



DEMONSTRATION REPORT: DISCRIMINATION

A MULTISENSOR SYSTEM FOR THE DETECTION AND CHARACTERIZATION OF UXO

MM-0437



SITE LOCATION:
U.S. ARMY YUMA PROVING GROUND – OPEN FIELD AREA

DEMONSTRATOR:
LAWRENCE BERKELEY NATIONAL LABORATORY
ONE CYCLOTRON ROAD, MS: 90R1116
BERKELEY, CA 94720
p.o.c. Erika Gasperikova, egasperikova@lbl.gov, 510-486-4930

TECHNOLOGY TYPE/PLATFORM:
BUD/CART

DECEMBER 2007

TABLE OF CONTENTS

1. BUD DESCRIPTION	4
2. FIELD SURVEY - YUMA PROVING GROUND – OPEN FIELD AREA.....	8
3. DATA PROCESSING AND INTERPRETATION	8
3.1 DATA PROCESSING	8
3.2 UXO DETECTION AND DISCRIMINATION	10
3.3 ESTIMATION OF RECEIVER OPERATING CHARACTERISTIC (ROC) CURVES	21
4. CONCLUSIONS	23
5. REFERENCES.....	25
APPENDIX A	26
IDENTIFICATION BY POLARIZABILITY CURVE MATCHING	26
A.1 INTRODUCTION.....	26
A.2 OBJECT CATALOG	28
A.3 CATALOGUE STATISTICS	29
A.4 OBJECT IDENTIFICATION	32
A.5 NOMINAL IDENTIFICATION PROBABILITIES	34
A.6 MAXIMUM LIKELIHOOD GAMMA DISTRIBUTION PARAMETER ESTIMATES.....	37
APPENDIX B	38
UXO DISCRIMINATION USING TRAINING DATA.....	38
APPENDIX C	46

LIST OF FIGURES

FIGURE 1. BERKELEY UXO DISCRIMINATOR (BUD)	5
FIGURE 2. 10% UNCERTAINTY IN LOCATION AS A FUNCTION OF OBJECT DIAMETER AND DEPTH OF DETECTION FOR BUD WITH RECEIVERS 0.2 M ABOVE THE GROUND	6
FIGURE 3. 10% UNCERTAINTY IN LOCATION AS A FUNCTION OF OBJECT DIAMETER AND DEPTH OF DISCRIMINATION FOR BUD WITH RECEIVERS 0.2 M ABOVE THE GROUND	6
FIGURE 4: OPEN FIELD AREA DETECTION MAP. RED AND YELLOW COLORS INDICATE BACKGROUND RESPONSE, GREEN AND BLUE COLORS INDICATE LOCATIONS OF METALLIC OBJECTS.	17
FIGURE 5: PROBABILITY OF A METALLIC OBJECT BEING A SINGLE UXO. VALUES ARE GIVEN IN FRACTIONS, I.E. 1=100%, 0.1=10%	18
FIGURE 6: DISTRIBUTION OF OBJECTS AS A FUNCTION OF DEPTH (IN M).	19
FIGURE 7: DISTRIBUTION OF OBJECTS AS SCRAP (BLUE DOTS) AND UXO (RED DOTS). THERE IS 1 IN 1000 CHANCE THAT A PIECE OF SCRAP COULD BE AN UXO. THERE ARE 607 SCRAP OBJECTS (38%) AND 987 UXO (62%).	20
FIGURE 8: ROC CURVE FOR DETECTION IN THE OPEN FIELD AREA.....	22
FIGURE 9: ROC CURVE FOR IDENTIFICATION IN THE OPEN FIELD AREA	23

1. BUD DESCRIPTION

The Berkeley UXO Discriminator (BUD) (Figure1) is an optimally designed active electromagnetic system that not only detects but also characterizes UXO. The performance of the system is governed by a target size - depth curve. BUD was designed to detect UXO in the 20 mm to 155 mm size range for depths between 0 and 1.5 m, and to characterize them in a depth range from 0 to 1.1 m. The system incorporates three orthogonal transmitters and eight pairs of differenced receivers. Eight receiver coils are placed horizontally along the two diagonals of the upper and lower planes of the two horizontal transmitter loops. These receiver coil pairs are located on symmetry lines through the center of the system and each pair sees identical fields during the on-time of the pulse in all of the transmitter coils. They are wired in opposition to produce zero output during the on-time of the pulses in three orthogonal transmitters. Moreover, this configuration dramatically reduces noise in the measurements by canceling the background electromagnetic fields (these fields are uniform over the scale of the receiver array and are consequently nulled by the differencing operation), and by canceling the noise contributed by the tilt motion of the receivers in the Earth's magnetic field, and greatly enhances receiver sensitivity to the gradients of the target response. BUD is mounted on a small cart to assure system mobility. System positioning is provided by a Real Time Kinematic (RTK) GPS receiver. The system has two modes of operation: (1) the search mode, in which BUD moves along a profile and exclusively detects targets in its vicinity providing target depth and horizontal location, and (2) the discrimination mode, in which BUD is stationary above a target, and determines three discriminating polarizability responses together with the object location and orientation from a single position of the system.



Figure 1. Berkeley UXO Discriminator (BUD)

The detection performance of the system is governed by a size-depth curve shown in Figure 2. This curve was calculated for *BUD* assuming that the receiver plane is 0.2 m above the ground. Figure 2 shows that, for example, *BUD* can detect an object with 0.1 m diameter down to the depth of 0.9 m with a depth uncertainty of 10%. Any objects buried at a depth of more than 1.3 m will have a low probability of detection. The discrimination performance of the system is governed by a size-depth curve shown in Figure 3. Again, this curve was calculated for *BUD* assuming that the receiver plane is 0.2 m above the ground. Figure 3 shows that, for example, *BUD* can determine the polarizability of an object with 0.1 m diameter down to the depth of 0.63 m with polarizability uncertainty of 10%. Any objects buried at the depth more than 0.9 m will have a low discrimination probability.

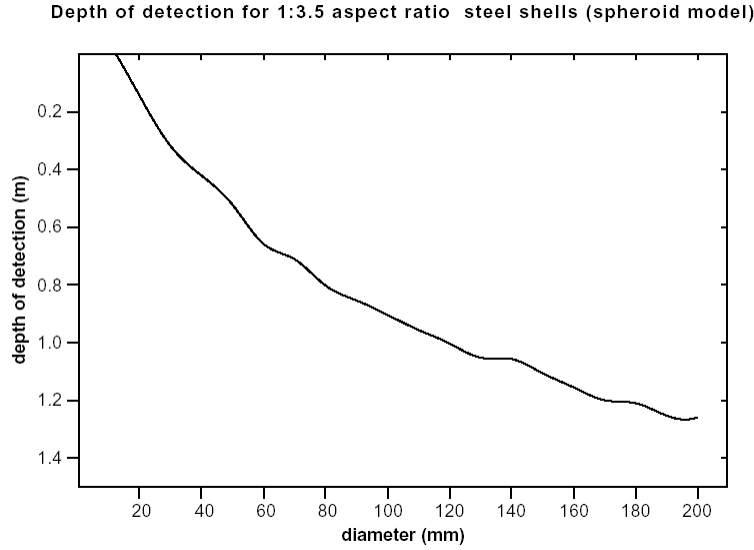


Figure 2. 10% uncertainty in location as a function of object diameter and depth of detection for BUD with receivers 0.2 m above the ground

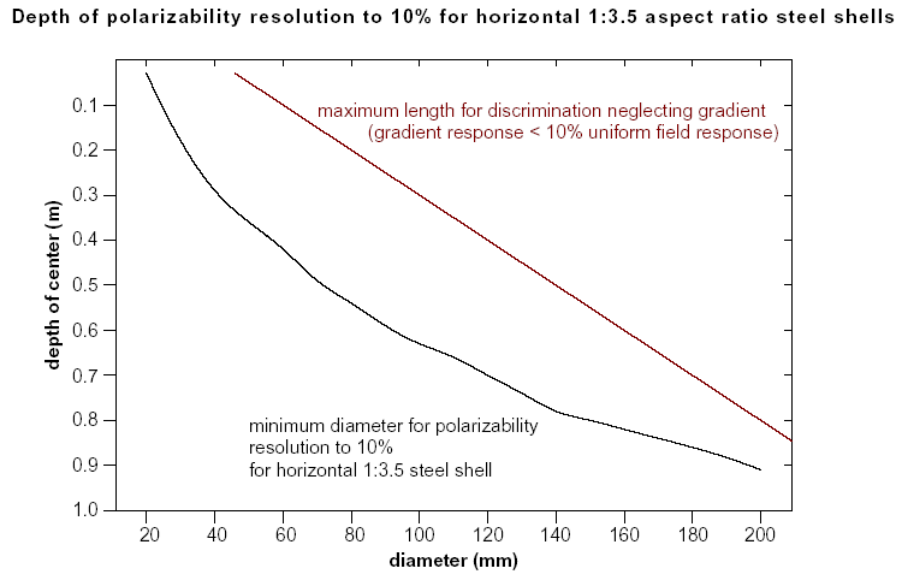


Figure 3. 10% uncertainty in polarizability as a function of object diameter and depth of discrimination for BUD with receivers 0.2 m above the ground

Object orientation estimates and equivalent dipole polarizability estimates used for large and shallow UXO/scrap discrimination are more problematic as they are affected by higher order

(non-dipole) terms induced in objects due to source field gradients along the length of the objects. For example, a vertical 0.4 m object directly below the system needs to be about 0.90 m deep for perturbations due to gradients along the length of the object to be of the order of 20 % of the uniform field object response. Similarly, vertical objects 0.5 m, and 0.6 m long need to be 1.15 m, and 1.42 m, respectively, below the system. For horizontal objects the effect of gradients across the object diameter are much smaller. For example, 155 mm and 105 mm projectiles need to be only 0.30 m, and 0.19 m, respectively, below the system. A polarizability index (in cm^3), which is an average value of the product of time (in seconds) and polarizability rate (in m^3/s) over the 34 sample times logarithmically spaced from 143 to 1300 μs , and three polarizabilities, can be calculated for any object. We used this polarizability index to decide when the object is in a uniform source field. Objects with the polarizability index smaller than 600 cm^3 and deeper than 1.8 m below BUD, or smaller than 200 cm^3 and deeper than 1.35 m, or smaller than 80 cm^3 and deeper than 0.90 m, or smaller than 9 cm^3 and deeper than 0.20 m below BUD are sufficiently deep that the effects of vertical source field gradients should be less than 15%. All other objects are considered large and shallow objects. At the moment, interpretation software is available for a single object only. In case of multiple objects the software indicates the possible presence of metallic objects but is unable to provide characteristics of each individual object.

2. FIELD SURVEY - YUMA PROVING GROUND – OPEN FIELD AREA

The objective of the Yuma Proving Ground (YPG) Demonstration was to acquire multi-component data with *BUD* over the Open Field Area. The field test was conducted between November 13, 2006 and November 21, 2007, November 27, 2006 and December 13, 2006, and between March 26 and April 14, 2007. The Open Field Area is about 15 acres, and was surveyed with 1 m spacing line spacing in east-west direction, which amounted to 350 lines about 200 m long. In the first part of the survey (November-December 2006) Navcom GPS system was used for navigation. Because of a problem with GPS positioning we couldn't finish the survey at that time, and we returned to Yuma in March 2007. At this time we used the Leica GPS positioning system.

3. DATA PROCESSING AND INTERPRETATION

3.1 Data Processing

The first step prior to data collection was a system calibration and a background level estimation. We measured the background noise with the transmitters in the off-position and calculated the spectrum for all channels. Then we turned the transmitters on and measured the background field on all channels. This step was repeated at least twice to make sure the background field was stable and could be used as the baseline measurement that was subtracted from the data.

Twelve channels of field data were recorded at a rate of 250 k-samples/second for each of three transmitters. Field data were stacked in a field programmable gate array (FPGA) and transferred to a field laptop computer forming a primitive stack, labeled with header information (instrument position, tilt and heading, odometer, time stamp, channels of transmitter current, etc). An even number of primitive stacks was averaged together to form stacked data for further processing.

The peak transmitter current was estimated from the stacked transmitter current channel record, and the data were normalized by that value. Nominal transmitter shut-off time was estimated, and induction responses were computed at 34 logarithmically spaced times between 143 and 1300 μs , averaged in half-sine windows with widths 10% of the center time after transmitter pulse shut-off. Responses were differenced with background responses collected over a nearby site determined to be relatively free of metallic objects by having a system response which varies little with system translation. Error bars were computed for these based on the scatter in raw 4 μs samples at late time, and used to estimate uncertainties in field inversions of equivalent dipole polarizability responses and object position. These uncertainties are overly optimistic, as a greater source of noise is a variation in the system background response.

In post processing, the data were reprocessed, with the background response for each line of data computed using a trimmed median response at each time and receiver, for each transmitter response. The trimmed median used is the median of all points within 2 median absolute deviations (MAD) of the (untrimmed) median response at each time, receiver, and transmitter. As the background variation is a larger source of uncertainty than the previously mentioned noise estimated from scatter in raw 4 μs , 1.48 times the MAD in individual line responses was used as

the estimated noise level in later processing. The resulting 24 channels of normalized responses were then inverted for candidate object position and principal polarizabilities as a function of time after transmitter shut-off. Data before 140 μ s were ignored.

3.2 UXO Detection and Discrimination

An object identification program matches measured equivalent dipole polarizabilities to a database of previous measurements of equivalent dipole polarizabilities of known objects and identifies a candidate object as the object(s) corresponding to the closest matching curves from the Calibration Grid and the test pit. This is done by minimizing a robust loss function of the normalized absolute differences (residuals) between the measured values and those in the database weighted inversely by estimated uncertainty in polarizabilities. Plots of principal polarizabilities as a function of time of all objects from the Calibration Grid (132 entries) are in our Yuma Demonstration report from June 2006. When the size-depth requirement (Figures 2 and 3) is satisfied, the polarizabilities are independent of the depth and orientation of the object. For large objects close to the system the principal polarizabilities curves vary depending on the orientation of the object. The identification by polarizability curve matching was described in detail in our Discriminationn report from September 2006, and for convenience it's given again in Appendix A. Columns 4, 10, 11, and 12 of Table 1 in Appendix C were produced using this algorithm.

In addition to the polarizability curve matching identification we also applied an algorithm developed for the Former Camp Sibert data which calculates a probability that an object is a

single UXO using a training data set of known targets. The training data set for this classification consisted of 104 targets from the Calibration Grid and the test pit at YPG, and 103 scrap metal from Camp Sibert. Detailed description of this process is given in Appendix B. Columns 5 and 9 of Table 1 in Appendix C were produced using this algorithm. Column 1 (rank) is based on Column 5. Below is an example of this approach.

The data time interval was sub-divided logarithmically into a number n_{div} of sub-intervals. The product of each principal polarizability with its sample time was averaged over each of these intervals. Since there are three principal polarizabilities, this results in $n_{feat} = 3n_{div}$ reduced data, henceforth called ‘features’. An additional feature used in the analysis was a median $\log_e(\text{magnitude})$ (in m^3), which increased the total number of features n_{feat} to $3n_{div}+1$. The number of sub-divisions n_{div} was chosen using cross validation. The cross validation is an iterative process in which results from a subset of training data are used to predict something about the remaining training data. For the YPG Open Field Area UXO vs. scrap discrimination problem, average cross validated estimated probability of a UXO being scrap ranges from 0.11566 when the number of sub-intervals (n_{div}) is 1 (4 features) to 0.04819 for $n_{div} = 6$ (19 features) which further lowers to 0.0347707 when responses reserved for calibration are included.

For the UXO training data with $n_{div} = 6$ the feature vector contains 19 features:

[-0.370 -0.342 -0.307 -0.270 -0.226 -0.196
 -0.291 -0.273 -0.226 -0.168 -0.116 -0.0741
 -0.223 -0.211 -0.196 -0.151 -0.105 -0.0700
 -8.88]

Each row contains six median features at six different times for each of the three principal polarizability curves, and the forth row contains the median $\log_e(\text{magnitude})$. The feature median absolute deviations (MADs) are:

```
[ 0.0470  0.0362  0.0309  0.0327  0.0299  0.0330
  0.0397  0.0243  0.0381  0.0562  0.0500  0.0412
  0.0495  0.0424  0.0191  0.0343  0.0375  0.0320
  1.06 ]
```

For the scrap training data the median features are:

```
[ -0.452  -0.404  -0.351  -0.267  -0.191  -0.112
  -0.288  -0.256  -0.205  -0.161  -0.117  -0.0602
  -0.162  -0.121  -0.0817 -0.0510 -0.0376 -0.0257
  -9.38 ]
```

and MADs are:

```
[ 0.0721  0.0509  0.0565  0.0527  0.0562  0.0494
  0.0721  0.0566  0.0582  0.0573  0.0433  0.0406
  0.0951  0.0729  0.0537  0.0357  0.0296  0.0212
  1.15 ].
```

There is a greater spread in the three median principal polarizabilities of the scrap responses than of the UXO responses, and the scrap median log magnitude is slightly smaller. The MADs show greater variability in the scrap features than in the UXO ones, reflecting greater variability in

ratios of scrap principal polarizabilities than in those of UXO. The scrap MAD log magnitude shows slightly greater variability in scrap response vector magnitudes, than in those of UXO.

For the UXO training data the smallest estimated probability of being UXO was 0.109246 (for the M42 shell in cell H03), and the median estimated probability of being UXO was 0.999992, with three out of 130 training examples estimated to have less than 50% probability of being UXO. For the scrap training data the median estimated probability of being UXO was 0.000010 and 4 scrap training examples out of 103 were estimated to have greater than 50% probability of being UXO.

The polarizabilities at the location (757545.266, 3638240.248) were estimated to have a 0.9945 probability of being due to UXO. This was the median probability value among the 628 responses with probability higher than 50% of being UXO, and was chosen as a representative response to use as UXO identification example. A corresponding entry in Table 1 in Appendix C is line 1281:

1281 757545.266 3638240.248 0.999998 0.994528 0.5461 1.20 -41.4 -54.1 O 105mm_M60 ln94inv3.

The values for each feature are shifted by subtracting its median value and normalized by their MADs. The scaled shifted feature vector (SSF_UXO) is:

[0.511 0.369 0.210 0.389 0.338 0.599
-0.559 -0.312 -0.217 -0.331 -0.181 -0.723
-1.20 -1.17 -1.14 -0.365 -0.376 -0.824
2.66]

when shifted and scaled using the UXO medians and MADs for computing its likelihood as UXO.

When it is shifted and scaled using the scrap medians and MADs for computing its likelihood as scrap, the scaled shifted feature vector (SSF_scrap) is:

$$\begin{bmatrix} 1.48 & 1.46 & 0.896 & 0.197 & -0.452 & -1.31 \\ -0.357 & -0.431 & -0.496 & -0.455 & -0.199 & -1.08 \\ -1.26 & -1.93 & -2.54 & -3.15 & -2.75 & -3.33 \\ 2.90 \end{bmatrix}$$

On the basis of median and MAD polarizability time products alone, it is evident that it is less like a typical scrap response, than a typical UXO.

In computing the UXO and scrap empirical distributions for the example given above (ln94inv3), these scaled shifted feature vectors are subtracted from the scaled shifted feature vectors of the different UXO and scrap training data, respectively, and then the quadratic form

$$(v_j - v_i)^t (C^{(class)})^{-1} (v_j - v_i)$$

is calculated. v_j is the ln94inv3 feature vector and v_i are the feature vectors from the class having its feature vector distribution being modelled using Eq. B.2, t denotes transpose. $C^{(class)}$ is the class feature covariance matrix, and (class) is either UXO or scrap. The quadratic forms are then multiplied by $(\tilde{n}^{(class)})^{(2/n_{feat})/(3+n_{feat})}$ and added to 1 to form the denominator of the term on the right hand side of Eq. B.2. In case of UXO $(\tilde{n}^{(class)})^{(2/n_{feat})/(3+n_{feat})} = 0.07087$, while in case of scrap $(\tilde{n}^{(class)})^{(2/n_{feat})/(3+n_{feat})} = 0.06904$.

For example, the closest UXO training response in quadratic form to ln94inv3 is MK118_Rockeye_L01a which has a scaled shifted feature vector of:

$$\begin{bmatrix} 0.985 & 0.407 & -0.0368 & -0.0162 & -0.0657 & -0.00973 \end{bmatrix}$$

1.11 -0.682 -1.38 -1.37 -1.55 -2.09
0.457 0.129 0.008 -0.592 -0.989 -1.48
-1.05]

which when differenced with SSF_UXO and used in the quadratic form with the UXO inverse covariance matrix results in a value of 304.15. It gives a denominator of $1 + 21.56$ in Eq. B.2 when multiplied by 0.07087. A coefficient K in Eq. B.2 is calculated using Eq. B.3. The square root of the determinant of the UXO response covariance matrix $C^{(UXO)}$ is 4.0675×10^{-15} , hence $K = 1/(66^{(20/19)} \times 4.0675 \times 10^{-15}) = 2.988 \times 10^{12}$, and the largest term in Eq. B.2 is $K \times 1/(1+21.56)^{[(19+3)/2]} = 2.988 \times 10^{12} \times 1.2980 \times 10^{-15} = 0.003878$.

The closest scrap training response in quadratic form to $\ln 94 \text{inv} 3$ is $\ln 3qSE-67 \text{inv} 3$ which has a scaled shifted feature vector of:

[1.25 1.18 0.699 0.00107 -0.268 -0.331
-0.651 -0.9 -1.15 -1.16 -1.33 -1.31
-0.618 -1.02 -1.48 -2.24 -2.23 -2.47
2.34]

which when differenced with SSF_scrap and used in the quadratic form with the scrap inverse covariance matrix results in a value of 337.82. It results in a denominator of $1 + 23.32$ in Eq. B.2 when multiplied by 0.06904. The square root of the determinant of the scrap response covariance matrix $C^{(scrap)}$ is 1.0962×10^{-14} , $K = 1/(53^{(20/19)} \times 1.0962 \times 10^{-14}) = 1.3966 \times 10^{12}$, and the largest term in Eq. B.2 is $K \times 1/(1+23.32)^{[(19+3)/2]} = 1.3966 \times 10^{12} \times 5.6807 \times 10^{-16} = 0.000793$. Thus the largest term in the UXO empirical distribution evaluated at the polarizability time products of

inversion ln94inv3 is $0.003878/0.000793 = 4.89$ times larger than the largest term in the scrap empirical distribution evaluated for the same inversion file.

Summing terms in Eq. B.2 gives

$$f^{(UXO)}(v_{\ln94inv3}^{(UXO)}) = 4.866$$

and

$$f^{(scrap)}(v_{\ln94inv3}^{(scrap)}) = 0.6200,$$

with probability of being UXO given by the complement of expression Eq. B.5, namely $\alpha^2 * f^{(UXO)} / [\alpha^2 * f^{(UXO)} + f^{(scrap)}] = 23.16 * 4.866 / [23.16 * 4.866 + 0.6200] = 112.7 / 113.3 = 0.9945$, so the object is classified as UXO, with probability of 0.9945 (99.45%).

Appendix C contains discrimination results from the Open Field Area. The table contains an entry for every location for which BUD indicates an object presence with following columns: (1) Rank (small number when not UXO, high number for UXO), (2) Easting (m), (3) Northing (m), (4) Probability that a metallic object is present, (5) Probability that the object is a single UXO, (6) Depth (m), (7) Azimuth (degrees, relative to North), (8) Dip angle (degrees, relative to horizontal), (9) Classification (O=UXO, C/O=clutter or clutter and UXO, B=empty), (10) Identification (name of most likely type of UXO – first match), (11) Identification (name of most likely type of UXO – second match), (12) Identification (name of most likely type of UXO – third match), and (13) LBL file name. The table contains 1594 entries, which is about 100 anomalies/acre.

Figure 4 is a detection map of the Open Field Area. A detection threshold for the first part of our survey was 3 while for the second part of the survey was 10. This was due to a significant increase in the background response possibly due to weather changes between November 2006 and March 2007. Red and yellow colors indicate the background response while green and blue colors indicate locations of metallic objects. We identified 1594 possible metallic objects.

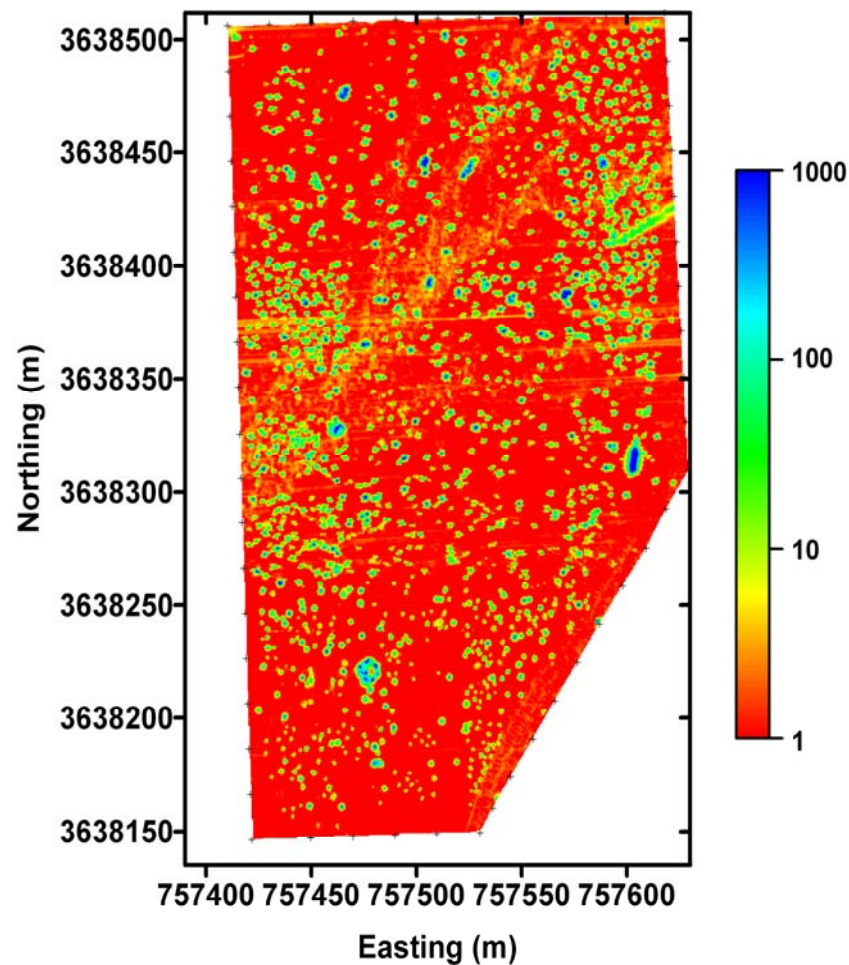


Figure 4: Open Field Area detection map. Red and yellow colors indicate background response, green and blue colors indicate locations of metallic objects.

Figure 5 shows by colors a probability that an identified metallic object is a single UXO. Values are given in fractions, i.e. 1=100%, 0.1=10%. 628 objects (40%) have probability higher than

50% of being single UXO. 80% of these objects (506 objects) have probability higher than 90% of being a single UXO. Remaining 966 objects (60%) have probability less than 50% being a single UXO. Most of these objects (864 objects) have the probability less than 10% of being a single UXO. If one looks at this cluster in more details, 83% of these objects (714 objects) have the probability less than 1% of being single UXO.

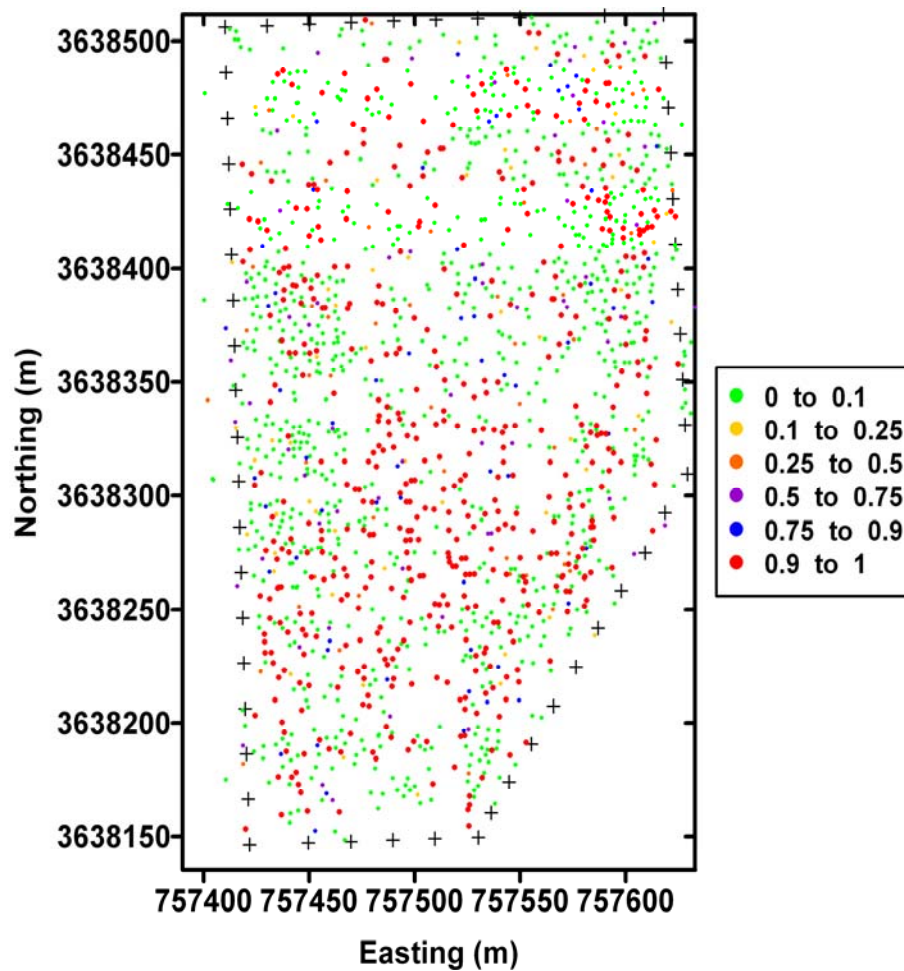


Figure 5: Probability of a metallic object being a single UXO. Values are given in fractions, i.e. 1=100%, 0.1=10%

This distribution shows two main object clusters – one with the probability higher than 90% that an object is UXO, and the second one with the probability less than 10% (1%) that an object is UXO. This leaves a small percentage of object responses that might be examined in more details for more accurate identification.

Figure 6 show that according our interpretation most objects are shallow. 72% or 1145 objects have interpreted depth less than 0.3 m. Only about 2% of the objects are buried deeper than 1 m.

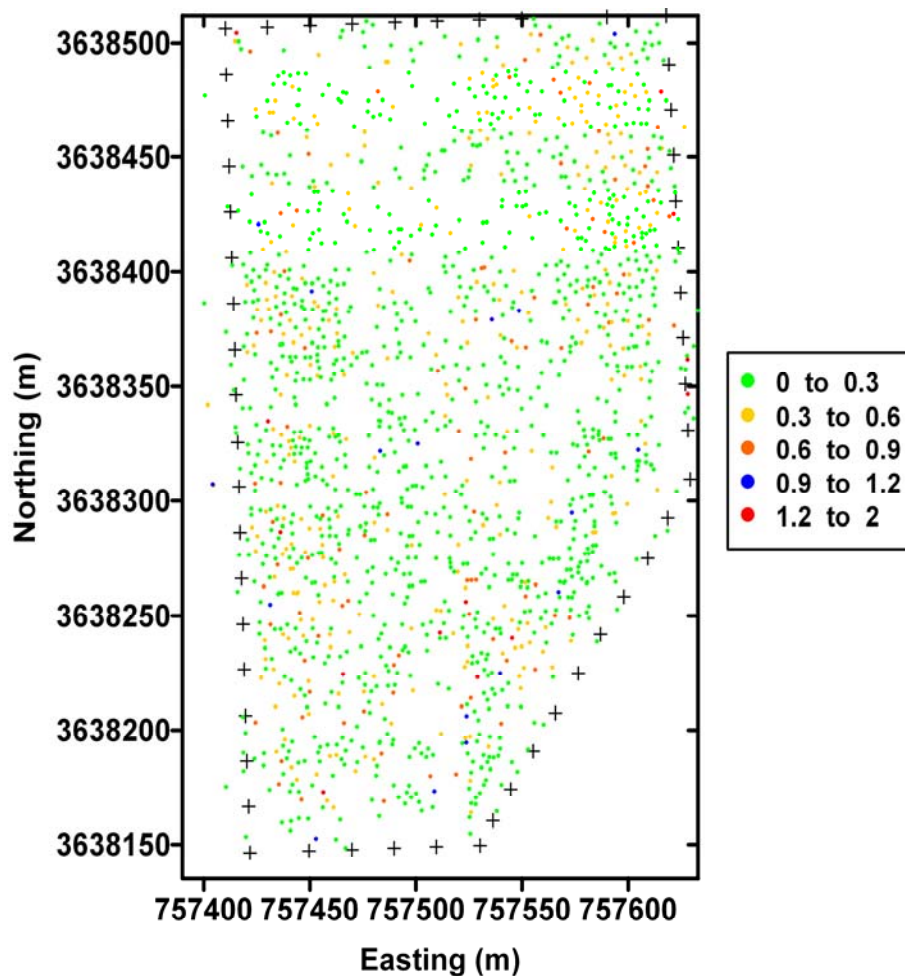


Figure 6: Distribution of objects as a function of depth (in m).

Figure 7 is a ‘priority dig map’ where in blue we show locations identified as scrap and therefore safe to leave in the ground while in red we show locations of UXO that need to be dug. The plot contains 607 pieces of scrap (38%) and 987 UXO (62%). There is 1 in 1000 chance that a piece of scrap could be an UXO.

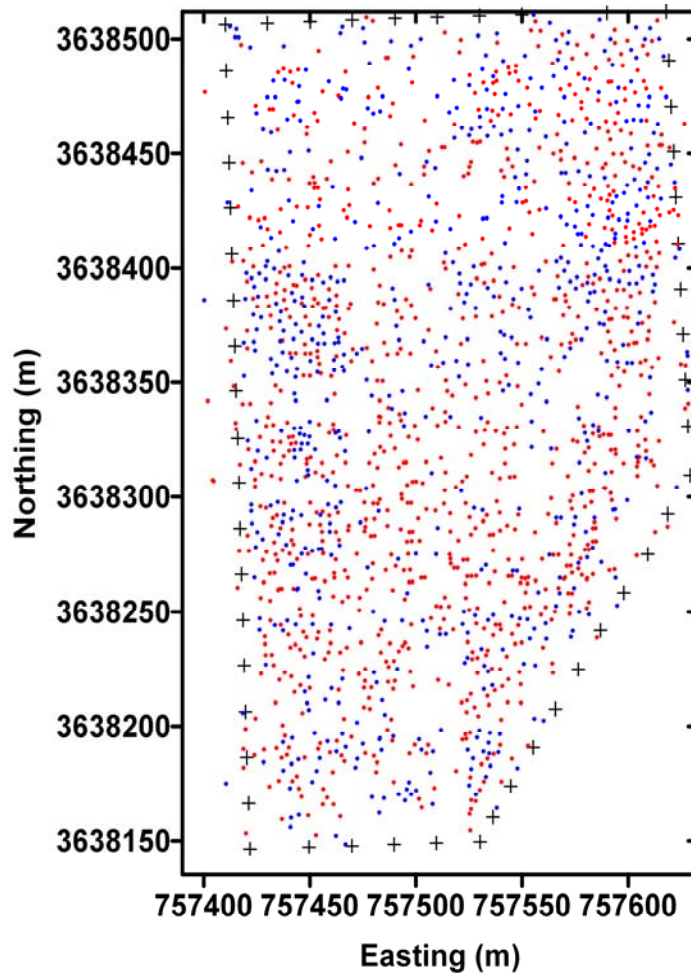


Figure 7: Distribution of objects as scrap (blue dots) and UXO (red dots). There is 1 in 1000 chance that a piece of scrap could be an UXO. There are 607 scrap objects (38%) and 987 UXO (62%).

3.3 Estimation of Receiver Operating Characteristic (ROC) Curves

This section describes how we estimated ROC curves without knowing the ground truth. This approach is applicable in cases when the ground truth is not known.

Given a set of objects with probability p of being UXO and a threshold p_0 for considering object with $p \geq p_0$ to be identified as UXO, if $p \geq p_0$ then all are considered UXO. However, on average a fraction $(1-p)$ of them were not actually UXO, so they were false alarms. If $p_0 > p$ then all are considered non-UXO (scrap), but on average a fraction p of them were actually UXO, so these are missed identifications. Extending this to a set of m objects with probabilities p_i , $i=1, m$ of being UXO, the expected overall false alarm rate is

$$\frac{1}{m} \sum_{p \geq p_0} 1 - p_i \quad (1)$$

and the expected overall false negative rate is

$$\frac{1}{m} \sum_{p < p_0} p_i \quad (2)$$

where these rates are per total number of targets. Given the same set of identification probabilities, the expected number of UXO is

$$\sum_i p_i \pm \sqrt{\sum_i p_i - p_i^2}, \quad (3a)$$

and of non-UXO is

$$\sum_i 1 - p_i \pm \sqrt{\sum_i p_i - p_i^2} \quad (3b)$$

where the uncertainties are given by the square root of the sum of the variances of the m terms in the sums, and are the same for the two sums. Using these to renormalize Eqs. (1) and (2), the expected false alarm rate per non-UXO is

$$\frac{\sum_{p_i \geq p_0} 1 - p_i}{\sum_i 1 - p_i}, \quad (4)$$

and the expected false negative rate per UXO is

$$\frac{\sum_{p_i < p_0} p_i}{\sum_i p_i}. \quad (5)$$

ROC curves for detection and identification of objects in the Open Field Area are shown in Figures 8 and 9.

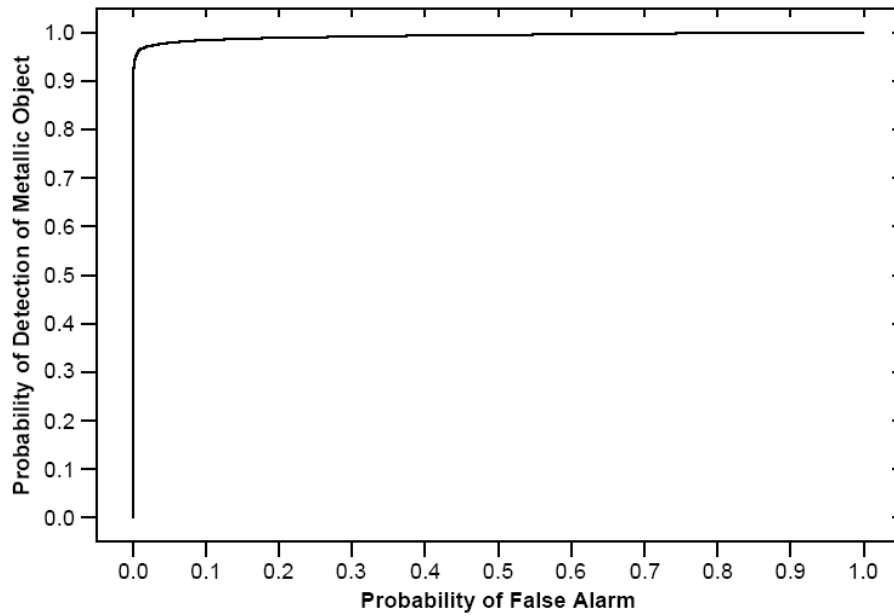


Figure 8: ROC curve for detection in the Open Field Area

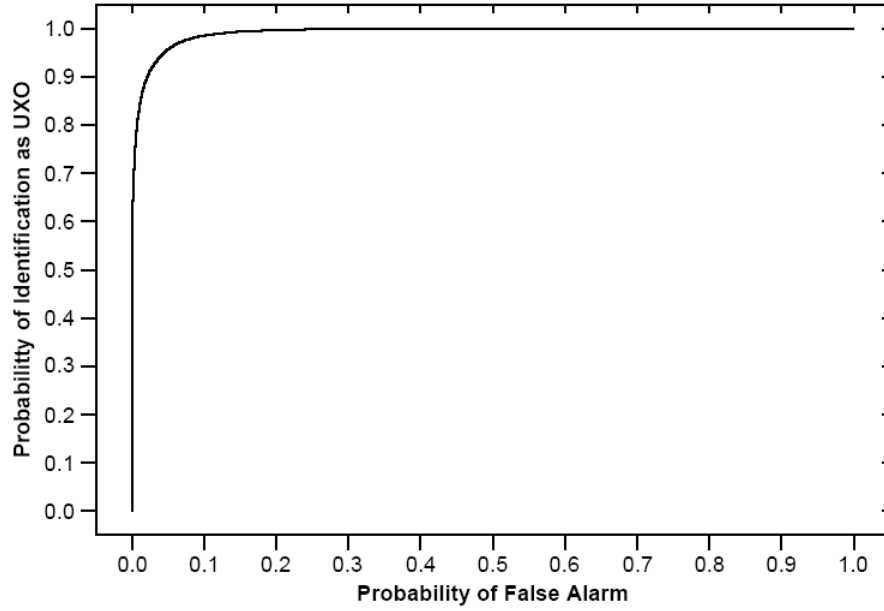


Figure 9: ROC curve for identification in the Open Field Area

4. CONCLUSIONS

The detection threshold for the Open Field Area survey was based on the background variation in an area free of metallic objects. Soundings with signal levels above the detection threshold were inverted for equivalent dipole polarizability and position. The objects were identified by comparison to a catalogue of responses collected over the Calibration Grid and the test pit. Variation of the catalogue polarizability responses within classes of ‘identical’ objects in different orientations was characterized in terms of covariance matrices for the relative offsets and relative residual magnitudes between catalogue responses and the median response of their class. Individual class relative offset covariance matrices were averaged to obtain an overall average relative offset covariance matrix. The relative residual magnitudes were normalized by

their class average relative residual magnitudes, and the normalized relative residuals modeled as a gamma distributed random variable of common distribution over all classes and times. Distance between two responses was then measured in terms of the relative offset between the two responses weighted by the inverse average relative offset covariance matrix and the sum of the normalized relative residual magnitudes. Soundings were then classified by finding three object classes with responses closest to the measured sounding. Nominal identification probabilities were assigned to the three closest classes, based on the likelihood of a sounding with the observed distance from the class median response, assuming that each of the three classes was, in turn, the correct class.

For probability estimates that a metallic object is a single UXO we used algorithm developed for the Former Camp Sibert data set using training approach with a set of known objects. This probability was used to create a ‘priority dig list’ and identify ‘stop digging’ point for the Open Field Area. Our interpretation indicates that from 1594 possible metallic objects 607 are scrap metals (38%) and 987 UXO (62%).

The field survey with BUD at the Yuma Proving Ground was successful. BUD performed extremely well. BUD is easy to use and requires low maintenance - transmitter batteries last for three hours, while acquisition system batteries last for six hours. The system locations were recorded with RTK GPS system. We collected a large amount of multiple-transmitter multiple-receiver data over the Open Field Area. All data will be available to other researchers upon request.

5. REFERENCES

E. Gasperikova, J. T. Smith, H. F. Morrison, A. Becker, A multisensor system for detection and characterization of UXO (MM-0437) - Demonstration report, ESTCP, June 2006.

E. Gasperikova, J. T. Smith, H. F. Morrison, A. Becker, A multisensor system for detection and characterization of UXO (MM-0437) - Demonstration report: Discrimination, ESTCP, September 2006.

W.H. Press, B.P. Flannery, S.A. Teukolsky, and W.T. Vetterling, *Numerical Recipes; The Art of Scientific Computing*, Cambridge University Press, 1986.

J. T. Smith and H. F. Morrison, Estimating equivalent dipole polarizabilities for the inductive response of isolated conductive bodies, *IEEE Trans. Geosci. Remote Sensing*, vol. 42, pp. 1208-1214, June 2004.

J. T. Smith and H. F. Morrison, Optimizing Receiver Configurations for Resolution of Equivalent Dipole Polarizabilities In Situ, *IEEE Trans. Geosci. Remote Sensing*, vol. 43, no. 7, pp. 1490-1498, July 2005.

J.T. Smith, H.F. Morrison, L.R. Doolittle, and H. Tseng, Multi-transmitter Multi-receiver Null Coupled Systems for Inductive Detection and Characterization of Metallic Objects, *Journal of Applied Geophysics*, 2007.

T. Smith, W. Allan, and A. Schultz, Inversion of waveform data using an empirical distribution evolutionary algorithm, *Eos*, vol. 75, no. 44, p. 457. December 1994.

APPENDIX A

IDENTIFICATION BY POLARIZABILITY CURVE MATCHING

A.1 Introduction

The inductive response of isolated conductive objects is approximated using time dependent equivalent magnetic dipoles polarized in proportion to the peak inducing magnetic field at the object center, for inducing magnetic fields of a given time dependence. Since the inducing magnetic field may be in any direction, and the induced response dipole will be in some direction, the proportionality is given by a matrix relating induced dipole direction and strength to inducing magnetic field direction and strength. For magnetic induction receivers that are close to the object compared to its scale, and for objects that are large compared to the scale of variation of the inducing fields, higher order terms may be important, but will be neglected here. Estimation of equivalent dipole polarizability responses from magnetic induction data was described Smith and Morrison (2004). Since magnetic induction receivers are sensitive to changes in magnetic induction rather than the magnetic field itself, they are sensitive to changes in an induced equivalent magnetic dipole rather than the dipole itself, so properly speaking, we estimate the rate of dipole polarizability change rather than dipole polarizability itself, but for brevity, we will refer to it as a dipole polarizability.

The equivalent dipole polarizability response of an object to magnetic source fields of a given time dependence, is a real symmetric (time dependent) matrix, hence it may be diagonalized by rotating into its principal coordinates, corresponding to principal axes of the object. For primary

fields polarized in one of the principal coordinate directions, the induced response dipoles are in the same direction as the inducing field. For an ellipsoidal conductive object, the inductive principal axes correspond to the axes of the ellipsoid. For rotationally symmetric objects, such as much ordnance, the axis of symmetry constitutes one principal axis, and the other two may be any two orthogonal directions perpendicular to the axis of symmetry, and have identical polarizability responses in all directions perpendicular to the axis of rotational symmetry. For irregular, highly permeable (e.g., steel) conductive objects, inductive principal directions are expected to be roughly in the long and short directions of the object, if these are easily discernible and at right angles, together with a third axis at the right angle to these. For irregular objects, for a given time dependence of source field, the principal axes of the inductive response may change with time after termination of the source field. For simplicity, principal directions will be assumed to be time independent here. For equivalent dipole polarizability matrices that have been estimated without constraining principal directions to be time independent, we stack the polarizability matrices from all times under consideration, each weighted reciprocally by the sum of the estimated squared errors in the three diagonal elements, and use the principal coordinates of the stacked polarizability matrix as principal coordinates for the polarizability matrices at all times.

For object classification, objects will be characterized by their induced dipole polarizability responses in their three principal directions $p_k(t)$ for $k = 1, 2, 3$ ($\text{A-m}^2/\text{s}/(\text{A/m}) = \text{m}^3/\text{s}$). In the limit of equivalent dipole polarizability responses to source fields from transmitters that are far from the object, obtained from receivers that are far from the object, the equivalent dipole polarizability response is well defined as the induced dipole response due to uniform magnetic

source fields of the given time dependence. In practice, when a polarizability response matrix is estimated from receivers and sources close to an object compared to its scale, and higher order terms are neglected, estimated polarizabilities vary with object position and orientation. As a step towards accounting for this variability we have made a catalogue of estimates of object principal polarizabilities as a function of time for classes of UXO and other test objects. A class is a set of hypothetically identical objects such as a particular type of UXO, wire loops of common gauge and diameter, or shot puts of a common weight. The responses were obtained for objects buried in the Calibration Grid and the test pit.

A.2 Object Catalog

A set of responses was collected over 16 types of UXO varying in size from 20 mm to 155 mm in the Calibration Grid and a test pit. Data were differenced with a reference site measurement and then inverted for equivalent dipole polarizability and location using the method of Smith and Morrison (2004), but using the empirical distribution evolutionary algorithm of Smith, et al. (1994) (also, Smith and Morrison, 2005) in place of the downhill simplex method used by Smith and Morrison (2004). Principal equivalent dipole polarizability responses as a function of time were then collected for soundings above all examples of the same class (e.g, UXO class), with responses from the object in six orientations for most UXO. This resulted in total of 16 classes.

A.3 Catalogue Statistics

For each object principal polarizability response, the three principal polarizabilities were sorted into three categories based on (1) smallest, (2) medium, and (3) largest average magnitudes, when weighted reciprocally by the average estimated uncertainty in the three polarizabilities and averaged over time. These are denoted $p_{ij}^{(1)}(t)$, $p_{ij}^{(2)}(t)$, and $p_{ij}^{(3)}(t)$ respectively, for the i 'th member of the j 'th class. Within each class, at each sample time, the three polarizabilities are then sorted across the different members of the class, to obtain median responses $\hat{p}_j^{(1)}(t)$, $\hat{p}_j^{(2)}(t)$, and $\hat{p}_j^{(3)}(t)$ for the j 'th class.

When polarizabilities are estimated simultaneously with location, an error in estimated location affecting the estimated distance between object and receivers, may translate directly into an error in the scale of the inverted polarizabilities. To better model this, statistics are computed separately for the relative offset of polarizability curves from a median curve, and the residuals after subtraction of median curve appropriately scaled. The relative offset of a polarizability response $p^{(k)}(t)$ with respect to $\hat{p}_j^{(k)}(t)$ is

$$\beta_j^{(k)} \equiv \frac{1}{n_t} \sum_t \frac{p^{(k)}(t) - \hat{p}_j^{(k)}(t)}{\hat{p}_j^{(k)}(t)}. \quad (\text{A.1})$$

For this value,

$$\sum_t \frac{p^{(k)}(t)}{\hat{p}_j^{(k)}(t)} = \sum_t \frac{\beta_j^{(k)} \hat{p}_j^{(k)}(t) + \hat{p}_j^{(k)}(t)}{\hat{p}_j^{(k)}(t)}, \quad (\text{A.2})$$

and $(1 + \beta_j^{(k)})\hat{\bar{p}}_j^{(k)}(t)$ is a least squares fit to $p^{(k)}(t)$ using $1/\hat{\bar{p}}_j^{(k)}(t)$ as weights. The residual polarizability left over is simply

$$r_j^{(k)}(t) \equiv p^{(k)}(t) - [1 + \beta_j^{(k)}]\hat{\bar{p}}_j^{(k)}(t), \quad (\text{A.3})$$

with a relative residual polarizability of $s_j^{(k)}(t) \equiv r_j^{(k)}(t)/\hat{\bar{p}}_j^{(k)}(t)$. For each class, we estimate the elements of the 3x3 matrix relative offset covariance $\text{cov}(\beta_{\text{clj}})$ as

$$\text{cov}(\beta_{\text{clj}})_{kl} \equiv \sum_i \beta_{ij}^{(k)} \beta_{ij}^{(l)} / (n_{\text{clj}} - 1), \quad (\text{A.4})$$

where $\beta_{ij}^{(k)}$ is $\beta_j^{(k)}$ evaluated for the i 'th member of the j 'th class, (*i.e.*, Eq. A.1) with $p^{(k)}(t)$ set equal to $p_{ij}^{(k)}(t)$. Similarly, the mean (absolute) relative residual k 'th polarizability for the j 'th class at time t ,

$$\overline{|s_{\text{clj}}^{(k)}(t)|} \equiv \frac{n_t^{1/2} \sum_i |s_{ij}^{(k)}(t)|}{[(n_t - 1)(n_{\text{clj}} - 1)n_{\text{clj}}]^{1/2}}, \quad (\text{A.5})$$

where $s_{ij}^{(k)}$ is $s_j^{(k)}$ evaluated for the i 'th member of the j 'th class. The summations are over the n_{clj} members of the j 'th class. Adjustments have been made for the loss of degrees of freedom in fitting $\hat{\bar{p}}_j(t)$ and $\beta_{ij}^{(k)}$.

Because of a relatively small number of members of each class, we use the class relative offset covariance and absolute relative residual polarizabilities to adjust the scales of individual relative offsets and residual polarizabilities, before estimating parameters of their distributions, and assume a common distribution over all classes for the de-scaled quantities. For polarizability

response $p^{(k)}(t)$ with $k=1,3$ and with $\beta_j^{(k)}$ computed from Eq. A.1 the squared de-scaled relative offset (relative to class j median polarizability k) is

$$|\tilde{\beta}_j|^2 \equiv \beta_j^T \mathbf{cov}(\beta_{(clj)})^{-1} \beta_j, \quad (\text{A.6})$$

where β_j is a column vector with elements $\beta_j^{(k)}$, ($k=1,3$), T denotes transpose, and the inverse covariance matrix is used. An absolute value of the de-scaled average residual polarizability response is

$$|\overline{\tilde{s}_j}| \equiv \frac{1}{3n_t} \sum_{t,k} \frac{|s_j^{(k)}(t)|}{|s_{(clj)}^{(k)}(t)|}. \quad (\text{A.7})$$

For catalogue members, we model $|\tilde{\beta}_j|^2$ (Eq.A.6) and $|\overline{\tilde{s}_j}|$ (Eq. A.7) as Γ distributed random variables, and estimate their distribution parameters $\alpha_{\tilde{\beta}}$, $\lambda_{\tilde{\beta}}$, $\alpha_{\tilde{s}}$, $\lambda_{\tilde{s}}$ from the sums of $|\tilde{\beta}_j|^2$ and of $|\overline{\tilde{s}_j}|$, the sums of their squares, and the sums of their logarithms, over all members of the catalog. Maximum likelihood estimates of Γ distribution parameters (see Section A.6) for the squared de-scaled relative offset, and for the element average de-scaled absolute residual polarizability, are $\alpha_{\tilde{\beta}}=1.547$, $\lambda_{\tilde{\beta}}=0.5158$, $\alpha_{\tilde{s}}=3.881$, and $\lambda_{\tilde{s}}=3.825$, respectively. Parameters $\alpha_{\tilde{\beta}}$ and $\lambda_{\tilde{\beta}}$ are close to values appropriate for the sum of squares of three unit normal variables ($\alpha_{\tilde{\beta}} = 1.5$ and $\lambda_{\tilde{\beta}} = 0.5$). The correspondence between Γ distributed variables, and χ^2 distributed variables, suggests forming a single statistic from a weighted sum of $|\tilde{\beta}_j|^2$ (Eq. A.6) and $|\overline{\tilde{s}_j}|$ (Eq. A.7) as

$$u_j \equiv \lambda_{\tilde{\beta}} |\tilde{\beta}_j|^2 + \lambda_{\tilde{s}} |\overline{\tilde{s}_j}|. \quad (\text{A.8})$$

Assuming $|\tilde{\beta}_j|^2$ and $|\overline{\tilde{s}_j}|$ are independent, u_j is distributed as a $\Gamma(x, \alpha_{\tilde{\beta}} + \alpha_{\tilde{s}}, 1)$ variable.

The adjusted class relative offset covariances (Eq. A.4) and mean relative residual polarizabilities (Eq. A.5), are used, through statistic (Eq. A.8), to evaluate the likelihood of an identification once it is made. However, for identification itself, it is desirable to average covariances (Eq. A.4) and mean absolute residuals (Eq. A.5) over all classes so that a consistent norm can be used in evaluating the distance of a given polarizability response from all the polarizability responses in a catalogue of identified responses, reducing bias towards classes with large variations in their catalogue responses. Catalogue average values of $\mathbf{cov}(\beta_{(clj)})$ and $\overline{|s_{(clj)}^{(k)}(t)|}$ are

$$\mathbf{cov}(\beta_{(cat)}) \equiv \sum_j n_{clj} \mathbf{cov}(\beta_{(clj)}) / n_{cat}, \quad (\text{A.9})$$

and

$$\overline{|s_{(cat)}^{(k)}(t)|} \equiv \sum_j n_{clj} \overline{|s_{(clj)}^{(k)}(t)|} / n_{cat}, \quad (\text{A.10})$$

with n_{cat} the total number of object responses in the catalog.

A.4 Object Identification

Each differenced response, that has a signal strength index greater than some threshold, is inverted for an equivalent dipole polarizability response $p^{(k)}(t)$, $k = 1, 3$ and equivalent dipole position. When the dipole position is inside of a footprint of BUD's horizontal loop transmitters, classification of the prospective object is undertaken. For identification, the polarizability response is compared with all responses in the identified response catalog. To do this, the

analogue of relative polarizability offset $\beta_{ij}^{(k)}$ (Eq. A.1) is computed for $p^{(k)}(t)$ relative to each catalogue response $p_{ij}^{(k)}(t)$, reciprocally weighted by the catalogue object's class median response $\hat{p}_j^{(k)}(t)$;

$$\hat{\beta}_{ij}^{(k)} = \frac{1}{n_t} \sum_t \frac{p^{(k)}(t) - p_{ij}^{(k)}(t)}{\hat{p}_j^{(k)}(t)} \quad (\text{A.11})$$

In addition to computing $\hat{\beta}_{ij}^{(k)}$ for $p^{(k)}(t)$ with each catalogue response, an analogue to the average de-scaled absolute residual (Eq. A.7) de-scaled with catalogue average $|\overline{s_{(\text{cat})}^{(k)}(t)}|$ is used.

The residual with respect to each shifted catalogue response is computed as

$$r_{ij}^{(k)}(t) \equiv p^{(k)}(t) - [1 + \hat{\beta}_{ij}^{(k)}] p_{ij}^{(k)}(t). \quad (\text{A.12})$$

The scales of the catalogue average relative residuals $|\overline{s_{(\text{cat})}^{(k)}(t)}|$ already encompass the effects of average size uncertainties in polarizability. To down weight prospective object polarizability responses with larger than average errors, reciprocal squared weights

$$w_{(\text{cat})}^{(k)}(t)^2 \equiv p^{(k)}(t)^2 |\overline{s_{(\text{cat})}^{(k)}(t)}|^2 + \max(0, e^{(k)}(t)^2 - \overline{e_{\text{cat}}^{(k)}(t)}^2) \quad (\text{A.13})$$

are computed, where $e^{(k)}(t)$ are the estimated uncertainties in $p^{(k)}(t)$, and $\overline{e_{\text{cat}}^{(k)}(t)}$ are the uncertainties in $p_{ij}^{(k)}(t)$ averaged over all catalogue responses, and the down weighted analogue of $|\overline{\tilde{s}_j}|$ (Eq. A.7) is formed as

$$|\overline{\tilde{s}_{(\text{cat})ij}}| \equiv \frac{1}{3n_t} \sum_{t,k} \frac{|r_{ij}^{(k)}(t)|}{w_{(\text{cat})}^{(k)}(t)}. \quad (\text{A.14})$$

For polarizabilities with uncertainties $e^{(k)}(t) \leq \overline{e_{(\text{cat})}^{(k)}(t)}$, $|\overline{\tilde{s}_{(\text{cat})ij}}|$ is similar to $|\overline{\tilde{s}_j}|$ (Eq. A.7) computed with catalogue mean relative residual (Eq. A.10) substituted for the class mean relative

residual (Eq. A.5) in the denominator of Eq. A.7, and using an $\hat{s}_{ij}^{(k)}(t)$ computed relative to class member polarizability $p_{ij}^{(k)}(t)$ in place of $s_j^{(k)}(t)$ in the numerator of Eq. A.7, which was computed relative to class median polarizability $\hat{p}_j^{(k)}(t)$. For object classification, in analogy to u_{ij} (Eq. A.8), the distance between the polarizability response $p^{(k)}(t)$ and each catalogue response is measured by

$$u_{ij} \equiv \lambda_{\tilde{\beta}} \hat{\beta}_{ij}^T \mathbf{cov}(\beta_{(\text{cat})})^{-1} \hat{\beta}_{ij} + \lambda_{\tilde{s}} |\overline{\tilde{s}_{(\text{cat})ij}}|. \quad (\text{A.15})$$

For each class, the member with smallest u_{ij} is found, and the three classes $j^{(1)}$, $j^{(2)}$, $j^{(3)}$ with smallest member minimum value are selected as possible identifications of the object. That is, the three classes with a member closest in u_{ij} (Eq. A.15) to the response $p^{(k)}(t)$ are found. This was done, as an example, for the responses of the objects comprising the catalog (objects from the Calibration Grid and the test pit), for each object, omitting the object's own polarizability response from those it is compared against in the identification step.

A.5 Nominal Identification Probabilities

Since the distribution of $|\tilde{\beta}_j|^2$ (Eq. A.6) and $|\overline{\tilde{s}_j}|$ (Eq. A.7) has been evaluated for catalogue responses relative to class median responses, it is more convenient to evaluate the probability of a class identification based on offsets and residuals relative to class medians rather than relative to class members. For prospective object polarizabilities with large uncertainties (compared to the catalogue average uncertainties), the larger uncertainties must be accounted for as they were in forming $|\overline{\tilde{s}_{(\text{cat})ij}}|$ (Eq. A.10). Squared reciprocal weights

$$w_{(\text{clj})}^{(k)}(t)^2 \equiv \hat{p}_j^{(k)}(t)^2 \overline{|s_{(\text{clj})}^{(k)}(t)|^2} + \max(0, e^{(k)}(t)^2 - \overline{e_{\text{cat}}^{(k)}(t)^2}), \quad (\text{A.16})$$

are computed, and used to form

$$\overline{|s_{(\text{clj})}|} \equiv \frac{1}{3n_t} \sum_{t,k} \frac{|r_j^{(k)}(t)|}{w_{(\text{clj})}^{(k)}(t)}, \quad (\text{A.17})$$

which, for polarizabilities with uncertainties $e^{(k)}(t)^2 \leq \overline{e_{(\text{cat})}^{(k)}(t)^2}$, is identical to $\overline{|s_j|}$ (Eq. A.7).

This is used to form

$$\tilde{u}_j \equiv \lambda_{\tilde{\beta}} |\tilde{\beta}_j|^2 + \lambda_{\tilde{s}} \overline{|s_{(\text{clj})}|}. \quad (\text{A.18})$$

We neglect the difference in treatment of data with large uncertainties, and treat $|\tilde{\beta}_j|^2$ and $\overline{|s_{(\text{clj})}|}$ as independent, so that \tilde{u}_j is distributed as a $\Gamma(x, \alpha_{\tilde{\beta}} + \alpha_{\tilde{s}}, 1)$ variable. The probability of values as large as \tilde{u}_j is given by the complementary incomplete gamma function, $P(x \geq \tilde{u}_j) = Q(\alpha_{\tilde{\beta}} + \alpha_{\tilde{s}}, \tilde{u}_j)$, under the hypothesis that the unidentified polarizability response is due to an object of class j . Such a treatment neglects the uncertainty in distribution parameters $\alpha_{\tilde{\beta}}$, $\alpha_{\tilde{s}}$, $\lambda_{\tilde{\beta}}$, and $\lambda_{\tilde{s}}$ – a fairly small neglect given the number of responses entering in their estimation. It also neglects the uncertainty in $\text{cov}(\beta_j)$ and $\overline{|s_{(\text{clj})}^{(k)}(t)|}$ which are used to scale the relative offsets and relative residual polarizabilities entering u_{ij} (Eq. A.8) through Eq. A.6 and Eq. A.7. These have been estimated from only the $n_{(\text{clj})}$ members of the j 'th class. An approximate correction for this is to treat $\tilde{u}_j + \alpha_u/n_{(\text{clj})}$ as a $\Gamma(x, \alpha_u \cdot (1 + n_{(\text{clj})})/n_{(\text{clj})}, 1)$ distributed variable, where $\alpha_u = \alpha_{\tilde{\beta}} + \alpha_{\tilde{s}}$, so

$$P(x \geq \tilde{u}_j) \approx Q(\alpha_u \cdot (1 + n_{(\text{clj})})/n_{(\text{clj})}, \tilde{u}_j + \alpha_u/n_{(\text{clj})}), \quad (\text{A.19})$$

where Q is the complimentary incomplete gamma function (e.g., Press, *et al.*).

Equation A.19 gives the probability that a level of \tilde{u}_j as large as is observed would be observed when identification j is correct. For the three classes with best fitting members, we take this as the nominal probability that identification j is correct, and the maximum of the three values $\max(P(x \geq \tilde{u}_j))$, $[j \in \{j^{(1)}, j^{(2)}, j^{(3)}\}]$ as the nominal probability that the response is due to a solitary object of one of the types contained in the catalogue. When such identification procedure is performed on n_{cand} prospective object responses that correspond to classes in the catalog, and catalogue classes are distinct enough that the response of any object from any class has $P(x \geq \tilde{u}_j)$ negligible for j corresponding to any incorrect identification, then the average value of $\max(P(x \geq \tilde{u}_j))$ should be $0.5 \pm (12n_{\text{cand}})^{-1/2}$, and the n_{cand} ordered values of $\max(P(x \geq \tilde{u}_j))$ should plot approximately as a straight line from $1/(n_{\text{cand}} + 1)$ to $n_{\text{cand}}/(n_{\text{cand}} + 1)$.

For the class identifications made for the responses of the catalog objects, omitting each object's own response when finding the closest other responses, and nominal probabilities are assigned to the three classes with the closest member. A better performance of nominal identification probability (Eq. A.19) than u_{ij} in identifying the catalog objects is not surprising for several reasons – (1) for the correct class, the omitted response was used in forming $\mathbf{cov}(\beta_{(\text{clj})})$ and $|\overline{s_{(\text{clj})}^{(k)}}(t)|$, that are used to reciprocally weight the relative offsets β_j and residuals $r_j^{(k)}(t)$, and (2) it has much more weight in these quantities than in $\mathbf{cov}(\beta_{(\text{cat})})$ and $|\overline{s_{(\text{cat})}^{(k)}}(t)|$.

A.6 Maximum Likelihood Gamma Distribution Parameter Estimates

For a set of n independent identically distributed variables x_i distributed as $\Gamma(x, \alpha, \lambda)$ the maximum likelihood estimate of distribution parameters α and λ satisfies

$$\sum_i \log(x_i)/n = \log(\sum_i x_i/n) - \log(\alpha) + d \log(\Gamma(\alpha))/d\alpha, \quad (\text{A.20})$$

$$\lambda \sum_i x_i = n\alpha, \quad (\text{A.21})$$

where $\log(\Gamma(\alpha))$ is the logarithm of the standard gamma function, $d \log(\Gamma(\alpha))/d\alpha$ is the derivative of that, obtained by straightforward differentiation of the numerical formula used for evaluating $\log(\Gamma(\alpha))$, [e.g., Press, *et al.*, 1986, p. 157], and the summations are over $i = 1, n$.

Equation A.20 is easily solved for α iteratively, using Newton's method,

$$\alpha^{(\text{new})} = \alpha^{(\text{old})} + \frac{\sum_i \log(x_i)/n - \log(\sum_i x_i/n) + \log(\alpha^{(\text{old})}) - d \log(\Gamma(\alpha))/d\alpha|_{\alpha=\alpha^{(\text{old})}}}{d^2 \log(\Gamma(\alpha))/d\alpha^2 - 1/\alpha^{(\text{old})}}, \quad (\text{A.22})$$

provided α stays positive [and using $\alpha^{(\text{new})} = \alpha^{(\text{old})}/2$ instead, on any iteration where Eq. A.22 gives $\alpha^{(\text{new})} \leq 0$]. The resultant α is used in Eq. A.21 for λ . A very good starting value for α in Newton's method Eq. A.22 is the method of moments estimate $\alpha^{(\text{mm})}$ given by

$$\bar{x} = \sum_i x_i / n, \quad (\text{A.23})$$

$$\lambda^{(\text{mm})} = \frac{\bar{x}}{(\sum_i x_i^2/n) - \bar{x}^2}, \quad (\text{A.24})$$

$$\alpha^{(\text{mm})} = \bar{x} \lambda^{(\text{mm})}. \quad (\text{A.25})$$

APPENDIX B

UXO DISCRIMINATION USING TRAINING DATA

Training data consisted of a set of principal polarizability responses at 34 logarithmically spaced times centered from 143 μs to 1300 μs after transmitter shut-off. This data set consisted of 104 targets from the Calibration Grid and the test pit at YPG, and 103 scrap metals from Camp Sibert. Discrimination was made for UXO vs. scrap responses.

The data time interval was sub-divided logarithmically into a number n_{div} of sub-intervals (e.g., 6). The product of each principal polarizability with its sample time was averaged over each of these intervals. Since there are three principal polarizabilities, this results in $n_{\text{feat}} = 3n_{\text{div}}$ reduced data, hence forth called ‘features’. Additional feature used in the analysis was a median $\log_e(\text{magnitude})$ (in m^3) which increased the total number of features n_{feat} to $3n_{\text{div}} + 1$. The number of sub-divisions n_{div} was chosen using cross validation. In cross validation, an analysis method is applied to most of a training data set and the results are used to predict something about the remaining (excluded) training data. This is done many times, excluding a different set of training data each time, and a choice made, e.g., the value of n_{div} , based on what gives the best predictions averaged over many times.

In our application, two thirds of the training data were randomly selected for direct use in training, and one third was reserved for later calibration and is termed ‘reserved data’. Based on the selected 2/3 of the training data, the probability that an observation is due to scrap is

estimated from a ratio of empirical probability density estimates for feature values. Empirical probability distributions are probability distribution estimates made based on observed data. Empirical probability distributions will be constructed below.

Within the selected 2/3 of the training data ('non-reserved' data), additional responses were randomly selected for exclusion in cross validation, and are termed 'excluded data'. In this work, a constant number of UXO training data, and a constant number of scrap training data were excluded at a time, in roughly equal proportions. The number of excluded data was chosen so that one response was withheld at a time from the smaller of the sets of non-reserved UXO and scrap training data. In cross validation one UXO and one scrap were withheld from the training responses at a time. This was cycled through 103 choices of excluded responses excluding each scrap and each UXO responses once.

We estimate empirical probability densities separately from UXO and scrap classes. In constructing an empirical probability distribution for either UXO or scrap responses, it is desirable to smear probability associated with any particular data point into a region centered around it, as it is extremely unlikely that another data point will have a value somewhere in the neighborhood. To get an idea of how much to smear out the probability associated with each data point in forming an empirical probability distribution, a trimmed cross power matrix is constructed for variation of data vectors about their median values. To do this, within training data for a class, values of each feature are sorted, the median and median absolute deviation (MAD) from the median are noted. In finding these medians and MADs, responses reserved for calibration and responses excluded for cross-validation are omitted. The values for each feature

are then shifted by subtracting its median value. As the scale of different features may vary from feature to feature, before forming the trimmed cross power matrix, the shifted feature values for each feature are normalized by dividing their MAD resulting in shifted normalized feature vectors, $\mathbf{v}_i^{(\text{UXO})}$ for UXO responses, and $\mathbf{v}_i^{(\text{scrap})}$ for scrap responses. Trimmed cross power matrices $\mathbf{C}^{(\text{class})}$ are computed from these, with superscript $^{(\text{class})}$ meaning either $^{(\text{uxo})}$ or $^{(\text{scrap})}$. To compute the trimmed cross power matrix for a class, values of $|\mathbf{v}_i^{(\text{scrap})}|$ are computed for the class's training data and sorted to find $\text{median}(|\mathbf{v}_i^{(\text{scrap})}|)$, omitting reserved and excluded data. Then the class trimmed cross power matrices are computed as

$$\mathbf{C}^{(\text{class})} = \frac{1}{\tilde{n}^{(\text{class})}} \left[\sum_{i \text{ in class, } |\mathbf{v}_i^{(\text{class})}| \leq \text{median}} \mathbf{v}_i^{(\text{class})} (\mathbf{v}_i^{(\text{class})})^t + \sum_{i \text{ in class, } |\mathbf{v}_i^{(\text{class})}| > \text{median}} \text{median}^2 \frac{\mathbf{v}_i^{(\text{class})} (\mathbf{v}_i^{(\text{class})})^t}{|\mathbf{v}_i^{(\text{class})}|^2} \right] \quad (\text{B.1})$$

where $\tilde{n}^{(\text{class})} \equiv n^{(\text{class})} - n_{\text{rsrv}}^{(\text{class})} - n_{\text{with}}^{(\text{class})}$, and $n_{\text{rsrv}}^{(\text{class})}$ is the number of (class) responses reserved for subsequent calibration, and $n_{\text{with}}^{(\text{class})}$ is the number of (class) responses excluded as a part of cross validation. The sums are over all non-excluded non-reserved class responses, t denotes transpose, and median means $\text{median}(|\mathbf{v}_i^{(\text{scrap})}|)$. In the second sum, the contribution of large magnitude feature vectors are downweighted. Feature vector $\mathbf{v}_i^{(\text{class})}$ probability density function is estimated empirically as proportional to

$$f^{(\text{class})}(\mathbf{v}_j^{(\text{class})}) = K \sum_{i \text{ in class}} \frac{1}{\left[1 + (\mathbf{v}_j - \mathbf{v}_i)^t (\mathbf{C}^{(\text{class})})^{-1} (\mathbf{v}_j - \mathbf{v}_i) (\tilde{n}^{(\text{class})})^{-1/2 n_{\text{feat}}} \right]^{(3+n_{\text{feat}})/2}} \quad (\text{B.2})$$

with

$$1/K = (\tilde{n}^{(\text{class})})^{(1+n_{\text{feat}})/n_{\text{feat}}} (\det(\mathbf{C}^{(\text{class})}))^{1/2} \quad (\text{B.3})$$

where superscript $^{(\text{class})}$ has been omitted from $\mathbf{v}_i^{(\text{class})}$ and $\mathbf{v}_j^{(\text{class})}$ in the denominator, and reserved and excluded $\mathbf{v}_i^{(\text{class})}$ terms omitted from the sum. Quantity in Eq. B.2 will be referred to as a density, although strictly speaking a density is normalized to have unit integral, and quantity in Eq. B.2 has not been normalized. Eq. B.2 is a generalization of a Cauchy distribution, with the outer exponent being the smallest half integer value yielding a finite variance.

In cross validation, densities (Eq. B.2) are computed for UXO and scrap classes from non-excluded responses, and feature vectors $\mathbf{v}_j^{(\text{uxo})}$ and $\mathbf{v}_j^{(\text{scrap})}$ are computed for excluded training responses not reserved for calibration, where for the j 'th response, the two differ in component offsets and normalizations. The first is used in estimating the response's likelihood as a UXO response, and the second in estimating its likelihood as a scrap response. For a given response, assuming that the proportionality constant is the same for both UXO and scrap estimated densities, the probability that the response is due to a scrap would be

$$\frac{f^{(\text{scrap})}(\mathbf{v}_j^{(\text{scrap})})}{f^{(\text{uxo})}(\mathbf{v}_j^{(\text{uxo})}) + f^{(\text{scrap})}(\mathbf{v}_j^{(\text{scrap})})} \quad (\text{B.4})$$

as the common proportionality factor cancels in their ratio. The probability that is due to UXO, would be one less this number. Allowing for a ratio of proportionality constants to be α^2 , the densities are then $\alpha f^{(\text{uxo})}(\mathbf{v}_j^{(\text{uxo})})$ and $f^{(\text{scrap})}(\mathbf{v}_j^{(\text{scrap})})/\alpha$ (within a common scale factor), and the probability that the response is due to scrap is

$$p^{(\text{scrap})}(\mathbf{v}_j^{(\text{scrap})}) = \frac{f^{(\text{scrap})}(\mathbf{v}_j^{(\text{scrap})})}{\alpha^2 f^{(\text{uxo})}(\mathbf{v}_j^{(\text{uxo})}) + f^{(\text{scrap})}(\mathbf{v}_j^{(\text{scrap})})} \quad (\text{B.5})$$

and the UXO probability its compliment (1 - scrap). The probability in Eq. B.5 depends only on α^2 , $f^{(uxo)} v_j^{(uxo)}$, and $f^{(scrap)} v_j^{(scrap)}$. The latter two are computed and saved for each excluded training datum, and proportionality constant α^2 chosen subsequently.

In short, after computing $f^{(scrap)} (v_j^{(scrap)})$ and $f^{(uxo)} (v_j^{(uxo)})$ for the set of excluded responses not reserved for calibration, the set of excluded responses is changed, trimmed feature covariance matrices recomputed, and densities computed for the set of new unreserved excluded responses. Again, $n^{(scrap)}_{with}$ is the number of scrap training data withheld as a part of cross validation in each cycle, $n^{(uxo)}_{with}$ is the similar number of UXO training data withheld in each cycle. Letting n_{cycl} be the number of cycles of excluding some training data, $n_{cycl} \times n^{(scrap)}_{with}$ unreserved scrap training responses, and $n_{cycl} \times n^{(uxo)}_{with}$ unreserved UXO training responses are cycled through the excluded set. For a given value of α^2 , the scrap probabilities associated with these values are summed as

$$\langle \tilde{n}^{(scrap)} \rangle = \sum_{j \text{ excluded not reserved}} p^{(scrap)} (v_j^{(scrap)}) \quad (B.6)$$

Since the number of scrap responses that have been thus excluded is known to be $n_{cycl} \times n^{(scrap)}_{with}$, parameter α^2 is adjusted, so that

$$\langle \tilde{n}^{(scrap)} \rangle = n_{cycl} \times n^{(scrap)}_{with} \quad (B.7)$$

Eq. B.6 is monotonic in α^2 , so solution is unique. Newton's method started from $\alpha^2 = 1$, keeping α^2 from decreasing to less than 0.1 of its previous value on any iteration, works very well. Since $p^{(scrap)} = 1 - p^{(uxo)}$, the criterion for setting α^2 also sets the sum of $p^{(uxo)} (v_j^{(uxo)})$ to the number of UXO responses cycled through the excluded training data set $n_{cycl} \times n^{(uxo)}_{with}$.

For a prospective number of sub-intervals n_{div} , cross power matrices $\mathbf{C}^{(\text{class})}$ are $3 \times n_{\text{div}} + 1 \times 3 \times n_{\text{div}} + 1$ square matrices requiring at least $3 \times n_{\text{div}} + 1$ vector outer products to be summed (in Eq. B.1) to avoid singularity. This limits the prospective numbers of time interval sub divisions to

$$n_{\text{div}} \leq \min(\tilde{n}^{(\text{scrap})}, \tilde{n}^{(\text{uxo})})/3 \quad (\text{B.8})$$

but sub-divisions near the limiting value are expected to give poor results due to variance in the cross power matrix estimates.

In general UXO identifications are made by choosing a threshold value $p_o^{(\text{uxo})}$ above which responses are considered to be due to UXO. To obtain as few missed identifications as possible for a given level of $p_o^{(\text{uxo})}$, it is desirable to have as few true UXO responses with $p^{(\text{uxo})}$ below this level as possible, that is, as many with $p^{(\text{scrap})} = 1 - p^{(\text{uxo})}$ below $p_o^{(\text{scrap})} = 1 - p_o^{(\text{uxo})}$ as possible. To select a number of interval sub-divisions that will work well with a variety of threshold values, we choose n_{div} minimizing the sum

$$\langle \tilde{n}^{(\text{miss})} \rangle = \sum_{j \text{ uxo, not reserved}} p^{(\text{scrap})}(\mathbf{v}_j^{(\text{scrap})}) \quad (\text{B.9})$$

If some UXO response looks totally like a scrap response then would contribute 1 to $\langle \tilde{n}^{(\text{miss})} \rangle$ in summation in Eq. B.9; if it looks nothing like scrap responses it would contribute 0 to $\langle \tilde{n}^{(\text{miss})} \rangle$. So, quantity $\langle \tilde{n}^{(\text{miss})} \rangle$ is a measure of how much the UXO training data look like scrap responses under the classifier (choice of n_{div}) being considered. For each value of n_{div} tried, $\langle \tilde{n}^{(\text{miss})} \rangle$ is computed using values $p^{(\text{scrap})}(\mathbf{v}_j^{(\text{scrap})})$ which are computed using cross validation.

Recapping, 1/3 of the training data is reserved for later use; the remaining UXO and scrap data are randomly ordered within each of these classes. A sequence of candidate n_{div} values are cycled through as an outer loop. Sets of excluded UXO and scrap training data are chosen

starting with the first on their randomly ordered lists. Trimmed feature covariance matrices are computed excluding these and the reserved data. Quantities $f^{(\text{scrap})}(\mathbf{v}_j^{(\text{scrap})})$ and $f^{(\text{uxo})}(\mathbf{v}_j^{(\text{uxo})})$ are computed for the excluded data. The sets of excluded responses are changed (moving down the random ordered lists), trimmed feature covariance matrices recomputed, and densities computed for the new set of unreserved excluded responses, based on the non-excluded unreserved responses. After cycling essentially all of the non-reserved training data through the excluded sets, α^2 is chosen (for the current n_{div}) using Newton's method to enforce criterion in Eq. B.7. That is, so that the sum of scrap probabilities over responses that have been, in turn, excluded from the covariance matrix sums (Eq. B.1) and the empirical density sum (Eq. B.2), is equal to the number of scrap responses among these. Then, with this value of α^2 , the sum of estimated scrap probabilities over the UXO responses that have been in turn excluded, is computed (Eq. B.9). This whole sequence is repeated for each candidate value of n_{div} , and n_{div} giving the lowest value of Eq. B.9 is selected.

Once n_{div} has been selected, covariance matrices $C^{(\text{uxo})}$ and $C^{(\text{scrap})}$ are recomputed using all non-reserved training data to compute feature medians and MADs for UXO and for scrap responses, and in forming the covariance matrices themselves. Similarly, all non-reserved training data are then used in reforming empirical distributions for scrap and UXO classes analogously to Eqs. B.2 and B.3 but summed over all the non-reserved responses, omitting any self-response terms ($i = j$), with the numbers of non-reserved UXO and scrap responses $\tilde{n}^{(\text{uxo})}$ and $\tilde{n}^{(\text{scrap})}$, replacing $\tilde{n}^{(\text{class})}$ appropriately. Then all data, reserved and non-reserved, is used in computing an estimated number of scrap responses $\langle n^{(\text{scrap})} \rangle$ analogously to Eq. B.6, and α^2 reselected, so that the resulting $\langle n^{(\text{scrap})} \rangle$ is equal to the total number of scrap responses, to calibrate the resulting

empirical distributions and probabilities. In this step, the inclusion of non-reserved data (which entered into the covariance matrices) in the probability sums used in the final calibration, may bias the resulting probabilities somewhat, but is thought to be more than compensated for in reduced variance in the final value of α^2 obtained. The inclusion of the 1/3 of reserved data, that was omitted in estimation of the feature covariance matrices, in the probability sum $\langle n^{(\text{scrap})} \rangle$ used in the final calibration, lessens the effect of any such bias.

The resulting covariance estimates, empirical probability distributions for v^{scrap} and v^{uxo} and proportionality constant α^2 are then used to evaluate the probability that a response is due to scrap through Eq. B.5 evaluated using the response's feature vector, shifted and normalized as a prospective scrap response v^{scrap} and as a prospective UXO response v^{uxo} .

APPENDIX C

YPG Open Field Area UXO identifications.

Columns:

- 1** Rank (small number when not UXO, high number for UXO)
- 2** Easting (m)
- 3** Northing (m)
- 4** Probability that a metallic object is present
- 5** Probability that the object is a single UXO
- 6** Depth (m)
- 7** Azimuth (degrees, relative to North)
- 8** Dip angle (degrees, relative to horizontal)
- 9** Classification: O = UXO, C/O = clutter or clutter and UXO
- 10** Identification: name of most likely type of UXO – first match
- 11** Identification: name of most likely type of UXO – second match
- 12** Identification: name of most likely type of UXO – third match
- 13** LBL file name

Rank	Easting (m)	Northing (m)	Pd (Obj)	Pd (UXO)	Depth (m)	Azim.	Dip	Class.	FirstID	SecondID	ThirdID	LBL_file
1	757400.217	3638386.274	0.9925	0	0.17	-22.7	-72.2	C/O	60mm_M49A3_F10	57mm_M86_pit	37mm_K09	ln216bgW1
2	757412.377	3638505.261	1	0	2.28	-16.1	-43.8	C/O	155mm_M483A1_D04	105mm_M60_F05	2.75in_M230_J10	ln346_0021
3	757414.731	3638500.771	1	0	0.33	-20.3	-73.1	C/O	105mm_M60_L05	155mm_M483A1_L04	105mm_M456_Heat_H06	ln345invcont4
4	757419.606	3638386.843	1	0	0.09	-162.4	8.7	C/O	2.75in_M230_M10	81mm_M374_E02	60mm_M49A3_J11	ln230inv34
5	757422.361	3638296.534	1	0	0.09	-60	9.4	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_B05	ln139inv2
6	757422.54	3638395.747	0.99999	0	0	-78.3	6.8	C/O	M42_J03	M75_E01	20mm_M55_L15	ln239inv6
7	757423.338	3638379.765	1	0	0.12	22.1	-4.6	C/O	60mm_M49A3_F10	57mm_M86_pit	81mm_M374_E02	ln223inv3
8	757423.548	3638367.929	1	0	0.51	-136.9	-74	C/O	81mm_M374_F02	105mm_M60_L05	105mm_M456_Heat_B06	ln211inv6
9	757423.711	3638392	1	0	0.09	-69.7	-64.2	C/O	105mm_M456_Heat_pit	2.75in_M230_H10	81mm_M374_A02	ln235inv4
10	757424.51	3638278.077	1	0	0.58	-167.9	-13.5	C/O	105mm_M60_L05	155mm_M483A1_L04	105mm_M456_Heat_pit	ln120_0928
11	757424.81	3638333.403	1	0	0.13	155.1	-87.1	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln175inv7
12	757424.833	3638467.767	1	0	0.16	176	-3.9	C/O	40mm_MKII_A03	BDU-28_pit	M75_A01	ln312inv22
13	757425.205	3638284.665	1	0	0.5	-160.4	-85	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	ln126inv23
14	757425.484	3638320.122	1	0	0.16	6.9	-82.7	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_K11	ln162inv22
15	757426.124	3638397.752	1	0	0.26	-103.6	3.6	C/O	81mm_M374_E02	2.75in_M230_M10	57mm_M86_J12	ln241inv9
16	757427.975	3638460.688	1	0	0.24	-107.6	0.2	C/O	2.75in_M230_H10	81mm_M374_A02	105mm_M60_H05	ln305inv7
17	757429.209	3638400.863	1	0	0.04	155	4.9	C/O	BLU-26_J13	60mm_M49A3_pit	M42_M03	ln244inv4
18	757429.937	3638403.046	1	0	0.02	140.2	-3.6	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln246inv22
19	757431.459	3638296.137	1	0	0.13	151.5	-13.9	C/O	BLU-26_J13	105mm_M456_Heat_pit	2.75in_M230_pit	ln135inv13
20	757431.71	3638459.284	1	0	0.07	47.4	-82	C/O	2.75in_M230_H10	105mm_M60_B05	81mm_M374_D02	ln303inv6
21	757433.535	3638244.109	1	0	0.22	-172	7.7	C/O	105mm_M60_B05	81mm_M374_A02	2.75in_M230_H10	ln98inv18
22	757434.383	3638357.6	0.99999	0	0.13	-105.5	32.6	C/O	M42_J03	40mm_MKII_B03	M75_C01	ln199inv11
23	757434.803	3638297.688	1	0	0.38	-52.4	-28.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln139inv5
24	757434.962	3638442.481	1	0	0	-10.3	38.5	C/O	M75_B01	57mm_M86_L12	40mm_MKII_E03	ln285_0180
25	757435.243	3638283.802	1	0	0.11	-41.6	-6.2	C/O	81mm_M374_F02	2.75in_M230_K10	105mm_M60_L05	ln125inv6
26	757436.552	3638328.912	1	0	0.34	130.6	22.3	C/O	2.75in_M230_H10	81mm_M374_pit	105mm_M60_B05	ln170inv46
27	757437.209	3638363.295	1	0	0.08	5.3	7	C/O	81mm_M374_pit	2.75in_M230_K10	60mm_M49A3_pit	ln205inv6
28	757437.314	3638241.789	1	0	0.43	-149.1	-4.9	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln96inv29
29	757437.436	3638180.799	1	0	0.07	-88	-83.6	C/O	2.75in_M230_pit	BLU-26_pit	105mm_M60_H05	ln34inv7
30	757437.667	3638496.903	1	0	0.14	47.3	4.5	C/O	105mm_M60_L05	155mm_M483A1_L04	81mm_M374_A02	ln340inv14
31	757437.721	3638292.126	1	0	0.41	-68.1	-0.4	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln133inv5
32	757437.935	3638442.88	1	0	0.18	-45.2	-74.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln286inv30
33	757439.353	3638246.231	1	0	0.14	-82	-78.4	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_L04	ln100inv10
34	757439.855	3638396.911	1	0	0.01	-30.5	12.2	C/O	M75_A01	M42_J03	BLU-26_M13	ln239inv9
35	757440.115	3638429.299	1	0	0	90.5	-2.8	C/O	M42_K03	M75_B01	57mm_M86_L12	ln272inv13

36	757440.844	3638156.057	1	0	0.2	-53.2	-85.7	C/O	BDU-28_M02	40mm_MKII_pit	37mm_H09	ln9_0299
37	757440.929	3638270.368	1	0	0.57	-123.1	14.1	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln111_0090
38	757441.341	3638183.637	1	0	0.43	9.2	-32.9	C/O	2.75in_M230_pit	BLU-26_pit	57mm_M86_K12	ln37inv8
39	757441.539	3638389.469	1	0	0.35	122.6	3.4	C/O	105mm_M60_L05	155mm_M483A1_L04	105mm_M456_Heat_pit	ln232inv33
40	757442.08	3638270.501	0.99511	0	0.42	58.3	-16.4	C/O	105mm_M456_Heat_L06	155mm_M483A1_L04	105mm_M60_H05	ln110_0698
41	757442.108	3638293.948	1	0	0.02	-80.6	-6.1	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln135inv5
42	757442.805	3638386.024	1	0	0.11	83.4	10	C/O	BLU-26_I13	M75_F01	57mm_M86_pit	ln228inv4
43	757443.194	3638352.426	1	0	0.08	125.1	20.5	C/O	BLU-26_J13	60mm_M49A3_pit	2.75in_M230_pit	ln194inv10
44	757443.295	3638375.504	1	0	0.27	89	-4.8	C/O	2.75in_M230_M10	60mm_M49A3_K11	81mm_M374_E02	ln218inv17
45	757443.35	3638342.161	1	0	0.22	40.9	-10.8	C/O	M75_A01	BLU-26_K13	57mm_M86_L12	ln183inv10
46	757443.967	3638259.788	1	0	0.52	-128.2	-16.6	C/O	105mm_M456_Heat_H06	155mm_M483A1_L04	105mm_M60_J05	ln114inv7
47	757444.084	3638472.878	1	0	0.08	165	-9.4	C/O	37mm_M09	M42_J03	40mm_MKII_E03	ln316_1309
48	757444.416	3638260.313	1	0	0.47	-123.9	-15.4	C/O	105mm_M456_Heat_H06	155mm_M483A1_L04	105mm_M60_H05	ln103inv10
49	757444.732	3638472.894	0.99947	0	0	144.7	12.4	C/O	M42_K03	40mm_MKII_E03	MK118_Rockeye_J01	ln316inv12
50	757444.918	3638479.403	1	0	0.04	134.1	3.4	C/O	60mm_M49A3_F10	57mm_M86_pit	M75_F01	ln322inv38
51	757445.19	3638327.747	1	0	0.3	-2.9	-16.3	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_J11	ln169inv9
52	757445.42	3638464.62	0.9998	0	0.13	-170.8	-5.3	C/O	M42_J03	M75_C01	40mm_MKII_B03	ln308inv4
53	757445.63	3638330.317	1	0	0.08	-168.8	-71.2	C/O	M75_B01	M42_K03	57mm_M86_L12	ln171inv11
54	757445.93	3638291.86	1	0	0.39	25.3	-76.4	C/O	105mm_M60_L05	81mm_M374_A02	105mm_M456_Heat_B06	ln132inv17
55	757446.323	3638387.421	1	0	0.09	56.3	-0.2	C/O	60mm_M49A3_F10	M75_E01	37mm_K09	ln230inv28
56	757447.397	3638327.035	1	0	0.02	-144.6	2.3	C/O	57mm_M86_L12	M75_C01	60mm_M49A3_K11	ln168inv28
57	757448.11	3638486.577	1	0	0.1	-6.9	9.5	C/O	M75_C01	BLU-26_M13	60mm_M49A3_F10	line329inv19
58	757448.933	3638323.325	1	0	0.21	83.9	2.5	C/O	2.75in_M230_pit	105mm_M456_Heat_B06	81mm_M374_A02	ln164inv25
59	757449.028	3638311.833	1	0	0.09	99.6	20.4	C/O	60mm_M49A3_pit	BLU-26_L13	M42_M03	ln152inv45
60	757449.219	3638309.615	1	0	0.19	97	-79.7	C/O	M75_B01	57mm_M86_L12	M42_K03	ln1501inv53
61	757449.355	3638221.24	1	0	0.52	48.5	-40	C/O	105mm_M456_Heat_pit	BLU-26_J13	81mm_M374_A02	ln75inv2
62	757449.394	3638451.287	1	0	0.73	60.2	5.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln294invX12
63	757449.501	3638207.046	1	0	0.54	92	-39.5	C/O	81mm_M374_F02	105mm_M60_L05	2.75in_M230_K10	ln60inv20
64	757451.029	3638276.48	1	0	0.16	-106.7	7.3	C/O	155mm_M483A1_J04	105mm_M456_Heat_H06	105mm_M60_J05	ln117inv5
65	757451.65	3638231.828	1	0	0.22	149.2	17.6	C/O	BLU-26_J13	2.75in_M230_pit	57mm_M86_K12	ln86inv56
66	757452.269	3638197.006	0.93788	0	0.02	96.7	-4	C/O	40mm_M385_I14	20mm_M55_I15	M75_A01	ln50inv34
67	757453.636	3638354.607	1	0	0.41	70.9	23.8	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln196inv23
68	757454.22	3638426.917	1	0	0	-142.9	-75.7	C/O	57mm_M86_L12	60mm_M49A3_K11	BLU-26_K13	ln269inv11
69	757454.504	3638256.1	1	0	0.32	-126	26.9	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln110inv2
70	757454.625	3638186.101	1	0	0.16	-8	-53.7	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln39inv18
71	757456.264	3638393.942	1	0	0.11	-174.1	-56.6	C/O	2.75in_M230_K10	57mm_M86_L12	60mm_M49A3_J11	ln236inv17
72	757456.43	3638371.385	1	0	0.08	-125.9	5.1	C/O	BLU-26_I13	M75_F01	2.75in_M230_K10	ln213_0193

73	757456.82	3638367.117	1	0	0.13	132.1	5.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln208inv32
74	757457.258	3638211.42	1	0	0.2	-51.1	2.2	C/O	M75_C01	BLU-26_M13	57mm_M86_L12	ln65inv11
75	757458.015	3638342.369	1	0	0.1	-97.7	2.9	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln183inv13
76	757458.05	3638307.225	1	0	0.1	-24.3	-1.4	C/O	M75_B01	57mm_M86_L12	M42_K03	ln147inv10
77	757458.909	3638481.555	1	0	0	28.2	-49.7	C/O	M75_B01	M42_K03	57mm_M86_L12	ln324inv20
78	757459.78	3638395.983	1	0	0.18	154.1	6	C/O	81mm_M374_F02	2.75in_M230_M10	57mm_M86_J12	ln238_1009
79	757460.083	3638274.666	1	0	0.16	41.2	-11.7	C/O	105mm_M456_Heat_H06	155mm_M483A1_L04	105mm_M60_J05	ln115inv13
80	757461.362	3638359.9	1	0	0.08	-65.5	-88.9	C/O	2.75in_M230_M10	81mm_M374_F02	60mm_M49A3_pit	ln200inv8
81	757461.696	3638367.309	1	0	0.37	-74.2	-14.4	C/O	105mm_M456_Heat_pit	105mm_M60_L05	81mm_M374_D02	ln209inv6
82	757461.821	3638412.837	1	0	0.05	-35.2	3.9	C/O	M75_B01	57mm_M86_L12	M42_K03	ln255inv8
83	757462.24	3638152.222	1	0	0	135.8	-70.7	C/O	M42_I03	M75_B01	MK118_Rockeye_J01	ln5inv48
84	757462.278	3638295.279	1	0	0.05	-55.2	-16.6	C/O	M75_A01	57mm_M86_L12	BLU-26_J13	ln135_0250
85	757463.387	3638369.615	1	0	0.16	-22.3	-18.3	C/O	2.75in_M230_K10	57mm_M86_L12	60mm_M49A3_pit	ln211inv15
86	757463.531	3638210.083	1	0	0.26	52.8	-76	C/O	M42_J03	M75_C01	MK118_Rockeye_pit	ln64inv1
87	757463.93	3638278.908	1	0	0.66	122	-64.9	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln118_0691
88	757464.153	3638325.83	1	0	0.11	-52.3	17.7	C/O	105mm_M60_L05	81mm_M374_A02	105mm_M456_Heat_B06	ln165inv18
89	757464.419	3638502.296	1	0	0.22	-14.9	-74.5	C/O	81mm_M374_F02	105mm_M60_L05	105mm_M456_Heat_B06	ln345inv18
90	757464.578	3638297.586	1	0	0.09	-9.1	-1.8	C/O	105mm_M60_L05	105mm_M456_Heat_B06	81mm_M374_A02	ln135inv20
91	757466.062	3638394.749	1	0	0.22	74.6	37.4	C/O	81mm_M374_A02	105mm_M456_Heat_pit	2.75in_M230_K10	ln236inv9
92	757466.537	3638320.057	1	0	0.22	-160.1	17.4	C/O	BLU-26_J13	60mm_M49A3_pit	2.75in_M230_pit	ln160_1103
93	757466.825	3638148.402	1	0	0	-62.3	-8.6	C/O	M75_B01	M42_K03	57mm_M86_L12	ln1inv16
94	757471.244	3638420.151	1	0	0.42	151.4	-58.4	C/O	81mm_M374_F02	105mm_M60_L05	105mm_M456_Heat_B06	ln262inv19
95	757474.261	3638448.096	1	0	0.09	155.6	-71.4	C/O	81mm_M374_pit	2.75in_M230_K10	155mm_M483A1_L04	ln290inv14
96	757475.787	3638498.575	0.94175	0	0	177.2	-2.4	C/O	40mm_M385_J14	20mm_M55_I15	57mm_M86_L12	ln340inv10
97	757476.695	3638408.801	1	0	0	134.8	1.4	C/O	40mm_MKII_E03	M75_B01	57mm_M86_L12	ln250_0844
98	757477.291	3638469.999	0.9897	0	0	110.9	0.2	C/O	M42_I03	20mm_M55_J15	40mm_MKII_pit	ln312inv20
99	757479.245	3638169.263	0.97882	0	0.09	16.3	4.7	C/O	M42_K03	57mm_M86_L12	20mm_M55_I15	ln21inv35
100	757479.859	3638467.714	0.9566	0	0	-142.1	-2.6	C/O	BDU-28_M02	M42_K03	MK118_Rockeye_M01	ln310inv12
101	757482.716	3638162.236	1	0	0.05	82.7	-73.6	C/O	M75_B01	57mm_M86_L12	40mm_MKII_A03	ln14inv49
102	757483.107	3638468.648	0.99985	0	0.05	42.9	6.3	C/O	M42_K03	M75_B01	57mm_M86_L12	ln311inv12
103	757484.087	3638211.252	1	0	0.52	-96.4	-1.1	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_pit	ln65inv12
104	757484.278	3638475.023	0.99492	0	0.06	40.3	-6	C/O	M42_K03	57mm_M86_L12	20mm_M55_L15	ln317inv21
105	757484.883	3638168.75	1	0	0.66	-140.5	-0.2	C/O	105mm_M60_H05	105mm_M456_Heat_L06	155mm_M483A1_L04	ln20inv10
106	757489.241	3638195.647	1	0	0.1	-39.3	-74.1	C/O	105mm_M60_L05	105mm_M456_Heat_J06	155mm_M483A1_L04	ln48inv11
107	757489.816	3638410.7	1	0	0.01	-74.1	-54.6	C/O	M75_B01	40mm_MKII_A03	M42_J03	ln252inv18
108	757489.883	3638386.441	1	0	0	-124.2	-3.4	C/O	2.75in_M230_pit	81mm_M374_pit	105mm_M60_B05	ln227in16
109	757490.746	3638374.824	1	0	0.12	-116.5	28.3	C/O	81mm_M374_F02	57mm_M86_pit	2.75in_M230_M10	ln217inv18

110	757491.583	3638272.93	1	0	0	32.4	3.6	C/O	BLU-26_J13	60mm_M49A3_F10	M42_M03	ln111_0260
111	757492.01	3638413.236	1	0	0	140.1	-76.6	C/O	BLU-26_J13	2.75in_M230_pit	81mm_M374_pit	ln254inv24
112	757493.612	3638346.233	0.99149	0	0.01	137	-41	C/O	M42_K03	20mm_M55_I15	MK118_Rockeye_M01	ln185inv10
113	757494.292	3638331.157	1	0	0.1	-152.9	-10.3	C/O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_M10	ln170inv35
114	757494.678	3638336.652	1	0	0	-150.4	-1.4	C/O	M42_K03	MK118_Rockeye_J01	57mm_M86_L12	ln176inv4
115	757497.609	3638416.012	1	0	0.01	26.8	-0.1	C/O	57mm_M86_L12	M75_B01	60mm_M49A3_K11	ln257inv10
116	757497.699	3638497.12	1	0	0.1	135.2	-12.5	C/O	M42_M03	BLU-26_J13	60mm_M49A3_F10	ln338inv25
117	757500.056	3638172.093	0.74552	0	0.01	-83.9	-10.6	C/O	40mm_M385_pit	20mm_M55_I15	BDU-28_M02	ln23inv5
118	757504.607	3638335.198	1	0	0.1	-55.8	12.4	C/O	M42_K03	40mm_MKII_E03	MK118_Rockeye_J01	ln173inv23
119	757504.979	3638446.603	1	0	0.06	-125.7	-82.6	C/O	105mm_M60_L05	105mm_M456_Heat_L06	81mm_M374_A02	ln287inv10
120	757505.897	3638392.971	1	0	0.19	-68.6	13.7	C/O	105mm_M60_H05	155mm_M483A1_L04	105mm_M456_Heat_H06	ln233inv21
121	757506.029	3638431.05	1	0	0.08	-157	16.8	C/O	2.75in_M230_H10	81mm_M374_A02	105mm_M456_Heat_pit	ln272inv6
122	757507.432	3638310.409	0.99958	0	0.19	151.8	-70.1	C/O	BLU-26_L13	M42_M03	37mm_K09	ln148inv19
123	757508.012	3638188.957	1	0	0.16	-61.4	-6.7	C/O	BDU-28_I02	57mm_M86_L12	40mm_MKII_E03	ln41inv41
124	757509.498	3638275.036	0.87979	0	0	-152.9	-29.5	C/O	M42_I03	M75_B01	37mm_H09	ln112_0416
125	757509.95	3638475.126	1	0	0.07	151.5	-74.9	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln316inv8
126	757510.254	3638286.487	1	0	0.12	-166.9	-81	C/O	37mm_H09	M75_A01	M42_K03	ln124inv8
127	757511.833	3638198.352	1	0	0.49	-18.6	42.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln51inv44
128	757512.822	3638358.684	1	0	0.05	-131.7	-81.3	C/O	57mm_M86_pit	60mm_M49A3_F10	2.75in_M230_M10	ln197inv9
129	757513.99	3638369.773	1	0	0.06	3.4	-1.5	C/O	BLU-26_J13	60mm_M49A3_pit	M75_C01	ln209inv12
130	757516.139	3638335.085	1	0	0.28	-74.1	-3.3	C/O	155mm_M483A1_H04	105mm_M456_Heat_H06	105mm_M60_J05	ln173inv30
131	757516.323	3638382.56	0.99996	0	0.04	-136.5	-1.1	C/O	M42_K03	57mm_M86_L12	20mm_M55_M15	ln222inv15
132	757517.439	3638402.55	1	0	0.06	-103.8	-7	C/O	M42_J03	20mm_M55_L15	BLU-26_M13	ln243inv21
133	757517.876	3638482.08	1	0	0.16	-35.6	-80.6	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln323inv7
134	757519.024	3638359.476	1	0	0.06	65.3	-4	C/O	81mm_M374_pit	2.75in_M230_pit	60mm_M49A3_pit	ln198inv10
135	757519.221	3638470.203	0.99999	0	0.05	-21.1	13.4	C/O	M42_K03	20mm_M55_I15	M75_B01	ln311inv16
136	757520.499	3638397.593	1	0	0.07	-95.9	-1.1	C/O	60mm_M49A3_pit	2.75in_M230_pit	BLU-26_J13	ln237inv15
137	757520.766	3638393.616	1	0	0.05	-79.1	1.7	C/O	BLU-26_J13	M42_M03	60mm_M49A3_pit	ln233inv27
138	757521.344	3638302.671	1	0	0	167.1	-1.3	C/O	M42_K03	M75_B01	37mm_H09	ln140_0423
139	757522.817	3638385.285	1	0	0.24	-8	-4.9	C/O	57mm_M86_K12	2.75in_M230_H10	60mm_M49A3_pit	ln225inv26
140	757524.184	3638369.076	1	0	0.3	82.6	-28.6	C/O	2.75in_M230_pit	81mm_M374_A02	105mm_M456_Heat_pit	ln208inv17
141	757524.582	3638357.946	1	0	0.19	155.1	-12	C/O	57mm_M86_pit	60mm_M49A3_F10	2.75in_M230_M10	ln196inv10
142	757525.096	3638458.066	1	0	0.36	-107.4	-2.3	C/O	2.75in_M230_M10	81mm_M374_E02	60mm_M49A3_K11	ln299inv7
143	757525.11	3638479.81	1	0	0.01	120.1	-3.4	C/O	M42_I03	M75_B01	MK118_Rockeye_J01	ln320inv5
144	757526.043	3638181.428	1	0	0.12	137.6	-6.1	C/O	M75_A01	M42_M03	57mm_M86_L12	ln32inv21
145	757526.138	3638460.778	1	0	0.1	140.2	-61.2	C/O	BLU-26_J13	60mm_M49A3_F10	M75_C01	ln3027
146	757527.35	3638295.124	1	0	0.81	48.9	1.1	C/O	105mm_M456_Heat_L06	105mm_M60_J05	155mm_M483A1_H04	ln132inv4

147	757528.061	3638382.691	1	0	0.14	173.7	2	C/O	2.75in_M230_K10	60mm_M49A3_M11	81mm_M374_pit	ln222inv12
148	757530.126	3638466.324	1	0	0.09	28.1	7.1	C/O	81mm_M374_B02	105mm_M60_L05	2.75in_M230_K10	ln307bgE5
149	757530.217	3638461.679	1	0	0.42	-4.1	-12.5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln303inv13
150	757530.809	3638233.736	1	0	0.1	-73.8	-58	C/O	MK118_Rockeye_pit	M75_C01	M42_J03	ln87inv9
151	757530.813	3638268.251	1	0	0.01	-38.8	0.1	C/O	M42_I03	M75_B01	57mm_M86_L12	ln105inv3
152	757531.214	3638486.877	1	0	0.39	-79.9	9.1	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln327inv6
153	757531.583	3638421.52	1	0	0.2	18.5	-5.1	C/O	BLU-26_M13	M75_A01	M42_M03	ln261_0632
154	757532.895	3638492.933	1	0	0.1	-0.6	-73	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_H10	ln333inv8
155	757532.918	3638270.328	0.99839	0	0	160.3	-62.5	C/O	M42_K03	20mm_M55_I15	40mm_MKII_E03	ln107_0569
156	757533.305	3638421.731	1	0	0.14	21.2	-5.1	C/O	M75_A01	57mm_M86_L12	BLU-26_M13	ln261inv13
157	757533.322	3638477.83	1	0	0	59.8	-78.5	C/O	81mm_M374_E02	2.75in_M230_M10	57mm_M86_L12	ln318inv12
158	757533.416	3638469.718	1	0	0.33	-2.7	-81.7	C/O	81mm_M374_A02	105mm_M456_Heat_F06	105mm_M60_L05	ln311inv18
159	757533.626	3638457.79	1	0	0.32	-23.7	15.2	C/O	2.75in_M230_M10	81mm_M374_E02	57mm_M86_L12	ln299inv10
160	757533.76	3638391.565	1	0	0.1	-5	-6.8	C/O	105mm_M60_D05	155mm_M483A1_J04	105mm_M456_Heat_pit	ln231inv19
161	757534.133	3638192.71	1	0	0.41	143.8	-64.5	C/O	BLU-26_H13	M75_F01	57mm_M86_L12	ln45inv34
162	757535.954	3638217.751	1	0	0.22	-99.1	-61.5	C/O	81mm_M374_pit	105mm_M60_L05	105mm_M456_Heat_J06	ln071inv72
163	757536.381	3638483.72	1	0	0.34	120.8	-4.3	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_H06	ln324inv10
164	757536.65	3638387.816	1	0	0.07	-31.6	15.4	C/O	57mm_M86_L12	2.75in_M230_K10	60mm_M49A3_J11	ln227_0985
165	757538.035	3638164.334	1	0	0.05	-83.6	13.6	C/O	BLU-26_K13	57mm_M86_L12	M75_D01	ln13inv44
166	757538.178	3638502.249	0.99997	0	0.11	88.4	-0.1	C/O	M42_K03	20mm_M55_L15	40mm_MKII_E03	ln342inv23
167	757541.024	3638346.431	0.92942	0	0	-157.5	6.6	C/O	MK118_Rockeye_M01	BDU-28_M02	M42_K03	ln184inv4
168	757541.087	3638490.418	1	0	0.38	44.8	-40.4	C/O	81mm_M374_pit	2.75in_M230_K10	57mm_M86_J12	ln330inv9
169	757543.741	3638348.838	1	0	0	69.7	-65.5	C/O	M42_I03	M75_B01	57mm_M86_L12	ln186inv8
170	757544.638	3638460.059	1	0	0.26	117.8	0.3	C/O	81mm_M374_E02	2.75in_M230_K10	60mm_M49A3_pit	ln300inv7
171	757545.555	3638267.799	1	0	0.03	150	-86.7	C/O	M75_A01	BLU-26_M13	57mm_M86_L12	ln104data_inv1
172	757546.747	3638439.81	1	0	0.02	37.2	-6.2	C/O	M42_K03	M75_B01	57mm_M86_L12	ln279inv15
173	757547.524	3638267.844	1	0	0.1	-133.9	-80.4	C/O	M75_A01	BLU-26_M13	57mm_M86_L12	ln104_0172
174	757547.8	3638181.685	1	0	0	-40	0.5	C/O	105mm_M60_B05	81mm_M374_D02	105mm_M456_Heat_B06	ln34_0005
175	757547.859	3638451.747	1	0	0.09	-106.9	-84.7	C/O	M42_J03	BLU-26_M13	M75_C01	ln291bgE6
176	757548.147	3638358.633	1	0	0.12	1.1	-50.2	C/O	BLU-26_J13	2.75in_M230_pit	57mm_M86_K12	ln196inv6
177	757548.182	3638470.908	1	0	0.08	-130.8	0.3	C/O	81mm_M374_F02	2.75in_M230_K10	105mm_M60_L05	ln311inv25
178	757548.566	3638434.486	0.99907	0	0.17	104.3	-1.7	C/O	M42_I03	M75_B01	57mm_M86_L12	ln274inv13
179	757548.617	3638294.777	1	0	0.13	7.1	5.2	C/O	105mm_M60_L05	155mm_M483A1_L04	105mm_M456_Heat_pit	ln131inv13
180	757549.752	3638391.257	1	0	0.37	-87.8	-82.3	C/O	155mm_M483A1_H04	105mm_M456_Heat_H06	105mm_M60_J05	ln230inv18
181	757551.865	3638441.019	1	0	0	73.6	4.9	C/O	M42_K03	M75_B01	57mm_M86_L12	ln280inv18
182	757552.516	3638246.712	1	0	0.37	-25.3	-60.5	C/O	81mm_M374_B02	2.75in_M230_M10	105mm_M60_L05	ln101inv17
183	757554.506	3638333.098	0.99992	0	0.13	58.1	7.4	C/O	M75_A01	M42_pit	40mm_MKII_A03	ln170inv24

184	757555.406	3638510.281	1	0	0.19	-163.9	-86.1	C/O	M42_I03	M75_B01	60mm_M49A3_F10	In350_0716
185	757555.703	3638203.227	0.47547	0	0	135.5	0.4	B	40mm_M385_J14	20mm_M55_I15	BDU-28_I02	In56_0066
186	757555.708	3638242.475	1	0	0.11	161.6	-24.4	C/O	BLU-26_L13	60mm_M49A3_F10	M42_M03	In96inv20
187	757556.154	3638226.381	1	0	0.6	37.1	-68.3	C/O	81mm_M374_A02	105mm_M60_L05	155mm_M483A1_L04	In80inv12
188	757557.938	3638398.822	1	0	0.03	-133	31.5	C/O	2.75in_M230_M10	60mm_M49A3_K11	57mm_M86_L12	In237inv18
189	757559.253	3638478.685	1	0	0.12	-99	-65.7	C/O	2.75in_M230_M10	57mm_M86_L12	81mm_M374_C02	In318inv5
190	757560.127	3638202.47	1	0	0.04	83	-83.6	C/O	57mm_M86_L12	37mm_H09	40mm_M385_pit	In55inv16
191	757561.053	3638244.882	1	0	0.59	-14.2	-72.7	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	In99bgEW17
192	757561.198	3638457.447	1	0	0.22	-35.2	-4.6	C/O	2.75in_M230_M10	60mm_M49A3_K11	57mm_M86_L12	In297inv18
193	757561.25	3638425.991	1	0	0.12	103.3	-53.1	C/O	M75_F01	BLU-26_L13	MK118_Rockeye_pit	In264inv4
194	757562.883	3638274.89	1	0	0.01	111.5	1.1	C/O	M42_K03	M75_B01	57mm_M86_L12	In110inv3
195	757563.729	3638321.055	1	0	0.26	-77.3	13.1	C/O	81mm_M374_pit	2.75in_M230_K10	57mm_M86_J12	In157inv10
196	757566.013	3638499.621	1	0	0.18	-92.9	-75.2	C/O	81mm_M374_C02	105mm_M60_L05	105mm_M456_Heat_B06	In339inv4
197	757566.156	3638402.914	1	0	0.1	43.8	9.2	C/O	105mm_M60_B05	81mm_M374_B02	2.75in_M230_K10	In241inv20
198	757567.344	3638391.584	1	0	0.06	-54.2	-84.2	C/O	60mm_M49A3_F10	2.75in_M230_K10	M75_F01	In229inv20
199	757567.689	3638258.258	1	0	0.07	-147.1	7.2	C/O	M42_K03	57mm_M86_L12	M75_B01	In113inv12
200	757569.854	3638398.811	1	0	0.28	1.2	-80.9	C/O	81mm_M374_F02	105mm_M456_Heat_B06	2.75in_M230_K10	In236inv3
201	757569.927	3638361.335	1	0	0.12	-155.2	17.2	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_D01	In198inv2
202	757571.673	3638402.484	1	0	0.24	-139.6	-0.8	C/O	81mm_M374_B02	2.75in_M230_K10	105mm_M60_H05	In240inv7
203	757572.646	3638394.388	1	0	0.13	59.4	31.1	C/O	2.75in_M230_H10	81mm_M374_E02	60mm_M49A3_F10	In232inv16
204	757572.965	3638238.908	1	0	0.53	-54	6.7	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_L04	In93inv12
205	757574.439	3638260.393	1	0	0.08	175.3	-3.7	C/O	M42_I03	M75_A01	37mm_H09	In115inv1
206	757574.899	3638418.239	1	0	0.59	-61.1	-72.1	C/O	81mm_M374_A02	105mm_M60_B05	105mm_M456_Heat_B06	In256inv18
207	757575.316	3638391.272	1	0	0.17	24.8	3.6	C/O	81mm_M374_A02	105mm_M60_B05	105mm_M456_Heat_pit	In229inv23
208	757575.587	3638424.945	1	0	0.09	-177.9	22.5	C/O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_M10	In262inv15
209	757576.541	3638271.167	1	0	0.06	116.2	3.8	C/O	M42_K03	BDU-28_I02	57mm_M86_L12	In106inv2
210	757577.733	3638410.102	1	0	0.17	-141	0.5	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_K10	In248inv12
211	757578.022	3638415.077	1	0	0.16	-166.5	-81.1	C/O	2.75in_M230_H10	81mm_M374_A02	105mm_M456_Heat_pit	In253inv9
212	757579.641	3638459.198	1	0	0.2	-160.5	15	C/O	BLU-26_J13	60mm_M49A3_pit	M42_M03	In2984
213	757580.01	3638284.859	1	0	0.08	59.9	-8.9	C/O	105mm_M60_L05	105mm_M456_Heat_J06	81mm_M374_A02	In120inv1
214	757580.77	3638393.876	1	0	0.01	-33.9	12.8	C/O	105mm_M60_D05	155mm_M483A1_J04	105mm_M456_Heat_D06	In231inv22
215	757580.844	3638426.889	1	0	0.35	-37.3	-60.9	C/O	105mm_M60_D05	105mm_M456_Heat_D06	155mm_M483A1_J04	In265inv10
216	757582.037	3638389.449	1	0	0.22	161.5	8.1	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	In226inv7
217	757584.172	3638397.086	1	0	0.2	115.9	-83.2	C/O	81mm_M374_C02	2.75in_M230_K10	155mm_M483A1_L04	In234inv9
218	757586.043	3638476.816	1	0	0.5	51.6	-53.1	C/O	105mm_M456_Heat_L06	155mm_M483A1_L04	105mm_M60_L05	In315_0836
219	757586.488	3638375.789	1	0	0.28	-32.2	15	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In213inv18
220	757586.534	3638508.25	1	0	0.1	-44.1	-79	C/O	60mm_M49A3_F10	2.75in_M230_K10	M75_F01	In347inv9

221	757587.297	3638407.613	0.99892	0	0	-148.3	2.7	C/O	M42_K03	57mm_M86_L12	M75_B01	ln244inv1
222	757588.467	3638375.461	1	0	0.37	178.4	-83.2	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln212inv8
223	757589.107	3638380.999	1	0	0.22	107.2	-72.3	C/O	81mm_M374_pit	2.75in_M230_K10	60mm_M49A3_M11	ln218inv2
224	757589.239	3638400.815	1	0	0.34	-136.2	-28	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln238inv5
225	757590.512	3638422.025	1	0	0.44	-171.9	-71.9	C/O	81mm_M374_pit	105mm_M60_L05	105mm_M456_Heat_B06	ln259inv18
226	757592.558	3638488.727	1	0	0.21	2.5	-5.4	C/O	81mm_M374_F02	105mm_M60_L05	105mm_M456_Heat_B06	ln327inv14
227	757592.588	3638428.487	1	0	0.28	138.3	-2.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln266inv5
228	757594.018	3638264.799	0.96296	0	0.18	11.2	3.1	C/O	M42_I03	37mm_H09	BDU-28_M02	ln121_1377
229	757594.383	3638472.696	1	0	0.57	47.2	-57.8	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_pit	ln311inv27
230	757594.741	3638252.724	1	0	0.02	81.5	-81.4	C/O	BLU-26_J13	M75_A01	57mm_M86_L12	ln109_0006
231	757595.716	3638394.454	1	0	0.2	44.8	-15.2	C/O	81mm_M374_A02	105mm_M60_B05	105mm_M456_Heat_D06	ln231inv25
232	757599.165	3638464.505	1	0	0.29	-19.7	-60.3	C/O	105mm_M456_Heat_pit	155mm_M483A1_L04	105mm_M60_J05	ln303inv19
233	757602.508	3638464.936	0.99998	0	0.12	3.3	9.5	C/O	M42_K03	M75_B01	57mm_M86_L12	ln303inv22
234	757603.6	3638409.201	1	0	0.04	-116.7	-11.2	C/O	57mm_M86_L12	M75_B01	60mm_M49A3_K11	ln245inv19
235	757603.872	3638393.521	1	0	0.23	29.5	-80.8	C/O	81mm_M374_F02	2.75in_M230_K10	105mm_M60_L05	ln230inv2
236	757603.891	3638427.151	1	0	0.22	-125.7	-7.2	C/O	105mm_M60_L05	81mm_M374_A02	155mm_M483A1_L04	ln263inv16
237	757604.067	3638317.34	1	0	0.01	-4	-67.1	C/O	155mm_M483A1_D04	105mm_M60_J05	105mm_M456_Heat_H06	ln154inv7
238	757604.665	3638375.685	1	0	0.1	45.8	7.4	C/O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_L04	ln212inv6
239	757605.168	3638400.969	1	0	0.27	-155.9	-86.4	C/O	81mm_M374_E02	BLU-26_J13	M75_A01	ln237inv21
240	757606.686	3638395.909	1	0	0	-145.3	-10.4	C/O	81mm_M374_pit	57mm_M86_L12	2.75in_M230_K10	ln232inv2
241	757607.417	3638411.247	1	0	0.2	-44.4	0.8	C/O	81mm_M374_A02	105mm_M456_Heat_pit	105mm_M60_B05	ln247_1603
242	757607.822	3638500.089	1	0	0.21	43	-11.7	C/O	BLU-26_J13	M42_H03	60mm_M49A3_F10	ln339inv11
243	757607.929	3638446.152	1	0	0.68	-109	18.1	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln283inv22
244	757609.429	3638470.909	1	0	0.16	-30.1	-5.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln309inv23
245	757609.905	3638474.828	1	0	0.1	13.1	0.2	C/O	2.75in_M230_M10	81mm_M374_E02	60mm_M49A3_J11	ln313inv8
246	757610.252	3638352.206	1	0	0.17	-36.4	10.3	C/O	57mm_M86_J12	2.75in_M230_M10	81mm_M374_E02	ln187inv16
247	757610.347	3638420.624	1	0	0.31	-3.9	15	C/O	81mm_M374_C02	57mm_M86_L12	105mm_M456_Heat_B06	ln257inv25
248	757611.605	3638397.074	1	0	0.04	-115.5	-5.3	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln233inv46
249	757612.536	3638393.122	1	0	0.28	-133.1	7	C/O	81mm_M374_E02	2.75in_M230_M10	60mm_M49A3_J11	ln229inv28
250	757615.368	3638430.119	1	0	0.1	-152.8	3.8	C/O	81mm_M374_F02	2.75in_M230_M10	105mm_M60_L05	ln266inv2
251	757617.87	3638474.86	1	0	0	-159.4	-75.7	C/O	BLU-26_K13	M75_D01	57mm_M86_L12	ln312inv2
252	757621.845	3638437.332	1	0	0	33.8	-2.2	C/O	M42_K03	20mm_M55_I15	40mm_M385_pit	ln273inv14
253	757622.224	3638404.479	1	0	0	57.6	-29.9	C/O	2.75in_M230_pit	60mm_M49A3_F10	40mm_MKII_A03	ln240_0019
254	757622.835	3638304.114	1	0	0.05	51.3	-2.6	C/O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_M10	ln138_0029
255	757410.485	3638175.096	0.80529	1E-06	0.21	97.1	-7.4	C/O	M42_I03	M75_B01	MK118_Rockeye_J01	ln38bgEW1
256	757421.884	3638496.36	1	1E-06	0.69	-174	35.8	C/O	105mm_M456_Heat_H06	155mm_M483A1_L04	105mm_M60_J05	ln340inv17
257	757426.276	3638242.017	1	1E-06	0.13	0.8	-50.5	C/O	57mm_M86_L12	40mm_MKII_E03	M75_B01	ln96inv30

258	757427.753	3638281.592	1	1E-06	0.1	-54.6	-27.5	C/O	105mm_M60_L05	105mm_M456_Heat_B06	81mm_M374_A02	ln123inv8
259	757429.628	3638317.043	1	1E-06	0.54	46.8	-70.8	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln159inv7
260	757433.2	3638399.776	1	1E-06	0.39	-162.8	-64.1	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln242inv16
261	757434.16	3638384.697	1	1E-06	0	-118.4	8.4	C/O	81mm_M374_E02	2.75in_M230_M10	60mm_M49A3_J11	ln227in5
262	757440.573	3638450.626	0.99999	1E-06	0.06	96.7	10.3	C/O	M42_K03	57mm_M86_L12	M75_B01	ln294invX16
263	757446.003	3638372.212	1	1E-06	0.57	46.7	12.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln214inv13
264	757447.069	3638402.516	0.99724	1E-06	0.04	-43.3	7.1	C/O	M42_J03	37mm_H09	40mm_MKII_pit	ln245inv9
265	757452.47	3638320.738	1	1E-06	0.14	-132	6.9	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_M11	ln161inv28
266	757459.117	3638386.45	1	1E-06	0.02	81.5	18.1	C/O	60mm_M49A3_F10	57mm_M86_pit	81mm_M374_F02	ln228inv3
267	757463.52	3638328.801	1	1E-06	0.12	72.1	-68.8	C/O	105mm_M456_Heat_L06	155mm_M483A1_L04	105mm_M60_L05	ln169inv16
268	757476.541	3638303.586	1	1E-06	0.66	48.8	19.3	C/O	155mm_M483A1_D04	105mm_M60_H05	105mm_M456_Heat_H06	ln142inv11
269	757483.046	3638194.762	1	1E-06	0.01	51.3	-0.7	C/O	BDU-28_I02	40mm_MKII_E03	MK118_Rockeye_M01	ln48inv12
270	757483.732	3638189.519	1	1E-06	0.72	169.8	-43.2	C/O	81mm_M374_A02	105mm_M456_Heat_B06	105mm_M60_B05	ln42inv58
271	757496.627	3638486.978	1	1E-06	0.14	43	-2.6	C/O	BLU-26_I13	2.75in_M230_M10	57mm_M86_pit	line329inv35
272	757503.642	3638368.081	1	1E-06	0.13	117	-80.4	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln208inv20
273	757523.865	3638388.984	1	1E-06	0	-172.9	-67.2	C/O	81mm_M374_F02	105mm_M60_L05	105mm_M456_Heat_J06	ln228_0923
274	757524.376	3638240.726	1	1E-06	0.14	-82.4	-84.5	C/O	57mm_M86_L12	BDU-28_I02	M75_B01	ln94inv4
275	757531.74	3638188.953	1	1E-06	0.24	109.9	-85.6	C/O	57mm_M86_L12	BDU-28_I02	37mm_H09	ln41inv45
276	757540.413	3638428.51	0.99803	1E-06	0	-6.8	-69.5	C/O	155mm_M483A1_D04	105mm_M60_J05	105mm_M456_Heat_F06	ln266_0815
277	757542.164	3638475.947	1	1E-06	0.09	-141.2	-79.1	C/O	2.75in_M230_K10	57mm_M86_L12	60mm_M49A3_K11	ln317inv28
278	757545.882	3638386.709	1	1E-06	0.29	75.6	-81.3	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln225inv32
279	757552.322	3638447.012	1	1E-06	0.17	42.8	-80.8	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln286inv11
280	757553.443	3638460.246	1	1E-06	0.31	179.5	-81.6	C/O	81mm_M374_C02	2.75in_M230_M10	57mm_M86_J12	ln300inv4
281	757554.005	3638482.798	1	1E-06	0.08	-159	-0.6	C/O	81mm_M374_E02	2.75in_M230_K10	105mm_M60_L05	ln322_0524
282	757564.8	3638483.773	1	1E-06	0.82	36.6	10.6	C/O	155mm_M483A1_J04	105mm_M456_Heat_H06	105mm_M60_H05	ln323inv11
283	757577.933	3638368.914	1	1E-06	0.36	163.6	-52.2	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln206inv2
284	757579.407	3638482.757	1	1E-06	0.03	6.5	0.7	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_F10	ln321inv23
285	757583.462	3638331.616	1	1E-06	0.12	-14.3	-13.9	C/O	2.75in_M230_K10	81mm_M374_C02	57mm_M86_L12	ln167inv46
286	757585.907	3638404.207	1	1E-06	0.25	130.4	-74.8	C/O	81mm_M374_pit	2.75in_M230_K10	57mm_M86_J12	ln241inv25
287	757587.387	3638271.583	1	1E-06	0	-161.2	1.9	C/O	M42_L03	M75_A01	BLU-26_M13	ln106inv1
288	757588.894	3638494.943	1	1E-06	0.26	-28	0.6	C/O	81mm_M374_A02	105mm_M60_L05	105mm_M456_Heat_J06	ln333inv14
289	757613.599	3638443.575	1	1E-06	0.46	83.6	-51.5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln280inv3
290	757431.585	3638360.431	1	2E-06	0.09	46.7	-41.3	C/O	105mm_M60_D05	2.75in_M230_H10	81mm_M374_B02	ln203inv5
291	757440.653	3638173.01	1	2E-06	0.17	117	-7.8	C/O	57mm_M86_L12	M75_B01	40mm_MKII_E03	ln26inv35
292	757443.883	3638307.12	0.99925	2E-06	0.15	-84.2	0.1	C/O	37mm_K09	MK118_Rockeye_pit	M75_E01	ln147inv8
293	757444.546	3638185.623	1	2E-06	0.14	91.5	-88.1	C/O	BDU-28_I02	57mm_M86_L12	M42_K03	ln39inv15
294	757451.443	3638417.146	1	2E-06	0.25	91.7	-88.1	C/O	105mm_M60_J05	105mm_M456_Heat_pit	155mm_M483A1_H04	ln260inv38

295	757465.301	3638196.735	1	2E-06	0.14	-36.7	-42.6	C/O	57mm_M86_L12	BDU-28_I02	37mm_H09	In50inv33
296	757485.315	3638204.937	1	2E-06	0.23	-35.9	-53.7	C/O	105mm_M60_B05	81mm_M374_A02	105mm_M456_Heat_D06	In58inv39
297	757506.736	3638179.882	1	2E-06	0.65	-26.4	3.7	C/O	105mm_M60_L05	105mm_M456_Heat_L06	155mm_M483A1_L04	In31inv17
298	757527.149	3638400.697	1	2E-06	0.07	155.7	-10.1	C/O	2.75in_M230_M10	81mm_M374_E02	60mm_M49A3_F10	In240inv11
299	757527.849	3638248.507	1	2E-06	0.08	-34.7	28.6	C/O	BLU-26_I13	M42_M03	57mm_M86_pit	In102inv4
300	757528.7	3638194.994	1	2E-06	0.12	-174.9	-88.2	C/O	57mm_M86_L12	BDU-28_I02	M75_B01	In47inv7
301	757532.023	3638216.059	1	2E-06	0.19	-2.3	-87.5	C/O	M42_K03	40mm_MKII_E03	BDU-28_I02	In069inv38
302	757532.937	3638178.092	1	2E-06	0.17	-9	-84.8	C/O	40mm_MKII_E03	57mm_M86_L12	M75_B01	In29inv19
303	757533.994	3638223.838	1	2E-06	0.23	157.7	-2.4	C/O	81mm_M374_pit	2.75in_M230_K10	57mm_M86_J12	In76inv12
304	757536.702	3638462.074	1	2E-06	0	-37	25.9	C/O	40mm_M385_J14	20mm_M55_I15	M42_K03	In303_0681
305	757545.028	3638369.632	1	2E-06	0.66	54.4	-14.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In208inv13
306	757545.193	3638248.114	1	2E-06	0.42	-62.3	4.2	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	In102inv6
307	757571.953	3638502.972	0.99996	2E-06	0.14	62.8	-11.2	C/O	M42_K03	M75_B01	57mm_M86_L12	In342inv20
308	757581.929	3638440.157	1	2E-06	0.07	131.5	1.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In278inv5
309	757588.873	3638439.504	1	2E-06	0.1	31.3	9.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In277inv22
310	757599.518	3638298.507	1	2E-06	0.31	-164.6	-70	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In133inv31
311	757600.18	3638328.985	1	2E-06	0.07	-76.9	29.3	C/O	2.75in_M230_pit	81mm_M374_pit	105mm_M456_Heat_B06	In163inv10
312	757600.581	3638398.759	1	2E-06	0.48	-42.9	27.7	C/O	155mm_M483A1_L04	105mm_M60_L05	105mm_M456_Heat_H06	In235inv27
313	757603.764	3638491.881	1	2E-06	0.2	-52.3	2.3	C/O	105mm_M60_L05	81mm_M374_A02	105mm_M456_Heat_J06	line329inv26
314	757422.363	3638312.36	1	3E-06	0.08	-155.6	-76	C/O	2.75in_M230_M10	57mm_M86_L12	81mm_M374_C02	In154inv18
315	757429.224	3638395.192	1	3E-06	0.46	104.8	17.2	C/O	105mm_M456_Heat_H06	155mm_M483A1_H04	105mm_M60_J05	In238inv11
316	757441.331	3638360.937	1	3E-06	0.12	36.8	-6.7	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_F01	In203inv7
317	757451.042	3638395.025	1	3E-06	0.01	81.1	-58.7	C/O	2.75in_M230_K10	57mm_M86_L12	81mm_M374_E02	In237inv11
318	757460.737	3638435.4	1	3E-06	0	-108	16.1	C/O	M42_J03	M75_B01	2.75in_M230_K10	In277inv14
319	757465.363	3638505.162	1	3E-06	0	50.3	-4.2	C/O	57mm_M86_L12	BDU-28_I02	M42_K03	In347inv14
320	757466.919	3638190.975	1	3E-06	0.16	-117.3	-64.2	C/O	40mm_MKII_E03	M42_K03	BDU-28_I02	In44inv10
321	757487.396	3638344.121	1	3E-06	0	11.3	6.3	C/O	M42_K03	BDU-28_I02	MK118_Rockeye_M01	In183inv15
322	757501.422	3638194.27	1	3E-06	0.1	-77.1	-2	C/O	57mm_M86_L12	40mm_MKII_E03	M42_K03	In47inv5
323	757568.261	3638404.519	1	3E-06	0.16	34.7	-61.4	C/O	105mm_M60_L05	155mm_M483A1_L04	105mm_M456_Heat_F06	In242inv8
324	757595.572	3638421.168	1	3E-06	0.2	93.5	-4.1	C/O	81mm_M374_B02	2.75in_M230_M10	60mm_M49A3_J11	In258inv14
325	757597.994	3638432.702	1	3E-06	0.16	-102.3	-0.1	C/O	2.75in_M230_pit	105mm_M456_Heat_pit	57mm_M86_K12	In269inv25
326	757610.771	3638337.009	1	3E-06	0	-76.9	-80	C/O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_M10	In172_0098
327	757613.979	3638463.152	1	3E-06	0.63	-10.4	-15.1	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_L04	In301inv10
328	757422.47	3638433.821	1	4E-06	0.13	15.3	-7.3	C/O	2.75in_M230_K10	81mm_M374_B02	105mm_M60_L05	In277inv6
329	757437.576	3638372.743	1	4E-06	0.56	36.6	-46.9	C/O	105mm_M60_L05	81mm_M374_A02	105mm_M456_Heat_B06	In215inv10
330	757447.639	3638215.031	1	4E-06	0.07	-2.4	-75.8	C/O	57mm_M86_L12	37mm_H09	40mm_MKII_A03	In069inv34
331	757448.127	3638266.441	1	4E-06	0.02	-69.3	4.2	C/O	M75_A01	57mm_M86_L12	40mm_MKII_A03	In107_0143

332	757491.206	3638224.855	1	4E-06	0.14	101.3	28.4	C/O	57mm_M86_L12	M75_B01	40mm_MKII_E03	ln78inv4
333	757554	3638378.544	1	4E-06	0.1	11	-3.1	C/O	105mm_M60_L05	81mm_M374_A02	105mm_M456_Heat_J06	ln217inv26
334	757583.213	3638422.985	1	4E-06	0.65	-172.1	2.2	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln260inv22
335	757602.895	3638438.698	1	4E-06	0.19	-28.7	-15.9	C/O	81mm_M374_F02	2.75in_M230_K10	105mm_M60_L05	ln275_0990
336	757424.205	3638364.078	1	5E-06	0.22	-99	3.3	C/O	2.75in_M230_K10	60mm_M49A3_F10	81mm_M374_E02	ln207inv6
337	757426.995	3638378.672	1	5E-06	0.57	59.6	-5.5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln222inv28
338	757481.449	3638218.941	1	5E-06	0.26	-86.9	7.5	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_pit	ln073inv105
339	757493.503	3638246.218	1	5E-06	0.13	-67.1	3.9	C/O	57mm_M86_L12	BDU-28_I02	M75_B01	ln100inv12
340	757495.642	3638172.612	1	5E-06	0.2	-145.6	-0.4	C/O	40mm_MKII_E03	BDU-28_I02	MK118_Rockeye_M01	ln24inv16
341	757505.156	3638234.81	1	5E-06	0.24	176.3	-59.8	C/O	BDU-28_I02	57mm_M86_L12	37mm_H09	ln88inv14
342	757529.225	3638501.372	1	5E-06	0.26	-7.2	-14.5	C/O	M42_I03	40mm_MKII_pit	20mm_M55_M15	ln341_1308
343	757559.243	3638355.811	1	5E-06	0	-116	-53.9	C/O	57mm_M86_pit	60mm_M49A3_F10	2.75in_M230_M10	ln193inv14
344	757599.539	3638436.137	1	5E-06	0.31	-53.4	4.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln273inv12
345	757601.422	3638495.362	1	5E-06	0.35	-31.6	1	C/O	81mm_M374_pit	105mm_M60_L05	105mm_M456_Heat_J06	ln333inv17
346	757624.14	3638408.408	1	5E-06	0	115.9	-2.4	C/O	40mm_MKII_E03	M75_B01	MK118_Rockeye_J01	ln244_0011
347	757411.248	3638428.434	0.94129	6E-06	0	158.3	-3.8	C/O	M42_K03	M75_B01	20mm_M55_I15	ln272inv16
348	757448.673	3638209.983	0.99794	6E-06	0.22	-77.5	4.4	C/O	MK118_Rockeye_pit	M42_J03	37mm_K09	ln63_0330
349	757458.589	3638296.568	1	6E-06	0	-83.1	-15.1	C/O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_K10	ln135inv15
350	757485.16	3638245.929	1	6E-06	0.14	2.6	-22.9	C/O	57mm_M86_L12	BDU-28_I02	37mm_H09	ln100inv11
351	757502.601	3638189.702	1	6E-06	0.2	144.8	-2.3	C/O	57mm_M86_L12	BDU-28_I02	M42_K03	ln42inv55
352	757509.101	3638443.773	1	6E-06	0.14	-166	-5.9	C/O	81mm_M374_D02	105mm_M456_Heat_pit	105mm_M60_B05	ln284inv14
353	757525.793	3638393.113	1	6E-06	0.12	-148.3	22	C/O	81mm_M374_E02	2.75in_M230_K10	57mm_M86_L12	ln232inv22
354	757551.307	3638492.764	1	6E-06	0.6	139.4	-54.3	C/O	81mm_M374_pit	105mm_M60_L05	2.75in_M230_L10	ln332inv8
355	757580.673	3638324.548	1	6E-06	0.03	48.7	-2.4	C/O	57mm_M86_L12	M75_B01	40mm_MKII_E03	ln160inv2
356	757586.036	3638328.846	1	6E-06	0.24	51.8	1.2	C/O	81mm_M374_pit	105mm_M60_L05	105mm_M456_Heat_B06	ln164inv13
357	757441.156	3638160.01	1	7E-06	0.13	-126.5	-5.3	C/O	57mm_M86_L12	M75_B01	BDU-28_I02	ln13inv26
358	757443.335	3638244.41	1	7E-06	0.16	-36.3	-27.3	C/O	57mm_M86_L12	37mm_H09	BDU-28_M02	ln99bgEW9
359	757458.247	3638193.435	1	7E-06	0.21	-11.2	-1.4	C/O	BDU-28_I02	57mm_M86_L12	40mm_MKII_E03	ln47inv2
360	757461.487	3638355.269	1	7E-06	0.19	149.9	3.2	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln196inv16
361	757463.581	3638367.731	1	7E-06	0	87.4	1	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_H06	ln208inv27
362	757561.731	3638369.047	1	7E-06	0.28	-140.2	-35.1	C/O	155mm_M483A1_J04	105mm_M60_J05	105mm_M456_Heat_H06	ln206inv11
363	757566.081	3638290.843	1	7E-06	0.29	-167.4	-4.2	C/O	81mm_M374_A02	105mm_M60_B05	105mm_M456_Heat_D06	ln126inv10
364	757581.057	3638385.755	1	7E-06	0.63	36.5	-3.5	C/O	105mm_M60_L05	105mm_M456_Heat_pit	155mm_M483A1_L04	ln223inv19
365	757599.611	3638420.789	1	7E-06	0.09	-82.5	0.7	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln257inv23
366	757603.649	3638504.856	1	7E-06	0.29	61.7	-60.9	C/O	105mm_M60_J05	105mm_M456_Heat_pit	155mm_M483A1_L04	ln343inv9
367	757609.814	3638449.578	1	7E-06	0.08	89.4	-1.6	C/O	81mm_M374_pit	2.75in_M230_M10	60mm_M49A3_K11	ln286inv2
368	757415.344	3638504.251	0.90763	8E-06	1.94	171.3	-41.4	C/O	155mm_M483A1_D04	105mm_M60_F05	105mm_M456_Heat_F06	ln350_2094

369	757471.523	3638182.047	0.99999	8E-06	0.34	74.4	5.8	C/O	M42_I03	M75_A01	BLU-26_M13	In34inv3
370	757482.062	3638428.244	1	8E-06	0.06	170.6	1	C/O	81mm_M374_C02	2.75in_M230_M10	105mm_M60_L05	In270I2inv16
371	757536.355	3638248.64	1	8E-06	0.52	-120.3	-20.3	C/O	105mm_M60_H05	105mm_M456_Heat_B06	81mm_M374_D02	In102inv5
372	757539.473	3638196.562	1	8E-06	0.12	-96.9	-0.7	C/O	40mm_MKII_E03	BDU-28_I02	MK118_Rockeye_M01	In49inv29
373	757539.832	3638372.175	1	8E-06	0.54	-73.5	-20.2	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In211inv18
374	757569.879	3638464.166	1	8E-06	0.16	46.4	4.1	C/O	M75_A01	40mm_MKII_A03	37mm_H09	In304_0332
375	757453.993	3638259.134	1	9E-06	0.16	134.6	1.8	C/O	BLU-26_K13	57mm_M86_J12	60mm_M49A3_J11	In113inv17
376	757472.227	3638201.617	1	9E-06	0.14	-76	25.2	C/O	M42_M03	BLU-26_J13	M75_A01	In55inv13
377	757529.936	3638198.131	1	9E-06	0.21	63	-11.5	C/O	57mm_M86_L12	37mm_H09	M75_B01	In50inv30
378	757579.57	3638328.116	1	9E-06	0.02	-37.2	3.3	C/O	57mm_M86_L12	BDU-28_I02	37mm_H09	In163inv4
379	757582.343	3638463.291	1	9E-06	0.14	53.7	1.8	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_H10	In3024
380	757606.059	3638464.666	1	9E-06	0.02	93.2	-79.8	C/O	105mm_M60_L05	81mm_M374_A02	105mm_M456_Heat_J06	In302_0143
381	757614.585	3638500.128	1	9E-06	0.11	137.1	-23.9	C/O	BLU-26_M13	M42_M03	M75_A01	In338inv3
382	757439.314	3638465.094	1	1E-05	0.11	-113.1	-4.9	C/O	M75_E01	BLU-26_M13	40mm_MKII_B03	In309inv5
383	757444.834	3638161.344	1	1E-05	0.23	-113.3	-79	C/O	BDU-28_I02	57mm_M86_L12	37mm_H09	In14inv55
384	757466.02	3638355.018	1	1E-05	0.58	-34.2	-28.1	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In195inv15
385	757466.021	3638362.312	1	1E-05	0.08	-99.7	-24.8	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_F10	In203inv13
386	757496.705	3638175.635	1	1E-05	0.13	-83.2	0.4	C/O	57mm_M86_L12	BDU-28_I02	M75_B01	In27inv49
387	757573.843	3638241.619	1	1E-05	0.23	-179	-58	C/O	BLU-26_J13	2.75in_M230_pit	60mm_M49A3_pit	In96inv19
388	757574.514	3638288.046	1	1E-05	0.15	-15.3	43.6	C/O	BLU-26_J13	M42_J03	M75_C01	In123inv16
389	757608.058	3638333.236	1	1E-05	0.02	66.2	-1.3	C/O	57mm_M86_L12	M42_K03	M75_B01	In168inv2
390	757432.266	3638353.862	1	1E-05	0	98.5	-1.3	C/O	M42_K03	57mm_M86_L12	M75_B01	In196inv28
391	757439.119	3638354.834	1	1E-05	0.39	145.7	1.9	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In196inv26
392	757449.91	3638333.019	1	1E-05	0.3	-68.5	-33.2	C/O	81mm_M374_pit	105mm_M60_L05	105mm_M456_Heat_B06	In173inv19
393	757474.618	3638364.856	1	1E-05	0.11	46.3	-72.6	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_H06	In206inv21
394	757435.771	3638376.841	0.99892	1E-05	0.29	-56.5	-5.5	C/O	60mm_M49A3_K11	57mm_M86_L12	40mm_MKII_A03	In219_0114
395	757462.162	3638381.03	1	1E-05	0	76.8	-29.1	C/O	37mm_K09	57mm_M86_pit	2.75in_M230_K10	In222inv22
396	757475.058	3638504.541	1	1E-05	0.1	-19.1	-43.1	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	In3463
397	757538.776	3638188.581	1	1E-05	0.14	-68.6	-2.5	C/O	M75_B01	57mm_M86_L12	BDU-28_I02	In41inv46
398	757594.513	3638431.167	1	1E-05	0.35	-159	2.8	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In268inv5
399	757502.233	3638500.071	1	1E-05	0.26	14.4	1.8	C/O	57mm_M86_J12	60mm_M49A3_pit	81mm_M374_pit	In341inv36
400	757520.232	3638352.533	1	1E-05	0.08	2	7.3	C/O	57mm_M86_L12	M42_K03	M75_B01	In191inv9
401	757422.743	3638288.418	1	2E-05	0.43	-85.2	-82.9	C/O	81mm_M374_pit	105mm_M60_L05	105mm_M456_Heat_B06	In13012
402	757445.661	3638320.685	1	2E-05	0.1	-13.1	7.9	C/O	2.75in_M230_pit	57mm_M86_K12	BLU-26_J13	In161inv24
403	757507.127	3638357.57	1	2E-05	0.13	-37.4	-73.5	C/O	MK118_Rockeye_pit	37mm_K09	57mm_M86_pit	In197_0610
404	757570.64	3638487.259	1	2E-05	0.28	125.9	-5.9	C/O	81mm_M374_pit	2.75in_M230_K10	60mm_M49A3_pit	In326inv8
405	757568.557	3638441.635	1	2E-05	0.01	-113.4	-84.9	C/O	81mm_M374_C02	2.75in_M230_K10	105mm_M456_Heat_B06	In280inv15

406	757446.154	3638275.231	1	2E-05	0.26	108.4	-2.3	C/O	60mm_M49A3_K11	57mm_M86_L12	40mm_MKII_E03	ln118inv6
407	757488.922	3638391.286	1	2E-05	0.36	80.3	-11.2	C/O	BLU-26_J13	M42_M03	57mm_M86_K12	ln232inv30
408	757540.706	3638431.162	1	2E-05	0.01	109.3	-2.7	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln270l2inv12
409	757541.967	3638360.425	0.99843	2E-05	0.08	-148	-49.6	C/O	M42_I03	M75_B01	57mm_M86_L12	ln198inv6
410	757576.598	3638442.407	0.98852	2E-05	0.58	106.2	-12.3	C/O	2.75in_M230_pit	60mm_M49A3_pit	57mm_M86_K12	ln280_0553
411	757584.062	3638389.952	1	2E-05	0.56	-151.1	-47.6	C/O	81mm_M374_pit	105mm_M456_Heat_B06	2.75in_M230_K10	ln227in36
412	757429.151	3638226.771	0.99885	2E-05	0.1	83.3	-3.6	C/O	M42_I03	37mm_H09	40mm_MKII_pit	ln80inv15
413	757441.628	3638194.908	1	2E-05	0.14	-161.2	-6.8	C/O	57mm_M86_L12	BDU-28_I02	M75_B01	ln48inv16
414	757522.568	3638250.116	1	2E-05	0.02	-63.1	4.9	C/O	57mm_M86_L12	40mm_MKII_E03	M75_B01	ln104inv11
415	757459.434	3638288.431	1	2E-05	0.17	109.4	-1.6	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln128inv13
416	757465.324	3638356.92	0.95748	2E-05	0	133.8	-60.5	C/O	60mm_M49A3_pit	BLU-26_I13	M75_D01	ln199_2846
417	757492.281	3638441.112	1	2E-05	0.22	-137.2	19.1	C/O	81mm_M374_A02	105mm_M60_D05	105mm_M456_Heat_D06	ln282inv29
418	757561.527	3638341.745	1	2E-05	0.14	-153.6	7.3	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln178inv2
419	757610.303	3638504.511	1	2E-05	0.17	-171.9	-73.6	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_L04	ln343inv13
420	757630.877	3638336.271	0.9997	2E-05	0	-159.6	-63.8	C/O	2.75in_M230_pit	37mm_K09	M42_J03	ln170bgWapr123
421	757462.106	3638328.099	1	2E-05	0.22	52.6	-16.5	C/O	155mm_M483A1_H04	105mm_M60_J05	105mm_M456_Heat_H06	ln168inv21
422	757480.206	3638409.757	1	2E-05	0	-93.3	-86.5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln251inv5
423	757497.715	3638170.401	1	2E-05	0.18	57.5	1.7	C/O	57mm_M86_L12	M75_B01	40mm_MKII_E03	ln22inv49
424	757570.964	3638454.182	1	2E-05	0.2	-49.9	-31.5	C/O	60mm_M49A3_F10	2.75in_M230_K10	57mm_M86_L12	ln293inv12
425	757468.642	3638242.696	1	2E-05	0.47	91.8	-79.3	C/O	81mm_M374_E02	2.75in_M230_M10	105mm_M60_L05	ln96inv27
426	757521.951	3638244.662	1	2E-05	0.13	-61.4	3.3	C/O	57mm_M86_L12	BDU-28_I02	M75_B01	ln99bgEW15
427	757532.236	3638226.318	1	2E-05	0.18	178.7	-3.8	C/O	2.75in_M230_K10	81mm_M374_E02	57mm_M86_L12	ln80inv13
428	757488.624	3638338.709	1	3E-05	0.05	3.1	-70.2	C/O	M42_I03	37mm_H09	40mm_MKII_pit	ln178inv5
429	757491.978	3638368.682	1	3E-05	0.09	137	5.1	C/O	57mm_M86_pit	60mm_M49A3_K11	M75_C01	ln210inv2
430	757521.602	3638461.292	1	3E-05	0.03	178.1	6.7	C/O	M75_B01	M42_K03	57mm_M86_L12	ln30210
431	757462.528	3638188.976	1	3E-05	0.57	158.5	13.4	C/O	155mm_M483A1_B04	105mm_M456_Heat_H06	105mm_M60_H05	ln42inv60
432	757442.737	3638345.183	1	3E-05	0	-47.6	35	C/O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	ln187inv3
433	757449.816	3638326.433	1	3E-05	0.1	-62.1	5.8	C/O	37mm_K09	M42_J03	BLU-26_M13	ln167inv27
434	757503.242	3638246.043	1	3E-05	0.22	7.8	-59.3	C/O	57mm_M86_L12	37mm_H09	40mm_MKII_E03	ln100inv13
435	757580.618	3638273.733	1	3E-05	0.15	25	-75.1	C/O	M75_B01	57mm_M86_L12	BLU-26_M13	ln108inv2
436	757443.976	3638355.994	1	3E-05	0.29	133.4	2.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln198inv14
437	757459.348	3638284.892	1	3E-05	0.1	92.7	-48.7	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln125inv11
438	757463.049	3638394.378	1	3E-05	0.01	-139.4	19.3	C/O	81mm_M374_pit	2.75in_M230_K10	60mm_M49A3_K11	ln236inv12
439	757511.215	3638240.072	1	3E-05	0.13	-141.2	-53.9	C/O	57mm_M86_L12	M75_B01	60mm_M49A3_K11	ln94inv6
440	757456.132	3638378.864	1	3E-05	0.06	-44.8	-20.9	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	ln221inv13
441	757479.836	3638250.152	1	3E-05	0.04	-102	2.5	C/O	57mm_M86_L12	M75_B01	BDU-28_I02	ln104inv9
442	757534.47	3638188.096	1	3E-05	0.05	133.3	0.9	C/O	57mm_M86_L12	M75_B01	37mm_H09	ln40inv6

443	757576.911	3638250.04	1	4E-05	0.12	160.2	5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln105inv19
444	757593.915	3638415.126	1	4E-05	0.52	134.5	-8.7	C/O	105mm_M60_L05	105mm_M456_Heat_L06	155mm_M483A1_L04	ln252inv12
445	757442.559	3638330.074	1	4E-05	0.03	91.8	-57.2	C/O	37mm_H09	40mm_MKII_pit	MK118_Rockeye_J01	ln171_0264
446	757553.694	3638238.216	1	4E-05	0.31	0.3	-79.5	C/O	81mm_M374_pit	105mm_M60_L05	2.75in_M230_L10	ln92inv11
447	757597.583	3638366.639	1	4E-05	0.31	91.3	-64.2	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln203inv23
448	757557.668	3638258.475	0.9995	4E-05	0.17	-152.6	1.4	C/O	M42_K03	20mm_M55_J15	57mm_M86_L12	ln113inv13
449	757589.867	3638343.415	1	4E-05	0.19	-126.1	0.3	C/O	2.75in_M230_M10	81mm_M374_pit	60mm_M49A3_F10	ln179inv9
450	757616.647	3638492.462	1	4E-05	0	-131.5	-48.1	C/O	40mm_M385_J14	57mm_M86_L12	20mm_M55_I15	ln330_0013
451	757423.895	3638264.886	1	4E-05	0.12	-25.7	-3.8	C/O	105mm_M60_H05	105mm_M456_Heat_pit	155mm_M483A1_H04	ln107inv5
452	757436.008	3638368.208	1	4E-05	0.11	-87.4	13	C/O	155mm_M483A1_H04	105mm_M456_Heat_H06	105mm_M60_J05	ln211_0120
453	757577.014	3638315.08	1	4E-05	0.04	74.7	0.1	C/O	40mm_MKII_E03	BDU-28_I02	57mm_M86_L12	ln1501inv43
454	757494.852	3638167.716	1	4E-05	0.08	-98.2	0.9	C/O	57mm_M86_L12	40mm_MKII_E03	M75_B01	ln19inv12
455	757567.794	3638264.809	0.9579	4E-05	0	-85	3.2	C/O	81mm_M374_D02	105mm_M456_Heat_B06	105mm_M60_L05	ln103_1717
456	757428.131	3638184.362	1	5E-05	0.23	-168.3	1.9	C/O	37mm_H09	57mm_M86_L12	BDU-28_I02	ln38inv1
457	757554.51	3638321.785	1	5E-05	0.54	161.8	32.4	C/O	81mm_M374_F02	2.75in_M230_K10	105mm_M456_Heat_B06	ln158inv8
458	757420.082	3638397.907	1	5E-05	0.02	32.3	10.9	C/O	57mm_M86_L12	M75_C01	60mm_M49A3_K11	ln241inv7
459	757575.077	3638291.043	1	5E-05	0.14	-145.4	10.4	C/O	57mm_M86_L12	40mm_MKII_E03	60mm_M49A3_K11	ln126_0232
460	757576.823	3638334.523	1	5E-05	0.1	152.4	-9.2	C/O	2.75in_M230_M10	81mm_M374_E02	60mm_M49A3_K11	ln170inv21
461	757570.533	3638441.622	1	6E-05	0.23	-142.7	4.4	C/O	155mm_M483A1_H04	105mm_M456_Heat_H06	105mm_M60_J05	ln280inv11
462	757584.051	3638290.851	1	6E-05	0.18	90.9	4.2	C/O	M75_D01	57mm_M86_J12	BLU-26_H13	ln126inv3
463	757609.283	3638430.694	1	6E-05	0.09	0	-13.5	C/O	81mm_M374_E02	2.75in_M230_M10	60mm_M49A3_F10	ln267inv17
464	757556.172	3638468.631	1	6E-05	0.06	-147.4	3	C/O	81mm_M374_C02	57mm_M86_J12	2.75in_M230_M10	ln308_0428
465	757482.817	3638194.317	1	6E-05	0.04	-132.1	-1.6	C/O	57mm_M86_L12	BDU-28_I02	M75_B01	ln47inv4
466	757534.987	3638182.785	1	6E-05	0.08	26.7	3.3	C/O	57mm_M86_L12	M75_B01	37mm_H09	ln33inv7
467	757451.032	3638368.974	1	7E-05	0.08	-10.3	-5.1	C/O	2.75in_M230_M10	81mm_M374_E02	60mm_M49A3_M11	ln211inv12
468	757534.847	3638197.091	1	7E-05	0.19	-112.7	-1.1	C/O	BDU-28_I02	40mm_MKII_E03	MK118_Rockeye_M01	ln49inv28
469	757539.883	3638362.917	1	7E-05	0.06	25.7	-6.5	C/O	60mm_M49A3_M11	57mm_M86_L12	2.75in_M230_M10	ln201inv10
470	757539.65	3638400.007	1	7E-05	0.1	1.6	0.6	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_F10	ln239inv16
471	757569.91	3638474.675	1	7E-05	0.04	-52.4	-85.6	C/O	155mm_M483A1_L04	105mm_M60_L05	105mm_M456_Heat_H06	ln314inv2
472	757447.37	3638383.596	1	7E-05	0.16	107.8	27.4	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln226inv28
473	757531.368	3638294.161	1	7E-05	0.1	-82.6	4.4	C/O	57mm_M86_L12	M75_B01	37mm_H09	ln131inv10
474	757583.371	3638409.552	1	7E-05	0.16	148.3	-83.2	C/O	105mm_M60_L05	105mm_M456_Heat_pit	155mm_M483A1_L04	ln247inv8
475	757540.905	3638233.478	1	8E-05	0.37	-58.6	4	C/O	2.75in_M230_M10	57mm_M86_L12	60mm_M49A3_K11	ln87inv11
476	757513.898	3638406.559	1	8E-05	0.07	-103.1	-82.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln246inv13
477	757593.817	3638294.502	0.99419	8E-05	0.36	20.4	2.6	C/O	M75_C01	BLU-26_M13	40mm_MKII_A03	ln129inv14
478	757601.78	3638358.701	1	8E-05	0.13	48	11.9	C/O	BLU-26_L13	60mm_M49A3_F10	M42_M03	ln194_0135
479	757575.844	3638396.115	1	8E-05	0.07	16.3	-11.8	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln233inv38

480	757568.314	3638290.832	1	8E-05	0.13	81.9	-4.7	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_F01	ln126inv7
481	757565.98	3638252.583	1	8E-05	0.19	74	-75.4	C/O	57mm_M86_L12	M75_B01	37mm_H09	line107inv20
482	757524.199	3638229.811	1	9E-05	0.33	-129.7	-2.5	C/O	81mm_M374_A02	2.75in_M230_K10	105mm_M60_H05	ln83inv34
483	757454.236	3638374.762	1	9E-05	0.27	154.4	6.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln216b3gEast20
484	757581.464	3638248.907	1	9E-05	0.13	30.3	-0.2	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln104inv17
485	757605.564	3638434.021	1	9E-05	0.36	156.5	-65.3	C/O	155mm_M483A1_H04	105mm_M456_Heat_H06	105mm_M60_J05	ln270l2inv7
486	757464.732	3638474.197	1	9E-05	0.07	-106.4	1.6	C/O	81mm_M374_pit	105mm_M60_L05	2.75in_M230_K10	ln317inv11
487	757524.334	3638189.68	0.99999	9E-05	0.2	85.8	1.5	C/O	M42_K03	57mm_M86_L12	40mm_MKII_E03	ln42inv50
488	757446.119	3638323.333	1	1E-04	0.12	-159.3	-5.1	C/O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_pit	ln164inv29
489	757590.003	3638398.753	1	1E-04	0.06	-55.6	-5.7	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln235inv21
490	757557.726	3638349.507	1	0.0001	0.1	52.4	0.6	C/O	M75_E01	BLU-26_M13	40mm_MKII_B03	ln186inv2
491	757467.162	3638477.934	1	0.0001	0.23	49.9	6.3	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_pit	ln320inv12
492	757514.04	3638240.212	1	0.0001	0.15	-131.3	-52	C/O	57mm_M86_L12	40mm_MKII_E03	M75_B01	ln94inv5
493	757441.194	3638290.369	1	0.0001	0.1	-107.6	-8.2	C/O	M42_K03	57mm_M86_L12	M75_B01	ln131inv5
494	757553.022	3638381.99	1	0.0001	0.32	-156.2	18.2	C/O	155mm_M483A1_H04	105mm_M456_Heat_H06	105mm_M60_H05	ln22010
495	757480.211	3638223.32	1	0.0001	0.32	-23.2	-19.8	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_B05	ln77_0787
496	757540.862	3638469.784	1	0.0001	0	34.3	-1.5	C/O	2.75in_M230_K10	60mm_M49A3_M11	81mm_M374_pit	ln311inv22
497	757516.212	3638417.178	1	0.0001	0.32	109.9	-75.9	C/O	105mm_M456_Heat_pit	155mm_M483A1_L04	105mm_M60_L05	ln256x57inv23
498	757442.051	3638420.561	1	0.0001	0.35	-66.3	-52.4	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln263inv7
499	757442.307	3638369.137	1	0.0001	0.34	4.3	7	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln211inv9
500	757509.383	3638420.416	0.99993	0.0001	0	125.3	-4.4	C/O	MK118_Rockeye_M01	BDU-28_I02	40mm_M385_pit	ln260_0881
501	757418.989	3638352.806	1	0.0001	0.25	-133.3	-63.4	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_H06	ln195inv6
502	757473.823	3638288.889	1	0.0001	0.19	46.3	-4.5	C/O	105mm_M60_F05	155mm_M483A1_H04	105mm_M456_Heat_pit	ln128inv9
503	757548.968	3638247.06	1	0.0001	0.06	92.2	0.7	C/O	57mm_M86_L12	M75_B01	40mm_MKII_E03	ln101inv18
504	757472.111	3638362.699	1	0.0001	0	51.7	-69.8	C/O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_M10	ln203inv16
505	757435.422	3638407.564	1	0.0001	0.12	167.9	-8.6	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln250inv25
506	757578.026	3638301.462	1	0.0001	0.07	3.2	-79.8	C/O	2.75in_M230_K10	60mm_M49A3_M11	81mm_M374_C02	ln135_1066
507	757455.582	3638277.357	0.99998	0.0001	0.12	-79.5	-82.5	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln118_0732
508	757459.921	3638244.257	1	0.0001	0.16	14.4	3.8	C/O	57mm_M86_L12	BDU-28_I02	M42_K03	ln99bgEW12
509	757451.24	3638244.459	1	0.0001	0.14	-172.6	-12.3	C/O	37mm_H09	57mm_M86_L12	40mm_MKII_E03	ln98inv16
510	757591.626	3638500.009	1	0.0001	0.07	-108.6	-4.2	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln339inv9
511	757627.7	3638363.442	0.99972	0.0002	0	104.4	-24.7	C/O	M42_J03	37mm_M09	40mm_MKII_pit	ln199_1751
512	757525.106	3638174.257	1	0.0002	0.28	-63.1	0.7	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln25inv21
513	757600.52	3638393.461	1	0.0002	0.17	112.3	-3.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln230inv5
514	757424.923	3638373.226	0.99996	0.0002	0.81	-42.5	-45.7	C/O	105mm_M60_L05	105mm_M456_Heat_B06	81mm_M374_D02	ln216b3gEast25
515	757609.214	3638437.442	1	0.0002	0.74	70	7	C/O	155mm_M483A1_F04	105mm_M456_Heat_H06	105mm_M60_H05	ln274inv1
516	757583.298	3638277.914	0.99929	0.0002	0.14	71.3	-49.5	C/O	20mm_M55_L15	M42_K03	37mm_H09	ln113inv14

517	757447.818	3638277.638	1	0.0002	0.3	104.7	-11.1	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_F01	In118_0819
518	757566.801	3638491.051	1	0.0002	0.2	102.3	16.8	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In330inv7
519	757418.864	3638367.512	1	0.0002	0.21	149.7	-2	C/O	60mm_M49A3_K11	57mm_M86_L12	M75_F01	In210inv10
520	757528.172	3638170.3	1	0.0002	0.11	-24.6	-1.9	C/O	57mm_M86_L12	M75_B01	60mm_M49A3_K11	In21inv45
521	757554.025	3638344.816	1	0.0002	0	-50.5	-10.5	C/O	60mm_M49A3_K11	57mm_M86_L12	81mm_M374_pit	In181inv4
522	757530.604	3638334.709	1	0.0002	0.29	102.2	24.6	C/O	105mm_M456_Heat_B06	81mm_M374_F02	105mm_M60_L05	In172inv5
523	757432.793	3638481.84	1	0.0002	0.17	-21.6	-2.7	C/O	81mm_M374_B02	2.75in_M230_M10	105mm_M60_L05	In325inv7
524	757591.018	3638409.853	1	0.0002	0.29	134.3	24.9	C/O	105mm_M456_Heat_H06	155mm_M483A1_H04	105mm_M60_J05	In246inv10
525	757425.579	3638387.775	1	0.0002	0.07	59	-63.5	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	In231inv7
526	757593.733	3638413.091	1	0.0002	0.38	7.2	-74.8	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In250inv13
527	757561.412	3638238.073	1	0.0002	0.21	8.1	10.7	C/O	105mm_M60_D05	105mm_M456_Heat_D06	155mm_M483A1_L04	In92inv10
528	757420.76	3638324.668	1	0.0002	0.23	-116.2	12.4	C/O	105mm_M456_Heat_L06	155mm_M483A1_L04	105mm_M60_J05	In167inv12
529	757547.328	3638428.678	1	0.0002	0.03	143.8	16.1	C/O	M75_D01	BLU-26_M13	57mm_M86_L12	In268inv11
530	757550.869	3638227.127	1	0.0002	0.42	80.1	-57.3	C/O	2.75in_M230_K10	81mm_M374_C02	57mm_M86_L12	In81inv13
531	757437.327	3638193.001	1	0.0002	0.18	98.5	-84	C/O	40mm_MKII_E03	BDU-28_I02	MK118_Rockeye_M01	In47inv1
532	757542.443	3638394.007	1	0.0003	0.16	-101.3	3.5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In233inv33
533	757620.063	3638445.325	0.99515	0.0003	0.25	-74.4	-65.7	C/O	BLU-26_K13	57mm_M86_L12	60mm_M49A3_K11	In281inv36
534	757476.688	3638351.167	1	0.0003	0.02	57.4	-74.4	C/O	40mm_MKII_B03	57mm_M86_L12	M75_C01	In191inv5
535	757426.395	3638247.137	1	0.0003	0.22	91.2	-7.4	C/O	81mm_M374_C02	105mm_M456_Heat_B06	2.75in_M230_K10	In101inv20
536	757465.298	3638220.498	1	0.0003	0.13	133.5	0.6	C/O	81mm_M374_pit	105mm_M456_Heat_J06	105mm_M60_J05	In074inv118
537	757572.707	3638365.157	1	0.0003	0	121.6	17.3	C/O	60mm_M49A3_K11	57mm_M86_L12	81mm_M374_pit	In202_0382
538	757491.81	3638170.467	1	0.0003	0.19	-164.7	0	C/O	40mm_MKII_E03	M42_K03	BDU-28_I02	In22inv53
539	757442.783	3638317.168	1	0.0003	0.39	0.2	-61.3	C/O	2.75in_M230_K10	81mm_M374_E02	60mm_M49A3_M11	In158inv22
540	757611.658	3638390.018	1	0.0003	0.15	137.7	0.7	C/O	2.75in_M230_M10	81mm_M374_pit	105mm_M60_L05	In226inv2
541	757599.806	3638423.57	1	0.0003	0.13	80	5.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In260inv15
542	757460.154	3638216.478	1	0.0003	0.19	-16.4	-75.1	C/O	2.75in_M230_K10	57mm_M86_J12	81mm_M374_E02	In070inv50
543	757436.315	3638381.203	1	0.0003	0.69	130.1	-7.4	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In224inv22
544	757429.985	3638474.737	1	0.0003	0.18	-121.9	-11.2	C/O	81mm_M374_E02	2.75in_M230_K10	60mm_M49A3_M11	In319inv5
545	757599.496	3638358.649	1	0.0003	0.1	49.9	8.1	C/O	BLU-26_L13	M42_M03	MK118_Rockeye_I01	In194_0154
546	757595.376	3638478.696	1	0.0003	0.14	-3.1	15.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In317inv38
547	757451.056	3638175.755	1	0.0003	0.28	124.5	-4.9	C/O	2.75in_M230_M10	81mm_M374_pit	60mm_M49A3_F10	In28inv2
548	757563.085	3638506.803	1	0.0003	0.26	147.3	-74.4	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In3466
549	757478.094	3638489.365	0.93744	0.0003	0	-75.6	-13.1	C/O	40mm_M385_J14	20mm_M55_I15	M42_K03	In331_0389
550	757507.807	3638166.076	1	0.0003	0.11	24.9	2.1	C/O	BDU-28_M02	37mm_H09	M42_I03	In17inv20
551	757576.294	3638414.932	1	0.0003	0.25	-128.4	-75.8	C/O	2.75in_M230_H10	105mm_M60_B05	105mm_M456_Heat_pit	In253_0990
552	757592.902	3638294.343	0.99656	0.0004	0.34	21.5	2.3	C/O	M75_E01	BLU-26_M13	40mm_MKII_B03	In129_0950
553	757608.371	3638316.86	1	0.0004	0.03	24.1	-11.6	C/O	2.75in_M230_M10	81mm_M374_C02	60mm_M49A3_M11	In151inv28

554	757488.189	3638499.132	1	0.0004	0.1	-84.5	2.2	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_M11	ln341inv33
555	757477.761	3638328.585	1	0.0004	0.24	-141.1	-86.7	C/O	81mm_M374_F02	155mm_M483A1_L04	105mm_M60_L05	ln168inv15
556	757418.44	3638205.781	1	0.0004	0.03	170.2	-86	C/O	57mm_M86_L12	M75_B01	40mm_MKII_E03	ln60_1318
557	757422.354	3638293.833	1	0.0004	0	83.1	-2.9	C/O	M42_K03	40mm_MKII_E03	57mm_M86_L12	ln136inv23
558	757426.76	3638417.878	1	0.0004	0.25	25.6	-0.8	C/O	81mm_M374_A02	105mm_M60_B05	105mm_M456_Heat_D06	ln261inv4
559	757522.993	3638227.605	1	0.0004	0.44	-31.4	-83.7	C/O	155mm_M483A1_L04	105mm_M60_L05	81mm_M374_A02	ln81inv8
560	757580.443	3638373.717	1	0.0004	0.39	22.1	7.5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln211inv20
561	757499.966	3638275.234	1	0.0004	0.19	-98.2	-17.1	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln113_0431
562	757612.05	3638458.999	1	0.0004	0.13	-155	-7.2	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	ln296inv2
563	757594.856	3638358.936	1	0.0004	0.21	159.3	18.7	C/O	105mm_M60_H05	105mm_M456_Heat_B06	155mm_M483A1_J04	ln195_0973
564	757482.399	3638293.838	1	0.0004	0.04	-175.8	-64.5	C/O	M75_B01	57mm_M86_L12	60mm_M49A3_K11	ln133inv18
565	757568.213	3638422.35	1	0.0004	0.06	166.3	-0.5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln260inv25
566	757601.365	3638452.233	1	0.0004	0.42	27.9	-3.4	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln289inv14
567	757604.912	3638471.268	1	0.0004	0.12	-122.1	-39.4	C/O	57mm_M86_J12	2.75in_M230_K10	60mm_M49A3_M11	ln309inv20
568	757438.148	3638482.095	1	0.0004	0.11	-128.1	-3.2	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_F01	ln325_0152
569	757518.051	3638456.966	1	0.0005	0.29	100.9	2.2	C/O	105mm_M60_J05	155mm_M483A1_H04	105mm_M456_Heat_J06	ln29811
570	757479.132	3638344.227	0.99363	0.0005	0.22	88.2	3.1	C/O	57mm_M86_L12	M75_B01	37mm_H09	ln184inv7
571	757430.156	3638443.006	1	0.0005	0.28	-138.9	30.2	C/O	81mm_M374_C02	105mm_M60_L05	105mm_M456_Heat_B06	ln286inv33
572	757605.432	3638380.671	1	0.0005	0.14	-25.3	-56.8	C/O	57mm_M86_L12	BLU-26_K13	60mm_M49A3_K11	ln217inv35
573	757416.446	3638500.631	1	0.0005	0.21	-41.1	-68.3	C/O	81mm_M374_C02	105mm_M456_Heat_B06	2.75in_M230_K10	ln345invcont1
574	757472.359	3638185.844	1	0.0005	0.17	62.7	-82.6	C/O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_M10	ln39inv21
575	757453.762	3638367.121	1	0.0005	0	-170.9	1.8	C/O	60mm_M49A3_F10	57mm_M86_L12	81mm_M374_E02	ln208inv37
576	757541.517	3638370.799	1	0.0005	0.14	31.1	-67.2	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln209inv15
577	757601.355	3638481.509	1	0.0005	0.42	46.5	29.1	C/O	105mm_M456_Heat_H06	155mm_M483A1_H04	105mm_M60_J05	ln320_0087
578	757540.264	3638458.236	1	0.0005	0.29	63.7	-82.8	C/O	57mm_M86_K12	BLU-26_J13	2.75in_M230_pit	ln299inv13
579	757433.747	3638474.689	1	0.0005	0.46	-29.1	-27.6	C/O	105mm_M60_J05	105mm_M456_Heat_pit	155mm_M483A1_H04	ln319inv8
580	757431.714	3638413.318	1	0.0005	0.57	49.1	-29.3	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln256invinv28
581	757450.28	3638359.469	1	0.0006	0.38	-32.7	-23.5	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_L04	ln201inv7
582	757474.898	3638192.306	1	0.0006	0.15	39.8	-0.1	C/O	57mm_M86_L12	2.75in_M230_M10	60mm_M49A3_K11	ln45inv30
583	757571.468	3638498.296	1	0.0006	0.38	-121.8	-0.2	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln337inv34
584	757526.835	3638185.991	1	0.0006	0.15	147.8	-2.5	C/O	40mm_MKII_E03	57mm_M86_L12	M75_B01	ln38inv11
585	757446.351	3638397.007	1	0.0006	0.31	-97.7	-65.8	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_H06	ln239_0292
586	757589.296	3638410.541	1	0.0006	0	34.4	-75.2	C/O	60mm_M49A3_K11	57mm_M86_L12	MK118_Rockeye_H01	ln247_1431
587	757628.074	3638346.612	0.89075	0.0006	1.41	-32.4	-75.5	C/O	81mm_M374_F02	105mm_M456_Heat_F06	105mm_M60_L05	ln180_0012
588	757590.015	3638359.661	1	0.0006	0.1	107.1	11.4	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_H10	ln196inv4
589	757571.063	3638419.157	1	0.0006	0.66	74.8	-61.7	C/O	81mm_M374_A02	105mm_M60_B05	105mm_M456_Heat_pit	ln257inv16
590	757437.151	3638288.971	1	0.0006	0.15	52.2	-83.7	C/O	M75_B01	60mm_M49A3_K11	57mm_M86_L12	ln130_0948

591	757454.99	3638292.055	1	0.0006	0.04	114.3	-8.6	C/O	60mm_M49A3_L11	2.75in_M230_M10	57mm_M86_L12	ln132inv15
592	757453.174	3638180.572	1	0.0007	0.32	12.4	1.6	C/O	60mm_M49A3_K11	2.75in_M230_M10	57mm_M86_L12	ln33inv53
593	757454.181	3638277.242	1	0.0007	0.15	-94.5	-84.1	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln117inv6
594	757585.646	3638344.664	1	0.0007	0.08	45.7	-2.1	C/O	81mm_M374_pit	105mm_M60_L05	155mm_M483A1_L04	ln180inv7
595	757541.937	3638410.982	1	0.0007	0.08	57.1	5.7	C/O	57mm_M86_L12	60mm_M49A3_K11	40mm_MKII_A03	ln250inv17
596	757534.007	3638246.375	1	0.0007	0.14	117	-83.2	C/O	57mm_M86_L12	BDU-28_I02	40mm_MKII_E03	ln100inv15
597	757477.124	3638269.208	1	0.0007	0.16	141.1	9.2	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln108_0574
598	757515.634	3638468.22	0.96276	0.0007	0.03	-23.3	6.3	C/O	20mm_M55_I15	40mm_M385_J14	57mm_M86_L12	ln309inv11
599	757589.206	3638310.584	1	0.0007	0.13	34	-8.3	C/O	105mm_M60_D05	105mm_M456_Heat_pit	155mm_M483A1_F04	ln145_0915
600	757505.051	3638241.612	1	0.0008	0.18	-49.9	5.9	C/O	60mm_M49A3_K11	2.75in_M230_M10	57mm_M86_L12	ln95inv12
601	757461.983	3638304.925	1	0.0008	0	-0.8	-8.5	C/O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	ln145inv7
602	757627.979	3638361.769	1	0.0008	1.33	-36.1	-78	C/O	155mm_M483A1_B04	105mm_M456_Heat_F06	81mm_M374_F02	ln196_0006
603	757495.915	3638258.197	1	0.0009	0.1	-52.2	4.4	C/O	M42_L03	BLU-26_M13	37mm_H09	ln112_0604
604	757465.635	3638478.417	1	0.0009	0.22	-27.4	3.5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln321inv5
605	757442.599	3638320.466	1	0.0009	0.1	-97.1	-1.7	C/O	81mm_M374_pit	105mm_M60_L05	2.75in_M230_K10	ln161inv17
606	757438.801	3638279.122	1	0.0009	0.32	56	-20.2	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_L04	ln120inv15
607	757591.297	3638395.308	1	0.0009	0.58	90.1	-30.4	C/O	105mm_M60_L05	105mm_M456_Heat_B06	81mm_M374_F02	ln232inv10
608	757449.257	3638409.762	1	0.001	0.05	-163.7	2	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln252inv21
609	757599.15	3638411.375	1	0.0011	0.34	92.2	5.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln248inv3
610	757441.972	3638326.419	1	0.0011	0.06	42.9	-10.1	C/O	BLU-26_H13	M75_A01	57mm_M86_L12	ln167inv21
611	757502.626	3638164.531	1	0.0011	0.17	-170.5	-6.7	C/O	57mm_M86_L12	M42_K03	BDU-28_I02	ln16inv4
612	757447.82	3638362.751	1	0.0012	0.12	87.4	-3	C/O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	ln204inv15
613	757448.672	3638461.789	0.99998	0.0012	0	45.4	-45.9	C/O	40mm_M385_J14	BLU-26_K13	57mm_M86_L12	ln305_0291
614	757619.477	3638452.58	1	0.0012	0	-31.2	-2.2	C/O	2.75in_M230_M10	60mm_M49A3_F10	81mm_M374_E02	ln289_1113
615	757462.526	3638361.649	1	0.0012	0.08	64.3	-80.6	C/O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_M10	ln203inv10
616	757476.118	3638286.949	1	0.0012	0.1	-150.7	-2.2	C/O	105mm_M456_Heat_L06	105mm_M60_L05	81mm_M374_D02	ln126inv16
617	757582.619	3638297.696	1	0.0012	0.13	-101.2	25.9	C/O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_M10	ln133inv25
618	757436.164	3638314.605	1	0.0012	0.17	160.9	8.2	C/O	2.75in_M230_M10	81mm_M374_B02	105mm_M60_L05	ln156inv21
619	757463.722	3638281.364	1	0.0013	0.09	-107.4	-1.3	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln121inv5
620	757554.775	3638414.938	1	0.0014	0	2.6	-74.3	C/O	M75_B01	57mm_M86_L12	60mm_M49A3_K11	ln254_0434
621	757590.508	3638372.316	1	0.0014	0.27	-101.3	0.2	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln209inv2
622	757428.369	3638189.728	1	0.0014	0.14	109.9	-82.8	C/O	37mm_H09	BDU-28_M02	40mm_MKII_pit	ln43inv74
623	757610.977	3638315.519	1	0.0014	0	4.5	85.1	C/O	20mm_M55_I15	M42_K03	40mm_M385_I14	ln150_0091
624	757434.176	3638190.374	1	0.0014	0.33	-43.3	-74	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln44inv14
625	757592.947	3638449.769	1	0.0014	0.34	-119.6	-56.3	C/O	81mm_M374_C02	105mm_M60_L05	105mm_M456_Heat_J06	ln287inv19
626	757436.228	3638307.91	1	0.0014	0.62	-111.5	-62.7	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln149inv9
627	757441.797	3638285.844	1	0.0014	0.14	-66.8	-0.6	C/O	60mm_M49A3_K11	57mm_M86_L12	M75_B01	ln127inv8

628	757534.447	3638262.537	1	0.0015	0.1	132.3	-73.4	C/O	57mm_M86_L12	60mm_M49A3_K11	37mm_H09	ln117inv14
629	757587.993	3638443.873	1	0.0015	0.17	39.9	5.3	C/O	105mm_M60_J05	155mm_M483A1_L04	105mm_M456_Heat_pit	ln281inv31
630	757556.316	3638263.594	0.38582	0.0016	0.81	-94.5	-67.1	B	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_L04	ln118_1098
631	757606.636	3638376.075	1	0.0016	0.47	109	-65.1	C/O	57mm_M86_J12	60mm_M49A3_L11	M75_F01	ln212inv3
632	757592.153	3638352.953	1	0.0016	0.44	-76.1	-12.6	C/O	2.75in_M230_M10	57mm_M86_J12	81mm_M374_C02	ln189inv17
633	757607.375	3638481.587	0.74274	0.0017	0.2	-86.9	-37.5	C/O	M75_B01	M42_I03	57mm_M86_L12	ln319inv21
634	757467.062	3638327.092	1	0.0018	0.43	20.1	14.3	C/O	37mm_L09	MK118_Rockeye_L01	40mm_MKII_E03	ln167_0465
635	757430.951	3638173.783	1	0.0018	0.18	-118.3	-48.7	C/O	57mm_M86_L12	BDU-28_I02	40mm_MKII_E03	ln27inv43
636	757484.251	3638350.659	1	0.0018	0	86.2	-1.9	C/O	60mm_M49A3_K11	2.75in_M230_H10	81mm_M374_pit	ln190inv14
637	757602.27	3638444.627	1	0.0018	0.13	158.4	3.1	C/O	60mm_M49A3_K11	57mm_M86_L12	M75_F01	ln282inv5
638	757564.507	3638223.122	0.54556	0.0019	0.05	84.3	-6.3	C/O	M42_I03	20mm_M55_M15	MK118_Rockeye_M01	ln76inv9
639	757439.386	3638332.64	1	0.0019	0.62	172.8	-61.2	C/O	105mm_M60_J05	155mm_M483A1_H04	105mm_M456_Heat_J06	ln174inv5
640	757486.511	3638293.993	1	0.0019	0.64	-156.6	-46	C/O	81mm_M374_pit	105mm_M456_Heat_pit	105mm_M60_J05	ln133inv21
641	757461.49	3638266.826	1	0.0019	0	34.7	-6.1	C/O	2.75in_M230_M10	81mm_M374_E02	60mm_M49A3_F10	ln107_0226
642	757588.393	3638390.412	1	0.002	0.12	38.7	27.3	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln227in40
643	757539.6	3638191.771	1	0.002	0.08	-162.8	3.2	C/O	57mm_M86_L12	60mm_M49A3_K11	40mm_MKII_E03	ln44inv2
644	757454.375	3638358.278	1	0.002	0.26	-107.7	-80.6	C/O	57mm_M86_J12	2.75in_M230_K10	81mm_M374_C02	ln199inv14
645	757580.027	3638413.831	1	0.0021	0.08	-90.2	-36.6	C/O	81mm_M374_F02	105mm_M60_L05	105mm_M456_Heat_B06	ln251inv10
646	757549.79	3638236.559	1	0.0021	0.43	103.3	8.1	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln90inv6
647	757493.208	3638378.325	1	0.0022	0.1	29.5	-0.6	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_F10	ln219inv19
648	757481.254	3638180.07	1	0.0022	0.19	73.8	-14.4	C/O	81mm_M374_A02	105mm_M60_L05	105mm_M456_Heat_B06	ln32inv30
649	757421.211	3638276.508	1	0.0023	0.16	110.3	1.4	C/O	60mm_M49A3_M11	2.75in_M230_M10	57mm_M86_J12	ln118_0993
650	757579.532	3638319.326	1	0.0024	0.05	167.5	1.5	C/O	37mm_H09	57mm_M86_L12	40mm_MKII_E03	ln154_0426
651	757626.79	3638338.8	0.99898	0.0024	0	114.9	4	C/O	20mm_M55_I15	40mm_M385_J14	M42_K03	ln172_0021
652	757530.06	3638172.3	1	0.0026	0.21	18.3	-80.9	C/O	M42_K03	57mm_M86_L12	M75_B01	ln23inv9
653	757548.182	3638244.127	1	0.0027	0.5	129.5	-72.2	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M456_Heat_B06	ln98inv11
654	757593.943	3638334.958	1	0.0028	0.17	164.3	1.8	C/O	81mm_M374_A02	105mm_M60_L05	155mm_M483A1_L04	ln170inv18
655	757587.297	3638362.959	1	0.0029	0.16	33.6	-68.1	C/O	60mm_M49A3_K11	57mm_M86_L12	81mm_M374_pit	ln199inv19
656	757428.281	3638262.829	1	0.0029	0.62	-16.4	-44.3	C/O	105mm_M60_L05	81mm_M374_pit	105mm_M456_Heat_B06	ln304inv4
657	757476.43	3638290.121	1	0.0029	0.06	-117.7	1.8	C/O	105mm_M456_Heat_pit	105mm_M60_F05	155mm_M483A1_L04	ln129inv3
658	757421.021	3638320.824	1	0.0031	0.01	-148.8	0.8	C/O	2.75in_M230_M10	60mm_M49A3_pit	81mm_M374_E02	ln162inv25
659	757460.857	3638180.093	1	0.0032	0.15	114.7	3.1	C/O	BDU-28_I02	MK118_Rockeye_M01	M42_pit	ln32inv37
660	757457.036	3638229.245	1	0.0033	0.23	14	-77.4	C/O	155mm_M483A1_B04	105mm_M456_Heat_H06	105mm_M60_J05	ln83inv32
661	757513.513	3638502.704	1	0.0035	0.26	-68.3	-79.6	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_pit	ln344inv10
662	757535.954	3638468.971	1	0.0036	0.05	-5.3	-86.5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln310inv6
663	757593.87	3638463.568	1	0.0036	0.08	73.6	5.4	C/O	2.75in_M230_K10	60mm_M49A3_pit	81mm_M374_pit	ln3022
664	757428.721	3638421.751	1	0.0037	0.08	168.1	1.4	C/O	60mm_M49A3_F10	2.75in_M230_M10	81mm_M374_pit	ln264inv10

665	757450.323	3638317.253	1	0.0038	0.22	-65.3	-84.6	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In158inv20
666	757630.926	3638367.718	0.99429	0.0038	0.02	113.6	-16.7	C/O	M42_K03	40mm_M385_pit	20mm_M55_I15	In202_0009
667	757536.331	3638480.837	1	0.0039	0.38	8.1	-15.6	C/O	81mm_M374_B02	105mm_M456_Heat_D06	105mm_M60_B05	In321inv17
668	757459.173	3638291.826	1	0.0039	0.11	89.4	-1.5	C/O	81mm_M374_E02	2.75in_M230_M10	60mm_M49A3_F10	In132_0878
669	757434.315	3638393.404	1	0.0039	0.24	-11.4	-69.4	C/O	2.75in_M230_M10	81mm_M374_pit	60mm_M49A3_F10	In236inv21
670	757547.112	3638488.326	1	0.004	0.25	59.6	-64	C/O	M75_D01	BLU-26_K13	57mm_M86_L12	line329inv32
671	757423.201	3638386.944	1	0.0041	0.14	-7.8	-84.6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In230inv31
672	757576.049	3638324.12	0.99976	0.0042	0.05	154.2	25.2	C/O	20mm_M55_J15	M42_I03	37mm_H09	In160inv4
673	757614.204	3638360.727	1	0.0042	0.18	125.5	-9.5	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	In196inv1
674	757497.373	3638223.702	1	0.0044	0.19	165.7	-65.1	C/O	40mm_MKII_E03	BDU-28_I02	57mm_M86_L12	In76inv14
675	757551.796	3638366.995	1	0.0046	0.83	-18.3	32.9	C/O	105mm_M456_Heat_H06	155mm_M483A1_J04	105mm_M60_L05	In205inv29
676	757611.963	3638431.223	1	0.0047	0.62	147.6	-63.7	C/O	105mm_M456_Heat_pit	155mm_M483A1_L04	105mm_M60_J05	In267inv20
677	757496.472	3638234.013	1	0.0054	0.27	-43.2	5.5	C/O	2.75in_M230_K10	60mm_M49A3_M11	81mm_M374_pit	In87inv6
678	757546.005	3638400.47	1	0.0054	0.37	-7.8	-14.9	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In239inv19
679	757590.322	3638385.974	1	0.0055	0.53	165.5	-37.7	C/O	81mm_M374_A02	105mm_M456_Heat_pit	105mm_M60_H05	In222inv1
680	757400.564	3638476.937	1	0.0056	0	90.2	-22.7	C/O	155mm_M483A1_D04	105mm_M456_Heat_H06	105mm_M60_D05	In345_0193
681	757463.406	3638475.331	1	0.0056	0.18	127.5	-6	C/O	155mm_M483A1_L04	105mm_M60_L05	105mm_M456_Heat_pit	In318inv20
682	757550.194	3638428.472	1	0.0057	0	43	-3.5	C/O	155mm_M483A1_L04	105mm_M60_H05	105mm_M456_Heat_H06	In267_0889
683	757425.2	3638383.339	1	0.0059	0.4	123.7	-63.1	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	In226inv38
684	757530.927	3638401.621	1	0.0061	0.83	102.8	-55.2	C/O	105mm_M60_L05	105mm_M456_Heat_J06	155mm_M483A1_H04	In241inv15
685	757609.713	3638378.802	1	0.0061	0.6	-179.6	-2.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In214inv3
686	757608.401	3638320.024	1	0.0062	0	73.3	-1.3	C/O	BDU-28_I02	M42_K03	57mm_M86_L12	In154inv2
687	757593.615	3638364.354	1	0.0063	0	-173.1	-24.5	C/O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	In200data_inv2
688	757611.231	3638439.811	1	0.0064	0.17	48.4	-8.1	C/O	2.75in_M230_M10	60mm_M49A3_K11	81mm_M374_E02	In276inv1
689	757613.411	3638400.459	1	0.0065	0.33	-28.2	-49.6	C/O	155mm_M483A1_H04	105mm_M60_J05	105mm_M456_Heat_pit	In237inv30
690	757416.204	3638426.72	1	0.0065	0.17	114.9	30.1	C/O	57mm_M86_M12	M75_E01	60mm_M49A3_J11	In270I2inv22
691	757493.687	3638234.951	1	0.0065	0.17	49.2	-82.1	C/O	57mm_M86_L12	37mm_H09	40mm_MKII_E03	In88inv16
692	757528.058	3638167.428	1	0.0067	0.14	58	-72.7	C/O	40mm_MKII_pit	37mm_M09	M75_A01	In18inv23
693	757581.632	3638419.24	1	0.0067	0.11	-1.6	14.9	C/O	105mm_M60_L05	105mm_M456_Heat_L06	155mm_M483A1_L04	In257inv18
694	757583.409	3638302.487	1	0.0068	0.08	11.6	1.8	C/O	57mm_M86_L12	37mm_I09	M75_B01	In135_1125
695	757561.106	3638252.009	1	0.0069	0.12	40.3	-7.6	C/O	57mm_M86_L12	37mm_H09	M75_B01	line106inv13
696	757608.6	3638464.668	1	0.0071	0.22	-94	-36.5	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In303inv28
697	757440.108	3638190.585	1	0.0073	0.18	-161.3	0.7	C/O	60mm_M49A3_K11	57mm_M86_L12	M75_B01	In44inv13
698	757596.24	3638403.07	1	0.0074	0	-12.3	-53.5	C/O	155mm_M483A1_H04	105mm_M60_J05	105mm_M456_Heat_H06	In240inv4
699	757539.896	3638242.255	1	0.0076	0.05	10.5	-85	C/O	57mm_M86_L12	M75_B01	60mm_M49A3_K11	In96inv21
700	757490.435	3638269.913	1	0.0078	0.12	-155.6	-81.8	C/O	57mm_M86_M12	2.75in_M230_M10	81mm_M374_C02	In108inv7
701	757488.317	3638274.806	1	0.0078	0.06	-66	-55.6	C/O	M75_B01	57mm_M86_L12	60mm_M49A3_K11	In113inv6

702	757554.633	3638391.847	1	0.0079	0.14	-169.9	-28.2	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In230inv15
703	757426.709	3638295.765	1	0.0081	0.12	-36.8	3.4	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	In135inv10
704	757506.788	3638391.099	1	0.0083	0.18	-118.2	-7.4	C/O	2.75in_M230_K10	105mm_M60_L05	155mm_M483A1_L04	In231inv15
705	757460.892	3638310.867	1	0.0084	0.3	103.9	-26.8	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	In1501inv50
706	757478.873	3638216.761	1	0.0085	0.1	152.3	-5.3	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_H06	In070inv45
707	757454.697	3638429.854	1	0.0086	0.15	158.1	0.8	C/O	155mm_M483A1_J04	105mm_M456_Heat_pit	105mm_M60_J05	In272inv10
708	757452.674	3638310.743	1	0.0086	0.03	-132.5	-3.1	C/O	81mm_M374_C02	57mm_M86_J12	2.75in_M230_M10	In151inv10
709	757429.42	3638331.102	1	0.009	0.02	-55.5	3.3	C/O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	In173inv9
710	757491.827	3638418.795	1	0.009	0	60.9	5	C/O	81mm_M374_pit	105mm_M60_L05	105mm_M456_Heat_B06	In260inv29
711	757578.164	3638266.112	1	0.009	0.09	-43.3	-7.8	C/O	57mm_M86_L12	37mm_H09	40mm_MKII_F03	In103_1817
712	757540.279	3638175.987	0.37049	0.0093	0.13	65.3	34.1	B	20mm_M55_J15	BDU-28_M02	M42_K03	In26_0068
713	757454.27	3638331.836	1	0.0093	0.09	101.8	3.1	C/O	57mm_M86_L12	M75_B01	60mm_M49A3_K11	In172inv17
714	757521.211	3638366.999	1	0.0097	0.12	136.8	-6.4	C/O	MK118_Rockeye_I01	60mm_M49A3_F10	BLU-26_J13	In206inv14
715	757627.046	3638357.547	1	0.0101	0	45.4	-28.9	C/O	81mm_M374_pit	60mm_M49A3_K11	57mm_M86_L12	In192_0004
716	757591.692	3638301.609	1	0.0101	0.28	97	-28.4	C/O	BLU-26_I13	57mm_M86_L12	M75_F01	In136inv1
717	757599.362	3638382.867	1	0.0101	0.17	-177.2	-49.5	C/O	2.75in_M230_K10	81mm_M374_B02	105mm_M60_L05	In219inv37
718	757435.906	3638415.709	1	0.0101	0.05	18.1	-0.9	C/O	M42_L03	BLU-26_M13	M75_A01	In259inv8
719	757453.974	3638241.066	1	0.0109	0.8	-125.8	-65.6	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	In95inv10
720	757456.066	3638309.148	1	0.0109	0.18	-3.9	1.3	C/O	81mm_M374_C02	2.75in_M230_K10	105mm_M456_Heat_B06	In149inv15
721	757590.501	3638459.611	0.99714	0.0111	0.5	-8.8	-60.9	C/O	57mm_M86_J12	60mm_M49A3_L11	2.75in_M230_M10	In297_1665
722	757596.535	3638460.133	1	0.0111	0.33	40.3	-78.4	C/O	81mm_M374_A02	105mm_M60_L05	105mm_M456_Heat_B06	In299inv16
723	757462.791	3638372.935	1	0.0115	0.33	141.2	6	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In214inv10
724	757586.573	3638395.482	1	0.0116	0.19	-150.4	-7.6	C/O	M75_F01	57mm_M86_L12	2.75in_M230_K10	In232inv13
725	757583.324	3638280.585	1	0.0118	0.14	-6.7	-2.8	C/O	60mm_M49A3_K11	57mm_M86_L12	40mm_MKII_A03	In115inv20
726	757559.839	3638234.354	1	0.0125	0.52	75.1	-77.9	C/O	105mm_M456_Heat_H06	155mm_M483A1_L04	105mm_M60_H05	In88inv12
727	757430.235	3638335.037	0.99999	0.0126	1.3	124.4	-80.7	C/O	155mm_M483A1_H04	105mm_M456_Heat_H06	105mm_M60_H05	In178_1217
728	757535.593	3638406.252	1	0.0127	0.02	25.2	-4.6	C/O	57mm_M86_L12	60mm_M49A3_K11	40mm_MKII_A03	In245inv13
729	757615.792	3638453.713	1	0.013	0.31	67.6	-3.2	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	In290_0036
730	757496.854	3638262.913	1	0.013	0.09	-84.6	-55.8	C/O	M75_B01	57mm_M86_L12	60mm_M49A3_K11	In103_1489
731	757611.165	3638499.237	1	0.0131	0.25	1.2	-73.4	C/O	81mm_M374_C02	105mm_M60_L05	105mm_M456_Heat_B06	In338inv6
732	757472.064	3638275.179	1	0.0131	0.15	161	-51.5	C/O	M42_L03	BLU-26_M13	M75_D01	In114inv3
733	757438.81	3638382.201	1	0.0132	0.06	-110.9	23	C/O	M75_F01	57mm_M86_L12	37mm_L09	In225_0180
734	757489.532	3638175.787	1	0.0138	0.15	-37.5	-0.2	C/O	MK118_Rockeye_M01	M42_I03	BDU-28_M02	In27inv46
735	757601.55	3638372.24	1	0.015	0.17	-161.8	6.6	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_F10	In208inv5
736	757431.875	3638309.308	1	0.0156	0.12	51.2	6.1	C/O	60mm_M49A3_L11	2.75in_M230_M10	57mm_M86_J12	In1501inv55
737	757598.476	3638478.343	1	0.0157	0.38	80.1	-47.7	C/O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	In316_0150
738	757567.392	3638354.94	1	0.016	0.07	132.6	-0.6	C/O	57mm_M86_M12	M75_E01	BDU-28_L02	In192inv10

739	757528.444	3638244.784	1	0.016	0.13	139.9	1.4	C/O	57mm_M86_L12	BDU-28_I02	40mm_MKII_E03	ln98_0576
740	757469.509	3638359.451	1	0.0161	0.27	101.4	-67.4	C/O	155mm_M483A1_H04	105mm_M60_J05	105mm_M456_Heat_H06	ln199_0590
741	757480.098	3638436.958	1	0.0164	0.04	58.7	-0.5	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_F10	ln278inv11
742	757608.054	3638325.025	1	0.0165	0.44	28.7	13.1	C/O	60mm_M49A3_L11	2.75in_M230_K10	81mm_M374_C02	ln159inv24
743	757585.051	3638382.089	1	0.0168	0.12	21.1	-24.5	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	ln219inv31
744	757526.468	3638229.228	1	0.0168	0.14	-20.4	-88.7	C/O	37mm_H09	BDU-28_I02	57mm_M86_L12	ln83inv35
745	757465.887	3638425.091	1	0.0169	0.06	-126.9	-2.1	C/O	60mm_M49A3_K11	2.75in_M230_H10	57mm_M86_L12	ln267inv7
746	757607.008	3638497.182	1	0.017	0.11	-69.8	10.3	C/O	105mm_M456_Heat_B06	81mm_M374_F02	105mm_M60_L05	ln335inv10
747	757452.173	3638468.039	1	0.0171	0.52	-21.7	-65	C/O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	ln311inv10
748	757525.946	3638446.47	1	0.0174	0.35	149.3	16.1	C/O	155mm_M483A1_B04	105mm_M60_D05	105mm_M456_Heat_pit	ln286inv14
749	757572.728	3638298.113	0.99929	0.0174	0	-98.4	-11.4	C/O	M42_K03	20mm_M55_I15	40mm_M385_pit	ln133inv22
750	757568.947	3638501.93	1	0.0175	0	23.1	-43.7	C/O	2.75in_M230_J10	81mm_M374_B02	105mm_M60_H05	ln340_0372
751	757536.419	3638239.652	1	0.0177	0.71	-96.7	43.2	C/O	81mm_M374_A02	105mm_M60_B05	105mm_M456_Heat_pit	ln93inv9
752	757604.389	3638486.287	1	0.0178	0.27	153.9	-7.7	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln324inv2
753	757479.761	3638304.991	1	0.0178	0.04	67	-2	C/O	2.75in_M230_M10	81mm_M374_pit	60mm_M49A3_L11	ln144inv22
754	757604.103	3638313.346	1	0.0178	0	86.2	-61.9	C/O	155mm_M483A1_D04	105mm_M60_D05	105mm_M456_Heat_J06	ln148inv9
755	757442.247	3638279.335	1	0.0178	0.17	-167.4	-87.3	C/O	57mm_M86_L12	M75_D01	60mm_M49A3_K11	ln120inv13
756	757591.109	3638268.076	1	0.018	0.15	-34.6	39	C/O	BLU-26_K13	M75_pit	60mm_M49A3_M11	ln103_0530
757	757615.711	3638458.32	1	0.0181	0.06	-146	-29.5	C/O	81mm_M374_pit	2.75in_M230_H10	155mm_M483A1_L04	ln294inv4
758	757527.597	3638208.221	1	0.0187	0.17	89.2	26.9	C/O	BLU-26_H13	M75_D01	57mm_M86_L12	ln60inv18
759	757504.873	3638188.061	1	0.0189	0.09	164.5	-56.1	C/O	BDU-28_I02	MK118_Rockeye_M01	40mm_MKII_E03	ln40inv7
760	757440.837	3638234.333	1	0.0191	0.14	69	-3.2	C/O	60mm_M49A3_L11	2.75in_M230_M10	57mm_M86_L12	ln88inv19
761	757605.281	3638317.331	1	0.0191	0	73.5	-60.8	C/O	155mm_M483A1_D04	105mm_M60_D05	105mm_M456_Heat_H06	ln152inv34
762	757598.502	3638473.519	1	0.0195	0.14	140.1	-20.6	C/O	M75_D01	57mm_M86_L12	BLU-26_M13	ln312inv6
763	757493.047	3638418.878	1	0.0197	0.01	53	-0.1	C/O	81mm_M374_C02	2.75in_M230_L10	105mm_M60_L05	ln260_1046
764	757593.497	3638411.182	1	0.0206	0.03	-169.2	-82.3	C/O	2.75in_M230_J10	105mm_M60_L05	81mm_M374_B02	ln247inv10
765	757628.31	3638340.912	1	0.0209	0	123.7	7.5	C/O	BDU-28_M02	37mm_M09	40mm_MKII_pit	ln174_0016
766	757626.535	3638463.214	1	0.021	0.33	145.2	1.6	C/O	155mm_M483A1_D04	105mm_M60_J05	105mm_M456_Heat_H06	ln294bgWW3
767	757623.372	3638410.484	0.99972	0.0216	0	44.7	-36.9	C/O	40mm_M385_J14	20mm_M55_I15	57mm_M86_L12	ln246_0009
768	757561.073	3638259.859	0.72389	0.0218	0.07	-59.4	-29.1	C/O	20mm_M55_I15	M42_K03	40mm_M385_pit	ln114_1089
769	757417.549	3638497.436	1	0.0223	0	-24.8	23.3	C/O	M42_K03	MK118_Rockeye_M01	BDU-28_M02	ln341_0065
770	757558.115	3638425.373	0.9998	0.0225	0	169.6	-80.8	C/O	81mm_M374_C02	2.75in_M230_K10	105mm_M456_Heat_B06	ln263_0982
771	757513.109	3638402.415	0.99895	0.0231	0	111.6	-5.6	C/O	BDU-28_M02	MK118_Rockeye_J01	37mm_M09	ln242_0800
772	757591.033	3638377.677	0.99992	0.0232	0.64	-92.7	-76.8	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_J04	ln215_1082
773	757463.783	3638377.782	1	0.0243	0.14	-66.4	7.7	C/O	81mm_M374_pit	2.75in_M230_K10	60mm_M49A3_M11	ln219inv16
774	757503.067	3638305.925	1	0.0246	0.18	-167.3	-0.7	C/O	81mm_M374_pit	2.75in_M230_M10	60mm_M49A3_F10	ln144inv19
775	757530.245	3638455.295	1	0.0249	0.01	172.3	29.3	C/O	57mm_M86_L12	M75_B01	37mm_H09	ln296inv14

776	757443.339	3638323.593	1	0.0256	0	-159.1	3.6	C/O	2.75in_M230_K10	60mm_M49A3_pit	81mm_M374_E02	ln164inv31
777	757532.095	3638242.632	1	0.0256	0.27	-139.5	-3.7	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	ln96inv22
778	757572.406	3638279.485	1	0.026	0.17	-23.7	2.4	C/O	60mm_M49A3_pit	2.75in_M230_K10	57mm_M86_J12	ln115inv17
779	757614.51	3638406.451	1	0.026	0.11	24	-79.7	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_H10	ln243inv27
780	757528.752	3638454.772	1	0.0262	0.01	166.4	43	C/O	57mm_M86_L12	M75_B01	60mm_M49A3_K11	ln296inv18
781	757468.391	3638287.541	1	0.0265	0.13	-102.2	4.2	C/O	57mm_M86_L12	60mm_M49A3_K11	40mm_MKII_A03	ln127inv11
782	757614.214	3638435.546	1	0.0266	0.23	-3.8	-76.3	C/O	105mm_M60_L05	105mm_M456_Heat_F06	81mm_M374_A02	ln271inv18
783	757546.975	3638485.658	1	0.0275	0	162.7	-31	C/O	155mm_M483A1_H04	2.75in_M230_J10	105mm_M60_F05	ln324_0599
784	757580.47	3638401.993	1	0.0276	0.28	20	38.3	C/O	105mm_M456_Heat_B06	81mm_M374_F02	105mm_M60_L05	ln239inv21
785	757533.668	3638185.888	1	0.0276	0.29	116.5	1.4	C/O	60mm_M49A3_L11	57mm_M86_L12	2.75in_M230_M10	ln38inv5
786	757451.632	3638439.75	1	0.0276	0.19	175.5	-82	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	ln282inv33
787	757602.735	3638367.415	1	0.0283	0.18	33.7	5.1	C/O	81mm_M374_pit	2.75in_M230_K10	60mm_M49A3_M11	ln203inv29
788	757605.449	3638389.521	1	0.0284	0.09	53.3	21.6	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_M11	ln226inv4
789	757426.466	3638326.274	1	0.0286	0.19	135.2	0.1	C/O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	ln168inv31
790	757603.881	3638367.557	1	0.029	0.17	-156.8	5.6	C/O	2.75in_M230_M10	81mm_M374_pit	60mm_M49A3_M11	ln204_0168
791	757466.361	3638371.584	1	0.0293	0.24	-12.4	0.2	C/O	105mm_M60_L05	105mm_M456_Heat_F06	81mm_M374_A02	ln213inv12
792	757572.072	3638437.038	1	0.0296	0.22	104.3	-59.1	C/O	105mm_M456_Heat_L06	105mm_M60_L05	81mm_M374_F02	ln275inv6
793	757604.25	3638309.125	1	0.0296	0	-168.8	-24.3	C/O	155mm_M483A1_D04	105mm_M60_J05	105mm_M456_Heat_H06	ln144inv5
794	757608.19	3638359.853	1	0.0301	0.2	35.6	20.3	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_M11	ln195inv22
795	757604.568	3638315.366	1	0.0302	0	97.5	21.8	C/O	155mm_M483A1_D04	105mm_M456_Heat_H06	105mm_M60_J05	ln1501inv35
796	757538.298	3638498.456	1	0.0304	0.33	72.1	0	C/O	57mm_M86_L12	2.75in_M230_M10	60mm_M49A3_M11	ln338inv22
797	757436.12	3638324.074	1	0.0308	0.26	-24.4	1.6	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln165inv7
798	757466.055	3638203.192	1	0.0308	0.68	-134.2	-54.6	C/O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	ln56inv22
799	757564.786	3638449.968	1	0.0308	0.23	145.5	-73.5	C/O	60mm_M49A3_K11	57mm_M86_L12	40mm_MKII_A03	ln288inv2
800	757581.927	3638302.346	1	0.031	0.07	4.3	5.1	C/O	57mm_M86_L12	M75_B01	37mm_I09	ln135_1106
801	757462.49	3638388.285	1	0.031	0.03	67.5	-1.2	C/O	81mm_M374_pit	2.75in_M230_M10	60mm_M49A3_K11	ln230inv25
802	757418.297	3638340.641	0.99994	0.0311	0	-26.4	3.5	C/O	40mm_MKII_E03	MK118_Rockeye_M01	BDU-28_I02	ln183_0070
803	757431.865	3638287.45	1	0.0312	0.01	-7.2	4.5	C/O	M75_B01	57mm_M86_L12	37mm_H09	ln129inv2
804	757487.827	3638417.625	1	0.0322	0.15	-18.3	-80.4	C/O	2.75in_M230_M10	81mm_M374_pit	60mm_M49A3_M11	ln259inv11
805	757530.778	3638183.525	1	0.0323	0.17	-136.9	-6.3	C/O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_pit	ln34inv2
806	757486.576	3638287.385	1	0.0325	0.47	68.4	-59.3	C/O	105mm_M456_Heat_L06	105mm_M60_L05	81mm_M374_F02	ln126_0632
807	757583.312	3638501.19	1	0.0328	0.49	46.5	2.3	C/O	105mm_M456_Heat_pit	105mm_M60_H05	155mm_M483A1_J04	ln340inv1
808	757525.875	3638283.623	1	0.0344	0.05	-138.7	-12.1	C/O	57mm_M86_L12	M75_B01	37mm_H09	ln120inv9
809	757433.018	3638320.16	1	0.0347	0.07	96.9	-5.1	C/O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	ln162inv19
810	757429.729	3638387.892	1	0.0358	0.33	-6.9	-23.5	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_F10	ln231inv10
811	757447.962	3638378.913	1	0.0361	0	-123.5	-0.4	C/O	81mm_M374_pit	60mm_M49A3_F10	2.75in_M230_M10	ln221inv10
812	757419.636	3638198.76	1	0.0362	0	26.8	-64.4	C/O	2.75in_M230_M10	60mm_M49A3_F10	57mm_M86_pit	ln53_0024

813	757537.718	3638485.749	1	0.0363	0.17	-152.5	29.8	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln326inv11
814	757543.329	3638447.61	1	0.0386	0.07	-6.9	-2.6	C/O	M42_H03	BLU-26_M13	M75_D01	ln287inv16
815	757468.513	3638427.311	1	0.0406	0.43	-102.6	-59.2	C/O	81mm_M374_A02	105mm_M456_Heat_pit	105mm_M60_B05	ln269inv15
816	757556.247	3638507.468	0.95642	0.0432	0.29	86	19.5	C/O	40mm_MKII_E03	M75_B01	MK118_Rockeye_J01	ln347inv12
817	757580.959	3638279.214	1	0.0445	0.09	-150.2	1.8	C/O	M75_B01	57mm_M86_L12	60mm_M49A3_K11	ln114inv2
818	757414.13	3638348.284	1	0.0449	0	-137.1	-36.6	C/O	40mm_MKII_A03	M75_A01	BDU-28_M02	ln191_0004
819	757417.086	3638314.231	1	0.0485	0	-150.2	30.5	C/O	M42_K03	37mm_I09	57mm_M86_L12	ln156_1229
820	757476.056	3638188.21	1	0.0497	0.31	6.5	2.3	C/O	60mm_M49A3_L11	2.75in_M230_M10	81mm_M374_pit	ln41inv37
821	757459.176	3638328.071	1	0.0504	0	-4.4	-63	C/O	M75_D01	57mm_M86_L12	60mm_M49A3_K11	ln168inv24
822	757549.797	3638264.834	1	0.0533	0.29	-93.3	-4.5	C/O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln103_1649
823	757437.659	3638317.8	1	0.054	0.12	114.6	-55.7	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln159inv11
824	757431.644	3638373.887	1	0.0557	0.63	92.7	-64.9	C/O	81mm_M374_C02	105mm_M60_L05	105mm_M456_Heat_B06	ln216b3gEast22
825	757455.172	3638353.928	1	0.056	0.06	24	-69.5	C/O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_E02	ln195inv11
826	757432.711	3638331.602	1	0.056	0.44	-91	-68.3	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln173inv13
827	757485.021	3638367.562	1	0.0575	0.19	88.8	-75.6	C/O	M75_F01	57mm_M86_L12	40mm_MKII_C03	ln207inv9
828	757448.449	3638458.635	1	0.058	0.3	123.9	-13.8	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln30213
829	757531.65	3638289.363	1	0.06	0.3	44.5	-65.2	C/O	81mm_M374_C02	2.75in_M230_K10	60mm_M49A3_K11	ln126inv12
830	757593.088	3638433.422	1	0.0602	0.19	-113.8	-56.9	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	ln270l2inv10
831	757526.737	3638455.134	1	0.0619	0.03	-178.7	0.9	C/O	57mm_M86_L12	BLU-26_K13	60mm_M49A3_K11	ln296inv21
832	757604.734	3638322.408	1	0.0636	1.12	28.4	-10.4	C/O	155mm_M483A1_D04	105mm_M60_J05	105mm_M456_Heat_H06	ln157inv16
833	757440.763	3638485.756	1	0.0652	0.02	-46.9	1.7	C/O	57mm_M86_M12	BLU-26_L13	40mm_MKII_E03	line329inv14
834	757531.404	3638412.973	0.99899	0.0653	0	-59	-3.5	C/O	M42_K03	M75_B01	57mm_M86_L12	ln253_0792
835	757416.704	3638276.489	1	0.0663	0	-64.7	-0.9	C/O	81mm_M374_pit	M75_B01	60mm_M49A3_K11	ln119_0008
836	757444.433	3638486.608	1	0.0669	0.05	-108.4	4.1	C/O	57mm_M86_L12	40mm_MKII_E03	M75_B01	line329inv17
837	757556.328	3638465.635	1	0.0674	0.38	22.3	-44.2	C/O	105mm_M60_J05	155mm_M483A1_H04	105mm_M456_Heat_pit	ln305inv11
838	757593.599	3638503.857	0.99986	0.0674	0.92	150	24.5	C/O	105mm_M456_Heat_H06	155mm_M483A1_H04	105mm_M60_H05	ln342inv17
839	757443.093	3638235.641	1	0.0686	0.15	-82.4	-66.4	C/O	57mm_M86_L12	37mm_H09	M75_B01	ln89inv2
840	757462.738	3638318.046	1	0.0693	0.23	112.2	-5.8	C/O	81mm_M374_C02	2.75in_M230_K10	105mm_M60_L05	ln158inv17
841	757440.1	3638438.698	1	0.0716	0.29	-108.7	-39.1	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	ln281inv11
842	757593.939	3638320.632	1	0.0723	0.26	23.8	17.7	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln155inv42
843	757487.683	3638236.146	1	0.0745	0.23	153.9	-12.4	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln90inv10
844	757595.163	3638356.613	1	0.0749	0.19	163.7	-9.9	C/O	2.75in_M230_M10	60mm_M49A3_M11	81mm_M374_E02	ln192inv7
845	757442.69	3638214.776	0.93277	0.0755	0.43	-10.9	-42.2	C/O	60mm_M49A3_F10	BLU-26_J13	M42_J03	ln069inv33
846	757456.13	3638165.923	1	0.0765	0.11	173.1	-60.9	C/O	BDU-28_I02	57mm_M86_L12	37mm_H09	ln18inv39
847	757423.832	3638187.422	0.53987	0.0785	0	138.8	-78	C/O	MK118_Rockeye_J01	37mm_H09	BDU-28_K02	ln47inv58
848	757549.246	3638262.607	1	0.0792	0.17	-169.3	-78.3	C/O	M75_B01	57mm_M86_L12	M42_J03	ln117inv13
849	757602.676	3638413.002	1	0.0824	0.62	49.6	-79.4	C/O	105mm_M60_L05	105mm_M456_Heat_L06	81mm_M374_D02	ln249inv17

850	757432.635	3638469.541	1	0.084	0.46	-12.6	-75.7	C/O	81mm_M374_pit	105mm_M60_L05	105mm_M456_Heat_B06	In314_0763
851	757514.699	3638346.252	1	0.0841	0.55	150.5	-40.2	C/O	155mm_M483A1_J04	105mm_M60_D05	105mm_M456_Heat_F06	In184_0937
852	757537.155	3638475.929	1	0.0843	0.12	30.6	-66.1	C/O	105mm_M456_Heat_pit	105mm_M60_B05	155mm_M483A1_H04	In317inv26
853	757489.03	3638472.141	1	0.0844	0.41	-144	-29.4	C/O	105mm_M60_L05	105mm_M456_Heat_pit	155mm_M483A1_H04	In314inv5
854	757420.564	3638365.056	1	0.0847	0.36	-76.5	-66.7	C/O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In208inv43
855	757495.31	3638386.56	1	0.0909	0.05	9.6	27.3	C/O	BLU-26_L13	60mm_M49A3_F10	M42_I03	In227in18
856	757442.307	3638260.137	1	0.0913	0.55	-131.1	-9.2	C/O	105mm_M456_Heat_H06	155mm_M483A1_H04	105mm_M60_J05	In103_1332
857	757436.112	3638286.457	0.89547	0.0931	1.38	-31.4	-68.7	C/O	155mm_M483A1_B04	105mm_M60_J05	105mm_M456_Heat_H06	In127inv6
858	757551.277	3638251.81	1	0.0944	0.22	-94.4	-80.5	C/O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_J04	line106inv11
859	757525.154	3638444.405	1	0.0968	0.21	36	-48	C/O	155mm_M483A1_H04	105mm_M60_J05	105mm_M456_Heat_J06	In284inv11
860	757533.734	3638332.776	1	0.0979	0.13	133.9	7.6	C/O	57mm_M86_K12	81mm_M374_C02	M75_E01	In170inv28
861	757520.339	3638422.571	1	0.0989	0	118.8	2.3	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_F01	In262_1114
862	757466.204	3638184.764	1	0.1028	0.1	138.2	-0.3	C/O	57mm_M86_L12	BDU-28_I02	M75_B01	In38inv26
863	757462.233	3638284.782	1	0.1028	0.04	-123.8	-74.9	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_B01	In125inv12
864	757462.541	3638383.756	1	0.1058	0.55	36.3	-50.4	C/O	155mm_M483A1_B04	105mm_M456_Heat_H06	105mm_M60_H05	In225inv20
865	757562.291	3638292.479	1	0.1064	0.38	-156.9	-8.9	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	In128inv1
866	757475.512	3638216.65	1	0.1103	0.55	-119.7	18.2	C/O	155mm_M483A1_D04	105mm_M456_Heat_H06	105mm_M60_J05	In071inv65
867	757521.121	3638499.647	1	0.1105	0.47	115.4	-11.7	C/O	155mm_M483A1_J04	105mm_M456_Heat_pit	105mm_M60_H05	In340inv4
868	757476.844	3638365.244	1	0.1147	0.2	-146.5	7.8	C/O	105mm_M60_J05	105mm_M456_Heat_pit	155mm_M483A1_H04	In206inv17
869	757557.603	3638497.01	1	0.1159	0.31	2.3	-76.9	C/O	81mm_M374_C02	2.75in_M230_M10	105mm_M456_Heat_B06	In335inv6
870	757542.802	3638230.386	1	0.116	0.61	-40.3	-86.6	C/O	2.75in_M230_M10	105mm_M60_L05	105mm_M456_Heat_B06	In84inv38
871	757424.527	3638471.032	1	0.1162	0.31	4.5	-74.4	C/O	105mm_M60_L05	105mm_M456_Heat_B06	81mm_M374_A02	In315inv6
872	757613.259	3638411.724	1	0.1171	0.22	-106.9	-85.8	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	In249inv11
873	757580.308	3638493.56	1	0.1177	0.51	78	-72.9	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	In332inv5
874	757540.872	3638380.939	1	0.1177	0.25	147.8	-5.1	C/O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_J04	In220_0471
875	757589.267	3638303.757	0.59208	0.1201	0.2	-55.3	23.6	C/O	M42_L03	BLU-26_M13	37mm_H09	In139inv12
876	757415.267	3638329.83	0.99998	0.1221	0.02	21.5	-88.3	C/O	81mm_M374_E02	60mm_M49A3_F10	57mm_M86_L12	In172_1528
877	757434.419	3638291.919	1	0.1226	0.24	-63.7	-3.6	C/O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	In133inv1
878	757495.401	3638315.111	1	0.1231	0.04	37.1	-86.4	C/O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	In154_0820
879	757433.841	3638274.834	1	0.1236	0.07	65.2	-0.6	C/O	105mm_M60_J05	105mm_M456_Heat_F06	81mm_M374_A02	In118inv11
880	757585.205	3638238.65	1	0.1249	0	49.5	-19.1	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_H06	In94_0004
881	757573.923	3638324.817	1	0.1254	0.05	-177.7	-72.5	C/O	105mm_M60_L05	105mm_M456_Heat_pit	155mm_M483A1_L04	In160inv11
882	757619.386	3638424.147	1	0.1271	0.88	167.8	-15.5	C/O	155mm_M483A1_H04	105mm_M456_Heat_H06	105mm_M60_J05	In260inv5
883	757424.147	3638315.53	1	0.1299	0.01	38.9	12.1	C/O	2.75in_M230_M10	81mm_M374_pit	60mm_M49A3_L11	In157inv3
884	757459.019	3638390.956	1	0.1314	0.28	0.5	-26.7	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_pit	In233inv12
885	757453.173	3638293.052	1	0.1351	0.27	110.6	-47.1	C/O	57mm_M86_pit	M75_C01	81mm_M374_C02	In134inv14
886	757432.423	3638324.268	1	0.1498	0	51	-7.7	C/O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	In166inv26

887	757563.889	3638246.536	1	0.1517	0.19	120.2	-1.6	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_F10	ln101inv16
888	757581.359	3638311.458	1	0.1551	0.04	-81.1	1	C/O	57mm_M86_L12	60mm_M49A3_K11	37mm_H09	ln147inv15
889	757450.135	3638297.38	1	0.1554	0.22	146	6.9	C/O	57mm_M86_L12	60mm_M49A3_K11	40mm_MKII_A03	ln138inv15
890	757542.811	3638452.124	1	0.1555	0.17	92.5	-81.4	C/O	M42_K03	57mm_M86_L12	M75_B01	ln292inv6
891	757497.021	3638404.874	0.99995	0.1571	0.89	18.7	36.9	C/O	2.75in_M230_K10	155mm_M483A1_H04	105mm_M60_J05	ln245_0477
892	757606.101	3638335.154	1	0.1584	0.51	116.5	11.5	C/O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_H04	line170inv10
893	757442.404	3638467.004	1	0.1677	0.35	89.3	-80.7	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln311inv6
894	757596.974	3638449.812	1	0.1735	0.26	19.4	-0.4	C/O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	ln287inv23
895	757413.436	3638402.843	1	0.1949	0	73.9	12.1	C/O	40mm_MKII_E03	M75_B01	57mm_M86_L12	ln246inv28
896	757485.68	3638268.114	0.99628	0.1972	0.28	33.5	-76.7	C/O	M75_B01	57mm_M86_L12	60mm_M49A3_K11	ln106_0466
897	757584.708	3638487.226	1	0.1998	0.27	19.1	-63.3	C/O	105mm_M60_J05	105mm_M456_Heat_J06	81mm_M374_A02	ln326inv5
898	757461.036	3638256.792	1	0.1999	0.59	-23.9	-60.1	C/O	105mm_M456_Heat_J06	105mm_M60_F05	81mm_M374_A02	ln111inv13
899	757482.14	3638438.992	0.99451	0.2023	0.54	120.3	18	C/O	81mm_M374_C02	2.75in_M230_M10	60mm_M49A3_K11	ln280inv28
900	757482.611	3638335.292	0.9214	0.2039	0.12	67	4	C/O	M42_pit	37mm_H09	40mm_MKII_pit	ln174_1016
901	757441.223	3638221.563	1	0.2045	0.28	-39.4	-84.8	C/O	60mm_M49A3_K11	57mm_M86_L12	81mm_M374_pit	ln75inv1
902	757441.156	3638323.152	1	0.207	0.32	-145.4	-87.6	C/O	155mm_M483A1_H04	105mm_M60_D05	105mm_M456_Heat_F06	ln164inv36
903	757593.833	3638440.396	1	0.2083	0.65	149.8	-14.2	C/O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln278inv2
904	757524.609	3638441.347	1	0.2099	0.09	-129.2	0.4	C/O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	ln281inv25
905	757480.058	3638399.366	0.99988	0.2118	0.3	-164.6	17.2	C/O	M75_D01	57mm_M86_L12	60mm_M49A3_K11	ln240inv12
906	757595.159	3638468.072	1	0.2168	0.59	119.1	-43.7	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	ln306inv2
907	757621.617	3638376.4	1	0.2183	0.62	43.8	-36.1	C/O	155mm_M483A1_L04	105mm_M60_H05	105mm_M456_Heat_L06	ln211inv26
908	757420.598	3638283.175	1	0.2189	0.28	-68.7	1.8	C/O	60mm_M49A3_K11	57mm_M86_L12	M75_B01	ln125inv2
909	757545.533	3638444.444	1	0.2199	0.12	-90.3	-79.5	C/O	M75_B01	57mm_M86_L12	60mm_M49A3_K11	ln284inv7
910	757501.435	3638168.296	1	0.2201	0.22	-133.3	-5.3	C/O	40mm_MKII_A03	M75_A01	37mm_H09	ln19inv14
911	757597.934	3638390.809	1	0.2207	0.28	3.9	-37.7	C/O	81mm_M374_C02	2.75in_M230_L10	105mm_M456_Heat_B06	ln227in46
912	757513.107	3638296.897	1	0.2242	0.18	-146.2	-4.9	C/O	105mm_M60_F05	105mm_M456_Heat_F06	81mm_M374_pit	ln134_0643
913	757540.685	3638217.327	1	0.2255	0.08	-157.5	1.3	C/O	60mm_M49A3_K11	2.75in_M230_H10	81mm_M374_pit	ln070inv41
914	757559.214	3638369.664	1	0.2262	0.22	-91.5	-54.2	C/O	155mm_M483A1_L04	105mm_M60_J05	105mm_M456_Heat_pit	ln207inv17
915	757433.287	3638266.861	1	0.2374	0.3	45.1	-34	C/O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	ln108_0764
916	757453.577	3638361.166	1	0.2445	0.05	80.4	-30.7	C/O	57mm_M86_M12	40mm_MKII_E03	BLU-26_L13	ln202inv8
917	757551.837	3638429.049	1	0.2598	0	170.3	-61.9	C/O	105mm_M60_H05	105mm_M456_Heat_H06	155mm_M483A1_L04	ln268_0631
918	757573.635	3638464.802	1	0.2626	0.36	-115.9	-80.8	C/O	81mm_M374_B02	2.75in_M230_L10	105mm_M456_Heat_B06	ln304inv2
919	757608.484	3638478.428	1	0.2692	0.45	-149.6	-83.2	C/O	105mm_M456_Heat_pit	105mm_M60_F05	155mm_M483A1_H04	ln316inv2
920	757430.998	3638469.596	1	0.2717	0.44	-10.1	-79.5	C/O	81mm_M374_pit	2.75in_M230_M10	105mm_M60_L05	ln314inv8
921	757497.73	3638383.993	1	0.2751	0	43.2	-37	C/O	57mm_M86_L12	40mm_MKII_pit	60mm_M49A3_K11	ln224_1013
922	757575.349	3638368.845	1	0.2794	0.21	57.6	-73.5	C/O	81mm_M374_A02	105mm_M60_L05	105mm_M456_Heat_B06	ln206inv5
923	757457.968	3638438.941	1	0.2812	0.09	-120.3	2.9	C/O	57mm_M86_M12	M75_B01	40mm_MKII_E03	ln281inv15

924	757418.72	3638182.039	1	0.2862	0.03	-14	-79.4	C/O	37mm_H09	57mm_M86_L12	40mm_MKII_A03	ln35_0007
925	757507.765	3638338.906	1	0.2875	0.03	-37.4	21.1	C/O	M42_H03	BLU-26_M13	M75_A01	ln177inv7
926	757604.311	3638328.983	0.99964	0.302	0.05	-92	-18.2	C/O	20mm_M55_I15	M42_K03	57mm_M86_L12	ln163inv11
927	757549.768	3638340.5	1	0.3148	0.1	13.5	-39.2	C/O	105mm_M60_L05	105mm_M456_Heat_J06	81mm_M374_D02	ln177inv11
928	757423.367	3638400.752	1	0.326	0.16	131.6	10.6	C/O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	ln244inv7
929	757603.281	3638476.597	1	0.3266	0.56	76.5	-55	C/O	105mm_M60_L05	105mm_M456_Heat_B06	81mm_M374_D02	ln315inv12
930	757580.71	3638445.958	1	0.3272	0.49	-137.7	-63.9	C/O	105mm_M60_J05	105mm_M456_Heat_J06	155mm_M483A1_H04	ln284inv4
931	757427.143	3638446.809	1	0.3283	0	114.8	5.5	C/O	M42_K03	20mm_M55_I15	57mm_M86_L12	ln290inv18
932	757513.916	3638310.79	1	0.331	0.01	141.7	-66.4	C/O	M75_C01	57mm_M86_L12	40mm_MKII_E03	ln148inv16
933	757507.547	3638416.533	1	0.3335	0	-64.5	-1.9	C/O	40mm_MKII_E03	M42_K03	BDU-28_I02	ln257_0671
934	757450.02	3638352.929	1	0.335	0	45.1	-28.7	C/O	40mm_MKII_E03	57mm_M86_L12	BLU-26_K13	ln194_0841
935	757545.179	3638265.631	1	0.3388	0.23	-106	-58	C/O	M75_D01	57mm_M86_L12	40mm_MKII_C03	ln103inv6
936	757602.637	3638415.822	1	0.3452	0.22	102.5	6	C/O	60mm_M49A3_F10	2.75in_M230_M10	81mm_M374_C02	ln252inv8
937	757552.934	3638265.047	1	0.3516	0.25	-95.1	-1.7	C/O	60mm_M49A3_pit	2.75in_M230_M10	81mm_M374_C02	ln103_1666
938	757452.48	3638264.482	1	0.3565	0.28	9.1	-73.4	C/O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	ln105inv2
939	757543.982	3638484.985	1	0.3565	0.65	59.2	9.1	C/O	40mm_MKII_C03	37mm_K09	M75_pit	ln324_0685
940	757481.503	3638375.712	1	0.3569	0	89.4	-68.9	C/O	20mm_M55_M15	57mm_M86_L12	37mm_I09	ln216b3gEast17
941	757478.322	3638418.414	1	0.3716	0.28	105.7	-83.4	C/O	2.75in_M230_M10	81mm_M374_pit	105mm_M60_L05	ln260inv34
942	757464.309	3638232.189	1	0.3781	0.24	94.9	26.8	C/O	81mm_M374_D02	105mm_M60_L05	105mm_M456_Heat_J06	ln86inv54
943	757586.238	3638461.229	1	0.3835	0.63	47.3	-73.1	C/O	105mm_M456_Heat_F06	105mm_M60_L05	81mm_M374_A02	ln300inv2
944	757566.225	3638320.97	1	0.4028	0.09	-121.3	-41.1	C/O	M75_F01	57mm_M86_L12	40mm_MKII_C03	ln157inv13
945	757445.19	3638251.316	1	0.4038	0.69	79.1	-26.1	C/O	105mm_M60_B05	105mm_M456_Heat_B06	155mm_M483A1_J04	ln105inv25
946	757570.327	3638388.479	1	0.4045	0.1	131.3	16.7	C/O	105mm_M60_L05	105mm_M456_Heat_L06	155mm_M483A1_H04	ln226inv16
947	757573.094	3638274.789	1	0.4161	0.05	-30.2	-76.9	C/O	M42_J03	M75_D01	37mm_L09	ln110_0135
948	757565.437	3638250.165	1	0.4171	0.87	62.5	-17	C/O	2.75in_M230_K10	155mm_M483A1_H04	105mm_M60_L05	ln105inv20
949	757480.423	3638290.314	1	0.4236	0.41	41.9	-60.3	C/O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	ln129inv7
950	757458.972	3638378.672	1	0.4351	0.39	-147	-17.6	C/O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln22017
951	757570.996	3638269.955	1	0.4358	0.09	-23.5	-19	C/O	57mm_M86_M12	40mm_MKII_E03	M75_B01	ln105_0562
952	757473.526	3638256.268	1	0.4437	0.19	137.6	-71.5	C/O	105mm_M456_Heat_L06	105mm_M60_L05	81mm_M374_D02	ln110inv3
953	757539.322	3638387.777	1	0.4478	0.5	-99.5	-19.1	C/O	105mm_M60_L05	81mm_M374_A02	105mm_M456_Heat_B06	ln227in28
954	757448.511	3638314.576	1	0.4479	0.05	43.7	-38.1	C/O	81mm_M374_C02	2.75in_M230_K10	105mm_M60_L05	ln155inv10
955	757525.564	3638177.878	1	0.4506	0.3	-23.5	2.8	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_F01	ln29inv17
956	757479.636	3638507.707	0.99854	0.4515	0.02	163.4	26.7	C/O	MK118_Rockeye_I01	57mm_M86_pit	37mm_K09	ln350_1731
957	757547.579	3638367.016	1	0.4515	0.49	-18.7	34.2	C/O	105mm_M456_Heat_H06	105mm_M60_H05	155mm_M483A1_J04	ln205inv26
958	757451.31	3638383.484	1	0.4576	0.04	-67.4	20.8	C/O	2.75in_M230_K10	81mm_M374_pit	60mm_M49A3_F10	ln225inv15
959	757420.369	3638372.646	1	0.4592	0.14	173.9	11.4	C/O	57mm_M86_L12	60mm_M49A3_K11	M75_C01	ln216b3gEast31
960	757426.962	3638222.718	1	0.4694	0.32	-22.9	-25.3	C/O	81mm_M374_D02	105mm_M456_Heat_B06	105mm_M60_L05	ln77inv1

961	757622.133	3638434.54	1	0.4752	0.25	161.9	-19.9	C/O	M42_I03	40mm_MKII_pit	M75_C01	In270_0004
962	757462.645	3638193.597	1	0.4865	0.07	-13.3	-16.1	C/O	37mm_H09	M42_K03	M75_A01	In47_0622
963	757573.571	3638266.953	1	0.4916	0.25	164.2	-0.8	C/O	2.75in_M230_M10	81mm_M374_pit	60mm_M49A3_F10	In103_0718
964	757460.125	3638352.773	1	0.4934	0.06	-88.8	-78.4	C/O	2.75in_M230_K10	60mm_M49A3_M11	81mm_M374_pit	In193inv11
965	757543.556	3638272.604	1	0.4935	0.14	-87.4	-13.1	C/O	105mm_M60_L05	105mm_M456_Heat_pit	155mm_M483A1_H04	In111inv4
966	757597.415	3638488.456	1	0.4936	0.35	171.5	-69.5	C/O	105mm_M456_Heat_pit	105mm_M60_L05	81mm_M374_D02	In326inv2
967	757548.525	3638382.989	1	0.5021	1	50.4	-81.2	O	105mm_M60_J05	105mm_M456_Heat_B06	155mm_M483A1_J04	In221inv16
968	757632.83	3638382.972	0.87804	0.5035	0.1	-39.4	-37.8	O	M75_A01	40mm_MKII_A03	M42_J03	In216b2gW2
969	757456.308	3638172.743	0.92987	0.5133	1.31	55.5	-41.2	O	105mm_M60_F05	155mm_M483A1_H04	105mm_M456_Heat_F06	In25inv13
970	757461.137	3638165.942	1	0.5159	0.36	20	-82.2	O	60mm_M49A3_K11	57mm_M86_L12	40mm_MKII_E03	In18inv34
971	757591.533	3638367.901	1	0.5174	0.43	49.6	-78.8	O	105mm_M456_Heat_pit	105mm_M60_F05	155mm_M483A1_H04	In204inv5
972	757613.744	3638507.885	1	0.5192	0.11	-67.5	-9.2	O	60mm_M49A3_K11	2.75in_M230_M10	57mm_M86_L12	In3469
973	757453.841	3638384.949	1	0.5287	0.51	-118.4	-80	O	105mm_M60_F05	81mm_M374_A02	105mm_M456_Heat_F06	In227in12
974	757463.258	3638293.059	1	0.5361	0.51	-61.2	-83.5	O	105mm_M456_Heat_B06	81mm_M374_A02	105mm_M60_L05	In133inv16
975	757609.098	3638453.476	1	0.5416	0.66	-60.8	-46.1	O	81mm_M374_C02	105mm_M456_Heat_F06	105mm_M60_L05	In290inv5
976	757536.361	3638283.602	1	0.5439	0.14	63.4	-2.4	O	60mm_M49A3_M11	2.75in_M230_M10	57mm_M86_J12	In120_0410
977	757581.132	3638396.25	1	0.5466	0.23	-81.6	-73.5	O	105mm_M60_L05	81mm_M374_A02	105mm_M456_Heat_B06	In233inv43
978	757534.744	3638283.507	1	0.549	0.09	65.5	-0.2	O	60mm_M49A3_M11	57mm_M86_J12	2.75in_M230_M10	In120inv8
979	757445.401	3638233.472	1	0.5521	0.23	-35.7	3.1	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In87inv5
980	757436.193	3638425.508	0.99998	0.5535	0.82	104.4	-74.6	O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	In268inv19
981	757597.806	3638378.789	1	0.5561	0.26	-10.8	-4	O	105mm_M456_Heat_F06	105mm_M60_J05	81mm_M374_D02	In215inv15
982	757575.959	3638497.484	0.99564	0.5566	0.07	-153	-81.7	O	BLU-26_M13	M75_A01	M42_J03	In337_1945
983	757414.953	3638332.392	1	0.5607	0	-28	0.1	O	M75_B01	M42_K03	57mm_M86_L12	In175_0038
984	757525.3	3638484.251	1	0.5607	0.41	88.9	-56.2	O	105mm_M456_Heat_L06	105mm_M60_L05	81mm_M374_D02	In324inv18
985	757599.587	3638499.263	1	0.5709	0.28	131.1	-15.3	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In338inv12
986	757517.107	3638344.24	1	0.5725	0	-32	36.7	O	155mm_M483A1_H04	105mm_M60_J05	105mm_M456_Heat_H06	In181inv_0901
987	757570.586	3638385.895	1	0.5754	0.32	-46.1	-19.7	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In223inv15
988	757513.108	3638246.74	1	0.5783	0.14	-114.2	1.7	O	40mm_MKII_pit	37mm_H09	57mm_M86_L12	In100_0905
989	757427.841	3638272.4	1	0.5802	0.09	47.3	6.6	O	105mm_M60_L05	105mm_M456_Heat_B06	81mm_M374_A02	In114inv7
990	757459.462	3638241.755	1	0.5817	0.4	105.5	-64.4	O	M75_E01	57mm_M86_L12	60mm_M49A3_K11	In96inv28
991	757574.956	3638475.875	1	0.5848	0.42	-83.6	-64.6	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	In315inv9
992	757497.952	3638407.646	0.95843	0.5895	0.06	86.3	4.8	O	M42_K03	20mm_M55_I15	BDU-28_M02	In248inv20
993	757589.525	3638464.278	1	0.5949	0.34	-137.4	-53.5	O	81mm_M374_A02	105mm_M60_J05	105mm_M456_Heat_F06	In303inv17
994	757487.942	3638404.894	1	0.5968	0.04	164.8	38.7	O	M75_B01	57mm_M86_L12	40mm_MKII_E03	In246inv20
995	757494.158	3638315.022	1	0.6072	0.04	-104.9	15.1	O	105mm_M60_J05	105mm_M456_Heat_pit	155mm_M483A1_H04	In153inv10
996	757412.822	3638359.597	1	0.6107	0.01	176.2	-45.2	O	M42_K03	40mm_MKII_E03	40mm_M385_J14	In203_0004
997	757532.175	3638393.7	1	0.6108	0.11	151.7	-77.3	O	105mm_M456_Heat_F06	105mm_M60_L05	81mm_M374_C02	In233inv31

998	757592.305	3638298.549	1	0.6109	0.18	-33	39.1	O	60mm_M49A3_L11	57mm_M86_J12	2.75in_M230_M10	In133inv28
999	757525.45	3638197.218	1	0.6148	0.34	-29.4	0.4	O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	In49inv27
1000	757415.863	3638260.473	1	0.6198	0	-7.3	-24.2	O	M42_J03	M75_C01	20mm_M55_L15	In103_0003
1001	757603.943	3638274.536	1	0.6199	0	133.2	-10.4	O	M42_K03	M75_B01	40mm_MKII_E03	In108_0025
1002	757449.96	3638375.174	1	0.6294	0.42	-40.5	15	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In217inv14
1003	757573.585	3638491.612	1	0.6299	0.56	-155.6	-5.4	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In330inv4
1004	757454.143	3638494.884	1	0.6366	0.46	1.8	-84	O	81mm_M374_pit	2.75in_M230_M10	60mm_M49A3_F10	In337inv31
1005	757488.345	3638202.927	1	0.6536	0.55	119.8	-2.7	O	2.75in_M230_M10	81mm_M374_pit	60mm_M49A3_F10	In56inv21
1006	757572.119	3638383.033	1	0.6591	0.09	-132.6	-71.9	O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	In2208
1007	757461.111	3638329.598	1	0.6603	0.31	-143.4	-55	O	2.75in_M230_M10	60mm_M49A3_M11	81mm_M374_E02	In170inv37
1008	757434.844	3638460.474	1	0.673	0.87	155.7	9.2	O	155mm_M483A1_B04	105mm_M456_Heat_pit	105mm_M60_H05	In304inv12
1009	757454.831	3638287.948	1	0.6825	0.3	-165.2	-2.7	O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	In128inv15
1010	757482.881	3638298.83	1	0.6844	0.05	125.7	-44.8	O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_K10	In138_0651
1011	757531.846	3638322.993	1	0.6959	0.08	59.5	-71.6	O	M75_B01	57mm_M86_L12	40mm_MKII_E03	In160inv18
1012	757420.43	3638394.388	1	0.6964	0.54	158.7	-72.2	O	81mm_M374_C02	105mm_M60_L05	105mm_M456_Heat_B06	In238inv14
1013	757498.652	3638492.422	1	0.7074	0.1	20.9	10.9	O	BLU-26_I13	M75_F01	57mm_M86_L12	In333inv5
1014	757447.895	3638308.894	1	0.7079	0.19	-123.6	-28.4	O	2.75in_M230_M10	81mm_M374_pit	60mm_M49A3_M11	In149inv12
1015	757421.833	3638340.801	1	0.7096	0.17	-82.4	-68	O	81mm_M374_E02	2.75in_M230_M10	105mm_M456_Heat_B06	In182inv9
1016	757532.198	3638401.858	0.9801	0.7184	0.82	106	-50.3	O	105mm_M60_L05	105mm_M456_Heat_L06	155mm_M483A1_H04	In242_0596
1017	757566.524	3638458.433	1	0.7219	0.09	116.8	12.5	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	In2988
1018	757605.165	3638419.494	1	0.7235	0.36	8.5	-87.3	O	2.75in_M230_M10	60mm_M49A3_M11	81mm_M374_pit	In256inv12
1019	757440.152	3638320.121	1	0.7238	0.43	-11.6	6.6	O	81mm_M374_C02	2.75in_M230_K10	105mm_M456_Heat_B06	In161inv13
1020	757618.578	3638287.044	0.99997	0.7387	0	-135	28.1	O	M42_J03	M75_C01	37mm_H09	In120_0007
1021	757418.581	3638189.95	1	0.7413	0.06	69.2	-80.2	O	57mm_M86_L12	37mm_H09	40mm_MKII_A03	In43_0007
1022	757440.65	3638378.634	1	0.7419	0.33	22.2	-78.4	O	105mm_M456_Heat_F06	81mm_M374_C02	105mm_M60_L05	In221inv7
1023	757546.165	3638322.959	1	0.7424	0.06	-105.4	-58.5	O	M75_E01	57mm_M86_L12	40mm_MKII_E03	In159inv17
1024	757537.958	3638481.7	1	0.746	0.48	133.4	1.4	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	In322inv31
1025	757494.252	3638268.091	1	0.7462	0.19	-127.2	-70.6	O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	In106_0415
1026	757572.255	3638429.909	1	0.7499	0.16	-169.4	-84.4	O	81mm_M374_pit	2.75in_M230_M10	60mm_M49A3_K11	In268inv8
1027	757503.781	3638444.466	1	0.7613	0.15	-1.8	0.8	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In285inv15
1028	757542.519	3638352.986	0.99996	0.7657	0.01	-124.8	-56.2	O	M42_L03	BLU-26_M13	M75_D01	In190inv6
1029	757535.834	3638310.657	1	0.766	0.12	77.4	-79.4	O	M75_B01	57mm_M86_L12	40mm_MKII_E03	In147inv13
1030	757448.613	3638316.48	1	0.7686	0.07	-128.1	-5.7	O	81mm_M374_pit	105mm_M60_L05	105mm_M456_Heat_B06	In157inv6
1031	757431.129	3638266.715	1	0.769	0.25	-136.5	32.1	O	81mm_M374_pit	2.75in_M230_L10	105mm_M456_Heat_B06	In108_0769
1032	757572.679	3638367.595	1	0.77	0.24	-167.6	-33.6	O	57mm_M86_J12	M75_B01	60mm_M49A3_J11	In204inv8
1033	757455.978	3638293.485	1	0.7719	0.62	-101.5	-80.6	O	105mm_M456_Heat_F06	105mm_M60_L05	81mm_M374_F02	In134inv11
1034	757497.339	3638362.73	1	0.7721	0.2	56.8	-2.4	O	105mm_M60_J05	105mm_M456_Heat_B06	155mm_M483A1_J04	In202inv13

1035	757424.177	3638307.633	1	0.7859	0.64	-140.4	-72.9	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln149inv7
1036	757451.968	3638434.852	1	0.7881	0.08	-94.9	15	O	57mm_M86_M12	M75_C01	40mm_MKII_E03	ln277inv9
1037	757594.197	3638382.601	1	0.79	0.21	72	-64.1	O	M42_J03	M75_D01	57mm_M86_L12	ln219inv34
1038	757547.843	3638348.359	1	0.7951	0.07	-166.4	-44.3	O	M75_B01	57mm_M86_pit	40mm_MKII_E03	ln186inv5
1039	757436.589	3638186.268	1	0.7994	0.74	-24.4	-46.1	O	81mm_M374_C02	60mm_M49A3_K11	2.75in_M230_M10	ln40inv28
1040	757549.445	3638210.101	1	0.8016	0.12	95	-80.7	O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	ln63inv12
1041	757576.528	3638484.693	1	0.802	0.36	86.6	-80.3	O	105mm_M456_Heat_B06	105mm_M60_F05	81mm_M374_F02	ln323inv14
1042	757456.247	3638275.541	1	0.8024	0.34	-124.1	-77.8	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_J04	ln118inv2
1043	757436.25	3638346.35	1	0.8028	0.56	-35.2	-71.4	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln189inv8
1044	757528.19	3638378.966	1	0.8047	0.63	54.6	-14.8	O	2.75in_M230_K10	155mm_M483A1_L04	105mm_M60_B05	ln218inv7
1045	757493.314	3638298.996	0.88697	0.8063	0.16	-130.4	29.6	O	20mm_M55_J15	57mm_M86_L12	M42_K03	ln135_0658
1046	757525.829	3638213.911	0.99999	0.8078	0.77	72.8	-3.5	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln066inv15
1047	757544.262	3638308.687	1	0.8079	0.16	-115.4	-83.8	O	M75_D01	37mm_L09	57mm_M86_L12	ln145_0683
1048	757461.059	3638331.905	1	0.8133	0.2	83.1	-80.3	O	105mm_M60_L05	105mm_M456_Heat_B06	81mm_M374_D02	ln171inv15
1049	757453.936	3638190.131	1	0.818	0.2	4.2	4.4	O	BDU-28_I02	MK118_Rockeye_M01	M42_I03	ln43inv78
1050	757523.247	3638196.502	1	0.8241	0.43	-106.9	1.2	O	81mm_M374_C02	105mm_M456_Heat_B06	2.75in_M230_L10	ln49inv26
1051	757612.598	3638385.323	1	0.8241	0.13	139.2	-75.2	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	ln221inv21
1052	757577.91	3638469.969	1	0.8268	0.49	-162.6	-67	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_J04	ln309inv16
1053	757531.731	3638359.456	1	0.833	0.1	-56.4	32.9	O	M42_I03	BLU-26_M13	37mm_H09	ln197inv12
1054	757538.748	3638467.122	1	0.8431	0.17	110.9	14.2	O	2.75in_M230_M10	155mm_M483A1_H04	105mm_M60_J05	ln308inv10
1055	757583.44	3638393.495	1	0.844	0.63	171.5	-70.9	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln230inv9
1056	757452.869	3638152.477	0.65544	0.8441	1.13	29.9	-41	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln5inv46
1057	757610.628	3638404.293	1	0.8441	0.04	10.6	-79.5	O	105mm_M456_Heat_pit	105mm_M60_F05	155mm_M483A1_H04	ln240inv3
1058	757429.353	3638295.165	1	0.8505	0.57	-88.9	-61.2	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln136inv21
1059	757526.622	3638232.327	1	0.8509	0.16	-36.2	-87.8	O	M42_J03	BLU-26_M13	37mm_H09	ln86inv50
1060	757581.373	3638277.071	1	0.8528	0.25	-65.4	-79.3	O	BLU-26_M13	M42_J03	M75_D01	ln112_0119
1061	757410.457	3638373.654	1	0.8557	0.01	-82	-79.5	O	60mm_M49A3_F10	2.75in_M230_M10	57mm_M86_L12	ln216_1137
1062	757523.3	3638262.139	1	0.8571	0.33	-82.1	9.1	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln116inv9
1063	757481.986	3638296.927	1	0.8586	0.04	-116.6	-68.7	O	M75_C01	57mm_M86_L12	40mm_MKII_A03	ln136inv7
1064	757568.128	3638478.062	1	0.8606	0.6	17.9	-44	O	105mm_M456_Heat_pit	105mm_M60_F05	155mm_M483A1_H04	ln317inv32
1065	757528.596	3638395.634	1	0.8606	0.38	151.1	-63.9	O	81mm_M374_E02	105mm_M60_L05	105mm_M456_Heat_B06	ln235inv17
1066	757486.919	3638219.195	1	0.8632	0.23	169	-77.4	O	M42_L03	BLU-26_M13	37mm_H09	ln072inv75
1067	757591.816	3638327.202	1	0.8638	0	-161.2	-12.3	O	60mm_M49A3_K11	57mm_M86_L12	2.75in_M230_M10	ln162_0358
1068	757539.642	3638224.717	0.99987	0.8648	1.19	-85.8	-51	O	105mm_M456_Heat_B06	105mm_M60_F05	81mm_M374_D02	ln78inv1
1069	757535.254	3638464.568	1	0.8667	0.09	-39.1	2.2	O	81mm_M374_C02	105mm_M456_Heat_B06	2.75in_M230_L10	ln305inv9
1070	757443.937	3638272.835	1	0.8668	0.16	140.6	-42.4	O	57mm_M86_L12	M75_B01	60mm_M49A3_K11	ln113inv3
1071	757481.757	3638350.765	1	0.869	0.14	167.4	-61.8	O	81mm_M374_C02	60mm_M49A3_K11	2.75in_M230_M10	ln190inv19

1072	757453.626	3638464.546	1	0.8696	0.38	-46.4	-89.2	O	105mm_M60_J05	105mm_M456_Heat_pit	155mm_M483A1_H04	ln308_1103
1073	757458.141	3638168.947	1	0.8701	0.5	-72.4	18.7	O	105mm_M456_Heat_B06	81mm_M374_D02	105mm_M60_L05	ln21inv32
1074	757583.858	3638434.451	1	0.8724	0.19	71	-85.1	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln272inv3
1075	757534.365	3638209.211	1	0.8729	0.12	-122	-85.4	O	M75_C01	37mm_L09	57mm_M86_L12	ln62inv36
1076	757520.124	3638408.631	0.99999	0.8737	0	44.6	-37	O	40mm_MKII_E03	57mm_M86_L12	M42_I03	ln248_0823
1077	757427.88	3638409.904	1	0.8747	0.58	53.4	-68.1	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln253inv6
1078	757521.993	3638378.177	0.99995	0.8756	0.36	-50.9	18	O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_M10	ln217inv20
1079	757459.766	3638236.267	1	0.8766	0.43	-72	-71.7	O	81mm_M374_C02	60mm_M49A3_K11	2.75in_M230_M10	ln90inv12
1080	757520.446	3638494.283	1	0.8777	0.28	124.2	-60.7	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln334inv5
1081	757491.896	3638312.934	1	0.8802	0.07	-85.5	29.6	O	M75_E01	57mm_M86_L12	40mm_MKII_E03	ln151inv13
1082	757564.328	3638489.409	1	0.8834	0.07	35.6	-5.5	O	105mm_M60_F05	105mm_M456_Heat_J06	81mm_M374_C02	line329inv29
1083	757572.919	3638252.812	1	0.8871	0.06	-55.6	23	O	BLU-26_L13	57mm_M86_M12	40mm_MKII_E03	ln108inv11
1084	757458.836	3638232.219	1	0.8908	0.12	62.2	30.2	O	2.75in_M230_J10	155mm_M483A1_H04	105mm_M60_L05	ln86inv55
1085	757430.701	3638383.559	1	0.8909	0.55	76.4	-84.9	O	105mm_M60_J05	105mm_M456_Heat_pit	155mm_M483A1_H04	ln226inv35
1086	757572.432	3638479.902	1	0.8936	0.32	127.4	-73.2	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	ln319inv18
1087	757433.964	3638389.348	1	0.898	0.35	104.1	-1.5	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_J04	ln232inv35
1088	757614.791	3638453.655	0.56379	0.899	0.05	76	-12.3	O	BDU-28_pit	MK118_Rockeye_J01	37mm_M09	ln290inv3
1089	757519.596	3638269.122	1	0.9021	0.31	-161	-8.5	O	60mm_M49A3_K11	81mm_M374_C02	2.75in_M230_M10	ln106_0350
1090	757511.744	3638317.061	1	0.9027	0.04	-133.3	6.3	O	81mm_M374_C02	2.75in_M230_L10	105mm_M456_Heat_B06	ln155inv22
1091	757480.45	3638283.137	1	0.903	0.18	54.6	-37.1	O	M75_B01	57mm_M86_pit	40mm_MKII_E03	ln122_0555
1092	757573.608	3638371.179	1	0.9037	0.11	51.8	-5.9	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_J04	ln208_0322
1093	757426.807	3638256.151	1	0.9053	0.22	-1.2	28.5	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln110inv1
1094	757418.622	3638403.168	1	0.9057	0.07	-5.2	-71.7	O	M42_I03	BLU-26_M13	M75_D01	ln246inv25
1095	757466.743	3638485.706	1	0.9068	3.77	-73.6	-45	O	155mm_M483A1_D04	2.75in_M230_J10	105mm_M60_F05	ln328_1093
1096	757492.881	3638285.942	1	0.9071	0.21	-174.7	-79.8	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln124inv10
1097	757433.2	3638280.153	1	0.9089	0.15	97.7	-87.8	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln121inv2
1098	757572.91	3638270.039	1	0.9127	0.03	-42.2	-8	O	57mm_M86_M12	M75_B01	40mm_MKII_E03	ln105inv4
1099	757461.699	3638344.948	1	0.9149	0.16	-17.3	28.5	O	155mm_M483A1_B04	105mm_M456_Heat_B06	105mm_M60_B05	ln185inv7
1100	757495.83	3638305.058	1	0.9172	0.07	73.2	-74.6	O	M42_L03	BLU-26_M13	M75_D01	ln143inv9
1101	757518.816	3638304.142	1	0.9172	0	-169.8	-46.2	O	57mm_M86_M12	40mm_MKII_D03	BLU-26_L13	ln141_0482
1102	757579.085	3638331.215	1	0.92	0.05	-40.4	-53.4	O	60mm_M49A3_L11	2.75in_M230_M10	57mm_M86_J12	ln167inv42
1103	757493.232	3638407.641	1	0.921	0.41	-95.7	-75.4	O	60mm_M49A3_M11	2.75in_M230_M10	81mm_M374_C02	ln248inv22
1104	757429.089	3638231.028	1	0.9214	0.44	-59.7	4.8	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	ln85inv45
1105	757553.753	3638252.284	1	0.9231	0.09	-31.6	10.1	O	81mm_M374_C02	105mm_M456_Heat_B06	2.75in_M230_L10	line106inv12
1106	757535.755	3638224.935	0.99967	0.9247	0.2	168	-3.4	O	20mm_M55_M15	57mm_M86_L12	M42_K03	ln78inv2
1107	757451.288	3638248.396	1	0.9249	0.31	25.9	38.2	O	105mm_M456_Heat_L06	105mm_M60_H05	155mm_M483A1_H04	ln102inv2
1108	757621.397	3638425.19	1	0.927	1.37	-9.8	16.6	O	155mm_M483A1_D04	2.75in_M230_L10	105mm_M60_F05	ln261inv18

1109	757455.873	3638280.917	0.99664	0.9284	0.35	-64.4	13.9	O	57mm_M86_L12	60mm_M49A3_K11	37mm_L09	In121inv4
1110	757499.408	3638331.272	1	0.9289	0.03	176.8	7.3	O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	In170inv31
1111	757471.8	3638302.776	1	0.9298	0.06	17.8	-68.4	O	M75_B01	57mm_M86_L12	40mm_MKII_E03	In142inv19
1112	757430.061	3638417.098	1	0.9299	0.02	129.4	-12.7	O	60mm_M49A3_K11	81mm_M374_C02	2.75in_M230_M10	In260inv40
1113	757446.026	3638169.391	1	0.9306	0.62	-166.4	-15	O	81mm_M374_C02	2.75in_M230_L10	105mm_M456_Heat_B06	In22inv59
1114	757543.529	3638220.374	1	0.9314	0.07	-46.5	-41.1	O	BLU-26_L13	57mm_M86_M12	40mm_MKII_E03	In074inv112
1115	757590.945	3638491.134	1	0.9316	0.33	105.7	-75	O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	line329inv23
1116	757447.565	3638186.313	1	0.9329	0.11	-166.7	-66	O	57mm_M86_L12	M75_C01	60mm_M49A3_K11	In40inv21
1117	757592.187	3638377.807	1	0.9337	0.59	85	-80.5	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	In214inv7
1118	757422.687	3638441.889	0.95693	0.9339	0.25	11.1	-0.1	O	M42_J03	M75_D01	37mm_I09	In285inv5
1119	757513.594	3638302.77	1	0.9349	0.33	117.6	29	O	81mm_M374_pit	2.75in_M230_L10	60mm_M49A3_K11	In140inv6
1120	757473.67	3638302.686	1	0.9354	0.21	92.1	-31.6	O	57mm_M86_L12	60mm_M49A3_K11	M75_C01	In142inv15
1121	757581.333	3638321.518	0.94001	0.9366	0.66	16.3	-60.4	O	57mm_M86_M12	40mm_MKII_E03	M75_C01	In157_0923
1122	757504.734	3638315.307	1	0.9368	0.18	-4.8	1.3	O	81mm_M374_E02	2.75in_M230_M10	60mm_M49A3_M11	In153inv13
1123	757531.934	3638175.915	1	0.9371	0.19	175.9	8.3	O	BLU-26_L13	57mm_M86_M12	M75_C01	In26inv23
1124	757533.102	3638350.655	1	0.9376	0.02	-38.9	-2.5	O	BLU-26_L13	57mm_M86_M12	M75_C01	In189inv14
1125	757558.917	3638248.791	1	0.9376	0.07	26.1	-58.1	O	57mm_M86_K12	81mm_M374_C02	105mm_M456_Heat_B06	In103inv4
1126	757552.532	3638262.3	1	0.9376	0.17	-155.3	-41	O	M75_B01	57mm_M86_L12	40mm_MKII_E03	In117inv12
1127	757559.356	3638272.948	1	0.9378	0.25	-19.9	-86.1	O	60mm_M49A3_L11	2.75in_M230_M10	81mm_M374_pit	In108inv5
1128	757613.597	3638425.613	1	0.9398	0.55	85.6	5.2	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In262inv8
1129	757609.129	3638493.427	1	0.9413	0.07	-121.1	-77.1	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_J04	In331inv12
1130	757529.485	3638469.405	1	0.9418	0.32	-23.5	-86.5	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	In310inv8
1131	757523.998	3638211.075	1	0.9423	0.24	-27.9	-81.2	O	57mm_M86_L12	60mm_M49A3_K11	2.75in_M230_M10	In64inv20
1132	757542.97	3638330.45	1	0.9435	0.38	-48.1	6.3	O	105mm_M456_Heat_pit	105mm_M60_H05	155mm_M483A1_J04	In167inv38
1133	757478.341	3638207.614	1	0.9436	0.16	108.7	-57.5	O	M42_J03	BLU-26_M13	M75_C01	In61inv32
1134	757600.091	3638366.721	1	0.9439	0.18	39.1	-38.3	O	81mm_M374_pit	2.75in_M230_M10	60mm_M49A3_K11	In203inv26
1135	757543.219	3638210.348	1	0.9445	0.13	-71.7	-35.3	O	60mm_M49A3_L11	57mm_M86_L12	2.75in_M230_M10	In63inv11
1136	757580.388	3638465.481	1	0.9458	0.42	-75.7	-84.9	O	105mm_M60_J05	105mm_M456_Heat_B06	155mm_M483A1_J04	In305inv14
1137	757509.442	3638363.796	1	0.946	0.54	-127.4	36.7	O	155mm_M483A1_J04	105mm_M60_B05	105mm_M456_Heat_B06	In203inv20
1138	757583.389	3638327.803	1	0.9467	0.19	-42.9	21.8	O	60mm_M49A3_L11	2.75in_M230_M10	81mm_M374_pit	In163inv8
1139	757478.722	3638283.036	1	0.9478	0.13	55.1	-34.6	O	M75_B01	57mm_M86_L12	40mm_MKII_E03	In122inv8
1140	757603.742	3638404.882	1	0.9479	0.05	-73.4	5.3	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In241inv29
1141	757584.175	3638314.563	1	0.9482	0.09	-153	0.9	O	37mm_H09	57mm_M86_L12	40mm_MKII_pit	In1501inv39
1142	757464.262	3638160.669	1	0.9493	0.2	105.1	-66.4	O	105mm_M456_Heat_pit	105mm_M60_F05	155mm_M483A1_H04	In13inv38
1143	757510.469	3638219.977	1	0.9493	0.08	63.8	-47	O	20mm_M55_J15	M42_K03	57mm_M86_L12	In073inv109
1144	757612.471	3638418.674	1	0.9493	0.27	-70.1	10.8	O	60mm_M49A3_pit	2.75in_M230_M10	81mm_M374_C02	In255inv21
1145	757450.237	3638362.821	1	0.9501	0.12	55.4	-6.4	O	81mm_M374_C02	2.75in_M230_M10	60mm_M49A3_K11	In204inv11

1146	757605.357	3638443.471	1	0.951	0.45	99.3	-81.1	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_J04	In280inv6
1147	757437.015	3638368.358	1	0.9519	0	-74.6	-81.6	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	In210inv7
1148	757446.447	3638205.646	1	0.9538	0.83	170.8	-76.9	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	In59inv11
1149	757482.874	3638342.097	0.99965	0.9542	0.07	68.1	8.5	O	37mm_H09	57mm_M86_L12	M42_K03	In182_1214
1150	757487.534	3638425	1	0.9542	0.15	57.5	-10.4	O	2.75in_M230_J10	155mm_M483A1_H04	105mm_M60_B05	In266inv19
1151	757516.428	3638270.94	1	0.9545	0.24	-169.6	-8.8	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	In108_0429
1152	757521.479	3638210.235	0.77705	0.9548	0.8	-11.8	-52.1	O	155mm_M483A1_D04	2.75in_M230_pit	105mm_M60_F05	In065_0617
1153	757455.677	3638314.966	1	0.9562	0.15	-72.8	6.7	O	105mm_M456_Heat_L06	155mm_M483A1_H04	105mm_M60_H05	In155inv14
1154	757573.826	3638300.536	1	0.9573	0.02	109.4	-70.7	O	M42_J03	BLU-26_M13	37mm_L09	In136inv5
1155	757453.493	3638363.854	1	0.9578	0	-41	14.3	O	81mm_M374_C02	105mm_M456_Heat_B06	2.75in_M230_L10	In205inv12
1156	757505.914	3638373.014	1	0.958	0.55	-58.3	-80.7	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	In213inv15
1157	757579.613	3638277	1	0.9583	0.16	-91.8	-89.2	O	M42_L03	BLU-26_M13	37mm_H09	In112inv1
1158	757516.106	3638292.722	1	0.959	0.04	112.8	-44.5	O	M42_L03	BLU-26_M13	M75_D01	In1304
1159	757608.459	3638400.585	1	0.9602	0.14	-125.7	-14.3	O	155mm_M483A1_F04	105mm_M60_H05	105mm_M456_Heat_pit	In237inv25
1160	757449.146	3638161.064	1	0.9604	0.28	-65.4	-78.7	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	In14inv53
1161	757568.281	3638447.44	1	0.9606	0.76	112.3	-78.1	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_J04	In286inv7
1162	757567.174	3638467.027	1	0.9614	0.4	-43.7	-46.9	O	81mm_M374_E02	105mm_M456_Heat_B06	105mm_M60_L05	In306inv5
1163	757498.319	3638263.076	1	0.9617	0.06	-96.1	-54.3	O	M42_J03	BLU-26_M13	37mm_H09	In103inv11
1164	757480.448	3638318.806	1	0.9623	0.36	23.8	-61.3	O	105mm_M456_Heat_L06	105mm_M60_L05	81mm_M374_D02	In158inv14
1165	757595.779	3638348.453	1	0.9637	0.09	-95.4	-70	O	M42_L03	BLU-26_M13	M75_C01	In184inv1
1166	757497.785	3638244.428	1	0.9638	0.45	150	-87.5	O	57mm_M86_pit	M75_C01	2.75in_M230_M10	In98inv15
1167	757548.693	3638223.473	1	0.9638	0.4	54.5	-60.4	O	2.75in_M230_L10	105mm_M60_L05	105mm_M456_Heat_B06	In76inv10
1168	757441.327	3638281.24	1	0.9643	0.34	-5	-77.9	O	60mm_M49A3_K11	57mm_M86_J12	2.75in_M230_M10	In122inv10
1169	757598.076	3638354.665	1	0.9648	0.42	84.5	-67.3	O	60mm_M49A3_L11	2.75in_M230_M10	81mm_M374_pit	In190inv3
1170	757606.536	3638415.134	1	0.9652	0.03	108.8	-80.1	O	57mm_M86_L12	37mm_H09	40mm_MKII_A03	In251inv22
1171	757515.55	3638252.391	1	0.9653	0.06	-20.8	-63	O	M42_J03	BLU-26_M13	M75_C01	line106inv9
1172	757573.491	3638258.146	0.99999	0.9658	0.2	97.8	-33.8	O	20mm_M55_M15	57mm_M86_L12	M42_K03	In113inv10
1173	757440.075	3638326.083	1	0.9665	0.38	-1.4	-24.7	O	81mm_M374_pit	2.75in_M230_M10	60mm_M49A3_K11	In167inv18
1174	757580.88	3638478.103	1	0.9669	0.58	-134.1	-23.2	O	105mm_M456_Heat_B06	105mm_M60_L05	81mm_M374_D02	In317inv35
1175	757454.884	3638192.485	1	0.9669	0.14	-32.6	-44.3	O	BLU-26_L13	57mm_M86_M12	M75_C01	In46inv47
1176	757446.995	3638352.981	1	0.9673	0.09	61.4	-12.6	O	57mm_M86_M12	M75_C01	40mm_MKII_E03	In194inv8
1177	757513.934	3638399.762	0.99851	0.9674	0.06	-169.9	-54.9	O	BLU-26_L13	BDU-28_pit	MK118_Rockeye_J01	In240_1053
1178	757437.549	3638487.029	1	0.9682	0.18	52.3	-14.9	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_J04	In330inv15
1179	757549.951	3638272.896	1	0.9687	0.23	-79.2	2.7	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	In111inv6
1180	757496.043	3638297.258	1	0.9704	0.14	5.1	-13.8	O	57mm_M86_M12	M75_C01	60mm_M49A3_J11	In135_0416
1181	757563.648	3638299.319	1	0.9706	0.38	-115	-81	O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	In135inv14
1182	757578.462	3638392.838	1	0.9713	0.44	-86.2	-65.8	O	105mm_M456_Heat_B06	105mm_M60_L05	155mm_M483A1_J04	In230inv12

1183	757436.228	3638244.212	1	0.9716	0.05	166.3	-10.8	O	57mm_M86_M12	BLU-26_L13	40mm_MKII_E03	ln98inv17
1184	757504.145	3638264.866	1	0.9729	0.23	-132.8	-79.1	O	M75_C01	57mm_M86_L12	40mm_MKII_E03	ln103inv3
1185	757584.069	3638288.991	1	0.9732	0.15	88.2	-85.7	O	60mm_M49A3_L11	2.75in_M230_M10	81mm_M374_C02	ln124inv2
1186	757612.7	3638284.766	1	0.9734	0	113.6	-0.2	O	M42_K03	M75_B01	57mm_M86_L12	ln118_0022
1187	757545.141	3638185.792	0.50611	0.9735	0.18	67.7	-51.9	O	M42_K03	20mm_M55_I15	40mm_M385_pit	ln38_0116
1188	757537.546	3638244.343	1	0.9736	0.13	99	-71.2	O	M42_L03	BLU-26_M13	M75_D01	ln98inv13
1189	757592.594	3638422.853	1	0.9738	0.2	109.1	4.1	O	60mm_M49A3_F10	2.75in_M230_M10	81mm_M374_C02	ln260inv18
1190	757462.222	3638272.802	1	0.9741	0.07	99.4	10.9	O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	ln112inv5
1191	757525.894	3638318.287	1	0.9745	0.64	-110.1	-59.3	O	105mm_M456_Heat_F06	81mm_M374_F02	105mm_M60_L05	ln155inv27
1192	757537.656	3638328.982	1	0.9746	0.24	108.1	-5.3	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln166inv5
1193	757447.672	3638366.8	1	0.975	0.75	-110.7	-72.4	O	155mm_M483A1_B04	105mm_M60_J05	105mm_M456_Heat_J06	ln208inv39
1194	757601.223	3638458.78	1	0.9753	0.07	53.4	-79.7	O	M42_J03	BLU-26_M13	37mm_H09	ln296inv5
1195	757500.864	3638346.676	0.99859	0.9758	0.14	68.3	-34	O	20mm_M55_M15	M42_K03	57mm_M86_L12	ln186inv11
1196	757598.507	3638446.421	1	0.9761	0.56	72.3	-72.7	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln283inv19
1197	757501.781	3638280.952	1	0.9761	0.05	-59.7	-29.9	O	57mm_M86_M12	M75_C01	81mm_M374_C02	ln119inv18
1198	757489.972	3638219.636	1	0.9762	0.28	55.4	-55.3	O	M42_L03	BLU-26_M13	M75_C01	ln073inv108
1199	757440.375	3638275.314	1	0.9763	0.25	-140.6	-5.2	O	60mm_M49A3_L11	57mm_M86_L12	M75_F01	ln118inv8
1200	757608.233	3638434.868	1	0.9764	0.43	-82.7	-74.6	O	81mm_M374_C02	105mm_M456_Heat_B06	2.75in_M230_L10	ln271inv15
1201	757468.027	3638434.213	1	0.9769	0.5	153.7	35.2	O	81mm_M374_F02	2.75in_M230_L10	105mm_M456_Heat_B06	ln276inv5
1202	757591.57	3638456.176	1	0.9771	0.42	60.5	-21.2	O	105mm_M456_Heat_B06	105mm_M60_L05	81mm_M374_F02	ln294invX5
1203	757585.915	3638473.413	1	0.9777	0.13	165.4	-67.9	O	2.75in_M230_M10	81mm_M374_pit	105mm_M60_L05	ln312inv9
1204	757560.022	3638328.773	1	0.978	0.18	-69.6	-11.5	O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	ln165inv31
1205	757581.953	3638431.254	1	0.9781	0.07	-70.7	13	O	81mm_M374_pit	2.75in_M230_L10	105mm_M456_Heat_B06	ln269inv19
1206	757601.133	3638387.951	1	0.9782	0.25	162.7	-0.7	O	155mm_M483A1_J04	105mm_M456_Heat_pit	105mm_M60_H05	ln224inv2
1207	757576.29	3638339.536	1	0.9784	0.26	-11	-48.8	O	60mm_M49A3_K11	2.75in_M230_M10	57mm_M86_J12	ln175inv18
1208	757590.671	3638327.15	1	0.9785	0	-168.2	-21.6	O	60mm_M49A3_K11	57mm_M86_L12	40mm_MKII_A03	ln162inv14
1209	757465.614	3638224.31	1	0.9787	1.37	50.5	-6	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_D06	ln78inv11
1210	757433.797	3638348.575	1	0.9787	0	43.1	-37	O	57mm_M86_L12	40mm_MKII_E03	M75_B01	ln190_1166
1211	757477.867	3638212.156	1	0.9795	0.27	-152.7	30.5	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_J04	ln066inv16
1212	757548.327	3638481.779	1	0.9796	0.16	-53.4	-66.5	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln321inv20
1213	757509.178	3638294.04	1	0.9797	0.08	-118	-11.7	O	M42_L03	BLU-26_M13	M75_A01	ln131inv9
1214	757478.021	3638314.924	1	0.9797	0.07	-129.7	-88.5	O	M42_J03	BLU-26_M13	37mm_L09	ln154inv13
1215	757441.809	3638480.797	1	0.98	0.41	-26.8	-81.9	O	81mm_M374_C02	2.75in_M230_L10	60mm_M49A3_K11	ln324inv23
1216	757598.862	3638413.748	1	0.9803	0.18	88.2	2	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln250inv8
1217	757497.916	3638280.867	1	0.9819	0.39	31.6	-74.1	O	81mm_M374_pit	2.75in_M230_M10	60mm_M49A3_K11	ln119inv15
1218	757577.51	3638273.13	1	0.982	0.05	163.2	-87.6	O	60mm_M49A3_L11	2.75in_M230_M10	81mm_M374_C02	ln108_0129
1219	757435.582	3638220.073	1	0.982	0.54	-58	-75.9	O	81mm_M374_C02	2.75in_M230_M10	105mm_M456_Heat_B06	ln074inv119

1220	757501.852	3638418.717	1	0.9825	0.07	-152.3	-67.5	O	M75_B01	57mm_M86_L12	40mm_MKII_E03	ln259inv15
1221	757516.134	3638273.032	1	0.9825	0.24	109.6	-8.5	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln110inv5
1222	757455.725	3638284.928	1	0.9831	0.26	89.8	-45.7	O	105mm_M456_Heat_J06	105mm_M60_F05	81mm_M374_D02	ln125inv9
1223	757439.871	3638239.964	1	0.9838	0.32	-117.2	-81.7	O	M42_L03	BLU-26_M13	37mm_H09	ln94inv8
1224	757614.446	3638324.502	1	0.9842	0.2	-97	-44.9	O	2.75in_M230_L10	81mm_M374_pit	105mm_M456_Heat_B06	ln159inv27
1225	757586.126	3638330.729	1	0.9845	0.04	-83.8	-47.8	O	M42_I03	BLU-26_M13	37mm_H09	ln166inv2
1226	757437.87	3638297.28	1	0.985	0.08	46.5	-10	O	60mm_M49A3_L11	2.75in_M230_M10	81mm_M374_pit	ln138inv19
1227	757611.24	3638356.541	1	0.985	0.21	172.3	-2.5	O	105mm_M60_J05	105mm_M456_Heat_J06	155mm_M483A1_J04	ln192inv3
1228	757446.168	3638384.84	1	0.9852	0.18	-91.6	32.3	O	2.75in_M230_M10	155mm_M483A1_H04	105mm_M60_L05	ln227in9
1229	757614.9	3638422.923	1	0.9855	3.13	2.8	-21.8	O	155mm_M483A1_D04	105mm_M60_F05	2.75in_M230_J10	ln257_1762
1230	757586.515	3638326.53	1	0.9855	0	-169.3	-66.1	O	40mm_M385_J14	20mm_M55_I15	MK118_Rockeye_M01	ln162_0421
1231	757540.129	3638202.81	1	0.9864	0.71	151.8	-70.6	O	81mm_M374_pit	2.75in_M230_M10	60mm_M49A3_K11	ln55inv15
1232	757474.067	3638236.558	1	0.9865	0.09	-143	-0.8	O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	ln90inv11
1233	757511.64	3638252.265	1	0.9866	0.39	171.7	-79.1	O	81mm_M374_C02	105mm_M456_Heat_B06	105mm_M60_L05	line106inv8
1234	757510.27	3638356.759	1	0.9867	0.6	46.1	10.4	O	105mm_M60_B05	105mm_M456_Heat_B06	155mm_M483A1_J04	ln196inv14
1235	757437.944	3638400.207	1	0.9868	0.81	-83.8	-62.3	O	105mm_M456_Heat_pit	105mm_M60_B05	155mm_M483A1_J04	ln243inv10
1236	757590.212	3638429.27	1	0.9871	0.23	108.3	-0.4	O	60mm_M49A3_pit	2.75in_M230_M10	81mm_M374_C02	ln266inv8
1237	757516.197	3638285.023	1	0.9871	0.24	-162.2	-5.6	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln122inv5
1238	757442.296	3638392.917	1	0.9872	0.06	-70.5	24	O	60mm_M49A3_pit	2.75in_M230_M10	81mm_M374_C02	ln235inv6
1239	757552.37	3638478.656	1	0.9873	0.02	119.4	-82.3	O	81mm_M374_C02	60mm_M49A3_K11	2.75in_M230_M10	ln318inv8
1240	757565.084	3638386.742	1	0.9876	0.27	-65	0.3	O	105mm_M60_J05	105mm_M456_Heat_B06	155mm_M483A1_J04	ln225_1155
1241	757548.206	3638292.195	1	0.9876	0.01	103.3	-48	O	M42_L03	BLU-26_M13	37mm_L09	ln128inv4
1242	757432.548	3638290.663	0.99999	0.9877	0.65	81.3	11.5	O	81mm_M374_C02	60mm_M49A3_K11	2.75in_M230_M10	ln132inv21
1243	757541.967	3638314.764	1	0.9877	0.27	-76.6	7.2	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln151inv16
1244	757591.24	3638425.036	1	0.9879	0.2	-154	1.7	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln262inv11
1245	757518.006	3638269.087	1	0.988	0.25	-160.3	-11.2	O	60mm_M49A3_K11	2.75in_M230_M10	57mm_M86_J12	ln106inv3
1246	757476.009	3638219.578	1	0.9882	0.07	-9.4	-16.6	O	105mm_M60_L05	105mm_M456_Heat_pit	155mm_M483A1_H04	ln073inv104
1247	757497.737	3638297.286	1	0.9882	0.09	-45.7	-8.2	O	BLU-26_L13	57mm_M86_M12	40mm_MKII_E03	ln135inv10
1248	757525.041	3638250.776	1	0.9884	0.73	-136.1	-37.6	O	2.75in_M230_M10	155mm_M483A1_H04	105mm_M60_L05	ln104inv12
1249	757445.495	3638217.682	1	0.9884	0.11	16.2	-13.8	O	81mm_M374_C02	105mm_M456_Heat_J06	105mm_M60_L05	ln071inv61
1250	757523.227	3638410.4	1	0.9887	0	120.8	-2.8	O	BDU-28_K02	MK118_Rockeye_M01	40mm_M385_M14	ln250_0645
1251	757539.532	3638244.262	1	0.9892	0.13	-134.3	-66	O	57mm_M86_pit	M75_C01	2.75in_M230_M10	ln98inv12
1252	757450.871	3638391.558	0.99994	0.9892	0.95	36.8	-68.1	O	105mm_M60_L05	105mm_M456_Heat_D06	155mm_M483A1_J04	ln234inv30
1253	757485.038	3638319.864	1	0.9896	0.01	45	-85.8	O	M75_B01	57mm_M86_L12	40mm_MKII_E03	ln159inv14
1254	757525.24	3638291.019	1	0.9897	0.24	112.1	-5.8	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln128_0458
1255	757513.555	3638256.355	1	0.99	0.26	2.1	-0.8	O	60mm_M49A3_K11	2.75in_M230_M10	57mm_M86_J12	ln110inv5
1256	757503.869	3638440.939	1	0.99	0.18	61.5	29.3	O	105mm_M60_D05	105mm_M456_Heat_B06	155mm_M483A1_J04	ln282inv26

1257	757467.932	3638304.744	1	0.9903	0.09	63	-47.2	O	20mm_M55_M15	57mm_M86_L12	M42_K03	In144inv25
1258	757446.905	3638241.199	1	0.9905	0.49	94	-68.8	O	81mm_M374_E02	2.75in_M230_M10	105mm_M60_L05	In95inv9
1259	757434.757	3638272.233	1	0.9909	0.77	51.2	-60	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In113inv2
1260	757564.185	3638314.707	0.99627	0.991	0.31	-119.1	-81	O	MK118_Rockeye_K01	BDU-28_H02	40mm_M385_I14	In1501inv47
1261	757539.584	3638285.418	1	0.9912	0.54	-177.7	-67.4	O	105mm_M456_Heat_pit	105mm_M60_B05	155mm_M483A1_J04	In122inv3
1262	757554.131	3638503.581	1	0.9915	0.47	-23.7	60.8	O	MK118_Rockeye_L01	BDU-28_J02	BLU-26_J13	In343_1082
1263	757476.055	3638224.787	1	0.9917	0.24	56	-13	O	155mm_M483A1_J04	105mm_M60_J05	105mm_M456_Heat_J06	In78inv8
1264	757513.823	3638333.009	1	0.992	0.25	7	-0.8	O	60mm_M49A3_pit	2.75in_M230_M10	81mm_M374_C02	In171inv20
1265	757526.112	3638265.538	1	0.9921	0.78	96.4	-66.7	O	105mm_M456_Heat_pit	105mm_M60_B05	155mm_M483A1_J04	In103inv7
1266	757605.732	3638358.872	1	0.9922	0.51	10.6	-80.9	O	81mm_M374_C02	2.75in_M230_M10	60mm_M49A3_K11	In194inv2
1267	757540.104	3638442.713	1	0.9922	0.4	158.2	3.3	O	81mm_M374_pit	2.75in_M230_L10	105mm_M456_Heat_B06	In282inv20
1268	757593.731	3638498.378	1	0.9923	0.21	-56.1	-14.4	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_J04	In337inv36
1269	757611.999	3638313.932	0.9896	0.9925	0	108.3	-3.2	O	40mm_M385_J14	M42_K03	20mm_M55_I15	In148inv1
1270	757543.474	3638487.439	1	0.9931	0.19	140.4	-73.5	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	In327inv9
1271	757592.185	3638310.972	1	0.9934	0.57	122.3	-15.6	O	105mm_M60_B05	105mm_M456_Heat_D06	155mm_M483A1_J04	In146inv15
1272	757533.337	3638291.995	1	0.9936	0.11	-115.6	-86.7	O	M42_I03	BLU-26_M13	37mm_H09	In129inv9
1273	757481.591	3638184.254	1	0.9936	0.08	-128.9	12.9	O	40mm_MKII_E03	57mm_M86_M12	M75_C01	In37inv15
1274	757504.922	3638294.502	1	0.9937	0.28	-173.5	31.1	O	155mm_M483A1_L04	2.75in_M230_J10	105mm_M60_J05	In132inv8
1275	757453.85	3638434.906	1	0.994	0.26	-20.8	-54.6	O	105mm_M456_Heat_J06	105mm_M60_F05	81mm_M374_F02	In277inv12
1276	757473.05	3638222.658	1	0.9941	0.19	153.5	-76.4	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In77_0676
1277	757453.898	3638396.967	1	0.9943	0.23	37.8	-45.2	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	In239inv13
1278	757456.997	3638263.35	1	0.9944	0.37	-110.6	-73.4	O	105mm_M456_Heat_pit	105mm_M60_B05	155mm_M483A1_J04	In103inv1
1279	757489.273	3638216.117	1	0.9944	0.69	-12.3	-12.3	O	105mm_M60_B05	105mm_M456_Heat_D06	155mm_M483A1_J04	In069inv37
1280	757563.484	3638361.13	1	0.9945	0.2	171.1	-13.8	O	60mm_M49A3_L11	2.75in_M230_K10	57mm_M86_L12	In198inv5
1281	757545.266	3638240.248	1	0.9945	1.2	-41.4	-54.1	O	105mm_M456_Heat_D06	105mm_M60_B05	155mm_M483A1_J04	In94inv3
1282	757427.187	3638310.163	1	0.9946	0.11	-130.9	-1.2	O	105mm_M60_J05	105mm_M456_Heat_B06	155mm_M483A1_J04	In151inv7
1283	757579.527	3638436.277	1	0.9946	0.56	-136.6	-63.6	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	In274inv6
1284	757432.028	3638231.16	1	0.9947	0.09	62.7	-47.8	O	M42_K03	BLU-26_M13	M75_D01	In85inv46
1285	757513.743	3638337.344	0.98969	0.9947	0.32	-63.8	-83.8	O	M42_L03	BLU-26_M13	M75_D01	In176inv2
1286	757492.926	3638453.954	1	0.9948	0.11	54	-83	O	60mm_M49A3_L11	2.75in_M230_M10	57mm_M86_J12	In296_2inv5
1287	757580.66	3638264.573	1	0.9949	0.13	-35	18.9	O	BLU-26_L13	57mm_M86_M12	M75_C01	In103inv16
1288	757441.799	3638176.217	1	0.9949	0.2	45	-36.1	O	57mm_M86_pit	M75_C01	2.75in_M230_M10	In29inv15
1289	757556.049	3638284.731	1	0.9951	0.24	-103.8	-74.3	O	57mm_M86_M12	M75_C01	2.75in_M230_M10	In120inv5
1290	757438.108	3638390.682	1	0.9952	0.11	-85.6	-19.1	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	In233inv6
1291	757594.648	3638390.638	1	0.9952	0.66	116	-59.8	O	105mm_M456_Heat_L06	155mm_M483A1_H04	105mm_M60_L05	In227in42
1292	757521.834	3638306.798	1	0.9953	0.21	87.5	-6.1	O	60mm_M49A3_pit	2.75in_M230_M10	81mm_M374_C02	In144inv16
1293	757447.806	3638395.037	1	0.9954	0.05	-85.6	39.3	O	60mm_M49A3_L11	2.75in_M230_M10	81mm_M374_C02	In237inv9

1294	757449.01	3638426.343	1	0.9955	0.07	109.7	-50.6	O	BLU-26_L13	40mm_MKII_E03	57mm_M86_M12	ln269inv8
1295	757533.031	3638230.964	1	0.9959	0.12	-6.5	-84.3	O	M42_K03	57mm_M86_L12	40mm_MKII_F03	ln84inv39
1296	757431.281	3638254.899	1	0.9961	1.06	107.9	-2.5	O	105mm_M456_Heat_H06	105mm_M60_H05	155mm_M483A1_J04	ln109inv15
1297	757591.241	3638431.824	1	0.9962	0.23	16.1	-8.8	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln269inv22
1298	757539.369	3638349.83	1	0.9962	0.09	-97.6	-31.6	O	60mm_M49A3_L11	2.75in_M230_K10	57mm_M86_L12	ln187inv9
1299	757428.9	3638235.77	1	0.9963	0.11	38.4	-65	O	BLU-26_L13	57mm_M86_M12	M75_C01	ln90inv14
1300	757607.274	3638424.061	1	0.9963	0.18	109.3	-75.7	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln260inv12
1301	757432.927	3638226.505	1	0.9964	0.33	52.8	-83.5	O	M42_I03	BLU-26_M13	37mm_L09	ln80inv14
1302	757580.409	3638263.923	1	0.9964	0.15	62.5	16.5	O	BLU-26_L13	57mm_M86_M12	40mm_MKII_E03	ln120inv8
1303	757453.34	3638238.158	1	0.9964	0.15	-172.3	-44.1	O	BLU-26_L13	57mm_M86_M12	M75_pit	ln92inv12
1304	757566.082	3638288.716	1	0.9964	0.33	174	-19.2	O	105mm_M60_J05	105mm_M456_Heat_B06	155mm_M483A1_J04	ln124inv3
1305	757515.864	3638274.961	1	0.9965	0.22	-170.4	3.3	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln112inv3
1306	757456.345	3638382.761	1	0.9967	0.01	-122.1	22.2	O	57mm_M86_L12	M42_K03	20mm_M55_I15	ln225_0343
1307	757587.094	3638430.088	1	0.9969	0.48	-131.9	-42.8	O	81mm_M374_C02	105mm_M456_Heat_B06	2.75in_M230_L10	ln267inv14
1308	757428.787	3638239.181	1	0.9969	0.49	-20.9	-78.3	O	2.75in_M230_K10	81mm_M374_pit	105mm_M60_L05	ln93inv6
1309	757429.546	3638276.104	0.99808	0.9969	0	-127.1	3.9	O	M42_I03	40mm_MKII_E03	MK118_Rockeye_M01	ln117_0099
1310	757623.572	3638422.914	0.99608	0.9971	0.01	-21.7	-16.3	O	BLU-26_L13	BDU-28_K02	2.75in_M230_M10	ln258_0009
1311	757444.846	3638172.974	1	0.9971	0.23	65.8	-3.9	O	105mm_M456_Heat_B06	105mm_M60_L05	81mm_M374_D02	ln26inv31
1312	757418.305	3638446.029	1	0.9971	0.03	71.9	-73.1	O	BLU-26_L13	40mm_MKII_E03	57mm_M86_M12	ln290inv20
1313	757531.807	3638481.04	1	0.9971	0.14	-88.5	13.7	O	20mm_M55_I15	40mm_M385_I14	BDU-28_I02	ln321_0538
1314	757502.443	3638264.789	1	0.9971	0.27	-84.1	-60.7	O	M75_B01	57mm_M86_M12	40mm_MKII_E03	ln103_0290
1315	757545.353	3638384.358	1	0.9972	0.22	-45.8	-9.2	O	155mm_M483A1_H04	2.75in_M230_K10	105mm_M60_F05	ln223inv10
1316	757522.454	3638440.171	1	0.9972	0.21	-143	3	O	105mm_M60_L05	105mm_M456_Heat_D06	155mm_M483A1_J04	ln280inv21
1317	757435.087	3638485.511	1	0.9973	0	-44.4	-0.2	O	M42_L03	M75_D01	57mm_M86_L12	line329inv10
1318	757523.322	3638349.038	1	0.9973	0.69	104.7	-65.3	O	105mm_M60_L05	105mm_M456_Heat_D06	155mm_M483A1_J04	ln186inv10
1319	757609.752	3638372.513	1	0.9974	0.44	74.1	22.7	O	155mm_M483A1_F04	105mm_M60_H05	105mm_M456_Heat_B06	ln208inv2
1320	757443.373	3638362.973	1	0.9974	0.16	-139.9	-7.5	O	57mm_M86_M12	40mm_MKII_E03	BLU-26_L13	ln204inv19
1321	757459.827	3638446.738	1	0.9974	0.39	143.2	-42.3	O	105mm_M456_Heat_L06	155mm_M483A1_H04	105mm_M60_H05	ln289inv9
1322	757574.99	3638428.6	1	0.9974	0.03	26.6	-7.8	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln267inv12
1323	757421.951	3638408.517	1	0.9975	0	131.3	-9.5	O	M42_K03	37mm_I09	40mm_MKII_F03	ln252inv27
1324	757574.685	3638448.157	1	0.9975	0.17	49.7	-9	O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_J04	ln286inv5
1325	757615.527	3638478.559	0.99998	0.9975	1.78	58	26.5	O	155mm_M483A1_H04	105mm_M60_D05	105mm_M456_Heat_D06	ln316_0014
1326	757484.727	3638384.555	1	0.9976	0.08	-108.9	4.2	O	2.75in_M230_K10	155mm_M483A1_H04	105mm_M60_B05	ln225inv22
1327	757553.537	3638471.638	1	0.9976	0.58	99.8	4.6	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln312inv15
1328	757491.944	3638232.687	1	0.9976	0.62	178	-74.1	O	105mm_M456_Heat_B06	105mm_M60_B05	155mm_M483A1_J04	ln86inv52
1329	757541.577	3638254.295	1	0.9977	0.43	-57.7	32.1	O	105mm_M456_Heat_L06	155mm_M483A1_H04	105mm_M60_H05	ln108inv10
1330	757487.069	3638225.724	1	0.9978	0.18	-30	-36.8	O	M42_J03	BLU-26_M13	M75_C01	ln79bgWE10

1331	757592.438	3638416.952	1	0.9978	0.23	-165.6	3	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln254_0229
1332	757437.771	3638386.399	1	0.9979	0.13	-34	32.1	O	2.75in_M230_pit	155mm_M483A1_H04	105mm_M456_Heat_B06	ln229inv5
1333	757581.843	3638482.37	1	0.998	0.6	-122.1	19.1	O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_J04	ln321inv26
1334	757455.513	3638412.624	1	0.998	0.13	34.7	1.9	O	BLU-26_L13	57mm_M86_M12	40mm_MKII_E03	ln255inv5
1335	757443.775	3638392.551	1	0.998	0.14	-94.4	-77.3	O	60mm_M49A3_F10	2.75in_M230_M10	81mm_M374_pit	ln235inv10
1336	757555.726	3638388.831	0.99971	0.998	0.65	-115.1	-51.2	O	60mm_M49A3_L11	2.75in_M230_M10	81mm_M374_C02	ln227in31
1337	757436.76	3638260.134	1	0.998	0.05	66	3.3	O	155mm_M483A1_F04	105mm_M60_J05	105mm_M456_Heat_B06	ln103_1132
1338	757482.017	3638478.688	1	0.998	0.62	117	-45.8	O	105mm_M60_L05	105mm_M456_Heat_D06	155mm_M483A1_J04	ln320inv10
1339	757450.02	3638414.545	1	0.998	0.26	36.5	19.9	O	105mm_M60_J05	105mm_M456_Heat_D06	155mm_M483A1_J04	ln257inv7
1340	757567.644	3638494.353	1	0.998	0.12	-2.7	-49.8	O	2.75in_M230_L10	81mm_M374_pit	105mm_M456_Heat_B06	ln333inv10
1341	757606.514	3638417.252	1	0.9981	0.21	97	-8.1	O	60mm_M49A3_K11	81mm_M374_C02	2.75in_M230_M10	ln254inv9
1342	757448.368	3638238.717	1	0.9981	0.1	145.9	-19.9	O	M42_L03	BLU-26_M13	37mm_H09	ln92inv13
1343	757456.183	3638275.412	1	0.9981	0.33	-13.9	-19.1	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	ln115inv11
1344	757491.245	3638362.775	1	0.9981	0	-19.7	5.2	O	M42_K03	M75_D01	BLU-26_M13	ln203_0599
1345	757436.796	3638159.392	1	0.9981	0.12	75.8	2.8	O	M75_B01	BDU-28_I02	40mm_MKII_E03	ln12inv18
1346	757589.371	3638445.581	1	0.9982	0.42	-11.7	-29.6	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln283inv14
1347	757606.056	3638353.007	1	0.9982	0.42	23.6	-77	O	2.75in_M230_M10	105mm_M60_B05	155mm_M483A1_H04	ln188inv5
1348	757449.824	3638288.028	0.99999	0.9982	0.49	133.3	-81.8	O	60mm_M49A3_L11	57mm_M86_L12	2.75in_M230_M10	ln128inv17
1349	757504.117	3638464.669	1	0.9983	0.17	-170.2	-26.3	O	2.75in_M230_M10	155mm_M483A1_H04	105mm_M456_Heat_B06	ln306inv10
1350	757551.615	3638258.51	1	0.9984	0.81	88.7	-28.7	O	105mm_M456_Heat_D06	105mm_M60_B05	155mm_M483A1_J04	ln113inv14
1351	757509.701	3638427.99	1	0.9984	0.46	-137.2	-66.5	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln268inv15
1352	757585.02	3638452.161	1	0.9984	0.31	59.5	4.6	O	105mm_M60_L05	105mm_M456_Heat_pit	155mm_M483A1_J04	ln290inv8
1353	757591.572	3638471.827	1	0.9985	0.22	144.1	33.2	O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_J04	ln310inv2
1354	757468.239	3638400.968	0.99998	0.9985	0	54.7	-3.5	O	40mm_M385_I14	MK118_Rockeye_M01	BDU-28_I02	ln242inv11
1355	757469.148	3638384.625	1	0.9986	0	-165	-0.7	O	20mm_M55_M15	57mm_M86_L12	M42_K03	ln226inv26
1356	757590.451	3638435.665	1	0.9986	0.2	26.8	-0.1	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln273inv10
1357	757583.397	3638286.326	1	0.9986	0.46	9.2	-4.8	O	155mm_M483A1_F04	105mm_M60_J05	105mm_M456_Heat_B06	ln121inv8
1358	757576.392	3638378.877	1	0.9987	0.38	48.7	-79.5	O	105mm_M456_Heat_J06	105mm_M60_F05	81mm_M374_C02	ln216inv4
1359	757567.192	3638274.86	1	0.9987	0.18	64.2	-76.9	O	M75_D01	37mm_L09	M42_J03	ln110_0173
1360	757588.553	3638303.8	0.99998	0.9988	0.21	-57.2	24.9	O	M42_J03	BLU-26_M13	37mm_H09	ln139_0754
1361	757421.681	3638421.956	1	0.9988	0.23	-113.3	-40.4	O	60mm_M49A3_F10	2.75in_M230_M10	81mm_M374_C02	ln265inv4
1362	757568.166	3638451.02	1	0.9988	0.17	-36.6	-49.9	O	105mm_M456_Heat_B06	105mm_M60_L05	155mm_M483A1_J04	ln290inv10
1363	757572.356	3638249.106	1	0.9988	0.64	2.5	-80.1	O	81mm_M374_pit	2.75in_M230_K10	105mm_M60_L05	ln104inv16
1364	757468.051	3638256.693	1	0.9988	0.6	-162.1	-65.5	O	105mm_M60_B05	105mm_M456_Heat_B06	155mm_M483A1_J04	ln111inv11
1365	757515.46	3638217.911	1	0.9988	0.17	-10.5	-36.9	O	2.75in_M230_M10	155mm_M483A1_H04	105mm_M60_L05	ln071inv71
1366	757424.128	3638304.49	1	0.9988	0.15	60.2	34.2	O	BLU-26_L13	57mm_M86_M12	40mm_MKII_E03	ln146inv28
1367	757536.575	3638187.886	1	0.9989	0.16	112.8	-13.5	O	BLU-26_L13	57mm_M86_M12	M75_C01	ln40inv3

1368	757567.139	3638260.415	1	0.9989	0.97	112.1	21.1	O	155mm_M483A1_F04	105mm_M60_B05	105mm_M456_Heat_B06	ln115inv2
1369	757613.733	3638304.798	1	0.9989	0.38	50	-25.3	O	105mm_M456_Heat_B06	105mm_M60_J05	81mm_M374_F02	ln138inv6
1370	757467.556	3638422.016	1	0.9989	0.15	56.7	-7.7	O	2.75in_M230_M10	155mm_M483A1_H04	105mm_M60_B05	ln264inv5
1371	757594.185	3638318.673	1	0.999	0.14	-10.1	-83	O	60mm_M49A3_L11	2.75in_M230_M10	81mm_M374_C02	ln153inv15
1372	757454.311	3638418.628	1	0.999	0.08	-85	-79.8	O	81mm_M374_C02	57mm_M86_L12	2.75in_M230_M10	ln261inv7
1373	757443.807	3638178.307	1	0.999	0.45	69.6	-58.3	O	60mm_M49A3_K11	2.75in_M230_M10	57mm_M86_L12	ln31inv8
1374	757496.243	3638275.209	1	0.999	0.28	-74.5	-51	O	60mm_M49A3_L11	2.75in_M230_K10	57mm_M86_L12	ln113inv7
1375	757438.8	3638408.984	1	0.999	0.57	114.4	-17.9	O	105mm_M60_J05	105mm_M456_Heat_J06	81mm_M374_F02	ln252_1023
1376	757479.656	3638271.005	1	0.999	0.22	118.8	-71.8	O	M42_L03	BLU-26_M13	37mm_H09	ln110inv6
1377	757435.086	3638259.524	1	0.9991	0.12	-123.4	-9.2	O	155mm_M483A1_L04	105mm_M456_Heat_pit	105mm_M60_J05	ln114inv6
1378	757433.784	3638210.184	1	0.9991	0.56	24.3	-54.6	O	2.75in_M230_M10	105mm_M456_Heat_B06	105mm_M60_L05	ln64inv2
1379	757564.179	3638227.314	1	0.9991	0.53	41.8	-68.3	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	ln81inv14
1380	757598.869	3638417.954	1	0.9991	0.36	-50.7	-70.4	O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_H04	ln254inv12
1381	757497.211	3638268.285	1	0.9991	0.25	-148.2	-72.2	O	60mm_M49A3_K11	57mm_M86_J12	2.75in_M230_M10	ln106_0409
1382	757445.704	3638248.276	1	0.9991	0.35	-42.7	-19.4	O	105mm_M60_B05	105mm_M456_Heat_D06	155mm_M483A1_J04	ln102inv1
1383	757593.515	3638268.479	1	0.9992	0.1	12.2	-42.6	O	BLU-26_L13	57mm_M86_M12	M75_C01	ln103inv4
1384	757435.395	3638176.287	1	0.9992	0.68	-94.2	41.2	O	105mm_M456_Heat_pit	105mm_M60_F05	155mm_M483A1_H04	ln29inv13
1385	757584.577	3638286.44	1	0.9992	0.48	-171.5	3.3	O	155mm_M483A1_F04	105mm_M456_Heat_B06	105mm_M60_B05	ln122_0119
1386	757499.785	3638378.252	1	0.9992	0.21	-19.5	37.4	O	2.75in_M230_pit	155mm_M483A1_H04	105mm_M60_B05	ln219inv22
1387	757608.442	3638416.924	1	0.9993	0.22	5.6	-4.1	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln253inv18
1388	757565.924	3638386.761	1	0.9993	0.29	125.5	-8.7	O	105mm_M60_B05	105mm_M456_Heat_D06	155mm_M483A1_J04	ln224inv9
1389	757485.881	3638228.175	1	0.9994	0.12	157.1	23.1	O	20mm_M55_J15	M42_pit	57mm_M86_L12	ln82inv23
1390	757549.334	3638218.145	1	0.9994	0.4	-137.4	-46.8	O	105mm_M456_Heat_D06	105mm_M60_B05	155mm_M483A1_J04	ln071inv74
1391	757536.595	3638394.713	1	0.9994	0.56	111.7	-77.1	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_H04	ln234inv15
1392	757466.504	3638267.975	1	0.9994	0.35	-46.2	6.4	O	2.75in_M230_pit	155mm_M483A1_H04	105mm_M60_B05	ln107inv10
1393	757440.367	3638400.872	1	0.9994	0.25	-33.5	-35.7	O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_H04	ln243inv13
1394	757512.152	3638452.759	1	0.9994	0.04	-74.6	-39.3	O	40mm_MKII_A03	M75_A01	BDU-28_pit	ln293inv9
1395	757551.474	3638264.493	1	0.9994	0.3	83.6	2.5	O	60mm_M49A3_pit	2.75in_M230_M10	81mm_M374_C02	ln120inv11
1396	757437.11	3638276.821	1	0.9995	0.42	-13.2	-77.4	O	57mm_M86_K12	M75_C01	81mm_M374_C02	ln118_0875
1397	757494.689	3638255.45	1	0.9995	0.12	-143.5	-46.9	O	M42_L03	BLU-26_M13	M75_D01	ln109inv14
1398	757527.981	3638286.438	1	0.9995	0.04	-12.5	-47.6	O	M42_I03	BLU-26_M13	37mm_H09	ln123inv14
1399	757439.166	3638187.43	1	0.9995	0.15	103.1	-83.6	O	40mm_MKII_pit	60mm_M49A3_K11	M75_B01	ln47inv60
1400	757558.715	3638503.428	1	0.9995	0.68	-11.9	-27.8	O	MK118_Rockeye_L01	BLU-26_J13	2.75in_M230_H10	ln343_1191
1401	757432.142	3638438.76	1	0.9995	0.42	-22	-79.3	O	105mm_M456_Heat_F06	81mm_M374_C02	105mm_M60_J05	ln282inv37
1402	757464.943	3638187.114	1	0.9995	0.22	-164.4	-75	O	20mm_M55_M15	57mm_M86_L12	M42_K03	ln40inv13
1403	757569.35	3638409.992	1	0.9995	0.44	156.1	22	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	ln248inv16
1404	757482.369	3638239.713	1	0.9995	0.11	-103.2	-6	O	2.75in_M230_M10	155mm_M483A1_H04	105mm_M60_L05	ln93inv8

1405	757519.958	3638281.013	1	0.9995	0.49	117.8	-60.5	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	In118_0466
1406	757528.979	3638229.785	1	0.9995	0.22	6.4	-73	O	BLU-26_L13	57mm_M86_M12	40mm_MKII_D03	In83inv36
1407	757461.565	3638264.822	1	0.9995	0.34	155.6	38.5	O	105mm_M456_Heat_B06	105mm_M60_J05	81mm_M374_F02	In304inv3
1408	757498.209	3638481.03	1	0.9996	0.22	-158.8	-16.6	O	2.75in_M230_M10	155mm_M483A1_H04	105mm_M60_B05	In322inv35
1409	757568.5	3638366.803	0.99992	0.9996	0.86	75.3	-55.2	O	57mm_M86_K12	M75_D01	60mm_M49A3_J11	In204_0472
1410	757424.347	3638203.329	1	0.9996	0.86	-28.7	34	O	2.75in_M230_K10	155mm_M483A1_H04	105mm_M60_J05	In57inv29
1411	757462.041	3638400.824	1	0.9997	0.2	16.6	-18.3	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	In243inv16
1412	757558.127	3638452.553	1	0.9997	0.03	50.6	2.9	O	105mm_M60_L05	105mm_M456_Heat_pit	155mm_M483A1_H04	In292inv4
1413	757570.195	3638264.86	1	0.9997	0.03	-122.5	-4.6	O	105mm_M456_Heat_B06	105mm_M60_L05	81mm_M374_D02	In103inv14
1414	757518.883	3638180.545	1	0.9997	0.75	151.8	-56.2	O	105mm_M456_Heat_B06	105mm_M60_L05	155mm_M483A1_J04	In31inv19
1415	757523.88	3638308.997	1	0.9997	0.48	88.4	-1.7	O	105mm_M456_Heat_B06	105mm_M60_J05	155mm_M483A1_J04	In146inv24
1416	757597.94	3638398.761	0.99908	0.9997	0.81	-179.9	-51.7	O	81mm_M374_C02	2.75in_M230_L10	105mm_M456_Heat_B06	In235inv24
1417	757479.303	3638264.308	1	0.9997	0.17	-17.6	-63.3	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_pit	In103inv2
1418	757577.974	3638472.718	1	0.9997	0.44	82.9	-26.7	O	105mm_M60_B05	105mm_M456_Heat_D06	155mm_M483A1_J04	In312inv12
1419	757609.977	3638344.866	1	0.9997	0.21	31.1	-56.9	O	81mm_M374_F02	105mm_M456_Heat_B06	105mm_M60_L05	In180inv2
1420	757524.314	3638236.717	1	0.9997	0.34	-142.4	-40.4	O	60mm_M49A3_K11	2.75in_M230_M10	57mm_M86_L12	In90inv8
1421	757539.464	3638293.043	0.99999	0.9997	0.18	-133.1	-32.3	O	M42_L03	BLU-26_M13	M75_D01	In129inv11
1422	757543.47	3638265.503	1	0.9997	0.28	4.2	-35.5	O	57mm_M86_L12	M75_D01	2.75in_M230_M10	In103_1608
1423	757459.453	3638188.507	1	0.9997	0.5	33.9	9.8	O	2.75in_M230_K10	105mm_M60_B05	155mm_M483A1_H04	In41inv35
1424	757487.799	3638466.563	1	0.9997	0.23	-89.8	11.6	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_B06	In309inv10
1425	757476.651	3638509.205	0.98007	0.9997	0	62	-16.3	O	60mm_M49A3_pit	MK118_Rockeye_I01	81mm_M374_A02	In350_1763
1426	757489.087	3638259.453	1	0.9998	0.25	97.5	-75.1	O	M42_L03	BLU-26_M13	M75_D01	In114inv9
1427	757508.633	3638173.149	1	0.9998	1.01	-178.5	-35.1	O	105mm_M456_Heat_L06	155mm_M483A1_H04	105mm_M60_H05	In24inv13
1428	757497.765	3638436.572	1	0.9998	0.34	-36.3	-27	O	105mm_M60_L05	105mm_M456_Heat_D06	155mm_M483A1_J04	In277inv17
1429	757490.372	3638444.975	1	0.9998	0.11	55.5	-7.1	O	105mm_M60_J05	105mm_M456_Heat_B06	155mm_M483A1_H04	In286inv27
1430	757599.804	3638378.458	1	0.9998	0.46	49.8	-82.6	O	105mm_M456_Heat_pit	105mm_M60_J05	155mm_M483A1_J04	In215inv19
1431	757584.787	3638280.689	0.94544	0.9998	0.02	165.9	-12.8	O	BLU-26_M13	40mm_MKII_A03	M75_A01	In118_0118
1432	757576.487	3638268.788	0.92157	0.9998	0.2	-104.1	-5.4	O	40mm_MKII_E03	37mm_M09	60mm_M49A3_K11	In103_0498
1433	757501.047	3638290.563	1	0.9999	0.02	150.4	19.8	O	40mm_M385_L14	BDU-28_I02	MK118_Rockeye_M01	In128inv8
1434	757588.926	3638417.635	0.99999	0.9999	0.62	119	-72.7	O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_J04	In255inv10
1435	757447.552	3638230.392	1	0.9999	0.63	-144.9	25.1	O	105mm_M456_Heat_D06	105mm_M60_L05	155mm_M483A1_J04	In84inv40
1436	757470.235	3638364.744	1	0.9999	0.59	121.9	-47.6	O	105mm_M456_Heat_J06	105mm_M60_F05	81mm_M374_F02	In206inv25
1437	757518.11	3638462.992	1	0.9999	0.2	66.2	-67.9	O	105mm_M456_Heat_B06	105mm_M60_L05	155mm_M483A1_H04	In304inv8
1438	757527.804	3638476.354	1	0.9999	0.26	-32.3	-25.3	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In317inv23
1439	757479.298	3638359.449	1	0.9999	0.15	96.7	-46.1	O	40mm_MKII_F03	37mm_M09	57mm_M86_L12	In199inv16
1440	757528.216	3638328.505	1	0.9999	0.23	155.4	-10.7	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_pit	In166inv11
1441	757521.785	3638194.155	1	0.9999	0.07	28.2	-78.3	O	20mm_M55_M15	57mm_M86_L12	M42_K03	In46inv40

1442	757537.114	3638215.525	1	0.9999	0.06	14.6	-76.6	O	20mm_M55_M15	57mm_M86_L12	M42_K03	In068inv19
1443	757468.011	3638285.561	1	0.9999	0.14	142.6	-43.2	O	105mm_M456_Heat_L06	155mm_M483A1_H04	105mm_M60_L05	In125inv14
1444	757466.728	3638315.001	1	0.9999	0.14	164.8	-66.4	O	57mm_M86_M12	M75_B01	2.75in_M230_M10	In154_1046
1445	757491.021	3638381.407	1	0.9999	0.19	-141.8	25.2	O	105mm_M456_Heat_B06	105mm_M60_J05	155mm_M483A1_J04	In222inv18
1446	757509.595	3638252.521	1	0.9999	0.35	-97.7	-8.5	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	line106inv7
1447	757449.097	3638275.202	1	1	0.81	-88.8	8.3	O	105mm_M60_L05	105mm_M456_Heat_D06	155mm_M483A1_J04	In115inv9
1448	757482.943	3638392.556	1	1	0	-111.8	0.9	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_L02	In233inv16
1449	757435.463	3638260.031	1	1	0.09	-37.6	-31.1	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_J05	In103inv9
1450	757510.067	3638331.361	1	1	0.15	174	-62.9	O	M42_H03	BLU-26_M13	M75_D01	In168inv13
1451	757513.411	3638452.786	1	1	0.02	125.1	30.8	O	20mm_M55_J15	M42_K03	57mm_M86_L12	In294X_0602
1452	757569.707	3638264.327	1	1	0.07	63.2	-4.9	O	105mm_M456_Heat_B06	105mm_M60_L05	81mm_M374_D02	In120inv10
1453	757481.866	3638312.769	0.98675	1	0.17	101.5	-30.1	O	40mm_M385_M14	BDU-28_I02	MK118_Rockeye_M01	In152inv40
1454	757564.707	3638274.795	1	1	0.12	-75.1	-85.3	O	M42_I03	BLU-26_M13	37mm_H09	In110_0198
1455	757486.594	3638362.381	1	1	0.32	-162.9	-73.8	O	40mm_MKII_D03	37mm_K09	57mm_M86_L12	In202inv16
1456	757574.297	3638283.453	1	1	0.19	141.4	-72.9	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In119_1083
1457	757457.502	3638382.844	1	1	0.05	40.6	-39.4	O	20mm_M55_L15	40mm_MKII_pit	M42_I03	In225inv18
1458	757500.022	3638306.647	0.98012	1	0.14	-135.9	-61.7	O	40mm_M385_M14	BDU-28_I02	MK118_Rockeye_M01	In145inv11
1459	757517.494	3638242.236	1	1	0.52	121.2	-9.2	O	105mm_M456_Heat_D06	105mm_M60_L05	155mm_M483A1_J04	In96inv23
1460	757475.787	3638460.882	1	1	0.36	-3	2.2	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_H04	In303inv9
1461	757477.599	3638474.693	1	1	0.21	127.8	-86.2	O	MK118_Rockeye_J01	BDU-28_J02	M75_B01	In317inv17
1462	757496.867	3638284.786	1	1	0.09	44.1	33.7	O	40mm_M385_M14	MK118_Rockeye_M01	BDU-28_I02	In123_0373
1463	757600.052	3638405.394	1	1	0.27	-114.6	-48.4	O	40mm_MKII_F03	37mm_M09	57mm_M86_L12	In242inv1
1464	757542.993	3638287.468	0.96262	1	0.11	-162.1	-9.4	O	40mm_MKII_A03	M75_A01	M42_J03	In124_0354
1465	757483.084	3638321.877	0.99858	1	1.09	-54.3	31.5	O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_J04	In161inv32
1466	757487.984	3638326.728	1	1	0.04	-64.5	-47.8	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	In165inv21
1467	757528.311	3638265.653	1	1	0.81	89.1	-55.8	O	155mm_M483A1_B04	105mm_M456_Heat_pit	105mm_M60_B05	In103_0871
1468	757546.474	3638308.82	1	1	0.08	65.1	-84.9	O	M42_I03	BLU-26_M13	37mm_H09	In145_0693
1469	757590.649	3638481.353	1	1	0.26	19.4	-75	O	105mm_M60_B05	105mm_M456_Heat_B06	155mm_M483A1_J04	In320inv3
1470	757483.586	3638242.14	1	1	0.09	67.4	-57.3	O	40mm_MKII_F03	37mm_M09	57mm_M86_L12	In96inv26
1471	757538.058	3638298.023	0.96792	1	0.33	92.8	-84.7	O	MK118_Rockeye_M01	BDU-28_H02	40mm_MKII_E03	In135inv11
1472	757452.134	3638386.809	1	1	0.47	7.4	36.2	O	105mm_M456_Heat_L06	105mm_M60_L05	155mm_M483A1_H04	In229inv9
1473	757581.461	3638254.276	1	1	0.14	-172.4	-21.6	O	20mm_M55_J15	57mm_M86_L12	M42_K03	In109inv12
1474	757533.781	3638233.102	1	1	0.18	88.6	-55.5	O	105mm_M60_L05	105mm_M456_Heat_B06	155mm_M483A1_J04	In87inv10
1475	757551.728	3638435.011	1	1	0.15	-61.8	-77.8	O	40mm_MKII_F03	37mm_M09	57mm_M86_L12	In274inv10
1476	757608.843	3638407.042	1	1	0	-43.7	-10.3	O	57mm_M86_L12	M42_K03	37mm_I09	In243_1822
1477	757493.106	3638301.026	1	1	0.21	170.4	-74	O	105mm_M60_L05	155mm_M483A1_J04	105mm_M456_Heat_D06	In139_0358
1478	757469.63	3638195.3	1	1	0.11	-93.2	-51.4	O	20mm_M55_I15	M42_K03	57mm_M86_L12	In48inv14

1479	757488.825	3638193.63	1	1	0.15	92	-54.6	O	40mm_MKII_F03	37mm_M09	57mm_M86_L12	ln46inv43
1480	757473.305	3638250.684	1	1	0.35	-60.5	-54.9	O	105mm_M60_L05	105mm_M456_Heat_D06	155mm_M483A1_J04	ln105inv24
1481	757475.688	3638297.488	1	1	0.24	27.9	-14.4	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_B06	ln135inv23
1482	757594.343	3638290.354	1	1	0.02	44.2	-83.5	O	M42_L03	BLU-26_M13	M75_D01	ln125inv18
1483	757419.856	3638153.342	1	1	0	-41.3	-0.5	O	2.75in_M230_H10	60mm_M49A3_pit	57mm_M86_K12	ln7inv63
1484	757475.751	3638285.143	1	1	0.62	129.1	32.5	O	105mm_M60_L05	105mm_M456_Heat_D06	155mm_M483A1_H04	ln124inv11
1485	757475.801	3638454.79	1	1	0.55	-51.3	-33.6	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln297inv15
1486	757592.049	3638481.375	1	1	0.25	27.6	-72.9	O	105mm_M456_Heat_B06	105mm_M60_B05	155mm_M483A1_J04	ln320_0146
1487	757596.616	3638493.601	1	1	0.58	-6	-80.8	O	105mm_M60_L05	105mm_M456_Heat_D06	155mm_M483A1_J04	ln332inv1
1488	757475.46	3638208.155	1	1	0.72	5.2	38.1	O	155mm_M483A1_F04	105mm_M60_H05	105mm_M456_Heat_B06	ln61inv31
1489	757479.854	3638297.033	1	1	0.2	73.3	-20.2	O	105mm_M456_Heat_H06	155mm_M483A1_H04	105mm_M60_L05	ln136inv11
1490	757553.464	3638424.174	1	1	0.46	171.4	-33.3	O	60mm_M49A3_K11	2.75in_M230_M10	57mm_M86_J12	ln262_0697
1491	757610.306	3638418.332	1	1	0.29	67	-6.4	O	60mm_M49A3_K11	2.75in_M230_M10	81mm_M374_C02	ln254inv3
1492	757624.777	3638358.015	1	1	0	-74.3	-80.4	O	60mm_M49A3_K11	57mm_M86_L12	40mm_MKII_A03	ln193_1077
1493	757451.028	3638264.306	1	1	0.29	-24.8	-62.9	O	105mm_M456_Heat_pit	105mm_M60_L05	155mm_M483A1_J04	ln105_0124
1494	757463.54	3638215.775	1	1	0.56	-24.4	3.2	O	60mm_M49A3_K11	2.75in_M230_M10	57mm_M86_J12	ln069inv35
1495	757480.165	3638187.087	1	1	0.37	52.8	-55.4	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_B06	ln40inv10
1496	757431.608	3638341.173	1	1	0.04	74.9	28.6	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	ln182inv5
1497	757519.969	3638388.894	1	1	0.42	94.7	-51	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_D06	ln228_0975
1498	757523.472	3638256.172	0.99996	1	1.21	-90.5	32.7	O	105mm_M456_Heat_D06	105mm_M60_J05	155mm_M483A1_J04	ln110inv6
1499	757544.683	3638467.374	1	1	0.56	-141.8	10.4	O	105mm_M456_Heat_D06	105mm_M60_L05	155mm_M483A1_L04	ln308inv7
1500	757437.186	3638200.32	1	1	0.27	-121.3	-49.9	O	105mm_M60_L05	105mm_M456_Heat_D06	155mm_M483A1_H04	ln54inv60
1501	757483.198	3638335.139	0.58413	1	0.18	32.5	-82.8	O	57mm_M86_L12	M75_D01	60mm_M49A3_K11	ln175inv10
1502	757489.98	3638321.228	1	1	0.14	59.4	-88.2	O	155mm_M483A1_H04	105mm_M60_L05	105mm_M456_Heat_H06	ln160inv21
1503	757500.797	3638325.104	1	1	0.94	43.1	25.1	O	155mm_M483A1_J04	105mm_M60_L05	105mm_M456_Heat_D06	ln163inv2
1504	757524.146	3638265.436	0.99997	1	0.74	40	-77	O	105mm_M60_B05	155mm_M483A1_J04	105mm_M456_Heat_B06	ln103_0353
1505	757528.973	3638223.032	1	1	1.42	-109.4	-28.7	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_D06	ln77_1139
1506	757541.546	3638327.758	1	1	0.12	58.9	-47.8	O	40mm_MKII_E03	37mm_M09	60mm_M49A3_K11	ln165inv27
1507	757546.761	3638235.918	1	1	0.34	107.4	-72.2	O	155mm_M483A1_H04	105mm_M456_Heat_H06	105mm_M60_H05	ln90inv7
1508	757552.795	3638191.378	1	1	0.01	-35	-35.1	O	155mm_M483A1_D04	105mm_M60_J05	105mm_M456_Heat_H06	ln44_0005
1509	757571.497	3638309.03	1	1	0	-20.6	-69.5	O	40mm_MKII_E03	BDU-28_I02	MK118_Rockeye_M01	ln144inv12
1510	757583.399	3638266.385	0.87288	1	0.26	-1.1	32	O	57mm_M86_K12	81mm_M374_C02	2.75in_M230_M10	ln103_1977
1511	757597.822	3638314.693	0.99992	1	0.15	41.5	-61.3	O	20mm_M55_M15	57mm_M86_L12	37mm_I09	ln149inv21
1512	757609.147	3638368.872	1	1	0.13	126.4	-69.5	O	105mm_M456_Heat_L06	105mm_M60_H05	155mm_M483A1_H04	ln205inv34
1513	757425.71	3638420.942	0.9998	1	1	-169.9	-72.3	O	105mm_M60_J05	105mm_M456_Heat_pit	155mm_M483A1_H04	ln264inv13
1514	757431.354	3638246.223	1	1	0.72	31.6	-37.5	O	155mm_M483A1_L04	105mm_M60_H05	105mm_M456_Heat_B06	ln100inv9
1515	757431.544	3638379.37	1	1	0.13	-16.1	-89.3	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	ln222inv25

1516	757435.877	3638398.213	1	1	0.11	-28.5	-28.9	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	ln241inv13
1517	757438.142	3638223.213	0.00672	1	0.05	75.6	6.9	O	37mm_M09	M42_J03	40mm_MKII_E03	ln76inv22
1518	757438.2	3638195.866	0.99998	1	0.4	-25.1	-68.2	O	MK118_Rockeye_K01	BDU-28_H02	40mm_M385_I14	ln49inv21
1519	757440.572	3638362.981	0.99998	1	0.16	18.1	-52.4	O	40mm_M385_L14	BDU-28_L02	MK118_Rockeye_M01	ln205inv9
1520	757443.882	3638426.726	1	1	0.6	-53.9	-40.8	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln269inv6
1521	757449.797	3638437.017	1	1	0.09	-130.3	15.8	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	ln279inv5
1522	757449.935	3638216.515	1	1	0.89	97.5	-19.2	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln070inv51
1523	757452.264	3638437.198	1	1	0.42	-100.5	-46.3	O	155mm_M483A1_L04	105mm_M60_L05	105mm_M456_Heat_B06	ln280inv30
1524	757456.046	3638477.113	0.99999	1	0.21	176.5	-49.1	O	BDU-28_H02	MK118_Rockeye_K01	40mm_MKII_E03	ln320inv15
1525	757465.306	3638254.497	1	1	0.65	-40.5	-23	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln108inv8
1526	757467.389	3638234.351	1	1	0.16	-54.1	-78.1	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	ln88inv17
1527	757467.813	3638264.834	1	1	0.13	105.9	-9.6	O	BDU-28_I02	MK118_Rockeye_K01	40mm_MKII_E03	ln104data_inv2
1528	757467.849	3638450.803	0.99944	1	0.32	74.8	-83.8	O	MK118_Rockeye_M01	BDU-28_H02	40mm_MKII_E03	ln293_0288
1529	757468.234	3638382.538	1	1	0.07	113.4	-70.8	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	ln224inv18
1530	757470.806	3638463.432	0.99995	1	0.27	27.4	-82	O	MK118_Rockeye_K01	BDU-28_H02	40mm_MKII_E03	ln306inv13
1531	757476.701	3638259.753	1	1	0.11	97.1	-76.9	O	40mm_M385_L14	BDU-28_I02	MK118_Rockeye_M01	ln114inv8
1532	757482.125	3638385.273	1	1	0.3	-137	11.9	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_D06	ln226inv23
1533	757482.809	3638332.804	1	1	0.09	91.9	-50.8	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	ln172inv11
1534	757483.402	3638232.197	1	1	0.13	-169.7	22	O	BDU-28_H02	MK118_Rockeye_K01	40mm_MKII_E03	ln86inv53
1535	757485.843	3638491.856	0.9996	1	0.38	7.3	-46.2	O	MK118_Rockeye_pit	BDU-28_L02	40mm_MKII_E03	ln333_0502
1536	757486.549	3638198.363	1	1	0.09	-9.6	-35.9	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	ln51inv43
1537	757486.715	3638491.889	0.99135	1	0.36	6.2	-48.9	O	MK118_Rockeye_M01	BDU-28_L02	40mm_MKII_E03	ln333inv3
1538	757486.943	3638339.122	1	1	0.26	176.7	-14	O	BDU-28_H02	MK118_Rockeye_K01	40mm_MKII_E03	ln178inv7
1539	757487.614	3638332.525	1	1	0.05	-3.9	43.1	O	MK118_Rockeye_J01	BDU-28_J02	40mm_MKII_E03	ln171inv16
1540	757489.555	3638228.441	1	1	0.89	152.9	-73.1	O	155mm_M483A1_H04	105mm_M456_Heat_H06	105mm_M60_H05	ln82inv22
1541	757492.16	3638336.263	1	1	0.01	73.7	-65.1	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	ln175inv12
1542	757492.78	3638364.904	1	1	0.06	161.7	-82.7	O	BDU-28_I02	MK118_Rockeye_K01	40mm_MKII_E03	ln205inv22
1543	757492.945	3638333.699	0.99995	1	0.22	-162.2	-19.4	O	BDU-28_L02	MK118_Rockeye_K01	40mm_MKII_E03	ln172inv7
1544	757494.799	3638236.448	1	1	0.12	95.2	15.3	O	BDU-28_I02	MK118_Rockeye_K01	40mm_MKII_E03	ln90inv9
1545	757495.763	3638280.617	1	1	0.08	43.4	-45.9	O	40mm_M385_L14	BDU-28_I02	MK118_Rockeye_M01	ln119inv12
1546	757496.473	3638326.286	1	1	0.13	-25.6	-19.6	O	BDU-28_L02	MK118_Rockeye_K01	40mm_MKII_E03	ln165inv25
1547	757496.896	3638188.107	0.99981	1	0.14	170.5	-52.5	O	40mm_M385_I14	BDU-28_I02	MK118_Rockeye_M01	ln41inv39
1548	757498.374	3638284.866	1	1	0.05	-84	34.6	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	ln123inv13
1549	757498.414	3638306.522	0.9988	1	0.17	162.3	-63.6	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	ln145_0441
1550	757498.57	3638217.153	0.99999	1	0.34	-66.5	-46.1	O	MK118_Rockeye_L01	BDU-28_L02	40mm_MKII_E03	ln070inv43
1551	757499.467	3638191.908	1	1	0.2	-169.9	-4.8	O	40mm_M385_L14	BDU-28_I02	MK118_Rockeye_M01	ln44inv7
1552	757502.333	3638420.701	1	1	0.34	-34.6	33	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	ln261inv10

1553	757505.741	3638191.762	1	1	0.16	-166.8	11.4	O	40mm_M385_L14	BDU-28_I02	MK118_Rockeye_M01	In44inv6
1554	757506.086	3638451.021	1	1	0.15	-69.5	-80.9	O	BDU-28_K02	MK118_Rockeye_K01	40mm_MKII_E03	In292inv9
1555	757507.02	3638247.189	1	1	0.17	-165.3	-20.4	O	40mm_M385_M14	BDU-28_I02	MK118_Rockeye_M01	In101inv19
1556	757511.237	3638242.466	1	1	1.28	93.8	-74.9	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_D06	In96inv24
1557	757514.13	3638350.836	1	1	0.33	11.3	-13.6	O	155mm_M483A1_L04	105mm_M60_H05	105mm_M456_Heat_H06	In189inv10
1558	757520.206	3638330.612	1	1	0.77	-170.7	-39.1	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In168inv11
1559	757522.207	3638272.515	0.99999	1	0.08	128.1	-40.5	O	MK118_Rockeye_K01	40mm_M385_L14	BDU-28_H02	In111_0482
1560	757523.364	3638297.124	1	1	0	124.6	39	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	In134inv7
1561	757523.698	3638194.508	1	1	0.93	-38	-61.6	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In46inv38
1562	757523.765	3638206.055	1	1	0.92	-63.2	-48.2	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_D06	In58inv36
1563	757524.197	3638272.639	0.99999	1	0.07	-57.1	-35.3	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	In111_0497
1564	757525.294	3638161.682	1	1	0.17	128.9	-47.9	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	In12inv12
1565	757525.636	3638154.739	0.02092	1	0.26	42.8	-85.6	O	40mm_M385_L14	BDU-28_I02	M42_K03	In5inv49
1566	757525.952	3638163.829	0.08298	1	0.59	81.1	-74.9	O	81mm_M374_F02	2.75in_M230_M10	57mm_M86_M12	In14inv46
1567	757525.984	3638167.772	1	1	0.14	-30.6	-48.5	O	40mm_M385_L14	BDU-28_I02	MK118_Rockeye_M01	In18inv27
1568	757528.202	3638343.242	1	1	0.19	-113.1	-78.5	O	MK118_Rockeye_M01	BDU-28_H02	40mm_MKII_E03	In181inv1
1569	757528.919	3638251.599	1	1	0.05	-131	-61.3	O	40mm_M385_L14	BDU-28_I02	MK118_Rockeye_M01	In105inv22
1570	757529.328	3638204.298	1	1	0.12	-115.1	-13.9	O	BDU-28_H02	MK118_Rockeye_K01	40mm_MKII_E03	In57inv32
1571	757532.44	3638329.414	1	1	0.18	-43.2	-54.1	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	In166inv8
1572	757533.654	3638213.154	1	1	0.17	145.8	-21.8	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	In066inv14
1573	757533.927	3638345.159	0.97638	1	0.33	-129.6	-57	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	In183inv17
1574	757535.797	3638379.104	1	1	1.11	133.1	-13.1	O	155mm_M483A1_L04	105mm_M456_Heat_H06	105mm_M60_H05	In218inv5
1575	757536.345	3638276.744	1	1	0.03	10.1	-10.2	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	In113inv11
1576	757537.156	3638267.542	0.99997	1	0.17	13.8	-83.1	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	In104_0213
1577	757539.514	3638308.144	1	1	0.53	116.3	-76.3	O	155mm_M483A1_H04	105mm_M60_L05	105mm_M456_Heat_H06	In145inv13
1578	757541.545	3638439.865	1	1	0.24	20.5	-73.6	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	In279inv12
1579	757541.998	3638321.123	1	1	0.65	166.1	-86.5	O	155mm_M483A1_H04	105mm_M60_L05	105mm_M456_Heat_D06	In158inv11
1580	757544.065	3638417.359	1	1	0.26	-169.9	-45.1	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	In256inv21
1581	757546.594	3638285.968	1	1	0.1	133	-82.3	O	40mm_M385_L14	BDU-28_I02	MK118_Rockeye_M01	In122inv2
1582	757547.512	3638330.757	1	1	0.13	160.3	-80.5	O	MK118_Rockeye_M01	BDU-28_H02	40mm_MKII_E03	In168inv5
1583	757555.79	3638437.899	1	1	0.11	-44.6	-47.2	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	In277inv19
1584	757558.357	3638468.813	1	1	0.02	127.1	-21.4	O	BDU-28_L02	MK118_Rockeye_K01	40mm_MKII_E03	In308_0394
1585	757561.174	3638402.838	1	1	0	-57.9	-77.3	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	In241inv18
1586	757566.715	3638396.483	1	1	0.09	-57.2	-74	O	40mm_M385_L14	MK118_Rockeye_M01	BDU-28_I02	In234inv12
1587	757569.395	3638379.483	1	1	0.04	-108	-38.5	O	40mm_M385_L14	BDU-28_I02	MK118_Rockeye_M01	In217inv29
1588	757571.766	3638258.173	1	1	0.08	140.5	11.2	O	BDU-28_I02	MK118_Rockeye_K01	40mm_MKII_E03	In113inv11
1589	757573.423	3638294.738	1	1	1.08	96.4	-18.2	O	155mm_M483A1_L04	105mm_M60_H05	105mm_M456_Heat_H06	In1302

1590	757579.624	3638295.551	1	1	0.14	96.6	-55.7	O	BDU-28_I02	MK118_Rockeye_K01	40mm_MKII_E03	In131inv14
1591	757580.387	3638251.594	1	1	0.11	102	32.2	O	BDU-28_L02	MK118_Rockeye_K01	40mm_MKII_E03	line107inv17
1592	757588.36	3638327.423	1	1	0.8	-12.9	-76.7	O	155mm_M483A1_J04	105mm_M60_H05	105mm_M456_Heat_H06	In162inv16
1593	757591.889	3638320.44	1	1	0.2	-35.1	-50.8	O	155mm_M483A1_J04	105mm_M60_L05	105mm_M456_Heat_H06	In155inv38
1594	757593.974	3638338.975	1	1	0.05	-10.9	-68.5	O	BDU-28_M02	MK118_Rockeye_K01	40mm_MKII_E03	In174inv2