements of ammunition. Their interest in planning for future rates increases their desire for the most recent combat experience--Arab/Israeli Wars, Falklands, etc. LTC Garrison has provided their bibliography on combat expenditures and has been given a copy of the AHART data base.

(10) The Field Artillery Center and School (FAS)

(a) **Combat Developments.** The work done by this office is dependent almost solely on the results of combat simulation. Mr. Lonney Minton expressed great interest in receiving the data produced by AHART. He has relied on Lessons Learned documents from the Morris Sweat Library for historical comparisons with less than satisfactory results.

(b) **Doctrine Division.** This division is responsible for input of doctrinal rates and other decision criteria for conduct of fire with the artillery Tactical Fire Control (TACFIRE) System. The data used to determine input parameters is derived from operational testing and combat simulation. Mr. Al Beemer expressed interest in comparison with historical results, had personal experience with artillery in combat, but maintained no other historical data.

(c) **Concepts and Studies Division.** In this office Mr. Bill Bennent maintains institutional knowledge of data and resource material. There have been numerous requests for artillery expenditure data, but he has been unable to collect data in a form that is readily available. Mr. Bill believes this kind of data to be almost exclusively located in the archives in Washington, DC.

(d) **The Field Artillery Journal.** The recent vintage journals provided no data directly nor did the current staff fee! expenditure data would be included in journal articles. No index existed with which to search for such data. Journal articles of the period prior to WWII, located through the Field Artillery Museum, included numerous such entries and even whole articles on German, French, and American expenditures in WWI.

(11) The Infantry Center

(a) **Maneuver Branch.** Mr. Wright completed an in-house study to compare the results of several studies used today to decide on rates for various army organizations. He compared FM 101-10-1 to Division 86 and other studies. No historical data was used, but this study offers readily available comparisons with combat simulations when the historical data is available.

(b) **Field Artillery Branch.** CPT Yaeger provided historical data assembled by this branch and used by the school commander to support briefings on the effects of artillery expenditures on fire support of maneuver units. CPT Yaeger had surveyed the other organizations of the school to locate historical data on artillery support of maneuver units with negative results.

(12) The Army Logistics Management Center (ALMC)

(a) **Operations Analysis Directorate.** Mr. Dorsey Kimbrall has done work to compare historical data with the combat simulation and logistics models employed by this office. His efforts, however, are primarily on near-term requirements. Because of difficulty of accessing relevant historical data, he has not maintained any amount of data in his office. Mr. Jim Fitzgerald provided information on the Logistics Data System Research Activity (LDSRA), the predecessor to the current Logistics Evaluation Agency (LEA). The records maintained by that organization need to be located.

(b) **Literature Division.** Mr. Dilday assembles the Logistics Center's input to revisions of FM 101-10-1. Since the 1976 revision, no new historical data has been used as input. At this time, no audit trail exists on the collection of the data used for that revision. Current input from the Log Center is generated by combat simulation.

(13) **National Defense University Wargaming And Simulation Division.** Colonel Alnwick maintains data on Soviet historical expenditures as well as current Soviet methods of determining requirements. Soviets in the past have depended heavily on historical data to determine planning figures for artillery expenditures.

(14) **Research Analysis Corporation (RAC).** This office was formed when Johns Hopkins University was forced to separate the Operations Research Office from the university. No longer in existence, this organization continues to have great influence on the use of historical data to study operational planning. A rather large collection of studies done on WWII and Korea provide information and data relevant to AHART. None, however, directly attempt to produce a large-scale data base for use in robust analysis. Analysis of limited amounts of historical data are the substance of their reports.

(15) **Operations Research Office (ORO).** As an office of Johns Hopkins University, this activity was a pioneer in the operations research field that developed after WWII. Not possessing present-day computer capabilities, the studies were limited in scope and data to that which was then available and tractable. A collection of their studies includes a sizable amount of data and information useful in the AHART analysis.

c. Historical and Library Community (Table C-2)

Table C-2. Data Collection - Historical and Library Community

Libraries	Historical offices
CAA Technical Library	Aberdeen Proving Ground
Army/Pentagon	Watervliet Arsenal
Armed Forces Staff College	Letterkenny Arsenal
National Defense University	Rock Island Arsenal
West Point	ALMC
Military History Institute	Field Artillery School
Center of Military History	TRADOC HQ
Morris Sweat, Ft Sill	CAC
ALMC	
Combined Arms, Ft Leavenworth	Field Artillery Museum
TRADOC Technical Library System	Field Artillery Journal
	Historical Evaluation and Research Organization
	Military History Magazine
	Combat Weapons Magazine

(1) Historical Offices

(a) **Aberdeen Proving Ground.** The office is subordinate to the historical office at Rock Island with primary responsibility for data on chemical munitions. This office would benefit those needing to specialize in the use of chemical munitions of WWI to present. Chemical weapons are outside the scope of the present AHART effort.

(b) **Army Logistics Management Center (ALMC).** Dr. Lynn L. Sims provided several personal papers on the subject of ammunition expenditures and information on others at the Log Center with interest in the subject. His work included historical expenditure data and narrative on the context in which the data was analyzed.

(c) **Combined Arms Center (CAC).** Dr. Dan Hughes assisted greatly by conducting a thorough search of the Combined Arms Library and providing information on others at the center who had interest in this data. His office had often been queried on the subject of ammunition expenditures but had never needed to assemble historical data beyond compiling limited bibliographies.

(d) **Watervliet Arsenal.** Research done by this office concentrates on product engineering efforts. The weapons laboratories at the arsenal have not shown a need for assembling data on ammunition expenditures.

(e) **Letterkenny Arsenal.** Mr. Jim Walker is working on research into the nature and the reliability of the data included in the Combat Operations Loss and Expenditure Data - Vietnam (COLEDV) [AMC-VN-COLEDV] reports. The results of his study will be useful later in supporting the validity of AHART data points.

(f) **Rock Island Arsenal.** Rock Island's position as coordinator of the industrial base required to produce the munitions generates great interest in the methods for determining ammunition requirements. Mr. Robert Bouilly, having received many requests from his command on the subject, has compiled a very useful bibliography on ammunition expenditures since WWII. Mr. Bouilly was exceptionally willing to assist and offer suggestions on other sources of data.

(g) **The Field Artillery Center and School (FAS).** With The Field Artillery Center's responsibility for advocacy on behalf of the artillery and its very successful history in combat, it would be expected that the Center would rely far more on historical experience in many areas of instruction and analysis. Dr. Dastrup, as Command Historian, has received numerous requests for such data. The effort to collect and maintain historical data, however, has proven quite difficult to them, and they feel that it has never provided very useful results. As a consequence, no amount of historical data has been maintained at Fort Sill. When such data is needed, reference is made to the files at the Center of Military History. The use of combat simulation continues at the Field Artillery Center with no readily available means of comparison with historical data.

(h) **The Field Artillery Museum.** Separate and distinct from either the office of the command historian and the Morris Sweat Library, the Museum holds collections of literature on unit histories and the general development of the Field Artillery. Included in this information provided by the curator, Mr. Lynden Couvillion, are Field Artillery Journal articles of the WWI period that contain data on German, British, French, and American artillery expenditure data.

(i) Historical Evaluation and Research Organization (HERO).

This private organization is specifically in the business of collection and analysis of historical data. Led by Colonel (Ret.) Trevor Dupuy, HERO has amassed considerable amounts of information including sizable amounts of ammunition expenditure data. Much of what has been done by this activity has been the result of research for government contracts and is accessible through DTIC or the library system. A library of additional resource material is maintained in their offices.

(j) Military History Magazine.

This organization, located in Leesburg, Virginia, offers a great deal of original research into historical data as well as access to a large group of interested individuals outside the formal military community. None the data used in AHART comes from this source, but contact with the magazine offers possibilities for future research.

(k) Combat Weapons Magazine.

This private organization likewise offers possibilities for future research. In this case, the field of interest is specifically weapons-oriented as is AHART.

(2) Libraries

(a) Army/Pentagon.

This library, by its location and mission, is capable of getting nearly any document in the military/civilian system. Reasonably accessible to CAA, it has documents onhand that the CAA Technical Library cannot maintain because of its size.

(b) CAA Technical Library.

Through DTIC, DLSIE, and inter-library loan, this library can and did provide most sources needed for AHART.

(c) Armed Forces Staff College.

The College specializes in joint operations and national level geo-political studies. Ammunition expenditures even at theater level are considered technical and are not maintained. When such data is found or required, reference is given to the Center of Military History. There is a large collection of WWI information, but the library has never studied it for this kind of information.

(d) National Defense University.

Collections which include data on technical subjects below the strategic level of military operations have been taken from this library and have become part of the collection at the Military History Institute.

(e) Training And Doctrine Command Headquarters Library.

Mr. Jim Burns is director of all libraries in the TRADOC community. Because of the number of past requests for such data, his office has assembled descriptive indices and card files on the subject of ammunition expenditures. The collective TRADOC library system maintains files worth continued research beyond what has been accomplished to date. Mr. J. Romjue of this library provided numerous references included in the AHART bibliography. Ms. Fran Doyle of the TRADOC Headquarters Technical Library provided references in addition to those compiled by Mr. Romjue.

(f) **United States Military Academy.** This library is an extension of the National Archives and maintains several of their collections. Documents relating directly to ammunition expenditures are maintained in the National Archives sections in Washington.

(g) **Military History Institute (MHI).** With the Center of Military History and the National Archives, this activity is a storehouse of great amounts of relevant resource material. Research assistants are exceptionally willing and provide extensive bibliographic listings on artillery and ammunition expenditures. The collection there on WWI expenditures is worthy of research beyond what has been possible for AHART. In addition, MHI has access to studies done by the Army War College. MHI has become the collection point for works formerly spread among Army libraries.

(h) **Center of Military History (CMH).** This organization is by definition the primary source of data and the focal point for military related historical research in Washington, DC. Its resources go far beyond computer data base literature searches to material that is cataloged only on printed documents maintained on the premises. Ms. Hannah Zidlik maintains extensive bibliographies and is the author of much of the cataloging effort. No effort, however, seems to be ongoing to commit these catalogs to machine-readable form. CMH has complete access to the National Archives and the Suitland Record Repository and is of great assistance in gaining initial entry to these activities. Personnel at CMH assist in organizing any search to make most efficient use of the National Archives' extensive holdings.

(i) **Morris Sweat Library.** Maintained for the varied use of professional artillery officers, the library seeks to provide information concerning both past and present. Lessons-learned documents from each of the major wars provide limited amounts of historical data on artillery expenditures. Beyond these there is little else on this subject. Mr. Les Miller of the library staff conducted an extensive search of library assets with negative results.

(j) **Army Logistics Management Center Library.** Dr. Lynn Sims of the command historical office has, during his own efforts to collect ammunition expenditure data, conducted a thorough search of this library with little results. Information in this library was included in the papers on ammunition expenditures he provided for use in AHART.

(k) **Army Ordnance Center and School.** Formerly the ordnance activities included what is now the requirements determination process and encompassed all that has now become separately identified as the Field Artillery. Ordnance literature from these earlier periods is full of references to expenditure data and methods of determining the needs of the Army as it then existed. These periods were also prior to the widespread use of quantitative analysis; hence, the data is poorly organized and is often incomplete for use in current analysis.

(1) **Combined Arms Center.** Mrs. Mary Crow provided a detailed list of holdings, made up mostly of records from the National Archives, containing reports of operation and after action reports from units in WWII. Other references in their possession include data from the Arab-Israeli Wars and copies of the HERO Combat Data Subscription Service. Accessibility to most of the documents locally precluded travel to Fort Leavenworth for research.

(m) **TRADOC Technical Library System.** As a result of numerous requests for data, a reference file on artillery ammunition expenditures has been assembled, many of which are now included in the AHART bibliography. No historical data on artillery expenditures has been extracted or separately maintained.

d. Scientific and Technical Community (Table C-3)

Table C-3. Data Collection - Scientific and Technical Community

AMC HQ	ANSA
Executive Dir Conventional Ammo	Ground Support Division
Requirements Division	Ground Warfare Division
Studies Management	Special Studies
Army Munitions Development Div	RAM Division
Management and Analysis Office	Technical Services
AMC COM	
Rock Island - Munitions Division	
Picatinny Arsenal	
PM Ammo Logistics	
Systems Planning Division	
Advanced Systems Concepts Ofc	
PM Medium Howitzer	
Combat Development Analysis	
Directorate	

(1) Army Material Command Headquarters - Washington, DC

(a) **Executive Director for Conventional Ammunition.** This office began operation in 1982 for the purpose of directing the production and distribution of ammunition. While it assumed duties for offices formerly at Rock Island Arsenal, it has collected no past records. Limited use is made of historical data. The interest of this office is primarily in ongoing operations. Mr. Samuel Deck of the Requirements Division of this office has worked with CMH and the Department of the Army Statistical Clearance Office to collect historical data when necessary.

(b) **Office of Management and Analysis.** Mr. John Lazaruk in the Studies Management Office was well aware of the studies being conducted throughout the Army Materiel Command including those beyond the headquarters. For several days he surveyed numerous relevant study directors to determine their use of historical data and assisted greatly the work done to gather information and data.

(c) **Army Munitions Developments Division.** This office is a user of the the WARRAMP process results and has done some comparison with historical data. They do not, however, conduct any research into historical data but depend on Rock Island for this information.

(2) Army Materiel Command - Picatinny Arsenal

(a) **Advanced Systems Concepts Office.** Mr. Fran Luzzi in this office has recently attempted to gather historical data for comparison with the WARRAMP numbers of which they are users. While he had great interest in AHART, they had not been successful in their attempts to gather such data.

(b) **Project Manager's Office, 155mm Howitzers.** Uses historical data to support requirements but does not assemble the data nor maintain data beyond the need to brief the current project.

(c) **Project Manager's Office, Ammunition.** Mr. Rusty Von Schwedler is conducting research into rates of fire in combat situations to support work being done on more efficient means of packaging munitions for transport. He has assembled a limited set of data and will be continuing his work in this area.

(d) **Requirements Office.** Mr. Larry Bechman of this office maintains the data used by the PM offices and for internal studies and was very interested in such data. References maintained by this office were available locally through library sources.

(3) Ammunition, Material, and Chemical Command - Rock Island Arsenal (Ammunition Division). Mr. Ed Jameson has the responsibility of understanding and influencing the determination of peacetime and wartime requirements for ammunition on behalf of the Rock Island community. He is a user of the WARRAMP process results and has used historical data to seek a "common sense" comparison. Rock Island Arsenal maintains extensive records on the production and distribution of ammunition. This is the start point for what eventually becomes the expenditures, losses, or stockpiles that are of interest to AHART. Currently, the Worldwide Ammunition Supply Report is designed to meet the requirement to account for this production and distribution.

(2) Army Materiel Systems Analysis Activity (AMSAA)

(a) Office of the Director. Mr. Keith Meyers, the current Director of AMSAA, was a member of the team which traveled to the Middle East in 1973 as part of the data collection and study effort there [WESG-AI-1].

(b) Ground Warfare Division. There have been limited comparisons made with results of testing and analysis done at AMSAA, but the historical data was assembled elsewhere and is not maintained in this office. Mr. Rick Scungio, while a chief of the division, made similar comparisons employing historical data to investigate the WARRAMP process and was aware of significant differences existing between them. No documents have been maintained to support this belief. Mr. John Kramar, the current chief of the division, has prepared an unpublished discussion paper on ammunition usage in WWII and Vietnam [AMSSA-WWII-VN-1]. Mr. Clark Thomas of this division has maintained close relations with CAA to review technical weapons characteristics prior to their use in the WARRAMP process.

(c) Combat Support Division. Mr. Pete Reid, the current chief of this division, was a member of the team that collected data for the Yom Kippur War [WESG-AI-1]. Mr. Tom Nolan of the Combat Simulation Branch in this division maintains the historical data that is used for comparisons with results of their simulations.

APPENDIX D

ANNOTATED BIBLIOGRAPHY

D-1. PREFACE

a. This bibliography is organized to facilitate reference to the AHART data base. As explained in paragraph 2-4a, Chapter 2, references to resource material required coding to be entered into the source field of the data base.

b. The reference code, in brackets, is organized in three parts. The first is an abbreviation for the activity from which the data was made available to this study. The second part is the war or wars for which the data is primarily applicable. The third is an arbitrarily assigned sequence number, within the given activity and war. Sequence numbers usually but do not always correspond with the alphabetical order of the titles.

D-2. HISTORICAL

[ACGC-AI-1] Role of the Field Artillery in the Yom Kippur War, Air Command and General Staff College, May 1977. Unlike so many other documents which attempt to focus on the high technology direct fire battle, this study focuses on the artillery in this advanced form of warfare. The effects of electronic warfare and some developmental munitions are presented. The study provides contrast with purely conventional nondevelopmental munitions data.

[AMC-S-1] Attrition of Ammunition Stockpile, George Schlenker, Army Weapons Command, Rock Island, IL, Weapons Research Office, May 1964 (AD371077). No expenditure data is included. This reference presents a unique aspect of the process of determining ammunition requirements--that of the negative effect of overstocking.

[AMC-VN-COLEDV] COLED-V Coordination Trip Report; Combat Operations Loss and Expenditure Data - Vietnam, US Army Combat Developments Command, Typescript, CDC, 9 Nov 66 (ARMY-CDC-COLED-V-CTR). This is a complete study of artillery expenditures as exist anywhere. Taking advantage of modern communications and computer technology, data concerning artillery expenditures was processed directly from the battlefield within days of occurrence. Analysis includes, among many other detailed statistics, the RTD for every month of the war. As a true theater rate, it adds significantly to comparisons with the WARRAMP process.

[AMMC-S-1] Combat Service Support Mission Area Analysis, US Army Missile and Munitions Center and School, Redstone Arsenal, Alabama, January 1986. This document is the result of combat simulation modeling but is included in this bibliography because of its similarity to the purpose of the WARRAMP process and because of its uniquely high

rates. This study does for operational rates what WARRAMP does for theater rates.

[AMSAA-S-1] List of Division Interim Notes Published, Patricia E. Andrews, Technical Support Division, US Army Materiel Systems Analysis Activity, January 1987. This publication provides lists of resource material that can be located no other way. Included are numerous studies which enhance analysis in technical subjects.

[AMSAA-S-2] List of Publications, Patricia E. Andrews, Technical Support Division, US Army Materiel Systems Analysis Activity, January 1987. This publication provides lists of technical memorandums, technical reports, special publications, and miscellaneous publications applicable to this study. AMSAA's capability for technical analysis of systems is useful for historical comparison especially when developmental systems are included. This publication provides resource material that can be located no other way.

[ARMS-WWII-1] Medium Artillery in the Jungle--Direct Support, Fort Knox, Kentucky, US Army Armor School, May 1948 (ARMS-MM-K3).

[CAA-AI-3] An Analysis of Combat Attrition and Intensity of War (CATIWAR), US Army Concepts Analysis Agency, Bethesda, Maryland, April 1980. This report compares historical data from WWII, Korea, and the Arab/Israeli Wars of 1967 and 1973 with combat simulations. Operational rates are included.

[CAA-S-1] Combat History Analysis Study Effort (CHASE) Progress Report For The Period August 1984 - June 1985, Dr. Robert L. Helmbold and Aqeel A. Khan, US Army Concepts Analysis Agency, August 1986. During this study the HERO data base containing extensive data on 601 battles was committed to a mainframe for use in computerized quantitative analysis. The data was then summarized, examined for trends and interrelationships, and used to test hypothesis. It does not include artillery expenditures, but the appropriate battles and techniques of analysis could be used for continued analysis of the AHART data.

[CAA-S-2] Lessons Learned Regarding Battle Data Bases, Intra-Agency Memorandum for the Director From Dr. Robert Helmbold, US Army Concepts Analysis Agency, January 1987. This 40+ page document provides insight into the inherent difficulties of building and analyzing combat data bases and offers solutions.

[CAA-S-3] Nonnuclear Ammunition Combat Rates Programing FY 75/79 (AMMO 75/79), Volumes I-V, US Army Concepts Analysis Agency, July 1973. These volumes constitute the results of the earliest programing studies done at CAA. This methodology is the predecessor to WARRAMP. The rates generated in this study can rightfully be compared to both the WARRAMP rates and theater-level historical rates. Such comparisons would display a progression of results of various rates studies as compared to historical data.

[CAA-S-4] Wartime Requirements, Programing FY 91, Southwest Asia (P91M), US Army Concepts Analysis Agency, December 1985.

[CAC-S-1] Division 86 Final Report, US Army Combined Arms Combat Developments Activity, Combined Arms Center, October 1981, ACN 36801. In the process of updating the force and making changes to organization and function, a study was done on the effects of these changes on the artillery ammunition expenditures. Operational rates were produced for the new division and are included in the report.

[CAC-WWII-1] Combat Operations Report, ETO, Ninth Army, M-R-1021.2 (Reel #2). Reel No 106, Item 489 - Ninth US Army Operations I - Brest-Crozon, September 1944. Chapter III - Operations of the 2nd Infantry Division at Brest. Expenditure of ammunition by type, p. 43-44. Ninth US Army Operations II: five-nation front. Flash 2 - Ninth US Army Operations III: Combat in Holland. Flash 3 - Ninth US Army Operations IV: Offensive in Holland in November 1944.

[CAC-WWII-2] Daily Ammunition Status Report, Assistant Chief of Staff, G-2, HQ, IV Corps, 12 Nov 51. N-17056.16. Ammunition expended 311800 Oct to 101800 Nov 51.

[CAC-WWII-3] G-4 Historical Report, 20 Oct - 26 Dec 44, X Corps, 1945. C-16006. Ordnance section Leyte-Samar Campaign, ammunition expenditures: artillery, p. 4.

[CAC-WWII-4] Historical Record, 62nd Armored Field Artillery Battalion, 1945. M-N-1065. Item 1388 - 62nd Armored Field Artillery Battalion historical record, 19 Nov 41 - Apr 45.

[CAC-WWII-5] History of Buna Campaign, New Guinea, Center of Military History. M-N-1034.2 (Reel #2). Item 993 - 205th FA Bn, History New Guinea Campaign 16 Feb - 4 Oct 43. Appendix X - ammunition expenditure Battery A, B, and C HE and smoke. Item 994, Appendix III - 205th FA Bn; last page of #994 shows daily expenditures of Battery A, B, and C, HE and smoke, 24 Jul - 11 Sep 43.

[CAC-WWII-6] History of Headquarters Sixth Army Group, ETO, Aug - Oct 44, Feb, May, Jun, Jul 45. R-11980.6. Effect of ammunition supply on operations of Sixth Army Group, World War II (15 Aug 44 - 7 May 45); consumption and requirements analysis. Ammunition expenditure chart D-day (15 Aug 44) to 7 May 45, p. 30-40.

[CAC-WWII-7] History of Headquarters Sixth Army Group, ETO, Nov 44 - Feb 45. R-11980.3. Chapter VI, Reduction of the Colmar Pocket. American Forces rounds expended 17 Jan - 9 Feb, p. 20.

[CAC-WWII-8] History of Operations, Italy - G-4 Operational Report, 88th Infantry Division, 1944. M-N-1029.7. Flash 3, Ordnance office, monthly operations report for April 1944. Ammunition expenditures for attached units during April 1944, Incl #3, Annex No 6, page 1; Annex No 5, page 2. Artillery ammunition expenditures during March 1944, Annex No 5, pages 1 and 2. Flash No 2 - historical report for month of Feb 44, p. 1.

[CAC-WWII-9] History of Operations, Italy - G-4 Operational Report, 88th Infantry Division, 1944. M-N-1029.8. Annex No 5, page 3 - artillery ammunition expenditures during May 44. Annex No 6 - ammunition expenditure of attached units during May 44. Flash No 1 - 88th Infantry Division, Jun 44, Annex 6 - Artillery ammunition expenditure during Jun 44, p. 2. Flash No 2 - 88th Infantry Division, Jul 44, Annex 5 - artillery ammunition expended during Jul 44, p. 2. Flash No 3 - Annex No 5 - artillery ammunition expended during Aug 44, 1 page.

[CAC-WWII-10] History of Operations, Italy - G-4 Operational Report, 88th Infantry Division, 1944. M-N-1029.9. Annex No 5, page 2, artillery ammunition expended during Sep 44. Flash No 1, artillery ammunition expended during Oct 44, Annex 5, page 2. Annex 5, page 1, artillery ammunition expended by attached units during Oct 44. Flash No 2, artillery ammunition expended during Nov 44, Annex No 6, page 1, artillery ammunition expenditure of attached units during Nov 44.

[CAC-WWII-11] History of Ordnance Section Headquarters 27 Jan 1943 - 15 Dec 1945, Sixth Army, 1946. R-12461. Tables, ordnance ammunition expenditures summary--Leyte Campaign--20 October through 25 December 1944 (67 days) and insert "Ammunition expenditure summary," Luzon operation period: 9 January - 30 June 1945 (173 days).

[CAC-WWII-12] Infantry and Artillery Ammunition Expenditure Report, 6 June - October 1944, 4th Infantry Div., 1945. Item #225, 13 pages, M-N-1067.70.

[CAC-WWII-13] G-4 Historical Report, 88th Infantry Division, December 1944. M-N-1029 (Reel #10). Annex 5, page 2, artillery ammunition expenditures during Dec 44. Annex 6, ammunition expenditure of the attached units during Dec 44. Annex No 6, pages 1 and 2, ammunition expenditures of attached units during Jan 45. Flash No 2, Annex No 6, pages 1 and 2, ammunition expenditures during Feb 45; ammunition expenditures of attached units during Feb 45.

[CAC-WWII-14] G-4 Historical Report, 88th Infantry Division, 1945. M-N-1029 (Reel #11). Annex No 1-1 pages 1 and 2, ammunition expenditures of attached units during Mar 45. Flash No 1, Annex 5, page 2, artillery ammunition expended during Apr 45; Annex 6, pages 1 and 2, ammunition expenditures of attached units during Apr 45. Flash No 2. [CAC-WWII-15] G-4 Historical Report, 88th Infantry Division, 1945. M-N-1029 (Reel #12).

[CAC-WWII-16] Logistical Data - Jungle Warfare 1 Jan 45 to 31 Mar 45, Sixth Army, 10 May 45. N-3857. Artillery ammunition expenditure expressed in rounds per weapon per hour, and artillery units of fire (SWPA).

[CAC-WWII-17] Logistical data - jungle warfare, based on Sixth Army experiences. Services of Supply, SWPA. 1 Dec 43 - 30 Sep 44. N-3677. Field artillery ammunition expenditures average rate per gun per hour, 1 Dec 43 - 30 Sep 44.

[CAC-WWII-18] Ordnance Ammunition Report, 4th Infantry Division, 1944. M-N-1067.34. Item #2208, ordnance ammunition supply report - 4th Infantry Division. Feb 44 - 8 May 45. Item #2209, ordnance ammunition report - 4th Infantry Division, 6 June - 31 Oct 44.

[CAC-WWII-19] Report of Operations, European Campaign, 3d Infantry Division, June 1945. M-N-1020 (Reel 100), Jan 45 - Flash No 1, Item 1281, Incl #1 - ammunition expenditures for month, 2 pages. Apr 45 - for month, p. 176. 1-10 May 45 - for month (1-10 May 45), 1 page.

[CAC-WWII-20] Report of Operations in Tunisia 15 Mar - 10 Apr 43, II Corps, May 1943. N-2652-A. Report on operations conducted by II Corps in Tunisia. Statistical data corrected to include 2 May 1943. (Report; Army Ground Forces Board MTO - No A-492.)

Ammunition expenditure - 1 Aug - 31 Aug 44 - p. 44.
 Ammunition expenditure - 1 Sep - 30 Sep 44 - p. 60.
 Ammunition expenditure - 1 Jan - 31 Jan 45 - p. 49.
 Ammunition expenditure - 1 Feb - 28 Feb 45 - p. 43.
 Ammunition expenditure - 1 Mar - 31 Mar 45 - p. 61-62.
 Ammunition expenditure - 1 Apr - 30 Apr 45 - p. 73-75.

[CAC-WWII-21] Report of Operations, Oct 44, XII Corps, 5 Nov 44. R-12002.1. Ammunition expenditures:

010600 to 020600 Oct 44, p. 165. 030600 to 040600 Oct 44, p. 177.
 040600 to 050600 Oct 44, p. 182. 050600 to 060600 Oct 44, p. 187.
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[CAC-WWII-22] Report of Operations, 1 November 1944 - 30 November 1944, XII Corps, 5 Nov 44. N-12002.2. Ammunition expenditures:
 310600 to 010600 Nov 44, p. 191. 010600 to 020600 Nov 44, p. 195.
 020600 to 030600 Nov 44, p. 199. 030600 to 040600 Nov 44, p. 201.
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[CAC-WWII-23] Report of Operations, 1-31 Dec 44, XII Corps, 5 Jan 45. N-12002.3. Ammunition expenditures:
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[CAC-WWII-24] Report of Operations, 1 March 1945 - 31 March 1945, XII Corps, 15 Apr 45. R-12002.6. Ammunition expenditures:
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[CAC-WWII-25] Report of Operations, XII Corps Artillery, May 1945. R-12002.7. Ammunition expenditures:

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[CAC-WWII-26] Report of Operations, 1-18 November 1943, 3d Infantry Division, 7 Dec 43. N-11216.2. Inclosure No 1: Report. Ammunition expenditures, 1-18 November 1943, p. 16.

[CAC-WWII-27] Report of Operations, Italian Campaign, Mar 44, 3d Infantry Division, 17 Apr 44. N-11216.3.

[CAC-WWII-28] Report of Operations, June 1944, 3d Infantry Division, 22 Jul 44. N-11216.4. Ammunition expenditures for month of June 1944.

[CAC-WWII-29] Report of Operations, August 1944, 3d Infantry Division, 19 Sep 44. R-11216.5. Ammunition expenditures for August 1944, p. 29-30.

[CAC-WWII-30] Report of Operations, ETO, September 1944, 3d Infantry Division, 13 Oct 44. N-11216.6. Ammunition expenditures, p. 26-27.

[CAC-WWII-31] Report of Operations, October 1944, 3d Infantry Division, 8 Nov 44. R-11216.7. Ammunition expenditures for October 1944, p. 27-28.

[CAC-WWII-32] Report of Operations, November 1944, 3d Infantry Division, 23 Dec 44. R-11216.8. Total expenditures for the month of November 1944, p. 24-25.

[CAC-WWII-33] Report of Operations, December 1944, 3d Infantry Division, Dec 44. R-11216.69. Ammunition expenditures for December 1944, p. 27-28.

[CAC-WWII-34] Report of Operations, February 1945, 3d Infantry Division. R-11216.10. Expenditures for month of Feb 45, p. 27-28 by type. (Jan 45 is on microfilm - M-N-1021.1).

[CAC-WWII-35] Report of Operations March 1945, 3d Infantry Division, 7 May 45. R-11216.11. Expenditures for March 1945, p. 32-33. (Apr, May 45 is on microfilm, M-N-1020).

[CAC-WWII-36] Report of Operations, 14 June - 1 Jul 44, 9th Infantry Division, 14 Jul 44. R-11546. Ammunition expenditures, p. 19-20.

[CAC-WWII-37] Report of Operations, 1-31 July 1944, 9th Infantry Division. 1 Aug 44. R-11546. Ammunition expenditures, p. 19.

[CAC-WWII-38] Report of Operations, 1-31 August 1944, 9th Infantry Division, 1 Sep 44. R-11546. Ammunition expenditures, p. 24.

[CAC-WWII-39] Report of Operations, 1-30 September 1944, 9th Infantry Division, 1 Dec 44. R-11546. Ammunition expenditures, p. 32.

[CAC-WWII-40] Report of Operations, 1-31 October 1944, 9th Infantry Division, 1 Nov 44. R-11546. Ammunition expenditures, p. 30.

[CAC-WWII-41] Report of Operations, 1-30 November 1944, 9th Infantry Division, 1 Dec 44. R-11546. Ammunition expenditures, p. 13.

[CAC-WWII-42] Report of Operations, 1-31 December 1944, 9th Infantry Division, 5 Jan 45. R-11546. Ammunition expenditures, p. 18.

[CAC-WWII-43] Report of Operations, 1-31 January 1945, 9th Infantry Division, 5 Feb 45. R-11546. Ammunition expenditures, p. 17.

[CAC-WWII-44] Report of Operations, 1-28 February 1945, 9th Infantry Division, 5 Mar 45. R-11546. Ammunition expenditures--small arms, mortar, artillery (105 how and 155 how), p. 13.

[CAC-WWII-45] Report of Operations, 1-31 March 1945, 9th Infantry Division, 5 Apr 45. R-11546. Ammunition expenditures, p. 19-20.

[CAC-WWII-46] Report of Operations, 1-30 Apr 1945, 9th Infantry Division, 1945. R-11546. Ammunition expenditures, p. 17.

[CAC-WWII-47] "Report on the Employment of Artillery Units at Saipan." C.C.O.R.'s Bulletin CCOR/69, 10 Jan 45. N-7440.19. Ammunition expenditures per day by type.

[CAC-WWII-48] Report of Operations, World War II, 1st Armored Div. M-N-1068.14. Box 2195 - 27th Armored FA Bn. History 8 Nov 42 - Aug 45. Item 2394 - Battalion History of the 27th Armored FA Bn., First Armored Div, 8 Nov 42 - 9 May 43. Missions fired and rounds expended are reported by day throughout.

[CAC-WWII-49] Report of Operations, World War II, 1st Armored Division, 68th Armored FA Battalion History 15 Jan 44 - Aug 45 and ammunition expenditures 30 Nov - Dec 43. Box No 2196 and 2197. M-N-1068.15 and .16.

[CAC-WWII-50] Report of Operations, World War II, 1st Armored Division, 91st Armored FA Bn. Historical record, 31 Jan 43 - Aug 45 and report of combat operations - 16 May 43. M-N-1068.17.

[CAC-WWII-51] Ammo Joe's March from the Gothic Line to Victory, Sterling, E. A., Allied Forces Headquarters, 1943. N-5320.2. Ammunition expended by weapon. 241800A Sep 44 to 251800B Apr 45.

[CAC-WWII-52] Summary of Operations ETO, 2d Infantry Division Artillery, Jul 44 - 7 May 45. War Department, 8 Jun 45. R-12485.

[CAC-WWII-53] After Action Report, ETO, Jul 44 - Mar 45, War Department, 1945. Ammunition expenditures for 11 months by 12th, 15th, 37th, and 38th FA Bn (105mm howitzer), p. 1.

[CAC-WWII-54] Unit Report of Action, June 1944 - April 1945, 1st Infantry Division Artillery. N-11239. Ammunition expenditures, 1-30 Apr 45, p. 5; 1-31 Mar 45, p. 17-18; 1-28 Feb 45, p. 15; 1-31 Jan 45, p. 21-22; 1-31 Dec 44, p. 18-19; 1-30 Nov 44, p. 18; 1-31 Oct 44, p. 10; 1-30 Sep 44, p. 5-6; 1-31 Aug 44, p. 7; 1-31 Jul 44 - none (says "see separate battalion reports for breakdown to types of ammunition.") 1-30 Jun 44, p. 7.

[CAC-WWII-55] Unit Report of Action, 1-31 May 1945, 1st US Infantry Division Artillery, 21 June 1945. N-11239. Ammunition expended by battalion, not by types of ammunition.

[CGSC-K-1] Study Estimated Expenditures of Artillery Ammunition, Major Charles R. Fulbruge, QM Corps, CGSC, Ft. Leavenworth, Sep 54 (N-18104-A) Monthly Korean War theater-level expenditures-789 days of combat.

[CGSC-S-1] Variation of Artillery Ammunition Expenditures with Intelligence, Operations Research Organization, ORO-TP-46, Robert H. Hobbs, October 1961 (AD267747). This study was a designed experiment using experienced artillery officers to determine artillery expenditures given various levels of intelligence data. The difficulty of isolating the effects of intelligence through historical data was sufficiently great that this alternative solution was attempted. The experiment was only marginally successful requiring more effort than was expected. With increasing availability of reliable data bases, historical data may again be a reasonable alternative.

[CGSC-S-2] Estimated Expenditures of Artillery Ammunition, Command and General Staff College, 10 Sep 54. N-18104-A. Study to determine the validity of material contained in the tables of paragraphs 108 and 109 of FM 101-10, June 1953. Incl - trip report, COL A. S. Byunoski, methodology in the development of tables 108a, FM 101-10, Jul 53, 18 Jul 55.

[CGSC-WWII-1] Field Artillery Group in Support of the Corps and Field Army, 1942 - 1953, Major Russell A. Weatherby, CGSC, Ft. Leavenworth, KS, 1965. Unpublished M.A. thesis.

[CGSC-WWII-2] Role of Field Artillery in the Battle of Kasserine Pass, Major David W. Hazen, M.M.A.S. thesis, Command and General Staff College, Ft. Leavenworth, Kansas, 1973 (D766.82U3).

[CMH-K-1] Logistics in the Korean Theater, Center of Military History, Washington, DC. Provides theater total expenditures for every month of the war. The data is broken down by tube type, but no means of determining tube density in the theater is given. Data provided by the Fulbruge study [CGSC-K-1] make this data very useful.

[CMH-K-2] Combat Actions in Korea, Russell A. Gugeler, Office of the Chief of Military History, 1970 (DS918G832).

[CMH-S-1] Guide To Japanese Monographs and Japanese Studies on Manchuria, 1945 - 1960, Office of the Chief of Military History, 1960. This manuscript provides reference to an extensive list of primary sources for ammunition expenditures and logistics in this part of the world. The referenced literature is accessible at the Center of Military History.

[CMH-WWII-1] Ammunition Supply and Operations, European Campaign Appendix 2, UA25, U586 Study No. 100, General Board US Forces European Theater, ca. 1945 (D769A5 No. 100). This is a member of the well-known "Green Book" series. The data is highly aggregate and, given the complexity of assembling such data prior to the widespread use of computers, the data is suspect. The method of assembling the data is unknown. It may, however, be the best data that exists at that level of aggregation.

[CMH-WWII-2] US Army In WWII - European Theater of Operations - Logistical Support of the Armies, Vol. I-II, Roland G. Ruppenthal, Army Center for Military History, 1953. Dealing with logistics aspects of the war, there is both narrative and expenditure data found under the subject listing of ammunition. Comparisons are made between planned rates of fire and actual theater expenditure rates.

[CMH-WWII-3] US Army In WWII - The Ordnance Department: Procurement and Supply, Harry C. Thomson and Lida Mayo, Army Center for Military History, 1958. As with all books in the "Green Book" series, most of the volume is narrative but not quantifiable. This volume does provide theater-level data on stockage levels in Europe and comparable monthly expenditure data for 1944 and 1945.

[CMH-WWII-4] Last Offensive, The, Charles B. McDonald, Government Printing Office, Washington, DC, 1974. Presents the chronology together with artillery expenditures of the battle for Okinawa. Operational expenditures.

[CMH-WWII-5] Reports of the General Board, US Army European Theater, General Board, Mimeo, USFET, 1945-1946. 131 Reports, (D769A5 No. 100) Nos. 58-67.

[CMH-WWII-6] Reports of the Observer Boards, Pacific Ocean Areas, US Army Ground Forces Observer Board, Mimeo, 5 Jan 44 - 21 Jul 45, 11 volumes (D767U4.).

[CMH-WWII-7] Reports of the Observer Boards, Mediterranean Theater of Operations, US Army Ground Forces Observer Board, Mimeo, 22 Dec 42 - 13 Aug 45, 9 volumes (D766.8U4.). Nos. 100 and 126.

[CMH-WWII-8] Army Ground Forces Board Report A-107-1, NATO, 7 Jan 44. R-7038. 36th Div. Arty. 17 Nov to 19 Dec 43. Chart "Expenditure rounds per gun per day" (lights and medium). 2-11 Dec 43. Camino-Maggiore-Lunge-Rotunda-Difensa operation.

[CMH-WWII-9] Determination of Mobilization Reserve of Ammunition (U), Chief of Ordnance, 11 Feb 48. C-16722. Includes charts with data from monthly theater reports of ammunition expenditures and losses, World War II by months for various guns.

[CMH-WWII-10] Directives and Miscellaneous Information, CinCPOA, 1944. Vol I. N-11562-A. Table 24 - CinCPOA unit of fire ground weapons, effective 21 Mar 44. Unit of fire table used to determine actual rounds of ammunition for all ground weapons used in the Central Pacific area.

[CMH-VN-1] American Forces in Action, Vietnam Studies, Office of the Chief of Military History, Washington, DC.

[CNA-ALL-1] Validation of Combat Models Against Historical Data, Professional Paper No. 27, Leon Feldman and Susan Simon, Center for Naval Analysis, 1970. This work provides no expenditure data but does offer insight into the difficulties involved in using historical data for for analysis specifically of combat simulations.

[CNA-K-1] Study of Land/Air Tradeoffs (SLAT), Statistical Analysis of Korean War Data, Naval Warfare Analysis Group, Center for Naval Analysis, Study 64, Arlington, VA, March 1970, 9 volumes. Historical analysis of Korea and comparison with wargame results in Vols I, VII, VIII, IX (240866/240874) (AD-869 481) (NWAG-Study-64-Vol-9); a very extensive study of related aspects of combat and attempts at rigorous analysis of historical data. Some expenditure data is included, but the greater value lies in the example of ways in which historical data can be used to arrive at a greater understanding of the complex nature of land and air warfare.

[CNA-S-1] Method for Estimating Ground Combat Attrition Coefficients, CNA Research Contribution No. 103, E.H. Kingsley, Nov 68 (231366). This study offers additional insight into variables with which to analyze several forms of combat data. No useful expenditure data is included.

[CORG-WWII-1] Frequency Analysis of WWII Ammunition Expenditure Levels And Combat Models, CORG, Technical Operations Inc., (AD 747). Included in this study is an assembled data base for daily operational expenditures for the II US Corps in Italy in 1943 and 1944. The results of the frequency analysis done in this study is remarkably close to the results of AHART.

[DA-ALL-1] Logistics Support Modelling, Department of the Army Pamphlet 750-21, Jan 1982. This document describes the data requirements, the simulation process, and prescribes the conditions under which simulations are useful. No expenditure data is included.

[DA-S-1] Review of Army Analysis, Volume 1 - Main Report, Department of the Army, April 1979. A basic review of Army analysis resources, organizations, and procedures. This work provides the framework in which AHART and many similar studies are done. It provides a clear definition of boundaries for what can be considered "the system;" the operational and organizational structure known as the US Army.

[DA-VN-1] Lessons Learned HQ 2nd Bn, 213th FA, Adjutant General's Office, Department of the Army, Washington, DC, Nov 68 (AD395896). Artillery operations in Vietnam. In addition to maintenance and tactical operations data, there is information relating target identification with expenditure for 105mm howitzers.

[DA-VN-2] Vietnam Studies - Field Artillery 1954-1973, Washington, DC, Department of the Army, Army Library (DS557.A6V661 No.20).

[DA-VN-3] Vietnam Studies - Logistics Support, LTG Joseph M. Heiser Jr., Washington, DC, Department of the Army, 1974 (DS554.52H4).

[DB-ALL-1] Dictionary of Battles, Thomas Y. Eggenberger, Crowell Co., NY, 1967 (D25E29D).

[DUSA-S-1] Loss Rates Comparison Study, Memorandum For Deputy Chief of Staff of the Army for Operations from the Deputy Under Secretary of the Army for Operations Research, March 1980. This three-page memorandum describes the need for an extensive data base of historical ammunition expenditures for comparison with computer simulations. It also suggests some of the variables that would be appropriate to such a study.

[FAS-AI-1] The October 1973 Middle East War, A Bibliography, US Army Field Artillery School, June 1976. Presents further relevant materials published on the war. It includes representative unclassified ordnance data.

[FAS-S-1] Fire Suppression Symposium Report, Combat Developments Directorate, The Field Artillery School, January 1980. This document provides no expenditure data. It does give insight into the difficulties of simulating some aspects of the artillery problem. The members of the symposium employ historical comparisons in their work.

[FAS-WWI-1] "Expenditure of Ammunition," The Field Artillery Journal, Volume VII, The United States Field Artillery Association, Volume VII,

1917. A timely pronouncement of the surprise with which the high expenditure rates of WWI were met. The article provides German Army expenditure data for the battle of the Somme, July 1917. These include the highest rates found in the AHART Study.

[[FAS-WWI-2] "Artillery Statistics From the World War," translation by Colonel Oliver L. Spaulding, The Field Artillery Journal, The Field Artillery Association, Washington, DC, September-October 1924. Includes theater expenditure rates for both French and German artillery for the war. It also provides operational rates for selected battles.

[FAS-WWI-3] "Ammunition Expenditure By The First Field Artillery Brigade A.E.F.," The Field Artillery Journal, The Field Artillery Association, Washington, DC, May-June 1930. Provides weapon densities and expenditure rates, by type tube, throughout the year 1918. Included in the narrative is the stated purpose of the data to point out "the problem of ammunition supply during active operations." These are operational rates. As stated in the paper, rounds lost in transit and damaged during operations are not included in the expenditure figures.

[FAS-WWI-4] "Organization, Armament, Ammunition Expenditures of the German Field Artillery During the World War," LTG Van Alfred Muther, The Field Artillery Journal, The Field Artillery Association, Washington, DC, July - August 1935. An attempt to provide insight into the enormous increase in artillery expenditures in WWI written by the Chief of the Field Artillery of the Royal Prussian War Ministry. The article includes both operational and theater rates data. Data is present for German, French, and Russian artillery. Operations resulting in capture of Bizerta and surrounding territory, northern Tunisia. II Corps. 23 Apr - 9 May 43. N-2652-8. Ammunition expenditures (rounds per gun) for Apr - May 43--105mm howitzer, 155mm howitzer, 155mm gun, 13th FA Bde attached to II Corps.

[FRG-S-1] Informationen Zum Munitionsverbrauch Von Landstriedkräften Seit 1939, Office for Studies And Research for the German Army, translation from the original, July 1986. This document contains detailed expenditure data for the German Army in combat since 1939. It is extremely valuable in offering the data needed to examine both sides of several WWII engagements. Included is the Germans' own analysis of the data. This effort parallels AHART in the use of historical data in operational planning.

[HERO-ALL-1] Search For Historical Records of High-Rate Artillery Fire in Combat Situations, HERO, March 1978. This work done for the US Army Human Engineering Laboratory set out with the express purpose of locating combat situations with the highest rates of fire in each given period of time. These rates then should be the highest rates that could be used to compare with combat simulations. Since they are operational rates, they should certainly be far above theater rates generated by the WARRAMP process. Data useful to identify numerous variables in addition to those in AHART is available in this study.

[HERO-ALL-2] Evolution of Weapons and Warfare, Trevor N. Dupuy, Bobbs-Merrill Co., Indianapolis, IN, 1980. This work provides much of the setting in which the AHART Study could rightfully be studied. Association of the major events in the historical development of weapons provides a useful perspective not found elsewhere.

[HERO-ALL-3] History, Numbers, and War, Vol 1 No. 2, HERO, 1977.

[HERO-AI-1] "Arab-Israeli Six Day War 1967", Combat Data Subscription Service, Vol 1 No. 2, Vol 2 No. 1, HERO, 1977.

[HERO-AI-2] Ramadan War 1973, The, T. N. Dupuy, Dupuy Associates, 1978.

[HERO-AI-3] Elusive Victory, Arab-Israeli Wars 1947-1973, T. N. Dupuy, HERO, Inc., 1984. This book resulted from extensive interviews and research. It provides numerous statistical charts and narrative description. T. N. Dupuy is in the business of historical analysis and attempts to produce quantitative analysis of the Six Day War of 1967. While there is reasonable detail on several subjects, artillery expenditures is not one of them. A personal visit to HERO offices did not turn up any additional data.

[HERO-K-1] Artillery Fire Near the Inje, May 1951, Report for the Human Engineering Laboratory, HERO, May 1977. Describes the chronology of events and accompanying artillery expenditures. Operational rates.

[HERO-WWII-K-CDSS] Combat Data Subscription Service, HERO, 1978. Very detailed expenditure data for Mediterranean and European theaters and for Korea. Almost entirely operational rates. Clearly associated with operational mission, weapon densities, and time periods.

[HERO-WWII-1] Opposed Rates of Advance of Large Forces (ORALFORE), Trevor N. Dupuy and Grace P. Hayes, HERO, Aug 72 (AD-902 830/9). This large volume in small print details the operational and environmental circumstances related to rates of advance for six operations of WWII. Included are weapon densities and expenditure data for these operations. Corps and division-level rates and analysis with which to compare subordinate models in the WARRAMP process are included.

[JDR-S-1] "Fast-Val: Summary Report on the Comparison Of Model with Combat Results," Lind, et al., Journal of Defence Research Series: Tactical Warfare, Vol 6B:3, Fall 74.

[LOGC-ALL-1] Ammunition Day of Supply, Lynn L. Sims, Historical Office, US Army Logistics Center, undated. This paper provides a concise summary of the information provided in Ammunition Day of Supply WWI-1960 (ORO-ALL-1).

[LOGC-K-1] Korean War Ammo Rates, Lynn L. Sims, Historical Office, The US Army Logistics Center, January 1985. This professional paper was written in response from many parts of the Logistics Center for historical data on artillery expenditures. It provides a concise description of the controversy over ammunition expenditures in Korea

and provides some expenditure data. Appended to this paper are the monthly expenditure figures for Korea taken from Logistics in the Korean Theater [CMH-K-1].

[LOGC-WWII-1] World War II Ammo Rates, Lynn L. Sims, Historical Office, The US Army Logistics Center, January 1985. This professional paper was written in response from many parts of the Logistics Center for historical data on artillery expenditures. The paper describes several factors that appear as a result of historical research to influence the expenditure of artillery ammunition. The paper also describes the system used during the war for determining rates and the difficulties in doing so. Appended to the paper is an extract from The US Army In WWII series that displays comparisons among rates determined by this system and the actual theater rates.

[LOGC-WWII-2] First Army Ammo Rates, World War II, Lynn L. Sims, Historical Office, US Army Logistics Center, January 1985. This work provides narrative description of the units operation closely associated with the ammunition expenditures for each phase of that operation. Operational rates for 105mm howitzer, 155mm gun, and 155mm howitzer are attached.

[MHI-ALL-1] Index of Course Materials 1919-1942 - Ammunition, US General, US Army War College, Carlisle, PA. This document is maintained by the Military History Institute and contains references to the methods of determining requirements and includes comparative expenditures.

[MHI-K-1] "Memoirs of BG George B. Barth, Commanding Officer, 24th and 25th Div Arty in Korea," US Army Military Research Collection, S.L.A. Marshall (item #406), Military History Institute, Carlisle Barracks, PA.

[MHI-K-2] Relationship of Casualties to Tactics and Ammunition Expenditures: 2nd US Infantry Division Korea, 1 Feb 1953 - 31 Mar 1953, Defense Department, 1954. 132 pages (UL504.3 R46. 1953, MHI).

[MHI-K-3] Study of the Underlying Causes of Deficiencies in the Ammunition Stockpile, MG Carroll H. Deitrick, et al., Chief of Ordnance, Aberdeen Proving Ground, MD, July 1959 (UF700U47 - MHI).

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[MHI-S-2] Aspects of Ammunition Management in the US Army, LTC John E. Baker, Army War College student paper, Carlisle Barracks, PA, March 1969 (AWC-IS69).

[MHI-S-3] Better Direct Support Artillery - An Increasing Requirement, Larry A. Blakely, Carlisle Barracks, PA, US Army War College, 1966 (AWC-IR-CRS-7).

[MHI-VN-1] Artillery Considerations in Low Intensity Warfare, COL. Jesse B. Hollis, US Army War College, 1966 (AWS-IR-CRS-4).

[MHI-VN-2] Systems Analysis Of Close Fire Support Artillery For Ground Forces, Harold A. Dye, US Army War College, May 1965 AWC-IS-64/65.

MHI-WWI-1] Report of Ammunition Expended and Wasted, Chief of Ordnance, US Army Expeditionary Force, July 1919 (UF700U4).

[MHI-WWII-1] Artillery Fact Sheet, US Army Field Forces, 1945. (UA32A5).

MORS-S-1] Casualty Rates, Combat Intensity, Tempo of Battle, Military Operations Research Symposium, 1978.

[NA-VN-2] After Action Report - Operation Billings, 12-26 June 1967, Annex D, First Infantry Division, 26 July 1967. Operational rates for protracted combat operations.

[NA-VN-3] After Action Report - Operation Junction City, 22 Feb - 15 Apr 67, Annex D, First Infantry Division, 8 May 1967 (N17439.21/AD390548). Operational rates for protracted combat operations. Pages 1, 2, 15, Appendix D II-11, Appendix E, p. 9.

[NA-WWII-0] Action Against Enemy Report, ETO, February 1945. 11th Armored Division Artillery. N-12137 After action. Ammunition expended: 25-26 Feb, p. 419-425; 15-23 Feb, p. 290-300; 5-15 Feb, p. 108-117. 492d Armored FA Bn, Btry C. 174th FA Bn, and Btry D (-2d Plat). 575th AAA Bn Rounds expended: 22-23 Feb, p. 249; 21-22 Feb, p. 247; 20-21 Feb, p. 246; 19-20 Feb, p. 244; 17-18 Feb, p. 240; 16-17 Feb, p. 238; 15-16 Feb, p. 236; 18-19 Feb, p. 242.

[NA-WWII-1] Artillery Ammunition Expenditures as Related to Infantry Casualties, US Army XII Corps Headquarters, July 1945 (UF15&U62).

[NA-WWII-2] Report of Operations, 12th Army Group, Vol XI, page 87, UX151, n.12.A3 v.11.

[NA-WWII-3] Report of Operations, First US Army, 20 Oct 43 - 1 Aug 44, Annex 3-11.

[NA-WWII-5] After Action Report, ETO, XX Corps Artillery. R-12296. Ammunition expended 1 Aug 44 to 31 Dec 44, p. 102. Daily Army artillery reports 31 Oct 44, p. 132.

[NA-WWII-6] After Action Report, 1 August 1944 to 9 May 1945, Third Army, 15 May 1945. Vol. II, Part 9 - Artillery. N-11480-B.

[NA-WWII-7] After Action Report for September 1944, 62nd Armored Field Artillery Battalion. AGF, 16 October 1944. N-6765.

[NA-WWII-8] Ammo Joe at Anzio Jan 22 '44 - May 31, '44, Allied Forces Headquarters, 1944. N-5320.1. Expenditures by weapon.

[NA-WWII-9] Ammo Joe's Advance on Rome May 1, 1944 - July 31, 1944, Allied Forces Headquarters, 1944. N-5320.1. By weapon.

[NA-WWII-10] Analysis of Artillery Ammunition Expenditures in Fifth Army - 9 Sep - 17 Dec 43, Fifth Army HQ, Office of the Artillery Officer, 10 Jan 44. N-7039. By weapon.

[NA-WWII-11] Army Field Forces Observer Team No 8 to Far East Command, Report and Questionnaire, Army Field Forces. April - May 1953. Two volumes. N-17834.8-A & B. Tab K: Artillery, Inclosure 3 - Ammunition expenditures.

[NA-WWII-12] Artillery Information Service Memorandum No 1, First Army, December 1943. R-16558.1. Ammunition expenditures Northern Tunisia Apr 23 - May 8; Sicily Jul 10 - Aug 15, p. 16-17.

[NA-WWII-13] Artillery Information Service, First United States Army, July 1944. R-16558.15. Ammunition expenditures 6 June to 24 June, p. 71-76.

[NA-WWII-14] Artillery Information Service, First United States Army, July 1944. R-16558.15. Ammunition expenditures 24 Jun to 5 Aug, by weapon and day, p. 152-172.

[NA-WWII-15] Artillery Information Service, First United States Army, December 1944. R-16558.7. Paragraph 101. Ammunition expenditures p. 188-228, 6 Aug to 28 Oct.

[NA-WWII-16] Artillery Information Service, First United States Army, May 1945. N-16558.8. Paragraph 76. Ammunition expenditures, p. 219-329 (recapitulation - ammunition expenditures 6 June 1944 - 8 May 1945), p. 222. Also tables by weapon per day.

[ORO-ALL-1] Ammunition Day of Supply WWI-1960, Dorothy K. Clark, Operations Research Organization, ORO-TP-18, December 1960 (AD323064). A major work in the field of ammunition requirements studies. It provides an essential understanding of the need for predicting wartime requirements for ammunition. The study gives valuable insight into the changing definitions for ammunition rates as well as an historical perspective on the use of scientific methods of analysis to determine these rates.

[ORO-K-1] Effects of Counterbattery Fire, The, Thurton L. Page, Operations Research Organization, ORO-T-284, March 1955 (AD69456). This study provides an extremely detailed analysis of target acquisition and counterfire in the Korean War. It provides great insight into the role of artillery in the defense light operation. It does not provide sufficient detail of missions other than counterbattery fire to be of greater use to the AHART Study but would be

valuable in further research into the influence of target acquisition on artillery expenditures.

[ORO-K-2] US Army Battle Casualties In Korea, Fredent W. Cleaver, Operations Research Organization, ORO-T-71, October 1956. Among other details useful to indirect fire studies, the relative impact of artillery as a killer on the battlefield is presented. No direct expenditure data is given, only the resulting analysis on same. Some specific data on weapon density during portions of the war is included.

[ORO-K-3] Combat Zone Logistics In Korea, Operations Research Organization, ORO-T-15, November 1951. This document provides no artillery expenditure data but does include narrative description of the attempts to maintain data necessary to calculate consumption data and to produce near-term planning figures. It further provides detail on the ammunition resupply system and the major difficulties experienced there.

[ORO-K-4] Artillery Weight, Personnel, Firepower Trends, J. Duncan Love, Operations Research Organization, ORO-SP-115, October 1959. (AD394654L).

[ORO-S-1] Validity of Strategic Logistics Planning Factors, Owen Mattingly Operations Research Organization, ORO-T-280, Nov 54 (AD111765). This document includes no artillery expenditure data. It does compare operational planning figures with actual combat consumption of various classes of supply. The difficulties of such comparisons are applicable to the AHART Study.

[ORO-S-2] Combat Day of Supply - Ammunition, Andrew J. Eckles III, Operations Research Organization, ORO-SP-175, 1954 (AD394656L).

[ORO-WWI-1] Cost of Inflicting a Casualty - WWI, Operations Research Organization, June 1960.

[ORO-WWII-1] Artillery Usage WWII, Vol. 2, J. Duncan Love, Operations Research Organization, ORO-T-375, April 1959 (AD208021). This is a major source of expenditures in terms of weight and total rounds for WWII Europe. This data is provided for each participating US Army/Army Group. Unfortunately, data sufficient to calculate RTD is provided only for one of the four armies. The data for the other armies lack the average density of tubes present in a given period. Were this data found elsewhere, the value of this document would increase greatly. There is also analysis in terms of distribution of ranges fired, types of missions, times of activity, etc., useful in more detailed analysis of this data.

[ORO-WWII-2] Cost in Ammunition of Inflicting a Casualty, L. VanLoan Naisawald, Operations Research Organization, ORO-T-246, July 1953 (AD28927) 147957. Data for the Anzio campaign in Europe and for the invasion of Okinawa in the Pacific are presented in great detail. Monthly expenditure data for both direct and indirect fire weapons in terms of cost and weight are provided. US, British, and German data is

present to varying degrees. The density of artillery tubes is missing and must be determined elsewhere to make best use of this data.

[ORO-WWII-3] The Cost in Ammunition of Inflicting a Casualty, L. VanLoan Naisawald, Operations Research Office, Johns Hopkins University, December 1953. Technical Memorandum ORO-T-246, N-16454.229. Anzio and Okinawa. Tables - ammunition fired by US VI Corps, Anzio, gives type of ammunition and rounds for period 31 Jan - 29 Feb 44; 29 Feb - 31 Mar 44, and April 44. Table of US ammunition expenditures, XXIV and III Corps, Okinawa, given by type of ammunition and rounds.

[ORO-WWII-4] Causative Agents of Battle Casualties WWII, L. VanLoan Naisawald, Operations Research Organization, ORO-T-241, July 1954, (Nov 53) (AD25637). One of the few documents that provides comparable data for three theaters of operation--Mediterranean, Europe, and the Pacific. Data is oriented toward casualty analysis but provides some amount of expenditure data.

[ORO-WWII-5] Incidence of Predicted Artillery Fire, Dorothy K. Clark, Operations Research Organization, ORO-T-68, October 1950, (ATI92697).

[OUSA-ALL-1] Historical Data on Wartime Ammunition Usage and Attrition, John Bemis, Production Engineering Support Office (PESO), Office of the Under Secretary of Defense, April 1978. This document is the result of a short-term study effort on Army ammunition consumption. The data included is directly applicable to AHART. Operational rates from all major wars in this century are included. A small amount of theater-level data is present. The study includes some exploratory analysis of the data.

[OUSD-ALL-1] US Army Ammunition Firing Rates And Battlefield Equipment Attrition - A Historical Survey, John Bemis, Product Engineering Services Office, Office of the Under Secretary of the Army (R&E), April 1978. This document includes the data taken from numerous others listed herein. The work was an attempt on a limited basis to accomplished the same purpose as AHART.

[RAC-S-1] Casualty Predictions Conventional Weapons 1965-1970, Research Analysis Corporation, November 1964.

[RAC-VN-1] Survey of Casualties Republic of Vietnam Military Forces, 1962, Richard W. Parker Jr., Research Analysis Corporation, RAC-TP-167(FOV), August 1965 (AD366296). Another in the series of casualty analysis. This study, even more than others, is oriented to medical analysis and therefore provides no expenditure data. It does offer an opportunity for analysis of the relative effects of artillery vis-a-vis direct fire weapons.

[RAC-WWII-K-1] Distribution of Casualties by Causative Agents, Jeffery A. Burt, Research Analysis Corporation, RAC-T-445, March 1965 (AD368202). In addition to addressing the distribution of causative agents, the study provides expenditure data and battle parameter variables similar to the AHART variables. Historical data was derived

directly from the National Archives and reviewed by the Center of Military History.

[RAC-WWII-2] Casualties and the Dynamics of Battle, R. J. Best, Research Analysis Corporation, RAC-TP-185, March 1966 (AD372260) 235587. Substantial documentation on various qualitative aspects of WWII combat but not sufficiently detailed for extensive quantitative analysis.

[RAND-VN-1] An Analysis of Firing Data From the 1st Marine Division, Helmbold, Rand, D-20519-PR, July 1970 - A follow-on study to a larger work. A very detailed analysis of the distribution of rounds by type and by time of day fired for a 1-month period in 1968. Some very useful expenditure data for operational rates is included.

[RAND-VN-2] Summary of Firing Data From the 3rd Marine Amphibious Force, Helmbold, Rand D-19573-PR, November 1969. Detailed target specification list for combined air ground operations for a 5-week period. Allows for a more detailed analysis of operational rates under specific circumstances.

[UK-ALL-1] Historical Data in the Assessment of Combat Degradation, Defence Operational Analysis Establishment, UK Ministry of Defence, October 1985. Expenditures for artillery data are given in terms of the number of rounds per square yard and not readily convertible to the defined rates in the AHART Study. The study does offer insight into the British use of historical data for analysis and operational planning. Some work is done on the effects of artillery preparation on given battles. This group has studied extensively over a hundred battles. Correspondence with them could prove beneficial for both sides.

[USAREUR-WWII-1] Guide to Foreign Military Studies 1945-1954, Historical Division, Headquarters US Army Europe, 1954. This manuscript provides extensive listing of otherwise unknown documents. Many of the documents reference the German, Russian, and Italian operations. Many include references to logistics and ammunition expenditures.

[USMA-ALL-1] West Point Atlas of American Wars, The, Vincent J. Esposito, Praeger Publishers, 1972 USMA-ALL-1. This atlas provides no expenditure data. It does provide a detailed description of all battles in which US forces were involved from 1900 to 1953. A chronology of battles is available for immediate reference.

[USMC-AI-1] Analysis of the Lessons Learned in the October 1973 Arab/Israeli War, Marine Corps Development and Education Command, Quantico, Virginia, January 1975 (unclassified title). Provides data updated from previous studies. Includes relevant logistics data.

[USMC-S-1] Class V Combat Planning Factors Study, Quantics Inc., Wayne, PA, June 1981 (ADC029438).

[USMC-VN-1] "Battle for Khe Sanh," LTC Walt, Reader's Digest, May 1970. Based on The Battle for Khe Sanh, CPT M. S. Shore II, USMC Historical Branch, G-3 Division, Headquarters USMC, 1969. This document provides data for one of the few large-scale battles that are comparable with more conventional wars.

[TOI-WWII-1] Activity Indicators for Estimation of Combat Consumption Requirements, Combat Operations Research Group Technical Operations, Inc., Ft Belvoir, Dec 65 (AD370493).

[VRI-AI-1] Summary of a Verification Study of Vector II with Arab-Israeli War, Vector Research Inc., (VRI-G-N-81-1), July 1985. A short paper offering some detail on the Golan Heights Campaign in the Arab-Israeli War. Summarizes an attempt at actually validating a combat simulation with historical data. No specific expenditure data is given.

[WSEG-AI-1] October 1973 Middle East War, The, Volumes I-III, (unclassified title) Weapons Systems Evaluation Group, January 1975. This is the unclassified title to the SECRET-NOFORN report. Included in Volume III are the theater rates for the 17 days of the war for all artillery tubes. Analysis of the classified data and its effect on the study results is included in a separate appendix to the study.

D-3. STATISTICAL

Beck, James V. and Kenneth J. Arnold, Parameter Estimation in Engineering and Science, John Wiley and Sons Inc., 1977.

Bhattacharyya, Gouri K. and Richard A. Johnson, Statistical Concepts and Methods, John Wiley and Sons, Inc., 1977.

Bloomfield, Peter, Fourier Analysis of Time Series: An Introduction, Wiley, Inc., 1976.

BMDP Statistical Software, Department of Biomathematics, University of California Press, Los Angeles, CA, 1983 release.

Box, George and Gwilyn Jenkins, Time Series Analysis: Forecasting and Control, Revised Edition, Holden-Day, Inc., 1976.

Carbone, Robert and Spyros Makriddakis, "Forecasting When Pattern Changes Occur Beyond The Historical Data," Management Science, March 1986.

Daniel, Cuthbert and Fred Wood, Fitting Equations To Data: Computer Analysis of Multifactor Data, Second Edition, Wiley, Inc., 1980.

Kleinbaum David G. and Lawrence L. Kupper, Applied Regression Analysis and Other Multivariable Methods, Duxbury Press, North Scituate, Massachusetts, 1978.

Makridakis, Spyros and Steven C. Wheelwright, Forecasting. Methods and Applications, John Wiley and Sons, 1978.

Mosteller, Fredrick and John Tukey, Data Analysis and Regression Analysis, Addison-Wesley Co., 1977.

Simpson, Alan, Understanding DBASEIII PLUS, Sybex Inc., 1986.

Tufte, Edward R., Visual Display of Quantitative Information, Graphics Press, Cheshire, CT, Third Printing, August 1984.

Wickelgren, Wayne A., How To Solve Problems: Elements of a Theory of Problems and Problem Solving, W. H. Freeman and Company, 1974.

APPENDIX E

DATA BASE MANAGEMENT SYSTEM AND DATA ANALYSIS PROGRAMS

E-1. **PURPOSE.** The purpose of this appendix is to describe the hardware, the software, the files, and the routines used to conduct this study. This documentation has the specific purpose of facilitating expansion of the data base and updating the analysis by US Army Concepts Analysis Agency personnel.

E-2. **THE SYSTEM.** The system used to manage AHART is designed around the hardware and software systems available at CAA and at George Mason University. While it was never necessary to use the university system, all BMDP routines and other software were available at both. The AHART data base management system and analysis routines would require changes in order to be used on the university mainframe, but the effort is minimal if needed. The components of the system are as follows:

Microcomputer	IBM PC AT	LEADING EDGE
Mainframe Computer	Sperry 1184	CYBER
Graphic Work Station	Superset	(not available at GMU)
Data Base Software	DBASEIII PLUS	
Spreadsheet/Graphics	LOTUS Version 2.1	
Graphics	QCHART	
PC-Mainframe Transfer	PIBTERM	
Statistical Software	BMDP	

E-3. DBASEIII PLUS

a. The AHART data base was input to and is presently stored on floppy and hard disk drives on an IBM personal computer AT employing the DBASEIII Plus software package. A data entry format is included in the AHART data base to augment the numerous browsing, indexing, and sorting capabilities of the software. The procedures for employing the ASSIST and DOT commands in DBASEIII Plus are left to the user referencing the appropriate microcomputer and DBASEIII documentation.

b. DBASEIII Plus was chosen for its ease of use for beginner level users, for its ease of transportability increasing the probable distribution of AHART, and for its transferability to ASCII and other forms of code. Use of a microcomputer software package freed the study from constraints of a single mainframe system.

c. The following file names must be selected upon entry into the DBASEIII Plus system:

Data base	AHART.DBF
Data entry format	AHART.FMT
Data entry screen	AHART.SCR
Data base text	AHART.TBK

d. The data entry screen appears in Chapter 2.

e. Selected fields of the AHART data base in hard copy appear in Appendix F.

E-4. LOTUS

a. To permit use of available graphics and to make optimum use of spreadsheet capabilities when appropriate, AHART was translated into LOTUS using the LOTUS TRANSLATOR program.

b. Prior to entering the LOTUS TRANSLATOR, the data base is indexed and reduced to only necessary fields.

(1) The data base can be and is indexed in several ways within DBASEIII. The file is indexed first by TUBETYPE, then by DATE; TUBEDATE.NDX was used whenever translated, transferred to other systems, or printed in hard copy for dissemination. The indexed files which could be used for this purpose are:

TUBEDATE.NDX

OPN.NDX

DURATION.NDX

TUBETYPE.NDX

DATE.NDX

(2) To most efficiently produce a LOTUS worksheet for any particular analysis, only selected fields need to be transferred from the data base. Use of the COPY command on DBASEIII permitted such selection and transformation into the data base format (DBF) needed by the TRANSLATOR. An example follows:

COPY TO TUBEDATE.DBF FIELDS DATE, TUBETYPE, OPERATION, DAYSQUANT,
SIZE, ROTUBEDAY

c. After entering the TRANSLTOR program in LOTUS, the following commands are entered:

Translation From: DBASEIII To: LOTUS Version 2.1

Source File: AHART.DBF

d. The resulting LOTUS spreadsheet becomes:

Destination File: AHART.WK1

E-5. MICRO TO MAINFRAME TRANSFER SOFTWARE - PIBTERM

a. To permit use of mainframe hardware, software, and storage capabilities, it was necessary to translate the AHART data base from DBASEIII to the Sperry 1184 computer system. The following instructions are unique to the Sperry but provide a guide for use on other systems.

b. A specially designed software package, PIBTERM, is available to users of the Sperry 1184. Other such translators should be available when such an interface is needed.

c. The data base in DBASEIII is first converted to ASCII format with the following command:

```
COPY TO COPY.TXT FIELDS DATE,TUBETYPE,TUBECAT,TUBEQTY,TYPERD,OPERATION
DAYSQUANT,SIZE,ADTUBEDAY TYPE SDF
```

d. The converted data base with the name COPY.TXT is placed on a low density floppy disk.

e. The disk is placed on an IBM PC XT which has been interfaced with the Sperry, and the following instructions and commands are executed:

Place the low density disk containing the PIBTERM program in the A: drive.

Then turn on both the control unit and the monitor. If the PC is already on, place the PIBTERM in the A: drive as before, then perform a warm boot by simultaneously hitting the CTRL, ALT, and DEL keys of the keyboard.

Hit the return key in response to questions about the date and the time.

At the prompt for the A: drive (>A:), type in the program name, PIBTERM, and hit RETURN.

The following will be displayed on the monitor:

```
PIBTERM Version 3.2.1 (November, 1985) Ready.
Hit Alt-1 for command list.
Modem initialization: $$open caadem
```

Followed by a message that flashes on the monitor stating

```
Beginning Dumb Terminal Emulation.
```

Next, strike the RETURN key and proceed to sign on to the Sperry.

```
USERID/PASSWORD
USERID/ACCOUNT/QUALIFIER
```

After logging on, enter

```
@KERMIT COPT.TXT    ( when uploading )
@KERMIT              ( when downloading )
```

Note: When uploading, ensure the filename COPY.TXT is current on the Sperry

The following message is now displayed

Kermit 1100 2.2

To tell the computer where to locate/store the file COPY.TXT, simultaneously strike the ALT key and the F key. The following menu will appear:

- A)ctive directory change
- C)opy file
- D)irectory display
- E)rase file
- F)ree space on drive
- L)ogged drive change
- V)iew a file
- Q)uit

Select "L" then select "B" when the drive selection menu appears.

Place the disk with the file COPY.TXT into the B: drive.

A file can now be uploaded or downloaded.

UPLOADING

To upload the file, strike the ALT key and the S key simultaneously.

From the menu that appears select "d) Kermit".

From the menu that appears next select "a) Send a file".

A prompt appears; type in the name of PC file to be sent. When complete, strike RETURN.

A screen will appear accounting for bytes sent, packets sent, number of retries, and the number of bytes remaining to be sent.

When the transfer is complete another menu will appear; select the "QUIT" option.

Type in @EOF.

The option now exists to transfer more files or log off.

DOWNLOADING

To download the file, strike the ALT key and the R key simultaneously.

From the menu that appears select "d) Kermit".

From the menu that appears next select "a) Get text file".

A prompt appears; type in the name of Sperry file to be received.

When complete, strike RETURN.

(The file will be stored on the data diskette under a variation of the Sperry filename. The first eight characters of the filename are taken from the Sperry filename and the three characters of the file extension are taken from the Sperry file's element name.)

As the file transfer begins, a screen will appear accounting for bytes sent, packets sent, number of retries, and the number of bytes remaining to be sent.

When the transfer is complete, another menu will appear; select the "QUIT" option.

Type in @EOF

The option now exists to transfer more files or log off.

LOGOFF

To log off, type in the following commands:

```
@FREEM,TN
$$$OFF
ALT key and X key simultaneously
```

Answer "Y" to the query to log off or not

E-6. BMDP STATISTICAL SOFTWARE

a. Conversion of AHART to BMDP-readable Code. BMDP is designed to group, compare, and compute numbers. It will only accept two fields of four alpha characters each as record identifiers. After the record identifiers, which are not used in calculation, all entries must be numeric. It is therefore necessary to completely code any entries in the AHART data base for which calculations are desired. Those fields of type "character" must be coded into numerics.

(1) The actual conversion of AHART fields to BMDP-readable code (numerics) is accomplished after the file has been transferred via PIBTERM to the Sperry.

(2) To accomplish the task of conversion to numerics, each field was given a "scale," i.e., OPERATION was scaled from 1 to 10 according to the 10 operational intensities; SIZE was scaled from 1 to 900 according to the number of company-sized maneuver units being supported in a particular battle, etc. This scale has direct impact on the results of the analysis and should be examined closely for an accurate understanding of the data base. The effort required to code these fields for use in BMDP enhanced greatly the effort to quantify the data for analysis.

(3) The following is a Sperry "runstream" or macro specifically designed to convert the AHART data base to numeric scales usable to

CAA-TP-87-6

BMDP:

@ED,UP K2AHART.CODER

@ED,UP K2AHART.COPIED/TUBEDATE,.CODED/TUBEDATE

LIM C

C /19/ 19/9999

SEQ. [1,4] 1,1

LIM C 13 23

C /075GUN/075 /A

C /075HOW/075 /A

C /081MTR/081 /A

C /105GUN/105 /A

C /105HOW/105 /A

C /155GUN/156 /A

C /155HOW/155 /A

C /175GUN/175 /A

C /240HOW/240 /A

C /107MTR/107 /A

C /114GUN/114 /A

C /203GUN/203 /A

C /203HOW/203 /A

C /UNSP /30 /A

C /LIGHT /31 /A

C /MEDIUM/32 /A

C /HEAVY /33 /A

LIM C 24 29 /A

LIM C 52 58

C /BADL/ATKL /A

C /BAHD/ATKM /A

C /BA'D/ATKH /A

C /DL /DEFL /A

C /HD /DEFM /A

C /PD /DEFH /A

C /ATKL/02 /A

C /ATKM/05 /A

C /ATKH/08 /A

C /DEFL/03 /A

C /DEFM/06 /A

C /DEFH/09 /A

C /PROL/01 /A

C /PROM/04 /A

C /PROH/07 /A

C /UNSP/30 /A

LIM C 43 47

C /HE /01 /A

C /SMK /02 /A

C /ILLUM/03 /A

C /ICM /04 /A

C /UNSP /30 /A

LIM C 61 67

C /2CORPS/11 /A

C /CORPS /10 /A

C /2BN /05 /A

C /BNTF /04 /A

C /BN /03 /A

C /2BDE /07 /A

C /BDE /06 /A

C /2DIV /09 /A

C /DIV /08 /A

C /2CO /02 /A

C /CO /01 /A

C /1ARMY /12 /A

C /2ARMY /13 /A

C /ARMYGP/14 /A

C /THEA /15 /A

C /LIGHT /105 /A

C /MEDIUM/155 /AC /HEAVY /203/A

C /UNSP /30 /A

EXI

@BK2

b. The BMDP File

(1) After being coded into an acceptable format, the data base is ready for examination and analysis. The coded data base is first examined for data outside acceptable ranges and for missing data. Then the most basic location parameters are determined to ensure the data is even usable. The BMDP routine P1D shown in paragraph (4) below is used for these purposes with the AHART data base.

(2) In addition to simple data description, BMDP routine P1D includes the capability of conducting numerous filtering operations, transforms, and other computations on a set of data and storing it for future use. The capability of storing a BMDP file in the proper format for later use greatly simplifies the writing of other routines which employ the same data in the same form. This file is simply called the BMDP FILE.

(3) The Sperry filename of the BMDP file produced in this manner is K2P1DTTYPMIN. In Sperry this program creates only a distinct data file. There is no element name. Rerunning the program as written will overwrite the file.

(4) SIMPLE DATA DESCRIPTION and the BMDP FILE Program

@ED,R K2AHART.P1D-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP1D 120000

/PROBLEM TITLE IS 'COPIED/TUBEDATE'.

/INPUT VARIABLES ARE 12.

FORMAT IS '(A4,F4,2F2,8X,F3,12X,F4,F2,3X,F4,F2,6X,F3,6X,F6.1)'

/ VARIABLE NAMES ARE RECNO, YEAR, MONTH, DAY, TUBETYPE, TUBECAT, TUBEQTY, TYPERD, DURATION, OPN, SIZE, RTD.

MAXIMUM ARE (2)1999, (3)12, (4)31, (5)240, (6)203, (7)2000,

(8)30, (9)9999, (10)10, (11)999, (12)9999.

MINIMUM ARE (2)1900, (3)01, (4)01, (5)30, (6)30, (7)01,

(8)01, (9)02, (10)01, (11)01, (12)01.

GROUPING IS TUBETYPE.

LABEL IS RECNO.

/SAVE

CODE IS FIRST.

FILE IS 'K2P1DTTYPMIN'.

NEW.

/GROUP

CODES(10) ARE 01,02,03,04,05,06,07,08,09,10.

NAMES(10) ARE PROL,ATKL,DEFL,PROM,UNSP,ATKM,DEFM, PRCH,ATKH,DEFH.

CUTPOINTS(9) ARE 1,2,3,4,5,6,7,8,9,10,20,30,40,50,60, 70,80,90,180,365,730.

NAME(9) ARE '1','2','3','4','5','6','7','8','9','10',
'11T020','21T030','31T040','41T050','51T060',
'61T070','71T080','81T090',
'91T0180','181T0365','366T0730',
'731PLUS',

CODES(5) ARE 075,081,105,107,114,155,156,175,203,240,030,031,032,033.

NAMES(5) ARE '075', '081',
 '105',
 '107', '114',
 '155', '156',
 '175',
 '203', '240',
 'UNSP', 'LIGHT', 'MEDIUM', 'HEAVY'.

CUTPOINTS(7) ARE 3,6,12,18,24,30,36,42,48,54,60,66,
 72,78,84,90,96,114,132,150,168,186.

NAMES(7) ARE '3ORLESS', '4T06', '7T012', '13T018', '19T024',
 '25T030', '31T036', '37T042', '43T048',
 '49T054', '55T060', '61T066', '67T072',
 '73T078', '79T084', '85T090', '91T096',
 '97T0114', '115T0132', '133T0150',
 '151T0168', '169T0186', '187PLUS',

CODES(8) ARE 01, 02 03, 04, 30.

NAMES(8) ARE HE, SMK, ILLUM, ICM, UNSP.

CODES(11) ARE 001,002,003,004,005,006,009,018,027,054,081,162,243,486,
 729,900,1000.

NAMES(11) ARE CO, '2CO', BN, BNTF, '2BN', BDE, '2BDE', DIV, '2DIV',
 CORPS, '2CORPS', '1ARMY', '2ARMY', ARMYGP, THEA, UNSP.

CODES(6) ARE 105,155,203,030.

NAMES(6) ARE LIGHT, MEDIUM, HEAVY, UNSP.

CODES(2) ARE 1900,1904,1915,1916,1918,1943,1944,1945,1951,1952,1953,
 1967,1968,1969,1970,1976,1999.

NAMES(2) ARE '1900', '1904', '1915', '1916', '1918', '1943', '1944', '1945',
 '1951', '1952', '1953', '1967', '1968', '1969', '1970', '1976',
 '1999'.

/PRINT DATA.
 MISSING.
 MAXIMUM.
 MINIMUM.

c. **BMDP Programs.** For those familiar with BMDP software, the following provides documentation of the BMDP programs used in the data description and the exploratory analysis. Only a single example of each type of program is included. Many variations to these programs were used to investigate other aspects of the data.

(1) Detailed Data Description Program

@ED,R K2AHART.P2D-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP2D

/PROBLEM TITLE IS 'AHART P2D'.

/INPUT FILE IS 'K2P1DITTPMIN'.

CODE IS 'FIRST'.

/PRINT ESTIMATES.

STEM.

/END

(2) Histograms and Univariate Plots Program

@ED,R K2AHART.P5D-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP5D

/PROBLEM TITLE IS 'AHART P5D-MINUS'.

/INPUT CODE IS FIRST.
FILE IS 'K2P1DTTYPMIN'.

/PLOT

/END

(3) Bivariate (Scatter) Plots Program

@ED,R K2AHART.LP6D-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP6D

/PROBLEM TITLE IS 'AHART P6D-MINUS'.

/INPUT CODE IS FIRST.
FILE IS 'K2P1DTTYPMIN'.

/PLOT YVAR ARE RTD.

XVAR ARE YEAR,OPN,DURATION,TUBETYPE,TUBEQTY,TYPERD,SIZE,TRUECAT
CROSS.

/END

(4) Description of Groups (Strata) with Histograms and Analysis of Variance Program

@ED,R K2AHART.P7D-MUNUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP7D 50000

/PROBLEM TITLE IS 'AHART P7D'.

/INPUT FILE IS 'K2P1DTTYPMIN'.
CODE IS FIRST.

/VARIABLE GROUPING IS TUBETYPE.

/HISTOGRAM GROUPING IS TUBETYPE

/COMPARISON ALPHA IS 5.
BONFERRONI.
TUKEY.
SCHEFFE.

/PRINT CORRELATION.

DATA.
TTEST.
PLOT

/END

(5) Multiple Linear Regression Program

@ED,R K2AHART.P1R-MINUS/GRP-TUBETYPE

@LIB\$*MDP85.BMDP1R

/PROBLEM TITLE IS AHART P1R'.

/INPUT FILE IS 'K2P1DTTYPMIN'.
CODE IS FIRST.

/REGRESS DEPENDENT IS RTD.
INDEPENDENTS ARE TUBETYPE,YEAR.
TOLERANCE IS .05.

/PLOT RESIDUALS.

/END NORMAL.

(6) All Possible Subset Regression Program

@ED,R K2AHART.P9R-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP9R

/PROBLEM TITLE IS "AHART P9R'.

/INPUT FILE IS 'K2P1DTTYPMIN'.
CODE IS FIRST.

/REGRESS DEPENDENT IS RTD.
INDEPENDENTS ARE YEAR,TUBETYPE,TUBEQTY,OPN,DURATION,SIZE.
TOLERANCE IS .05.

/PLOT RESIDUALS.
NORMAL.
XVAR ARE YEAR,TUBETYPE,TUBEQTY,OPN,DURATION,SIZE.
YVARS ARE RTD,RTD,RTD,RTD,RTD,RTD.
STATISTICS.
HISTOGRAM.

/PRINT DATA.
CORR.
COVA.
RREG.
CREG.
RESI.

/END

(7) Stepcase Regression Program

@ED,R K2AHART.P2R-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP2R

/PROBLEM TITLE IS 'AHART P2R'.

/INPUT FILE IS 'K2P1DTTYPMIN'.

CODE IS FIRST.

/VARIABLE USE = YEAR,TUBETYPE,TUBEQTY,OPN,DURATION,SIZE,RTD.

/REGRESS DEPENDENT IS RTD.

TOLERANCE IS .05.

/PLOT RESIDUALS.

NORMAL.

/PRINT DATA.

CORR.

COVA.

RREG.

/END

(8) Nonlinear Regression Data Transformed Square Root Program

@ED,R K2AHART.P1D-MINUS/GRP-TUBETYPE

@LIB\$*BMDP85.BMDP1D 120000

/PROBLEM TITLE IS 'COPIED/TUBEDATE'.

/INPUT VARIABLES ARE 12. FORMAT IS

FORMAT IS '(A4,F4,2F2,8X,F3,12X,F4,F2,3X,F4,F2,6X,F3,6X,F6.1)'.

/ VARIABLE NAMES ARE RECON,YEAR,MONTH,DAY,TUBETYPE,TUBECAT,
TUBEQTY,TYPEPD,DURATION,OPN,SIZE,RTD.

MAXIMUM ARE (2)1999, (3)12, (4)31, (5)240, (6)203, (7)2000

(8)30, (9)9999, (10)10, (11)999, (12)9999.

MINIMUM ARE (2)1900, (3)01, (4)01, (5)30, (6)30, (7)01.

(8)01, (9)02, (10)01, (11)01, (12)01.

GROUPING IS TUBETYPE.

LABEL IS RECNO.

/TRANSFORM

RTD = SQRT(RTD).

/SAVE

CODE IS FIRST.

FILE IS 'K2P1DSQRT'.

NEW.

/GROUP

CODES(10) ARE 01,02,03,04,05,06,07,08,09,10.

NAMES(10) ARE PROL,ATKL,DEFL,PROM,UNSP,ATKM,DEFM,
PROH,ATKH,DEFH.

CUTPOINTS(9) ARE 1,2,3,4,5,6,7,8,9,10,20,30,40,50,60,
70,80,90,180,365,730.

NAMES(9) ARE '1','2','3','4','5','6','7','8','9','10',

'11T020','21T030','31T040','41T050','51T060',

'61T070','71T080','81T090',

'91T0180','181T0365','366T0730',

'731PLUS'.

CODES(5) ARE 075,081,105,107,114,155,156,175,203,240,030,031,032,033.

NAMES(5) ARE '075', '081',
 '105',
 '107', '114',
 '155', '156',
 '175',
 '203', '240',
 'UNSP', 'LIGHT', 'MEDIUM', 'HEAVY'.

CUTPOINTS(7) ARE 3,6,12,18,24,30,36,42,48,54,60,66,
 72,78,84,90,96,114,132,150,168,186.

NAMES(7) ARE '3ORLESS', '4T06', '7T012', '13T018', '19T024',
 '25T030', '31T036', '37T042', '43T048',
 '73T078', '79T084', '85T090', '91T096',
 '97T0114', '115T0132', '133T0150',
 '151T0168', '169T0186', '187PLUS'.

CODES(8) ARE 01, 02 03, 04, 30.
 NAMES(8) ARE HE, SMK, ILLUM, ICM, UNSP.

CDES(11) ARE 001,002,003,004,005,006,009,018,027,054,081,162,243,486,
 729,900,1000.

NAMES(11) ARE CO, '2CO', BN, BNTF, '2BN', BDE, '2BDE', DIV, '2DIV',
 CORPS, '2CORPS', '1ARMY', '2ARMY', ARMYGP, THEA, UNSP.

CODES(6) ARE 105,155,203,030.

NAMES(6) ARE LIGHT, MEDIUM, HEAVY, UNSP.

CODES(2) ARE 1900,1904,1915,1916,1918,1943,1944,1945,1951,1952,1953,
 1967,1968,1969,1970,1976,1999.

NAMES(2) ARE '1900', '1904', '1915', '1916', '1918', '1943', '1944', '1945',
 '1951', '1952', '1953', '1967', '1968', '1969', '1970', '1976',
 '1999'.

/PRING DATA.
 MISSING.
 MAXIMUM.
 MINIMUM.

E-7. QCHART GRAPHICS

a. The following routines can be input directly onto the SUPERSET graphics terminal from the Sperry mainframe. Use of these routines will provide all graphics shown in this report. Modification of these routines will preclude the need to learn SUPERSET DISPLAY language. As long as the need for change is not extensive, updating of these graphics can be done entirely on the mainframe.

b. The files themselves are too lengthy to include in the report. The relevant filenames are as follows:

K2AHART.SUPERSET/OBS	.SUPERSET/OBS-WARRAMP
.SUPERSET/DURATION	.SUPERSET/DUR-WARRAMP
.SPERSET/OPERATION	.SUPERSET/OPN-WARRAMP
.SUPERSET/TWOVAR2	.SUPERSET/WAR-WARRAMP
	.SUPERSET/YEAR

APPENDIX F

THE AHART DATA BASE

F-1. PURPOSE. This appendix is provided to supplement the use of floppy and hard disk storage of the data base on microcomputers. It is intended that this data base be disseminated as widely as possible. It is also intended that the present data base be only a start to a much greater and more useful data base of field artillery historical expenditure data.

F-2. THE DATA BASE STRUCTURE

a. Definitions, explanations, and analyses of each of the fields in the data base are included in Chapter 2 of the main report.

b. The data base as shown in this appendix has been indexed first by tube types (see TUBETYPE field). Within tube types, the data is ordered chronologically (see DATE field).

c. Record numbers are the order in which the data was entered into the data base and should not be used for location of records. Record location is most efficiently done by tube type, date, and by identification with the historical event.

d. The source field is referenced in Appendix D, Bibliography, for further research into the resource material.

(NOT USED)

F-3

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSQUANT	OPERATION	REPUTEDDATE
3155	HERO-WM11-CDS5	ROER RIVER	9TH US ARMY	1ARMY	02/23/45	075NOW	LIGHT	72 UNSP	1	UNSP		-1.0
3161	HERO-WM11-CDS5	ROER RIVER	XVI CORPS	CORPS	02/23/45	075NOW	LIGHT	72 UNSP	1	UNSP		56.9
3167	HERO-WM11-CDS4	ROER RIVER	XVI CORPS	CORPS	02/13/45	075NOW	LIGHT	142 UNSP	1	UNSP		63.2
3200	HERO-WM11-CDS3	PO VALLEY	II CORPS	CORPS	04/14/45	075NOW	LIGHT	3 UNSP	5	ATEM		272.0
3205	HERO-WM11-CDS5	PO VALLEY	IV CORPS	CORPS	04/14/45	075NOW	LIGHT	-1 UNSP				244.0
17	HERO-WM11-1	OLINAWA	XXIVS111	2CORPS	05/01/45	075NOW	LIGHT	-1 NE	92	ATEM		-1.0
514	CMH-K-1	KOREA	US ARMY	THEA	10/01/51	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
515	CMH-K-1	KOREA	US ARMY	THEA	11/01/51	075NOW	LIGHT	-1 UNSP	30	UNSP		-1.0
516	CMH-K-1	KOREA	US ARMY	THEA	12/01/51	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
517	CMH-K-1	KOREA	US ARMY	THEA	01/01/52	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
518	CMH-K-1	KOREA	US ARMY	THEA	02/01/52	075NOW	LIGHT	-1 UNSP	28	UNSP		-1.0
519	CMH-K-1	KOREA	US ARMY	THEA	03/01/52	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
520	CMH-K-1	KOREA	US ARMY	THEA	04/01/52	075NOW	LIGHT	-1 UNSP	30	UNSP		-1.0
758	CMH-K-1	KOREA	US ARMY	THEA	05/01/52	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
759	CMH-K-1	KOREA	US ARMY	THEA	06/01/52	075NOW	LIGHT	-1 UNSP	30	UNSP		-1.0
760	CMH-K-1	KOREA	US ARMY	THEA	07/01/52	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
761	CMH-K-1	KOREA	US ARMY	THEA	08/01/52	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
762	CMH-K-1	KOREA	US ARMY	THEA	09/01/52	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
763	CMH-K-1	KOREA	US ARMY	THEA	10/01/52	075NOW	LIGHT	-1 UNSP	30	UNSP		-1.0
764	CMH-K-1	KOREA	US ARMY	THEA	11/01/52	075NOW	LIGHT	-1 UNSP	30	UNSP		-1.0
765	CMH-K-1	KOREA	US ARMY	THEA	12/01/52	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
766	CMH-K-1	KOREA	US ARMY	THEA	01/01/53	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
767	CMH-K-1	KOREA	US ARMY	THEA	02/01/53	075NOW	LIGHT	-1 UNSP	30	UNSP		-1.0
768	CMH-K-1	KOREA	US ARMY	THEA	03/01/53	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
769	CMH-K-1	KOREA	US ARMY	THEA	04/01/53	075NOW	LIGHT	-1 UNSP	30	UNSP		-1.0
770	CMH-K-1	KOREA	US ARMY	THEA	05/01/53	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
771	CMH-K-1	KOREA	US ARMY	THEA	06/01/53	075NOW	LIGHT	-1 UNSP	30	UNSP		-1.0
772	CMH-K-1	KOREA	US ARMY	THEA	07/01/53	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
773	CMH-K-1	KOREA	US ARMY	THEA	08/01/53	075NOW	LIGHT	-1 UNSP	31	UNSP		-1.0
289	TOJ-WM11-1	ITALY	XIUS CORPS	CORPS	01/01/42	081MR	LIGHT	-1 NE	720	ATEM		23.4
10	ORO-WM11-1	ANZIO	VI CORPS	CORPS	02/19/44	081MR	LIGHT	-1 NE	32	ATEM		-1.0
33	ORO-WM11-1	ANZIO	VI CORPS	CORPS	04/01/44	081MR	LIGHT	-1 NE	30	ATEM		-1.0
259	CMH-WM11-1	WM1 EUR	ALL	THEA	06/01/44	081MR	LIGHT	-1 NE	100	UNSP		10.2
25	ORO-WM11-1	OLINAWA	XXIV CORPS	CORPS	05/01/45	081MR	LIGHT	-1 NE	83	ATEM		-1.0
472	CMH-K-1	KOREA	US ARMY	THEA	05/01/45	081MR	LIGHT	-1 NE	910	UNSP		3.0
473	CMH-K-1	KOREA	US ARMY	THEA	02/01/51	081MR	LIGHT	-1 NE	16	UNSP		11.1
474	CMH-K-1	KOREA	US ARMY	THEA	02/21/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
475	CMH-K-1	KOREA	US ARMY	THEA	03/01/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
476	CMH-K-1	KOREA	US ARMY	THEA	03/11/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
477	CMH-K-1	KOREA	US ARMY	THEA	04/01/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
478	CMH-K-1	KOREA	US ARMY	THEA	04/11/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
479	CMH-K-1	KOREA	US ARMY	THEA	04/21/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
480	CMH-K-1	KOREA	US ARMY	THEA	05/01/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
481	CMH-K-1	KOREA	US ARMY	THEA	05/11/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
482	CMH-K-1	KOREA	US ARMY	THEA	05/21/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
483	CMH-K-1	KOREA	US ARMY	THEA	06/01/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
484	CMH-K-1	KOREA	US ARMY	THEA	06/11/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
485	CMH-K-1	KOREA	US ARMY	THEA	06/21/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
486	CMH-K-1	KOREA	US ARMY	THEA	07/01/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
487	CMH-K-1	KOREA	US ARMY	THEA	07/11/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
488	CMH-K-1	KOREA	US ARMY	THEA	07/21/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
489	CMH-K-1	KOREA	US ARMY	THEA	08/01/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
490	CMH-K-1	KOREA	US ARMY	THEA	08/11/51	081MR	LIGHT	-1 NE	931	UNSP		9.3
491	CMH-K-1	KOREA	US ARMY	THEA	08/21/51	081MR	LIGHT	-1 NE	931	UNSP		9.3

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSQUANT	OPERATION	NOTES/REMARKS
2913	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	001MTE	LIGHT	-1	UNSP	20	UNSP	7.4
2919	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	001MTE	LIGHT	-1	UNSP	21	UNSP	7.3
2925	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	001MTE	LIGHT	-1	UNSP	21	UNSP	7.0
2930	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/69	001MTE	LIGHT	-1	UNSP	20	UNSP	6.3
336	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	001MTE	LIGHT	-1	UNSP	20	UNSP	6.2
390	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	001MTE	LIGHT	772	UNSP	20	UNSP	9.0
391	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	001MTE	LIGHT	843	UNSP	20	UNSP	10.0
392	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/69	001MTE	LIGHT	807	UNSP	20	UNSP	11.3
393	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	001MTE	LIGHT	-1	UNSP	200	UNSP	12.3
394	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	001MTE	LIGHT	785	UNSP	20	UNSP	9.7
395	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	001MTE	LIGHT	-1	UNSP	203	UNSP	12.3
396	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	001MTE	LIGHT	-5	UNSP	205	UNSP	-1.0
397	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/69	001MTE	LIGHT	826	UNSP	20	UNSP	10.9
398	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/69	001MTE	LIGHT	836	UNSP	20	UNSP	9.7
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/70	001MTE	LIGHT	800	UNSP	20	UNSP	0.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	001MTE	LIGHT	819	UNSP	20	UNSP	12.3
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/70	001MTE	LIGHT	791	UNSP	20	UNSP	12.9
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/70	001MTE	LIGHT	708	UNSP	20	UNSP	13.7
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/70	001MTE	LIGHT	603	UNSP	20	UNSP	16.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/70	001MTE	LIGHT	586	UNSP	20	UNSP	24.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	ME	1	PROB	27.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	ME	32	ATEM	-1.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	ME	30	ATEM	-1.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	20	UNSP	176.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	1	UNSP	979.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	ME	720	ATEM	31.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	536	UNSP	20	ATEM	63.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	30	UNSP	13	UNSP	104.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	30	UNSP	22	ATEM	23.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	0	UNSP	128.2
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	7	UNSP	100.2
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	0	UNSP	93.1
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	ME	20	ATEM	-1.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	30	UNSP	21	UNSP	89.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	20	UNSP	97.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	20	UNSP	130.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	20	UNSP	110.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	20	UNSP	124.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	20	UNSP	72.4
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	10	UNSP	5	UNSP	173.1
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	ME	13	ATEM	42.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	931	UNSP	11	PROB	15.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	ME	32	ATEM	-1.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	10	UNSP	96.2
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	10	UNSP	97.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	10	UNSP	85.2
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	11	UNSP	51.1
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	UNSP	0	UNSP	107.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	-1	ME	30	ATEM	-1.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	30	UNSP	17	BAPE	221.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	30	UNSP	17	BAPE	109.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	12	UNSP	12	BAPE	60.0
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	17	BAPE	17	BAPE	104.3
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	17	BAPE	17	BAPE	55.7
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/70	001MTE	LIGHT	00	UNSP	00	UNSP	415.9

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	WEAPTYPE	TUBECAT	TUBECOUNT	TYPEDIR	DAYS/QUART	OPERATION	DIRECTION
3324	NERO-WW11-CDS6	DIADEN	05TH US DIV	DIV	05/13/46	103MOW	LIGHT	90 WNSP	2	2	2	2
3360	NERO-WW11-CDS6	DIADEN	05TH US DIV	DIV	05/14/46	103MOW	LIGHT	90 WNSP	2	2	2	2
3370	NERO-WW11-CDS6	DIADEN	05TH US DIV	DIV	05/16/46	103MOW	LIGHT	80 WNSP	2	2	2	2
3362	NERO-WW11-CDS6	DIADEN	05TH US DIV	DIV	05/16/46	103MOW	LIGHT	60 WNSP	2	2	2	2
3356	NERO-WW11-CDS6	DIADEN	05TH US DIV	DIV	05/22/46	103MOW	LIGHT	60 WNSP	2	2	2	2
3382	NERO-WW11-CDS6	DIADEN	05TH US DIV	DIV	05/23/46	103MOW	LIGHT	72 WNSP	2	2	2	2
262	CNH-WW11-1	WW11 EUB	ALL	THEAT	06/01/46	103MOW	LIGHT	-1 MC	100 WNSP	2	2	2
264	CNH-WW11-1	WW11 EUB	ALL	THEAT	06/01/46	103MOW	LIGHT	-1 MC	100 WNSP	2	2	2
273	CNH-WW11-2	WW11 EUB	1WS ARMY	ARMY	06/04/46	103MOW	LIGHT	-1 MC	5	2	2	2
275	CNH-WW11-2	GERMANY	12WS ARMY OF	ARMY	06/06/46	103MOW	LIGHT	-1 WNSP	100	2	2	2
267	CNH-WW11-2	WW11 EUB	1WS ARMY	ARMY	06/08/46	103MOW	LIGHT	-1 MC	12	2	2	2
295	CNH-WW11-2	WW11 EUB	1WS ARMY	ARMY	06/13/46	103MOW	LIGHT	-1 MC	7	2	2	2
299	CNH-WW11-2	GERMANY	1WS ARMY	ARMY	06/16/46	103MOW	LIGHT	-1 MC	7	2	2	2
282	CNH-WW11-2	GERMANY	1WS ARMY	ARMY	06/23/46	103MOW	LIGHT	-1 MC	7	2	2	2
308	CNH-WW11-2	GERMANY	1WS ARMY	ARMY	07/02/46	103MOW	LIGHT	-1 MC	7	2	2	2
316	CNH-WW11-2	GERMANY	1WS ARMY	ARMY	07/09/46	103MOW	LIGHT	-1 MC	7	2	2	2
324	CNH-WW11-2	GERMANY	1WS ARMY	ARMY	07/16/46	103MOW	LIGHT	-1 MC	7	2	2	2
331	CNH-WW11-2	GERMANY	1WS ARMY	ARMY	07/23/46	103MOW	LIGHT	-1 MC	7	2	2	2
338	CNH-WW11-2	GERMANY	1WS ARMY	ARMY	07/30/46	103MOW	LIGHT	-1 MC	7	2	2	2
2356	LOC-WW11-2	WW11	1 US ARMY	ARMY	08/06/46	103MOW	LIGHT	422 WNSP	12	2	2	2
2357	LOC-WW11	WW11	1 US ARMY	ARMY	08/10/46	103MOW	LIGHT	490 WNSP	16	2	2	2
2358	LOC-WW11-2	WW11	1 US ARMY	ARMY	09/04/46	103MOW	LIGHT	434 WNSP	13	2	2	2
2359	LOC-WW11-2	WW11	1 US ARMY	ARMY	09/17/46	103MOW	LIGHT	436 WNSP	13	2	2	2
2360	LOC-WW11-2	WW11	1 US ARMY	ARMY	10/02/46	103MOW	LIGHT	510 WNSP	13	2	2	2
2361	LOC-WW11-2	WW11	1 US ARMY	ARMY	10/15/46	103MOW	LIGHT	522 WNSP	13	2	2	2
2362	LOC-WW11-2	WW11	1 US ARMY	ARMY	10/29/46	103MOW	LIGHT	556 WNSP	16	2	2	2
165	NERO-WW11-CDS6	SAR	35US IN DIV	DIV	11/08/46	103MOW	LIGHT	24 WNSP	4	2	2	2
166	NERO-WW11-CDS6	SAR	35US IN DIV	DIV	11/08/46	103MOW	LIGHT	5 WNSP	4	2	2	2
2324	NERO-WW11-CDS6	DIADEN	08TH US DIV	DIV	11/09/46	103MOW	LIGHT	-1 WNSP	2	2	2	2
95	NERO-WW11-CDS6	GERMANY	4US AR DIV A BDE	BDE	11/10/46	103MOW	LIGHT	9 WNSP	2	2	2	2
103	NERO-WW11-CDS6	GERMANY	4US AR DIV B BDE	BDE	11/10/46	103MOW	LIGHT	8 WNSP	1	2	2	2
2099	NERO-WW11-CDS6	SAR	GARDIV	DIV	11/10/46	103MOW	LIGHT	36 WNSP	2	2	2	2
3373	NERO-WW11-CDS6	SAR	08TH US DIV	DIV	11/10/46	103MOW	LIGHT	40 WNSP	2	2	2	2
2291	NERO-WW11-CDS6	ITALYAN EUB	4TH US DIV	DIV	11/11/46	103MOW	LIGHT	-1 WNSP	1	2	2	2
176	NERO-WW11-CDS6	SAR	35US IN DIV	DIV	11/12/46	103MOW	LIGHT	26 WNSP	4	2	2	2
2263	LOC-WW11-2	WW11	1 US ARMY	ARMY	11/12/46	103MOW	LIGHT	576 WNSP	4	2	2	2
112	NERO-WW11-CDS6	GERMANY	4US AR DIV B BDE	BDE	11/13/46	103MOW	LIGHT	20 WNSP	2	2	2	2
121	NERO-WW11-CDS6	GERMANY	4US AR DIV A BDE	BDE	11/13/46	103MOW	LIGHT	18 WNSP	2	2	2	2
2106	NERO-WW11-CDS6	SAR	GARDIV	DIV	11/14/46	103MOW	LIGHT	36 WNSP	2	2	2	2
2384	NERO-WW11-CDS6	SAR	08TH US DIV	DIV	11/14/46	103MOW	LIGHT	40 WNSP	2	2	2	2
3115	NERO-WW11-CDS6	SAR	GARDIV	DIV	11/15/46	103MOW	LIGHT	36 WNSP	2	2	2	2
3393	NERO-WW11-CDS6	SAR	08TH US DIV	DIV	11/15/46	103MOW	LIGHT	40 WNSP	2	2	2	2
162	NERO-WW11-CDS6	SAR	35US IN DIV	DIV	11/18/46	103MOW	LIGHT	20 WNSP	2	2	2	2
182	NERO-WW11-CDS6	SAR	35US IN DIV	DIV	11/18/46	103MOW	LIGHT	1	2	2	2	
3066	NERO-WW11-CDS6	SAR	08TH US DIV	DIV	11/18/46	103MOW	LIGHT	36 WNSP	2	2	2	2
192	NERO-WW11-CDS6	SAR	35US IN DIV	DIV	11/19/46	103MOW	LIGHT	26 WNSP	2	2	2	2
3316	NERO-WW11-CDS6	SAR	0TH AR DIV	DIV	11/19/46	103MOW	LIGHT	36 WNSP	2	2	2	2
281	NERO-WW11-CDS6	SAR	35US IN DIV	DIV	11/21/46	103MOW	LIGHT	26 WNSP	2	2	2	2
3505	NERO-WW11-CDS6	SAR	0TH AR DIV	DIV	11/21/46	103MOW	LIGHT	26 WNSP	2	2	2	2
211	NERO-WW11-CDS6	SAR	35US IN DIV	DIV	11/22/46	103MOW	LIGHT	26 WNSP	2	2	2	2
2494	NERO-WW11-CDS6	SAR	0TH AR DIV	DIV	11/23/46	103MOW	LIGHT	26 WNSP	2	2	2	2
2617	NERO-WW11-CDS6	SAR	08TH US DIV	DIV	11/23/46	103MOW	LIGHT	40 WNSP	2	2	2	2
2683	NERO-WW11-CDS6	SAR	0TH AR DIV	DIV	11/25/46	103MOW	LIGHT	36 WNSP	2	2	2	2
127	CNH-WW11-2	WW11 EUB	4US AR DIV	DIV	11/26/46	103MOW	LIGHT	-1 MC	16	2	2	2
284	CNH-WW11-2	WW11 EUB	1WS ARMY	ARMY	11/26/46	103MOW	LIGHT	-1 MC	16	2	2	2

SOURCE	BATT-E	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DATQUANT	OPERATION	RETURDAY
203 CMH-WM11-2	WM11 EUR	1 US ARMY	I ARMY	11/26/44	105HOW	LIGHT	-1 ME		14 ATEN		41.0
204 LOGC-WM11-2	WM11 EUR	1 US ARMY	I ARMY	11/26/44	105HOW	LIGHT	530 UNSP		14 ATEN		41.0
137 HERO-WM11-CDS5	GERMANY	405 AB DIV	DIV	11/27/44	105HOW	LIGHT	54 UNSP		3 BAPD		31.6
3472 HERO-WM11-CDS5	SAAC	6TH AB DIV	DIV	11/27/44	105HOW	LIGHT	28 UNSP		8 ATIL		20.0
3426 HERO-WM11-CDS5	SAAC	80TH US DIV	DIV	11/28/44	105HOW	LIGHT	48 UNSP		2 ATEN		33.7
147 HERO-WM11-CDS5	GERMANY	405 AB DIV	DIV	12/01/44	105HOW	LIGHT	54 UNSP		2 BAPD		63.7
221 HERO-WM11-CDS5	SAAC	3505 IN DIV	DIV	12/04/44	105HOW	LIGHT	24 UNSP		3 BAPD		73.8
3439 HERO-WM11-CDS5	SAAC	80TH US DIV	DIV	12/04/44	105HOW	LIGHT	36 UNSP		1 ATEN		76.0
3451 HERO-WM11-CDS5	SAAC	6TH AB DIV	DIV	12/04/44	105HOW	LIGHT	36 UNSP		1 ATEN		76.0
3450 HERO-WM11-CDS5	SAAC	6TH AB DIV	DIV	12/05/44	105HOW	LIGHT	34 UNSP		2 ATIL		18.0
157 HERO-WM11-CDS5	GERMANY	405 AB DIV	DIV	12/06/44	105HOW	LIGHT	27 UNSP		2 BAPD		42.4
449 HERO-WM11-CDS5	SAAC	3505 IN DIV	DIV	12/06/44	105HOW	LIGHT	24 UNSP		1 BAPD		45.6
2365 HERO-WM11-2	WM11 EUR	1 US ARMY	I ARMY	12/10/44	105HOW	LIGHT	600 UNSP		6 ATEN		44.0
230 HERO-WM11-CDS5	ARMENIES	9905 IN DIV	DIV	12/10/44	105HOW	LIGHT	6 UNSP		2 PD		103.2
270 CMH-WM11-2	WM11 EUR	1 US ARMY	I ARMY	12/16/44	105HOW	LIGHT	-1 ME		26 DEFN		65.0
2266 LOGC-WM11-2	WM11 EUR	1 US ARMY	I ARMY	12/16/44	105HOW	LIGHT	504 UNSP		16 DEFN		69.0
3210 HERO-WM11-CDS5	ARMENIES	4TH US DIV	DIV	12/16/44	105HOW	LIGHT	12 UNSP		1 DEFN		43.1
3231 HERO-WM11-CDS5	ARMENIES	4TH US DIV	DIV	12/16/44	105HOW	LIGHT	15 UNSP		6 DEFN		37.5
3236 HERO-WM11-CDS5	ITALYANM EUR	4TH US DIV	DIV	12/16/44	105HOW	LIGHT	-1 UNSP		2 DEFN		45.1
3269 HERO-WM11-CDS5	ITALYANM EUR	2D US DIV	DIV	12/16/44	105HOW	LIGHT	-1 UNSP		2 DEFN		64.7
3302 HERO-WM11-CDS5	ITALYANM EUR	99TH US DIV	DIV	12/16/44	105HOW	LIGHT	-1 UNSP		2 DEFN		163.2
240 HERO-WM11-CDS5	ARMENIES	9905 IN DIV	DIV	12/18/44	105HOW	LIGHT	6 UNSP		2 PD		60.3
3217 HERO-WM11-CDS5	ARMENIES	4TH US DIV	DIV	12/18/44	105HOW	LIGHT	12 UNSP		1 DEFN		105.8
3247 HERO-WM11-CDS5	ITALYANM EUR	4TH US DIV	DIV	12/18/44	105HOW	LIGHT	-1 UNSP		2 DEFN		45.0
3280 HERO-WM11-CDS5	ITALYANM EUR	2D US DIV	DIV	12/18/44	105HOW	LIGHT	-1 UNSP		2 DEFN		237.0
3313 HERO-WM11-CDS5	ITALYANM EUR	99TH US DIV	DIV	12/18/44	105HOW	LIGHT	-1 UNSP		2 DEFN		60.3
3250 HERO-WM11-CDS5	ITALYANM EUR	4TH US DIV	DIV	12/20/44	105HOW	LIGHT	-1 UNSP		2 DEFN		102.4
3224 HERO-WM11-CDS5	ARMENIES	4TH US DIV	DIV	12/22/44	105HOW	LIGHT	24 UNSP		2 DEFN		102.4
3110 HERO-WM11-CDS5	ROER RIVER	XII CORPS	CORPS	02/22/45	105HOW	LIGHT	204 UNSP		1 UNSP		67.2
3135 HERO-WM11-CDS5	ROER RIVER	XVI CORPS	CORPS	02/22/45	105HOW	LIGHT	144 UNSP		1 UNSP		10.4
3131 HERO-WM11-CDS5	ROER RIVER	XVI CORPS	CORPS	02/22/45	105HOW	LIGHT	232 UNSP		1 UNSP		94.0
3138 HERO-WM11-CDS5	ROER RIVER	XIX CORPS	CORPS	02/22/45	105HOW	LIGHT	570 UNSP		1 UNSP		-1.0
3140 HERO-WM11-CDS5	ROER RIVER	9TH US ARMY	I ARMY	02/22/45	105HOW	LIGHT	300 UNSP		1 UNSP		90.0
3162 HERO-WM11-CDS5	ROER RIVER	XII CORPS	CORPS	02/23/45	105HOW	LIGHT	222 UNSP		1 UNSP		123.2
3171 HERO-WM11-CDS5	ROER RIVER	XIX CORPS	CORPS	02/23/45	105HOW	LIGHT	150 UNSP		1 UNSP		8.0
3021 HERO-WM11-CDS5	RMINE CROSS	XII CORPS	CORPS	03/18/45	105HOW	LIGHT	250 UNSP		1 UNSP		3.0
3022 HERO-WM11-CDS5	RMINE CROSS	XII CORPS	CORPS	03/18/45	105HOW	LIGHT	162 UNSP		1 UNSP		6.5
3023 HERO-WM11-CDS5	RMINE CROSS	XII CORPS	CORPS	03/18/45	105HOW	LIGHT	12 UNSP		1 UNSP		15.7
3001 HERO-WM11-CDS5	RMINE CROSS	7505 DIV	DIV	03/19/45	105HOW	LIGHT	12 UNSP		1 UNSP		9.0
3009 HERO-WM11-CDS5	RMINE CROSS	7505 DIV	DIV	03/19/45	105HOW	LIGHT	128 UNSP		1 UNSP		28.0
3034 HERO-WM11-CDS5	RMINE CROSS	XII CORPS	CORPS	03/19/45	105HOW	LIGHT	37 UNSP		1 UNSP		3.4
3025 HERO-WM11-CDS5	RMINE CROSS	XII CORPS	CORPS	03/19/45	105HOW	LIGHT	102 UNSP		1 UNSP		8.7
3026 HERO-WM11-CDS5	RMINE CROSS	XII CORPS	CORPS	03/19/45	105HOW	LIGHT	12 UNSP		1 UNSP		11.9
3002 HERO-WM11-CDS5	RMINE CROSS	7505 DIV	DIV	03/20/45	105HOW	LIGHT	130 UNSP		1 UNSP		14.0
3010 HERO-WM11-CDS5	RMINE CROSS	7505 DIV	DIV	03/20/45	105HOW	LIGHT	270 UNSP		1 UNSP		5.0
3027 HERO-WM11-CDS5	RMINE CROSS	XII CORPS	CORPS	03/20/45	105HOW	LIGHT	162 UNSP		1 UNSP		11.7
3028 HERO-WM11-CDS5	RMINE CROSS	XII CORPS	CORPS	03/20/45	105HOW	LIGHT	12 UNSP		1 UNSP		1.2
3029 HERO-WM11-CDS5	RMINE CROSS	XII CORPS	CORPS	03/21/45	105HOW	LIGHT	12 UNSP		1 UNSP		3.0
2946 HERO-WM11-CDS5	RMINE CROSS	7905 DIV	DIV	03/21/45	105HOW	LIGHT	12 UNSP		1 UNSP		3.0
2948 HERO-WM11-CDS5	RMINE CROSS	7905 DIV	DIV	03/21/45	105HOW	LIGHT	12 UNSP		1 UNSP		13.0
3003 HERO-WM11-CDS5	RMINE CROSS	7505 DIV	DIV	03/21/45	105HOW	LIGHT	130 UNSP		1 UNSP		13.2
3010 HERO-WM11-CDS5	RMINE CROSS	XII CORPS	CORPS	03/21/45	105HOW	LIGHT	207 UNSP		1 UNSP		6.1

Record	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAY	SOVANT	OPERATION	RTUBEDAY
3031	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/21/45	105NOW	LIGHT	267	UNSP		1	UNSP	8.1
3032	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/21/45	105NOW	LIGHT	162	UNSP		1	UNSP	9.9
2949	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/22/45	105NOW	LIGHT	12	UNSP		1	UNSP	6.2
2976	NERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/23/45	105NOW	LIGHT	12	UNSP		1	UNSP	12.2
3004	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/23/45	105NOW	LIGHT	12	UNSP		1	UNSP	12.3
3011	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/22/45	105NOW	LIGHT	12	UNSP		1	UNSP	19.8
3019	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/22/45	105NOW	LIGHT	12	UNSP		1	UNSP	32.3
3033	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/22/45	105NOW	LIGHT	131	UNSP		1	UNSP	9.4
3034	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/22/45	105NOW	LIGHT	268	UNSP		1	UNSP	5.4
3035	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/22/45	105NOW	LIGHT	162	UNSP		1	UNSP	11.2
2939	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/23/45	105NOW	LIGHT	13	UNSP		1	UNSP	182.3
2958	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/23/45	105NOW	LIGHT	36	UNSP		1	UNSP	26.3
3005	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/23/45	105NOW	LIGHT	12	UNSP		1	UNSP	19.2
3012	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/23/45	105NOW	LIGHT	12	UNSP		1	UNSP	24.6
3036	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/23/45	105NOW	LIGHT	137	UNSP		1	UNSP	12.7
3037	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/23/45	105NOW	LIGHT	270	UNSP		1	UNSP	17.2
3038	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/23/45	105NOW	LIGHT	162	UNSP		1	UNSP	9.8
2923	NERO-WM11-CD55	ENGINE CROSS	30UKDIV	DIV	03/24/45	105NOW	LIGHT	12	UNSP		1	UNSP	316.7
2937	NERO-WM11-CD55	ENGINE CROSS	30UKDIV	DIV	03/24/45	105NOW	LIGHT	12	UNSP		1	UNSP	412.1
2940	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/24/45	105NOW	LIGHT	12	UNSP		1	UNSP	137.8
2950	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/24/45	105NOW	LIGHT	36	UNSP		1	UNSP	244.7
2959	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/24/45	105NOW	LIGHT	36	UNSP		1	UNSP	244.7
2977	NERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/24/45	105NOW	LIGHT	12	UNSP		1	UNSP	289.3
2984	NERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/24/45	105NOW	LIGHT	12	UNSP		1	UNSP	282.5
3006	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/24/45	105NOW	LIGHT	12	UNSP		1	UNSP	488.8
3013	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/24/45	105NOW	LIGHT	12	UNSP		1	UNSP	185.8
3028	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/24/45	105NOW	LIGHT	12	UNSP		1	UNSP	388.3
3039	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/24/45	105NOW	LIGHT	138	UNSP		1	UNSP	8.5
3040	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/24/45	105NOW	LIGHT	288	UNSP		1	UNSP	287.8
3041	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/24/45	105NOW	LIGHT	162	UNSP		1	UNSP	29.2
2934	NERO-WM11-CD55	ENGINE CROSS	30UKDIV	DIV	03/25/45	105NOW	LIGHT	12	UNSP		1	UNSP	137.9
2941	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/25/45	105NOW	LIGHT	12	UNSP		1	UNSP	90.3
2951	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/25/45	105NOW	LIGHT	12	UNSP		1	UNSP	19.6
2960	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/25/45	105NOW	LIGHT	36	UNSP		1	UNSP	184.7
2976	NERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/25/45	105NOW	LIGHT	12	UNSP		1	UNSP	192.8
2985	NERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/25/45	105NOW	LIGHT	12	UNSP		1	UNSP	82.3
3014	NERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/25/45	105NOW	LIGHT	12	UNSP		1	UNSP	71.8
3042	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/25/45	105NOW	LIGHT	136	UNSP		1	UNSP	30.7
3043	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/25/45	105NOW	LIGHT	284	UNSP		1	UNSP	47.3
3044	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/25/45	105NOW	LIGHT	156	UNSP		1	UNSP	11.3
2925	NERO-WM11-CD55	ENGINE CROSS	30UKDIV	DIV	03/26/45	105NOW	LIGHT	12	UNSP		1	UNSP	86.6
2942	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/26/45	105NOW	LIGHT	12	UNSP		1	UNSP	45.1
2952	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/26/45	105NOW	LIGHT	12	UNSP		1	UNSP	42.8
2961	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/26/45	105NOW	LIGHT	36	UNSP		1	UNSP	78.7
2974	NERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/26/45	105NOW	LIGHT	12	UNSP		1	UNSP	18.0
3045	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/26/45	105NOW	LIGHT	138	UNSP		1	UNSP	27.8
3046	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/26/45	105NOW	LIGHT	286	UNSP		1	UNSP	66.9
3047	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/26/45	105NOW	LIGHT	162	UNSP		1	UNSP	18.8
2943	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/27/45	105NOW	LIGHT	12	UNSP		1	UNSP	72.7
2953	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/27/45	105NOW	LIGHT	12	UNSP		1	UNSP	56.3
2963	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/27/45	105NOW	LIGHT	36	UNSP		1	UNSP	72.3
2948	NERO-WM11-CD55	ENGINE CROSS	35UKDIV	DIV	03/27/45	105NOW	LIGHT	12	UNSP		1	UNSP	21.9
3015	NERO-WM11-CD55	ENGINE CROSS	79UKDIV	DIV	03/27/45	105NOW	LIGHT	12	UNSP		1	UNSP	28.9
3048	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/27/45	105NOW	LIGHT	159	UNSP		1	UNSP	17.7
3049	NERO-WM11-CD55	ENGINE CROSS	XV1UCORPS	CORPS	03/27/45	105NOW	LIGHT	246	UNSP		1	UNSP	47.2

Source	Source	Battle	Unit	Size	Date	Tubetype	Tubecat	Tubequant	Tyered	Dayquant	Operation	Subtubeday
3049	HERO-WMII-CDSS	SHINE CROSS	XIVEDIV	CORPS	03/27/45	105HOW	LIGHT	246	UNSP	1	UNSP	47.2
3050	HERO-WMII-CDSS	SHINE CROSS	30VEDIV	DIV	03/28/45	105HOW	LIGHT	124	UNSP	12	UNSP	124.1
3051	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/28/45	105HOW	LIGHT	12	UNSP	1	UNSP	20.0
3052	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/28/45	105HOW	LIGHT	12	UNSP	1	UNSP	102.0
3053	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/28/45	105HOW	LIGHT	26	UNSP	1	UNSP	94.6
3054	HERO-WMII-CDSS	SHINE CROSS	35VEDIV	DIV	03/28/45	105HOW	LIGHT	13	UNSP	1	UNSP	122.0
3055	HERO-WMII-CDSS	SHINE CROSS	35VEDIV	DIV	03/28/45	105HOW	LIGHT	12	UNSP	1	UNSP	193.5
3056	HERO-WMII-CDSS	SHINE CROSS	75VEDIV	DIV	03/28/45	105HOW	LIGHT	12	UNSP	1	UNSP	1.7
3057	HERO-WMII-CDSS	SHINE CROSS	75VEDIV	DIV	03/28/45	105HOW	LIGHT	12	UNSP	1	UNSP	16.3
3058	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/29/45	105HOW	LIGHT	12	UNSP	1	UNSP	19.6
3059	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/29/45	105HOW	LIGHT	12	UNSP	1	UNSP	84.5
3060	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/29/45	105HOW	LIGHT	36	UNSP	1	UNSP	49.2
3061	HERO-WMII-CDSS	SHINE CROSS	35VEDIV	DIV	03/29/45	105HOW	LIGHT	12	UNSP	1	UNSP	122.0
3062	HERO-WMII-CDSS	SHINE CROSS	35VEDIV	DIV	03/29/45	105HOW	LIGHT	12	UNSP	1	UNSP	136.0
3063	HERO-WMII-CDSS	SHINE CROSS	75VEDIV	DIV	03/29/45	105HOW	LIGHT	12	UNSP	1	UNSP	99.6
3064	HERO-WMII-CDSS	SHINE CROSS	75VEDIV	DIV	03/29/45	105HOW	LIGHT	12	UNSP	1	UNSP	99.6
3065	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/30/45	105HOW	LIGHT	12	UNSP	1	UNSP	66.7
3066	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/30/45	105HOW	LIGHT	12	UNSP	1	UNSP	74.0
3067	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/30/45	105HOW	LIGHT	26	UNSP	1	UNSP	87.9
3068	HERO-WMII-CDSS	SHINE CROSS	35VEDIV	DIV	03/30/45	105HOW	LIGHT	12	UNSP	1	UNSP	101.0
3069	HERO-WMII-CDSS	SHINE CROSS	35VEDIV	DIV	03/30/45	105HOW	LIGHT	12	UNSP	1	UNSP	158.3
3070	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/31/45	105HOW	LIGHT	12	UNSP	1	UNSP	48.0
3071	HERO-WMII-CDSS	SHINE CROSS	79VEDIV	DIV	03/31/45	105HOW	LIGHT	36	UNSP	1	UNSP	63.0
3072	HERO-WMII-CDSS	SHINE CROSS	35VEDIV	DIV	03/31/45	105HOW	LIGHT	12	UNSP	1	UNSP	215.5
3073	HERO-WMII-CDSS	SHINE CROSS	35VEDIV	DIV	03/31/45	105HOW	LIGHT	12	UNSP	1	UNSP	92.7
3074	HERO-WMII-CDSS	SHINE CROSS	75VEDIV	DIV	03/31/45	105HOW	LIGHT	12	UNSP	1	UNSP	45.3
3075	HERO-WMII-CDSS	SHINE CROSS	75VEDIV	DIV	04/14/45	105HOW	LIGHT	3	ATIN	3	ATIN	285.0
3076	HERO-WMII-CDSS	PO VALLEY	11 CORPS	CORPS	04/14/45	105HOW	LIGHT	5	ATIN	5	ATIN	186.0
3077	HERO-WMII-CDSS	PO VALLEY	11 CORPS	CORPS	05/01/45	105HOW	LIGHT	1	NE	83	ATIN	1.0
3078	HERO-WMII-CDSS	OKINAWA	XIV4111	3CORPS	05/01/45	105HOW	LIGHT	1	UNSP	789	UNSP	32.0
3079	HERO-WMII-CDSS	KOREA	US ARMY	THEA	01/01/51	105HOW	LIGHT	1	UNSP	30	UNSP	15.2
3080	HERO-WMII-CDSS	KOREA	US ARMY	THEA	01/01/51	105HOW	LIGHT	1	UNSP	31	UNSP	19.2
3081	HERO-WMII-CDSS	KOREA	US ARMY	THEA	01/01/51	105HOW	LIGHT	1	UNSP	28	UNSP	24.5
3082	HERO-WMII-CDSS	KOREA	US ARMY	THEA	02/01/51	105HOW	LIGHT	678	UNSP	10	UNSP	21.1
3083	HERO-WMII-CDSS	KOREA	US ARMY	THEA	02/01/51	105HOW	LIGHT	1	UNSP	38	UNSP	28.9
3084	HERO-WMII-CDSS	KOREA	US ARMY	THEA	02/11/51	105HOW	LIGHT	676	UNSP	16	UNSP	32.2
3085	HERO-WMII-CDSS	KOREA	US ARMY	THEA	02/21/51	105HOW	LIGHT	678	UNSP	8	UNSP	20.0
3086	HERO-WMII-CDSS	KOREA	US ARMY	THEA	03/01/51	105HOW	LIGHT	678	UNSP	30	UNSP	66.3
3087	HERO-WMII-CDSS	KOREA	US ARMY	THEA	03/01/51	105HOW	LIGHT	678	UNSP	10	UNSP	69.5
3088	HERO-WMII-CDSS	KOREA	US ARMY	THEA	03/01/51	105HOW	LIGHT	678	UNSP	31	UNSP	66.3
3089	HERO-WMII-CDSS	KOREA	US ARMY	THEA	03/11/51	105HOW	LIGHT	678	UNSP	21	UNSP	21.4
3090	HERO-WMII-CDSS	KOREA	US ARMY	THEA	04/01/51	105HOW	LIGHT	687	UNSP	30	UNSP	25.0
3091	HERO-WMII-CDSS	KOREA	US ARMY	THEA	04/01/51	105HOW	LIGHT	687	UNSP	10	UNSP	27.2
3092	HERO-WMII-CDSS	KOREA	US ARMY	THEA	04/01/51	105HOW	LIGHT	687	UNSP	36	UNSP	25.0
3093	HERO-WMII-CDSS	KOREA	US ARMY	THEA	04/11/51	105HOW	LIGHT	687	UNSP	10	UNSP	26.8
3094	HERO-WMII-CDSS	KOREA	US ARMY	THEA	04/21/51	105HOW	LIGHT	705	UNSP	10	UNSP	20.6
3095	HERO-WMII-CDSS	KOREA	US ARMY	THEA	05/01/51	105HOW	LIGHT	705	UNSP	30	ATIN	57.4
3096	HERO-WMII-CDSS	KOREA	US ARMY	THEA	05/01/51	105HOW	LIGHT	705	UNSP	10	UNSP	60.4
3097	HERO-WMII-CDSS	KOREA	US ARMY	THEA	05/01/51	105HOW	LIGHT	705	UNSP	31	UNSP	57.4
3098	HERO-WMII-CDSS	KOREA	US ARMY	THEA	05/11/51	105HOW	LIGHT	705	UNSP	9	UNSP	10.2
3099	HERO-WMII-CDSS	KOREA	US ARMY	THEA	05/21/51	105HOW	LIGHT	693	UNSP	693	UNSP	68.2
3100	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3101	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3102	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3103	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3104	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3105	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3106	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3107	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3108	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3109	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3110	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3111	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3112	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3113	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3114	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3115	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3116	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3117	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3118	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3119	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3120	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3121	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3122	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3123	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3124	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3125	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3126	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3127	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3128	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3129	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3130	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3131	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3132	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3133	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3134	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3135	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3136	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3137	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3138	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3139	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3140	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3141	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3142	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3143	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3144	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3145	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3146	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3147	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3148	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3149	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3150	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3151	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3152	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3153	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3154	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3155	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	1	UNSP	46.3
3156	HERO-WMII-CDSS	KOREA	US ARMY	THEA	06/01/51	105HOW	LIGHT	693	UNSP	30	ATIN	58.6
3157	HERO-WMII-CDSS	KOREA										

DO LAHART

Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAY	SQUANT	OPERATION	NOTES
1962	CGSC-E-1	KOREA	US ARMY	THEA	06/01/51	105MOW	LIGHT	-1	UNSP	30	UNSP	30.6	
449	CMH-E-1	KOREA	US ARMY	THEA	06/11/51	105MOW	LIGHT	693	UNSP	10	UNSP	60.8	
450	CMH-E-1	KOREA	US ARMY	THEA	06/13/51	105MOW	LIGHT	693	UNSP	10	UNSP	60.8	
451	CMH-E-1	KOREA	US ARMY	THEA	06/23/51	105MOW	LIGHT	693	UNSP	9	UNSP	51.2	
371	CGSC-E-1	KOREA	US ARMY	THEA	07/01/51	105MOW	LIGHT	-1	UNSP	30	ATM	46.4	
1965	CGSC-E-1	KOREA	US ARMY	THEA	07/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	46.4	
452	CMH-E-1	KOREA	US ARMY	THEA	07/03/51	105MOW	LIGHT	693	UNSP	12	UNSP	60.3	
453	CMH-E-1	KOREA	US ARMY	THEA	07/15/51	105MOW	LIGHT	693	UNSP	9	UNSP	16.4	
454	CMH-E-1	KOREA	US ARMY	THEA	07/24/51	105MOW	LIGHT	693	UNSP	12	UNSP	12.6	
2036	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	105MOW	LIGHT	18	UNSP	1	UNSP	11.8	
2129	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	105MOW	LIGHT	18	UNSP	1	UNSP	11.8	
2160	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	105MOW	LIGHT	18	UNSP	1	UNSP	2.2	
2191	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	105MOW	LIGHT	18	UNSP	1	UNSP	12.9	
374	CGSC-E-1	KOREA	US ARMY	THEA	08/01/51	105MOW	LIGHT	-1	UNSP	30	ATM	27.6	
1968	CGSC-E-1	KOREA	US ARMY	THEA	08/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	27.6	
2037	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	18	UNSP	1	UNSP	0.2	
2136	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	18	UNSP	1	UNSP	75.3	
2161	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	18	UNSP	1	UNSP	15.4	
2182	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	18	UNSP	1	UNSP	18.1	
2192	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	97.5	
2268	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	140.7	
2271	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	55.8	
2274	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/01/51	105MOW	LIGHT	-1	UNSP	31	UNSP	99.8	
2038	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/02/51	105MOW	LIGHT	18	UNSP	1	UNSP	0.4	
2131	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/02/51	105MOW	LIGHT	18	UNSP	1	UNSP	13.0	
2162	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/02/51	105MOW	LIGHT	18	UNSP	1	UNSP	18.9	
2193	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/02/51	105MOW	LIGHT	18	UNSP	1	UNSP	8.1	
2039	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/03/51	105MOW	LIGHT	18	UNSP	1	UNSP	13.8	
2132	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/03/51	105MOW	LIGHT	18	UNSP	1	UNSP	13.2	
2163	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/03/51	105MOW	LIGHT	18	UNSP	1	UNSP	21.0	
2194	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/03/51	105MOW	LIGHT	18	UNSP	1	UNSP	18.3	
2040	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/04/51	105MOW	LIGHT	18	UNSP	1	UNSP	4.3	
2133	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/04/51	105MOW	LIGHT	18	UNSP	1	UNSP	10.7	
2164	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/04/51	105MOW	LIGHT	18	UNSP	1	UNSP	11.8	
2195	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/04/51	105MOW	LIGHT	18	UNSP	1	UNSP	9.3	
455	CMH-E-1	KOREA	US ARMY	THEA	08/05/51	105MOW	LIGHT	895	UNSP	10	UNSP	-1.8	
2041	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/05/51	105MOW	LIGHT	18	UNSP	1	UNSP	24.9	
2134	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/05/51	105MOW	LIGHT	18	UNSP	1	UNSP	35.1	
2165	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/05/51	105MOW	LIGHT	18	UNSP	1	UNSP	9.2	
2196	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/05/51	105MOW	LIGHT	18	UNSP	1	UNSP	18.1	
2042	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/06/51	105MOW	LIGHT	18	UNSP	1	UNSP	1.1	
2135	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/06/51	105MOW	LIGHT	18	UNSP	1	UNSP	9.3	
2166	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/06/51	105MOW	LIGHT	18	UNSP	1	UNSP	16.6	
2197	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/06/51	105MOW	LIGHT	18	UNSP	1	UNSP	8.8	
2043	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/07/51	105MOW	LIGHT	18	UNSP	1	UNSP	10.8	
2136	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/07/51	105MOW	LIGHT	18	UNSP	1	UNSP	8.7	
2167	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/07/51	105MOW	LIGHT	18	UNSP	1	UNSP	9.1	
2198	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/07/51	105MOW	LIGHT	18	UNSP	1	UNSP	72.3	
2044	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/08/51	105MOW	LIGHT	18	UNSP	1	UNSP	18.8	
2137	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/08/51	105MOW	LIGHT	18	UNSP	1	UNSP	13.8	
2168	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/08/51	105MOW	LIGHT	18	UNSP	1	UNSP	7.7	
2199	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/08/51	105MOW	LIGHT	18	UNSP	1	UNSP	19.0	
2045	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/09/51	105MOW	LIGHT	18	UNSP	1	UNSP	10.8	
2138	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/09/51	105MOW	LIGHT	18	UNSP	1	UNSP	58.8	
2169	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	08/09/51	105MOW	LIGHT	18	UNSP	1	UNSP	65.8	

DO LINEART

Record	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBTYPE	TUBCAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	REQUIREDAY
2169	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/09/51	103NOW	LIGHT	10	UNSP	1	UNSP	65.8
2200	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/09/51	103NOW	LIGHT	10	UNSP	1	UNSP	16.2
2046	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	103NOW	LIGHT	10	UNSP	1	UNSP	14.6
2139	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	103NOW	LIGHT	10	UNSP	1	UNSP	3.7
2170	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	103NOW	LIGHT	10	UNSP	1	UNSP	10.2
2201	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	103NOW	LIGHT	10	UNSP	1	UNSP	10.6
2047	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	103NOW	LIGHT	10	UNSP	1	UNSP	3.8
2140	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	103NOW	LIGHT	10	UNSP	1	UNSP	5.3
2171	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	103NOW	LIGHT	10	UNSP	1	UNSP	3.2
2202	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	103NOW	LIGHT	10	UNSP	1	UNSP	7.1
2048	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	103NOW	LIGHT	10	UNSP	1	UNSP	16.9
2141	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	103NOW	LIGHT	10	UNSP	1	UNSP	13.6
2172	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	103NOW	LIGHT	10	UNSP	1	UNSP	20.6
2203	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	103NOW	LIGHT	10	UNSP	1	UNSP	21.3
2049	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	103NOW	LIGHT	10	UNSP	1	UNSP	11.2
2142	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	103NOW	LIGHT	10	UNSP	1	UNSP	2.8
2173	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	103NOW	LIGHT	10	UNSP	1	UNSP	4.6
2204	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	103NOW	LIGHT	10	UNSP	1	UNSP	13.1
2050	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	103NOW	LIGHT	10	UNSP	1	UNSP	19.7
2174	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	103NOW	LIGHT	10	UNSP	1	UNSP	9.8
2175	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	103NOW	LIGHT	10	UNSP	1	UNSP	1.4
2205	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	103NOW	LIGHT	10	UNSP	1	UNSP	18.2
456	CNH-E-1		US ARMY	THEA	08/15/51	103NOW	LIGHT	681	UNSP	10	UNSP	45.0
2051	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	103NOW	LIGHT	10	UNSP	1	UNSP	14.4
2144	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	103NOW	LIGHT	10	UNSP	1	UNSP	19.7
2175	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	103NOW	LIGHT	10	UNSP	1	UNSP	7.3
2206	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	103NOW	LIGHT	10	UNSP	1	UNSP	14.4
2052	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	103NOW	LIGHT	10	UNSP	1	UNSP	60.9
2145	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	103NOW	LIGHT	10	UNSP	1	UNSP	87.3
2176	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	103NOW	LIGHT	10	UNSP	1	UNSP	10.1
2207	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	103NOW	LIGHT	10	UNSP	1	UNSP	20.3
2053	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	103NOW	LIGHT	10	UNSP	1	UNSP	108.7
2146	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	103NOW	LIGHT	10	UNSP	1	UNSP	168.2
2177	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	103NOW	LIGHT	10	UNSP	1	UNSP	72.3
2208	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	103NOW	LIGHT	10	UNSP	1	UNSP	95.6
2054	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	103NOW	LIGHT	10	UNSP	1	UNSP	359.1
2147	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	103NOW	LIGHT	10	UNSP	1	UNSP	356.6
2178	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	103NOW	LIGHT	10	UNSP	1	UNSP	32.8
2209	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	103NOW	LIGHT	10	UNSP	1	UNSP	283.2
2055	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/19/51	103NOW	LIGHT	10	UNSP	1	UNSP	339.3
2148	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/19/51	103NOW	LIGHT	10	UNSP	1	UNSP	210.1
2179	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/19/51	103NOW	LIGHT	10	UNSP	1	UNSP	32.3
2210	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/19/51	103NOW	LIGHT	10	UNSP	1	UNSP	169.1
2056	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/20/51	103NOW	LIGHT	10	UNSP	1	UNSP	246.0
2149	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/20/51	103NOW	LIGHT	10	UNSP	1	UNSP	218.2
2180	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/20/51	103NOW	LIGHT	10	UNSP	1	UNSP	312.1
2211	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/20/51	103NOW	LIGHT	10	UNSP	1	UNSP	174.8
2057	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/21/51	103NOW	LIGHT	10	UNSP	1	UNSP	146.7
2141	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/21/51	103NOW	LIGHT	10	UNSP	1	UNSP	236.8
2212	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/21/51	103NOW	LIGHT	10	UNSP	1	UNSP	135.7
2058	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/22/51	103NOW	LIGHT	10	UNSP	1	UNSP	101.8
2151	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/22/51	103NOW	LIGHT	10	UNSP	1	UNSP	100.8
2182	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/22/51	103NOW	LIGHT	10	UNSP	1	UNSP	192.0
2213	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	08/22/51	103NOW	LIGHT	10	UNSP	1	UNSP	88.3

DO LAMANT	RECORDS	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECITY	TUBESQUANT	TYPED	DAYQUANT	OPERATION	EDTUBEDAY
	2779	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/03/51	105HOW	LIGHT	10	UNSP	1	UNSP	91.3
	2780	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/03/51	105HOW	LIGHT	10	UNSP	1	UNSP	100.3
	2781	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/04/51	105HOW	LIGHT	10	UNSP	1	UNSP	100.0
	2782	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/04/51	105HOW	LIGHT	10	UNSP	1	UNSP	206.0
	2783	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/04/51	105HOW	LIGHT	10	UNSP	1	UNSP	105.9
	2784	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/04/51	105HOW	LIGHT	10	UNSP	1	UNSP	100.1
	2785	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	105HOW	LIGHT	10	UNSP	1	UNSP	62.2
	2786	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	105HOW	LIGHT	10	UNSP	1	UNSP	205.7
	2787	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	105HOW	LIGHT	10	UNSP	1	UNSP	203.1
	2788	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	105HOW	LIGHT	10	UNSP	1	UNSP	132.6
	2789	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	105HOW	LIGHT	10	UNSP	1	UNSP	9.6
	2790	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	105HOW	LIGHT	10	UNSP	1	UNSP	20.1
	2791	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	105HOW	LIGHT	10	UNSP	1	UNSP	90.0
	2792	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	105HOW	LIGHT	10	UNSP	1	UNSP	43.6
	2793	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	105HOW	LIGHT	10	UNSP	1	UNSP	10.0
	2794	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	105HOW	LIGHT	10	UNSP	1	UNSP	9.5
	2795	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	105HOW	LIGHT	10	UNSP	1	UNSP	25.9
	2796	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	105HOW	LIGHT	10	UNSP	1	UNSP	11.5
	2797	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	105HOW	LIGHT	10	UNSP	1	UNSP	59.1
	2798	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	105HOW	LIGHT	10	UNSP	1	UNSP	12.5
	2799	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	105HOW	LIGHT	10	UNSP	1	UNSP	47.0
	2800	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	105HOW	LIGHT	10	UNSP	1	UNSP	151.6
	2801	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	105HOW	LIGHT	10	UNSP	1	UNSP	200.3
	2802	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	105HOW	LIGHT	10	UNSP	1	UNSP	1.7
	2803	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	105HOW	LIGHT	10	UNSP	1	UNSP	20.2
	2804	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	105HOW	LIGHT	10	UNSP	1	UNSP	100.0
	2805	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	105HOW	LIGHT	10	UNSP	1	UNSP	203.5
	2806	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	105HOW	LIGHT	10	UNSP	1	UNSP	21.0
	2807	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	105HOW	LIGHT	10	UNSP	1	UNSP	12.3
	2808	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	105HOW	LIGHT	10	UNSP	1	UNSP	101.2
	2809	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	105HOW	LIGHT	10	UNSP	1	UNSP	111.7
	2810	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	105HOW	LIGHT	10	UNSP	1	UNSP	55.2
	2811	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	105HOW	LIGHT	10	UNSP	1	UNSP	107.4
	2812	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	105HOW	LIGHT	10	UNSP	1	UNSP	100.5
	2813	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	105HOW	LIGHT	10	UNSP	1	UNSP	71.8
	2814	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	105HOW	LIGHT	10	UNSP	1	UNSP	90.1
	2815	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	105HOW	LIGHT	10	UNSP	1	UNSP	300.3
	2816	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	105HOW	LIGHT	10	UNSP	1	UNSP	170.7
	2817	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	105HOW	LIGHT	10	UNSP	1	UNSP	75.5
	2818	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/13/51	105HOW	LIGHT	10	UNSP	1	UNSP	91.7
	2819	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/13/51	105HOW	LIGHT	10	UNSP	1	UNSP	200.0
	2820	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/13/51	105HOW	LIGHT	10	UNSP	1	UNSP	300.4
	2821	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	105HOW	LIGHT	10	UNSP	1	UNSP	111.0
	2822	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	105HOW	LIGHT	10	UNSP	1	UNSP	200.8
	2823	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	105HOW	LIGHT	10	UNSP	1	UNSP	421.1
	2824	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	105HOW	LIGHT	10	UNSP	1	UNSP	370.2
	2825	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	105HOW	LIGHT	10	UNSP	1	UNSP	237.0
	2826	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	105HOW	LIGHT	10	UNSP	1	UNSP	226.1
	2827	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	105HOW	LIGHT	10	UNSP	1	UNSP	017.5
	2828	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	105HOW	LIGHT	10	UNSP	1	UNSP	219.0
	2829	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/16/51	105HOW	LIGHT	10	UNSP	1	UNSP	107.6
	2830	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/16/51	105HOW	LIGHT	10	UNSP	1	UNSP	113.3
	2831	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/16/51	105HOW	LIGHT	10	UNSP	1	UNSP	205.4
	2832	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/16/51	105HOW	LIGHT	10	UNSP	1	UNSP	277.0
	2833	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/17/51	105HOW	LIGHT	10	UNSP	1	UNSP	200.3

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NO	RECORDS	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBE/TYPE	TUBECAT	TUBEQUANT	TYPE/DS	DAY/QUANT	OPERATION	EDT/UNDA
2590	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/30/51	105MOW	LIGHT	1	10	WSP	100.2	1 WSP	100.2
2612	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/30/51	105MOW	LIGHT	1	10	WSP	39.5	1 WSP	39.5
380	CGSC-K-1	KOREA	US ARMY	THEA	10/01/51	105MOW	LIGHT	-1	30	WSP	67.7	30 WSP	67.7
521	CNN-K-1 & CGSC-K-1	KOREA	US ARMY	THEA	10/01/51	105MOW	LIGHT	-1	31	WSP	67.7	31 WSP	67.7
2261	NERO-WWII-E-CDSS	KOREA	US ARMY	CORPS	10/01/51	105MOW	LIGHT	-1	22	WSP	65.5	22 WSP	65.5
2270	NERO-WWII-E-CDSS	KOREA	US ARMY	CORPS	10/01/51	105MOW	LIGHT	-1	22	WSP	129.3	22 WSP	129.3
2273	NERO-WWII-E-CDSS	KOREA	US ARMY	CORPS	10/01/51	105MOW	LIGHT	-1	22	WSP	129.3	22 WSP	129.3
2276	NERO-WWII-E-CDSS	KOREA	US ARMY	CORPS	10/01/51	105MOW	LIGHT	-1	22	WSP	169.4	22 WSP	169.4
2503	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	105MOW	LIGHT	1	10	WSP	16.2	1 WSP	16.2
2569	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	105MOW	LIGHT	1	10	WSP	92.7	1 WSP	92.7
2591	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	105MOW	LIGHT	1	10	WSP	179.5	1 WSP	179.5
2613	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	105MOW	LIGHT	1	10	WSP	65.9	1 WSP	65.9
2504	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	105MOW	LIGHT	1	10	WSP	19.2	1 WSP	19.2
2570	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	105MOW	LIGHT	1	10	WSP	62.2	1 WSP	62.2
2592	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	105MOW	LIGHT	1	10	WSP	301.7	1 WSP	301.7
2614	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	105MOW	LIGHT	1	10	WSP	22.0	1 WSP	22.0
2505	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/03/51	105MOW	LIGHT	1	10	WSP	16.2	1 WSP	16.2
2571	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/03/51	105MOW	LIGHT	1	10	WSP	72.4	1 WSP	72.4
2593	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/03/51	105MOW	LIGHT	1	10	WSP	306.2	1 WSP	306.2
2615	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/03/51	105MOW	LIGHT	1	10	WSP	24.3	1 WSP	24.3
458	CNN-K-1	KOREA	US ARMY	THEA	10/04/51	105MOW	LIGHT	600	WSP	77.0	10 WSP	10 WSP	77.0
2506	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	105MOW	LIGHT	1	10	WSP	20.2	1 WSP	20.2
2572	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	105MOW	LIGHT	1	10	WSP	80.7	1 WSP	80.7
2594	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	105MOW	LIGHT	1	10	WSP	237.3	1 WSP	237.3
2616	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	105MOW	LIGHT	1	10	WSP	65.3	1 WSP	65.3
2507	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	105MOW	LIGHT	1	10	WSP	137.1	1 WSP	137.1
2573	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	105MOW	LIGHT	1	10	WSP	362.2	1 WSP	362.2
2595	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	105MOW	LIGHT	1	10	WSP	528.7	1 WSP	528.7
2617	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	105MOW	LIGHT	1	10	WSP	104.0	1 WSP	104.0
2508	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	105MOW	LIGHT	1	10	WSP	157.1	1 WSP	157.1
2574	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	105MOW	LIGHT	1	10	WSP	302.5	1 WSP	302.5
2596	NERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	105MOW	LIGHT						

DO	RECORDS	SOURCE	BATTLE	UNIT	312E	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DATEQUANT	OPERATION	EDTUSDAY
2580	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	105H0W	LIGHT	10 UNSP	1 UNSP				42.0
2602	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	105H0W	LIGHT	10 UNSP	1 UNSP				268.8
2624	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	105H0W	LIGHT	10 UNSP	1 UNSP				199.0
2515	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	105H0W	LIGHT	10 UNSP	1 UNSP				98.1
2581	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	105H0W	LIGHT	10 UNSP	1 UNSP				85.1
2603	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	105H0W	LIGHT	10 UNSP	1 UNSP				166.8
2625	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	105H0W	LIGHT	10 UNSP	1 UNSP				228.3
2516	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/14/51	105H0W	LIGHT	10 UNSP	1 UNSP				42.0
2582	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/14/51	105H0W	LIGHT	10 UNSP	1 UNSP				137.8
2604	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/14/51	105H0W	LIGHT	10 UNSP	1 UNSP				123.7
2626	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/14/51	105H0W	LIGHT	10 UNSP	1 UNSP				265.2
2517	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/15/51	105H0W	LIGHT	10 UNSP	1 UNSP				-1.8
2583	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/15/51	105H0W	LIGHT	10 UNSP	1 UNSP				89.7
2605	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/15/51	105H0W	LIGHT	10 UNSP	1 UNSP				113.3
2627	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/15/51	105H0W	LIGHT	10 UNSP	1 UNSP				164.1
2518	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/16/51	105H0W	LIGHT	10 UNSP	1 UNSP				-1.0
2584	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/16/51	105H0W	LIGHT	10 UNSP	1 UNSP				147.8
2606	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/16/51	105H0W	LIGHT	10 UNSP	1 UNSP				162.6
2628	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/16/51	105H0W	LIGHT	10 UNSP	1 UNSP				195.7
2519	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/17/51	105H0W	LIGHT	10 UNSP	1 UNSP				-1.0
2585	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/17/51	105H0W	LIGHT	10 UNSP	1 UNSP				85.4
2607	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/17/51	105H0W	LIGHT	10 UNSP	1 UNSP				147.3
2629	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/17/51	105H0W	LIGHT	10 UNSP	1 UNSP				164.1
2520	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/18/51	105H0W	LIGHT	10 UNSP	1 UNSP				16.2
2586	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/18/51	105H0W	LIGHT	10 UNSP	1 UNSP				79.6
2608	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/18/51	105H0W	LIGHT	10 UNSP	1 UNSP				198.7
2630	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	105H0W	LIGHT	10 UNSP	1 UNSP				47.9
2521	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	105H0W	LIGHT	10 UNSP	1 UNSP				50.5
2587	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	105H0W	LIGHT	10 UNSP	1 UNSP				122.2
2609	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	105H0W	LIGHT	10 UNSP	1 UNSP				164.5
2631	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	105H0W	LIGHT	10 UNSP	1 UNSP				112.2
2522	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/20/51	105H0W	LIGHT	10 UNSP	1 UNSP				34.2
2588	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/20/51	105H0W	LIGHT	10 UNSP	1 UNSP				81.3
2610	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/20/51	105H0W	LIGHT	10 UNSP	1 UNSP				76.5
2632	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/20/51	105H0W	LIGHT	10 UNSP	1 UNSP				22.7
2523	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/21/51	105H0W	LIGHT	10 UNSP	1 UNSP				40.6
2589	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/21/51	105H0W	LIGHT	10 UNSP	1 UNSP				77.5
2611	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/21/51	105H0W	LIGHT	10 UNSP	1 UNSP				82.1
2633	HERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	10/21/51	105H0W	LIGHT	10 UNSP	1 UNSP				79.3
383	COSC-E-1	KOREA	US ARMY	THEA	11/01/51	105H0W	LIGHT	-1 UNSP	30 ATEN				58.8
522	CNH-E-1 & CGSC-E-1	KOREA	US ARMY	THEA	11/01/51	105H0W	LIGHT	-1 UNSP	30 UNSP				58.8
459	CNH-E-1	KOREA	US ARMY	THEA	11/16/51	105H0W	LIGHT	749 WJSP	30 UNSP				60.4
386	COSC-E-1	KOREA	US ARMY	THEA	12/01/51	105H0W	LIGHT	-1 UNSP	30 ATEN				22.1
523	CNH-E-1 & CGSC-E-1	KOREA	US ARMY	THEA	12/01/51	105H0W	LIGHT	-1 UNSP	31 UNSP				22.1
524	CNH-E-1	KOREA	US ARMY	THEA	01/01/52	105H0W	LIGHT	-1 UNSP	31 UNSP				-1.0
525	CNH-E-1	KOREA	US ARMY	THEA	02/01/52	105H0W	LIGHT	-1 UNSP	30 UNSP				-1.0
526	CNH-E-1	KOREA	US ARMY	THEA	03/01/52	105H0W	LIGHT	-1 UNSP	31 UNSP				-1.0
527	CNH-E-1	KOREA	US ARMY	THEA	04/01/52	105H0W	LIGHT	-1 UNSP	30 UNSP				-1.0
774	CNH-E-1	KOREA	US ARMY	THEA	05/01/52	105H0W	LIGHT	-1 UNSP	31 UNSP				-1.0
775	CNH-E-1	KOREA	US ARMY	THEA	06/01/52	105H0W	LIGHT	-1 UNSP	30 UNSP				-1.0
460	CNH-E-1	KOREA	US ARMY	THEA	06/14/52	105H0W	LIGHT	1065 UNSP	11 UNSP				29.2
461	CNH-E-1	KOREA	US ARMY	THEA	06/25/52	105H0W	LIGHT	1065 UNSP	10 UNSP				17.8
776	CNH-E-1	KOREA	US ARMY	THEA	07/01/52	105H0W	LIGHT	-1 UNSP	31 UNSP				-1.0
777	CNH-E-1	KOREA	US ARMY	THEA	08/01/52	105H0W	LIGHT	-1 UNSP	31 UNSP				-1.0
778	CNH-E-1	KOREA	US ARMY	THEA	09/01/52	105H0W	LIGHT	-1 UNSP	30 UNSP				-1.0

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DO LAMART Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBE TYPE	TUBECAT	TUBESHAFT	TYPED	RAYSONART	OPERATION	EDTUBESDAY
571	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/69	105N0W	LIGHT	474 UNSP	30 UNSP			33.8
572	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/70	105N0W	LIGHT	492 UNSP	30 UNSP			40.2
573	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	105N0W	LIGHT	436 UNSP	30 UNSP			37.9
574	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/70	105N0W	LIGHT	444 UNSP	30 UNSP			41.3
575	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/70	105N0W	LIGHT	398 UNSP	30 UNSP			43.3
576	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/70	105N0W	LIGHT	374 UNSP	30 UNSP			50.2
577	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/70	105N0W	LIGHT	322 UNSP	30 UNSP			52.8
293	TOI-WHII-1	ITALY	XIVS CORPS	CORPS	01/01/62	107NTE	LIGHT	-1 NE	730 ATIR			32.5
696	CNH-E-1	KOREA	US ARMY	THEA	10/01/51	107NTE	LIGHT	-1 UNSP				-1.0
697	CNH-E-1	KOREA	US ARMY	THEA	11/01/51	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
698	CNH-E-1	KOREA	US ARMY	THEA	12/01/51	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
699	CNH-E-1	KOREA	US ARMY	THEA	01/01/52	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
700	CNH-E-1	KOREA	US ARMY	THEA	02/01/52	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
701	CNH-E-1	KOREA	US ARMY	THEA	03/01/52	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
702	CNH-E-1	KOREA	US ARMY	THEA	04/01/52	107NTE	LIGHT	-1 UNSP	30 UNSP			-1.0
703	CNH-E-1	KOREA	US ARMY	THEA	05/01/52	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
704	CNH-E-1	KOREA	US ARMY	THEA	06/01/52	107NTE	LIGHT	-1 UNSP	30 UNSP			-1.0
705	CNH-E-1	KOREA	US ARMY	THEA	07/01/52	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
706	CNH-E-1	KOREA	US ARMY	THEA	08/01/52	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
707	CNH-E-1	KOREA	US ARMY	THEA	09/01/52	107NTE	LIGHT	-1 UNSP	30 UNSP			-1.0
708	CNH-E-1	KOREA	US ARMY	THEA	10/01/52	107NTE	LIGHT	-1 UNSP	30 UNSP			-1.0
709	CNH-E-1	KOREA	US ARMY	THEA	11/01/52	107NTE	LIGHT	-1 UNSP	30 UNSP			-1.0
710	CNH-E-1	KOREA	US ARMY	THEA	12/01/52	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
711	CNH-E-1	KOREA	US ARMY	THEA	01/01/53	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
712	CNH-E-1	KOREA	US ARMY	THEA	02/01/53	107NTE	LIGHT	-1 UNSP	28 UNSP			-1.0
713	CNH-E-1	KOREA	US ARMY	THEA	03/01/53	107NTE	LIGHT	-1 UNSP	30 UNSP			-1.0
714	CNH-E-1	KOREA	US ARMY	THEA	04/01/53	107NTE	LIGHT	-1 UNSP	30 UNSP			-1.0
715	CNH-E-1	KOREA	US ARMY	THEA	05/01/53	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
716	CNH-E-1	KOREA	US ARMY	THEA	06/01/53	107NTE	LIGHT	-1 UNSP	30 UNSP			-1.0
717	CNH-E-1	KOREA	US ARMY	THEA	07/01/53	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
718	CNH-E-1	KOREA	US ARMY	THEA	08/01/53	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
411	CNH-VN-1	PRE-YET	US IN DIV	DIV	01/20/67	107NTE	LIGHT	-1 UNSP	100 PD			-1.0
412	CNH-VN-1	PRE-YET	US IN DIV	DIV	02/01/67	107NTE	LIGHT	-1 NE				-1.0
391	NA-VN-1	OP JUNC CITY	US IN DIV	DIV	02/22/67	107NTE	LIGHT	-1 NE	31 PROM			17.0
393	NA-VN-1	OP JUNC CITY	US IN DIV	DIV	03/15/67	107NTE	LIGHT	-1 NE	31 PROM			36.0
404	NA-VN-3	OP DALLAS	US IN DIV	DIV	05/17/67	107NTE	LIGHT	-1 NE	8 PROM			24.7
400	NA-VN-2	OP BILLINGS	US IN DIV	DIV	06/11/67	107NTE	LIGHT	-1 NE	16 PROM			25.3
417	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	107NTE	LIGHT	-1 UNSP	260 UNSP			15.8
626	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	107NTE	LIGHT	-1 UNSP	265 UNSP			15.8
644	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	107NTE	LIGHT	-1 UNSP	265 UNSP			15.8
2870	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/68	107NTE	LIGHT	-1 UNSP	31 UNSP			13.7
2862	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/68	107NTE	LIGHT	-1 UNSP	31 UNSP			13.1
423	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/68	107NTE	LIGHT	-1 UNSP	30 UNSP			8.8
627	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	107NTE	LIGHT	-1 UNSP	360 UNSP			10.1
645	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	107NTE	LIGHT	-1 UNSP	265 UNSP			10.1
2888	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	107NTE	LIGHT	-1 UNSP	265 UNSP			-1.0
2894	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/68	107NTE	LIGHT	-1 UNSP	31 UNSP			9.1
2900	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/68	107NTE	LIGHT	-1 UNSP	30 UNSP			7.8
2906	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/69	107NTE	LIGHT	-1 UNSP	31 UNSP			-1.0
2912	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	107NTE	LIGHT	-1 UNSP	30 UNSP			10.7
2918	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/69	107NTE	LIGHT	-1 UNSP	31 UNSP			11.7
2924	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/69	107NTE	LIGHT	-1 UNSP	31 UNSP			12.4
2926	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/69	107NTE	LIGHT	-1 UNSP	30 UNSP			9.4
435	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	107NTE	LIGHT	-1 UNSP	30 UNSP			13.7

REF	SOURCE	BATTLE	UNIT	SIZE	DATE	SUBTYPE	TURCAT	TURBOUNT	TURSD	OPERATION	ESTIMATE
435	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	107MTS	LIGHT	-1	UNSP	30 UNSP	13.7
378	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	107MTS	LIGHT	237	UNSP	30 UNSP	19.2
379	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/69	107MTS	LIGHT	233	UNSP	30 UNSP	22.6
386	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/69	107MTS	LIGHT	289	UNSP	30 UNSP	26.8
429	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	107MTS	LIGHT	-1	UNSP	300 UNSP	23.2
381	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	107MTS	LIGHT	284	UNSP	30 UNSP	22.6
628	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	107MTS	LIGHT	-1	UNSP	305 UNSP	23.2
466	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	107MTS	LIGHT	-1	UNSP	305 UNSP	-1.0
392	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/69	107MTS	LIGHT	222	UNSP	30 UNSP	24.0
393	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/69	107MTS	LIGHT	221	UNSP	30 UNSP	21.9
394	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/70	107MTS	LIGHT	224	UNSP	30 UNSP	17.8
395	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	107MTS	LIGHT	224	UNSP	30 UNSP	21.3
396	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	107MTS	LIGHT	224	UNSP	30 UNSP	22.6
397	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/70	107MTS	LIGHT	206	UNSP	30 UNSP	28.0
398	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/70	107MTS	LIGHT	142	UNSP	30 UNSP	26.2
399	AMC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/70	107MTS	LIGHT	127	UNSP	30 UNSP	28.0
63	HERO-WMII-COSS	DIADEN	80US IN DIV DIV	THEA	05/11/66	114GUM	LIGHT	6	UNSP	17 BAUP	103.7
74	HERO-WMII-COSS	DIADEN	80US IN DIV DIV	THEA	05/11/66	114GUM	LIGHT	6	UNSP	17 BAUP	77.4
86	HERO-WMII-COSS	DIADEN	80US IN DIV DIV	THEA	05/11/66	114GUM	LIGHT	6	UNSP	17 BAUP	106.2
3358	HERO-WMII-COSS	DIADEN	85TH US DIV DIV	THEA	05/12/66	114GUM	LIGHT	6	UNSP	2 ATEN	102.7
3360	HERO-WMII-COSS	DIADEN	85TH US DIV DIV	THEA	05/14/66	114GUM	LIGHT	6	UNSP	2 ATEN	106.2
3372	HERO-WMII-COSS	DIADEN	85TH US DIV DIV	THEA	05/16/66	114GUM	LIGHT	6	UNSP	2 ATEN	95.0
3384	HERO-WMII-COSS	DIADEN	85TH US DIV DIV	THEA	05/20/66	114GUM	LIGHT	6	UNSP	2 ATEN	21.5
3360	HERO-WMII-COSS	DIADEN	85TH US DIV DIV	THEA	05/22/66	114GUM	LIGHT	6	UNSP	2 ATEN	65.0
3364	HERO-WMII-COSS	DIADEN	85TH US DIV DIV	THEA	05/23/66	114GUM	LIGHT	6	UNSP	2 ATEN	20.4
282	CMH-WMII-1	WMII EUR	ALL	THEA	06/01/66	114GUM	LIGHT	-1	NE	180 UNSP	13.3
246	CMH-WMII-2	GERMANY - WMII-2	12US ARMY 6P ARMYTOP	THEA	06/06/66	114GUM	LIGHT	-1	UNSP	180 ATEN	-1.0
398	CMH-WMII-2	WMII EUR	US ARMY	ARMY	06/11/66	114GUM	LIGHT	-1	NE	7 ATEN	13.0
301	CMH-WMII-2	GERMANY -	US ARMY	ARMY	06/16/66	114GUM	LIGHT	-1	NE	7 ATEN	27.0
306	CMH-WMII-2	GERMANY -	US ARMY	ARMY	06/23/66	114GUM	LIGHT	-1	NE	7 ATEN	20.0
312	CMH-WMII-2	GERMANY -	US ARMY	ARMY	07/02/66	114GUM	LIGHT	-1	NE	7 ATEN	20.0
220	CMH-WMII-2	GERMANY -	US ARMY	ARMY	07/09/66	114GUM	LIGHT	-1	NE	7 ATEN	33.0
328	CMH-WMII-2	GERMANY -	US ARMY	ARMY	07/16/66	114GUM	LIGHT	-1	NE	7 ATEN	9.6
335	CMH-WMII-2	GERMANY -	US ARMY	ARMY	07/23/66	114GUM	LIGHT	-1	NE	7 ATEN	20.0
343	CMH-WMII-2	GERMANY -	US ARMY	ARMY	07/30/66	114GUM	LIGHT	-1	NE	7 ATEN	13.0
3326	HERO-WMII-COSS	DIADEN	80TH US DIV DIV	THEA	11/08/66	114GUM	LIGHT	-1	UNSP	2 ATEN	31.9
3374	HERO-WMII-COSS	SAAR	80TH US DIV DIV	THEA	11/10/66	114GUM	LIGHT	12	UNSP	2 ATEN	33.9
3392	HERO-WMII-COSS	ITALY&NW EUR	8TH US DIV DIV	DIV	11/13/66	114GUM	LIGHT	-1	UNSP	1 BEYN	-1.0
3385	HERO-WMII-COSS	SAAR	80TH US DIV DIV	DIV	11/14/66	114GUM	LIGHT	12	UNSP	1 ATEN	41.2
3396	HERO-WMII-COSS	SAAR	80TH US DIV DIV	DIV	11/15/66	114GUM	LIGHT	12	UNSP	2 ATEN	30.1
3407	HERO-WMII-COSS	SAAR	80TH US DIV DIV	DIV	11/18/66	114GUM	LIGHT	12	UNSP	3 ATEN	120.0
3317	HERO-WMII-COSS	SAAR	6TH AR DIV DIV	DIV	11/19/66	114GUM	LIGHT	-1	UNSP	-1	-1.0
3306	HERO-WMII-COSS	SAAR	6TH AR DIV DIV	DIV	11/21/66	114GUM	LIGHT	-1	UNSP	2 ATEN	-1.0
3495	HERO-WMII-COSS	SAAR	6TH AR DIV DIV	DIV	11/23/66	114GUM	LIGHT	-1	UNSP	-1.0	-1.0
3418	HERO-WMII-COSS	SAAR	80TH US DIV DIV	DIV	11/25/66	114GUM	LIGHT	12	UNSP	2 ATEN	50.4
3484	HERO-WMII-COSS	SAAR	6TH AR DIV DIV	DIV	11/25/66	114GUM	LIGHT	-1	UNSP	-1.0	-1.0
3473	HERO-WMII-COSS	SAAR	6TH AR DIV DIV	DIV	11/27/66	114GUM	LIGHT	12	UNSP	2 ATEN	22.3
3429	HERO-WMII-COSS	SAAR	80TH US DIV DIV	DIV	11/28/66	114GUM	LIGHT	12	UNSP	3 ATEN	76.0
3440	HERO-WMII-COSS	SAAR	80TH US DIV DIV	DIV	12/06/66	114GUM	LIGHT	-1	UNSP	2 ATEN	1.0
3462	HERO-WMII-COSS	SAAR	6TH AR DIV DIV	DIV	12/04/66	114GUM	LIGHT	12	UNSP	1 ATEN	100.3
3451	HERO-WMII-COSS	SAAR	80TH US DIV DIV	DIV	12/05/66	114GUM	LIGHT	12	UNSP	2 ATEN	50.3
241	HERO-WMII-COSS	ARDENNES	80US IN DIV DIV	DIV	12/16/66	114GUM	LIGHT	2	UNSP	2 ATEN	2.3
3266	HERO-WMII-COSS	ITALY&NW EUR	4TH US DIV DIV	DIV	12/16/66	114GUM	LIGHT	-1	UNSP	2 BEYN	-1.0
3271	HERO-WMII-COSS	ITALY&NW EUR	2D US DIV DIV	DIV	12/16/66	114GUM	LIGHT	-1	UNSP	2 BEYN	2.3
3204	HERO-WMII-COSS	ITALY&NW EUR	99TH US DIV DIV	DIV	12/16/66	114GUM	LIGHT	-1	UNSP	3 BEYN	2.3

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DO LAMART	Record	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBQUANT	TYPESD	DAYSONART	OPERATION	EDTUBEDAY
	2386	LOGC-W111-2	W111	1 US ARMY	I ARMY	10/15/44	155GUN	HEAVY	86 UNSP	14	ATEL	14	8.0
	2386	LOGC-W111-2	W111	1 US ARMY	I ARMY	10/29/44	155GUN	HEAVY	82 UNSP	14	PROL	14	8.0
	168	NERO-W111-CDSS	SAAR	35US IN DIV	DIV	11/08/44	155GUN	HEAVY	6 UNSP	4	BAPD	4	49.3
	3327	NERO-W111-CDSS	DIADEN	30TH US DIV	DIV	11/08/44	155GUN	HEAVY	-1 UNSP	2	ATEM	2	59.6
	86	NERO-W111-CDSS	GERMANY	40S AR DIV A DE	28DE	11/08/44	155GUN	HEAVY	2 UNSP	2	BAPD	2	44.3
	105	NERO-W111-CDSS	GERMANY	40S AR DIV B 28DE	28DE	11/10/44	155GUN	HEAVY	2 UNSP	2	BAPD	2	30.3
	3101	NERO-W111-CDSS	SAAR	GARDIV	DIV	11/10/44	155GUN	HEAVY	3 UNSP	3	ATEL	3	20.8
	3294	NERO-W111-CDSS	ITALYENM	4TH US DIV	DIV	11/11/44	155GUN	HEAVY	-1 UNSP	1	DEFM	1	38.0
	177	NERO-W111-CDSS	SAAR	35US IN DIV	DIV	11/12/44	155GUN	HEAVY	94 UNSP	14	BADL	14	22.8
	2391	LOGC-W111-2	W111	1 US ARMY	I ARMY	11/12/44	155GUN	HEAVY	2 UNSP	2	BADL	2	31.0
	115	NERO-W111-CDSS	GERMANY	40S AR DIV B 28DE	28DE	11/13/44	155GUN	HEAVY	3 UNSP	3	ATEL	3	36.6
	3110	NERO-W111-CDSS	SAAR	GARDIV	DIV	11/13/44	155GUN	HEAVY	5 UNSP	2	ATEM	2	43.2
	3117	NERO-W111-CDSS	SAAR	GARDIV	DIV	11/13/44	155GUN	HEAVY	5 UNSP	1	BADL	1	45.8
	185	NERO-W111-CDSS	SAAR	35US IN DIV	DIV	11/18/44	155GUN	HEAVY	5 UNSP	3	BAPD	3	28.0
	3519	NERO-W111-CDSS	SAAR	35US IN DIV	DIV	11/19/44	155GUN	HEAVY	5 UNSP	3	ATEM	3	28.0
	203	NERO-W111-CDSS	SA*2	35US IN DIV	DIV	11/21/44	155GUN	HEAVY	5 UNSP	2	BAPD	2	20.6
	3508	NERO-W111-CDSS	SAAR	6TH AR DIV	DIV	11/21/44	155GUN	HEAVY	5 UNSP	2	ATEM	2	28.6
	213	NERO-W111-CDSS	SAAR	35US IN DIV	DIV	11/23/44	155GUN	HEAVY	5 UNSP	2	BAPD	2	15.0
	2497	NERO-W111-CDSS	SAAR	6TH AR DIV	DIV	11/23/44	155GUN	HEAVY	5 UNSP	2	ATEM	2	15.0
	3426	NERO-W111-CDSS	SAAR	80TH US DIV	DIV	11/25/44	155GUN	HEAVY	5 UNSP	3	ATEL	3	35.2
	3486	NERO-W111-CDSS	SAAR	80TH US DIV	DIV	11/25/44	155GUN	HEAVY	5 UNSP	2	ATEM	2	48.2
	129	NERO-W111-CDSS	GERMANY	40S AR DIV	DIV	11/26/44	155GUN	HEAVY	-1 NE	1	BAPD	1	23.2
	285	CNH-W111-2	W111	1 US ARMY	I ARMY	11/26/44	155GUN	HEAVY	84 UNSP	14	ATEM	14	24.0
	2392	LOGC-W111-2	W111	1 US ARMY	I ARMY	11/26/44	155GUN	HEAVY	5 UNSP	3	BADL	3	27.0
	139	NERO-W111-CDSS	GERMANY	40S AR DIV	DIV	11/27/44	155GUN	HEAVY	6 UNSP	8	ATEL	8	35.7
	2475	NERO-W111-CDSS	SAAR	80TH US DIV	DIV	11/27/44	155GUN	HEAVY	2 UNSP	3	ATEM	3	93.3
	3431	NERO-W111-CDSS	SAAR	80TH US DIV	DIV	11/28/44	155GUN	HEAVY	4 UNSP	3	BAPD	3	35.3
	140	NERO-W111-CDSS	GERMANY	40S AR DIV	DIV	12/01/44	155GUN	HEAVY	6 UNSP	1	ATEM	1	24.7
	223	NERO-W111-CDSS	SAAR	35US IN DIV	DIV	12/04/44	155GUN	HEAVY	6 UNSP	1	ATEM	1	24.7
	3442	NERO-W111-CDSS	SAAR	80TH US DIV	DIV	12/04/44	155GUN	HEAVY	6 UNSP	1	ATEM	1	24.7
	3464	NERO-W111-CDSS	SAAR	6TH AR DIV	DIV	12/04/44	155GUN	HEAVY	6 UNSP	2	ATEL	2	15.3
	3453	NERO-W111-CDSS	SAAR	40S AR DIV	DIV	12/05/44	155GUN	HEAVY	3 UNSP	2	BAPD	2	13.3
	158	NERO-W111-CDSS	GERMANY	35US IN DIV	DIV	12/06/44	155GUN	HEAVY	15 UNSP	3	BADL	3	18.0
	231	NERO-W111-CDSS	SAAR	1 US ARMY	I ARMY	12/06/44	155GUN	HEAVY	77 UNSP	6	ATEM	6	27.0
	2393	LOGC-W111-2	W111	1 US ARMY	I ARMY	12/10/44	155GUN	HEAVY	9 UNSP	3	PD	3	26.3
	243	NERO-W111-CDSS	ARDENNES	99US IN DIV	DIV	12/13/44	155GUN	HEAVY	-1 NE	26	DEFM	26	34.0
	272	CNH-W111-2	W111	1 US ARMY	I ARMY	12/16/44	155GUN	HEAVY	87 UNSP	16	DEFM	16	34.3
	2394	LOGC-W111-2	W111	1 US ARMY	I ARMY	12/16/44	155GUN	HEAVY	12 UNSP	1	DEFM	1	23.8
	3212	NERO-W111-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	155GUN	HEAVY	-1 UNSP	2	DEFM	2	23.8
	3239	NERO-W111-CDSS	ITALYENM	2D US DIV	DIV	12/16/44	155GUN	HEAVY	-1 UNSP	2	DEFM	2	29.6
	3272	NERO-W111-CDSS	ITALYENM	2D US DIV	DIV	12/16/44	155GUN	HEAVY	-1 UNSP	2	DEFM	2	29.6
	3205	NERO-W111-CDSS	ARDENNES	99TH US DIV	DIV	12/16/44	155GUN	HEAVY	-1 UNSP	2	DEFM	2	26.3
	251	NERO-W111-CDSS	ARDENNES	99US IN DIV	DIV	12/18/44	155GUN	HEAVY	6 UNSP	3	PD	3	44.2
	3219	NERO-W111-CDSS	ARDENNES	4TH US DIV	DIV	12/18/44	155GUN	HEAVY	12 UNSP	1	DEFM	1	34.3
	3250	NERO-W111-CDSS	ITALYENM	4TH US DIV	DIV	12/18/44	155GUN	HEAVY	-1 UNSP	2	DEFM	2	34.3
	3283	NERO-W111-CDSS	ITALYENM	2D US DIV	DIV	12/18/44	155GUN	HEAVY	-1 UNSP	2	DEFM	2	41.2
	3316	NERO-W111-CDSS	ITALYENM	99TH US DIV	DIV	12/18/44	155GUN	HEAVY	-1 UNSP	2	DEFM	2	44.2
	3261	NERO-W111-CDSS	ARDENNES	4TH US DIV	DIV	12/20/44	155GUN	HEAVY	-1 UNSP	2	DEFM	2	54.3
	3226	NERO-W111-CDSS	ARDENNES	4TH US DIV	DIV	12/22/44	155GUN	HEAVY	4 UNSP	2	DEFM	2	54.3
	3121	NERO-W111-CDSS	ROER RIVER	XIII CORPS	CORPS	02/22/45	155GUN	HEAVY	37 UNSP	1	UNSP	1	113.4
	3128	NERO-W111-CDSS	ROER RIVER	XVI CORPS	CORPS	02/22/45	155GUN	HEAVY	24 UNSP	1	UNSP	1	15.0
	3134	NERO-W111-CDSS	ROER RIVER	XIX CORPS	CORPS	02/22/45	155GUN	HEAVY	36 UNSP	1	UNSP	1	93.7
	3141	NERO-W111-CDSS	ROER RIVER	9TH US ARMY	I ARMY	02/22/45	155GUN	HEAVY	97 UNSP	1	UNSP	1	1.0
	3151	NERO-W111-CDSS	ROER RIVER	9TH US ARMY	I ARMY	02/23/45	155GUN	HEAVY	97 UNSP	1	UNSP	1	1.0

DO LAMART	Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	ESTIMATED
3151	HERO-WMII-CDSS	ROER RIVER	9TH US ARMY	1ARMY	02/23/45	155GUM	HEAVY	1 UNSP	57 UNSP	1 UNSP	1 UNSP	1 UNSP	-1.0
3165	HERO-WMII-CDSS	ROER RIVER	XIII CORPS	CORPS	02/23/45	155GUM	HEAVY	1 UNSP	37 UNSP	1 UNSP	1 UNSP	1 UNSP	109.4
3170	HERO-WMII-CDSS	ROER RIVER	XVI CORPS	CORPS	02/23/45	155GUM	HEAVY	1 UNSP	24 UNSP	1 UNSP	1 UNSP	1 UNSP	20.4
3174	HERO-WMII-CDSS	ROER RIVER	XIX CORPS	CORPS	02/23/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	160.0
3079	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	4.4
3080	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	1.4
3081	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	7.3
3082	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	1.8
3083	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	3.7
3084	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	1.7
3085	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	4.3
3086	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	1.0
3087	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	9.1
3088	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	2.9
3089	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	6.4
3090	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	14.4
3091	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	61.9
3092	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	200.3
3093	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	12.6
3094	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	61.0
3095	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	32.9
3096	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	64.0
3097	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	19.7
3098	HERO-WMII-CDSS	ENINE CROSS	XIIICORPS	CORPS	03/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	50.3
3203	HERO-WMII-CDSS	PO VALLEY	IV CORPS	CORPS	04/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	80.0
3208	HERO-WMII-CDSS	PO VALLEY	IV CORPS	CORPS	04/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	59.0
3209	HERO-WMII-CDSS	PO VALLEY	IV CORPS	CORPS	04/10/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	1.0
2088	HERO-WMII-CDSS	OTIMAWA	XIIVALLI	2CORPS	05/01/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	4.0
2089	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	05/01/45	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	54.3
2285	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/01/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	37.0
2100	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	9.7
2101	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	11.3
2102	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	-1.0
2103	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	6.3
2104	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	10.3
2105	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	9.2
2106	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	10.0
2107	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	3.3
2108	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	1.2
2109	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	3.3
2110	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	16.2
2111	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	4.7
2112	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	30.3
2113	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	3.3
2114	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	2.3
2115	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	50.0
2116	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	110.5
2117	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	113.3
2118	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	68.5
2119	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	102.3
2120	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	68.5
2121	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	70.0
2122	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	100.3
2123	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	34.3
2124	HERO-WMII-CDSS	KOREA	X CORPS	CORPS	08/02/51	155GUM	HEAVY	1 UNSP	36 UNSP	1 UNSP	1 UNSP	1 UNSP	46.3

DO LABART	Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	SUBSEQUANT	TYPED	DAY	QUART	OPERATION	REMARKS
	2124	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/26/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	46.5
	2125	NERO-WM11-E-CD56	KOREA	X CORPS	CORPS	08/27/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	30.7
	2126	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/28/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	12.7
	2127	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/28/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	47.7
	2128	CD55 FAIR 1977	KOREA	X CORPS	CORPS	08/28/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	79.2
	2129	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/31/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	64.7
	2130	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/01/51	1550UM	HEAVY	30 UNSP	-1 UNSP			1 UNSP	26.3
	2131	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/01/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	58.5
	2132	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/02/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	49.5
	2133	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/03/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	49.5
	2134	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/04/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	45.2
	2135	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/05/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	75.2
	2136	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/06/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	23.5
	2137	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/07/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	3.5
	2138	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/08/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	19.5
	2139	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/09/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	42.2
	2140	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/10/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	52.2
	2141	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/11/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	45.0
	2142	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/12/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	18.0
	2143	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/13/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	32.7
	2144	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/14/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	7.0
	2145	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/15/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	22.0
	2146	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/16/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	54.7
	2147	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/17/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	44.7
	2148	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/18/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	48.5
	2149	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/19/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	48.0
	2150	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/20/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	19.0
	2151	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/21/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	17.7
	2152	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/22/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	26.7
	2153	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/23/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	21.2
	2154	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/24/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	66.7
	2155	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/25/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	40.5
	2156	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/26/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	19.2
	2157	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/27/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	21.7
	2158	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/28/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	16.5
	2159	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/28/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	28.5
	2160	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/30/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	12.5
	2161	NERO-WM11-E-CD55	KOREA	US ARMY	TMEA	10/01/51	1550UM	HEAVY	31 UNSP	-1 UNSP			1 UNSP	-1.0
	2162	CMM-E-1	KOREA	X CORPS	CORPS	10/01/51	1550UM	HEAVY	22 UNSP	-1 UNSP			1 UNSP	39.0
	2163	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/01/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	41.0
	2164	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/02/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	54.5
	2165	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/03/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	32.0
	2166	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/04/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	24.7
	2167	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/05/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	24.0
	2168	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/06/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	22.2
	2169	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/07/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	34.5
	2170	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/08/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	17.2
	2171	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/09/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	23.7
	2172	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/10/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	55.0
	2173	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/11/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	41.7
	2174	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/12/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	40.5
	2175	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/13/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	-1.0
	2176	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/14/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	77.5
	2177	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/15/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	80.0
	2178	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	10/16/51	1550UM	HEAVY	1 UNSP	4 UNSP			1 UNSP	80.0

DO LAMART	RECORDS	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUSQUANT	TYPED	DAYQUANT	OPERATION	EDTUSQUANT
	2562	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/16/51	155GUN	HEAVY	4 UNSP	4 UNSP	1 UNSP	1 UNSP	68.0
	2563	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/17/51	155GUN	HEAVY	4 UNSP	4 UNSP	1 UNSP	1 UNSP	59.5
	2564	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/18/51	155GUN	HEAVY	4 UNSP	4 UNSP	1 UNSP	1 UNSP	64.0
	2565	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	155GUN	HEAVY	4 UNSP	4 UNSP	1 UNSP	1 UNSP	39.0
	2566	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/20/51	155GUN	HEAVY	4 UNSP	4 UNSP	1 UNSP	1 UNSP	25.0
	2567	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/21/51	155GUN	HEAVY	4 UNSP	4 UNSP	1 UNSP	1 UNSP	38.0
	536	CNN-E-1	KOREA	US ARMY	THEA	11/01/51	155GUN	HEAVY	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
	537	CNN-E-1	KOREA	US ARMY	THEA	12/01/51	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	538	CNN-E-1	KOREA	US ARMY	THEA	01/01/52	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	539	CNN-E-1	KOREA	US ARMY	THEA	02/01/52	155GUN	HEAVY	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
	540	CNN-E-1	KOREA	US ARMY	THEA	03/01/52	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	541	CNN-E-1	KOREA	US ARMY	THEA	04/01/52	155GUN	HEAVY	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
	806	CNN-E-1	KOREA	US ARMY	THEA	05/01/52	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	807	CNN-E-1	KOREA	US ARMY	THEA	06/01/52	155GUN	HEAVY	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
	808	CNN-E-1	KOREA	US ARMY	THEA	07/01/52	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	809	CNN-E-1	KOREA	US ARMY	THEA	08/01/52	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	810	CNN-E-1	KOREA	US ARMY	THEA	09/01/52	155GUN	HEAVY	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
	811	CNN-E-1	KOREA	US ARMY	THEA	10/01/52	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	812	CNN-E-1	KOREA	US ARMY	THEA	11/01/52	155GUN	HEAVY	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
	813	CNN-E-1	KOREA	US ARMY	THEA	12/01/52	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	814	CNN-E-1	KOREA	US ARMY	THEA	01/01/53	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	815	CNN-E-1	KOREA	US ARMY	THEA	02/01/53	155GUN	HEAVY	-1 UNSP	28 UNSP	28 UNSP	28 UNSP	-1.0
	816	CNN-E-1	KOREA	US ARMY	THEA	03/01/53	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	817	CNN-E-1	KOREA	US ARMY	THEA	04/01/53	155GUN	HEAVY	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
	818	CNN-E-1	KOREA	US ARMY	THEA	05/01/53	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	819	CNN-E-1	KOREA	US ARMY	THEA	06/01/53	155GUN	HEAVY	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	-1.0
	820	CNN-E-1	KOREA	US ARMY	THEA	07/01/53	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	821	CNN-E-1	KOREA	US ARMY	THEA	08/01/53	155GUN	HEAVY	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	-1.0
	3600	FAS-WMI-7	CHAMPAGNE	FRENCH	THEA	09/22/53	155SHW	MEDIUM	-1 UNSP	6 UNSP	6 UNSP	6 UNSP	56.0
	3597	FAS-WMI-1	SOMME	2GERARMY	IARMY	07/01/16	155SHW	MEDIUM	-1 UNSP	30 UNSP	30 UNSP	30 UNSP	119.0
	3595	FAS-WMI-1	SOMME	2GERARMY	IARMY	07/15/16	155SHW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	1 UNSP	223.0
	51	HERO-WMI-CDSS	ANSAUVILLE	1STUS FA BDE CORPS	CORPS	01/23/18	155SHW	MEDIUM	24 UNSP	24 UNSP	72 UNSP	72 UNSP	16.0
	53	HERO-WMI-CDSS	CANTIGNY	1STUS FA BN CORPS	CORPS	04/25/18	155SHW	MEDIUM	24 UNSP	24 UNSP	74 UNSP	74 UNSP	52.0
	59	HERO-WMI-CDSS	CEUVRES	1STUS FA BDE CORPS	CORPS	07/18/18	155SHW	MEDIUM	24 UNSP	24 UNSP	7 UNSP	7 UNSP	68.0
	56	HERO-WMI-CDSS	DEAUMONT	1STUS FA BDE CORPS	CORPS	09/12/18	155SHW	MEDIUM	24 UNSP	24 UNSP	2 UNSP	2 UNSP	148.0
	58	HERO-WMI-CDSS	MEUSE-ARGONN	1STUS FA BDE CORPS	CORPS	10/04/18	155SHW	MEDIUM	24 UNSP	24 UNSP	37 UNSP	37 UNSP	52.0
	284	TOI-WMI-1	ITALY	XIUS CORPS	CORPS	01/01/43	155SHW	MEDIUM	-1 NE	720 ATEM	720 ATEM	720 ATEM	30.1
	2381	LOGC-WMI-2	WMI	I US ARMY	IARMY	01/01/44	155SHW	MEDIUM	254 UNSP	254 UNSP	20 ATEM	20 ATEM	33.0
	3336	HERO-WMI-CDSS	MONTECASSINO	34TH US DIV	DIV	01/20/44	155SHW	MEDIUM	12 UNSP	12 UNSP	11 UNSP	11 UNSP	67.6
	2382	LOGC-WMI-2	WMI	I US ARMY	IARMY	01/21/44	155SHW	MEDIUM	208 UNSP	208 UNSP	22 ATEM	22 ATEM	26.8
	3339	HERO-WMI-CDSS	ANZIO	3RD US DIV	DIV	01/24/44	155SHW	MEDIUM	-1 UNSP	7 UNSP	7 UNSP	7 UNSP	42.1
	15	ORO-WMI-1	ANZIO	VI CORPS	CORPS	01/23/44	155SHW	MEDIUM	-1 NE	30 ATEM	30 ATEM	30 ATEM	-1.0
	3338	HERO-WMI-CDSS	MONTECASSINO	34TH US DIV	DIV	02/01/44	155SHW	MEDIUM	12 UNSP	12 UNSP	21 UNSP	21 UNSP	48.4
	3344	HERO-WMI-CDSS	ANZIO	3RD US DIV	DIV	02/01/44	155SHW	MEDIUM	-1 UNSP	29 UNSP	29 UNSP	29 UNSP	30.9
	3350	HERO-WMI-CDSS	ANZIO	45TH US DIV	DIV	02/01/44	155SHW	MEDIUM	-1 UNSP	8 UNSP	8 UNSP	8 UNSP	38.4
	281	CNN-WMI-2	WMI EUR	IUS ARMY	IARMY	02/10/44	155SHW	MEDIUM	-1 NE	13 ATEM	13 ATEM	13 ATEM	24.0
	2383	LOGC-WMI-2	WMI	I US ARMY	IARMY	02/12/44	155SHW	MEDIUM	259 UNSP	259 UNSP	11 PROM	11 PROM	11.0
	3351	HERO-WMI-CDSS	ANZIO	45TH US DIV	DIV	02/12/44	155SHW	MEDIUM	-1 UNSP	17 UNSP	17 UNSP	17 UNSP	65.1
	6	ORO-WMI-1	ANZIO	VI Corps	CORPS	02/29/44	155SHW	MEDIUM	-1 NE	32 ATEM	32 ATEM	32 ATEM	-1.0
	3354	HERO-WMI-CDSS	ANZIO	3RD US DIV	DIV	03/01/44	155SHW	MEDIUM	-1 UNSP	10 UNSP	10 UNSP	10 UNSP	32.1
	3358	HERO-WMI-CDSS	ANZIO	45TH US DIV	DIV	03/01/44	155SHW	MEDIUM	-1 UNSP	31 UNSP	31 UNSP	31 UNSP	48.6
	3359	HERO-WMI-CDSS	ANZIO	45TH US DIV	DIV	03/01/44	155SHW	MEDIUM	-1 UNSP	10 UNSP	10 UNSP	10 UNSP	68.4
	34	ORO-WMI-1	ANZIO	VI CORPS	CORPS	04/01/44	155SHW	MEDIUM	-1 NE	30 ATEM	30 ATEM	30 ATEM	-1.0
	62	HERO-WMI-CDSS	DIADEN	68US IN DIV	DIV	05/11/44	155SHW	MEDIUM	36 UNSP	36 UNSP	17 BAPD	17 BAPD	125.6
	73	HERO-WMI-CDSS	DIADEN	68US IN DIV	DIV	05/11/44	155SHW	MEDIUM	40 UNSP	40 UNSP	17 BAPD	17 BAPD	46.0

DO LAMANT	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	BAYSQUANT	OPERATION	EDTUBEDAY
73	HERO-WWII-CDSS	DIADAM	8806 IN DIV	DIV	05/11/44	153HOW	MEDIUM	40 UNSP	17	BAND	17	46.6
85	HERO-WWII-CDSS	DIADAM	8805 IN DIV	DIV	05/11/44	153HOW	MEDIUM	42 UNSP	17	BAND	17	109.8
3535	HERO-WWII-CDSS	DIADAM	85TH US DIV	DIV	05/12/44	153HOW	MEDIUM	36 UNSP	2	ATEL	2	167.4
3547	HERO-WWII-CDSS	DIADAM	85TH US DIV	DIV	05/14/44	153HOW	MEDIUM	30 UNSP	2	ATEL	2	167.5
3571	HERO-WWII-CDSS	DIADAM	85TH US DIV	DIV	05/16/44	153HOW	MEDIUM	22 UNSP	2	ATEL	2	36.7
3583	HERO-WWII-CDSS	DIADAM	85TH US DIV	DIV	05/20/44	153HOW	MEDIUM	20 UNSP	2	ATEL	2	32.8
3559	HERO-WWII-CDSS	DIADAM	85TH US DIV	DIV	05/22/44	153HOW	MEDIUM	28 UNSP	3	ATEL	3	88.9
3583	HERO-WWII-CDSS	DIADAM	85TH US DIV	DIV	05/23/44	153HOW	MEDIUM	30 UNSP	2	ATEL	2	23.3
265	CMH-WWII-1	WWII EUR	US ARMY	THEA	06/01/44	153HOW	MEDIUM	-1 NE	180 UNSP	6	ATEL	17.6
274	CMH-WWII-2	WWII EUR	105 ARMY	ARMY	06/06/44	153HOW	MEDIUM	-1 NE	6	ATEL	6	17.6
275	CMH-WWII-2	WWII EUR	105 ARMY	ARMY	06/06/44	153HOW	MEDIUM	-1 NE	180 UNSP	6	ATEL	17.6
347	CMH-WWII-3	GERMANY	125 ARMY GP	ARMY GP	06/06/44	153HOW	MEDIUM	-1 NE	180 UNSP	6	ATEL	17.6
278	CMH-WWII-2	WWII EUR	105 ARMY	ARMY	06/08/44	153HOW	MEDIUM	-1 NE	12	ATEL	12	20.6
296	CMH-WWII-2	WWII EUR	105 ARMY	ARMY	06/11/44	153HOW	MEDIUM	-1 NE	7	ATEL	7	37.9
300	CMH-WWII-2	GERMANY	105 ARMY	ARMY	06/18/44	153HOW	MEDIUM	-1 NE	7	ATEL	7	24.9
304	CMH-WWII-2	GERMANY	105 ARMY	ARMY	06/23/44	153HOW	MEDIUM	-1 NE	7	ATEL	7	18.8
309	CMH-WWII-2	GERMANY	105 ARMY	ARMY	07/02/44	153HOW	MEDIUM	-1 NE	7	ATEL	7	61.0
317	CMH-WWII-2	GERMANY	105 ARMY	ARMY	07/09/44	153HOW	MEDIUM	-1 NE	7	ATEL	7	53.9
325	CMH-WWII-2	GERMANY	105 ARMY	ARMY	07/16/44	153HOW	MEDIUM	-1 NE	7	ATEL	7	12.0
332	CMH-WWII-2	GERMANY	105 ARMY	ARMY	07/23/44	153HOW	MEDIUM	-1 NE	7	ATEL	7	18.8
340	CMH-WWII-2	GERMANY	105 ARMY	ARMY	07/30/44	153HOW	MEDIUM	-1 NE	7	ATEL	7	15.9
2370	LOGC-WWII-2	WWII	1 US ARMY	ARMY	08/06/44	153HOW	MEDIUM	229 UNSP	12	ATEL	12	20.0
2371	LOGC-WWII-2	WWII	1 US ARMY	ARMY	08/16/44	153HOW	MEDIUM	148 UNSP	17	ATEL	17	11.0
2372	LOGC-WWII-2	WWII	1 US ARMY	ARMY	08/04/44	153HOW	MEDIUM	158 UNSP	13	ATEL	13	8.0
2373	LOGC-WWII-2	WWII	1 US ARMY	ARMY	09/17/44	153HOW	MEDIUM	203 UNSP	15	ATEL	15	19.0
2374	LOGC-WWII-2	WWII	1 US ARMY	ARMY	10/02/44	153HOW	MEDIUM	222 UNSP	13	ATEL	13	24.8
2375	LOGC-WWII-2	WWII	1 US ARMY	ARMY	10/15/44	153HOW	MEDIUM	228 UNSP	14	ATEL	14	18.0
2376	LOGC-WWII-2	WWII	1 US ARMY	ARMY	10/29/44	153HOW	MEDIUM	213 UNSP	14	PROL	14	13.0
167	HERO-WWII-CDSS	SAAR	3505 IN DIV	DIV	11/08/44	153HOW	MEDIUM	3 UNSP	4	BADL	4	22.7
3325	HERO-WWII-CDSS	DIADAM	80TH US DIV	DIV	11/08/44	153HOW	MEDIUM	-1 UNSP	2	ATEL	2	38.9
104	HERO-WWII-CDSS	GERMANY	405 AR DIV B	28DE	11/10/44	153HOW	MEDIUM	12 UNSP	1	BADL	1	7.7
3100	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/10/44	153HOW	MEDIUM	12 UNSP	3	ATEL	3	37.1
3375	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/10/44	153HOW	MEDIUM	21 UNSP	3	ATEL	3	13.8
3292	HERO-WWII-CDSS	ITALY/WWII EUR	4TH US DIV	DIV	11/11/44	153HOW	MEDIUM	-1 UNSP	1	DEFM	1	17.3
2377	LOGC-WWII-2	WWII	1 US ARMY	ARMY	11/12/44	153HOW	MEDIUM	258 UNSP	14	ATEL	14	21.0
114	HERO-WWII-CDSS	GERMANY	405 AR DIV B	28DE	11/13/44	153HOW	MEDIUM	12 UNSP	3	BADL	3	18.3
122	HERO-WWII-CDSS	GERMANY	405 AR DIV A	BDE	11/14/44	153HOW	MEDIUM	2 UNSP	2	BADL	2	61.5
3109	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/14/44	153HOW	MEDIUM	12 UNSP	1	ATEL	1	81.0
3386	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/14/44	153HOW	MEDIUM	24 UNSP	1	ATEL	1	32.7
3114	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/15/44	153HOW	MEDIUM	6 UNSP	2	ATEL	2	24.2
3397	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/15/44	153HOW	MEDIUM	24 UNSP	2	ATEL	2	33.3
184	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/18/44	153HOW	MEDIUM	12 UNSP	1	BADL	1	21.3
3408	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/19/44	153HOW	MEDIUM	24 UNSP	1	ATEL	1	45.0
3518	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/19/44	153HOW	MEDIUM	24 UNSP	2	ATEL	2	39.1
282	HERO-WWII-CDSS	SAAR	3505 IN DIV	DIV	11/21/44	153HOW	MEDIUM	4 UNSP	2	BADL	2	14.2
3507	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/21/44	153HOW	MEDIUM	6 UNSP	2	ATEL	2	18.5
212	HERO-WWII-CDSS	SAAR	3505 IN DIV	DIV	11/23/44	153HOW	MEDIUM	12 UNSP	2	BADL	2	16.8
3491	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/23/44	153HOW	MEDIUM	12 UNSP	2	ATEL	2	1.0
3419	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/23/44	153HOW	MEDIUM	24 UNSP	3	ATEL	3	38.8
3485	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/25/44	153HOW	MEDIUM	24 UNSP	2	ATEL	2	19.9
128	HERO-WWII-CDSS	GERMANY	405 AR DIV	DIV	11/26/44	153HOW	MEDIUM	24 UNSP	1	BADL	1	18.6
284	CMH-WWII-2	WWII EUR	105 ARMY	ARMY	11/26/44	153HOW	MEDIUM	-1 NE	14	ATEL	14	24.0
2378	LOGC-WWII-2	WWII	1 US ARMY	ARMY	11/26/44	153HOW	MEDIUM	260 UNSP	14	ATEL	14	24.0
138	HERO-WWII-CDSS	GERMANY	405 AR DIV	DIV	11/27/44	153HOW	MEDIUM	24 UNSP	3	BADL	3	11.5
3474	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/27/44	153HOW	MEDIUM	2 UNSP	2	ATEL	2	0.5

DO LAHART	Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYSQUANT	OPERATION	EDTUESDAY
3474	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	11/27/44	155H0W	MEDIUM	2 UNSP	8 ATFL				0.5
3475	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/28/44	155H0W	MEDIUM	24 UNSP	3 ATFL				32.1
3476	HERO-WWII-CDSS	GERMANY	4US AR DIV	DIV	12/01/44	155H0W	MEDIUM	12 UNSP	2 BAPD				25.1
3477	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	12/04/44	155H0W	MEDIUM	12 UNSP	1 BAPD				47.0
3478	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	12/04/44	155H0W	MEDIUM	12 UNSP	1 ATFL				50.6
3479	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	12/04/44	155H0W	MEDIUM	12 UNSP	1 ATFL				-1.0
3480	HERO-WWII-CDSS	SAAR	6TH AR DIV	DIV	12/05/44	155H0W	MEDIUM	12 UNSP	2 ATFL				-1.0
3481	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	12/06/44	155H0W	MEDIUM	12 UNSP	1 BAPD				12.6
3482	HERO-WWII-CDSS	SAAR	1 US ARMY	ARMY	12/10/44	155H0W	MEDIUM	282 UNSP	6 ATFL				29.0
3483	HERO-WWII-CDSS	WII	90US IN DIV	DIV	12/15/44	155H0W	MEDIUM	9 UNSP	2 PD				100.0
3484	HERO-WWII-CDSS	ARDENNES	90US IN DIV	DIV	12/16/44	155H0W	MEDIUM	-1 NF	24 DEFN				44.0
3485	HERO-WWII-CDSS	WII	1 US ARMY	ARMY	12/16/44	155H0W	MEDIUM	231 UNSP	16 DEFN				46.0
3486	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	155H0W	MEDIUM	6 UNSP	1 DEFN				70.0
3487	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	155H0W	MEDIUM	12 UNSP	6 DEFN				27.6
3488	HERO-WWII-CDSS	ITALYANW EUR	4TH US DIV	DIV	12/16/44	155H0W	MEDIUM	-1 UNSP	2 DEFN				70.0
3489	HERO-WWII-CDSS	ITALYANW EUR	2D US DIV	DIV	12/16/44	155H0W	MEDIUM	-1 UNSP	2 DEFN				49.1
3490	HERO-WWII-CDSS	ITALYANW EUR	9TH US DIV	DIV	12/16/44	155H0W	MEDIUM	-1 UNSP	2 DEFN				100.0
3491	HERO-WWII-CDSS	ARDENNES	90US IN DIV	DIV	12/16/44	155H0W	MEDIUM	9 UNSP	2 PD				103.1
3492	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/18/44	155H0W	MEDIUM	12 UNSP	1 DEFN				70.7
3493	HERO-WWII-CDSS	ITALYANW EUR	4TH US DIV	DIV	12/18/44	155H0W	MEDIUM	-1 UNSP	2 DEFN				70.7
3494	HERO-WWII-CDSS	ITALYANW EUR	2D US DIV	DIV	12/18/44	155H0W	MEDIUM	-1 UNSP	2 DEFN				110.4
3495	HERO-WWII-CDSS	ITALYANW EUR	9TH US DIV	DIV	12/18/44	155H0W	MEDIUM	-1 UNSP	2 DEFN				103.1
3496	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/20/44	155H0W	MEDIUM	-1 UNSP	3 DEFN				14.3
3497	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/22/44	155H0W	MEDIUM	4 UNSP	2 DEFN				14.3
3498	HERO-WWII-CDSS	ROER RIVER	XII CORPS	CORPS	02/22/45	155H0W	MEDIUM	91 UNSP	1 UNSP				71.4
3499	HERO-WWII-CDSS	ROER RIVER	XVI CORPS	CORPS	02/22/45	155H0W	MEDIUM	48 UNSP	1 UNSP				12.3
3500	HERO-WWII-CDSS	ROER RIVER	XIX CORPS	CORPS	02/22/45	155H0W	MEDIUM	106 UNSP	1 UNSP				65.2
3501	HERO-WWII-CDSS	ROER RIVER	9TH US ARMY	ARMY	02/22/45	155H0W	MEDIUM	247 UNSP	1 UNSP				-1.0
3502	HERO-WWII-CDSS	ROER RIVER	XII CORPS	CORPS	02/23/45	155H0W	MEDIUM	252 UNSP	1 UNSP				-1.0
3503	HERO-WWII-CDSS	ROER RIVER	XVI CORPS	CORPS	02/23/45	155H0W	MEDIUM	96 UNSP	1 UNSP				64.8
3504	HERO-WWII-CDSS	ROER RIVER	XIX CORPS	CORPS	02/23/45	155H0W	MEDIUM	48 UNSP	1 UNSP				52.2
3505	HERO-WWII-CDSS	ROER RIVER	XII CORPS	CORPS	02/23/45	155H0W	MEDIUM	108 UNSP	1 UNSP				113.1
3506	HERO-WWII-CDSS	ROER RIVER	XVI CORPS	CORPS	03/18/45	155H0W	MEDIUM	84 UNSP	1 UNSP				8.0
3507	HERO-WWII-CDSS	ROER RIVER	XIX CORPS	CORPS	03/18/45	155H0W	MEDIUM	158 UNSP	1 UNSP				1.5
3508	HERO-WWII-CDSS	ROER RIVER	XII CORPS	CORPS	03/18/45	155H0W	MEDIUM	26 UNSP	1 UNSP				3.9
3509	HERO-WWII-CDSS	ROER RIVER	XVI CORPS	CORPS	03/19/45	155H0W	MEDIUM	84 UNSP	1 UNSP				9.1
3510	HERO-WWII-CDSS	ROER RIVER	XIX CORPS	CORPS	03/19/45	155H0W	MEDIUM	156 UNSP	1 UNSP				3.3
3511	HERO-WWII-CDSS	ROER RIVER	XII CORPS	CORPS	03/19/45	155H0W	MEDIUM	26 UNSP	1 UNSP				5.0
3512	HERO-WWII-CDSS	ROER RIVER	XVI CORPS	CORPS	03/20/45	155H0W	MEDIUM	84 UNSP	1 UNSP				7.3
3513	HERO-WWII-CDSS	ROER RIVER	XIX CORPS	CORPS	03/20/45	155H0W	MEDIUM	159 UNSP	1 UNSP				2.1
3514	HERO-WWII-CDSS	ROER RIVER	XII CORPS	CORPS	03/20/45	155H0W	MEDIUM	37 UNSP	1 UNSP				0.0
3515	HERO-WWII-CDSS	ROER RIVER	XVI CORPS	CORPS	03/21/45	155H0W	MEDIUM	12 UNSP	1 UNSP				5.3
3516	HERO-WWII-CDSS	ROER RIVER	XIX CORPS	CORPS	03/21/45	155H0W	MEDIUM	84 UNSP	1 UNSP				3.3
3517	HERO-WWII-CDSS	ROER RIVER	XII CORPS	CORPS	03/21/45	155H0W	MEDIUM	153 UNSP	1 UNSP				1.0
3518	HERO-WWII-CDSS	ROER RIVER	XVI CORPS	CORPS	03/21/45	155H0W	MEDIUM	26 UNSP	1 UNSP				6.0
3519	HERO-WWII-CDSS	ROER RIVER	XIX CORPS	CORPS	03/22/45	155H0W	MEDIUM	83 UNSP	1 UNSP				4.5
3520	HERO-WWII-CDSS	ROER RIVER	XII CORPS	CORPS	03/22/45	155H0W	MEDIUM	161 UNSP	1 UNSP				1.1
3521	HERO-WWII-CDSS	ROER RIVER	XVI CORPS	CORPS	03/22/45	155H0W	MEDIUM	26 UNSP	1 UNSP				11.4
3522	HERO-WWII-CDSS	ROER RIVER	XIX CORPS	CORPS	03/23/45	155H0W	MEDIUM	12 UNSP	1 UNSP				0.1
3523	HERO-WWII-CDSS	ROER RIVER	XII CORPS	CORPS	03/23/45	155H0W	MEDIUM	12 UNSP	1 UNSP				6.3
3524	HERO-WWII-CDSS	ROER RIVER	XVI CORPS	CORPS	03/23/45	155H0W	MEDIUM	84 UNSP	1 UNSP				7.7
3525	HERO-WWII-CDSS	ROER RIVER	XIX CORPS	CORPS	03/23/45	155H0W	MEDIUM	156 UNSP	1 UNSP				10.0
3526	HERO-WWII-CDSS	ROER RIVER	XII CORPS	CORPS	03/23/45	155H0W	MEDIUM	37 UNSP	1 UNSP				14.3
3527	HERO-WWII-CDSS	ROER RIVER	XVI CORPS	CORPS	03/24/45	155H0W	MEDIUM	12 UNSP	1 UNSP				315.0
3528	HERO-WWII-CDSS	ROER RIVER	XIX CORPS	CORPS	03/24/45	155H0W	MEDIUM	12 UNSP	1 UNSP				200.0

DO LAHART Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYSQUANT	OPERATION	EDTUSEDAY
2993	HERO-WWII-CDSS	ENHINE CROSS	35UUDIV	DIV	03/24/45	153HOW	MEDIUM	12	UNSP	1	UNSP	269.8
2994	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/24/45	153HOW	MEDIUM	94	UNSP	1	UNSP	61.0
3068	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/24/45	153HOW	MEDIUM	168	UNSP	1	UNSP	207.5
3069	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/24/45	153HOW	MEDIUM	36	UNSP	1	UNSP	34.6
3070	HERO-WWII-CDSS	ENHINE CROSS	79UUDIV	DIV	03/25/45	153HOW	MEDIUM	12	UNSP	1	UNSP	87.4
2994	HERO-WWII-CDSS	ENHINE CROSS	35UUDIV	DIV	03/25/45	153HOW	MEDIUM	12	UNSP	1	UNSP	6.5
3071	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/25/45	153HOW	MEDIUM	84	UNSP	1	UNSP	28.6
3072	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/25/45	153HOW	MEDIUM	168	UNSP	1	UNSP	27.1
3073	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/25/45	153HOW	MEDIUM	36	UNSP	1	UNSP	11.0
2970	HERO-WWII-CDSS	ENHINE CROSS	79UUDIV	DIV	03/26/45	153HOW	MEDIUM	12	UNSP	1	UNSP	27.7
2995	HERO-WWII-CDSS	ENHINE CROSS	35UUDIV	DIV	03/26/45	153HOW	MEDIUM	12	UNSP	1	UNSP	41.8
3074	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/26/45	153HOW	MEDIUM	84	UNSP	1	UNSP	36.4
3075	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/26/45	153HOW	MEDIUM	168	UNSP	1	UNSP	38.2
3076	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/26/45	153HOW	MEDIUM	36	UNSP	1	UNSP	12.0
2971	HERO-WWII-CDSS	ENHINE CROSS	79UUDIV	DIV	03/27/45	153HOW	MEDIUM	12	UNSP	1	UNSP	52.8
2996	HERO-WWII-CDSS	ENHINE CROSS	35UUDIV	DIV	03/27/45	153HOW	MEDIUM	12	UNSP	1	UNSP	73.1
3077	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/27/45	153HOW	MEDIUM	99	UNSP	1	UNSP	12.1
3078	HERO-WWII-CDSS	ENHINE CROSS	XIIVICORPS	CORPS	03/27/45	153HOW	MEDIUM	168	UNSP	1	UNSP	62.3
2972	HERO-WWII-CDSS	ENHINE CROSS	79UUDIV	DIV	03/28/45	153HOW	MEDIUM	12	UNSP	1	UNSP	59.4
2997	HERO-WWII-CDSS	ENHINE CROSS	35UUDIV	DIV	03/28/45	153HOW	MEDIUM	12	UNSP	1	UNSP	70.1
2973	HERO-WWII-CDSS	ENHINE CROSS	79UUDIV	DIV	03/29/45	153HOW	MEDIUM	12	UNSP	1	UNSP	48.3
2998	HERO-WWII-CDSS	ENHINE CROSS	35UUDIV	DIV	03/29/45	153HOW	MEDIUM	12	UNSP	1	UNSP	72.9
2974	HERO-WWII-CDSS	ENHINE CROSS	79UUDIV	DIV	03/30/45	153HOW	MEDIUM	12	UNSP	1	UNSP	66.7
2999	HERO-WWII-CDSS	ENHINE CROSS	35UUDIV	DIV	03/30/45	153HOW	MEDIUM	12	UNSP	1	UNSP	46.9
2975	HERO-WWII-CDSS	ENHINE CROSS	79UUDIV	DIV	03/31/45	153HOW	MEDIUM	12	UNSP	1	UNSP	50.3
3000	HERO-WWII-CDSS	ENHINE CROSS	35UUDIV	DIV	03/31/45	153HOW	MEDIUM	12	UNSP	1	UNSP	22.8
3202	HERO-WWII-CDSS	PO VALLEY	II CORPS	CORPS	04/14/45	153HOW	MEDIUM	-1	UNSP	3	ATEN	121.6
3207	HERO-WWII-CDSS	PO VALLEY	IV CORPS	CORPS	04/14/45	153HOW	MEDIUM	-1	UNSP	9	ATEN	76.0
19	ORO-WWII-1	OKINAWA	XIIVICORPS	2CORPS	05/01/45	153HOW	MEDIUM	-1	NE	83	ATEN	-1.0
353	CGSC-E-1	KOREA	US ARMY	THEA	01/01/51	153HOW	MEDIUM	-1	UNSP	769	UNSP	16.9
1948	CGSC-E-1	KOREA	US ARMY	THEA	01/01/51	153HOW	MEDIUM	-1	UNSP	31	UNSP	4.3
1773	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	153HOW	MEDIUM	-1	UNSP	1	UNSP	14.5
1802	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	153HOW	MEDIUM	-1	UNSP	1	UNSP	32.6
1831	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	153HOW	MEDIUM	-1	UNSP	1	UNSP	13.3
1860	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	153HOW	MEDIUM	-1	UNSP	1	UNSP	18.3
1889	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	153HOW	MEDIUM	-1	UNSP	1	UNSP	25.7
1918	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	01/31/51	153HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
357	CGSC-E-1	KOREA	US ARMY	THEA	02/01/51	153HOW	MEDIUM	-1	UNSP	28	UNSP	16.7
1951	CGSC-E-1	KOREA	US ARMY	THEA	02/01/51	153HOW	MEDIUM	-1	UNSP	28	UNSP	16.7
360	CGSC-E-1	KOREA	US ARMY	THEA	03/01/51	153HOW	MEDIUM	-1	UNSP	30	UNSP	15.0
1954	CGSC-E-1	KOREA	US ARMY	THEA	03/01/51	153HOW	MEDIUM	-1	UNSP	31	UNSP	15.0
363	CGSC-E-1	KOREA	US ARMY	THEA	04/01/51	153HOW	MEDIUM	-1	UNSP	30	UNSP	23.9
1957	CGSC-E-1	KOREA	US ARMY	THEA	04/01/51	153HOW	MEDIUM	-1	UNSP	30	UNSP	23.9
2280	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/11/51	153HOW	MEDIUM	18	UNSP	1	UNSP	61.3
2299	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/11/51	153HOW	MEDIUM	18	UNSP	1	UNSP	47.3
2318	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/11/51	153HOW	MEDIUM	18	UNSP	1	UNSP	21.1
2337	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/11/51	153HOW	MEDIUM	18	UNSP	1	UNSP	26.6
2281	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/12/51	153HOW	MEDIUM	18	UNSP	1	UNSP	21.8
2300	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/12/51	153HOW	MEDIUM	18	UNSP	1	UNSP	9.9
2319	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/12/51	153HOW	MEDIUM	18	UNSP	1	UNSP	3.7
2338	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/12/51	153HOW	MEDIUM	18	UNSP	1	UNSP	28.6
2282	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/13/51	153HOW	MEDIUM	18	UNSP	1	UNSP	11.0
2301	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/13/51	153HOW	MEDIUM	18	UNSP	1	UNSP	13.0
2320	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/13/51	153HOW	MEDIUM	18	UNSP	1	UNSP	24.6
2339	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	04/13/51	153HOW	MEDIUM	18	UNSP	1	UNSP	17.6

DO LNABT	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSQUANT	OPERATION	EDTUSEDAY
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/13/51	155HOW	MEDIUM	1 UNSP	1 UNSP	17.6		17.6
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/14/51	155HOW	MEDIUM	1 UNSP	1 UNSP	21.0		21.0
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/14/51	155HOW	MEDIUM	1 UNSP	1 UNSP	46.5		46.5
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/14/51	155HOW	MEDIUM	1 UNSP	1 UNSP	11.9		11.9
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/14/51	155HOW	MEDIUM	1 UNSP	1 UNSP	13.6		13.6
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/15/51	155HOW	MEDIUM	1 UNSP	1 UNSP	25.5		25.5
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/15/51	155HOW	MEDIUM	1 UNSP	1 UNSP	24.1		24.1
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/15/51	155HOW	MEDIUM	1 UNSP	1 UNSP	24.1		24.1
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/15/51	155HOW	MEDIUM	1 UNSP	1 UNSP	27.1		27.1
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/16/51	155HOW	MEDIUM	1 UNSP	1 UNSP	36.1		36.1
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/16/51	155HOW	MEDIUM	1 UNSP	1 UNSP	25.2		25.2
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/16/51	155HOW	MEDIUM	1 UNSP	1 UNSP	6.7		6.7
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/16/51	155HOW	MEDIUM	1 UNSP	1 UNSP	1.1		1.1
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/17/51	155HOW	MEDIUM	1 UNSP	1 UNSP	23.2		23.2
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/17/51	155HOW	MEDIUM	1 UNSP	1 UNSP	16.0		16.0
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/17/51	155HOW	MEDIUM	1 UNSP	1 UNSP	7.6		7.6
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/17/51	155HOW	MEDIUM	1 UNSP	1 UNSP	-1.0		-1.0
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/18/51	155HOW	MEDIUM	1 UNSP	1 UNSP	30.3		30.3
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/18/51	155HOW	MEDIUM	1 UNSP	1 UNSP	22.9		22.9
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/18/51	155HOW	MEDIUM	1 UNSP	1 UNSP	12.5		12.5
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/18/51	155HOW	MEDIUM	1 UNSP	1 UNSP	20.6		20.6
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/18/51	155HOW	MEDIUM	1 UNSP	1 UNSP	37.3		37.3
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/19/51	155HOW	MEDIUM	1 UNSP	1 UNSP	16.2		16.2
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/19/51	155HOW	MEDIUM	1 UNSP	1 UNSP	2.2		2.2
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/19/51	155HOW	MEDIUM	1 UNSP	1 UNSP	9.4		9.4
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/19/51	155HOW	MEDIUM	1 UNSP	1 UNSP	28.3		28.3
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/20/51	155HOW	MEDIUM	1 UNSP	1 UNSP	43.9		43.9
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/20/51	155HOW	MEDIUM	1 UNSP	1 UNSP	-1.0		-1.0
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/20/51	155HOW	MEDIUM	1 UNSP	1 UNSP	13.3		13.3
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/21/51	155HOW	MEDIUM	1 UNSP	1 UNSP	48.2		48.2
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/21/51	155HOW	MEDIUM	1 UNSP	1 UNSP	38.1		38.1
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/21/51	155HOW	MEDIUM	1 UNSP	1 UNSP	-1.0		-1.0
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/21/51	155HOW	MEDIUM	1 UNSP	1 UNSP	4.1		4.1
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/22/51	155HOW	MEDIUM	1 UNSP	1 UNSP	44.6		44.6
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/22/51	155HOW	MEDIUM	1 UNSP	1 UNSP	58.2		58.2
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/22/51	155HOW	MEDIUM	1 UNSP	1 UNSP	1.4		1.4
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/22/51	155HOW	MEDIUM	1 UNSP	1 UNSP	10.0		10.0
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/23/51	155HOW	MEDIUM	1 UNSP	1 UNSP	86.9		86.9
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/23/51	155HOW	MEDIUM	1 UNSP	1 UNSP	84.6		84.6
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/23/51	155HOW	MEDIUM	1 UNSP	1 UNSP	26.9		26.9
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/23/51	155HOW	MEDIUM	1 UNSP	1 UNSP	31.3		31.3
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/24/51	155HOW	MEDIUM	1 UNSP	1 UNSP	36.5		36.5
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/24/51	155HOW	MEDIUM	1 UNSP	1 UNSP	34.1		34.1
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/24/51	155HOW	MEDIUM	1 UNSP	1 UNSP	68.1		68.1
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/25/51	155HOW	MEDIUM	1 UNSP	1 UNSP	55.4		55.4
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/25/51	155HOW	MEDIUM	1 UNSP	1 UNSP	19.9		19.9
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/25/51	155HOW	MEDIUM	1 UNSP	1 UNSP	47.4		47.4
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/25/51	155HOW	MEDIUM	1 UNSP	1 UNSP	54.2		54.2
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/26/51	155HOW	MEDIUM	1 UNSP	1 UNSP	-1.0		-1.0
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/26/51	155HOW	MEDIUM	1 UNSP	1 UNSP	53.3		53.3
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/26/51	155HOW	MEDIUM	1 UNSP	1 UNSP	1.3		1.3
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/26/51	155HOW	MEDIUM	1 UNSP	1 UNSP	74.7		74.7
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/27/51	155HOW	MEDIUM	1 UNSP	1 UNSP	2.1		2.1
2309	HERO-WWII-E-CDS5	KOREA	X CORPS	CORPS	04/27/51	155HOW	MEDIUM	1 UNSP	1 UNSP	16.9		16.9

DO LAHART Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYSQUANT	OPERATION	RTUBEDAY
2315	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/27/51	15SHOW	MEDIUM	16	UNSP	1	UNSP	10.9
2334	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/27/51	15SHOW	MEDIUM	16	UNSP	1	UNSP	17.1
2353	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/27/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	30.7
2397	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/28/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	1.5
2316	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/28/51	15SHOW	MEDIUM	16	UNSP	1	UNSP	20.8
2335	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/28/51	15SHOW	MEDIUM	16	UNSP	1	UNSP	2.9
2354	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/28/51	15SHOW	MEDIUM	16	UNSP	1	UNSP	1.3
2398	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/29/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	2.3
2317	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/29/51	15SHOW	MEDIUM	16	UNSP	1	UNSP	2.5
2336	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/29/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	15.0
2355	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/29/51	15SHOW	MEDIUM	18	UNSP	1	UNSP	2.5
822	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	13.1
853	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
915	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	0.0
946	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
977	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	04/30/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
366	CAC-K-1	KOREA	US ARMY	THEA	05/01/51	15SHOW	MEDIUM	30	ATEN	30	ATEN	30.7
823	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	23.6
854	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	5.0
885	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	2.7
916	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	0.0
947	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
978	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/01/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1660	CGSC-K-1	KOREA	US ARMY	THEA	05/01/51	15SHOW	MEDIUM	31	UNSP	31	UNSP	30.7
824	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	58.6
855	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	69.4
886	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	5.4
917	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	46.4
948	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
979	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/02/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
825	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	33.3
856	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	31.1
887	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	10.0
918	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	10.9
949	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
980	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/03/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
826	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	23.7
857	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	15.6
888	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	10.0
919	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	13.0
950	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
981	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/04/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
827	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	16.4
858	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	22.1
889	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	17.9
920	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	19.8
951	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
982	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/05/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
828	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	43.3
859	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	17.3
890	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	4.7
921	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	2.0
952	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
983	HERO-WWII-K-CDSS	KOREA	X CORPS	CORPS	05/06/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0

DO LAHART R-00146	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYQUANT	OPERATION	REQUIRE
883	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/06/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
889	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.0
890	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1.5
891	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	24.9
922	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	4.2
953	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
984	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/07/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
980	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	47.7
861	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.5
892	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.2
923	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.1
954	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
985	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/08/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.5
831	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
862	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	6.5
893	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.1
924	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1.0
955	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
986	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/09/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1.0
832	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
894	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	45.0
925	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	40.0
956	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.0
894	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.4
926	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
957	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/10/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
897	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	66.1
833	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.5
864	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	62.0
926	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.0
957	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	40.0
988	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
834	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	94.1
865	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.6
927	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	30.7
958	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	3.2
989	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
835	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	07.0
866	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	42.3
928	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	91.3
959	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	5.7
990	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/13/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	99.7
867	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
898	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	30.0
929	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	36.4
960	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/14/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	99.1
868	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	4.0
930	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	71.2
961	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
992	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	47.5
837	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	26.2
869	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	91.7
931	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	2.7
962	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	13.3
993	NERO-WW11-E-CD55	KOREA	X CORPS	CORPS	05/15/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.0

DO LABART	RECORDS	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEOUANT	TYPED	DAYSOUANT	OPERATION	REFOURBAT
	902	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/13/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
	903	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	142.6
	904	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	82.2
	905	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	167.2
	906	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	70.7
	907	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	50.0
	908	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/16/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
	909	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	110.5
	910	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	120.5
	911	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	80.1
	912	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	164.2
	913	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	42.5
	914	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
	915	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/17/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	172.2
	916	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	73.2
	917	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	120.3
	918	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	160.3
	919	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	121.2
	920	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	100.7
	921	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/18/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
	922	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	161.0
	923	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	22.5
	924	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	46.8
	925	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	155.2
	926	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/19/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	101.1
	927	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
	928	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	56.5
	929	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	36.2
	930	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	88.9
	931	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	110.1
	932	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/20/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	127.2
	933	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	75.0
	934	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	104.1
	935	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	76.6
	936	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	140.6
	937	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	160.2
	938	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/21/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	47.0
	939	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/22/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	30.2
	940	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/22/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	57.9
	941	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/22/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	52.9
	942	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/22/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	64.0
	943	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/22/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	90.7
	944	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/23/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	1.2
	945	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/23/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	21.0
	946	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/23/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	33.0
	947	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/23/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
	948	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/23/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	20.7
	949	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/23/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	30.5
	950	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	20.7
	951	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	27.9
	952	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	39.6
	953	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	21.2
	954	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	110.1
	955	HERO-WMII-X-CDSS	KOREA	X CORPS	CORPS	05/24/51	15SHOW	MEDIUM	-1	UNSP	1	UNSP	27.2

DO LAMARY

Record	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBTYPE	TUBCAT	TUBQUANT	TYPED	DAYSQUANT	OPERATION	ESTIMATED
1001	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/24/51	1530W	MEDIUM	-1	UNSP	1	UNSP	27.2
897	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	1530W	MEDIUM	-1	UNSP	1	UNSP	20.1
898	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	1530W	MEDIUM	-1	UNSP	1	UNSP	-1.0
899	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	1530W	MEDIUM	-1	UNSP	1	UNSP	-1.0
900	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	1530W	MEDIUM	-1	UNSP	1	UNSP	10.0
901	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	1530W	MEDIUM	-1	UNSP	1	UNSP	170.0
1002	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/25/51	1530W	MEDIUM	-1	UNSP	1	UNSP	22.0
896	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	1530W	MEDIUM	-1	UNSP	1	UNSP	2.7
899	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	1530W	MEDIUM	-1	UNSP	1	UNSP	9.3
910	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	1530W	MEDIUM	-1	UNSP	1	UNSP	1.5
911	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	1530W	MEDIUM	-1	UNSP	1	UNSP	0.2
912	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	1530W	MEDIUM	-1	UNSP	1	UNSP	7.5
1003	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/26/51	1530W	MEDIUM	-1	UNSP	1	UNSP	9.1
898	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	1530W	MEDIUM	-1	UNSP	1	UNSP	23.7
899	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	1530W	MEDIUM	-1	UNSP	1	UNSP	23.9
911	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	1530W	MEDIUM	-1	UNSP	1	UNSP	22.2
912	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	1530W	MEDIUM	-1	UNSP	1	UNSP	222.0
973	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	1530W	MEDIUM	-1	UNSP	1	UNSP	22.0
1004	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/27/51	1530W	MEDIUM	-1	UNSP	1	UNSP	20.7
898	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/28/51	1530W	MEDIUM	-1	UNSP	1	UNSP	42.4
899	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/28/51	1530W	MEDIUM	-1	UNSP	1	UNSP	26.7
912	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/28/51	1530W	MEDIUM	-1	UNSP	1	UNSP	26.7
913	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/28/51	1530W	MEDIUM	-1	UNSP	1	UNSP	44.9
974	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/28/51	1530W	MEDIUM	-1	UNSP	1	UNSP	20.2
1005	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	1530W	MEDIUM	-1	UNSP	1	UNSP	-1.0
891	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	1530W	MEDIUM	-1	UNSP	1	UNSP	60.0
892	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	1530W	MEDIUM	-1	UNSP	1	UNSP	44.0
913	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	1530W	MEDIUM	-1	UNSP	1	UNSP	-1.0
944	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	1530W	MEDIUM	-1	UNSP	1	UNSP	72.2
975	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	1530W	MEDIUM	-1	UNSP	1	UNSP	110.5
1006	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/29/51	1530W	MEDIUM	-1	UNSP	1	UNSP	-1.0
892	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	1530W	MEDIUM	-1	UNSP	1	UNSP	30.2
893	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	1530W	MEDIUM	-1	UNSP	1	UNSP	22.0
914	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	1530W	MEDIUM	-1	UNSP	1	UNSP	17.0
945	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	1530W	MEDIUM	-1	UNSP	1	UNSP	10.7
976	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	1530W	MEDIUM	-1	UNSP	1	UNSP	62.0
1007	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/30/51	1530W	MEDIUM	-1	UNSP	1	UNSP	-1.0
1008	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/31/51	1530W	MEDIUM	-1	UNSP	1	UNSP	50.4
1020	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/31/51	1530W	MEDIUM	-1	UNSP	1	UNSP	2.6
1009	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/31/51	1530W	MEDIUM	-1	UNSP	1	UNSP	10.0
1008	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/31/51	1530W	MEDIUM	-1	UNSP	1	UNSP	97.2
1009	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	05/31/51	1530W	MEDIUM	-1	UNSP	1	UNSP	150.0
1128	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/01/51	1530W	MEDIUM	-1	UNSP	30	ATM	25.0
349	CGSC-E-1	KOREA	US ARMY	THEA	06/01/51	1530W	MEDIUM	-1	UNSP	1	UNSP	25.2
1009	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/01/51	1530W	MEDIUM	-1	UNSP	1	UNSP	3.6
1020	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/01/51	1530W	MEDIUM	-1	UNSP	1	UNSP	-1.0
1009	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/01/51	1530W	MEDIUM	-1	UNSP	1	UNSP	27.0
1008	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/01/51	1530W	MEDIUM	-1	UNSP	1	UNSP	61.7
1003	CGSC-E-1	KOREA	US ARMY	THEA	06/01/51	1530W	MEDIUM	-1	UNSP	30	UNSP	25.0
1010	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1530W	MEDIUM	-1	UNSP	1	UNSP	24.2
1040	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1530W	MEDIUM	-1	UNSP	1	UNSP	67.3
1070	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1530W	MEDIUM	-1	UNSP	1	UNSP	25.3
1100	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1530W	MEDIUM	-1	UNSP	1	UNSP	18.5
1130	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1530W	MEDIUM	-1	UNSP	1	UNSP	55.2
1011	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1530W	MEDIUM	-1	UNSP	1	UNSP	20.5

DO LAMART	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBTYPE	TUBCAT	TUBQUANT	TUBED	DAYQUANT	OPERATION	EDTUBEDAY
1011	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1550W	MEDIUM	-1	UNSP	1	UNSP	28.5
1041	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1550W	MEDIUM	-1	UNSP	1	UNSP	44.1
1071	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1550W	MEDIUM	-1	UNSP	1	UNSP	19.0
1101	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1550W	MEDIUM	-1	UNSP	1	UNSP	24.0
1131	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/02/51	1550W	MEDIUM	-1	UNSP	1	UNSP	24.2
1012	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/04/51	1550W	MEDIUM	-1	UNSP	1	UNSP	24.9
1042	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/04/51	1550W	MEDIUM	-1	UNSP	1	UNSP	24.9
1072	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/04/51	1550W	MEDIUM	-1	UNSP	1	UNSP	20.7
1102	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/04/51	1550W	MEDIUM	-1	UNSP	1	UNSP	25.0
1132	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/04/51	1550W	MEDIUM	-1	UNSP	1	UNSP	51.0
1013	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/05/51	1550W	MEDIUM	-1	UNSP	1	UNSP	26.3
1043	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/05/51	1550W	MEDIUM	-1	UNSP	1	UNSP	26.3
1073	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/05/51	1550W	MEDIUM	-1	UNSP	1	UNSP	20.5
1103	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/05/51	1550W	MEDIUM	-1	UNSP	1	UNSP	61.2
1014	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/06/51	1550W	MEDIUM	-1	UNSP	1	UNSP	40.2
1044	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/06/51	1550W	MEDIUM	-1	UNSP	1	UNSP	61.2
1074	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/06/51	1550W	MEDIUM	-1	UNSP	1	UNSP	56.2
1104	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/06/51	1550W	MEDIUM	-1	UNSP	1	UNSP	66.0
1134	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/06/51	1550W	MEDIUM	-1	UNSP	1	UNSP	100.0
1015	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/07/51	1550W	MEDIUM	-1	UNSP	1	UNSP	45.2
1045	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/07/51	1550W	MEDIUM	-1	UNSP	1	UNSP	87.0
1075	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/07/51	1550W	MEDIUM	-1	UNSP	1	UNSP	65.0
1105	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/07/51	1550W	MEDIUM	-1	UNSP	1	UNSP	132.2
1135	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/07/51	1550W	MEDIUM	-1	UNSP	1	UNSP	55.7
1016	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/08/51	1550W	MEDIUM	-1	UNSP	1	UNSP	75.5
1046	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/08/51	1550W	MEDIUM	-1	UNSP	1	UNSP	62.1
1076	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/08/51	1550W	MEDIUM	-1	UNSP	1	UNSP	92.1
1106	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/08/51	1550W	MEDIUM	-1	UNSP	1	UNSP	150.2
1136	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/08/51	1550W	MEDIUM	-1	UNSP	1	UNSP	67.5
1017	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/09/51	1550W	MEDIUM	-1	UNSP	1	UNSP	82.1
1047	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/09/51	1550W	MEDIUM	-1	UNSP	1	UNSP	102.0
1077	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/09/51	1550W	MEDIUM	-1	UNSP	1	UNSP	62.0
1107	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/09/51	1550W	MEDIUM	-1	UNSP	1	UNSP	102.9
1137	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/09/51	1550W	MEDIUM	-1	UNSP	1	UNSP	50.2
1018	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/10/51	1550W	MEDIUM	-1	UNSP	1	UNSP	50.2
1048	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/10/51	1550W	MEDIUM	-1	UNSP	1	UNSP	48.0
1078	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/10/51	1550W	MEDIUM	-1	UNSP	1	UNSP	102.0
1108	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/10/51	1550W	MEDIUM	-1	UNSP	1	UNSP	132.5
1138	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/10/51	1550W	MEDIUM	-1	UNSP	1	UNSP	43.7
1019	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/11/51	1550W	MEDIUM	-1	UNSP	1	UNSP	40.0
1049	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/11/51	1550W	MEDIUM	-1	UNSP	1	UNSP	35.0
1079	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/11/51	1550W	MEDIUM	-1	UNSP	1	UNSP	65.5
1109	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/11/51	1550W	MEDIUM	-1	UNSP	1	UNSP	31.5
1139	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/11/51	1550W	MEDIUM	-1	UNSP	1	UNSP	120.0
1020	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/12/51	1550W	MEDIUM	-1	UNSP	1	UNSP	50.0
1050	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/12/51	1550W	MEDIUM	-1	UNSP	1	UNSP	92.5
1080	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/12/51	1550W	MEDIUM	-1	UNSP	1	UNSP	73.0
1110	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/12/51	1550W	MEDIUM	-1	UNSP	1	UNSP	22.1
1140	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/12/51	1550W	MEDIUM	-1	UNSP	1	UNSP	70.5
1021	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/12/51	1550W	MEDIUM	-1	UNSP	1	UNSP	48.2
1051	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/12/51	1550W	MEDIUM	-1	UNSP	1	UNSP	72.4
1081	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/12/51	1550W	MEDIUM	-1	UNSP	1	UNSP	70.7
1111	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/12/51	1550W	MEDIUM	-1	UNSP	1	UNSP	27.6
1141	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	06/12/51	1550W	MEDIUM	-1	UNSP	1	UNSP	50.2

DO LAMANT

Record# SOURCE

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYSQUANT	OPERATION	RETURNED
1141	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/12/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	36.2
1142	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/14/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	35.9
1052	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/14/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	30.8
1082	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/14/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	57.9
1112	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/14/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	52.4
1142	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/14/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	59.8
1022	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/15/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	121.4
1052	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/15/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	50.1
1082	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/15/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	29.2
1112	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/15/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	100.4
1142	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/15/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	70.5
1024	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/16/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	15.2
1054	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/16/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	92.2
1084	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/16/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	60.6
1114	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/16/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	54.5
1144	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	51.5
1025	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	44.1
1055	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	72.8
1085	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	52.3
1115	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	100.8
1145	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/17/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	40.8
1026	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/18/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	37.5
1056	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/18/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	90.5
1086	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/18/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	31.6
1116	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/18/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	22.4
1146	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/18/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	62.7
1027	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	25.6
1057	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	59.6
1087	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	20.9
1117	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	52.6
1147	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/19/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	80.2
1028	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/20/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1058	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/20/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	52.8
1088	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/20/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	40.8
1118	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/20/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	8.8
1148	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/20/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	52.2
1029	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/21/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1059	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/21/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	91.6
1089	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/21/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	50.9
1119	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/21/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	27.2
1149	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/22/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1030	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/22/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	38.3
1060	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/22/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	37.9
1090	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/22/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	40.0
1120	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/22/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	82.7
1150	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/23/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1031	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/23/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	36.0
1061	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/23/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	50.2
1091	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/23/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	82.7
1121	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/23/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	50.7
1151	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/24/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	0.0
1022	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/24/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	57.9
1062	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/24/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	87.0
1092	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/24/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	06.0
1122	NERO-W11-E-CD55	KOREA	X CORPS	CORPS	06/24/51	155NOW	MEDIUM	-1	UNSP	1	UNSP	

SO	LNAMRT	Record	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBESCA*	TUBEQUANT	TYPED	DATEQUANT	OPERATION	EDTUBESDAY
1121	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/24/51	155MOW	MED.UM	-1	UNSP		1 UNSP	04.6
1122	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/24/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	37.8
1123	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	-1.0
1124	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	36.6
1125	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	04.6
1126	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	72.0
1127	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	42.9
1128	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	-1.0
1129	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	28.8
1130	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	59.6
1131	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	40.8
1132	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/25/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	71.2
1133	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/27/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	12.1
1134	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/27/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	35.5
1135	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/27/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	29.7
1136	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/27/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	30.6
1137	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/27/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	82.0
1138	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/28/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	10.9
1139	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/28/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	50.6
1140	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/28/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	34.1
1141	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/28/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	60.7
1142	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/28/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	82.3
1143	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	12.1
1144	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	69.2
1145	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	130.8
1146	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	66.0
1147	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/29/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	100.1
1148	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/30/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	59.4
1149	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/30/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	110.3
1150	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/30/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	73.0
1151	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	06/30/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	34.9
1152	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	37.0
1153	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	78.5
1154	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	42.3
1155	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	86.2
1156	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	31.0
1157	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	80.0
1158	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	41.2
1159	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	36.6
1160	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	53.1
1161	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	71.6
1162	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	45.3
1163	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	87.2
1164	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	37.0
1165	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	78.5
1166	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	42.3
1167	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	86.2
1168	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	31.0
1169	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	80.0
1170	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	41.2
1171	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	36.6
1172	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	53.1
1173	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	71.6
1174	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	45.3
1175	MEMO-W111-E-CDS8			KOREA	X CORPS	CORPS	07/01/51	155MOW	MEDIUM	-1	UNSP		1 UNSP	87.2

NO	LAHART	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSQUANT	OPERATION	REMARKS
1195	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/06/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	97.2
1226	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/06/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	21.6
1257	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/06/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	61.6
1165	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/07/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	89.6
1196	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/07/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	101.1
1227	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/07/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	88.7
1258	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/07/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	104.6
1197	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/08/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	22.8
1228	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/08/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	43.5
1197	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/08/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	27.7
1229	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/08/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	164.2
1198	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/09/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	15.8
1229	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/09/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	92.2
1199	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/09/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	9.5
1230	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/10/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	22.7
1199	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/10/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	88.6
1231	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/11/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	11.2
1199	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/11/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	49.5
1231	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/11/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	16.6
1262	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/12/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	107.3
1170	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/12/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	11.6
1261	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/12/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	32.8
1262	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/12/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	24.9
1263	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/13/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	239.3
1171	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/13/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	9.3
1262	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/13/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	69.7
1233	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/13/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	12.6
1264	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/13/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	129.5
1172	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/14/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	11.1
1263	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/14/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	68.5
1264	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/14/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	34.1
1173	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/14/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	105.6
1265	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/15/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	2.3
1173	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/15/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	-1.6
1266	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/15/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	16.6
1235	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/15/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	21.8
1174	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/16/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	1.1
1266	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/16/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	8.9
1265	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/16/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	0.3
1267	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/16/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	1.1
1175	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/17/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	3.5
1237	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/17/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	6.7
1268	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/18/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	-1.8
1176	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/18/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	7.3
1238	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/18/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	6.7
1269	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/19/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	4.3
1177	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/19/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	9.3
1239	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/19/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	2.1
1269	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/19/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	6.6
1239	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/19/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	11.2
1270	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/19/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	3.6
1270	HERO-WW11-E-CD55	KOREA	X CORPS	CORPS	87/19/31	155H0W	MEDIUM	-1	UNSP	1	UNSP	UNSP	-1.8

DO NAME	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TUBEPTD	SATISQUANT	OPERATION	EDTUTEDAY
1270	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/19/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.8
1271	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/20/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	7.5
1272	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/20/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1.2
1273	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/20/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.6
1274	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/20/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	-1.6
1275	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/21/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.8
1276	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/21/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	18.6
1277	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/21/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	6.3
1278	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/21/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	17.6
1279	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	6.5
1280	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	13.5
1281	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	25.0
1282	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	9.4
1283	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	16.5
1284	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/23/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.1
1285	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/23/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	7.1
1286	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/23/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	7.6
1287	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/23/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	9.3
1288	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	10.6
1289	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	3.9
1290	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/24/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	3.3
1291	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	48.7
1292	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	23.2
1293	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	4.8
1294	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/25/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	64.7
1295	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	38.1
1296	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	32.4
1297	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	6.3
1298	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/27/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	96.3
1299	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	91.6
1300	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	46.2
1301	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	8.1
1302	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/28/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	82.0
1303	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/29/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	74.5
1304	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/29/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	26.1
1305	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/29/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.1
1306	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.1
1307	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	21.3
1308	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	9.3
1309	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/30/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	5.9
1310	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	2.3
1311	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	4.3
1312	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	4.1
1313	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1314	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1315	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1316	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1317	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1318	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1319	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1320	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1321	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1322	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1323	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1324	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1325	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1326	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1327	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1328	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1329	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1330	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1331	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1332	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1333	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1334	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1335	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1336	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1337	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1338	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1339	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1340	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1341	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1342	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1343	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1344	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1345	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1346	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1347	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1348	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1349	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1350	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1351	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1352	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1353	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1354	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1355	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1356	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1357	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1358	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1359	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1360	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1361	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1362	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1363	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1364	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1365	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1366	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1367	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1368	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1369	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1370	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1371	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1372	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1373	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1374	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1375	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1376	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1377	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1378	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1379	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	07/31/51	155HOW	MEDIUM	-1	UNSP	1	UN	

DO LAHART	RECEIPT	SOURCE	BATTLE	UNIT	SIZE	DATE	TURBTYPE	TURBSCAT	SUBSEQUENT	TYPED	DAYS	QUANT	OPERATION	RETURNED
	2256	NERO-W111-E-CDSS	KOREA	XCORPS	CORPS	08/01/51	153NOW	MEDIUM	-1	UNSP	31	UNSP	20.4	
	2257	NERO-W111-E-CDSS	KOREA	XCORPS	CORPS	08/01/51	153NOW	MEDIUM	-1	UNSP	31	UNSP	69.5	
	1976	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/02/51	153NOW	MEDIUM	18	UNSP	1	UNSP	2.7	
	2007	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/02/51	153NOW	MEDIUM	18	UNSP	1	UNSP	11.7	
	2224	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/02/51	153NOW	MEDIUM	18	UNSP	1	UNSP	10.5	
	1977	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/03/51	153NOW	MEDIUM	18	UNSP	1	UNSP	3.6	
	2008	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/03/51	153NOW	MEDIUM	18	UNSP	1	UNSP	7.9	
	2225	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/03/51	153NOW	MEDIUM	18	UNSP	1	UNSP	12.4	
	1978	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/04/51	153NOW	MEDIUM	18	UNSP	1	UNSP	5.2	
	2009	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/04/51	153NOW	MEDIUM	18	UNSP	1	UNSP	13.2	
	2226	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/04/51	153NOW	MEDIUM	18	UNSP	1	UNSP	10.1	
	1979	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/05/51	153NOW	MEDIUM	18	UNSP	1	UNSP	9.3	
	2010	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/05/51	153NOW	MEDIUM	18	UNSP	1	UNSP	13.1	
	2227	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/05/51	153NOW	MEDIUM	18	UNSP	1	UNSP	9.7	
	1980	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/06/51	153NOW	MEDIUM	18	UNSP	1	UNSP	12.1	
	2011	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/06/51	153NOW	MEDIUM	18	UNSP	1	UNSP	5.3	
	2228	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/06/51	153NOW	MEDIUM	18	UNSP	1	UNSP	9.9	
	1981	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/07/51	153NOW	MEDIUM	18	UNSP	1	UNSP	9.2	
	2012	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/07/51	153NOW	MEDIUM	1	UNSP	1	UNSP	6.3	
	2229	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/07/51	153NOW	MEDIUM	18	UNSP	1	UNSP	9.2	
	1982	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/08/51	153NOW	MEDIUM	18	UNSP	1	UNSP	14.2	
	2013	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/08/51	153NOW	MEDIUM	18	UNSP	1	UNSP	32.6	
	2230	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/08/51	153NOW	MEDIUM	18	UNSP	1	UNSP	9.0	
	1983	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/09/51	153NOW	MEDIUM	18	UNSP	1	UNSP	5.7	
	2014	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/09/51	153NOW	MEDIUM	18	UNSP	1	UNSP	9.6	
	2231	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/09/51	153NOW	MEDIUM	18	UNSP	1	UNSP	35.8	
	1984	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	153NOW	MEDIUM	18	UNSP	1	UNSP	8.2	
	2015	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	153NOW	MEDIUM	18	UNSP	1	UNSP	8.2	
	2232	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/10/51	153NOW	MEDIUM	18	UNSP	1	UNSP	10.0	
	1985	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	153NOW	MEDIUM	18	SP	1	UNSP	17.4	
	2016	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	153NOW	MEDIUM	18	SP	1	UNSP	1.6	
	2233	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/11/51	153NOW	MEDIUM	18	UNSP	1	UNSP	4.6	
	1986	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	153NOW	MEDIUM	18	UNSP	1	UNSP	10.8	
	2017	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	153NOW	MEDIUM	18	UNSP	1	UNSP	42.0	
	2234	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/12/51	153NOW	MEDIUM	18	UNSP	1	UNSP	22.2	
	1987	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	153NOW	MEDIUM	18	UNSP	1	UNSP	17.4	
	2018	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	153NOW	MEDIUM	18	UNSP	1	UNSP	11.2	
	2235	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/13/51	153NOW	MEDIUM	18	UNSP	1	UNSP	22.1	
	1988	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	153NOW	MEDIUM	18	UNSP	1	UNSP	24.6	
	2019	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	153NOW	MEDIUM	18	UNSP	1	UNSP	15.4	
	2236	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/14/51	153NOW	MEDIUM	18	UNSP	1	UNSP	19.0	
	1989	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	153NOW	MEDIUM	18	UNSP	1	UNSP	20.0	
	2020	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	153NOW	MEDIUM	18	UNSP	1	UNSP	12.4	
	2237	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/15/51	153NOW	MEDIUM	18	UNSP	1	UNSP	16.7	
	1990	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	153NOW	MEDIUM	18	UNSP	1	UNSP	34.3	
	2021	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	153NOW	MEDIUM	18	UNSP	1	UNSP	3.2	
	2238	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/16/51	153NOW	MEDIUM	18	UNSP	1	UNSP	60.8	
	1991	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	153NOW	MEDIUM	18	UNSP	1	UNSP	90.7	
	2022	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	153NOW	MEDIUM	18	UNSP	1	UNSP	54.3	
	2239	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/17/51	153NOW	MEDIUM	18	UNSP	1	UNSP	164.1	
	1992	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	153NOW	MEDIUM	18	UNSP	1	UNSP	201.0	
	2023	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	153NOW	MEDIUM	18	UNSP	1	UNSP	89.2	
	2240	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/18/51	153NOW	MEDIUM	18	UNSP	1	UNSP	235.6	
	1993	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/19/51	153NOW	MEDIUM	18	UNSP	1	UNSP	112.0	
	2024	NERO-W111-E-CDSS	KOREA	X CORPS	CORPS	08/19/51	153NOW	MEDIUM	18	UNSP	1	UNSP	48.5	

DO LAHANT	Record	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAY	QUANT	OPERATION	RETRUBED
	2024	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/19/51	155H0W	MEDIUM	16	UNSP		1	UNSP	48.5
	2241	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/19/51	155H0W	MEDIUM	16	UNSP		1	UNSP	156.5
	994	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/20/51	155H0W	MEDIUM	16	UNSP		1	UNSP	44.6
	125	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/20/51	155H0W	MEDIUM	16	UNSP		1	UNSP	32.4
	42	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/20/51	155H0W	MEDIUM	16	UNSP		1	UNSP	138.2
	1995	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/21/51	155H0W	MEDIUM	16	UNSP		1	UNSP	55.6
	026	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/21/51	155H0W	MEDIUM	16	UNSP		1	UNSP	62.5
	2243	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/21/51	155H0W	MEDIUM	16	UNSP		1	UNSP	108.2
	1996	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/22/51	155H0W	MEDIUM	16	UNSP		1	UNSP	71.8
	2027	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/22/51	155H0W	MEDIUM	16	UNSP		1	UNSP	21.7
	2244	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/22/51	155H0W	MEDIUM	16	UNSP		1	UNSP	34.1
	1997	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/23/51	155H0W	MEDIUM	16	UNSP		1	UNSP	38.2
	2028	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/23/51	155H0W	MEDIUM	16	UNSP		1	UNSP	29.9
	2245	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/23/51	155H0W	MEDIUM	16	UNSP		1	UNSP	31.0
	1998	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/24/51	155H0W	MEDIUM	16	UNSP		1	UNSP	34.0
	2029	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/24/51	155H0W	MEDIUM	16	UNSP		1	UNSP	32.7
	2246	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/24/51	155H0W	MEDIUM	16	UNSP		1	UNSP	49.2
	1999	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/25/51	155H0W	MEDIUM	16	UNSP		1	UNSP	37.4
	2030	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/25/51	155H0W	MEDIUM	16	UNSP		1	UNSP	38.8
	2247	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/25/51	155H0W	MEDIUM	16	UNSP		1	UNSP	166.7
	2000	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/26/51	155H0W	MEDIUM	16	UNSP		1	UNSP	100.6
	2031	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/26/51	155H0W	MEDIUM	16	UNSP		1	UNSP	68.1
	2248	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/26/51	155H0W	MEDIUM	16	UNSP		1	UNSP	168.9
	2001	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/27/51	155H0W	MEDIUM	16	UNSP		1	UNSP	89.5
	2032	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/27/51	155H0W	MEDIUM	16	UNSP		1	UNSP	119.3
	2249	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/27/51	155H0W	MEDIUM	16	UNSP		1	UNSP	160.0
	2002	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/28/51	155H0W	MEDIUM	16	UNSP		1	UNSP	131.4
	2033	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/28/51	155H0W	MEDIUM	16	UNSP		1	UNSP	24.3
	2250	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/28/51	155H0W	MEDIUM	16	UNSP		1	UNSP	91.8
	2003	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/29/51	155H0W	MEDIUM	16	UNSP		1	UNSP	25.1
	2034	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/29/51	155H0W	MEDIUM	16	UNSP		1	UNSP	173.2
	2251	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/29/51	155H0W	MEDIUM	16	UNSP		1	UNSP	141.5
	2004	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/30/51	155H0W	MEDIUM	16	UNSP		1	UNSP	65.5
	2035	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/30/51	155H0W	MEDIUM	16	UNSP		1	UNSP	157.6
	2252	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/31/51	155H0W	MEDIUM	16	UNSP		1	UNSP	114.0
	2398	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/31/51	155H0W	MEDIUM	16	UNSP		1	UNSP	55.8
	2428	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/31/51	155H0W	MEDIUM	16	UNSP		1	UNSP	142.1
	2034	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	08/31/51	155H0W	MEDIUM	16	UNSP		1	UNSP	21.7
	1772	CG55-E-1	KOREA	US ARMY	THEA	09/01/51	155H0W	MEDIUM	30	ATIN		30	ATIN	21.7
	1978	CG55-E-1	KOREA	US ARMY	THEA	09/01/51	155H0W	MEDIUM	30	UNSP		30	UNSP	21.7
	2254	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155H0W	MEDIUM	30	UNSP		30	UNSP	58.3
	2257	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155H0W	MEDIUM	30	UNSP		30	UNSP	40.8
	2276	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155H0W	MEDIUM	30	UNSP		30	UNSP	69.3
	2399	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155H0W	MEDIUM	16	UNSP		1	UNSP	89.7
	2429	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155H0W	MEDIUM	16	UNSP		1	UNSP	40.1
	2437	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/01/51	155H0W	MEDIUM	16	UNSP		1	UNSP	122.0
	2400	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/02/51	155H0W	MEDIUM	16	UNSP		1	UNSP	79.1
	2430	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/02/51	155H0W	MEDIUM	16	UNSP		1	UNSP	32.5
	2438	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/02/51	155H0W	MEDIUM	16	UNSP		1	UNSP	93.1
	2401	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/03/51	155H0W	MEDIUM	16	UNSP		1	UNSP	76.9
	2431	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/03/51	155H0W	MEDIUM	16	UNSP		1	UNSP	43.5
	2439	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/03/51	155H0W	MEDIUM	16	UNSP		1	UNSP	73.9
	2402	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/04/51	155H0W	MEDIUM	16	UNSP		1	UNSP	36.0
	2432	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/04/51	155H0W	MEDIUM	16	UNSP		1	UNSP	40.0
	2440	NERO-WM11-E-CD55	KOREA	X CORPS	CORPS	09/04/51	155H0W	MEDIUM	16	UNSP		1	UNSP	189.1

DO LAHART Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYQUANT	OPERATION	RETURNEDBY
2840	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/04/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	183.7
2843	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	72.7
2843	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	31.1
2841	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/05/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	67.5
2844	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	23.7
2834	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	3.7
2842	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/06/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	23.0
2845	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	8.0
2843	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	3.0
2843	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/07/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	6.3
2846	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	48.7
2836	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	11.2
2844	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	45.2
2847	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/08/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	38.0
2837	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	33.8
2845	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/09/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	50.8
2848	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	12.3
2838	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	21.0
2846	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/10/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	35.7
2839	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	23.0
2847	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/11/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	9.1
2846	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	41.0
2840	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	21.0
2841	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/12/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	75.9
2841	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/13/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	30.2
2849	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/13/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	46.9
2841	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/13/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	95.5
2842	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	54.5
2842	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	46.3
2838	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/14/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	99.7
2843	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	61.6
2843	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/15/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	91.1
2846	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/16/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	72.0
2852	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/16/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	42.0
2843	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/17/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	80.1
2845	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/17/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	46.1
2853	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/17/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	61.3
2846	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/18/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	29.3
2844	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/18/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	54.0
2854	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/18/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	101.0
2854	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/18/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	74.1
2847	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/19/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	43.3
2855	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/19/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	50.0
2848	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/20/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	92.0
2848	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/20/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	46.0
2856	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/20/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	16.0
2849	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/21/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	70.0
2849	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/21/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	21.0
2857	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/21/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	26.8
2820	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/22/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	25.0
2850	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/22/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	27.3
2856	HERO-WWII-E-CDSS	KOREA	X CORPS	CORPS	09/22/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	59.6

DO LAMANT	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBE TYPE	TUBESCAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	RTTUEDAY
2438	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/23/51	155HOW	MEDIUM	18	UNSP	1	UNSP	39.4
2439	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/23/51	155HOW	MEDIUM	18	UNSP	1	UNSP	32.6
2440	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/23/51	155HOW	MEDIUM	18	UNSP	1	UNSP	18.1
2441	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/23/51	155HOW	MEDIUM	18	UNSP	1	UNSP	39.9
2442	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/24/51	155HOW	MEDIUM	18	UNSP	1	UNSP	29.2
2443	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/24/51	155HOW	MEDIUM	18	UNSP	1	UNSP	36.9
2444	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/24/51	155HOW	MEDIUM	18	UNSP	1	UNSP	46.6
2445	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/25/51	155HOW	MEDIUM	18	UNSP	1	UNSP	15.1
2446	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/25/51	155HOW	MEDIUM	18	UNSP	1	UNSP	35.1
2447	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/26/51	155HOW	MEDIUM	18	UNSP	1	UNSP	36.5
2448	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/26/51	155HOW	MEDIUM	18	UNSP	1	UNSP	16.3
2449	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/26/51	155HOW	MEDIUM	18	UNSP	1	UNSP	27.2
2450	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/27/51	155HOW	MEDIUM	18	UNSP	1	UNSP	181.1
2451	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/27/51	155HOW	MEDIUM	18	UNSP	1	UNSP	19.8
2452	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/27/51	155HOW	MEDIUM	18	UNSP	1	UNSP	26.1
2453	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/28/51	155HOW	MEDIUM	18	UNSP	1	UNSP	63.2
2454	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/28/51	155HOW	MEDIUM	18	UNSP	1	UNSP	16.9
2455	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/28/51	155HOW	MEDIUM	18	UNSP	1	UNSP	24.6
2456	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/29/51	155HOW	MEDIUM	18	UNSP	1	UNSP	47.6
2457	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/29/51	155HOW	MEDIUM	18	UNSP	1	UNSP	11.3
2458	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/29/51	155HOW	MEDIUM	18	UNSP	1	UNSP	16.6
2459	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/30/51	155HOW	MEDIUM	18	UNSP	1	UNSP	51.1
2460	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/30/51	155HOW	MEDIUM	18	UNSP	1	UNSP	24.0
2461	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	09/30/51	155HOW	MEDIUM	18	UNSP	1	UNSP	31.5
2462	HERO-WMII-E-CDSS	KOREA	US ARMY	THEA	10/01/51	155HOW	MEDIUM	-1	UNSP	38	ATEN	29.4
2463	HERO-WMII-E-CDSS	KOREA	US ARMY	THEA	10/01/51	155HOW	MEDIUM	-1	UNSP	31	UNSP	28.4
2464	HERO-WMII-E-CDSS	KOREA	XCORPS	CORPS	10/01/51	155HOW	MEDIUM	-1	UNSP	32	UNSP	75.2
2465	HERO-WMII-E-CDSS	KOREA	XCORPS	CORPS	10/01/51	155HOW	MEDIUM	-1	UNSP	22	UNSP	38.9
2466	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	155HOW	MEDIUM	18	UNSP	22	UNSP	56.6
2467	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	155HOW	MEDIUM	18	UNSP	1	UNSP	64.5
2468	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/01/51	155HOW	MEDIUM	18	UNSP	1	UNSP	48.9
2469	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	155HOW	MEDIUM	18	UNSP	1	UNSP	43.1
2470	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	155HOW	MEDIUM	18	UNSP	1	UNSP	42.1
2471	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/02/51	155HOW	MEDIUM	18	UNSP	1	UNSP	38.0
2472	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/03/51	155HOW	MEDIUM	18	UNSP	1	UNSP	48.3
2473	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/03/51	155HOW	MEDIUM	18	UNSP	1	UNSP	28.5
2474	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/03/51	155HOW	MEDIUM	18	UNSP	1	UNSP	21.2
2475	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	155HOW	MEDIUM	18	UNSP	1	UNSP	32.5
2476	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	155HOW	MEDIUM	18	UNSP	1	UNSP	22.1
2477	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/04/51	155HOW	MEDIUM	18	UNSP	1	UNSP	23.9
2478	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	155HOW	MEDIUM	18	UNSP	1	UNSP	88.4
2479	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/05/51	155HOW	MEDIUM	18	UNSP	1	UNSP	28.0
2480	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	155HOW	MEDIUM	18	UNSP	1	UNSP	84.0
2481	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	155HOW	MEDIUM	18	UNSP	1	UNSP	36.0
2482	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/06/51	155HOW	MEDIUM	18	UNSP	1	UNSP	95.3
2483	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/07/51	155HOW	MEDIUM	18	UNSP	1	UNSP	122.6
2484	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/07/51	155HOW	MEDIUM	18	UNSP	1	UNSP	58.1
2485	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/07/51	155HOW	MEDIUM	18	UNSP	1	UNSP	72.7
2486	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/08/51	155HOW	MEDIUM	18	UNSP	1	UNSP	143.0
2487	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/08/51	155HOW	MEDIUM	18	UNSP	1	UNSP	56.9
2488	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/08/51	155HOW	MEDIUM	18	UNSP	1	UNSP	96.7
2489	HERO-WMII-E-CDSS	KOREA	X CORPS	CORPS	10/09/51	155HOW	MEDIUM	18	UNSP	1	UNSP	114.2

DO NAME	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBE TYPE	TUSECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	ROTUNDRAY
2467	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/09/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	114.2
2468	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/09/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	25.6
2469	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/08/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	104.1
2470	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/10/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	94.2
2471	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/10/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	35.2
2472	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/10/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	58.5
2473	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/11/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	132.3
2474	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/11/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	52.5
2475	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/11/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	96.6
2476	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	68.8
2477	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	32.1
2478	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	56.7
2479	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/12/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	70.4
2480	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/13/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	28.7
2481	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/13/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	78.9
2482	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/14/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	92.8
2483	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/14/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	56.7
2484	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/14/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	75.3
2485	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/15/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	58.3
2486	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/15/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	57.1
2487	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/16/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	85.1
2488	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/16/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	47.2
2489	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/17/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	99.6
2490	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/17/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	36.8
2491	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/18/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	79.1
2492	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/18/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	28.8
2493	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/18/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	42.3
2494	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	50.3
2495	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	35.1
2496	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/19/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	38.3
2497	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/20/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	13.1
2498	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/20/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	32.3
2499	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/20/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	37.9
2500	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/21/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	37.7
2501	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/21/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	31.5
2502	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/21/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	32.5
2503	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/30/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	76.8
2504	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/30/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	43.6
2505	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/30/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	87.8
2506	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/30/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	26.2
2507	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	10/30/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	64.5
2508	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	23.0
2509	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	23.9
2510	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	23.4
2511	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	30.8
2512	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	29.2
2513	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	27.1
2514	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	99.7
2515	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	38.9
2516	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	16.5
2517	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	22.7
2518	HERO-WM11-E-CDSS	KOREA	X CORPS	CORPS	11/01/51	155HOW	MEDIUM	18 UNSP	1	UNSP	1	11.0

DO NAME	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSQUANT	OPERATION	EDUCATION
1369	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.0
1399	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/11/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.2
1400	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	42.2
1510	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	31.6
1540	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	26.3
1570	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	40.6
1600	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.5
1681	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	28.8
1711	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	30.8
1741	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	44.6
1771	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	37.5
1801	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	41.5
1831	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.7
1862	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	7.1
1892	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.2
1922	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.9
1952	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.5
1982	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	36.2
2012	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	15.7
2042	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	49.6
2072	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	11.0
2102	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	35.8
2132	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	43.9
2162	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	33.6
2192	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	28.0
2222	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	37.1
2252	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	51.7
2282	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	47.9
2312	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	41.2
2342	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	33.2
2372	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	55.7
2402	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	28.1
2432	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	22.7
2462	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	27.2
2492	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	30.5
2522	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	55.2
2552	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.0
2582	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	40.1
2612	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.4
2642	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	42.7
2672	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	26.2
2702	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	44.5
2732	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	25.0
2762	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	27.0
2792	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	26.5
2822	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	19.7
2852	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	18.1
2882	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	6.7
2912	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	23.7
2942	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	21.1
2972	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	18.5
3002	NERO-WW11-E-CDSS	KOREA	X CORPS	CORPS	11/12/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	17.9

Record#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBESCT	TUBESQUANT	TYPED	BASEQUANT	OPERATION	EDTUNESDATA
1350	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	17.9
1360	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	7.0
1370	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	60.0
1380	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	94.3
1390	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	20.0
1400	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	84.5
1410	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	22.5
1420	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	29.7
1430	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	10.0
1440	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	37.6
1450	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	52.0
1460	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	10.0
1470	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	30.7
1480	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	49.1
1490	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	25.7
1500	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	57.0
1510	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	12.0
1520	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	64.0
1530	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	25.0
1540	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	25.0
1550	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	00.7
1560	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	32.3
1570	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	32.3
1580	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	7.4
1590	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	48.6
1600	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	0.7
1610	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	30.2
1620	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	37.0
1630	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	24.1
1640	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	117.9
1650	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	1.2
1660	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	30.0
1670	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	15.5
1680	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	10.0
1690	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	11/22/51	155HOW	MEDIUM	-1	UNSP	1	UNSP	35.0
1700	HERO-WN11-E-CDS5	KORE										

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DO	Source	Battle	Unit	Size	Date	TubeType	TubeCst	TubeQuant	TypeSD	Operation	SPOTS/Day
1350	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.1
1361	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	5.2
1412	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	24.2
1443	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	-1.0
1474	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	22.0
1504	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	24.3
1534	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	23.0
1564	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	15.2
1594	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/06/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	50.5
1600	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/07/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	29.0
1620	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/07/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	2.0
1631	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/07/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.0
1644	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/07/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	17.7
1675	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/07/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	32.5
1695	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/07/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	-1.0
1705	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/07/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	42.0
1735	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/07/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	51.7
1765	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/07/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	14.5
1795	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/07/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	50.7
1800	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.0
1821	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	17.2
1852	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	22.7
1882	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	23.9
1914	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	0.2
1945	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	-1.0
1976	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	04.5
1986	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	04.5
1996	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	21.0
1998	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	20.6
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	20.0
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	20.1
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	25.1
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	52.1
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	20.0
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	19.5
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	19.0
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.0
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/51	155HOW	MEDIUM	-1	UNSP	1 UNSP	10.7
1999	HERO-WN11-E-CDS5	KOREA	X CORPS	CORPS	12/08/						

DO LAMART
Records

Record	SOURCE	BATTLE	UNIT	SIZZ	DATE	TUBETYPE	TUBECAT	TUBEOUANT	TYPES	DAYSQUANT	OPERATION	SPYFUBRAY
1449	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/12/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1450	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	16.2
1451	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	22.2
1452	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	16.5
1453	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	6.0
1454	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	28.5
1455	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/13/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1456	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.8
1457	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	15.9
1458	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	29.0
1459	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	28.0
1460	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	9.2
1461	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/14/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1462	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/15/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1463	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/15/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	23.0
1464	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/15/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	14.4
1465	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/15/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1466	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/15/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1467	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	17.5
1468	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	15.7
1469	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	17.0
1470	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	9.2
1471	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	15.5
1472	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/16/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1473	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/17/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	12.5
1474	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/17/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	15.5
1475	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/17/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	22.1
1476	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/17/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	16.0
1477	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/17/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	13.5
1478	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/17/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1479	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/17/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	21.0
1480	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/18/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	28.0
1481	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/18/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	51.0
1482	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/18/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1483	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/18/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	19.2
1484	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.7
1485	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	22.7
1486	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	27.2
1487	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	19.5
1488	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	10.5
1489	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1490	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/19/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	22.1
1491	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/20/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	18.3
1492	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/20/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	16.5
1493	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/20/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	12.2
1494	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/20/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1495	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/20/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	27.8
1496	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	22.6
1497	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	29.7
1498	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	23.4
1499	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	16.7
1500	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	-1.0
1501	HERO-WM11-K-CD55	KOREA	X CORPS	CORPS	12/21/51	153NOW	MEDIUM	-1	UNSP	1	UNSP	25.2

DO LAMART	RECORD	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUART	TYPEED	DATEQUART	OPERATION	RETURNED
1456	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/21/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	25.2		
1304	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	15.1		
1335	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	11.3		
1366	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	18.9		
1367	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	19.6		
1428	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	-1.6		
1459	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	26.5		
1305	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	31.0		
1336	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	22.2		
1367	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	26.9		
1398	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	16.7		
1429	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	-1.0		
1460	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/22/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	28.6		
1306	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	24.6		
1337	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	11.9		
1368	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	14.2		
1399	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	12.0		
1430	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	-1.0		
1461	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/24/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	48.3		
1307	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	6.4		
1338	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	12.5		
1369	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	19.6		
1400	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	5.8		
1431	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	-1.0		
1462	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/25/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	7.9		
1308	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	14.2		
1339	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	26.8		
1370	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	19.6		
1401	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	18.6		
1432	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	-1.0		
1463	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/26/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	22.5		
1309	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	21.0		
1371	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	11.6		
1402	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	-1.0		
1433	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	28.7		
1464	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/27/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	11.0		
1310	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	28.9		
1341	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	19.0		
1372	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	15.2		
1403	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	22.8		
1434	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	15.2		
1465	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/28/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	-1.0		
1311	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	41.0		
1342	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	28.3		
1373	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	19.3		
1404	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	20.5		
1435	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	19.0		
1466	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/29/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	-1.0		
1312	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	26.3		
1343	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	24.3		
1374	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	24.2		
1405	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	32.2		
1436	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	18.6		
1467	HERO-WM11-E-CD55	KOREA	X CORPS	CORPS	12/30/51	155HOW	MEDIUM	-1 UNSP	1 UNSP	1 UNSP	7.2		
											-1.0		
											49.8		

DO LINE#	RECORD#	BATTLE	SOURCE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBE/QUANT	TYPED	DAY/QUANT	OPERATION	REMARKS
	1667	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	12/20/51	155HOM	MEDIUM	-1	UNSP	1	UNSP	49.8
	1618	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	12/31/51	155HOM	MEDIUM	-1	UNSP	1	UNSP	20.0
	1649	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	12/31/51	155HOM	MEDIUM	-1	UNSP	1	UNSP	15.2
	1686	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	12/31/51	155HOM	MEDIUM	-1	UNSP	1	UNSP	19.0
	1711	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	12/31/51	155HOM	MEDIUM	-1	UNSP	1	UNSP	17.7
	1742	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	12/31/51	155HOM	MEDIUM	-1	UNSP	1	UNSP	37.0
	531	KOREA	CML-E-1	US ARMY	TREA	01/01/52	155HOM	MEDIUM	-1	UNSP	31	UNSP	-1.0
	16619	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/01/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	19.7
	1650	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/01/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	31.9
	1681	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/01/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	20.2
	1712	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/01/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	12.0
	1743	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/01/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	20.9
	1620	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/02/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	24.0
	1651	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/02/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	32.0
	1682	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/02/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	19.3
	1713	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/02/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	12.7
	1744	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/02/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	19.0
	1621	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/03/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	15.0
	1652	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/03/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	19.0
	1683	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/03/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	19.0
	1714	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/03/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	24.0
	1745	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/03/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	19.1
	1622	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/04/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	63.2
	1653	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/04/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	70.0
	1684	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/04/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	63.0
	1715	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/04/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	63.1
	1746	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/05/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	49.7
	1623	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/05/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	49.7
	1654	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/05/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	49.9
	1685	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/05/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	53.2
	1716	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/05/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	60.7
	1747	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/05/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	62.0
	1624	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/06/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	54.1
	1655	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/06/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	70.0
	1686	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/06/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	111.1
	1717	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/06/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	64.2
	1748	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/06/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	62.3
	1625	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/07/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	61.0
	1656	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/07/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	63.2
	1687	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/07/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	63.7
	1718	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/07/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	99.1
	1749	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/07/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	102.0
	1626	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/08/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	30.5
	1657	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/08/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	14.0
	1688	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/08/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	8.0
	1719	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/08/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	41.0
	1750	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/08/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	13.0
	1720	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/09/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	31.5
	1751	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/09/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	39.7
	1627	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/10/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	22.7
	1659	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/10/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	24.9
	1710	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/10/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	21.1
	1711	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/10/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	29.6
	1752	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/11/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	23.7
	1619	KOREA	NERO-WM11-E-CDBS	X CORPS	CORPS	01/11/52	155HOM	MEDIUM	-1	UNSP	1	UNSP	20.0

DO LABART	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	BATQUANT	OPERATION	EDTUBEDAY
1019	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	23.7
1020	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	14.4
1021	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	18.3
1022	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	18.3
1023	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	21.0
1024	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	20.7
1025	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	24.0
1026	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	19.0
1027	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1028	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1029	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1030	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1031	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1032	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1033	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1034	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1035	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1036	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1037	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1038	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1039	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1040	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1041	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1042	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1043	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1044	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1045	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1046	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1047	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1048	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1049	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1050	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1051	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1052	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1053	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1054	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1055	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1056	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1057	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1058	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1059	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1060	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1061	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1062	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1063	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1064	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1065	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1066	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1067	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1068	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1069	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1070	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1071	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1072	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1073	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1074	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1075	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1076	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1077	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1078	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1079	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1080	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1081	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1082	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1083	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1084	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1085	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1086	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1087	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1088	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1089	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1090	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1091	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1092	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1093	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1094	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1095	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1096	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1097	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1098	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1099	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1100	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1101	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1102	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1103	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1104	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1105	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1106	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1107	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1108	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1109	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1110	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1111	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1112	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1113	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1114	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1115	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1116	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1117	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1118	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1119	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1120	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1121	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1122	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1123	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1124	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1125	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP	1	UNSP	16.7
1126	MEMO-W011-E-C055	LOREA	X CORPS	CORPS	01/11/52	1530W	MEDIUM	-1	UNSP			

DO	Source	DAY/LE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQWART	TYPED	RAYSQWART	OPERATION	SPOT/ORD
1763	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	9.1
1763	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	25.2
1646	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	27.2
1671	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/22/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	28.2
1762	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	35.6
1723	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	36.9
1764	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	16.0
1661	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	22.3
1672	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	36.9
1763	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	23.6
1736	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	47.9
1765	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/24/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	16.0
1662	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/24/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	17.1
1572	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/24/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	25.8
1764	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/24/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	24.9
1735	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/24/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	26.5
1746	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	39.3
1662	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	15.3
1674	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	25.1
1765	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	18.1
1736	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/23/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	31.0
1747	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/24/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	16.0
1665	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/24/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	26.1
1766	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/24/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	16.9
1737	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/24/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	46.1
1768	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/26/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	24.2
1665	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/27/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	22.0
1676	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/27/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	23.5
1767	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/27/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	23.0
1738	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/27/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	23.0
1769	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/28/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1666	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/28/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	18.0
1677	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/28/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	24.2
1768	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/28/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	24.0
1667	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/29/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	37.0
1678	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/29/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	36.0
1769	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/29/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	36.0
1740	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/29/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	35.9
1771	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/29/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	31.9
1668	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/29/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	31.9
1656	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/29/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	32.7
1679	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/29/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	23.6
1680	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/29/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	23.6
1710	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/30/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	26.4
1741	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/30/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	37.7
1761	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/30/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	37.7
1772	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	01/30/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	30.0
322	CNN-E-1	US ARMY	THEA	THEA	02/01/52	153HOW	MEDIUM	-1	UNSP	20	UNSP	17.0
1774	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/01/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	17.0
1682	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/01/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	19.0
1612	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/01/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	26.7
1661	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/01/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	24.9
1680	NEBO-WM11-E-CDS5	KOREA	X CORPS	CORPS	02/01/52	153HOW	MEDIUM	-1	UNSP	1	UNSP	29.0

[illegible]

Source of 1961

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[illegible]

DO NAME	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	EDTUBEDAY
1906	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/19/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	23 0
1907	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/19/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	16 5
1908	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/20/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	12 9
1909	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/20/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	15 4
1910	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/20/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	11 3
1911	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/20/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	5 5
1912	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/20/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	23 5
1913	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13 4
1914	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	15 6
1915	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19 3
1916	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	10 6
1917	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	16 4
1918	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19 9
1919	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	12 0
1920	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	16 8
1921	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/21/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	24 2
1922	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	11 0
1923	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	29 2
1924	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	18 7
1925	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13 1
1926	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13 1
1927	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	16 9
1928	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	28 2
1929	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/22/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	25 5
1930	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	23 0
1931	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	11 6
1932	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	18 9
1933	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19 1
1934	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	28 6
1935	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	8 9
1936	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	21 9
1937	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13 8
1938	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19 4
1939	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	12 7
1940	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	26 9
1941	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	16 7
1942	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	21 9
1943	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13 3
1944	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	22 6
1945	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	23 1
1946	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	6 1
1947	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	28 2
1948	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	27 5
1949	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	13 1
1950	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	24 1
1951	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	23 2
1952	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19 0
1953	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	25 8
1954	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	19 7
1955	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	17 2
1956	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	22 2
1957	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	25 0
1958	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	24 0
1959	HERO-WWII-E-CD55	KOREA	X CORPS	CORPS	02/23/52	155HOW	MEDIUM	-1	UNSP	1	UNSP	29 9

DO LAMANT	RECORDS	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSQUANT	OPERATION	RETURNED
1917	HERO-WMII-E-CD55		KOREA	K CORPS	CORPS	02/28/52	1530W	MEDIUM	-1	UNSP	1	UNSP	29.9
1946	HERO-WMII-E-CD55		KOREA	K CORPS	CORPS	02/28/52	1530W	MEDIUM	-1	UNSP	1	UNSP	12.9
533	CNN-K-1		KOREA	US ARMY	THEA	03/01/52	1530W	MEDIUM	-1	UNSP	31	UNSP	-1.0
534	CNN-K-1		KOREA	US ARMY	THEA	04/01/52	1530W	MEDIUM	-1	UNSP	30	UNSP	-1.0
790	CNN-K-1		KOREA	US ARMY	THEA	05/01/52	1530W	MEDIUM	-1	UNSP	31	UNSP	-1.0
791	CNN-K-1		KOREA	US ARMY	THEA	06/01/52	1530W	MEDIUM	-1	UNSP	30	UNSP	-1.0
792	CNN-K-1		KOREA	US ARMY	THEA	07/01/52	1530W	MEDIUM	-1	UNSP	31	UNSP	-1.0
793	CNN-K-1		KOREA	US ARMY	THEA	08/01/52	1530W	MEDIUM	-1	UNSP	30	UNSP	-1.0
794	CNN-K-1		KOREA	US ARMY	THEA	09/01/52	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
795	CNN-K-1		KOREA	US ARMY	THEA	10/01/52	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
796	CNN-K-1		KOREA	US ARMY	THEA	11/01/52	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
797	CNN-K-1		KOREA	US ARMY	THEA	12/01/52	1530W	MEDIUM	-1	UNSP	21	UNSP	-1.0
798	CNN-K-1		KOREA	US ARMY	THEA	01/01/53	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
799	CNN-K-1		KOREA	US ARMY	THEA	02/01/53	1530W	MEDIUM	-1	UNSP	20	UNSP	-1.0
800	CNN-K-1		KOREA	US ARMY	THEA	03/01/53	1530W	MEDIUM	-1	UNSP	31	UNSP	-1.0
801	CNN-K-1		KOREA	US ARMY	THEA	04/01/53	1530W	MEDIUM	-1	UNSP	30	UNSP	-1.0
802	CNN-K-1		KOREA	US ARMY	THEA	05/01/53	1530W	MEDIUM	-1	UNSP	31	UNSP	-1.0
803	CNN-K-1		KOREA	US ARMY	THEA	06/01/53	1530W	MEDIUM	-1	UNSP	30	UNSP	-1.0
804	CNN-K-1		KOREA	US ARMY	THEA	07/01/53	1530W	MEDIUM	-1	UNSP	31	UNSP	-1.0
805	CNN-K-1		KOREA	US ARMY	THEA	08/01/53	1530W	MEDIUM	-1	UNSP	31	UNSP	-1.0
807	CNN-VN-1		PRE-TET	US IN DIV	DIV	01/20/67	1530W	MEDIUM	-1	UNSP	100	UNSP	-1.0
808	CNN-VN-1		TET	US IN DIV	DIV	02/01/67	1530W	MEDIUM	-1	UNSP	30	UNSP	-1.0
390	NA-VN-1		OP JUNG CITY	US IN DIV	DIV	02/23/67	1530W	MEDIUM	-1	HE	31	FROM	24.0
394	NA-VN-1		OP JUNG CITY	US IN DIV	DIV	03/15/67	1530W	MEDIUM	-1	HE	31	FROM	42.0
402	NA-VN-3		OP DALLAS	US IN DIV	DIV	05/17/67	1530W	MEDIUM	-1	HE	9	FROM	52.2
398	NA-VN-3		OP BILLINGS	US IN DIV	DIV	06/11/67	1530W	MEDIUM	-1	HE	16	FROM	61.0
413	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/67	1530W	MEDIUM	-1	UNSP	300	UNSP	33.8
420	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/67	1530W	MEDIUM	-1	UNSP	305	UNSP	33.8
438	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/67	1530W	MEDIUM	-1	UNSP	305	UNSP	-1.0
2888	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	07/01/68	1530W	MEDIUM	-1	UNSP	31	UNSP	23.9
2874	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	08/01/68	1530W	MEDIUM	-1	UNSP	31	UNSP	25.4
2889	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	09/01/68	1530W	MEDIUM	-1	UNSP	30	UNSP	24.8
431	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/68	1530W	MEDIUM	-1	UNSP	300	UNSP	23.8
621	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/68	1530W	MEDIUM	-1	UNSP	305	UNSP	23.8
630	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/68	1530W	MEDIUM	-1	UNSP	305	UNSP	-1.0
2886	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/68	1530W	MEDIUM	-1	UNSP	31	UNSP	20.1
2892	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	11/01/68	1530W	MEDIUM	-1	UNSP	30	UNSP	21.4
2898	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	12/01/68	1530W	MEDIUM	-1	UNSP	31	UNSP	27.1
2904	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	01/01/69	1530W	MEDIUM	-1	UNSP	31	UNSP	25.1
2910	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	02/01/69	1530W	MEDIUM	-1	UNSP	28	UNSP	22.1
2916	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	03/01/69	1530W	MEDIUM	-1	UNSP	31	UNSP	27.2
2922	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	05/01/69	1530W	MEDIUM	-1	UNSP	31	UNSP	23.9
433	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	07/01/69	1530W	MEDIUM	-1	UNSP	36	UNSP	23.9
534	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	07/01/69	1530W	MEDIUM	283	UNSP	30	UNSP	27.3
555	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	08/01/69	1530W	MEDIUM	306	UNSP	30	UNSP	28.5
556	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	09/01/69	1530W	MEDIUM	306	UNSP	30	UNSP	26.2
427	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/69	1530W	MEDIUM	-1	UNSP	266	UNSP	28.8
557	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/69	1530W	MEDIUM	269	UNSP	30	UNSP	28.3
602	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/69	1530W	MEDIUM	-1	UNSP	305	UNSP	29.5
640	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	10/01/69	1530W	MEDIUM	-1	UNSP	265	UNSP	-1.0
556	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	11/01/69	1530W	MEDIUM	264	UNSP	30	UNSP	29.6
559	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	12/01/69	1530W	MEDIUM	257	UNSP	30	UNSP	27.4
560	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	01/01/70	1530W	MEDIUM	260	UNSP	30	UNSP	25.6
561	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	02/01/70	1530W	MEDIUM	246	UNSP	30	UNSP	25.5
562	ANC-VN-COLEDV		VIETNAM	US ARMY	THEA	03/01/70	1530W	MEDIUM	229	UNSP	30	UNSP	30.0

DO LAHART	Records	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBE TYPE	TUBECAY	TUBEQUANT	TYPED	DAYSONANT	OPERATION	ESTUDEDAY
562	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	1530W	MEDIUM	228 UNSP	32 UNSP	30.9			
563	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/70	1530W	MEDIUM	181 UNSP	30 UNSP	32.2			
564	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/70	1530W	MEDIUM	170 UNSP	30 UNSP	37.4			
565	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/70	1530W	MEDIUM	168 UNSP	30 UNSP	40.6			
566	PH101-10-1 JUL 76	NONE	AR DIV	DIV	07/30/76	1530W	MEDIUM	-1 NE	1 FROM	50.0			
615	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	1750W	HEAVY	-1 UNSP	300 UNSP	19.9			
617	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	1750W	HEAVY	-1 UNSP	265 UNSP	19.0			
618	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/67	1750W	HEAVY	-1 UNSP	265 UNSP	19.0			
625	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/68	1750W	HEAVY	-1 UNSP	31 UNSP	19.0			
2867	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/68	1750W	HEAVY	-1 UNSP	31 UNSP	19.0			
2873	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/68	1750W	HEAVY	-1 UNSP	31 UNSP	19.0			
2879	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/68	1750W	HEAVY	-1 UNSP	31 UNSP	19.0			
420	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	1750W	HEAVY	-1 UNSP	268 UNSP	18.0			
618	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	1750W	HEAVY	-1 UNSP	265 UNSP	18.0			
628	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	1750W	HEAVY	-1 UNSP	305 UNSP	18.0			
2891	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/68	1750W	HEAVY	-1 UNSP	30 UNSP	19.0			
2892	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/68	1750W	HEAVY	-1 UNSP	31 UNSP	14.0			
2893	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/69	1750W	HEAVY	-1 UNSP	31 UNSP	20.3			
2898	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	1750W	HEAVY	-1 UNSP	31 UNSP	10.3			
415	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/69	1750W	HEAVY	-1 UNSP	31 UNSP	21.2			
2921	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/69	1750W	HEAVY	-1 UNSP	31 UNSP	20.0			
2927	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/69	1750W	HEAVY	-1 UNSP	30 UNSP	19.0			
432	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	1750W	HEAVY	-1 UNSP	30 UNSP	19.0			
542	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	1750W	HEAVY	-1 UNSP	30 UNSP	22.2			
543	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/69	1750W	HEAVY	-1 UNSP	30 UNSP	26.0			
544	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/69	1750W	HEAVY	-1 UNSP	30 UNSP	22.5			
428	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1750W	HEAVY	-1 UNSP	30 UNSP	20.2			
545	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1750W	HEAVY	-1 UNSP	30 UNSP	10.3			
614	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1750W	HEAVY	-1 UNSP	305 UNSP	20.2			
637	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	1750W	HEAVY	-1 UNSP	305 UNSP	-1.0			
546	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/69	1750W	HEAVY	-1 UNSP	42 UNSP	18.0			
547	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/69	1750W	HEAVY	-1 UNSP	36 UNSP	14.0			
548	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/70	1750W	HEAVY	-1 UNSP	30 UNSP	19.2			
549	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/70	1750W	HEAVY	-1 UNSP	37 UNSP	25.1			
550	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/70	1750W	HEAVY	-1 UNSP	46 UNSP	18.4			
551	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/70	1750W	HEAVY	-1 UNSP	30 UNSP	18.1			
552	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/70	1750W	HEAVY	-1 UNSP	62 UNSP	28.1			
553	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/70	1750W	HEAVY	-1 UNSP	58 UNSP	19.5			
394	TOI-WM11-1	ITALY	US ARMY	THEA	08/01/70	1750W	HEAVY	-1 NE	728 ATEN	19.1			
40	HERO-WM11-CDS5	DIADEN	80US IN DIV	DIV	05/11/44	2030W	HEAVY	-1 UNSP	17 BAPD	17.6			
77	HERO-WM11-CDS3	DIADEN	80US IN DIV	DIV	05/11/44	2030W	HEAVY	-1 UNSP	17 BAPD	13.0			
86	HERO-WM11-CDS4	DIADEN	80US IN DIV	DIV	05/11/44	2030W	HEAVY	-1 UNSP	17 BAPD	1.0			
3539	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/12/44	2030W	HEAVY	-1 UNSP	2 ATEN	17.0			
3551	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/14/44	2030W	HEAVY	-1 UNSP	2 ATEN	1.0			
3575	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/16/44	2030W	HEAVY	-1 UNSP	2 ATEN	-1.0			
3567	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/20/44	2030W	HEAVY	-1 UNSP	2 ATEN	8.0			
3563	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/22/44	2030W	HEAVY	-1 UNSP	2 ATEN	13.0			
3597	HERO-WM11-CDS5	DIADEN	85TH US DIV	DIV	05/25/44	2030W	HEAVY	-1 UNSP	2 ATEN	9.6			
268	CMH-WM11-1	WM11 EUR	ALL	THEA	06/01/44	2030W	HEAVY	-1 NE	100 UNSP	4.8			
349	CMH-WM11-3	GERMANY	12US ARMY GP	ARMYGP	06/08/44	2030W	HEAVY	-1 UNSP	100 ATEN	-3.0			
314	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/02/44	2030W	HEAVY	-1 NE	7 ATEN	21.0			
322	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/09/44	2030W	HEAVY	-1 NE	7 ATEN	19.0			
328	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/16/44	2030W	HEAVY	-1 NE	7 ATEN	3.0			
317	CMH-WM11-2	GERMANY	105 ARMY	ARMY	07/23/44	2030W	HEAVY	-1 NE	7 ATEN	1.0			
170	HERO-WM11-CDS5	SARZ	35US IN DIV	DIV	11/02/44	2030W	HEAVY	-1 UNSP	4 BAPD	15.0			
329	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/08/44	2030W	HEAVY	-1 UNSP	2 ATEN	37.0			

DO	LMHNT	Record	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBESCAT	TUBESCAT	TYPED	DATE	OPERATION	SPOT
3228	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/08/44	2030H	HEAVY	2	1 UNSP	2	1 UNSP	37.0	
3229	HERO-WM11-CDS5	DIADEN	405 AR DIV A SDE	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	2	1 UNSP	3.0	
3230	HERO-WM11-CDS5	DIADEN	405 AR DIV B SDE	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3231	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	3	1 UNSP	2.0	
3232	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	3	1 UNSP	1.0	
3233	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3234	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3235	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3236	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3237	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3238	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3239	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3240	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3241	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3242	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3243	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3244	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3245	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3246	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3247	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3248	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3249	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3250	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3251	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3252	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3253	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3254	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3255	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3256	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3257	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3258	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3259	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3260	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3261	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3262	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3263	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3264	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3265	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3266	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3267	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3268	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3269	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3270	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3271	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3272	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3273	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3274	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3275	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3276	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3277	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3278	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3279	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3280	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3281	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3282	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3283	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3284	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3285	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3286	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3287	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3288	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3289	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3290	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3291	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3292	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3293	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3294	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3295	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3296	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3297	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3298	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3299	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3300	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3301	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3302	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3303	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3304	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3305	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3306	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3307	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3308	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3309	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3310	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3311	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3312	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3313	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3314	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3315	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3316	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3317	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3318	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3319	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3320	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3321	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3322	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3323	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3324	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3325	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3326	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3327	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3328	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3329	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3330	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
3331	HERO-WM11-CDS5	DIADEN	80TH US DIV	DIV	11/10/44	2030H	HEAVY	2	1 UNSP	1	1 UNSP	1.0	
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BO	LAUNCH	SOURCE	BATTLE	UNIT	SIZE	DATE	TRETYPE	TUBECAT	TUBEDQUANT	TYPED	DATQUANT	OPERATION	REPTUREDA
221	CMH-WM11-2	GERMANY	105 ARMY	1 ARMY	07/09/44	2030W	HEAVY	-1 HE	7	ATM	28.0	28.0	
222	CMH-WM11-2	GERMANY	105 ARMY	1 ARMY	07/16/44	2030W	HEAVY	-1 HE	7	ATM	3.0	3.0	
223	CMH-WM11-2	GERMANY	105 ARMY	1 ARMY	07/23/44	2030W	HEAVY	-1 HE	7	ATM	4.0	4.0	
224	CMH-WM11-2	GERMANY	105 ARMY	1 ARMY	07/30/44	2030W	HEAVY	-1 HE	7	ATM	4.0	4.0	
169	HERO-WM11-CDS6	SAAR	305 US DIV	DIV	11/08/44	2030W	HEAVY	14 UNSP	27.1	4 SPD	27.1	27.1	
3220	HERO-WM11-CDS6	GERMANY	30TH US DIV	DIV	11/08/44	2030W	HEAVY	-1 UNSP	48.0	2 ATM	48.0	48.0	
97	HERO-WM11-CDS6	GERMANY	405 AB DIV A BDE		11/10/44	2030W	HEAVY	-1 UNSP	2	BATC	26.0	26.0	
168	HERO-WM11-CDS6	GERMANY	405 AB DIV B 2BDE		11/10/44	2030W	HEAVY	-1 UNSP	1	BATC	26.0	26.0	
3277	HERO-WM11-CDS6	SAAR	60TH US DIV	DIV	11/10/44	2030W	HEAVY	2 UNSP	3	ATM	17.5	17.5	
3278	HERO-WM11-CDS6	ITALYAN EUR	6TH US DIV	DIV	11/11/44	2030W	HEAVY	-1 UNSP	1	DETN	37.0	37.0	
3279	HERO-WM11-CDS6	SAAR	305 IN DIV	DIV	11/12/44	2030W	HEAVY	11 UNSP	4	BATC	22.2	22.2	
116	HERO-WM11-CDS6	GERMANY	405 AB DIV A BDE		11/13/44	2030W	HEAVY	-1 UNSP	2	BATC	26.0	26.0	
123	HERO-WM11-CDS6	SAAR	60TH US DIV	DIV	11/14/44	2030W	HEAVY	-1 UNSP	2	BATC	16.0	16.0	
3286	HERO-WM11-CDS6	SAAR	60TH US DIV	DIV	11/14/44	2030W	HEAVY	2 UNSP	1	ATM	-1.0	-1.0	
3287	HERO-WM11-CDS6	SAAR	60TH US DIV	DIV	11/15/44	2030W	HEAVY	2 UNSP	2	ATM	29.5	29.5	
3288	HERO-WM11-CDS6	SAAR	60TH US DIV	DIV	11/15/44	2030W	HEAVY	2 UNSP	2	ATM	29.5	29.5	
106	HERO-WM11-CDS6	SAAR	305 IN DIV	DIV	11/16/44	2030W	HEAVY	14 UNSP	1	BATC	50.6	50.6	
3410	HERO-WM11-CDS6	SAAR	60TH US DIV	DIV	11/16/44	2030W	HEAVY	3 UNSP	1	ATM	37.0	37.0	
105	HERO-WM11-CDS6	SAAR	305 IN DIV	DIV	11/19/44	2030W	HEAVY	13 UNSP	2	BATC	19.6	19.6	
3520	HERO-WM11-CDS6	SAAR	6TH AR DIV	DIV	11/19/44	2030W	HEAVY	1 UNSP	2	ATM	16.0	16.0	
3521	HERO-WM11-CDS6	SAAR	6TH AR DIV	DIV	11/21/44	2030W	HEAVY	10 UNSP	2	BATC	26.7	26.7	
3569	HERO-WM11-CDS6	SAAR	6TH AR DIV	DIV	11/21/44	2030W	HEAVY	4 UNSP	2	ATM	16.5	16.5	
3570	HERO-WM11-CDS6	SAAR	305 IN DIV	DIV	11/23/44	2030W	HEAVY	6 UNSP	3	BATC	7.2	7.2	
3408	HERO-WM11-CDS6	SAAR	6TH AR DIV	DIV	11/23/44	2030W	HEAVY	6 UNSP	2	ATM	9.0	9.0	
3409	HERO-WM11-CDS6	SAAR	6TH AR DIV	DIV	11/23/44	2030W	HEAVY	2 UNSP	3	ATM	22.0	22.0	
3421	HERO-WM11-CDS6	SAAR	6TH US DIV	DIV	11/25/44	2030W	HEAVY	14 UNSP	2	ATM	13.4	13.4	
3467	HERO-WM11-CDS6	GERMANY	6TH AR DIV	DIV	11/25/44	2030W	HEAVY	2 UNSP	1	BATC	17.5	17.5	
138	HERO-WM11-CDS6	GERMANY	405 AB DIV	DIV	11/26/44	2030W	HEAVY	6 UNSP	3	BATC	7.8	7.8	
140	HERO-WM11-CDS6	GERMANY	405 AB DIV	DIV	11/27/44	2030W	HEAVY	5 UNSP	8	ATM	14.4	14.4	
3476	HERO-WM11-CDS6	SAAR	6TH AR DIV	DIV	11/27/44	2030W	HEAVY	2 UNSP	3	ATM	22.5	22.5	
3432	HERO-WM11-CDS6	SAAR	60TH US DIV	DIV	11/28/44	2030W	HEAVY	8 UNSP	2	BATC	13.8	13.8	
156	HERO-WM11-CDS6	GERMANY	60TH US DIV	DIV	12/01/44	2030W	HEAVY	12 UNSP	1	ATM	37.4	37.4	
3443	HERO-WM11-CDS6	SAAR	60TH US DIV	DIV	12/04/44	2030W	HEAVY	-1 UNSP	1	ATM	-1.8	-1.8	
3463	HERO-WM11-CDS6	SAAR	6TH AR DIV	DIV	12/04/44	2030W	HEAVY	-1 UNSP	1	ATM	17.0	17.0	
3534	HERO-WM11-CDS6	SAAR	6TH AR DIV	DIV	12/05/44	2030W	HEAVY	2 UNSP	2	BATC	9.7	9.7	
154	HERO-WM11-CDS6	GERMANY	405 AB DIV	DIV	12/06/44	2030W	HEAVY	15 UNSP	2	ATM	3.7	3.7	
224	HERO-WM11-CDS6	SAAR	305 IN DIV	DIV	12/06/44	2030W	HEAVY	3 UNSP	2	BATC	16.7	16.7	
242	HERO-WM11-CDS6	ARDENNES	90TH US DIV	DIV	12/10/44	2030W	HEAVY	3 UNSP	2	PD	20.7	20.7	
3240	HERO-WM11-CDS6	ITALYAN EUR	4TH US DIV	DIV	12/10/44	2030W	HEAVY	-1 UNSP	2	DETN	-1.0	-1.0	
3272	HERO-WM11-CDS6	ITALYAN EUR	2D US DIV	DIV	12/16/44	2030W	HEAVY	-1 UNSP	2	DETN	30.7	30.7	
3206	HERO-WM11-CDS6	ITALYAN EUR	90TH US DIV	DIV	12/16/44	2030W	HEAVY	-1 UNSP	2	DETN	30.7	30.7	
358	HERO-WM11-CDS6	ARDENNES	90TH US DIV	DIV	12/16/44	2030W	HEAVY	3 WMCZ	2	PD	45.7	45.7	
3231	HERO-WM11-CDS6	ITALYAN EUR	4TH US DIV	DIV	12/18/44	2030W	HEAVY	-1 UNSP	2	DETN	-1.0	-1.0	
3284	HERO-WM11-CDS6	ITALYAN EUR	2D US DIV	DIV	12/18/44	2030W	HEAVY	-1 UNSP	2	DETN	45.7	45.7	
3217	HERO-WM11-CDS6	ITALYAN EUR	90TH US DIV	DIV	12/18/44	2030W	HEAVY	-1 UNSP	2	DETN	45.7	45.7	
3262	HERO-WM11-CDS6	ITALYAN EUR	4TH US DIV	DIV	12/18/44	2030W	HEAVY	-1 UNSP	2	DETN	-1.0	-1.0	
3122	HERO-WM11-CDS6	ROER RIVER	XIII CORPS	CORPS	02/22/45	2030W	HEAVY	12 UNSP	1	UNSP	30.6	30.6	
3135	HERO-WM11-CDS6	ROER RIVER	XIX CORPS	CORPS	02/22/45	2030W	HEAVY	1 UNSP	1	UNSP	51.9	51.9	
3162	HERO-WM11-CDS6	ROER RIVER	9TH US ARMY	ARMY	02/23/45	2030W	HEAVY	25 UNSP	1	UNSP	-1.0	-1.0	
3152	HERO-WM11-CDS6	ROER RIVER	9TH US ARMY	ARMY	02/23/45	2030W	HEAVY	36 UNSP	1	UNSP	-1.0	-1.0	
3166	HERO-WM11-CDS6	ROER RIVER	XIII CORPS	CORPS	02/23/45	2030W	HEAVY	12 UNSP	1	UNSP	31.3	31.3	
3175	HERO-WM11-CDS6	ROER RIVER	XIX CORPS	CORPS	02/23/45	2030W	HEAVY	26 UNSP	1	UNSP	90.5	90.5	
3169	HERO-WM11-CDS6	BRINE CROSS	XIII CORPS	CORPS	03/10/45	2030W	HEAVY	9 UNSP	1	UNSP	7.5	7.5	
3181	HERO-WM11-CDS6	BRINE CROSS	XIII CORPS	CORPS	03/10/45	2030W	HEAVY	40 UNSP	1	UNSP	1.3	1.3	
3182	HERO-WM11-CDS6	BRINE CROSS	XIII CORPS	CORPS	03/19/45	2030W	HEAVY	24 UNSP	1	UNSP	4	4	

[illegible]

DO NAME#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBE#TYPE	TUBE#CT	TUBE#QWNT	TYPE#D	DATE#QWNT	OPERATION	REMARKS	
2064	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/17/51	203NOW	HEAVY	1	UNSP	1	UNSP	91	
2065	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/18/51	203NOW	HEAVY	1	UNSP	1	UNSP	171.5	
2066	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/19/51	203NOW	HEAVY	1	UNSP	1	UNSP	79.5	
2067	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/20/51	203NOW	HEAVY	1	UNSP	1	UNSP	40.9	
2068	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/21/51	203NOW	HEAVY	1	UNSP	1	UNSP	25.5	
2069	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/22/51	203NOW	HEAVY	1	UNSP	1	UNSP	14.0	
2070	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/23/51	203NOW	HEAVY	1	UNSP	1	UNSP	27.0	
2071	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/24/51	203NOW	HEAVY	1	UNSP	1	UNSP	70.6	
2072	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/25/51	203NOW	HEAVY	1	UNSP	1	UNSP	46.3	
2073	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/26/51	203NOW	HEAVY	1	UNSP	1	UNSP	97.4	
2074	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/27/51	203NOW	HEAVY	1	UNSP	1	UNSP	21.3	
2075	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/28/51	203NOW	HEAVY	1	UNSP	1	UNSP	10.8	
2076	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/29/51	203NOW	HEAVY	1	UNSP	1	UNSP	42.2	
2077	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/30/51	203NOW	HEAVY	1	UNSP	1	UNSP	20.5	
2078	NERO-W111-E-C055	KOREA	X CORPS	CORPS	08/31/51	203NOW	HEAVY	1	UNSP	1	UNSP	77.3	
2079	NERO-W111-E-C055	KOREA	US ARMY	THEA	09/01/51	203NOW	HEAVY	20	ATEN	20	ATEN	20.8	
2080	NERO-W111-E-C055	KOREA	US ARMY	THEA	09/01/51	203NOW	HEAVY	30	UNSP	30	UNSP	20.8	
2081	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/01/51	203NOW	HEAVY	32	1	UNSP	1	UNSP	84.3
2082	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/02/51	203NOW	HEAVY	1	UNSP	1	UNSP	70.3	
2083	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/03/51	203NOW	HEAVY	1	UNSP	1	UNSP	44.4	
2084	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/04/51	203NOW	HEAVY	1	UNSP	1	UNSP	19.8	
2085	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/05/51	203NOW	HEAVY	1	UNSP	1	UNSP	3.7	
2086	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/06/51	203NOW	HEAVY	1	UNSP	1	UNSP	11.3	
2087	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/07/51	203NOW	HEAVY	1	UNSP	1	UNSP	-1.0	
2088	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/08/51	203NOW	HEAVY	1	UNSP	1	UNSP	21.7	
2089	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/09/51	203NOW	HEAVY	1	UNSP	1	UNSP	40.3	
2090	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/10/51	203NOW	HEAVY	1	UNSP	1	UNSP	39.1	
2091	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/11/51	203NOW	HEAVY	1	UNSP	1	UNSP	10.0	
2092	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/12/51	203NOW	HEAVY	1	UNSP	1	UNSP	25.4	
2093	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/13/51	203NOW	HEAVY	1	UNSP	1	UNSP	61.3	
2094	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/14/51	203NOW	HEAVY	1	UNSP	1	UNSP	31.7	
2095	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/15/51	203NOW	HEAVY	1	UNSP	1	UNSP	43.6	
2096	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/16/51	203NOW	HEAVY	1	UNSP	1	UNSP	24.0	
2097	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/17/51	203NOW	HEAVY	1	UNSP	1	UNSP	12.0	
2098	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/18/51	203NOW	HEAVY	1	UNSP	1	UNSP	37.0	
2099	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/19/51	203NOW	HEAVY	1	UNSP	1	UNSP	1	
2100	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/20/51	203NOW	HEAVY	1	UNSP	1	UNSP	37.5	
2101	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/21/51	203NOW	HEAVY	1	UNSP	1	UNSP	20.9	
2102	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/22/51	203NOW	HEAVY	1	UNSP	1	UNSP	31.7	
2103	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/23/51	203NOW	HEAVY	1	UNSP	1	UNSP	40.7	
2104	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/24/51	203NOW	HEAVY	1	UNSP	1	UNSP	20.4	
2105	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/25/51	203NOW	HEAVY	1	UNSP	1	UNSP	26.6	
2106	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/26/51	203NOW	HEAVY	1	UNSP	1	UNSP	26.4	
2107	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/27/51	203NOW	HEAVY	1	UNSP	1	UNSP	19.6	
2108	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/28/51	203NOW	HEAVY	1	UNSP	1	UNSP	8.2	
2109	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/29/51	203NOW	HEAVY	1	UNSP	1	UNSP	10.1	
2110	NERO-W111-E-C055	KOREA	X CORPS	CORPS	09/30/51	203NOW	HEAVY	1	UNSP	1	UNSP	32.9	
2111	NERO-W111-E-C055	KOREA	US ARMY	THEA	10/01/51	203NOW	HEAVY	20	ATEN	20	ATEN	41.7	
2112	NERO-W111-E-C055	KOREA	US ARMY	THEA	10/01/51	203NOW	HEAVY	31	UNSP	31	UNSP	61.7	
2113	NERO-W111-E-C055	KOREA	X CORPS	CORPS	10/01/51	203NOW	HEAVY	22	UNSP	22	UNSP	81.1	
2114	NERO-W111-E-C055	KOREA	X CORPS	CORPS	10/01/51	203NOW	HEAVY	1	UNSP	1	UNSP	40.3	
2115	NERO-W111-E-C055	KOREA	X CORPS	CORPS	10/02/51	203NOW	HEAVY	1	UNSP	1	UNSP	92.4	
2116	NERO-W111-E-C055	KOREA	X CORPS	CORPS	10/03/51	203NOW	HEAVY	1	UNSP	1	UNSP	10.0	
2117	NERO-W111-E-C055	KOREA	X CORPS	CORPS	10/04/51	203NOW	HEAVY	1	UNSP	1	UNSP	42.0	

RECORD SOURCE

TABLE

UNIT

3215

DATE _____

2112

SECRET

CONCLUSIONS

ANTICIPATION

WEDNESDAY

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DO NAME	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPEID	DAYQUANT	OPERATION	REMARKS
2600	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	2030W	HEAVY	-1	UNSP	365	UNSP	-1.0
2601	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/68	2030W	HEAVY	-1	UNSP	31	UNSP	15.8
2602	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	11/01/68	2030W	HEAVY	-1	UNSP	30	UNSP	10.1
2603	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	12/01/68	2030W	HEAVY	-1	UNSP	31	UNSP	10.0
2604	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	01/01/69	2030W	HEAVY	-1	UNSP	31	UNSP	10.1
2605	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	02/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	20.0
2606	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	03/01/69	2030W	HEAVY	-1	UNSP	31	UNSP	23.4
2607	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	04/01/69	2030W	HEAVY	-1	UNSP	31	UNSP	20.0
2608	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	05/01/69	2030W	HEAVY	-1	UNSP	31	UNSP	20.0
2609	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	06/01/69	2030W	HEAVY	-1	UNSP	31	UNSP	10.0
2610	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	07/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	15.8
2611	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	08/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	24.3
2612	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	09/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	20.1
2613	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	20.1
2614	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2615	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.2
2616	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2617	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2618	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2619	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2620	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2621	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2622	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2623	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2624	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2625	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2626	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2627	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2628	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2629	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2630	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2631	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2632	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2633	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2634	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2635	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2636	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2637	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2638	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2639	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2640	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2641	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2642	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2643	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2644	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2645	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2646	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2647	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2648	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2649	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2650	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2651	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2652	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2653	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2654	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2655	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2656	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2657	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2658	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2659	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2660	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2661	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2662	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2663	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2664	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2665	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2666	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2667	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2668	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2669	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2670	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2671	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2672	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2673	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2674	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2675	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2676	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2677	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2678	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2679	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2680	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2681	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2682	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2683	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2684	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2685	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2686	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2687	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2688	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2689	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2690	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2691	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2692	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2693	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2694	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2695	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2696	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2697	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2698	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2699	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2700	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2701	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2702	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2703	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2704	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2705	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2706	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP	30	UNSP	23.5
2707	ANC-VN-COLEDV	VIETNAM	US ARMY	THEA	10/01/69	2030W	HEAVY	-1	UNSP			

DO LAMANT	RECORDS	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBESQUANT	TYPED	DAYSOVANT	OPERATION	EDYBSEDZ
	188	HERO-WWII-CDS	SAAR	3505 IN DIV	DIV	11/18/44	240HOM	HEAVY	2 UNSP	1 BADL			15.5
	3112	HERO-WWII-CDS	SAAR	80TH US DIV	DIV	11/18/44	240HOM	HEAVY	2 UNSP	1 ATEN			15.8
	197	HERO-WWII-CDS	SAAR	3505 IN DIV	DIV	11/19/44	240HOM	HEAVY	2 UNSP	2 BAPD			2.5
	3222	HERO-WWII-CDS	SAAR	8TH AR DIV	DIV	11/19/44	240HOM	HEAVY	2 UNSP	2 ATEN			2.5
	206	HERO-WWII-CDS	SAAR	3505 IN DIV	DIV	11/21/44	240HOM	HEAVY	2 UNSP	2 BAPD			2.5
	3111	HERO-WWII-CDS	SAAR	4TH AR DIV	DIV	11/21/44	240HOM	HEAVY	2 UNSP	2 ATEN			2.5
	216	HERO-WWII-CDS	SAAR	3505 IN DIV	DIV	11/23/44	240HOM	HEAVY	2 UNSP	2 BAPD			2.5
	3500	HERO-WWII-CDS	SAAR	8TH AR DIV	DIV	11/23/44	240HOM	HEAVY	2 UNSP	2 ATEN			2.5
	3423	HERO-WWII-CDS	SAAR	80TH US DIV	DIV	11/25/44	240HOM	HEAVY	2 UNSP	3 ATEN			7.5
	3489	HERO-WWII-CDS	SAAR	8TH AR DIV	DIV	11/25/44	240HOM	HEAVY	2 UNSP	2 ATEN			10.0
	132	HERO-WWII-CDS	GERMANY	4US AR DIV	DIV	11/26/44	240HOM	HEAVY	2 UNSP	1 BAPD			5.0
	142	HERO-WWII-CDS	GERMANY	4US AR DIV	DIV	11/27/44	240HOM	HEAVY	2 UNSP	2 BAPD			5.0
	3478	HERO-WWII-CDS	SAAR	8TH AR DIV	DIV	11/27/44	240HOM	HEAVY	3 UNSP	8 ATEN			6.0
	3434	HERO-WWII-CDS	SAAR	80TH US DIV	DIV	11/28/44	240HOM	HEAVY	1 UNSP	3 ATEN			17.0
	152	HERO-WWII-CDS	GERMANY	4US AR DIV	DIV	12/01/44	240HOM	HEAVY	4 UNSP	2 BAPD			6.5
	224	HERO-WWII-CDS	SAAR	3505 IN DIV	DIV	12/04/44	240HOM	HEAVY	3 UNSP	1 BAPD			19.7
	3465	HERO-WWII-CDS	SAAR	80TH US DIV	DIV	12/04/44	240HOM	HEAVY	3 UNSP	1 ATEN			15.7
	3467	HERO-WWII-CDS	SAAR	8TH AR DIV	DIV	12/04/44	240HOM	HEAVY	3 UNSP	1 ATEN			19.7
	3156	HERO-WWII-CDS	SAAR	8TH AR DIV	DIV	12/05/44	240HOM	HEAVY	3 UNSP	2 ATEN			2.3
	161	HERO-WWII-CDS	GERMANY	4US AR DIV	DIV	12/06/44	240HOM	HEAVY	3 UNSP	2 BAPD			2.3
	3242	HERO-WWII-CDS	SAAR	3505 IN DIV	DIV	12/16/44	240HOM	HEAVY	-1 UNSP	1 BADL			2.0
	3275	HERO-WWII-CDS	ITALYANW EUR 2D US DIV	DIV	12/16/44	240HOM	HEAVY	-1 UNSP	2 DEFN				-1.0
	3308	HERO-WWII-CDS	ITALYANW EUR 9TH US DIV	DIV	12/16/44	240HOM	HEAVY	-1 UNSP	2 DEFN				-1.0
	3253	HERO-WWII-CDS	ITALYANW EUR 4TH US DIV	DIV	12/18/44	240HOM	HEAVY	-1 UNSP	2 DEFN				-1.0
	3286	HERO-WWII-CDS	ITALYANW EUR 2D US DIV	DIV	12/18/44	240HOM	HEAVY	-1 UNSP	2 DEFN				-1.0
	3319	HERO-WWII-CDS	ITALYANW EUR 9TH US DIV	DIV	12/18/44	240HOM	HEAVY	-1 UNSP	2 DEFN				-1.0
	3264	HERO-WWII-CDS	ITALYANW EUR 4TH US DIV	DIV	12/20/44	240HOM	HEAVY	-1 UNSP	2 DEFN				-1.0
	3129	HERO-WWII-CDS	ROER RIVER XVI CORPS	CORPS	02/22/45	240HOM	HEAVY	-1 UNSP	1 UNSP				-1.0
	3144	HERO-WWII-CDS	ROER RIVER 9TH US ARMY	ARMY	02/22/45	240HOM	HEAVY	18 UNSP	1 UNSP				-1.0
	3154	HERO-WWII-CDS	ROER RIVER 9TH US ARMY	ARMY	02/23/45	240HOM	HEAVY	18 UNSP	1 UNSP				-1.0
	3159	HERO-WWII-CDS	ROER RIVER 9TH US ARMY	ARMY	02/23/45	240HOM	HEAVY	18 UNSP	1 UNSP				-1.0
	719	CNH-K-1	KOREA	US ARMY	THEA	10/01/51	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	720	CNH-K-1	KOREA	US ARMY	THEA	10/01/51	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	721	CNH-K-1	KOREA	US ARMY	THEA	12/01/51	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	722	CNH-K-1	KOREA	US ARMY	THEA	01/01/52	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	723	CNH-K-1	KOREA	US ARMY	THEA	02/01/52	240HOM	HEAVY	-1 UNSP	29 UNSP			-1.0
	724	CNH-K-1	KOREA	US ARMY	THEA	03/01/52	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	725	CNH-K-1	KOREA	US ARMY	THEA	04/01/52	240HOM	HEAVY	-1 UNSP	30 UNSP			-1.0
	726	CNH-K-1	KOREA	US ARMY	THEA	05/01/52	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	727	CNH-K-1	KOREA	US ARMY	THEA	06/01/52	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	728	CNH-K-1	KOREA	US ARMY	THEA	07/01/52	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	729	CNH-K-1	KOREA	US ARMY	THEA	08/01/52	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	730	CNH-K-1	KOREA	US ARMY	THEA	09/01/52	240HOM	HEAVY	-1 UNSP	30 UNSP			-1.0
	731	CNH-K-1	KOREA	US ARMY	THEA	10/01/52	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	732	CNH-K-1	KOREA	US ARMY	THEA	11/01/52	240HOM	HEAVY	-1 UNSP	30 UNSP			-1.0
	733	CNH-K-1	KOREA	US ARMY	THEA	12/01/52	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	734	CNH-K-1	KOREA	US ARMY	THEA	01/01/53	240HOM	HEAVY	-1 UNSP	26 UNSP			-1.0
	735	CNH-K-1	KOREA	US ARMY	THEA	02/01/53	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	736	CNH-K-1	KOREA	US ARMY	THEA	03/01/53	240HOM	HEAVY	-1 UNSP	30 UNSP			-1.0
	737	CNH-K-1	KOREA	US ARMY	THEA	04/01/53	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	738	CNH-K-1	KOREA	US ARMY	THEA	05/01/53	240HOM	HEAVY	-1 UNSP	30 UNSP			-1.0
	739	CNH-K-1	KOREA	US ARMY	THEA	06/01/53	240HOM	HEAVY	-1 UNSP	30 UNSP			-1.0
	740	CNH-K-1	KOREA	US ARMY	THEA	07/01/53	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0
	741	CNH-K-1	KOREA	US ARMY	THEA	08/01/53	240HOM	HEAVY	-1 UNSP	31 UNSP			-1.0

DO LAMART	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	EDTUBESDAY
Records											
741	KOREA	US ARMY	THEA	08/01/52	2400W	HEAVY	-1	UNSP	31	UNSP	-1.9
740	DIADEN	800S IN DIV	DIV	05/11/44	HEAVY	HEAVY	16	UNSP	17	BADP	105.1
81	DIADEN	800S IN DIV	DIV	05/11/44	HEAVY	HEAVY	16	UNSP	17	BADP	32.7
93	DIADEN	800S IN DIV	DIV	05/11/44	HEAVY	HEAVY	16	UNSP	17	BADP	99.2
3543	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	105.1
3555	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	39.2
3579	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	66.5
3371	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	12.8
3567	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3591	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	17.5
3333	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
101	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
111	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3382	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3300	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
180	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
119	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
125	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3113	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3393	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3404	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3532	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
191	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3415	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
199	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3525	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
209	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3514	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
219	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3503	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3426	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3492	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
135	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
145	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3481	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3437	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
155	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
227	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3448	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3470	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3459	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
163	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
237	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
246	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3215	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3245	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3278	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3311	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
254	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3222	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3256	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3289	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2
3267	DIADEN	800S IN DIV	DIV	05/12/44	HEAVY	HEAVY	16	UNSP	2	ATEM	20.2

DO LAMANT	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	ESTIMATED
3267	HERO-WWII-CDSS	ITALYANW	4TH US DIV	DIV	12/20/44	HEAVY	HEAVY	-1 UNSP		3 DEFN		54.3
3229	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/22/44	HEAVY	HEAVY	4 UNSP		2 DEFN		54.3
68	HERO-WWII-CDSS	DIADEN	80US IN DIV	DIV	05/11/44	LIGHT		72 UNSP		11 BAPD		103.6
79	HERO-WWII-CDSS	DIADEN	80US IN DIV	DIV	05/11/44	LIGHT		12 UNSP		17 BAPD		46.8
91	HERO-WWII-CDSS	DIADEN	80US IN DIV	DIV	05/11/44	LIGHT		72 UNSP		17 BAPD		46.8
3541	HERO-WWII-CDSS	DIADEN	80US IN DIV	DIV	05/12/44	LIGHT	LIGHT	96 UNSP		2 ATEN		108.6
3552	HERO-WWII-CDSS	DIADEN	80US IN DIV	DIV	05/12/44	LIGHT	LIGHT	102 UNSP		2 ATEN		108.6
3577	HERO-WWII-CDSS	DIADEN	80US IN DIV	DIV	05/16/44	LIGHT	LIGHT	66 UNSP		2 ATEN		51.8
3565	HERO-WWII-CDSS	DIADEN	80US IN DIV	DIV	05/20/44	LIGHT	LIGHT	36 UNSP		2 ATEN		16.3
3565	HERO-WWII-CDSS	DIADEN	80US IN DIV	DIV	05/22/44	LIGHT	LIGHT	66 UNSP		2 ATEN		57.7
3588	HERO-WWII-CDSS	DIADEN	80US IN DIV	DIV	05/23/44	LIGHT	LIGHT	72 UNSP		2 ATEN		9.6
172	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/08/44	LIGHT	LIGHT	29 UNSP		4 BAPD		46.1
3331	HERO-WWII-CDSS	DIADEN	30TH US DIV	DIV	11/08/44	LIGHT	LIGHT	-1 UNSP		2 ATEN		72.7
100	HERO-WWII-CDSS	GERMANY	4US AR DIV A BDE	BDE	11/10/44	LIGHT		9 UNSP		2 BAPD		0.3
109	HERO-WWII-CDSS	GERMANY	4US AR DIV B BDE	BDE	11/10/44	LIGHT		18 UNSP		1 BAPD		21.7
3105	HERO-WWII-CDSS	SAAR	63SDIV	DIV	11/10/44	LIGHT	LIGHT	36 UNSP		3 ATEN		34.3
3380	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/10/44	LIGHT	LIGHT	45 UNSP		2 ATEN		28.8
3298	HERO-WWII-CDSS	ITALYANW	4TH US DIV	DIV	11/11/44	LIGHT	LIGHT	-1 UNSP		1 DEFN		42.3
179	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/12/44	LIGHT		24 UNSP		4 BAPD		68.3
117	HERO-WWII-CDSS	GERMANY	4US AR DIV B BDE	BDE	11/13/44	LIGHT		16 UNSP		2 BAPD		27.8
124	HERO-WWII-CDSS	GERMANY	4US AR DIV A BDE	BDE	11/14/44	LIGHT		54 UNSP		1 ATEN		78.8
3111	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/14/44	LIGHT	LIGHT	48 UNSP		2 ATEN		20.6
3391	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/14/44	LIGHT	LIGHT	48 UNSP		2 ATEN		30.8
3402	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/15/44	LIGHT	LIGHT	27 UNSP		2 ATEN		76.1
3530	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/15/44	LIGHT	LIGHT	96 UNSP		1 BAPD		54.1
188	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/18/44	LIGHT	LIGHT	48 UNSP		1 ATEN		50.1
3413	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/18/44	LIGHT	LIGHT	24 UNSP		2 BAPD		41.8
198	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/18/44	LIGHT	LIGHT	36 UNSP		2 ATEN		21.8
3523	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/19/44	LIGHT	LIGHT	24 UNSP		2 BAPD		45.2
207	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/21/44	LIGHT	LIGHT	36 UNSP		2 ATEN		61.7
3512	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/21/44	LIGHT	LIGHT	24 UNSP		2 BAPD		20.9
217	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/23/44	LIGHT	LIGHT	36 UNSP		2 ATEN		35.8
3501	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/23/44	LIGHT	LIGHT	48 UNSP		3 ATEN		47.6
3424	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/25/44	LIGHT	LIGHT	36 UNSP		2 ATEN		63.3
3498	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/26/44	LIGHT	LIGHT	36 UNSP		1 BAPD		37.3
133	HERO-WWII-CDSS	GERMANY	4US AR DIV	DIV	11/26/44	LIGHT		54 UNSP		3 BAPD		31.6
143	HERO-WWII-CDSS	GERMANY	4US AR DIV	DIV	11/27/44	LIGHT	LIGHT	28 UNSP		8 ATEN		28.8
3478	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/27/44	LIGHT	LIGHT	48 UNSP		3 ATEN		23.7
3435	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	11/28/44	LIGHT	LIGHT	54 UNSP		2 BAPD		63.7
153	HERO-WWII-CDSS	GERMANY	35US IN DIV	DIV	12/01/44	LIGHT	LIGHT	24 UNSP		1 BAPD		73.6
225	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	12/01/44	LIGHT	LIGHT	36 UNSP		1 ATEN		76.8
3446	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	12/04/44	LIGHT	LIGHT	36 UNSP		2 ATEN		57.6
3465	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	12/05/44	LIGHT	LIGHT	36 UNSP		2 ATEN		18.8
3457	HERO-WWII-CDSS	SAAR	80TH US DIV	DIV	12/06/44	LIGHT	LIGHT	27 UNSP		2 BAPD		42.8
162	HERO-WWII-CDSS	GERMANY	4US AR DIV	DIV	12/06/44	LIGHT		24 UNSP		1 BAPD		43.6
235	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	12/16/44	LIGHT	LIGHT	6 UNSP		2 PD		105.2
244	HERO-WWII-CDSS	ARDENNES	99US IN DIV	DIV	12/16/44	LIGHT	LIGHT	12 UNSP		1 DEFN		45.1
3213	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	LIGHT	LIGHT	15 UNSP		6 DEFN		57.5
3243	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	LIGHT	LIGHT	-1 UNSP		2 DEFN		45.1
3276	HERO-WWII-CDSS	ITALYANW	4TH US DIV	DIV	12/16/44	LIGHT	LIGHT	-1 UNSP		2 DEFN		84.7
3309	HERO-WWII-CDSS	ITALYANW	99TH US DIV	DIV	12/16/44	LIGHT	LIGHT	-1 UNSP		2 DEFN		105.2
252	HERO-WWII-CDSS	ARDENNES	99US IN DIV	DIV	12/16/44	LIGHT	LIGHT	6 UNSP		2 PD		63.8
3220	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	LIGHT	LIGHT	12 UNSP		1 DEFN		105.8
3254	HERO-WWII-CDSS	ITALYANW	4TH US DIV	DIV	12/16/44	LIGHT	LIGHT	-1 UNSP		2 DEFN		105.8

DO LAHART	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	RTTUBESDAY
354	HERO-WWII-CDS	ITALYANW EUR 4TH US DIV	DIV	12/16/44	LIGHT	LIGHT	-1 UNSP	2 DEFH			105.8
3287	HERO-WWII-CDS	ITALYANW EUR 2D US DIV	DIV	12/18/44	LIGHT	LIGHT	-1 UNSP	2 DEFH			237.7
3280	HERO-WWII-CDS	ITALYANW EUR 99TH US DIV	DIV	12/18/44	LIGHT	LIGHT	-1 UNSP	2 DEFH			60.3
3265	HERO-WWII-CDS	ITALYANW EUR 4TH US DIV	DIV	12/20/44	LIGHT	LIGHT	-1 UNSP	2 DEFH			182.4
3227	HERO-WWII-CDS	ITALYANW EUR 4TH US DIV	DIV	12/22/44	LIGHT	LIGHT	28 UNSP	2 DEFH			162.4
69	HERO-WWII-CDS	ARDENNES		05/11/44	MEDIUM		42 UNSP	17 BAPD			138.4
80	HERO-WWII-CDS	DIADEN		05/11/44	MEDIUM		46 UNSP	17 BAPD			90.1
92	HERO-WWII-CDS	DIADEN		05/11/44	MEDIUM		48 UNSP	17 BAPD			100.4
3342	HERO-WWII-CDS	DIADEN		05/12/44	MEDIUM	MEDIUM	42 UNSP	2 ATEN			140.6
3354	HERO-WWII-CDS	DIADEN		05/14/44	MEDIUM	MEDIUM	28 UNSP	2 ATEN			157.2
3378	HERO-WWII-CDS	DIADEN		05/16/44	MEDIUM	MEDIUM	28 UNSP	2 ATEN			49.4
3370	HERO-WWII-CDS	DIADEN		05/20/44	MEDIUM	MEDIUM	24 UNSP	2 ATEN			31.8
3366	HERO-WWII-CDS	DIADEN		05/22/44	MEDIUM	MEDIUM	34 UNSP	2 ATEN			79.4
3590	HERO-WWII-CDS	DIADEN		05/25/44	MEDIUM	MEDIUM	27 UNSP	2 ATEN			24.6
173	HERO-WWII-CDS	SAAR		11/08/44	MEDIUM	MEDIUM	3 UNSP	4 BAPD			22.7
3332	HERO-WWII-CDS	DIADEN		11/08/44	MEDIUM	MEDIUM	-1 UNSP	2 ATEN			31.1
110	HERO-WWII-CDS	GERMANY		11/10/44	MEDIUM	MEDIUM	12 UNSP	1 BAPD			7.6
3106	HERO-WWII-CDS	SAAR		11/10/44	MEDIUM	MEDIUM	12 UNSP	2 ATEN			37.1
3381	HERO-WWII-CDS	SAAR		11/10/44	MEDIUM	MEDIUM	22 UNSP	3 ATEN			21.7
3299	HERO-WWII-CDS	ITALYANW EUR 4TH US DIV	DIV	11/11/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH			17.3
116	HERO-WWII-CDS	GERMANY		11/13/44	MEDIUM	MEDIUM	12 UNSP	3 BAPD			19.5
3112	HERO-WWII-CDS	SAAR		11/14/44	MEDIUM	MEDIUM	12 UNSP	1 ATEN			81.0
2392	HERO-WWII-CDS	SAAR		11/14/44	MEDIUM	MEDIUM	26 UNSP	1 ATEN			36.2
3403	HERO-WWII-CDS	SAAR		11/15/44	MEDIUM	MEDIUM	36 UNSP	2 ATEN			38.2
3331	HERO-WWII-CDS	SAAR		11/15/44	MEDIUM	MEDIUM	6 UNSP	2 ATEN			28.2
190	HERO-WWII-CDS	SAAR		11/18/44	MEDIUM	MEDIUM	12 UNSP	1 BAPD			21.3
3414	HERO-WWII-CDS	SAAR		11/18/44	MEDIUM	MEDIUM	24 UNSP	1 ATEN			72.3
3224	HERO-WWII-CDS	SAAR		11/19/44	MEDIUM	MEDIUM	24 UNSP	2 ATEN			39.1
208	HERO-WWII-CDS	SAAR		11/21/44	MEDIUM	MEDIUM	6 UNSP	2 BAPD			14.2
3313	HERO-WWII-CDS	SAAR		11/21/44	MEDIUM	MEDIUM	6 UNSP	2 ATEN			16.5
218	HERO-WWII-CDS	SAAR		11/23/44	MEDIUM	MEDIUM	12 UNSP	2 BAPD			14.8
3202	HERO-WWII-CDS	SAAR		11/23/44	MEDIUM	MEDIUM	12 UNSP	2 ATEN			-1.0
3425	HERO-WWII-CDS	SAAR		11/25/44	MEDIUM	MEDIUM	26 UNSP	3 ATEN			37.4
3491	HERO-WWII-CDS	SAAR		11/25/44	MEDIUM	MEDIUM	12 UNSP	2 ATEN			19.8
134	HERO-WWII-CDS	GERMANY		11/26/44	MEDIUM	MEDIUM	24 UNSP	1 BAPD			18.8
144	HERO-WWII-CDS	GERMANY		11/27/44	MEDIUM	MEDIUM	24 UNSP	3 BAPD			11.5
3480	HERO-WWII-CDS	SAAR		11/27/44	MEDIUM	MEDIUM	4 UNSP	6 ATEN			12.0
3436	HERO-WWII-CDS	SAAR		11/28/44	MEDIUM	MEDIUM	36 UNSP	3 ATEN			66.9
154	HERO-WWII-CDS	GERMANY		12/01/44	MEDIUM	MEDIUM	12 UNSP	2 BAPD			15.1
226	HERO-WWII-CDS	SAAR		12/04/44	MEDIUM	MEDIUM	12 UNSP	1 BAPD			47.0
3447	HERO-WWII-CDS	SAAR		12/04/44	MEDIUM	MEDIUM	12 UNSP	1 ATEN			59.6
3469	HERO-WWII-CDS	SAAR		12/04/44	MEDIUM	MEDIUM	12 UNSP	1 ATEN			100.5
3458	HERO-WWII-CDS	SAAR		12/05/44	MEDIUM	MEDIUM	12 UNSP	2 ATEN			59.3
238	HERO-WWII-CDS	SAAR		12/06/44	MEDIUM	MEDIUM	12 UNSP	1 BAPD			12.6
245	HERO-WWII-CDS	ARDENNES		12/16/44	MEDIUM	MEDIUM	12 UNSP	2 PD			82.2
3214	HERO-WWII-CDS	ARDENNES		12/16/44	MEDIUM	MEDIUM	6 UNSP	1 DEFH			79.0
3234	HERO-WWII-CDS	ARDENNES		12/16/44	MEDIUM	MEDIUM	12 UNSP	6 DEFH			27.6
3244	HERO-WWII-CDS	ITALYANW EUR 4TH US DIV	DIV	12/16/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH			79.0
3277	HERO-WWII-CDS	ITALYANW EUR 2D US DIV	DIV	12/16/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH			42.8
3316	HERO-WWII-CDS	ITALYANW EUR 99TH US DIV	DIV	12/16/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH			82.2
253	HERO-WWII-CDS	ARDENNES		12/18/44	MEDIUM	MEDIUM	9 UNSP	2 PD			103.1
3221	HERO-WWII-CDS	ARDENNES		12/18/44	MEDIUM	MEDIUM	12 UNSP	1 DEFH			79.7
3253	HERO-WWII-CDS	ITALYANW EUR 4TH US DIV	DIV	12/18/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH			79.7
3284	HERO-WWII-CDS	ITALYANW EUR 2D US DIV	DIV	12/18/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH			116.4
3311	HERO-WWII-CDS	ITALYANW EUR 99TH US DIV	DIV	12/18/44	MEDIUM	MEDIUM	-1 UNSP	2 DEFH			103.1

DO NAME	SOURCE	BATTLE	UNIT	SIZE	DATE	TUBETYPE	TUBECAT	TUBEQUANT	TYPED	DAYQUANT	OPERATION	EDTUBEDAY
3321	HERO-WWII-CDSS	ITALYCNW	EUR	90TH US DIV	DIV	12/18/44	MEDIUM	-1 UNSP	2 DEFN	163.1		
3326	HERO-WWII-CDSS	ITALYCNW	EUR	4TH US DIV	DIV	12/30/44	MEDIUM	-1 UNSP	2 DEFN	14.3		
3228	HERO-WWII-CDSS	ARDENNES	4TH US DIV	DIV	12/22/44	MEDIUM	MEDIUM	4 UNSP	2 DEFN	18.3		
34	RAC-WWII-E-1	SICILY	7TH ARMY	ARMY	07/10/43	UNSP	UNSP	-1 UNSP	39 ATEN	-1.0		
1	RAC-WWII-E-1	SALERNO	3INF DIV	DIV	09/19/43	UNSP	UNSP	-1 UNSP	60 ATEN	-1.0		
2	RAC-WWII-E-1	ANZIO	3INF DIV	DIV	01/22/44	UNSP	UNSP	-1 UNSP	67 ATEN	-1.0		
3343	HERO-WWII-CDSS	ANZIO	3RD US DIV	DIV	01/25/44	UNSP	UNSP	-1 UNSP	6 UNSP	72.3		
3348	HERO-WWII-CDSS	ANZIO	3RD US DIV	DIV	02/01/44	UNSP	UNSP	-1 UNSP	3 UNSP	137.8		
3	RAC-WWII-E-1	BOUGAINVILLE	129INF REGT	BDE	03/09/44	UNSP	UNSP	-1 UNSP	16 DEFN	137.8		
4	RAC-WWII-E-1	GUSTAV LINE	8865 DIV	DIV	05/01/44	UNSP	UNSP	-1 UNSP	20 ATEN	-1.0		
71	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	130 UNSP	17 BRPD	130.1		
82	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	130 UNSP	17 BRPD	130.1		
94	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	130 UNSP	17 BRPD	130.1		
3544	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	130 UNSP	17 BRPD	130.1		
3546	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	130 UNSP	17 BRPD	130.1		
3550	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	130 UNSP	17 BRPD	130.1		
3372	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	130 UNSP	17 BRPD	130.1		
3548	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	130 UNSP	17 BRPD	130.1		
3552	HERO-WWII-CDSS	DIADEN	88US IN DIV	DIV	05/11/44	UNSP	UNSP	130 UNSP	17 BRPD	130.1		
173	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/08/44	UNSP	UNSP	35 UNSP	4 BRPD	38.2		
3334	HERO-WWII-CDSS	GERMANY	40TH US DIV	DIV	11/08/44	UNSP	UNSP	14 UNSP	2 ATEN	25.0		
102	HERO-WWII-CDSS	GERMANY	40TH US DIV	DIV	11/08/44	UNSP	UNSP	14 UNSP	2 ATEN	25.0		
112	HERO-WWII-CDSS	GERMANY	40TH US DIV	DIV	11/08/44	UNSP	UNSP	14 UNSP	2 ATEN	25.0		
3107	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/10/44	UNSP	UNSP	35 UNSP	1 BRPD	10.1		
3383	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/10/44	UNSP	UNSP	35 UNSP	1 BRPD	10.1		
3301	HERO-WWII-CDSS	ITALYCNW	EUR	4TH US DIV	DIV	11/11/44	UNSP	-1 UNSP	1 DEFN	34.1		
101	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/12/44	UNSP	UNSP	40 UNSP	4 BRPD	51.3		
120	HERO-WWII-CDSS	GERMANY	40TH US DIV	DIV	11/13/44	UNSP	UNSP	45 UNSP	3 BRPD	23.4		
126	HERO-WWII-CDSS	GERMANY	40TH US DIV	DIV	11/14/44	UNSP	UNSP	21 UNSP	2 BRPD	56.1		
3114	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/14/44	UNSP	UNSP	71 UNSP	1 ATEN	77.0		
3394	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/14/44	UNSP	UNSP	89 UNSP	1 ATEN	10.9		
3405	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/15/44	UNSP	UNSP	92 UNSP	2 ATEN	35.3		
3533	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/15/44	UNSP	UNSP	92 UNSP	2 ATEN	60.6		
192	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/18/44	UNSP	UNSP	94 UNSP	1 BRPD	47.0		
3416	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/18/44	UNSP	UNSP	94 UNSP	1 BRPD	59.9		
200	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/19/44	UNSP	UNSP	45 UNSP	2 BRPD	31.4		
3524	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/19/44	UNSP	UNSP	69 UNSP	2 ATEN	27.4		
210	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/21/44	UNSP	UNSP	20 UNSP	2 BRPD	33.6		
3515	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/21/44	UNSP	UNSP	54 UNSP	2 ATEN	40.5		
220	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	11/23/44	UNSP	UNSP	49 UNSP	2 BRPD	10.6		
3504	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/23/44	UNSP	UNSP	44 UNSP	2 ATEN	20.3		
3427	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/25/44	UNSP	UNSP	96 UNSP	3 ATEN	41.0		
136	HERO-WWII-CDSS	GERMANY	40TH US DIV	DIV	11/25/44	UNSP	UNSP	70 UNSP	2 ATEN	42.4		
144	HERO-WWII-CDSS	GERMANY	40TH US DIV	DIV	11/27/44	UNSP	UNSP	92 UNSP	3 BRPD	23.7		
3482	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/27/44	UNSP	UNSP	47 UNSP	8 ATEN	19.5		
3436	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	11/28/44	UNSP	UNSP	90 UNSP	2 BRPD	40.2		
156	HERO-WWII-CDSS	GERMANY	40TH US DIV	DIV	12/01/44	UNSP	UNSP	43 UNSP	2 BRPD	38.5		
228	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	12/04/44	UNSP	UNSP	45 UNSP	1 BRPD	56.1		
3449	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	12/04/44	UNSP	UNSP	69 UNSP	1 ATEN	39.8		
3471	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	12/04/44	UNSP	UNSP	57 UNSP	1 ATEN	72.6		
3460	HERO-WWII-CDSS	SAAR	60TH US DIV	DIV	12/05/44	UNSP	UNSP	56 UNSP	2 ATEN	25.1		
164	HERO-WWII-CDSS	GERMANY	40TH US DIV	DIV	12/06/44	UNSP	UNSP	49 UNSP	2 BRPD	26.1		
238	HERO-WWII-CDSS	SAAR	35US IN DIV	DIV	12/06/44	UNSP	UNSP	50 UNSP	1 BRPD	27.1		
247	HERO-WWII-CDSS	ARDENNES	99US IN DIV	DIV	12/16/44	UNSP	UNSP	30 UNSP	2 PD	77.7		

DO NAME	RECORD#	SOURCE	BATTLE	UNIT	SIZE	DATE	TUETIME	TUENCAT	SUBSEQUANT	TUENCAT	DAYQUANT	OPERATION	RETURNED
247	HERO-WMII-CDSS	ARDENNES	9TH US DIV	DIV	12/16/44	UNSP	UNSP	26 UNSP	2 PD	UNSP	77.7		
3214	HERO-WMII-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	UNSP	UNSP	36 UNSP	1 DEFM	UNSP	43.2		
3235	HERO-WMII-CDSS	ARDENNES	4TH US DIV	DIV	12/16/44	UNSP	UNSP	27 UNSP	6 DEFM	UNSP	44.2		
3246	HERO-WMII-CDSS	ITALYANW EUR	4TH US DIV	DIV	12/16/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	43.2		
3278	HERO-WMII-CDSS	ITALYANW EUR	2D US DIV	DIV	12/16/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	61.2		
3312	HERO-WMII-CDSS	ITALYANW EUR	9TH US DIV	DIV	12/16/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	77.7		
3355	HERO-WMII-CDSS	ARDENNES	9TH US DIV	DIV	12/18/44	UNSP	UNSP	24 UNSP	2 PD	UNSP	78.5		
3323	HERO-WMII-CDSS	ARDENNES	4TH US DIV	DIV	12/18/44	UNSP	UNSP	26 UNSP	1 DEFM	UNSP	93.3		
3257	HERO-WMII-CDSS	ITALYANW EUR	4TH US DIV	DIV	12/18/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	93.3		
3290	HERO-WMII-CDSS	ITALYANW EUR	2D US DIV	DIV	12/18/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	169.3		
3324	HERO-WMII-CDSS	ITALYANW EUR	9TH US DIV	DIV	12/18/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	78.5		
3268	HERO-WMII-CDSS	ITALYANW EUR	4TH US DIV	DIV	12/20/44	UNSP	UNSP	-1 UNSP	2 DEFM	UNSP	82.9		
3230	HERO-WMII-CDSS	ARDENNES	4TH US DIV	DIV	12/22/44	UNSP	UNSP	26 UNSP	2 DEFM	UNSP	82.9		
3124	HERO-WMII-CDSS	ROER RIVER	XII CORPS	CORPS	02/22/45	UNSP	UNSP	264 UNSP	1 UNSP	UNSP	-1.0		
3130	HERO-WMII-CDSS	ROER RIVER	XVI CORPS	CORPS	02/22/45	UNSP	UNSP	632 UNSP	1 UNSP	UNSP	-1.0		
3137	HERO-WMII-CDSS	ROER RIVER	XIX CORPS	CORPS	02/22/45	UNSP	UNSP	1543 UNSP	1 UNSP	UNSP	-1.0		
3147	HERO-WMII-CDSS	ROER RIVER	9TH US ARMY	ARMY	02/22/45	UNSP	UNSP	1569 UNSP	1 UNSP	UNSP	-1.0		
3157	HERO-WMII-CDSS	ROER RIVER	XII CORPS	CORPS	02/23/45	UNSP	UNSP	546 UNSP	1 UNSP	UNSP	-1.0		
3176	HERO-WMII-CDSS	ROER RIVER	XII CORPS	CORPS	02/23/45	UNSP	UNSP	389 UNSP	1 UNSP	UNSP	-1.0		
3177	HERO-WMII-CDSS	ROER RIVER	XIX CORPS	CORPS	02/23/45	UNSP	UNSP	648 UNSP	1 UNSP	UNSP	-1.0		
3178	HERO-WMII-CDSS	ROER RIVER	US ARMY	ARMY	02/23/45	UNSP	UNSP	34 UNSP	1 UNSP	UNSP	-1.0		
3179	HERO-WMII-CDSS	ROER RIVER	24INF REGT	ARMY	07/26/50	UNSP	UNSP	-1 UNSP	6 DEFL	UNSP	-1.0		
35	RAC-WMII-E-1	KOREA	2501V TYPEN BN TF	BN TF	08/07/50	UNSP	UNSP	-1 UNSP	6 ATEN	UNSP	-1.0		
36	RAC-WMII-E-1	KOREA	1CAV DIV	DIV	09/01/50	UNSP	UNSP	-1 UNSP	16 DEFM	UNSP	-1.0		
37	RAC-WMII-E-1	KOREA	7CAV REGT	REGT	09/02/50	UNSP	UNSP	-1 UNSP	6 ATEN	UNSP	-1.0		
38	RAC-WMII-E-1	KOREA	1CAV DIV	DIV	09/17/50	UNSP	UNSP	-1 UNSP	3 ATEN	UNSP	-1.0		
39	RAC-WMII-E-1	KOREA	2INF DIV	DIV	11/23/50	UNSP	UNSP	-1 UNSP	6 DL	UNSP	-1.0		
40	RAC-WMII-E-1	KOREA	2INF DIV	DIV	03/07/51	UNSP	UNSP	-1 UNSP	3 ATEN	UNSP	-1.0		
41	RAC-WMII-E-1	KOREA	2INF DIV	DIV	04/22/51	UNSP	UNSP	-1 UNSP	7 DEFL	UNSP	-1.0		
42	RAC-WMII-E-1	KOREA	2INF DIV	DIV	05/23/51	UNSP	UNSP	-1 UNSP	6 ATEN	UNSP	-1.0		
43	RAC-WMII-E-1	KOREA	30INF REGT	REGT	07/26/51	UNSP	UNSP	-1 UNSP	5 ATEN	UNSP	-1.0		
44	RAC-WMII-E-1	KOREA	9INF REGT	REGT	08/30/51	UNSP	UNSP	-1 UNSP	7 ATEN	UNSP	-1.0		
45	RAC-WMII-E-1	KOREA	23INF REGT	REGT	09/13/51	UNSP	UNSP	-1 UNSP	16 ATEN	UNSP	-1.0		
46	RAC-WMII-E-1	KOREA	15INF REGT	REGT	09/29/51	UNSP	UNSP	-1 UNSP	6 ATEN	UNSP	-1.0		
47	RAC-WMII-E-1	KOREA	3INF DIV	DIV	10/03/51	UNSP	UNSP	-1 UNSP	7 ATEN	UNSP	-1.0		
48	RAC-WMII-E-1	KOREA	3INF DIV	DIV	10/03/51	UNSP	UNSP	-1 UNSP	11 ATEN	UNSP	-1.0		

APPENDIX G

THE WARRAMP PROCESS

G-1. **PURPOSE.** The purpose of this appendix is to provide a description of the combat simulation process used to determine wartime requirement for ammunition. This is only a partial description but includes those aspects of the process that are relevant to this study.

G-2. THE WARRAMP PROCESS

a. As a vehicle for comparison with historical data the combat simulation process WARRAMP will be used. The acronym represents the "Wartime Requirements for Ammunition, Materiel, and Petroleum." As its name indicates, WARRAMP is designed to determine requirements not only for ammunition but for major end items of combat equipment and the petroleum stocks necessary to sustain the force. Comparisons made in AHART will concentrate strictly on indirect fire ammunition requirements.

b. WARRAMP is not a single combat simulation. WARRAMP actually describes a process employing two primary simulations, a calibration routine to match the two and a series of pre- and postprocessing routines. Figure G-1 presents a simplified view of the process.

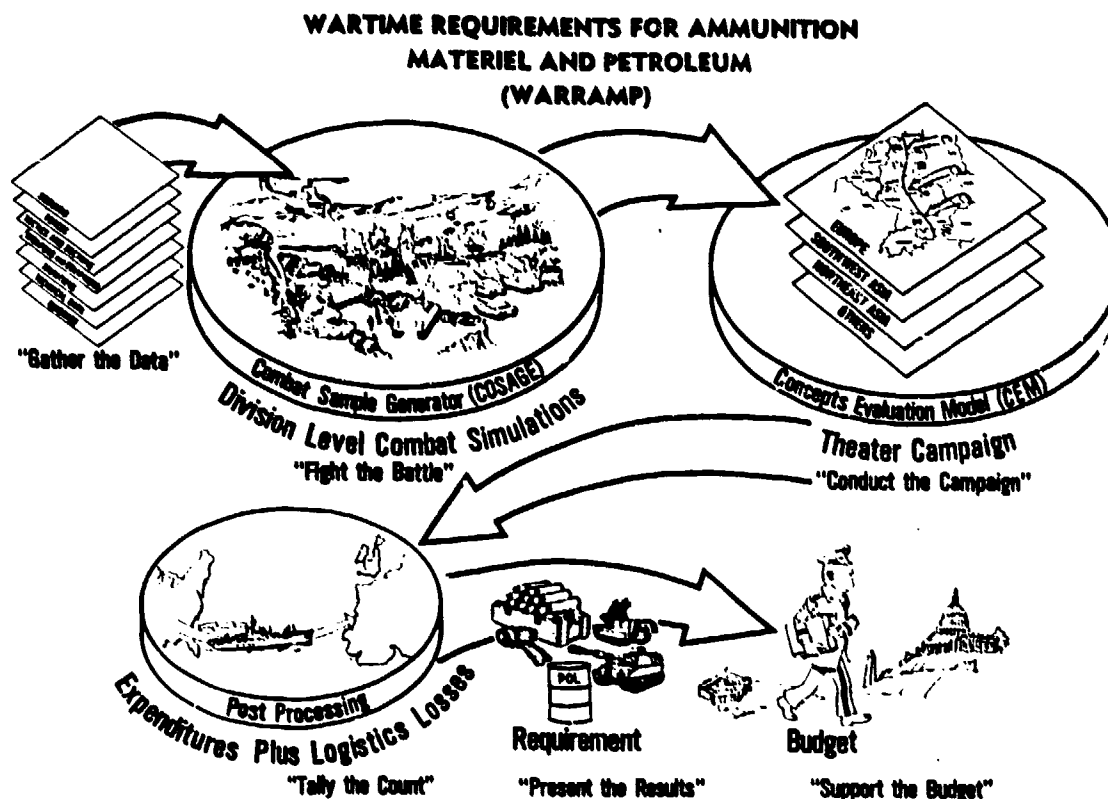


Figure G-1. The WARRAMP Process

c. WARRAMP is designed and used for the express purpose of providing updated quantitative analysis in support of changes made to the current means of deterrence and the current methods of combat. WARRAMP is part of a larger system of analysis known as the Program Objective Memorandum (POM) cycle. The "P-Studies" conducted by the US Army Concepts Analysis Agency and shown in the upper part of Figure G-2 produce, among other results, the "ammo rates" used by the POM. These figures are used to brief Congress and support the budget process.

d. Secondly, the results of WARRAMP are input to a system of analysis known as the Total Army Analysis (TAA) shown in the lower part of Figure G-2. TAA is designed to determine requirements for administrative and logistic support units that back up the combat units covered in the POM. The "SRA studies" are the quantitative portion of the TAA process conducted at the US Army Concepts Analysis Agency.

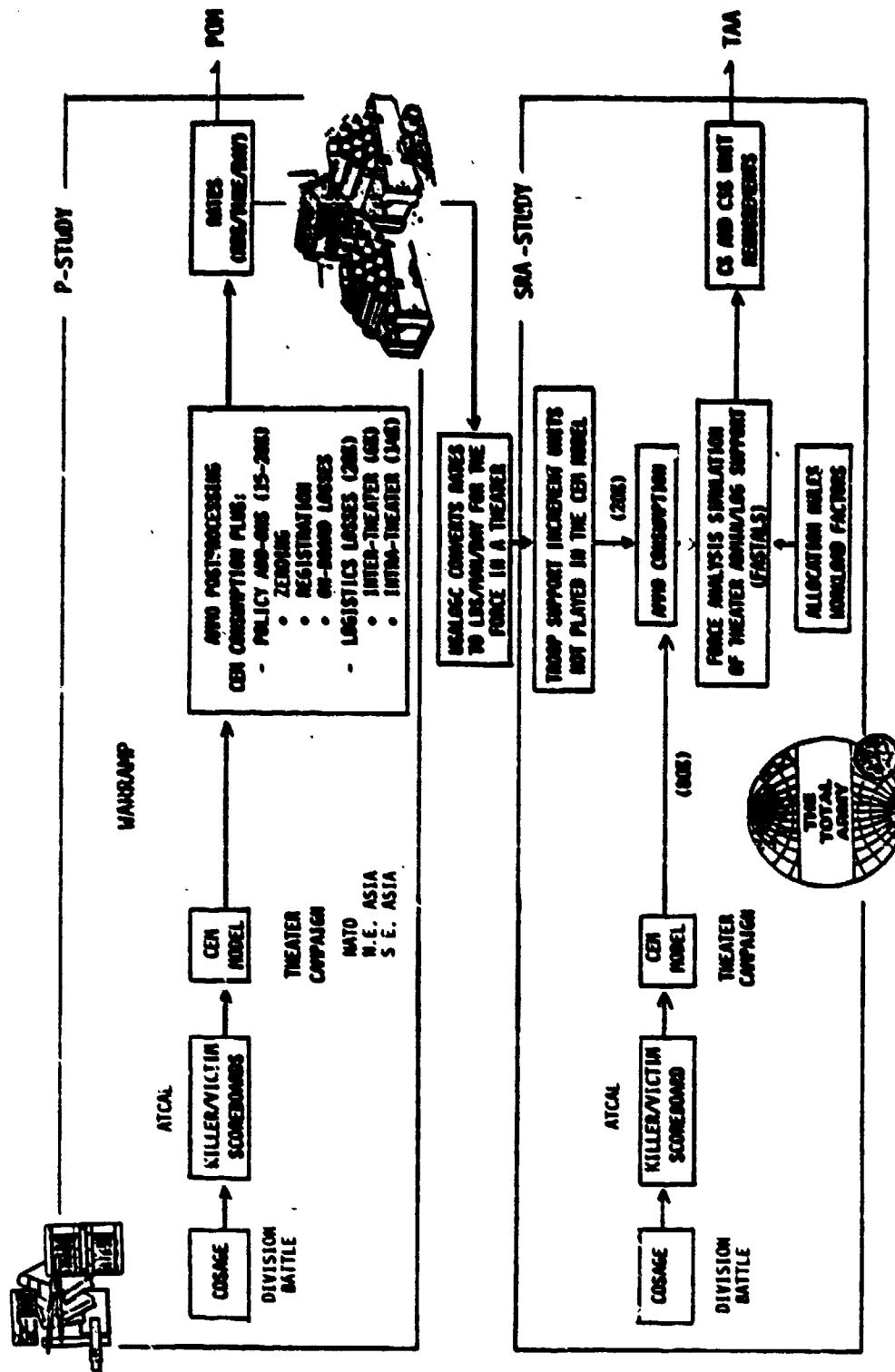


Figure 6-2. The POM/TAA Process

e. The obvious importance of the WARRAMP process dictates that it be done properly and that its results be consistent with some measure of "reality." While it is impractical here to provide a complete explanation of the mechanics and relationships inherent in the process, the following are the primary characteristics of the process that are relevant to AHART.

- COSAGE - The Combat Sample Generator is a division-level, closed loop, stochastic combat simulation. As such, it seeks to simulate the probabilistic nature of division-level combat for a period of 24 hours using predetermined decision thresholds. Being closed looped, COSAGE eliminates the changes brought about by man-in-the-loop simulations. The simulation is run numerous times to produce steady-state results. A standard set of division combat operations is employed to produce ammunition rates representative of the spectrum of combat conditions.
- CEM - The Concepts Evaluation Model is the theater war simulation in WARRAMP. It is also closed looped but is deterministic in design. By employing the results of the COSAGE simulation it simulates the strategies and interactions that occur on the theater level of combat.
- ATCAL - The Attrition Calibration routine is the method of translating the results of the stochastic simulation into values usable to the deterministic CEM simulation. More than just calibrating attrition, it likewise calibrates the ammunition and other resources that are inherent in producing the attrition.
- APP - The Ammunition Postprocessor is a mathematical algorithm that provides analysts and decisionmakers with the capability of inputting factors not possible to include directly in the simulations. The APP combines the results of the simulations together with the analyst input to produce what is exported as WARRAMP results.
- Detailed technical characteristics of units and weapon systems expected to be present in the force in any given year are the primary input to the simulations. For this reason, understanding the change in expenditures over time becomes a useful endeavor. Trends in ammunition expenditures with changes in technical capabilities over time are of great interest. Historical data can provide insight into these trends.
- As the threat to national security changes, so does the force designed to meet the threat. These changes are included in WARRAMP. An historical perspective on the effects of the size and composition of a force on the expenditure rates provides useful information relevant to WARRAMP results.
- The WARRAMP process provides detailed output on each weapon system included in the simulation. The results of artillery ammunition expenditure studies are naturally produced by type of tube. Historical data readily differentiates among type artillery tubes, providing WARRAMP analysts with comparisons for the expenditures for tubes of different size and mission.

- WARRAMP attempts to produce results representative of the spectrum of combat operations. A historical perspective on the change in ammunition expenditures with a change in combat operation and operational intensity would be essential to analysts.
- WARRAMP produces expenditure rates for tubes for each day over a 180-day period. Published results are normally provided in 15-day increments. The effect of duration of the battle on expenditures found in history would provide useful information to analysts and decisionmakers.

f. This description of the WARRAMP process is by no means exhaustive but includes the major properties of WARRAMP that are relevant to AHART. In-depth information on this process is available in programmer and user manuals referenced in the bibliography [CACI-S-1].

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Santa Monica, CA 90406-2138

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Commander
Center of Military History
ATTN: DAMH-RA
Washington, DC 20310

1

Commander
Center of Military History
ATTN: DAMH-HSR
(H. M. Zeidlik)
Washington, DC 20310

1

Commander
US Army Training and Doctrine Command
ATTN: Estimates Div., Theater Dir.
(Mr. Kevin Smith)
Fort Monroe, VA 23651

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Commandant
US Army Field Artillery School
ATTN: Combat Developments
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GLOSSARY**1. ABBREVIATIONS, ACRONYMS, AND SHORT TERMS**

AHART	Analysis of Historical Artillery Expenditures
ALMC	Army Logistics Management Center
AMSAA	Army Materiel Systems Analysis Activity
APP	Ammunition Postprocessor
ATCAL	Attrition Calibration
ATKH	attack heavy
ATKL	attack light
ATKM	attack medium
CAA	US Army Concepts Analysis Agency
CAC	Combined Arms Center
COSAGE	Combat Sample Generator
DAS	Director of the Army Staff
DEFH	defense heavy
DEFL	defense light
DEFM	defense medium
DIA	Defense Intelligence Agency
DLSIE	Defense Logistics Studies Information Exchange
DOD	Department of Defense
DTIC	Defense Technical Information Center
GMU	George Mason University
HE	high explosive
HERO	Historical Evaluation and Research Organization
ICM	improved conventional munitions
ODCSLOG	Office of the Deputy Chief of Staff for Logistics

ODCSOPS	Office of the Deputy Chief of Staff for Operations and Plans
ODCSRDA	Office of the Deputy Chief of Staff for Research, Development and Acquisition
POM	Program Objective Memorandum
PROH	protracted heavy
PROL	protracted light
PROM	protracted medium
SADARM	seek and destroy armor
TRAC	TRADOC Analysis Center
TRADOC	US Army Training and Doctrine Command
TWG	terminally-guided munitions
UNSP	unspecified
WARRAMP	Wartime Requirements for Ammunition, Materiel, and Petroleum

2. DEFINITIONS

BATTLE

An AHART data base field name; this term is used broadly to define an engagement of any size from company to theater size force. When it is necessary to know the size of the battle, the size of the forces involved is given.

BMDP

Once an acronym for biomedical programs, the letters have come to stand alone as a trade name for a large assortment of statistical software commercially available to mainframe computer systems. The software reduces to four convenient steps calculations that would otherwise require extensive labor and time.

BNTF

An abbreviation for battalion task force used with the variable SIZE to describe a force of three maneuver companies, a headquarters, and support company. Unlike a standard battalion, this battalion has attached to it additional engineer, signal, and an artillery battery dedicated for sole support.

DAYSQUANT

An AHART field name for the number of 24-hour periods in an historical event.

DURATION

An AHART variable name used in the analysis to examine the relationship between the number of days in an historical event and the number of days involved.

OPERATION

An AHART data base field name; this term is defined by Table 7-1 of FM 101-10-1 and includes protracted, attack and defensive operations on three levels--light, medium, and heavy. Included in this study is a set of data for which no single operation can be defined, normally aggregated data from numerous types of operations. This data is assigned to the unspecified (UNSP) operation and included in the analysis. When it is necessary to know the size of the operation, the size of the forces involved is given.

operational rate

The rate computed in combat simulation when only those tubes that fired were included in the calculation.

operational RTD

The RTD computed from historical data when only those tubes that were actually in position to fire in support of that battle were included in the calculation.

OPN

An AHART variable name. This is the variable name used in the analysis of the data base field "operation."

rate

Rate is the term used in the analysis of combat simulations for the number of rounds fired "on average" by a single tube of artillery in a single 24-hour period. The calculation is performed by isolating the total number of rounds fired by all tubes of a specific tube type throughout the simulation, dividing that number by the number of 24-hour periods in the simulation and by the appropriate number of tubes. There are two kinds of rates, operational and theater.

RTD

RTD is the average rounds per tube per day actually fired in an historical battle. Its definition parallels the definition of a "rate" except that it defines actual expenditures, not expenditures from combat simulation. The calculation is performed by isolating from historical records the total number of rounds fired by all tubes of a specific artillery tube type throughout the duration of the battle or throughout the period for which data is being gathered, dividing that number by the density of those tubes in that battle or present during the period and then dividing again by the number of 24-hour periods in the historical data. There are two kinds of RTD, operational and theater.

theater rate

The rate computed in a combat simulation when all tubes in a theater of operations are included in the input files of the simulation and are then used in the calculation of rates.

theater RTD

The RTD is computed from historical data when all tubes in a large (six corps or greater) force are accounted for by logisticians or historians and included in the calculation of RTD. If an actual theater of operation such as Korea or the Middle East did not involve six corps on one side supported by artillery, the RTD was considered a theater RTD if it included in the calculation all tubes present for that force in the theater.

size

An AHART field name. The same name in upper case letters is used as a variable name in the analysis.

SIZE

An AHART variable name for the size of the maneuver force supported by the artillery in a given data base record.

TUBECAT

An AHART data base field name. The same name is used in the analysis as a variable name. All tubes are placed in one of three categories--light, medium, or heavy. Light tubes include all indirect artillery weapons up to and including 120mm. The medium category includes 122mm to 155mm howitzers. The heavy category includes 155mm guns and above.

TUBEQUANT

The AHART data base field name for the rounds per tube per day recorded in an historical event.

TUBEQTY

The variable name used in the analysis of the relationship between the number of tubes present and the artillery expenditures in an historical event.

tube type

A type tube is defined by its "caliber" in millimeters. The 8-inch tube is a 203mm tube type. The conversion of all other means of measurement to millimeters facilitates the scaling of tube types for analysis.

TUBETYPE

An AHART data base field name. The same name is used in the analysis as a variable name.

UNIT

An AHART data base field name used to specify the unit headquarters of the force present in the historical event. This is the level at which the artillery expenditure rate was computed.



**AN ANALYSIS OF HISTORICAL
ARTILLERY EXPENDITURES
(AHART) STUDY - CY 87**

**STUDY
SUMMARY
CAA-TP-87-6**

THE REASONS FOR PERFORMING THE STUDY were:

- (1) To conduct research into the availability of historical field artillery ammunition expenditure data and to assemble the available data into a data base.
- (2) To determine if the historical data can be used for meaningful comparisons with a wartime requirements combat simulation process.

THE STUDY AUDIENCES are: analysts responsible for the conduct of wartime requirements combat simulations; decisionmakers who desire to use historical data and information in the process of determining requirements for artillery ammunition; and historians interested in deriving historical information through application of quantitative methods.

THE PRINCIPAL FINDINGS of the work are:

- (1) There exists a great amount of available historical data on field artillery ammunition expenditures. The AHART data base, assembled through this study, is now available for use, wider dissemination, and enhancement.
- (2) The assembled historical data provides very useful comparisons with the results of the wartime requirements combat simulation process, WARRAMP, and with other combat simulations as well.

THE MAIN ASSUMPTIONS were as follows:

- (1) Historical data found in primary sources were accepted as reliable unless accompanying documentation strongly indicated otherwise. The difficulties of assembling such data under wartime conditions is acknowledged.
- (2) Historical data in secondary sources not verifiable through primary sources were accepted as reliable if taken from a reasonably well-based source (i.e., government analytical agencies, military historical offices, relevant Department of the Army (DA) Staff activities).
- (3) Historical information can be quantified and meaningfully subjected to quantitative analysis.
- (4) Factors affecting historical artillery ammunition expenditures apply to current and future artillery ammunition expenditures.

THE PRINCIPAL LIMITATIONS which affect the findings are: the study will be limited to conventional, nondevelopmental field artillery munitions; the majority of data is limited to US data, with some British and French data for WWI; the study variables were limited to those for which historical data is available and those considered applicable to comparison with the specific combat simulation used in the study; and the study is limited to exploratory analysis of the data.

THE SCOPE OF THE STUDY

(1) The study is a pilot effort in assembling, from a multitude of fragments, a single source of data on field artillery ammunition expenditures.

(2) Using BMDP statistical software, an analysis of the data is performed. For each study variable, an evaluation is made of the applicability of the available data for comparison with combat simulation.

(3) A combat simulation process used for determination of wartime ammunition requirements is used as a vehicle for comparison with the historical data. Employing the defined study variables, numerous comparisons are made. Regression analysis is performed to determine the ability of the chosen variables to explain the variability of the historical rates and to determine the order of importance of the variables for continued research.

THE STUDY OBJECTIVES were:

(1) Assemble in data base format a set of historical data points for conventional field artillery expenditures.

(2) Define a set of variables with which to examine historical data and determine the availability of relevant data for each variable.

(3) Determine the capability of the study variables to explain historical rates.

(4) Compare historical rates with the results of the combat simulation process.

(5) Determine priorities for further research/analysis.

THE STUDY EFFORT was an in-house project at the US Army Concepts Analysis Agency. The study was performed as an individual research fellowship.

COMMENTS AND QUESTIONS may be directed to the Director, US Army Concepts Analysis Agency, ATTN: CSCA-RQ, 8120 Woodmont Avenue, Bethesda, Maryland 20814-2797.

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