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In conducting this research, the investigator(s) adhered to the "Guide for the Care and Use of Laboratory Animals," prepared by the Committee on Care and Use of Laboratory Animals of the Institute of Laboratory Animal Resources, National Research Council (NIH Publication No. 86-23, Revised 1985.

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Anesthetized sheep were exposed to explosions generated by the detonation of various weights of C-4 ranging in size from 57 to 1361 g in three different enclosures. The dimensions of the enclosures were 3.05 x 1.52 x 2.44 m, 3.05 x 2.44 x 2.44 m, and 4.88 x 3.05 x 2.44 m or 11.3, 18.2, and 36.3 m^3, respectively. The results from these experiments were used to establish an injury prediction curve using severity of injury indices and smoothed peak pressure. It appears to be an adequate model for the data collected and correlates well with previously reported injury prediction curves. It was determined that quasi-static pressure per se doesn't influence non-auditory injury to any appreciable degree. However, changes in the quasi-static pressure can affect the reverberant nature of the complex wave which seems to have a role in solid intra-abdominal response. There was also a simple relationship between lung injury and loading density demonstrated. As loading density increases, lung injury increases.

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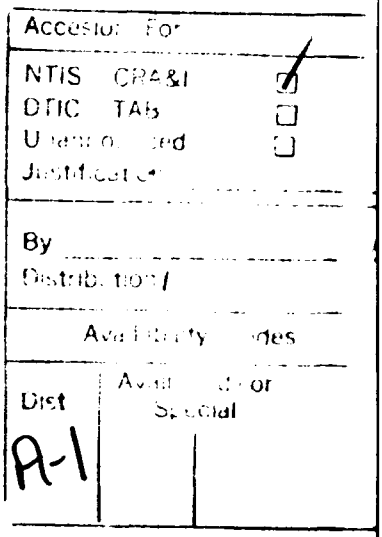

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TASK ORDER 2

DAMD-17-88-C-8141

BLAST OVERPRESSURE STUDIES WITH ANIMALS AND MAN

SUBTITLE: NONAUDITORY EFFECTS OF COMPLEX BLAST WAVES ON SHEEP IN THREE DIFFERENT ENCLOSURES

INTRODUCTION

This report describes the results of studies undertaken to establish the damage-risk criteria for non-auditory blast injury for personnel exposed to complex blast waves. Sheep were used to determine the non-auditory injury levels associated with various resonant blast waveform intensities generated in three different enclosure volumes. The studies were conducted by EG&G Special Projects at the Blast Overpressure Test Site, Kirtland AFB, NM.

Background

Previous auditory and non-auditory damage risk criteria have been based on exposure of soldiers to approximately ideal blast waves. Tolerance to these ideal blast waves depends upon the peak overpressure and the positive phase duration of the overpressure.[1] However, the actual exposure environment in many situations is of a more complex nature. For example, the back blast of a large caliber weapon fired from an enclosure produces a reverberant wave

that may cause a variety of biological effects. They may range from transient auditory effects to gross hemorrhagic changes in the lungs, upper respiratory tract, and gastroenteric tract. The extent to which these effects are exacerbated by the complexity of the reverberant wave has not been adequately defined.

Swedish investigators found that complex blast waves resulting from firing a recoilless weapon from inside an enclosure produce lung injury in rabbits at one-fifth the peak overpressure required for a simple wave.[2] It was suggested that the frequency content of the complex wave matched the natural frequency of the rabbit's thorax resulting in injury at peak overpressures as low as 40 kPa.

Further studies were conducted to determine if resonance effects could be demonstrated in a complex wave environment with a larger animal species.[3] Anesthetized sheep were exposed to bare C-4 charges detonated inside the passenger compartment of an M59 armored personnel carrier (APC). The compartment volume was 8.7 m^3. The results demonstrated that there were more severe injuries to the respiratory tract, lungs, and gastroenteric tract in subjects exposed to 227- and 454-g charges inside the APC than to the those subjected to the same conditions in the open. In addition, it was found that sheep at either the 0.9- or 1.2-m ranges sustained about the same amount of injury even though the incident overpressure varied by a factor 2.

A limited number of tests were conducted in a 17.3 m^3 (3.0 x 2.4 x 2.4 m) bunker.[4] A total of 18 sheep were subjected to single explosive events at various locations inside the chamber. All

animals were anesthetized during testing and maintained in that state until necropsy from 1 to 3 hours later. They were exposed two at a time at 0.9, 1.2 or 1.4 m from a 227-,454- or 1361-g charge detonated at a 1.2-m height-of-burst. All charges were initiated in the center of the chamber. The blast vented through an 82.6 x 15.2-cm opening at the base of the bunker door. For each exposure, the subjects were placed in cotton webbing harnesses and suspended vertically from the ceiling at a height of 1.2 m from the floor as measured to their xiphisternums. They were oriented right-side-on to the charge except for two tests in which the animals were face-on.

Six additional sheep were also exposed three at a time outdoors on a concrete pad to 454-g charges detonated at a 1.2-m height-of-burst to compare to the injury levels sustained by the sheep blasted in the bunker. On each test, two sheep were suspended vertically 1.2 m from the pad and oriented right-side-on at 0.9 or 1.2 m from the charge by means of an overhead pipe-frame-rigging. The third sheep was placed against the concrete pad with its right side 0.9 m from the charge to simulate a subject against the wall of the bunker.

Pressure-time histories were recorded at two locations during each explosive event using a freefield gauge and an instrument cylinder fitted with four transducers at 90 degree intervals around its midsection. One of the sheep was also instrumented with one intraesophageal gauge and one external gauge mounted on its right side at 1.2 m from the ground.

There were negligible amounts of damage in the animals exposed to 227-g charge detonations. The lung/body weight percentages ranged from 0.74 to 0.94. The sheep subjected to 454-g C-4 explosions sustained blast lesions to the upper respiratory tract, lungs, and G.I. tract out to the 1.4 m range. Overall there were significant amounts of upper respiratory tract and G.I. tract injury at all ranges for the bunker sheep and generally more extensive than that seen in the subjects exposed outdoors. This is particularly true for those that were at the 0.9 and 1.4 m ranges in the chamber. In the enclosure, lung/body weight percentages ranged from 0.75 to 1.04 with the extent of the lung hemorrhage becoming less severe with increasing range. The range of 0.87 to 1.02 for the sheep blasted outdoors was essentially the same as the range recorded for the sheep in the enclosure. It is interesting to note that on all the 454-g charge detonations in the enclosure, the peak intra-thoracic pressures recorded were approximately the same whether or not the animals were 0.9 or 1.2 m from the detonation and more than a factor of three higher than those recorded for the same ranges outdoors. They ranged from 237.4 to 252.3 kPa for four shots in the bunker whereas the peak values for the two sheep monitored at 0.9 and 1.2 m outdoors were 68.9 and 57.9 kPa respectively. Lung lesions did tend to be bilaterally distributed in the bunker animals whether they were against a wall or not and in the animals outdoors laying on the concrete. Whereas the lung hemorrhage was confined to the right lung exclusively in the sheep exposed right-side-on to the explosion outdoors in the

freefield. The two animals exposed to the 1361-g explosion sustained extensive amounts of injury and were killed by the blast. The lung/body weight percent for the sheep that had been 0.9 m from the blast was 2.80 and the value for the one that had been at 1.2 m was 2.29. There would be no lethality associated with detonating the same weight of charge in the open at the same ranges.

The results of this study suggested that for small charges detonated in the center of a chamber, the amount of lung hemorrhage produced was primarily dependent upon the "incident" wave even though the reflected shocks had the additive effect of increasing the ITP by a factor 3 or more. The upper respiratory tract and gastroenteric injuries extending out to 1.4 m without a change in severity in the enclosure animals indicated that there was also an interaction between reflected waves and the various gas volumes in the gut and upper respiratory tract. The bunker collapsed during subsequent tests precluding any further use of the structure.

A variable volume all-steel enclosure was constructed to replace the collapsed bunker. This report is the result of studies conducted in the variable volume all-steel enclosure incorporating two protocols. The first protocol included two interim reports.[5,6] There was a review of the literature which compared the effects of classical Friedlander waves with complex blast waves entitled "Effects of complex blast waves literature review" and a data report of the pathology results from the 3.05 x 2.44 x 2.44-m enclosure configuration. The second protocol was designed around 4.88 x 3.05 x 2.44-m and 3.05 x 1.52 x 2.44-m chamber sizes as well

as some orientation effects experiments done in the freefield to compare with the enclosure results. It also included a data report of the pathology results from these two chambers and the freefield experiments.

OBJECTIVES

There were seven basic objectives to this report.

1. To determine if the pressure-time parameters recorded in a chamber are altered when the volume and geometry of the chamber is changed by the addition of animals.
2. To determine injury levels as a function of range and charge weight in sheep exposed to single bare H.E. charge detonations in a 3.05 x 2.44 x 2.44-m enclosure for correlation with specific parameters of the complex blast wave.
3. To compare the injuries produced by a single bare charge detonation to those caused by the pressure-time patterns generated by the simulation of a jet from a shaped charge penetrating an armored vehicle.
4. To investigate the relative importance of the quasi-static pressure rise component of complex waves in producing trauma by varying the vent area of the enclosure from one of the charge-target configurations of objective 1.
5. To determine injury levels as a function of range and charge weight in sheep exposed to single bare H.E. charge

detonations in a 4.88 x 3.05 x 2.44-m enclosure for correlation with specific parameters of the complex blast wave.

6. To determine injury levels as a function of range and charge weight in sheep exposed to single bare H.E. charge detonations in a 3.05 x 1.52 x 2.44-m enclosure for correlation with specific parameters of the complex blast wave.

7. To correlate the results from the various enclosure volumes with those from other studies to determine the extent of the relationship of blast injury level to charge weight and enclosure volume.

METHODS

The same basic approach was used throughout the study. Sheep were exposed at various distances from bare, spherical charges of C-4 explosive detonated at a 1.22-m height of burst, as measured to the center of the charges, inside the variable volume all-steel enclosure illustrated in Figure 1 or outdoors on a concrete pad. Two to three sheep at a time were placed in cotton webbing harnesses and suspended 1.22-m from the floor of the chamber or the concrete pad as measured to the xiphisternum. Except for the variations which will be noted, all tests were done with the sheep right-side-on to the blast.

Protocol One

Objectives 1, 2, 3, and 4 were addressed during protocol one. All of the tests were conducted with the enclosure configured to its 3.05 x 2.44 x 2.44-m (18.2-m^3) dimensions.

Objective 1. Pressure-Time Parameters

The pressure-time environment was recorded without animals for each of the configurations illustrated in Figures A-1 through A-19 of Appendix A and charge weights indicated in Table 1 for comparison to the waveforms produced when the sheep were placed in the chamber. There was some concern that the rate of rise of the quasi-static pressure and maximum pressure achieved might change significantly with introduction test animals.

Objective 2. Injury Levels

Three conditions of charge placement were used for which the inertia vents were allowed to open as the quasi-static pressure rose in the chamber.

These tests provided the baseline dose-response data for correlation with specific parameters of the complex blast waves and were designed to establish the relative importance of subject location with respect to the walls of the chamber in injury production.

Pressure-time parameters were measured at points that corresponded to animal positions on each shot. Gauge and/or animal locations were varied from configuration to configuration.

Condition 1. Charges in Center of Room

As indicated in Table 1, the bulk of the experimental effort was done with the entry door closed, inertia vents unlocked, and the explosives detonated in the center of the room. Seven different charge-target geometries, illustrated in Figures A-1 through A-7 (configurations A-1 through A-7) of Appendix A, were used to subject 72 sheep to blasts at ranges of 0.91, 1.22, and 1.43 m and various locations from 114-, 227-, 454-or 907-g explosive detonations. There were six animals per range for a total of 18 at each charge weight.

Condition 2. Charges in the Corner

The complex waves that were generated from the center of the chamber were varied by initiating the explosions in one corner of the enclosure as illustrated in Figures A-8 through A-12 (configurations A-8 through A-8/5) of Appendix A. As indicated in Table 1, a total of 18 sheep were exposed three at a time at 0.91, 2.01, and 2.99 m, respectively from individual detonations. Fifteen of the animals were exposed to 454-g C-4 blasts and three were subjected to 907-g blasts.

Condition 3. Charges Against Wall

Another variation in complex wave shape was achieved by initiating 454-g explosives against the midpoint of the short wall of the enclosure as illustrated in Figures A-13 through A-15

(configurations A-8 through A-8/5) of Appendix A. Pressure-time contours and sheep injury levels were recorded at 1.71 and 2.71 m in addition to those at 0.91 m. As indicated in Table 1, a total of 18 subjects were tested three per shot at each of the above ranges.

As seen in the figures, the sheep at 1.71 and 2.71 m were not right-side-on to the explosion. These charge-target configurations were used in the following jet simulation experiment in which all of the subjects were at least partially side-on to one of the charges. This allowed a direct comparison of the injuries sustained from a unilateral complex wave exposure to those incurred from a bilateral insult.

Objective 3. Jet Simulation

The jet produced by a high explosive antitank round produces a complex blast overpressure environment as it passes through an armored vehicle or an enclosure by creating explosions at both its entry and exit points. As illustrated in Figures A-16 and A-17 (configurations A-10 and A-17) of Appendix A, these events were simulated by exploding two C-4 spheres, each centered against a wall and directly opposite each other at either end of the chamber. As presented in the Table 1, 12 sheep were subjected two at a time to two 227-g C-4 spheres detonated simultaneously or to a 227-454-g charge combination detonated simultaneously. Both arrays were initiated electrically with Reynolds RP-83® exploding bridge-wire detonators. For each shot, one sheep was in a corner at both 0.91

or 2.71 m from the C-4 depending upon which charge was used as a point of reference. It was right-side-on to the explosive at 0.91 m and face-on to the one at 2.71 m. The other subject was placed with its back against the wall equidistant at 1.71 m from the two charges.

Objective 4. Quasi-Static Pressure Elimination

As indicated in Table 1 and illustrated in Figures A-18 and A-19 (configurations B-9 and B-9/2) of Appendix A, two tests with three animals each were conducted to estimate the importance of quasi-static pressure rise in injury production. The inertia vents and chamber door were left open to eliminate the quasi-static pressure. The results from these tests were compared with those from configurations A-9 and A-9/2 in which the vents were left open.

Protocol Two

Objectives 5, 6, and 7 were addressed during protocol two. The majority of the tests were conducted with the enclosure configured to chamber sizes of 4.88 x 3.05 x 2.44 m (36.3 m^3) and 3.05 x 1.52 x 2.44 m (11.3 m^3). A limited number of animals were also exposed to blast outdoors in the freefield for comparison with the results obtained in the 4.88 x 3.05 x 2.44-m room. They were also done to demonstrate the extent that orientation with respect to the blast wave influences animal response.

Objectives 5 and 6. Injury levels

All tests were done with the entry door closed, inertia vents unlocked and the explosives detonated in the center of the room.

Condition 1. 4.88 x 3.05 x 2.44-m Room

As indicated in Table 2, 75 animals were tested in the 4.88 x 3.05 x 2.44-m chamber. Figures A-20 through A-25 (configurations C-1 through C-1/4) of Appendix A illustrate the relative positions of the sheep and pressure-time gauges with respect to the charge. There were five shots and five sheep per exposure distance for a total of 15 subjects per explosive weight. The exposure distances were 1.22, 2.13 and 2.44 m from 57-, 113-, 454-, 907-, and 1361-g C-4 detonations. The positions of the freefield gauges and instrumentation cylinder were varied from shot-to-shot to facilitate correlation of injury level with the pressure-time environment.

Condition 2. 3.05 x 1.52 x 2.44-m Room

As indicated in Table 2 another 45 sheep were used in the 3.05 x 1.52 x 2.44-m chamber. Figures A-26 through A-29 (configurations D-1 through D-1/4) of Appendix A illustrate the relative positions of the sheep and pressure-time gauges with respect to the charge. Fifteen subjects each were exposed to the detonations of three different weights of explosives at three different distances. C-4 spheres weighing 113, 227, and 454 g were exploded at exposure distances of 0.91, 1.2, and 1.4 m. As

in Condition 1, the positions of the freefield gauges and instrumentation cylinder were varied from shot to shot to facilitate the correlation of the pressure-time histories with injury levels.

Condition 3. Freefield orientation effects

As indicated in Table 2, an additional 22 sheep were exposed to blast outdoors in the freefield on a concrete pad. The relative positions of the sheep and pressure-time gauges with respect to the charge are illustrated in Figures A-30 through A-35 (configuration C-2 through C-7) of Appendix A. Twenty animals were exposed two-at-a-time in one of five different orientations 1.2 m from a 1361-g explosive detonation. Four animals each were tested right-side-on, left-side-on, face-on, back-on and at 45 degrees with respect to the detonations. Two additional animals were exposed right-side-on at 2.44 m from a 1361-g explosion. Both the sheep and the charges were suspended 1.22 m from the concrete to simulate the 4.88 x 3.05 x 2.44-m enclosure configurations.

Objective 7. Loading Density Comparisons

The blast injuries sustained in the three enclosures were correlated with the charge weight required to produce a particular level of injury in a given enclosure volume. These results were compared with those obtained from previous studies.[7]

Test Enclosure

As illustrated in Figure 1, the basic test structure was a 4.88 x 3.05 x 2.44-m rectangular box with a bolted-on, two piece, removable roof. It was constructed from 2.5-cm-thick steel plate surrounded by a framework of 25.4-cm, wide-flange I-beams set on 61-cm centers. Instrumentation ports were placed at the base of two walls to allow insertion of shielded gauge lines up to 2.5 cm in diameter. There were also transducer ports in the center of at least three of the four walls for each configuration.

The volume of the enclosure was changed by either moving or removing a partition wall on the inside of the enclosure. Three different enclosure sizes were used during the study and designated as configurations A, B, C, and D. For configurations A and B the chamber was 3.05 x 2.44 x 2.44 m (18.2 m^3), for C it was changed to 4.88 x 3.05 x 2.44 m (36.3 m^3), and for D it was 3.05 x 1.52 x 2.44 m (11.3 m^3). A turbine ventilator was mounted on one of the roof sections. The ventilator was fitted with a blast valve that was closed during an explosive event. The valve was opened and the ventilator fan turned on after an explosion to exhaust the hot gases and smoke. This same roof section was also fitted with a 174 x 30-cm inertia vent that was covered by two 79 x 42-cm-weighted doors. Quasi-static pressure rise was regulated by restricting the venting rate, which was done by varying the mass of the doors, each of which weighed 161 kg for these experiments.

Animal Care

Female Columbia-Rambouillet cross sheep having body weights of approximately 41 to 50 kg were used throughout the study. They were treated for endoparasites and their ears were sprayed with tick pesticide four days after arrival at the laboratory outdoor pens. The drinking water was also treated with terramycin powder at a rate of 0.6 g/liter for 2 weeks to help reduce the incidence of pulmonary complications.

The animals were maintained in one of four outdoor pens each of which had a portion with an overhead cover. One to two weeks prior to testing, the subjects were sheared in groups of 6 to 10, given a second application of tick spray, and moved to an indoor holding facility. They were kept in groups of 4 to 6 in pens with wood shavings on the floor. Food pellets were provided at a rate of 1 kg/head/day. Water was available ad libitum. Each test animal was fasted a minimum of 18 hours before a test.

On the morning of a test, the animals were harnessed, weighed and given a otoscopic examination to remove any obstruction from the ear canals prior to transport to the test site. The ear or ears that were to be protected were blocked with a selected earplug. Each sheep received a preanesthetic intramuscular (IM) injection of atropine sulfate (0.44 mg/kg) and xylazine (0.22 mg/kg) and was placed in its test position approximately 15 minutes prior to blast exposure. At 5 minutes before the test, each was anesthetized with an IM injection of ketamine hydrochloride (11 mg/kg) then exposed to blast.[8,9]

Pathology Scoring

The subjects were not allowed to recover from anesthesia. Starting at approximately one hour after blast exposure, one sheep at a time was given an IM injection of ketamine hydrochloride (22 mg/kg), exsanguinated by severing the jugular veins and carotid arteries, and necropsied. Each animal was assessed for injuries using an alphanumeric scoring system. External lesions, fractures, burns, and trauma to the pharynx/larynx, trachea, lungs, heart, hollow abdominal organs, and solid abdominal organs were assigned individual numerical scores based on the severity of the lesion. The various lesions were also graded trace, slight, moderate, or extensive depending upon their severity. For example, the pharynx/larynx, trachea and lung lesions were graded negative for no injury, trace for minimal petechial lesions, slight for small isolated hemorrhages, moderate for areas of confluent hemorrhage and extensive for large areas of deep confluent contusion involving more than 30 percent of the organ. In some extensive upper respiratory tract cases, hemorrhage and edema reduced the lumen diameter of the organ making it difficult to breath. In subjects with extensive lung hemorrhage, confluent parenchymal hepatization with bleeding into the bronchi and trachea was present. The gastrointestinal (GI) tract was scored negative for no injury, trace for minor contusions with intact mucosa with no more than two gut layers or two organs involved with the contusions distributed over an area of less than 10 cm^2, slight for scattered contusions

generally distributed over an area of 10 cm^2 with mucosal ulcerations, moderate for multiple transmural contusions with mucosal ulcerations encompassing more than 10 cm^2 surface area, and extensive for large areas of transmural contusions with concomitant perforation of the gut wall. Solid intra-abdominal organ injuries were graded negative for no injury, trace for small subcapsular contusions or hematomas involving less than 10 percent of one or two organs, slight for subcapsular contusions or hematomas involving less than 30 percent of one or more organs with slight tears in the organ possible, moderate for deep tears in the liver and/or maceration of the spleen with up to 60 percent of the organ damaged, and extensive for deep tears in the liver and/or maceration of the spleen with more than 60 percent of the organ traumatized.

The alphanumeric pathology scoring system for the most commonly injured nonauditory organs is listed as follows:

Pathology Scoring System

Severity	Lung	Phx/Lyx	Trachea	GI Tract	Intra-abdominal
Negative	0	0	0	0	0
Trace	1-4	1-4	1-4	1-4	1-4
Slight	5-21	5-16	5-18	5-18	5-18
Moderate	22-36	17-22	19-28	19-28	19-28
Extensive	37+	23+	29+	29+	29+
Maximum Possible	64	60	55	48	44

The ears were evaluated based upon the percentage of eardrum ruptured. An additional numerical score was given for each ear for the amount of eardrum damaged and ossicular chain involvement.

Each individual injury score was divided by its preassigned maximum possible score to arrive at a severity of injury ratio for that organ or system. The presence or absence and the extent of a pneumothorax, hemothorax, hemoperitoneum, coronary air or cerebral air were summed and added to the sum of the ratios. The resulting value was then multiplied by 1 or 2 depending upon whether the subject was a survivor or fatality to arrive at an adjusted severity of injury index by excluding the ear damage values from the sum of the ratios. Lethality would probably have been higher had the subjects been held for 24 hours after exposure. Some of the surviving test subjects sustained significant solid organ damage with concomitant hemoperitoneums and would probably have died overnight.

Instrumentation

Piezotronics (PCB) Model 102M152 or Model 102M165 piezoelectric pressure transducers as well as the instrumentation cylinder, provided by the Walter Reed Army Institute of Research (WRAIR) were used during the study. The instrumentation cylinder was fitted with four ablative coated PCB Model 102M125 gages at 90-degree intervals around its circumference and at the midpoint of its long axis. The 102M152's and 102M165's were used as side-on free air gauges mounted vertically with their sensing elements

pointing face-up or mounted face-on in one to two of the enclosure walls. A 1- to 2-mm-thick layer of temperature resistant, high vacuum grease impregnated with charcoal was coated on the sensing element of each of the free air gauges before each shot to mitigate any thermal or flash effects. Signals from the transducers were passed out of PCB inline voltage mode followers into power conditioners through Tektronix Model AM502 differential amplifiers unfiltered. Unfiltered signals were simultaneously recorded on an Ampex Model PR2230 dc to 80 khz FM tape recorder and digitized over 13 of 15 segments of 8k data points each at a 4 microsecond sample interval with a Pacific Instruments data acquisition system operating in conjunction with a Compaq Desk Pro Model 386/20e personal computer. The first two segments of the 15 were used to establish the baseline for the data array. The analog tape was kept for archival purposes. The digitized data was stored on 20 Mbyte Bernoulli disk cartridges and 1.4 Mbyte floppy disks for analysis using the blast data acquisition and analysis software developed for EG&G by Professional Computer Consultants. The data stored on the 1.4 Mbyte floppy disks was also sent the WRAIR for further analysis.

Data Analysis

Injury levels in terms of damage to specific organs and adjusted severity of injury indices were listed as a function of range and charge weight in the three enclosures and correlated with specific parameters of the complex blast waves of the type

illustrated in Figure 2. The blast analysis program calculated and generated a printed report of the various correlates from the pressure-time data recorded during each test. The parameters included in this report were the following:

1. Maximum Peak Pressure (P_{max}). The entire waveform was scanned to find the positive peak pressure in the data array as well as the time to peak.

2. Maximum Impulse (I_{max}). The maximum impulse was determined by integrating the complex wave to the point in time that the maximum value of the pressure-time curve was reached.

3. Smoothed Peak Pressure (P_{sm}). A smoothing routine was used to recalculate each pressure-time data array to emphasize the pressure associated with the maximum energy relative to the total duration of the reverberant wave. A 351 point fixed-size moving window which corresponded to a 175 point half window on either side of the data being operated on was used to derive P_{sm}. The resulting P_{sm} represents the peak value of the smoothed pressure-time history. Figure 3 illustrates the effect of the smoothing routine on Figure 2.

4. Average Peak Pressure (P_{20}). The average pressure was determined by summating the pressure pulses that exceeded twenty percent of P_{max} and dividing the sum by the number of pulses over the first 50 ms of the pressure-time recording. The resulting P_{20} is a square wave with a

duration of t_1 to t_n corresponding to the time interval between the first and last pressure pulse measured.

5. Average Impulse (I_{20}). The average impulse was calculated by taking the P_{20} square wave calculated above and multiplying it by the duration (t_n - t_1) arrived at in item 4 above.

6. Effective Impulse Power (EIP). The effective impulse power or energy in the first 20 ms of the complex reverberant wave was determined by taking the integral of the pressure squared over the first 20 ms of the pressure-time recording from t_0 to t_{20}

RESULTS

The experimental results from the two protocols were incorporated to facilitate presentation and are presented in the order of the objectives listed above. All of the tabulated pressure-time data are listed in Tables B-1 through B-51 of Appendix B. They are arranged in terms of enclosure size, gauge type, range and ascending order of charge weight within a table. Tables B-1 to B-14 are instrumentation cylinder pressure-time summaries for configuration A and B animal tests. Tables B-15 to B-25 relate to the "calibration shots" done without animals in the chamber. Side-on free air gauge summaries for configurations A and B with and without animals are listed in Tables B-26 to B-37. Wall gauge pressure-time values for configurations A-9 to B-9/2 with and

without sheep are given in Table B-38 and B-39. Animal gauge measurements for configurations A-1 to B-9/2 are tabulated in Table B-40. Configuration C and D instrumentation cylinder summaries for the animal tests are given in Tables B-41 to B-45 and Tables B-46 to B-50 respectively. The orientation experiment calculations are listed in Table B-51. The pathology data sheets which include the eardrum rupture evaluations are presented in Tables C-1 through C-2 of Appendix C. Tables 3 and 4 are summaries of the pressure-time measurements and pathology data from Appendices B and C. Table 3 relates to the protocol one results and Table 4 to protocol 2. These data are presented in terms of enclosure size, range, and ascending order of charge weight. Pmax, Psm, and EIP are listed for each group.

For this study the average blast load on the instrumentation cylinder for a given position in any of the enclosures or in the freefield was considered to be the blast dose to an animal exposed in the same equivalent location.

In most cases the average pressure-time values were calculated from the two side-on (numbers 1 and 2) and one back-on (number 4) of the instrumentation cylinder for each configuration, charge weight and range for correlation with the severity of injury indices of each exposure group. If there was more than one data set per location and configuration they were averaged together. The cylinder pressure-time values were also compared to the lung weight percent of body weight data from the 3.05 x 2.44 x 2.44-m enclosure. Gauge 3 of the instrumentation cylinder, was directly

face-on to the blast and the amplifier gain was set low to accommodate the reflected spike. The resulting records were of little value because of the poor resolution and were not used. There were a few exceptions in which gauge three was not directly facing the charge (configurations A-9/2, A-10/2 and B-10/2) and in these instances it was included in the average.

Pressure-Time Parameters

The instrumentation cylinder pressure-time data recorded in the 3.05 x 2.44 x 2.44-m enclosure for configurations A-1 through A-8/5 are presented as Table 5. Maximum and smoothed peak pressures as well as the maximum impulse values for shots with and without animals were listed side-by-side and grouped in ascending order of range and charge weight for configurations A-1 through A-7 for comparison. The data for the 454g detonations from arrangement A-8 and A-8/3 through A-8/5 were listed according to range. A linear regression analysis along with t-tests of significance of linearity and degree of correlation between x and y variables was done on the maximum pressure values for each group since they appeared to have the most scatter of the three listed parameters and are given in Table 5 also. There was little or no difference between the two sets of Pmax values except at the 1.22-m range. Most of the variability in the 1.22- m data was caused by the gauge that was against the wall and would have been little affected by an animal in the immediate vicinity of the instrumentation cylinder.

Injury Level Correlations

For the convenience of discussion, objective two of protocol one and objectives five and six of protocol two were grouped together under one heading. Linear regression analyses were done to correlate the severity of injury indices (SI) and the lung weight percent of body weight data in two cases with the various calculated pressure-time parameters from the three enclosures. Second order polynomials were derived to fit lines to the data points. The residual sum of squares, SS(res), were also calculated for each data set to indicate how well the equations for the lines explained the relationship among the variables. Additional simple regression analyses along with t-tests for linearity and x,y correlations were done to establish the levels of significance of the measurements.

3.05 x 2.44 x 2.44-m Enclosure

The severity of injury indices, pathology scores and the lung weight percent of body weight data along with the corresponding Pmax, Psm and EIP values for each group are presented in Table 3. Of the six pressure-time parameters (Pmax, Psm, Imax, P_{20}, I_{20} and EIP) chosen to correlate with the severity of injury indices Pmax, Psm, and EIP fit the best and are illustrated in Figures 4, 5 and 6. All three plots demonstrate significant linearity and x,y correlation and are statistically quite similar. There was so much

scatter associated with the lung weight measurements, that only the data points and the control lung weight percent body weight line are illustrated in Figures 7 and 8 for Psm and EIP respectively.

4.88 x 3.05 x 2.44-m Enclosure

As described above, the severity of injury indices, pathology scores, and the lung weight percent of body weight data along with the corresponding Pmax, Psm, and EIP values for each group are listed in Table 4. The regression analyses for Pmax, Psm and EIP are illustrated in Figures 9, 10 and 11 respectively. The severity index versus EIP plot is a better fit of the data than the Pmax or Psm comparisons. There were lethality reversals associated with both Pmax and Psm but not with EIP.

The injury evaluations from Table 4 for the sheep exposed to 1361- g charge detonations in different orientations in the freefield were compared to data from the same table for sheep exposed to the same charge weight detonations in the enclosure. This comparison is presented in Table 6. The most obvious difference between the sheep exposed in the enclosure and those animals exposed in the freefield to 1361- g charge detonations was that two of five and five of five of the animals exposed at 1.22 and 2.44 m respectively in the enclosure were killed and all of the freefield exposure animals survived. The Psm exposure doses produced by the 1361- g charge detonations were from 3 to 10 times higher at 1.22 and 2.44 m respectively in the enclosure than in the

freefield at the same ranges. The Scheffe' probability matrix derived from the one-way ANOVA of the severity indices indicated that exposure orientation exerted only a weak influence on animal response. This lack of influence is surprising but may be due to the small sample sizes and scatter in the data.

3.05 x 1.52 x 2.44-m Enclosure

Severity of injury indices, pathology scores and lung weight percent of body weight values are presented in Table 4. The regression analyses for Pmax, Psm and EIP are illustrated in Figures 12, 13 and 14. The severity indices versus EIP plot is a slightly better fit for the data than the Pmax or Psm comparisons. The distribution of EIP values as a function of range is more consistent.

Combined Enclosure Analyses

Findings for the severity of injury index versus Pmax, Psm, and EIP from the three different rooms were then grouped together and analyzed in terms of individual data points and mean values. The resulting regression analyses of the grouped means are illustrated in Figures 15, 16 and 17. In these comparisons, the severity indices plotted as a function of Psm appears to be the better fit for the combined volumes although all three demonstrate significant linearity and x,y correlation. The Pmax and EIP plots allow non-lethality at extremely high dose levels and Psm doesn't. With Psm, there is considerable separation between the highest non-

lethal point (350 kPa) and the highest exposure condition (550 kPa). In addition, the EIP plot allows severity index values of 0.78 and 0.99 (slight injury) below 20,000 kPa^2*ms. This results in a no injury band that is restricted to below 10,000 kPa^2*ms which is only a small portion (~1/17) of the total band.

Jet Simulation

Data collected from the dual charge detonation tests depicted in Figures A-16 and A-17 (configurations A-10 and A-10/2) of Appendix A were compared with that collected from the single charge detonations illustrated in Figures A-13 and A-14 (configurations A-9 and A-9/2). These comparisons are presented in Table 7 and shown in Figure 18. Neither of the comparisons demonstrate very strong linear tendencies or correlation coefficients as indicated by the significance levels but the measurements do show specific trends. Animals exposed to a single 454-g charge detonated at 0.91 m were more seriously injured than those exposed to simultaneous dual charge detonations of 227 g each or a combination of 227 and 454 g at ranges of 0.91 and 2.93 m respectively. One of the sheep exposed to the 227-454-g charge combination at 0.91 and 2.93 m died from a spontaneous hemorrhage from the nose and mouth one hour and 15 minutes following exposure. This subject would have had a severity of injury index score of 1.98 if it had lived. Whereas subjects at 1.71 m from a single 454 g explosion or at an equidistance of 1.71 m from dual charge detonations demonstrated a graded response with increasing charge weight equivalence taking

into account the 2w effect of the walls. The pressure-time histories from four shots for gauges 1, 2 and 4 from configurations A-9, A-10 and A-10/2 are illustrated in Figures 19, 20, and 21. Individual animal response data which includes the severity index (S.I.), lung weight expressed as a percent of the body weight (Lw/Bw %) and lung hemorrhage distribution associated with these pressure-time records along with the measured Pmax, Psm and EIP are listed in Table 8. The "Bowen Single Lung Model" program was used to calculate the peak intrathoracic pressures and maximum chest wall velocities listed in Table 8 from the digitized pressure-time data illustrated in Figures 19, 20, and 21.[10] A one-way analysis of variance (ANOVA) of the measured and calculated values demonstrates that there are no significant differences among the three groups of values. However, the individual animal response data shows that sheep 79 had the highest lung body weight percent of the three animals listed and would have had the highest severity index had sheep 117 survived. Sheep 79 also had more right lung hemorrhage than left which corresponds with the maximum chest wall velocity of 16.7 m/s calculated from the digitized gauge 4 recording.

Quasi-static Pressure Evaluation

Pathology assessments listed in Table 3 from the tests depicted in Figures A-13 and A-14 (configurations A-9 and A-9/2) of Appendix A in which the chamber door and vent were open are presented in Table 8 and illustrated in Figure 22. The pathology

results from the same table and derived from the experiments shown in Figures A-18 and A-19 (configurations B-9 and B-9/2) of Appendix A in which the chamber door was locked and vent closed are also given in Table 9 and shown in Figure 22 for comparison. The corresponding instrumentation cylinder pressure-time measurements are listed. A one-way ANOVA was done on the lung weight percent of body weight, pathology scores, and severity of injury indices data for the six groups listed. The F-ratios and levels of significance are listed at the bottom of the page. Overall, there was only one apparent difference between the two groups. There were more severe solid intra-abdominal organ injuries in the subjects in the corners at 2.71 m when the chamber door was not open. The most obvious answer for the difference in solid organ damage was that the pressure levels were different. If that was the only reason, there should have been differences apparent in other organ injury comparisons. A Scheffe' probability matrix derived from the ANOVA indicated that this difference was only significant between the 2.71 and 1.71 m ($p=0.008$) subjects in the chamber with the closed door and between those at 2.71 m with the closed door and the sheep at 1.71 m ($p=0.032$) in the room with the open door.

Wall and side-on gauge pressure-time measurements for these configurations are presented in Table 10 to demonstrate the changes in the pressure-time parameters, depending upon whether the chamber door and vent were open or not. The pressure-time waveforms for gauges 9, 10 and 11 are also illustrated in Figures 23, 24 and 25.

A Kruskal-Wallis analysis of variance for nonparametric measurements (KANOVA) was done on the Pmax, Psm, and Imax ratios of the two chamber configurations. In general the maximum impulse measured by the side-on and mid-wall gauges was significantly lower ($p=0.0001$) by a factor of 2 to 8, depending upon the location, when the door and vent were open. The presence or absence of animals in the chamber made no difference ($p=0.8393$) as demonstrated by the comparison between [G1] and [G4]. The most interesting finding was that the resonant frequency damped out faster with the loss of quasi-static pressure. This may account for the observed decrease in solid intra-abdominal injuries.

Comparison of Charge/Volume Ratios with Lung Injury

The charge/volume ratio or loading density for each charge weight and enclosure volume used in this study were determined from the information in Tables 3 and 4 and listed along with the associated lung injury data in Table 11. Loading density data from five previous studies are also entered for comparison.[7] A regression analysis using a second order polynomial to fit the data points was done to compare the mean lung weights expressed as a percent of the body weight to the to the different loading densities in each enclosure volume. The resulting analysis is illustrated in Figure 26 in a log-linear format in which the lung weight body weight percent measurements are plotted against loading density. A simple regression analysis indicated significant linearity and x,y correlation ($p<0.001$) between the lung values and

loading density. The lung weight data was proportional to the loading density and lethality began as the percentage values exceeded baseline and loading density approached 0.025 kg/m^3.

DISCUSSION

Pressure-Time Parameters

For the 3.05 x 2.44 x 2.44-m enclosure, the instrumentation cylinder pressure-time measurements recorded without animals did not change to any noticeable degree when animals were introduced. This doesn't mean that this lack of effect will hold true in smaller volume enclosures. At some point, as chamber volume decreases the introduction of animals in close proximity to the instrumentation cylinder or to each other should influence the reflected wave pattern incident to the animal or the cylinder.

Injury Level Correlations

The severity of injury indices appeared to correlate best with the smoothed peak pressure for the three combined volumes. While EIP was a better predictor for some individual cases, Psm is a better all-around measure. Non-lethality at the high dose levels limit Pmax and EIP as significant injury correlates as demonstrated in Figures 15 and 17. EIP is further restricted by the 0.78 and 0.99 severity index values occuring below 20,000 kPa^2*ms. In addition, the EIP calculation as it was used is dependant upon a 20 ms cutoff time where the Psm is calculated over the entire

waveform. It might be advantageous to develop a dual function algorithm which utilizes both the Psm and EIP calculations. For example, the Psm peak would be determined first then a selected time domain EIP would be calculated around the Psm peak.

Figure 16 was converted to an injury prediction curve using smoothed peak pressure as the predictor and is illustrated in Figure 27. In our opinion, the severity index data predicts a no injury window for a Psm extending from 0 to 57 kPa. The 57 kPa was adjusted upward from the 49kPa zero crossing of the curve to compensate for the control injury level. Trace to slight injuries with corresponding severity of injury indices ranging from 0.05 to 0.66 are estimated for the 57.1 to 130 kPa window. For pressures ranging from 130.1 to 221 kPa, slight to extensive injuries are predicted for indices of 0.67 to 1.81. Moderate to lethal levels of injury are expected for values of 1.82 to 6.1 over a pressure range of 221 to 428 kPa. At pressures above 428.1 kPa, lethality will exceed 50 percent.

Pmax can be converted to Psm pressures for Pmax measurements up to about 700 kPa using the equation illustrated in Figure 28. There is a reasonable linear relationship between Pmax and Psm from 0 to 700 kPa. Beyond 700 kPa, the correlation between the two breaks down.

EIP can be converted to Psm units using the equation illustrated in Figure 29. There is a good point fit between 10,000 and 100,000 kPa^2*ms.

Injuries sustained by subjects in the enclosure for a given

charge weight and range were clearly more severe than those produced in the freefield at the same range from an equivalent charge explosion. This is because the incident pressures in the freefield and in the enclosure at equivalent ranges from the detonation of the same charge weight are quite different as seen in Figure 30. The "incident" wave that strikes the test subject in the enclosure would probably be better described as the "reflected incident" wave. Reflected shocks from the floor, ceiling and walls focus at the target and produce a shock wave with a Pmax that is from 2 to 7 times higher (3 to 10 times in the case of Psm) than the equivalent freefield incident wave as was demonstrated by the values listed in Table 6. The freefield orientation effects data does not compare favorably with the Psm injury prediction curve. The 351 point smoothing function window is large compared to the freefield waveform of less than one millisecond shown in Figure 30 causing the waveform to be underestimated. Severity of injury indices associated with these values can be adjusted to fit the Psm prediction curve by multiplying the calculated freefield Psm values by 2.

The complex wave pressure-time measurements from these tests are being used as input to the "Bowen Single Lung Model" to calculate chest wall velocity as function of complex wave loading pressures in a cooperative effort with Hakan Axelson from the National Defence Research Establishment, Sweden. Preliminary results indicate there appears to be a good correlation between the severity of injury indices and calculated chest wall velocities

with relationship to the Bowen survival curves.[11,12]

The Psm injury prediction curve can also be applied to the Bowen survival curve illustrated in Figure 31. By using Figures 27 and 28, Psm values of 100 (midrange of the trace to slight injury band), 221 (lower limit of moderate to lethal injury band), and 320 (midrange of moderate to lethal injury band) kPa convert to Pmax values of 320, 790, and 1375 kPa respectively. Dividing these numbers by 6.894757 yields pressure units of 46, 115, and 199 psi. These pressure levels correspond to the threshold for lung hemorrhage, 99 percent survival, and 50 percent survival curves respectively for 2.5 to 3.0 ms duration Friedlander waves. These durations are equivalent to the 'effective' individual pressure pulses in the complex wave assuming limited additive effects from the multiple shocks associated with the reverberant wave.

Jet Simulation

Results that were illustrated in Figure 18 of the jet simulation experiment along with the pressure-time parameters shown in Figures 19, 20 and 21 suggest two separate effects. As demonstrated by the gauge 4 trace of Figure 19, for animals at 0.91m in the corner, the incident and reflected waves focus in the corner and are primarily responsible for injury production. Figures 20 and 21 show that at longer distances from the explosive source the reflected waves tend to stay more spatially separated in time to produce a less severe effect. The corner effect is further illustrated by the chest wall velocity calculations

presented Table 8. The gauge 4 pressure-time input into the lung model predicted an extremely high 16.7 m/s chest wall velocity. This velocity was sufficient to produce extensive lung hemorrhage in the test animal and was more severe in the lung facing the corner.

Quasi-static Pressure Evaluation

Figures 23, 24 and 25 demonstrate the principal reason that there were no dramatic differences in injuries between the sheep exposed in the chamber with the door and the vent open and those tested with the door locked and vent closed. It appears that the first 10 ms or so of a complex wave event with this class of waveforms is important in injury production. A comparison of the pressure-time patterns between the two test modalities for wall gauges 10 and 11 indicated that there were no major differences in the pressure-time histories during the first 10 to 12 ms. The pattern for gauge 9 in the doorway showed a more dramatic alteration even over the first 10 ms with the door open inasmuch as it was directly in the flow field but there were no animals placed at that position in the open doorway. They were in the opposite corner away from the door. Slight differences in solid intrabdominal injuries suggest that the 60 Hz frequency of the waveform which corresponds to the resonant frequency of the animal may be more important for this type of injury than for intra-thoracic trauma. With the door closed, the animal would be able to resonate for a longer period, thus allowing more motion of the

diaphragm which would increase the differential shear between the liver and spleen and the diaphragm.

Comparison of Charge/Volume Ratios with Lung Injury

As indicated in the results,the data illustrated in Figure 26 demonstrates that lung weight expressed as a percent of the body weight increases with increasing loading density and lethality starts as loading density approaches 0.025 kg/m^3. There would be a practical application of this relationship from a safety point of view in an explosive manufacturing or storage situation. The amount of explosive in the immediate vicinity of personnel could be limited to loading densities less than 0.025 kg/m^3. Of course there would be a necessity to calculate minimum standoff distances from the explosive source before the lung body weight percent loading density relationship could be exploited to any degree.

CONCLUSIONS

Instrumentation cylinder pressure-time values recorded in the 3.05 x 2.44 x 2.44-m enclosure are not appreciably affected by the presence of animals in the vicinity of the cylinder.

The injury prediction curve using the severity of injury indices and smoothed peak pressure as correlates is an adequate model for the data that was collected in these experiments. It appears to correlate well with the Bowen survival curve. Future studies will determine whether or not it will be useful for predicting injuries from other classes of complex waves.

The jet simulation experiments demonstrate that the animals closest to one explosion source and in a corner may be more susceptible to unilateral injury than animals equidistant from the two explosions.

Quasi-static pressure per se doesn't influence nonauditory injury to any appreciable degree but the reverberant nature of the complex wave can be altered by changes in quasi-static pressure. Changes in the frequency content of the pressure-time history appears to have some effect on solid intra-abdominal organ response.

There is a simple relationship between lung injury and loading density. As loading density increases lung injury increases. This relationship is of limited usefulness because of two factors. There has to be an adequate separation distance between the subject and the explosion source (minimum separation of 1 m) and the subject cannot be in a corner.

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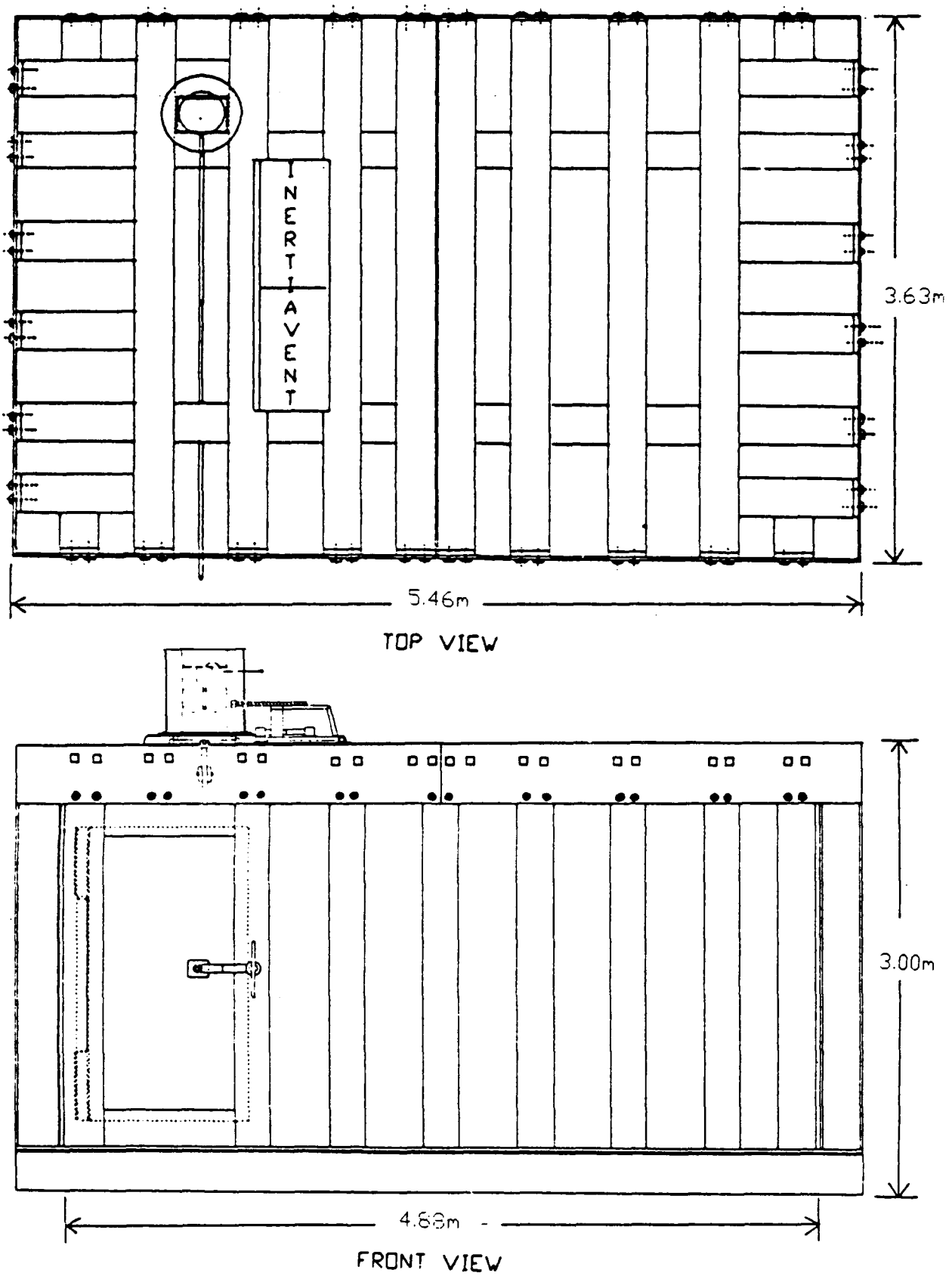


Figure 1. EG&G all-steel test enclosure.

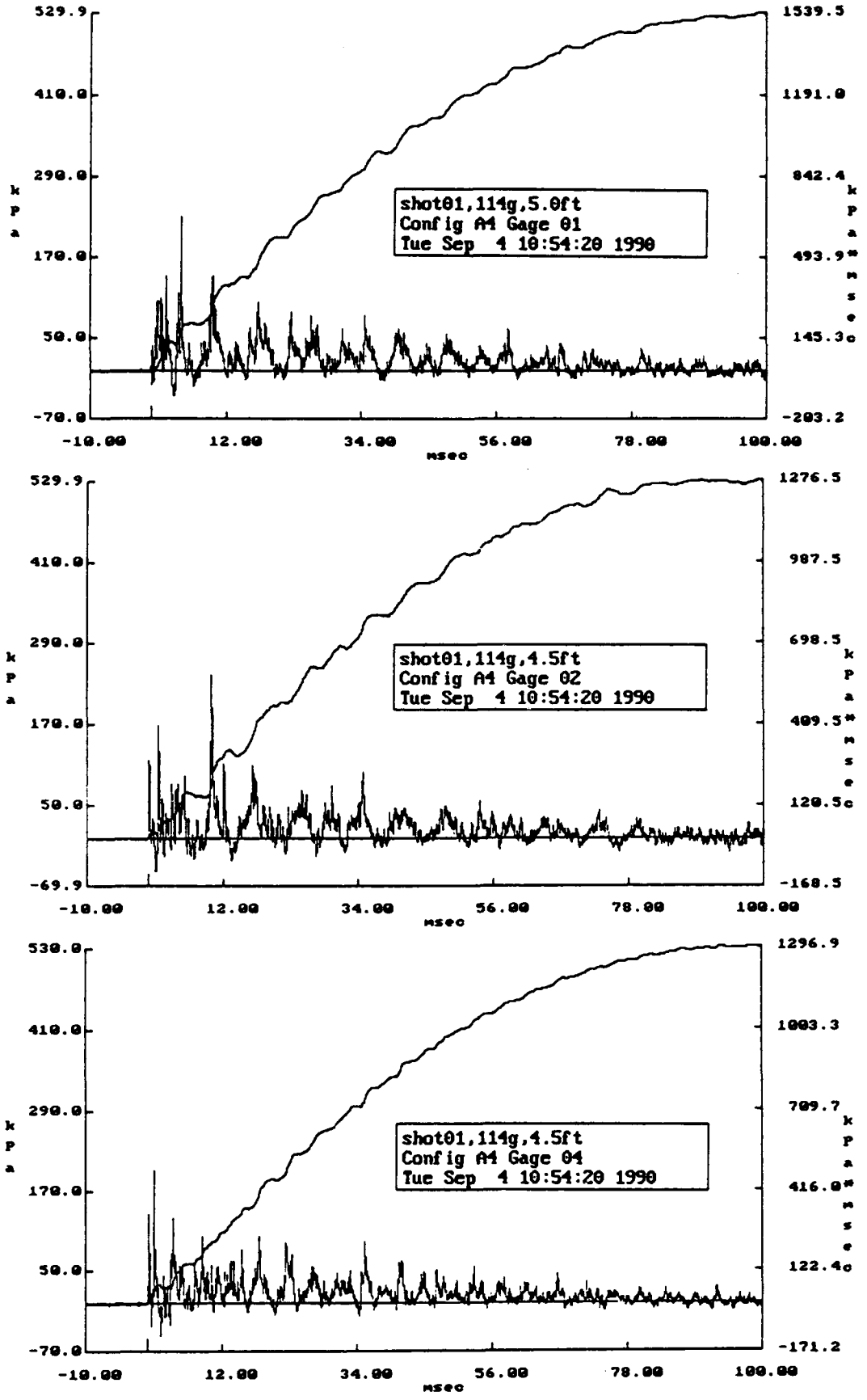


Figure 2. Typical complex wave pressure-time patterns recorded by gauges 1, 2 and 4 of the instrumentation cylinder in the 3.05 x 2.44 x 2.44-m enclosure.

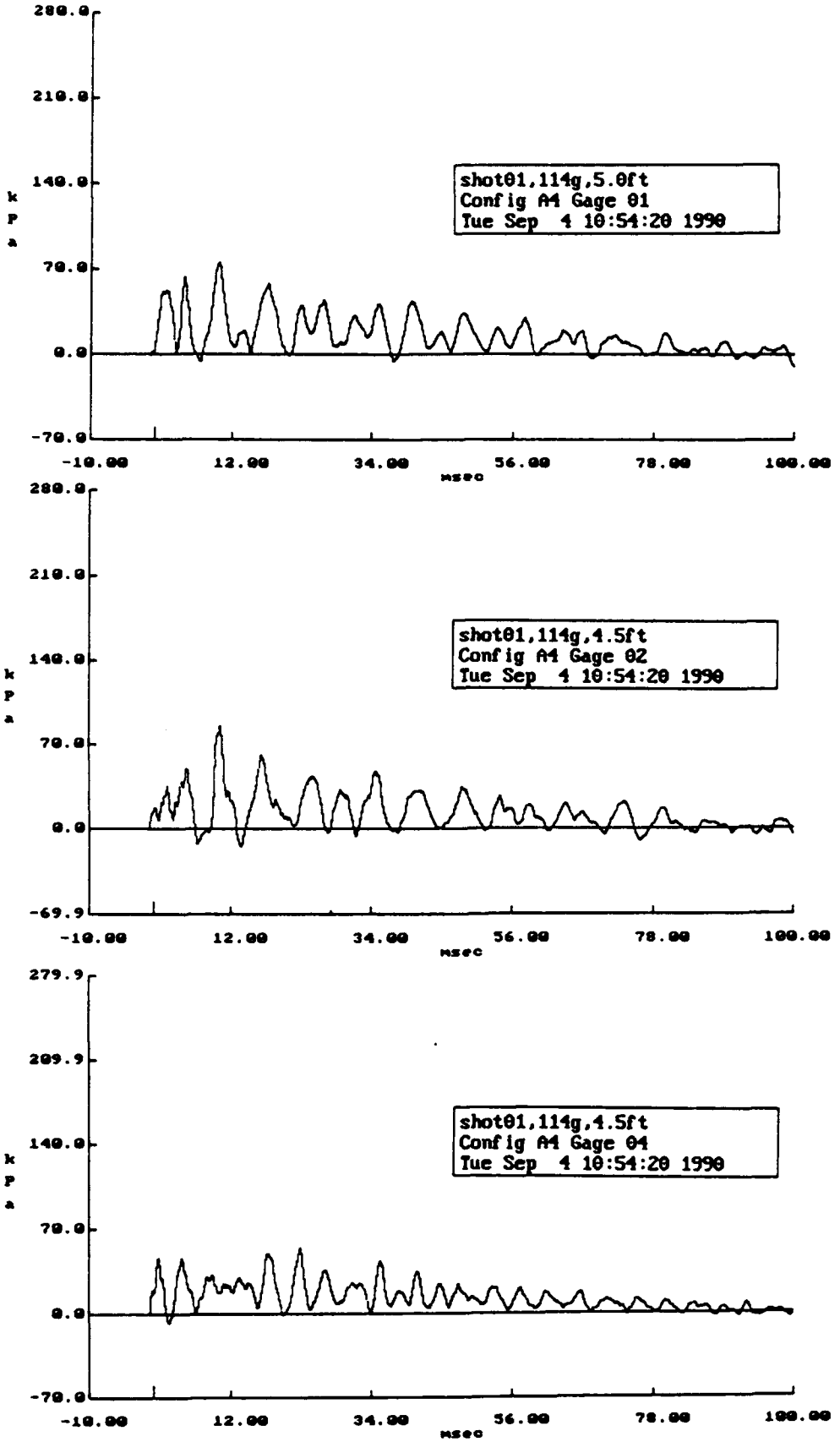


Figure 3. Effects of the smoothing function on the pressure-time patterns of Figure 2.

Figure 4. Individual severity of injury indices as function of maximum peak pressure in the 3.05 x 2.44 x 2.44-m enclosure (configurations A and B).

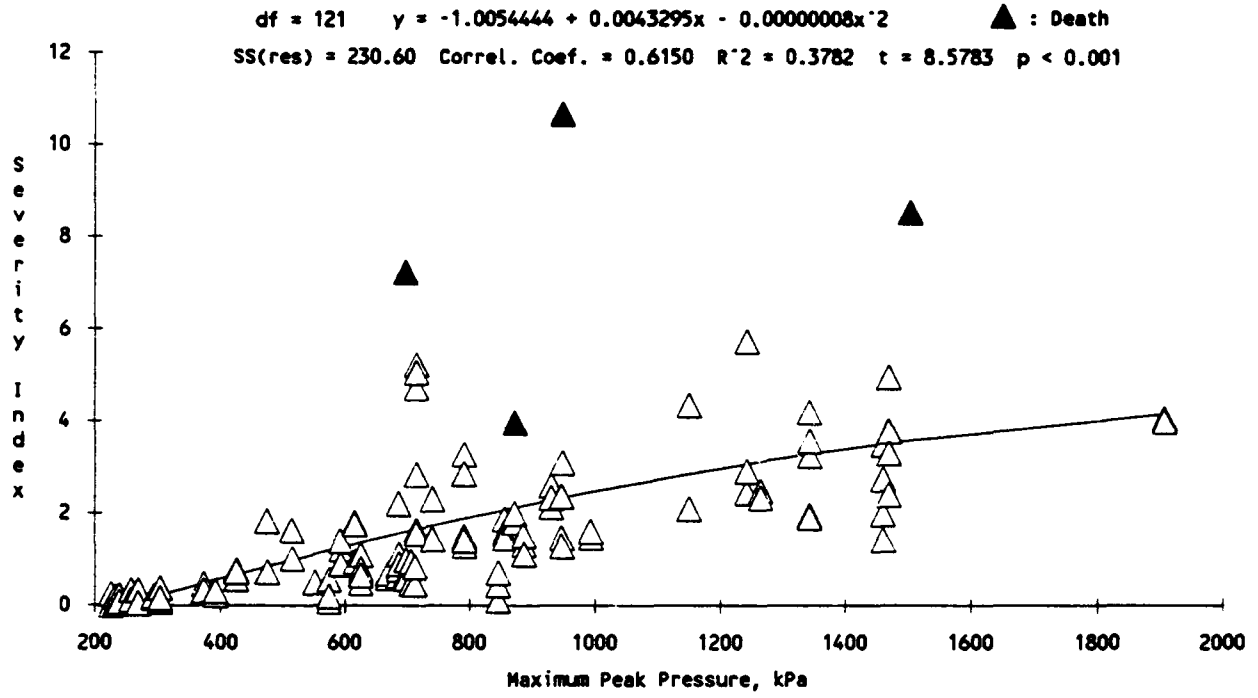


Figure 5. Individual severity of injury indices as a function of smoothed peak pressure in the 3.05 x 2.44 x 2.44-m enclosure (configurations A and B).

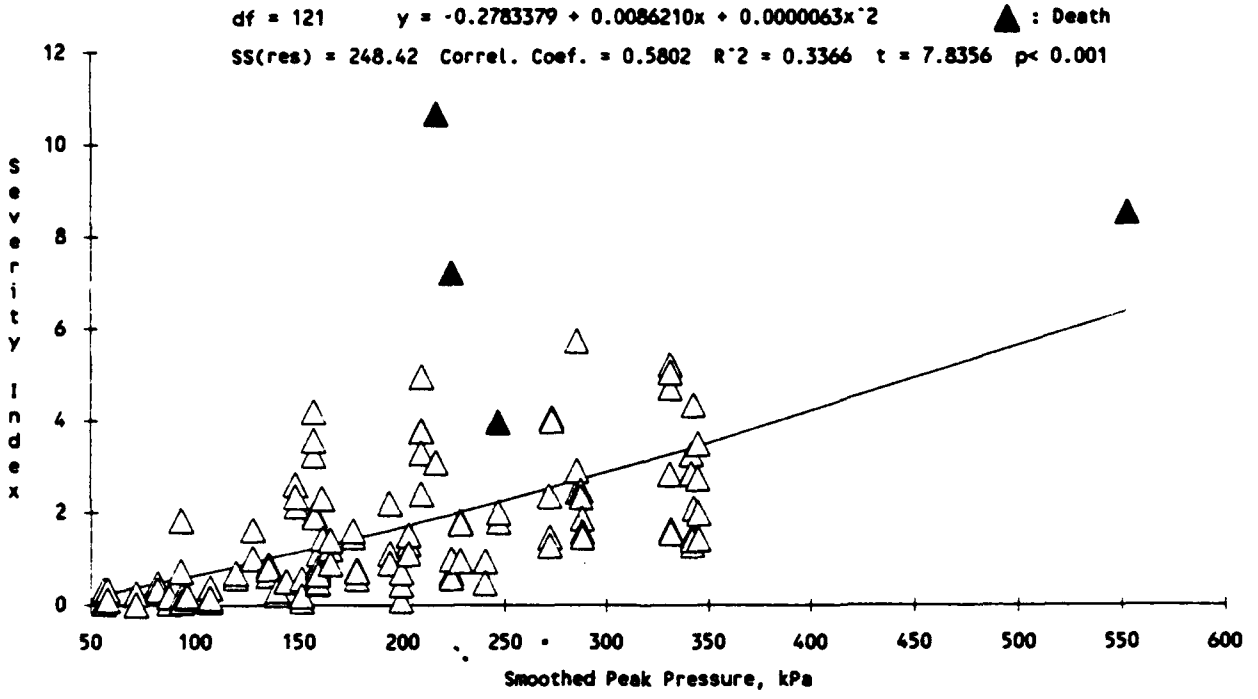


Figure 6. Individural severity of injury indices as a function of effective impulse power in the 3.05 x 2.44 x 2.44-m enclosure (configurations A and B).

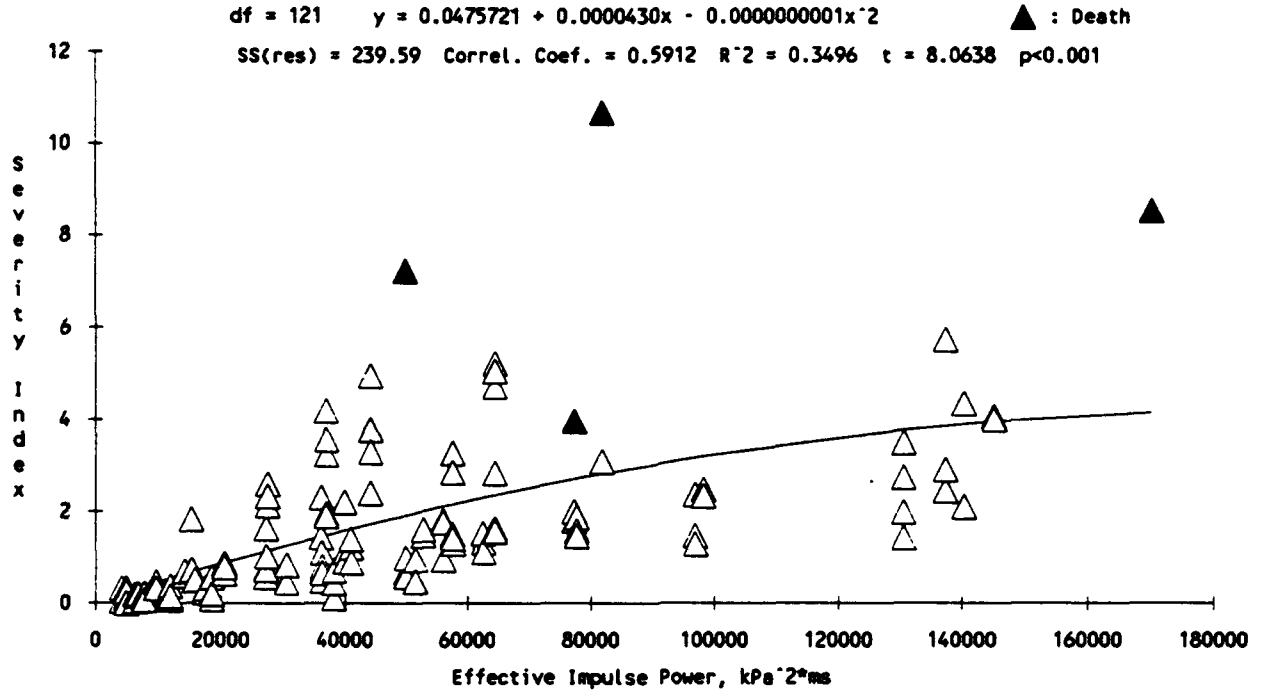


Figure 7. Individual lung weights expressed as percentages of body weight as a function of the smoothed peak pressure in the 3.05 x 2.44 x 2.44-m enclosure (configurations A and B). ▲ : Death

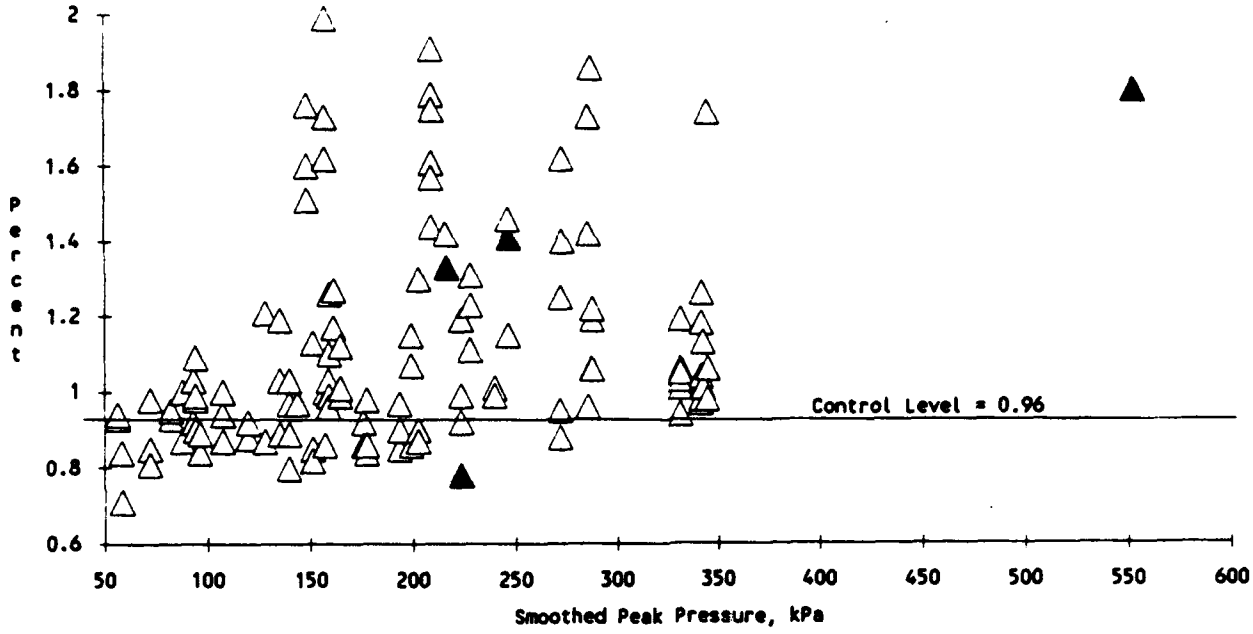


Figure 8. Individual lung weights expressed as percentages of body weight as a function of the effective impulse power in the 3.05 x 2.44 x 2.44-m enclosure (configurations A and B). ▲ : Death

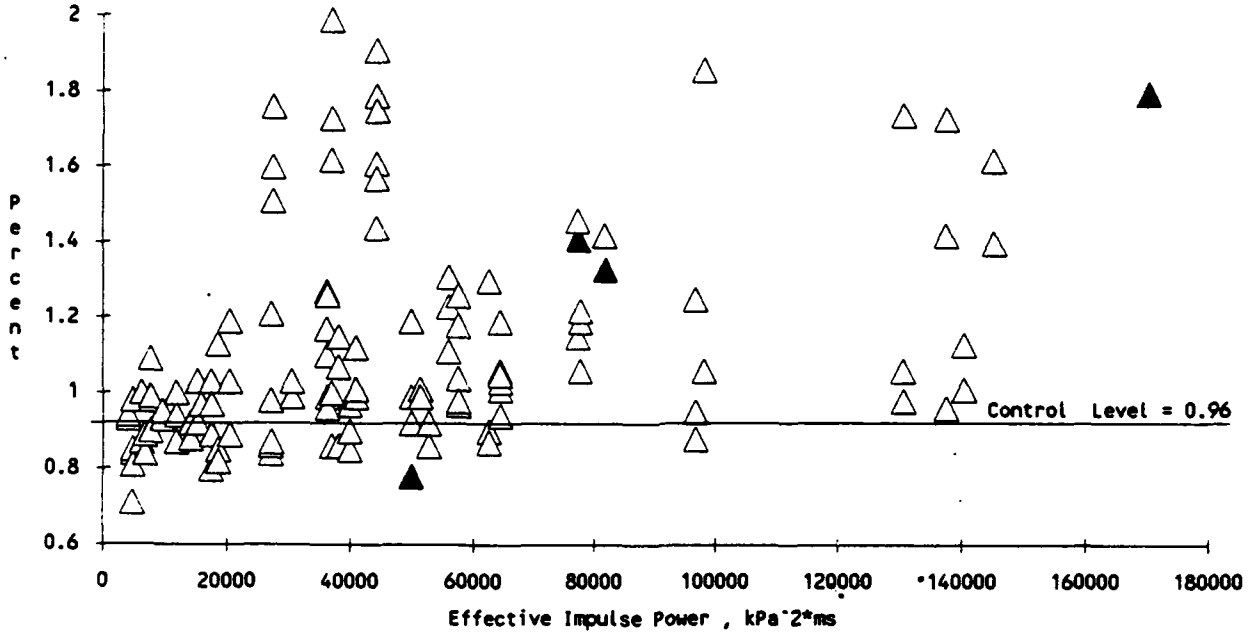


Figure 9. Individual severity of injury indices as a function of maximum peak pressure in the 4.88 x 3.05 x 2.44 - m enclosure (configuration C).

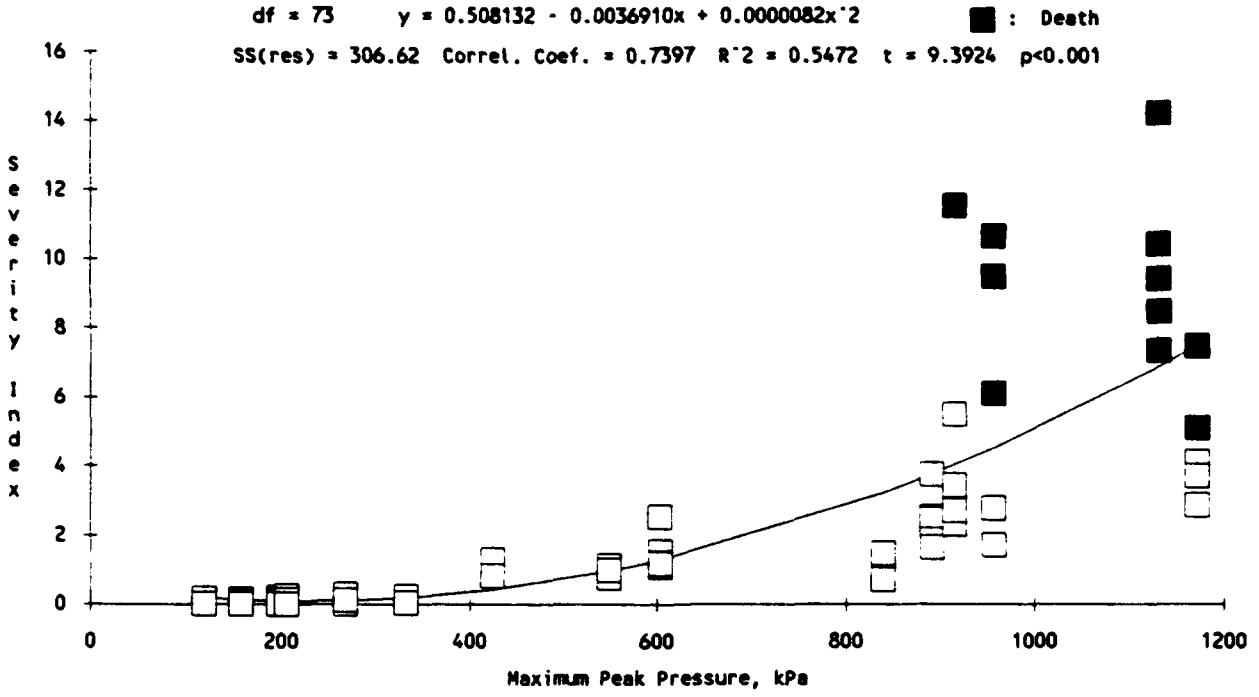


Figure 10. Individual severity of injury indices as a function of smoothed peak pressure in the 4.88 x 3.05 x 2.44-m enclosure (configuration C).

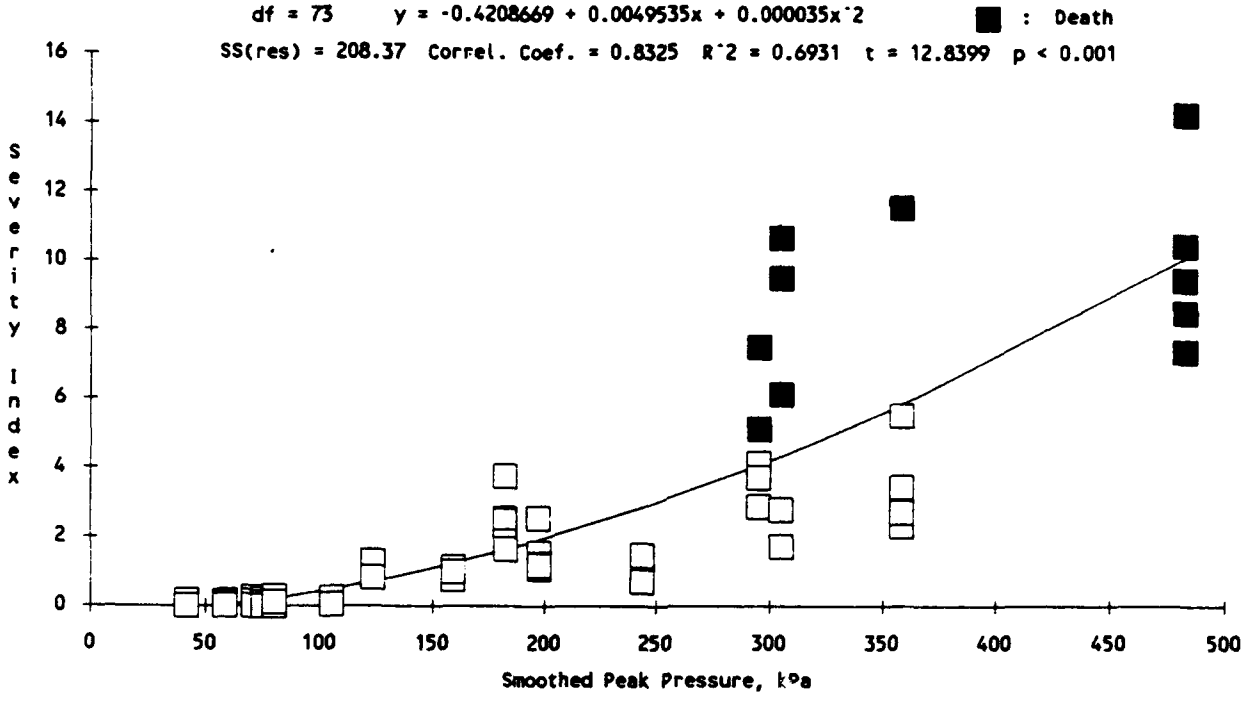


Figure 11. Individual severity of injury indices as a function of effective impulse power in the 4.88 x 3.05 x 2.44 - m enclosure (Configuration C).

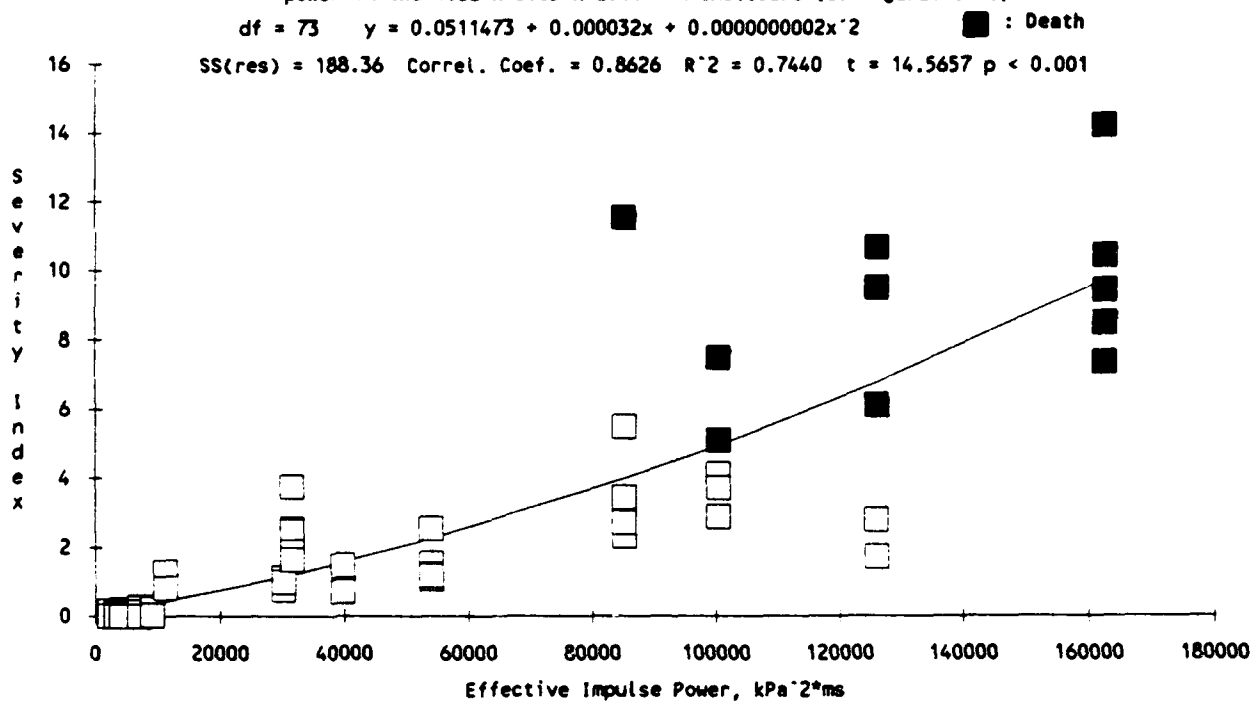


Figure 12. Individual severity of injury indices as a function of maximum peak pressure in the 3.05 x 1.52 x 2.44 m enclosure (configuration D).

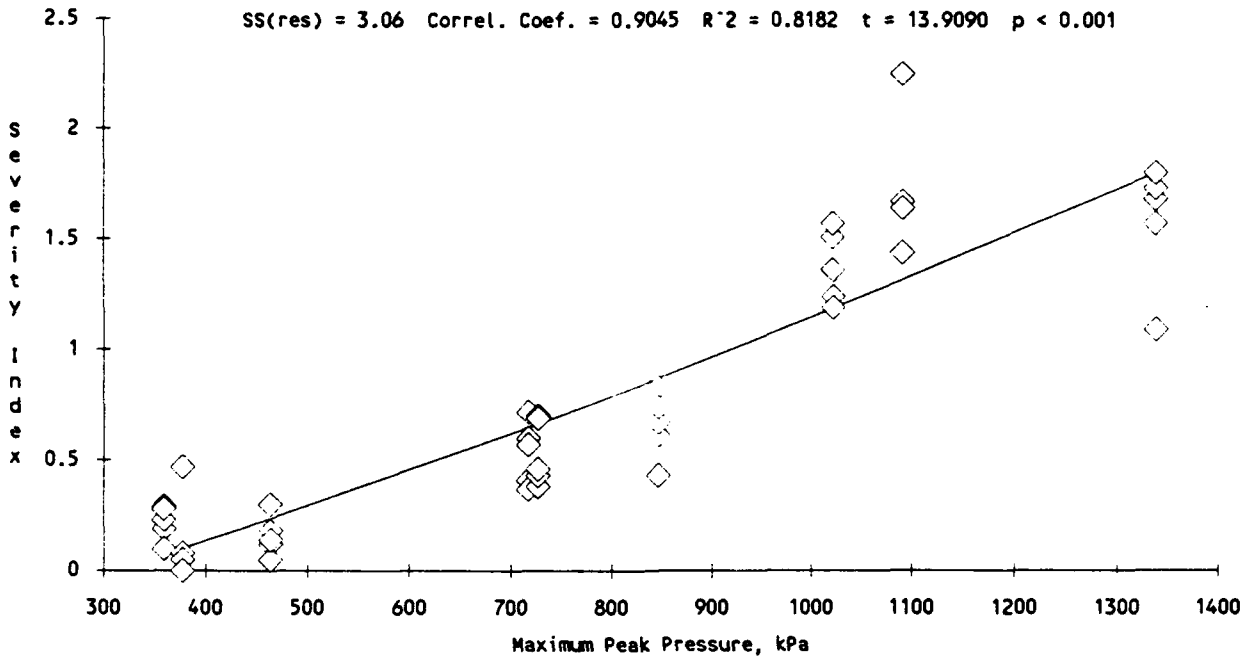


Figure 13. Individual severity of injury indices as a function of smoothed peak pressure in the 3.05 x 1.52 x 2.44 m enclosure (configuration D).

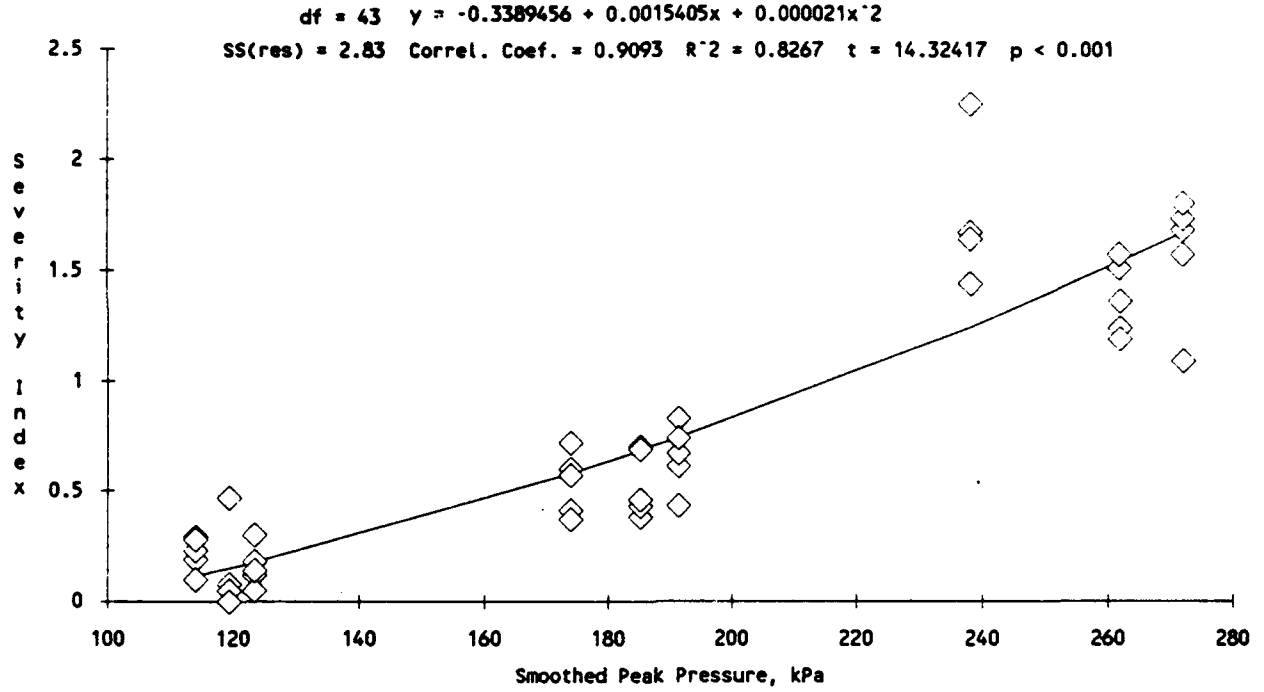


Figure 14. Individual severity of injury indices as a function of effective impulse power in the 3.05 x 1.52 x 2.44 m enclosure (configuration D).

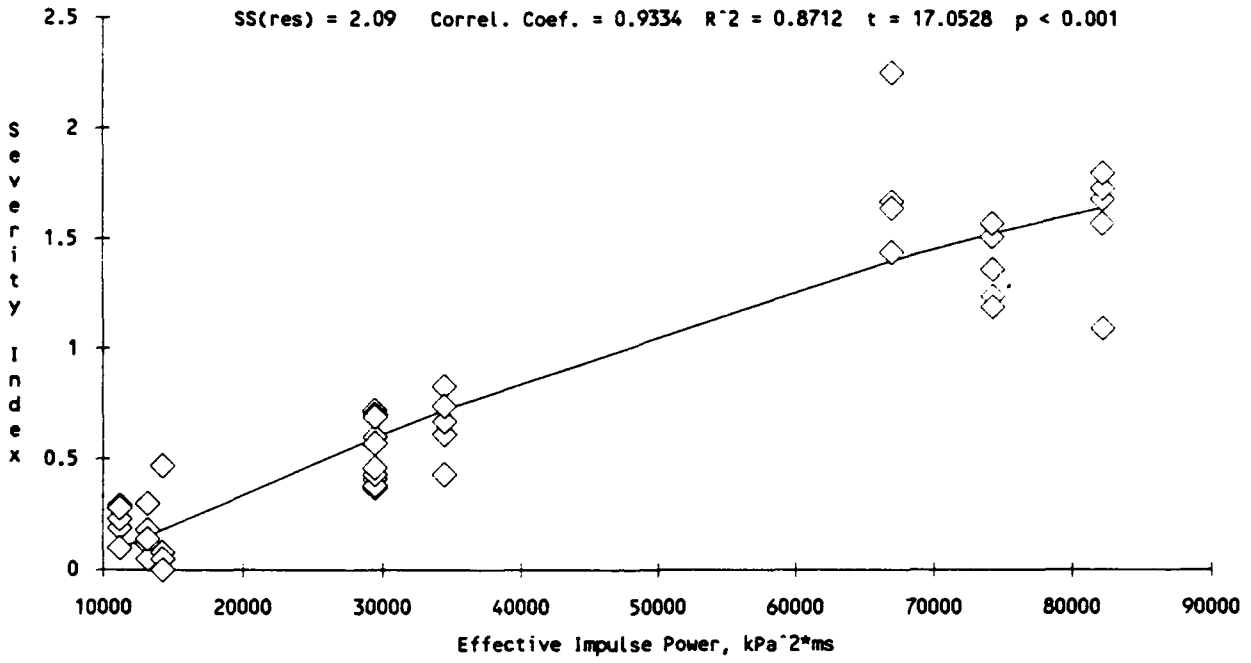


Figure 15. Mean severity of injury indices as a function of maximum peak pressure for all enclosure volumes (configurations A, B, C and D).

df = 51 y = -0.4978963 + 0.0019557x + 0.0000013x^2

SS(res) = 112.76 Correl. Coef. = 0.6997 R^2 = 0.4896 t = 6.9938 p < 0.001

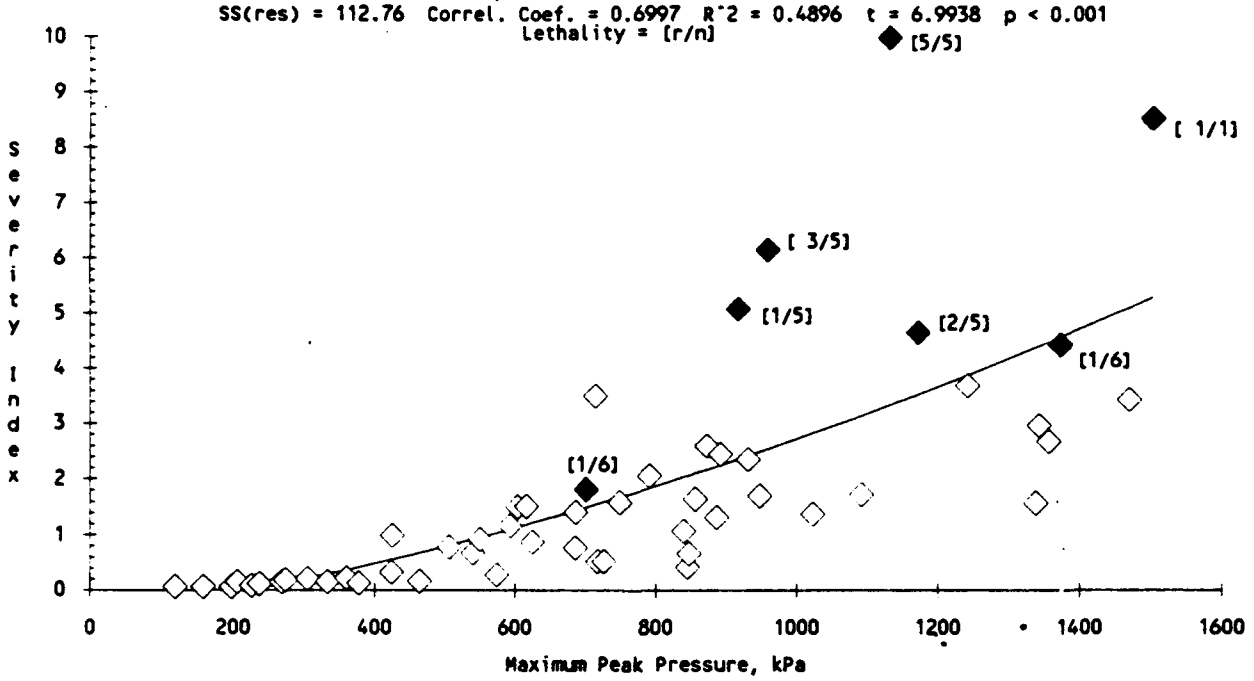


Figure 16. Mean severity of injury indices as a function of smoothed peak pressure for all enclosure volumes (Configurations A, B, C, and D).

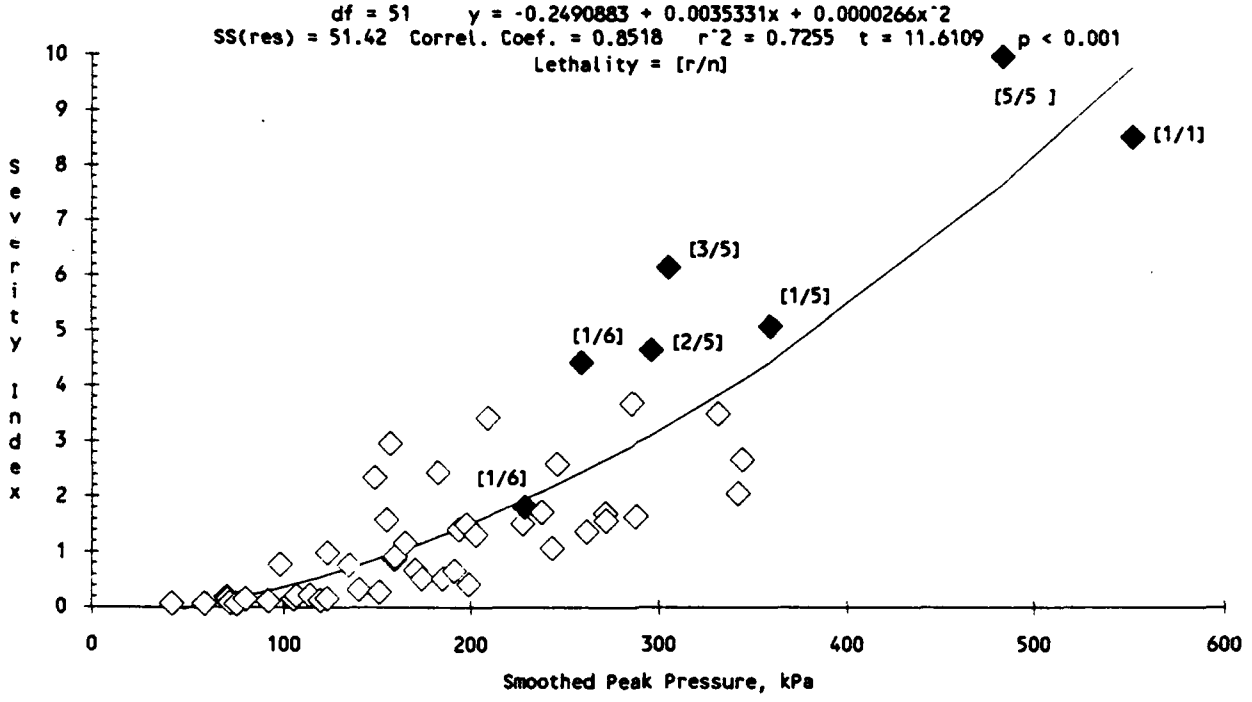


Figure 17. Mean severity of injury indices as a function of effective impulse power for all enclosure volumes (configurations A, B, C and D).

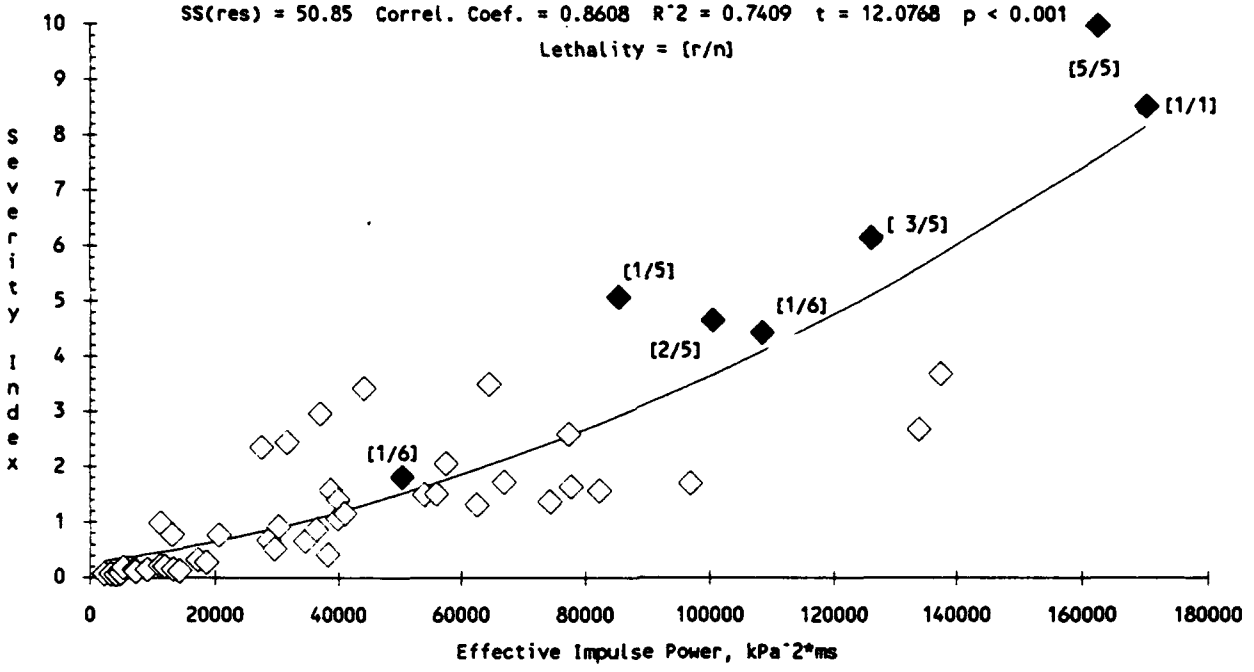
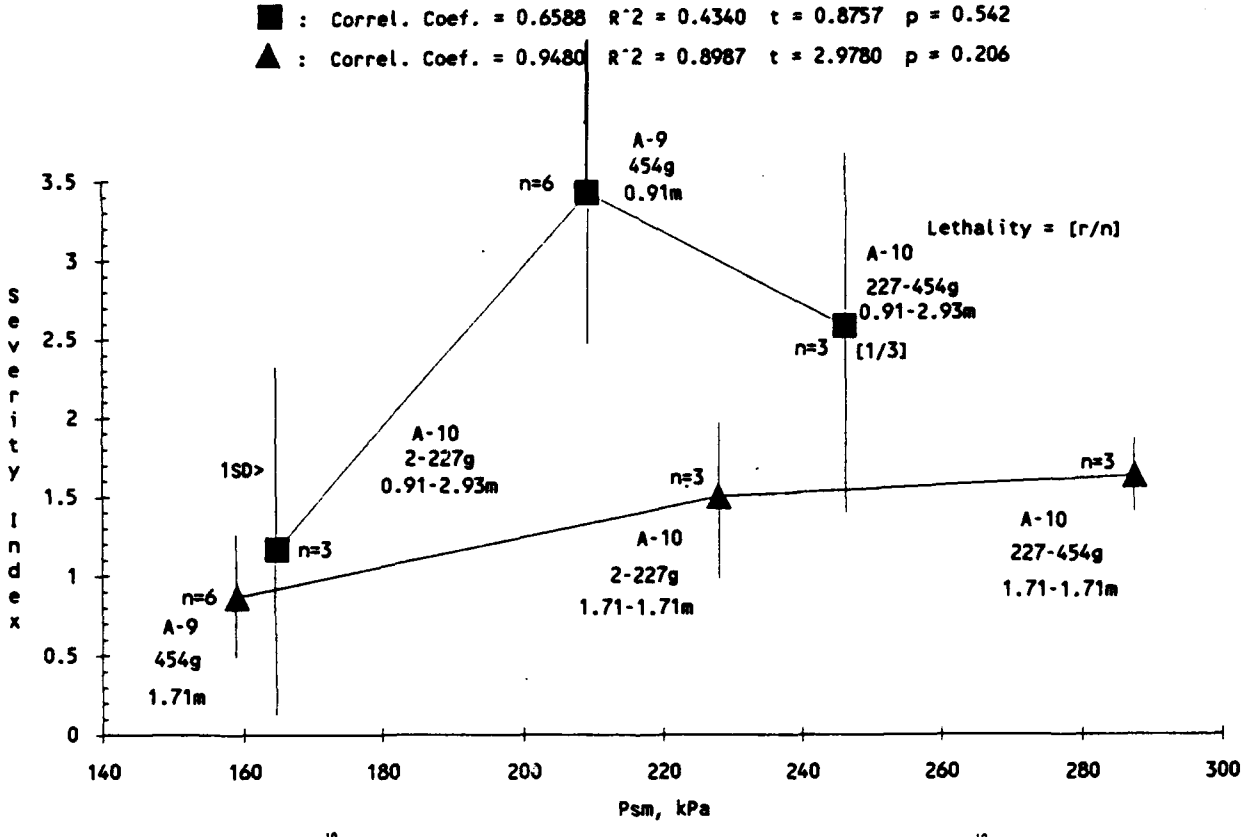
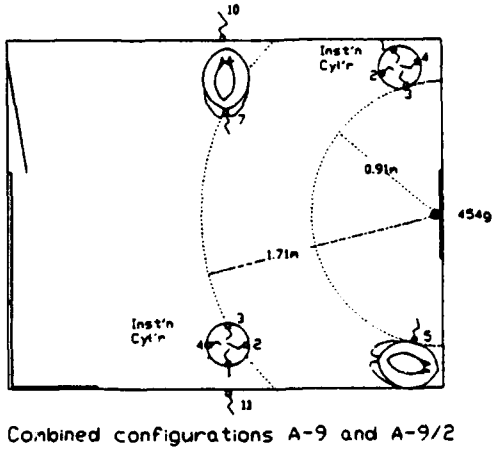
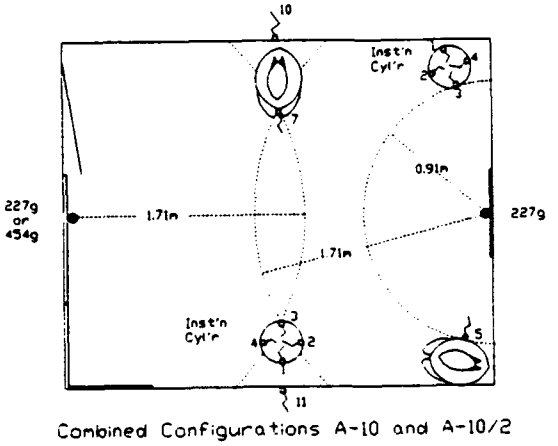


Figure 18. Comparison of severity of injury indices with the smoothed peak pressures from single and dual charge detonations.





Combined configurations A-9 and A-9/2



Combined Configurations A-10 and A-10/2

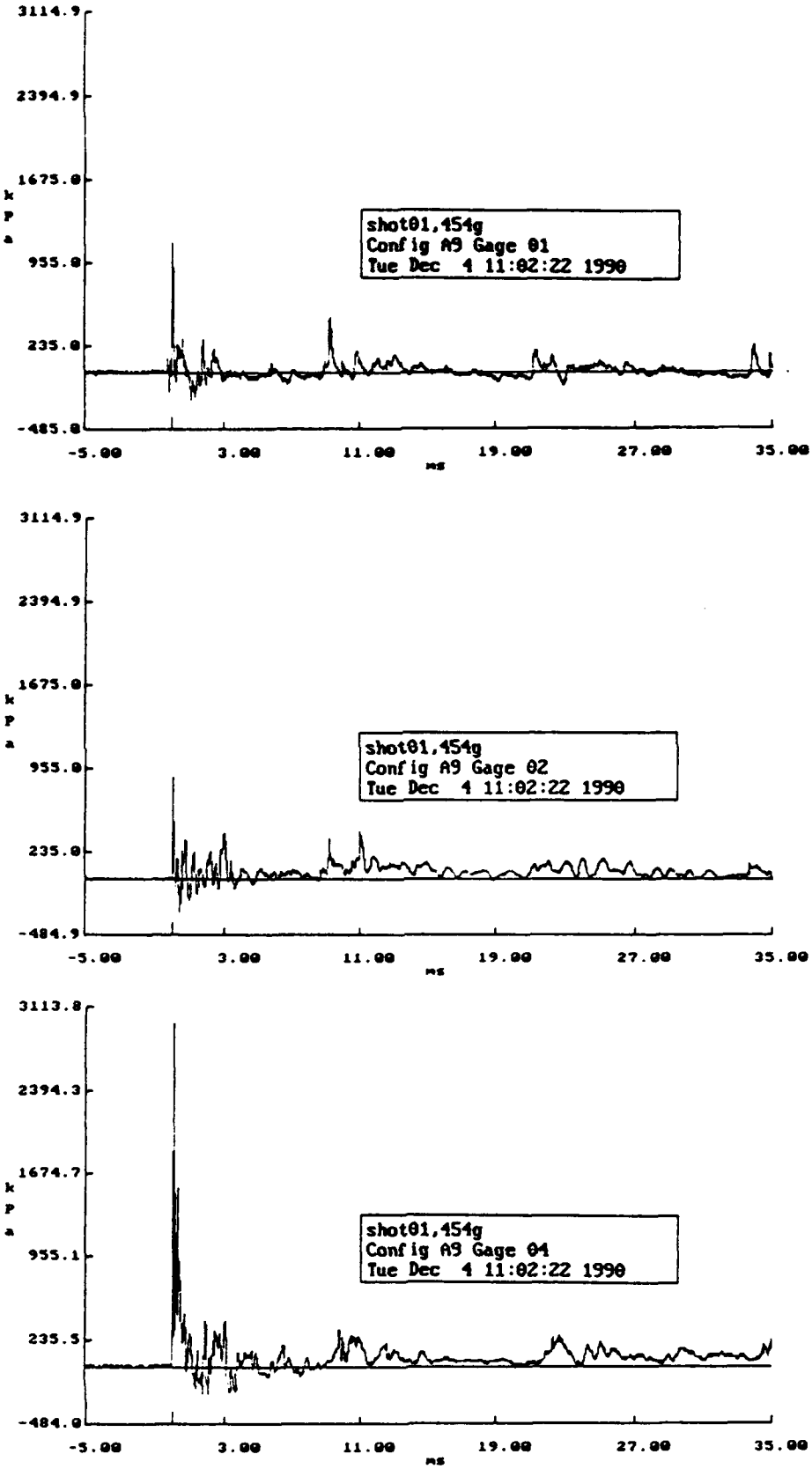


Figure 19. Configuration A-9 pressure-time recordings for gauges 1, 2 and 4 with the instrumentation cylinder at 3 ft/0.91 m from 454 g C-4 detonation.

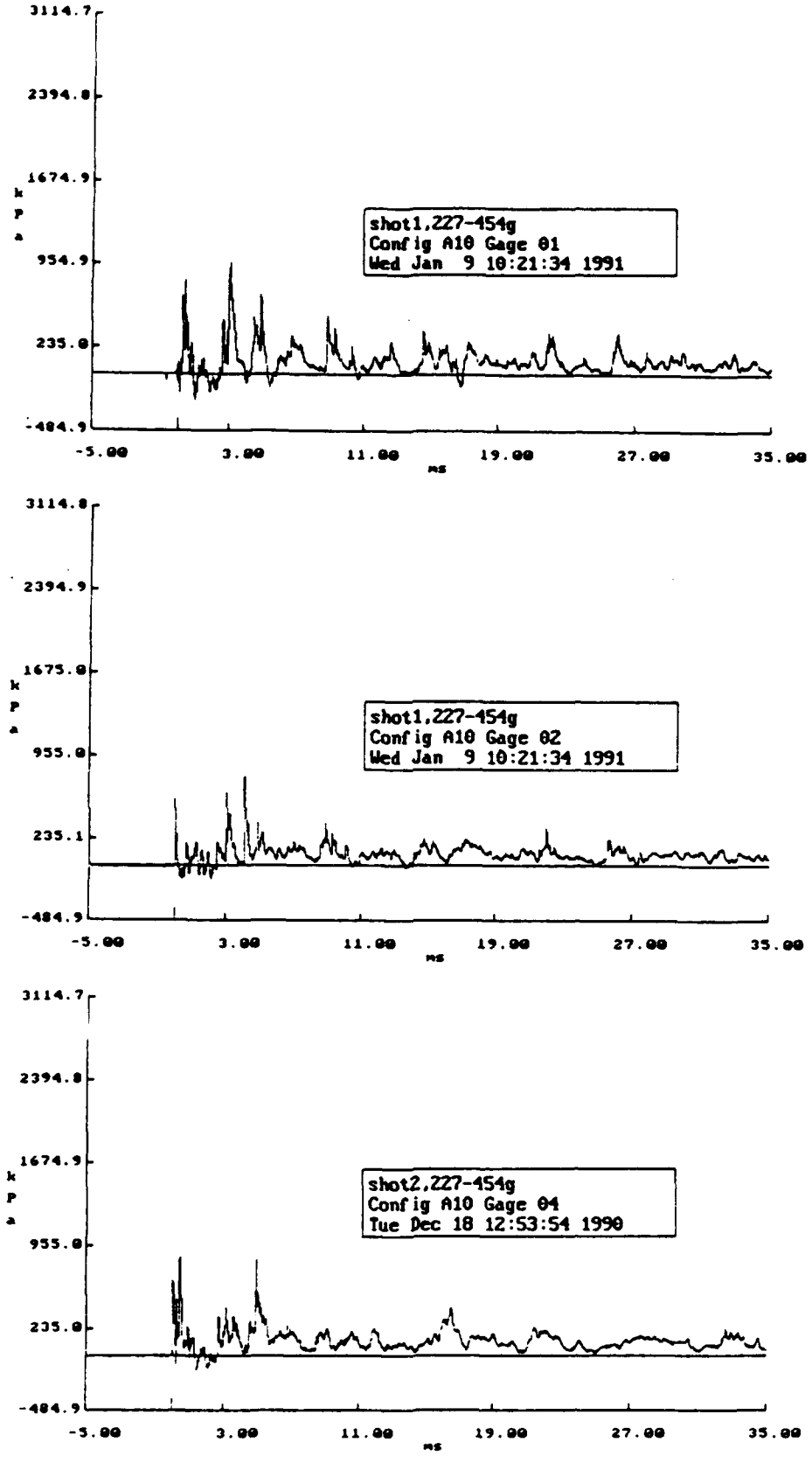


Figure 20. Configuration A-10 pressure-time recordings for gauges 1, 2 and 4 with the instrumentation cylinder at 3 ft/0.91 m and 9.6 ft/ 2.93 m from a simultaneous 227-454g C-4 detonation.

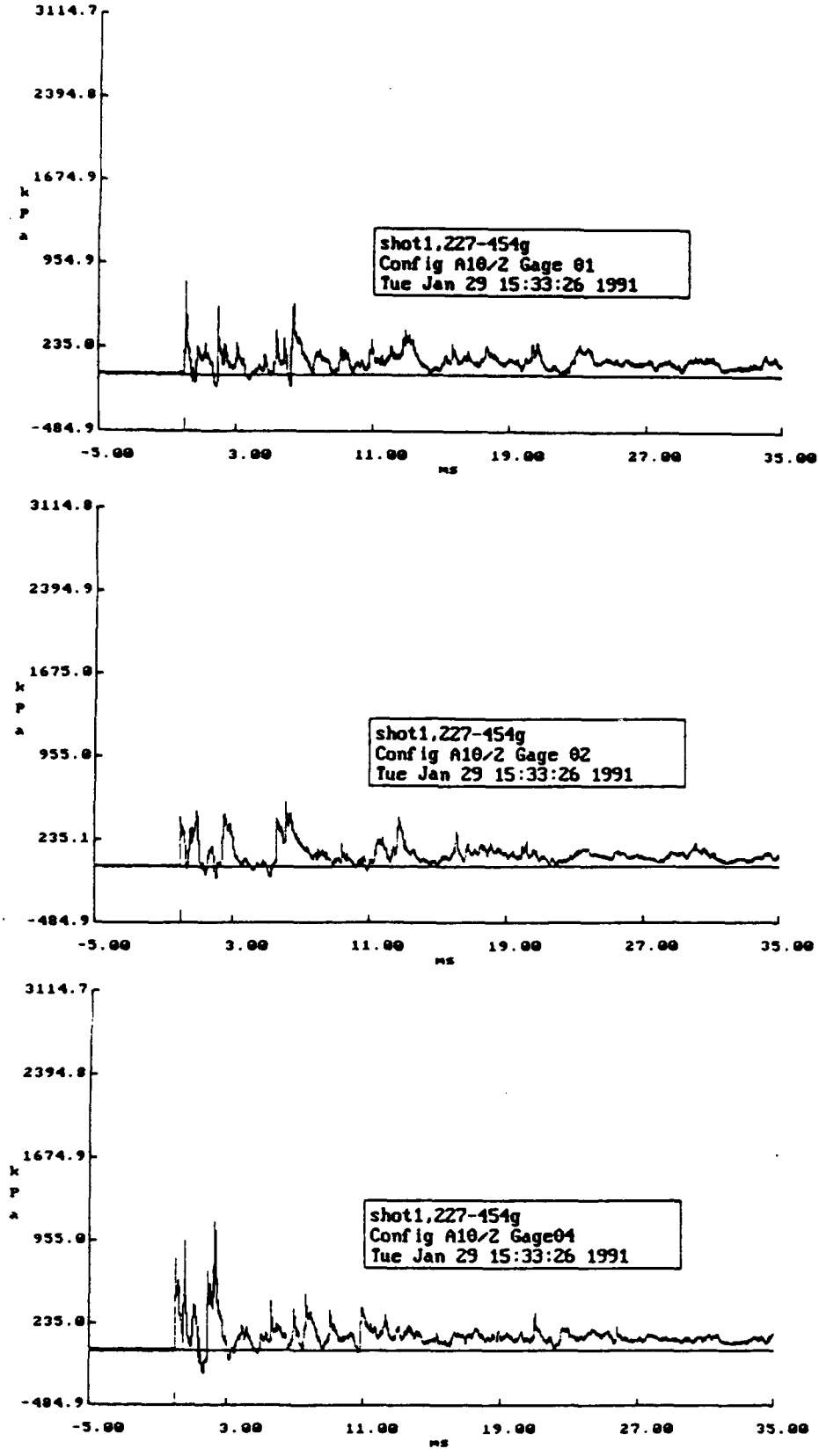


Figure 21. Configuration A-10/2 pressure-time recordings for gauges 1, 2 and 4 with the instrumentation cylinder at an equidistance 5.6 ft/1.71 m from a simultaneous 227g-454 g C-4 detonation.

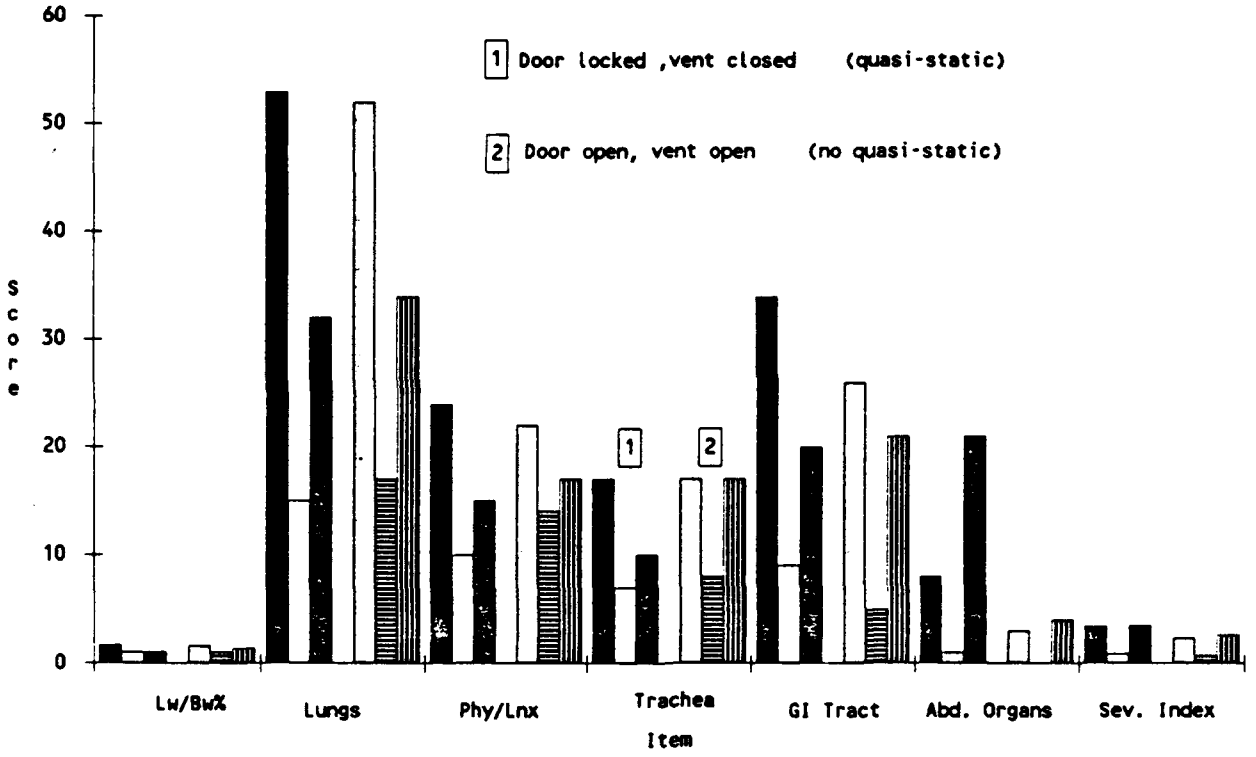
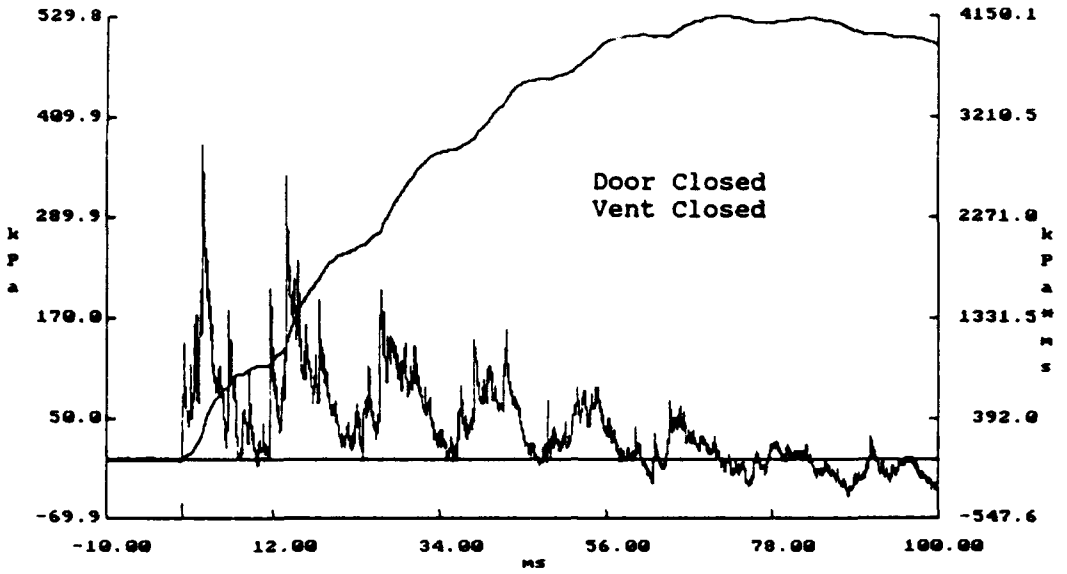
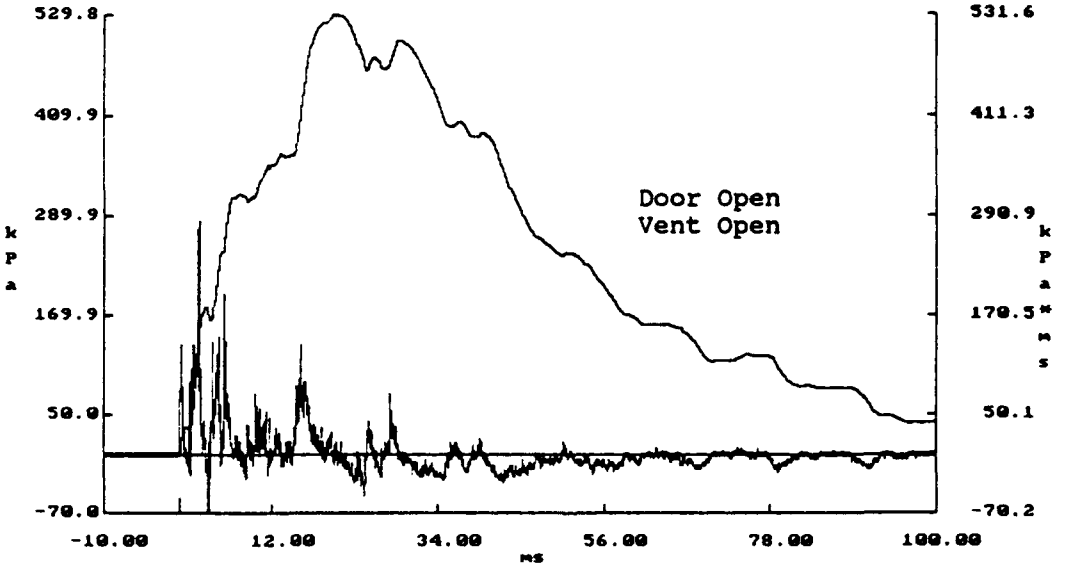


Figure 22. Comparison between injury levels in a quasi-static vs non-quasi-static pressure environment. Figure correlates with the data presented in Table 9.



Positive peak = 376.23 kPa at 2.58 ms
Negative peak = -43.66 kPa at 88.248 ms
A Duration = 9.72 ms at -0.004 ms to 9.720 ms
B Duration = 33.09 ms
Incident peak = 140.94 kPa
Incident peak is at 0.080 ms
A Impulse = 880.27 kPa*ms
Trigger Time = 25.948112 sec

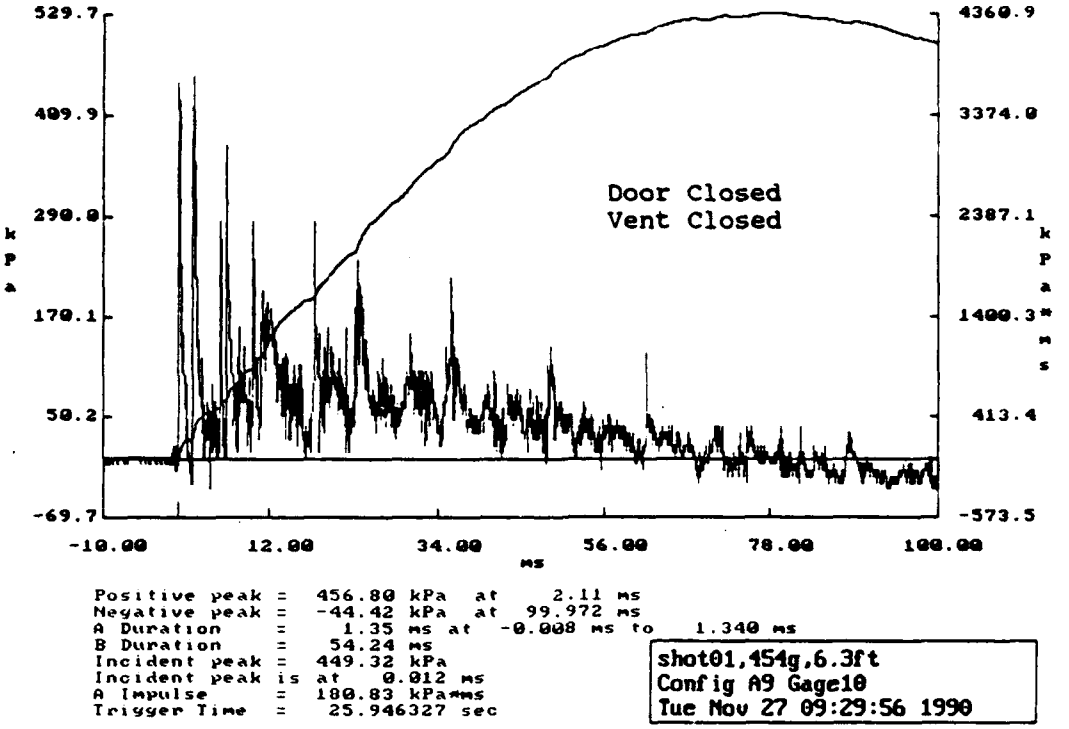
shot01,454g,8.9ft
Config A9 Gage 09
Tue Nov 27 09:29:56 1990



Positive peak = 284.54 kPa at 2.40 ms
Negative peak = -93.62 kPa at 3.692 ms
A Duration = 0.60 ms at -0.004 ms to 0.596 ms
B Duration = 12.66 ms
Incident peak = 78.94 kPa
Incident peak is at 0.012 ms
A Impulse = 31.69 kPa*ms
Trigger Time = 17.467300 sec

Shot1,454g,8.9ft
Config B9 Gage 09
Mon Feb 4 11:52:16 1991

Figure 23. Door closed, vent closed compared to door open, vent open pressure-time recordings for side-on gauge number 9 at 8.9 ft/2.71 m from 454 g detonation in 3.05 x 2.44 x 2.44-m enclosure.



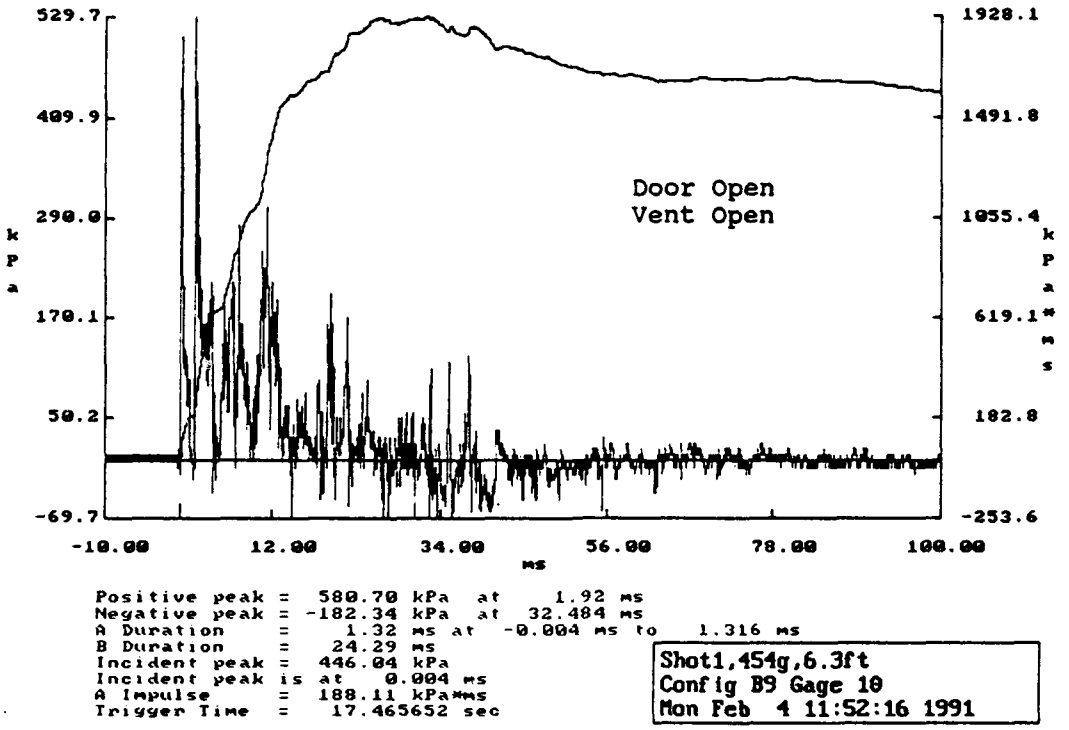
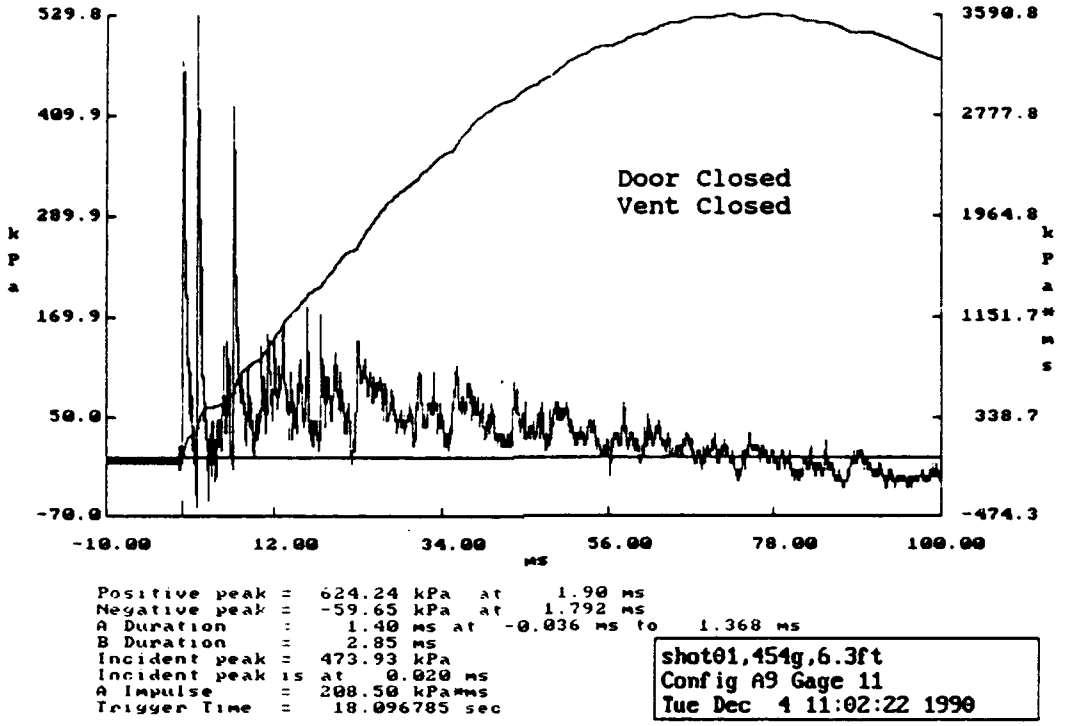


Figure 24. Door closed, vent closed compared to door open, vent open pressure-time recordings for wall gauge number 10 at 6.3 ft/1.92 m from 454 g detonation in 3.05 x 2.44 x 2.44-m enclosure.



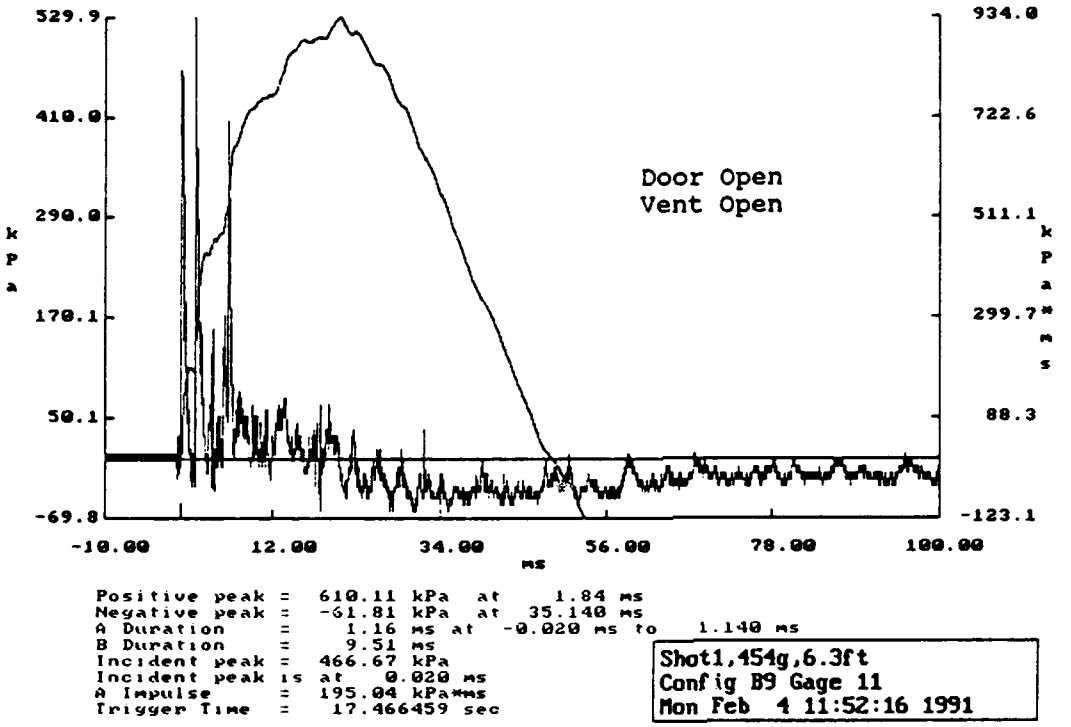


Figure 25. Door closed, vent closed compared to door open, vent open pressure-time recordings for wall gauge number 11 at 6.3 ft/1.92 m from 454 g detonation in 3.05 x 2.44 x 2.44-m enclosure.

Figure 26. Mean lung weight expressed as a percent of the body weight versus loading density in various chamber volumes

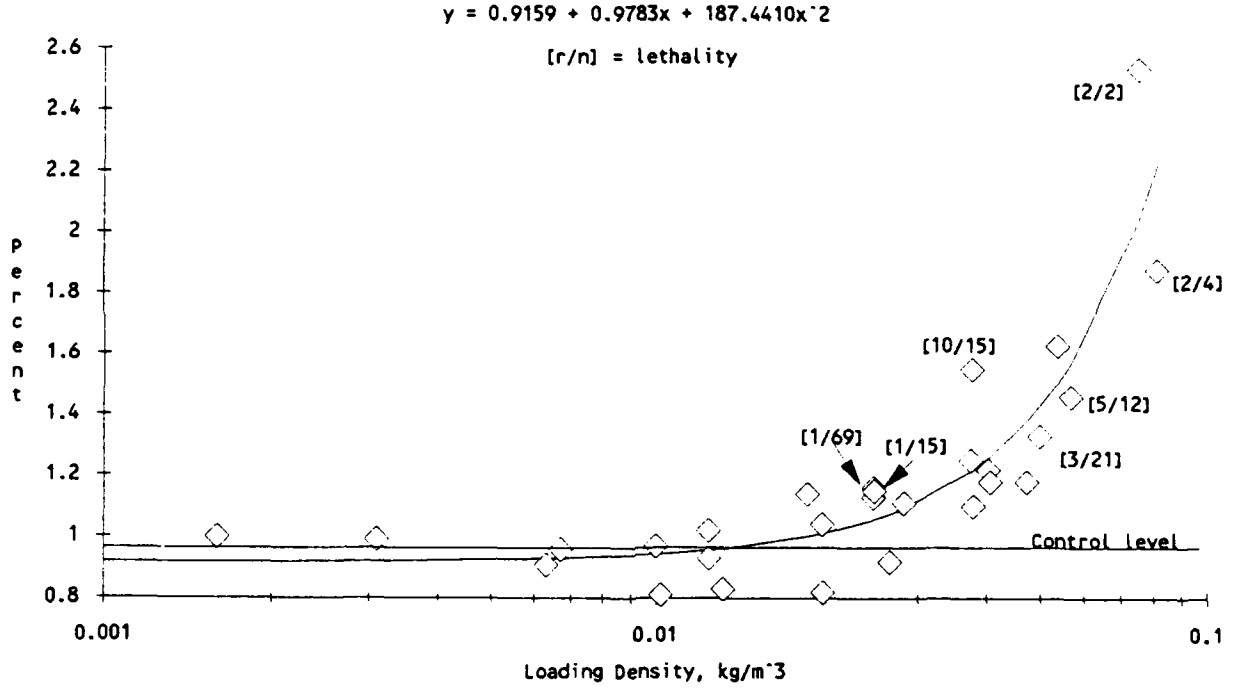


Figure 27. Smoothed peak pressure injury prediction curve for all enclosure volumes (Configurations A, B, C, and D).

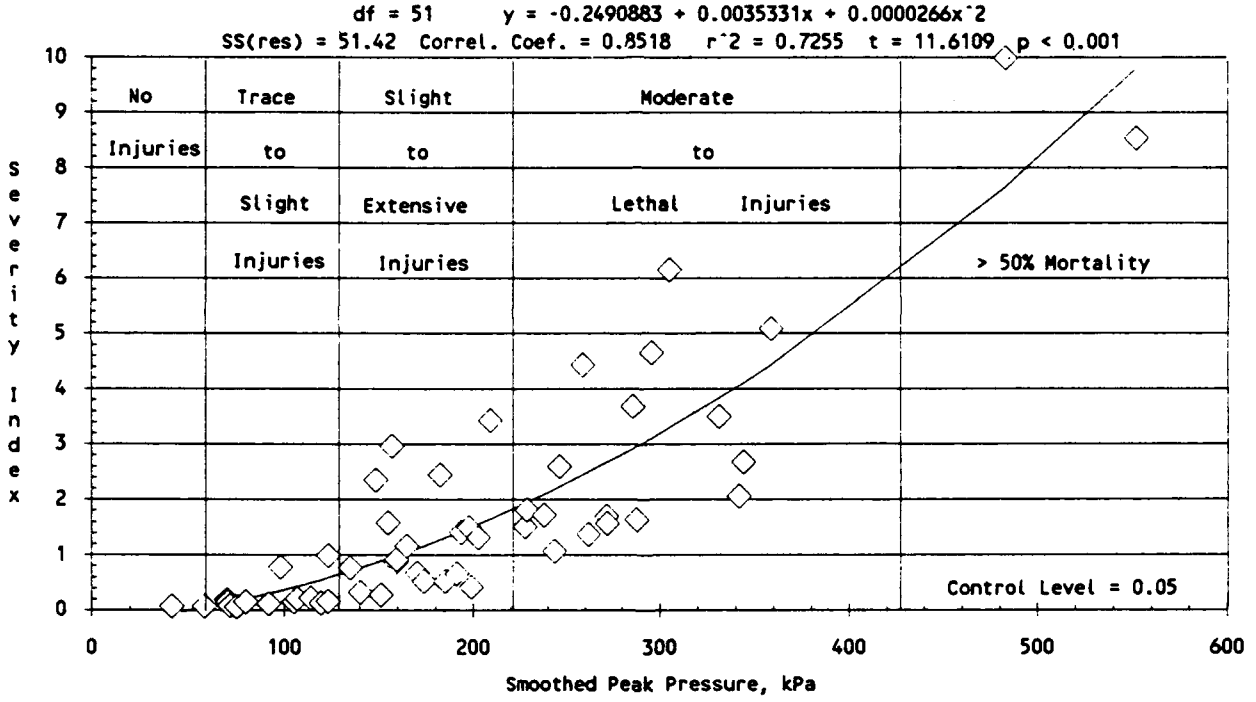


Figure 28. Relationship between the calculated smooth peak pressures (Psm) and the maximum pressures (Pmax) recorded in the 11.3-, 18.2- and 36.3-m^3 enclosures using the mean values of gauges 1, 2 and 4 on the instrument cylinder.

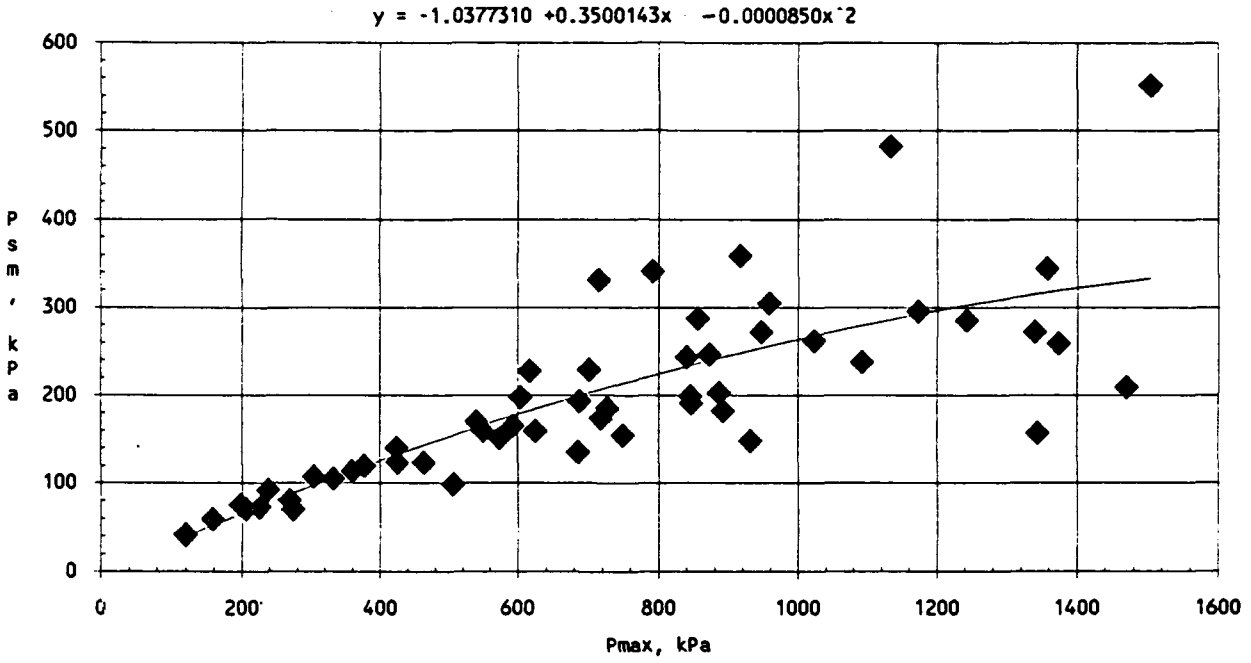
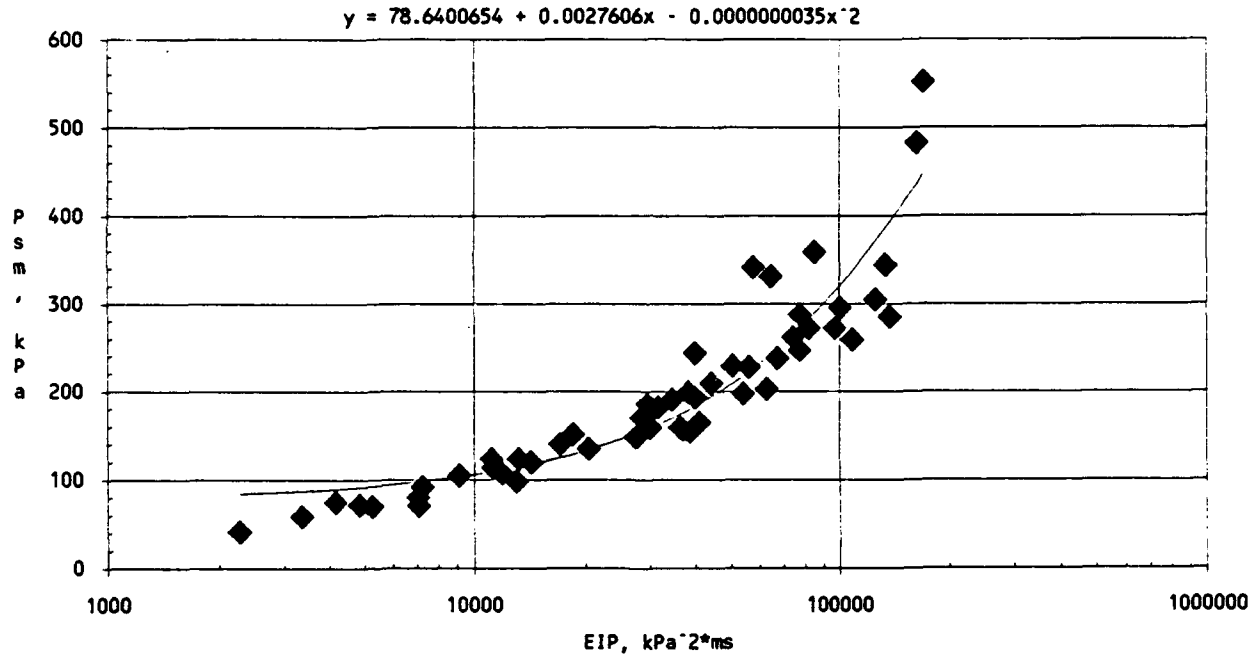
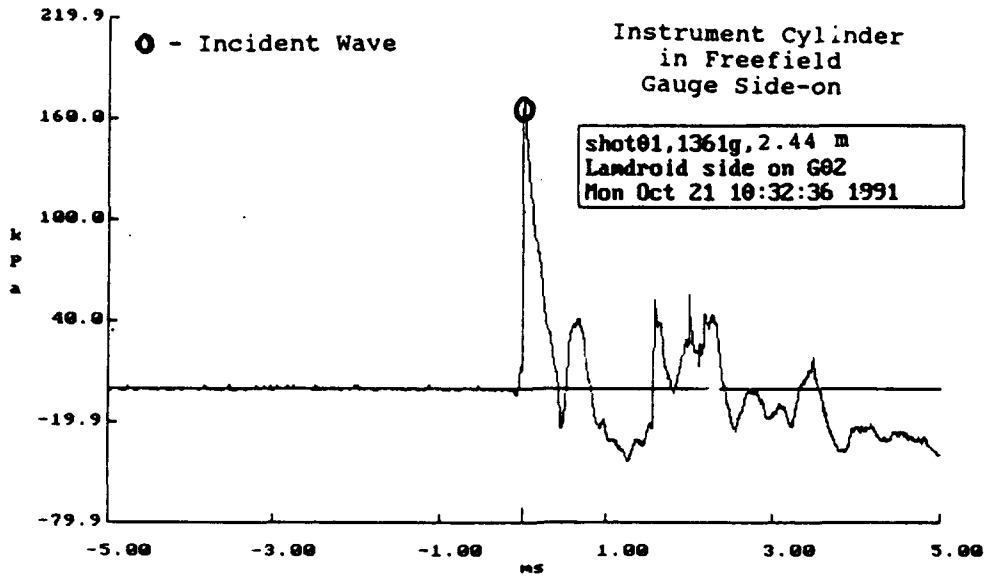


Figure 29. Relationship between the calculated smooth peak pressures (Psm) and the effective impulse powers (EIP) recorded in the 11.3-, 18.2- and 36.3- m^3 enclosures using the mean values of gauges 1, 2 and 4 on the instrument cylinder.





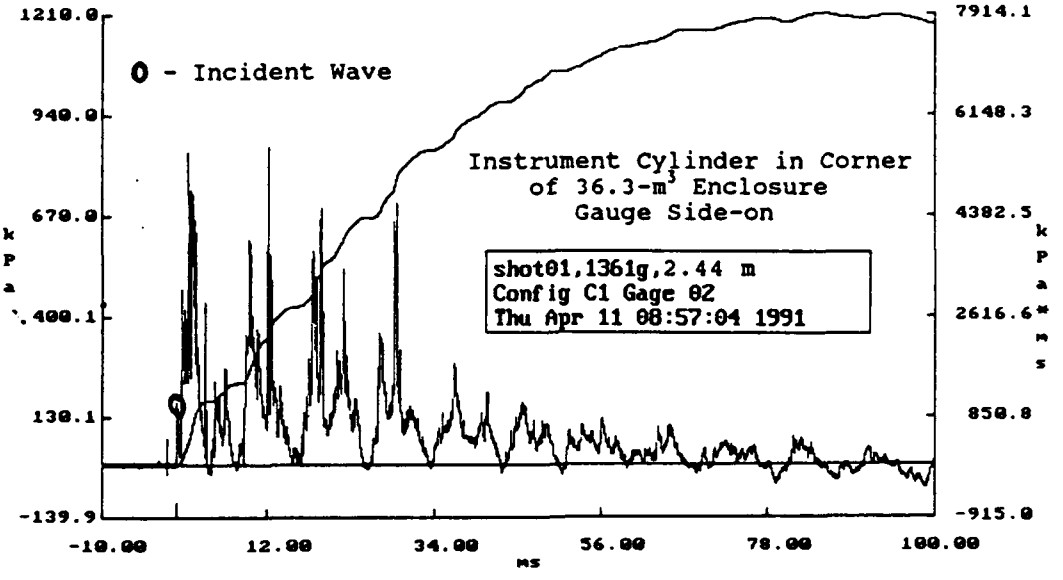


Figure 30. Comparison between the incident wave recorded by gauge 2 of the instrument cylinder outdoors in the freefield and in the 36.3-m^3 enclosure at 8 ft/2.44 m from a 1361 g C-4 detonation.

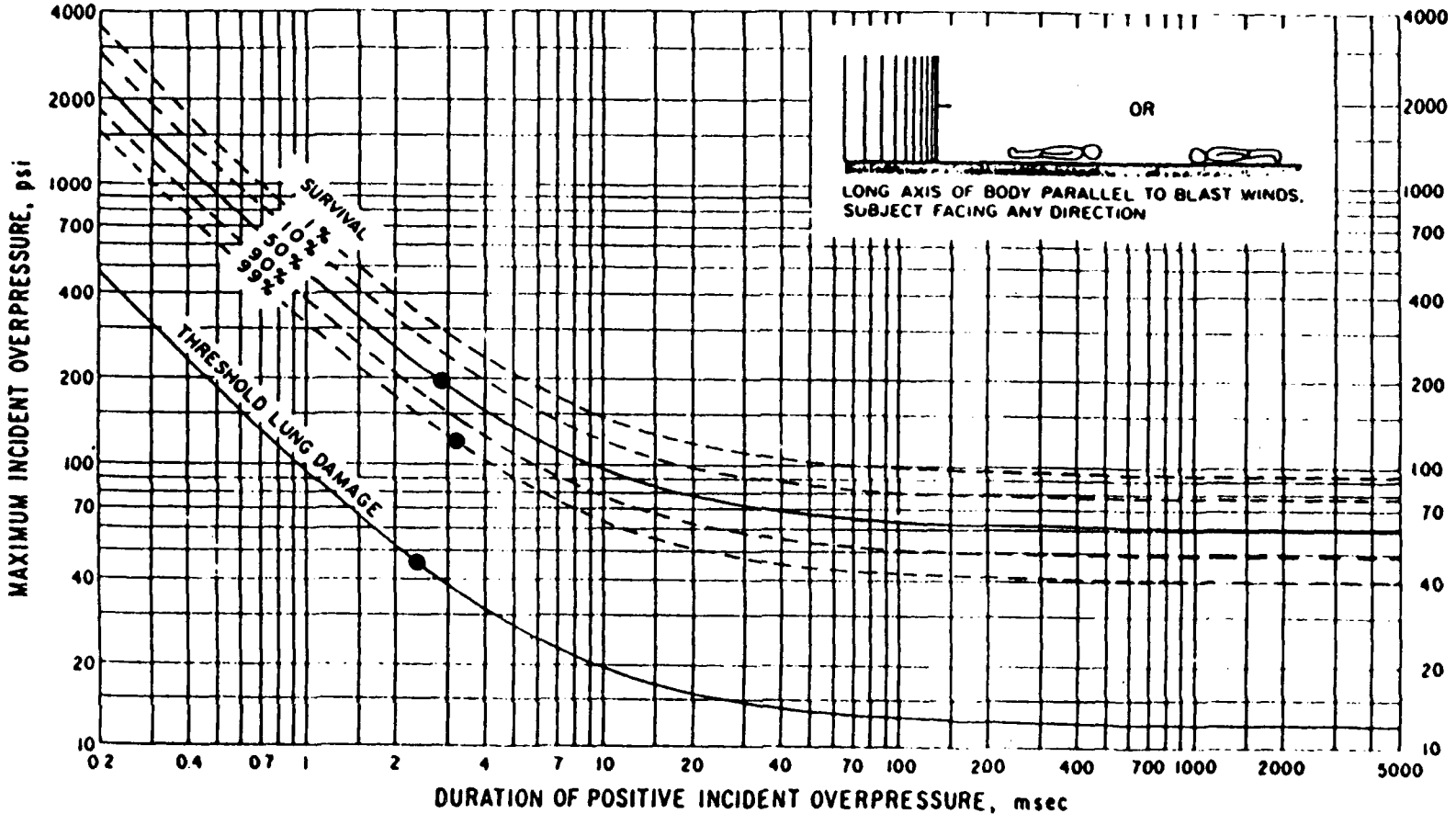


Figure 31. Survival curves predicted for 70-kg man applicable to freestream situation where the long axis of the body is parallel to the direction of propagation of the blast wave. From Bowen, Fletcher and Richmond, 1968.

Table 1. Number of sheep, ranges, and charge weights used in the protocol one experiments in the 3.05 x 2.44 x 2.44-m enclosure.

Configuration	Charge Weight,g	No. of Shots per Charge	Number of Sheep per Range							No. per Charge Weight
			3ft 0.91m	4ft 1.22m	4.7ft 1.43m	5.6ft 1.71m	6.6ft 2.01m	8.9ft 2.71m	9.8ft 2.99m	
			Charge in Center of Room							
A-1	114	7	6	6	6					18
Through	227	7	6	6	6					18
A-7	454	7	6	6	6					18
	907	7	6	6	6					18
	Subtotal	28	24	24	24					72
			Charge in Corner of Room							
A-8	454	5	5				5		5	15
Through	907	1	1				1		1	3
A-8/5	Subtotal	6	6				6		6	18
			Charge Centered Against One Wall							
A-9 Through A-9/3	454	6	6			6		6		18
			Charges Centered Against Opposite Walls							
A-10	2-227	3	3*			3				6
Through	227-454	3	3*			3				6
A-10/2	Subtotal	6	6			6				12
			Charge Centered Against One Wall							
B-9 Through B-9/2	454	3	3			3		3		9
Controls			1	1	1	1	1			5
	Total	49	46	25	25	16	7	9	6	134

* distance to closest charge

Table 2. Number of sheep, ranges and charge weights used in the protocol two experiments in the 4.88 x 3.05 x 2.44 and 3.05 x 1.52 x 2.44 -m enclosures and freefield.

Configuration	Charge Weight,g	No. of Shots per Charge Wt	Number of Sheep per Range					No. per Charge Weight
			3ft 0.91m	4ft 1.22m	4.2ft 1.28m	7ft 2.13m	8ft 2.44m	
			4.88 x 3.05 x 2.44-m Enclosure					
C-1	57	5		5		5	5	15
Through	113	5		5		5	5	15
C-1/4	454	5		5		5	5	15
	907	5		5		5	5	15
	1361	5		5		5	5	15
	Subtotal	25		25		25	25	75
			3.05 x 1.52 x 2.44-m Enclosure					
D-1	113	5	5	5	5			15
Through	227	5	5	5	5			15
D-1/4	454	5	5	5	5			15
	Subtotal	15	15	15	15			45
			Orientation Effects					
Right-side-on	1361	3		4			2	6
Left-side-on	1361	2		4				4
Face-on	1361	2		4				4
Back-on	1361	2		4				4
45Degrees	1361	2		4				4
	Subtotal	11		20				22
Controls			1	1	1	1		4
	Total	51	16	61	16	26	27	146

Table 3. FY 90 pathology summary for the 3.05 x 2.44 x2.44- m enclosure, configurations A -1 through B-9/2.

			INSTRUMENT CYLINDER														
RANGE, ft/m	CONFIG.	ANIMAL	Pmax, kPa	Psm, kPa	EIP kPa^2*ms	CHARGE WT., g	LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
3/0.91	A-1	2	273.0	70.1	5232	114	0.71	NEG	0	NEG	0	NEG	0	SL	12	NEG	0	0.33
	A-2	14					0.84	NEG	0	TRACE	3	NEG	0	TRACE	3	NEG	0	0.11
	A-1	3					0.84	NEG	0	NEG	0	NEG	0	TRACE	3	NEG	0	0.15
	A-2	15					0.89	NEG	0	NEG	0	SL	5	SL	5	NEG	0	0.20
	A-3	22					0.93	SL	10	TRACE	3	TRACE	3	TRACE	3	NEG	0	0.32
	A-3	23					0.94	NEG	0	TRACE	3	NEG	0	NEG	0	NEG	0	0.05
						Mean	0.86	TRACE	2	TRACE	2	TRACE	1	TRACE	4	NEG	0	0.19
						SD	0.08		4		2		2		4		0	0.11
						SE	0.03		2		1		1		2		0	0.05
3/0.91	A-1	500	505.5	98.2	13035	227	1.03	MOD	33	SL	6	SL	8	MOD	26	NEG	0	1.83
	A-2	16					0.92	MOD	24	SL	6	NEG	0	SL	5	NEG	0	0.73
	A-1	6					0.88	SL	12	SL	6	SL	5	SL	5	NEG	0	0.61
	A-2	17					0.92	SL	12	TRACE	3	SL	6	SL	12	NEG	0	0.70
	A-3	25					0.93	SL	12	TRACE	4	SL	6	SL	5	NEG	0	0.47
	A-3	26					0.95	SL	10	TRACE	3	NEG	0	SL	6	NEG	0	0.33
n = 6						Mean	0.94	SL	17	SL	5	TRACE	4	SL	10	NEG	0	0.78
						SD	0.05		9		2		3		8		0	0.54
						SE	0.02		4		1		1		3		0	0.22
3/0.91	A-1	8	749.2	154.9	38686	454	0.86	SL	21	SL	5	MOD	16	MOD	22	NEG	0	1.48
	A-2	18					0.92	SL	21	SL	8	MOD	18	MOD	26	NEG	0	1.61
	A-1	9					1.27	EXT	52	MOD	18	MOD	16	MOD	20	NEG	0	2.31
	A-2	19					1.17	M-EXT	36	SL	16	SL	6	MOD	24	NEG	0	1.44
	A-3	28					1.21	MOD	33	SL	6	NEG	0	EXT	36	SL	6	1.64
		29					0.87	SL	18	SL	5	SL	5	MOD	24	TRACE	3	1.02
						Mean	1.05	MOD	30	SL	10	SL	10	MOD	25	TRACE	2	1.58
						SD	0.19		13		6		7		6		3	0.42
						SE	0.08		5		2		3		2		1	0.17
3/0.91	A-8	76	1343.1	157.0	36996	454	1.62	EXT	44	MOD	22	NEG	0	MOD	24	TRACE	3	1.96
	A-8	79					1.73	EXT	52	MOD	18	SL	18	EXT	52	SL	12	4.19
	A-8/3	85					1.00	EXT	39	MOD	22	SL	14	MOD	22	NEG	0	1.90
	A-8/4	88					0.86	M-EXT	36	MOD	20	SL	18	EXT	30	TRACE	3	3.24
	A-8/5	91					1.99	EXT	48	MOD	20	MOD	22	MOD	28	NEG	0	3.55
						Mean	1.44	EXT	44	MOD	20	SL	14	EXT	31	TRACE	4	2.97
						SD	0.49		6		2		9		12		5	1.01
						SE	0.22		3		1		4		5		2	0.45

Table 3 (continued). FY 90 pathology summary for the 3.05 x 2.44 x2.44- m enclosure, configurations A -1 through B-9/2.

RANGE, ft/m	CONFIG.	ANIMAL	INSTRUMENT CYLINDER Pmax, kPa	Psm, kPa	EIP kPa^2*ms	CHARGE WT., g	LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
3/0.91	A-9	94	1470.4	209.2	44238	454	1.44	EXT	39	MOD	18	MOD	20	EXT	42	SL	18	3.79
	A-9	97					1.79	EXT	56	MOD	22	SL	14	MOD	22	NEG	0	2.40
	A-9/2	100					1.91	EXT	60	MOD	20	SL	8	EXT	36	SL	9	3.77
	A-9/2	103					1.75	EXT	52	EXT	48	EXT	40	EXT	42	SL	16	4.96
	A-9/3	106					1.61	EXT	52	MOD	20	SL	7	EXT	39	TRACE	4	2.41
	A-9/3	109					1.57	EXT	56	SL	16	SL	14	MOD	24	TRACE	3	3.30
						Mean	1.68	EXT	53	EXT	24	SL	17	EXT	34	SL	8	3.44
						SD	0.17		7		12		12		9		7	0.97
						SE	0.07		3		5		5		4		3	0.40
3/0.91	B-9/2	125	930.4	148.3	27443	454	1.76	EXT	56	MOD	22	SL	18	MOD	28	TRACE	4	2.60
	B-9	128					1.60	EXT	48	MOD	22	SL	14	MOD	26	NEG	0	2.14
	B-9	131					1.51	EXT	52	MOD	22	SL	18	MOD	24	TRACE	4	2.33
						Mean	1.62	EXT	52	MOD	22	SL	17	MOD	26	TRACE	3	2.36
						SD	0.13		4		0		2		2		2	0.23
						SE	0.07		2		0		1		1		1	0.13
3-9.6/	A-10	112	592.4	164.8	40944	2-227	0.99	SL	21	SL	8	SL	6	MOD	22	NEG	0	1.22
.91-2.93	A-10	115					1.12	SL	21	SL	7	SL	5	SL	6	NEG	0	0.89
	A-10/2	119					1.01	SL	21	MOD	18	SL	6	MOD	24	NEG	0	1.39
						Mean	1.04	SL	21	SL	11	SL	6	SL	17	NEG	0	1.17
						SD	0.07		0		6		1		10		0	0.25
						SE	0.04		0		4		0		6		0	0.15
3-9.6/	A-10	117**	872.3	246.3	77269	227-454	1.41	EXT	48	SL	16	SL	7	MOD	26	TRACE	3	3.97
.91-2.93	A-10/2	121					1.46	EXT	44	SL	7	MOD	20	MOD	22	NEG	0	1.80
	A-10/2	123					1.15	MOD	30	MOD	18	SL	14	EXT	36	NEG	0	2.00
						Mean	1.34	EXT	41	SL	14	SL	14	MOD	28	TRACE	1	2.59
						SD	0.17		9		6		7		7		2	1.20
						SE	0.10		5		3		4		4		1	0.69

Table 3 (continued). FY 90 pathology summary for the 3.05 x 2.44 x2.44- m enclosure, configurations A -1 through B-9/2.

RANGE, ft/m	CONFIG.	ANIMAL	INSTRUMENT CYLINDER Pmax, kPa	Psm, kPa	EIP kPa^2*ms	CHARGE WT., g	LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
3/0.91	A-1	11	1373.0	258.7	108401	907	1.62	EXT	60	MOD	18	MOD	20	EXT	39	NEG	0	4.07
	A-2	21					1.40	EXT	39	MOD	22	EXT	40	EXT	36	TRACE	3	3.99
	A-1	12					1.86	EXT	56	SL	16	MOD	20	MOD	26	TRACE	3	2.47
	A-2	20					1.06	EXT	52	MOD	20	MOD	22	MOD	26	SL	5	2.34
	A-3	31					1.42	EXT	60	MOD	20	EXT	36	MOD	22	TRACE	3	3.08
		32**				AIR	1.33	EXT	42	SL	16	SL	7	EXT	39	TRACE	4	10.68
						Mean	1.45	EXT	52	MOD	19	MOD	24	EXT	31	TRACE	3	4.44
						SD	0.27		9		2		12		8		2	3.15
						SE	0.11		4		1		5		3		1	1.28
						907												
3/0.91	A-8/2	82**	NO DATA	NO DATA	NO DATA	HEMOP.	1.59	EXT	52	EXT	48	EXT	52	EXT	39	MOD	28	14.85
4/1.22	A-4	34	225.4	71.9	4825	114	0.98	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
	A-4	35					0.85	BLEB	4	SL	6	TRACE	4	NEG	0	NEG	0	0.24
	A-7	65					0.81	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
						Mean	0.88	TRACE	1	TRACE	2	TRACE	1	NEG	0	NEG	0	0.08
						SD	0.09		2		3		2		0		0	0.14
						SE	0.05		1		2		1		0		0	0.08
4/1.22	A-5	45	573.7	151.2	18532	114	0.85	TRACE	4	TRACE	3	TRACE	4	NEG	0	NEG	0	0.56
	A-6	56					1.13	NEG	0	NEG	0	NEG	0	TRACE	4	NEG	0	0.08
	A-7	64					0.82	NEG	0	NEG*	0	TRACE*	3	SL	7	NEG	0	0.20
						Mean	0.93	TRACE	1	TRACE	1	TRACE	2	TRACE	4	NEG	0	0.28
						SD	0.17		2		2		2		4		0	0.25
						SE	0.10		1		1		1		2		0	0.14
4/1.22	A-4	36	303.6	107.1	11903	227	0.87	NEG	0	NEG	0	SL	5	SL	14	NEG	0	0.38
	A-4	37					0.94	NEG	0	SL	5	NEG	0	NEG	0	NEG	0	0.08
	A-7	68					1.00	NEG	0	TRACE	3	NEG	0	SL	5	NEG	0	0.15
						Mean	0.94	NEG	0	TRACE	3	TRACE	2	SL	6	NEG	0	0.21
						SD	0.07		0		3		3		7		0	0.16
						SE	0.04		0		1		2		4		0	0.09
4/1.22	A-5	48	844.9	199.1	38133	227	0.86	NEG	0	TRACE	3	NEG	0	TRACE	3	NEG	0	0.11
	A-6	58					1.07	SL	12	SL	6	TRACE	3	NEG	0	NEG	0	0.45
	A-7	67					1.15	MOD	27	TRACE	3	SL	6	SL	6	NEG	0	0.71
						Mean	1.03	SL	13	TRACE	4	TRACE	3	TRACE	3	NEG	0	0.42
						SD	0.15		14		2		3		3		0	0.30
						SE	0.09		8		1		2		2		0	0.17

Table 3 (continued). FY 90 pathology summary for the 3.05 x 2.44 x2.44- m enclosure, configurations A -1 through B-9/2.

			INSTRUMENT CYLINDER															
RANGE, ft/m	CONFIG.	ANIMAL	Pmax, kPa	Psm, kPa	EIP kPa^2*ms	CHARGE WT., g	LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
4/1.22	A-4	38	686.8	193.4	39919	454	0.85	MOD	24	TRACE	4	SL	5	MOD	28	NEG	0	1.12
	A-4	39					0.90	SL	18	SL	5	SL	6	MOD	26	TRACE	4	2.21
	A-7	71					0.97	SL	12	EXT	24	SL	6	SL	10	NEG	0	0.90
						Mean	0.91	SL	18	SL	11	SL	6	MOD	21	TRACE	1	1.41
						SD	0.06		6		11		1		10		2	0.70
						SE	0.03		3		7		0		6		1	0.40
4/1.22	A-5	5100	886.2	202.6	62543	454	0.90	SL	21	SL	7	SL	6	MOD	22	TRACE	4	1.32
	A-6	60					1.30	EXT	39	SL	7	SL	12	SL	14	NEG	0	1.53
	A-7	70					0.87	SL	12	SL	7	SL	6	MOD	22	TRACE	4	1.12
						Mean	1.02	MOD	24	SL	7	SL	8	MOD	19	TRACE	3	1.32
						SD	0.24		14		0		3		5		2	0.21
						SE	0.14		8		0		2		3		1	0.12
4/1.22	A-4	4000	946.8	271.8	96854	907	1.25	EXT	56	SL	9	MOD	20	MOD	26	TRACE	3	2.36
	A-4	41					0.95	MOD	30	SL	5	SL	7	MOD	26	TRACE	4	1.47
	A-7	74					0.88	SL	21	SL	8	SL	6	MOD	24	NEG	0	1.28
						Mean	1.03	MOD/EXT	36	SL	7	SL	11	MOD	25	TRACE	2	1.70
						SD	0.20		18		2		8		1		2	0.58
						SE	0.11		10		1		5		1		1	0.33
4/1.22	A-5	54	1241.4	285.5	137446	907	0.96	MOD	30	MOD	20	SL	12	MOD	28	MOD	21	5.74
	A-6	62					1.73	EXT	52	MOD	18	MOD	20	MOD	26	NEG	0	2.44
	A-7	73					1.42	M-EXT	36	MOD	22	SL	6	MOD	28	TRACE	3	2.90
						Mean	1.37	EXT	39	MOD	20	SL	13	MOD	27	SL	8	3.69
						SD	0.39		11		2		7		1		11	1.79
						SE	0.22		7		1		4		1		7	1.03
4.7/1.43	A-1	4	236.6	91.9	7236	114	0.98	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.08
	A-3	24					0.99	NEG	0	NEG	0	SL	6	NEG	0	NEG	0	0.11
	A-6	57					1.09	NEG(PN)	0	SL	6	SL	6	NEG	0	NEG	0	0.21
	A-7	66					0.90	NEG(CYT)	0	TRACE	4	NEG	0	NEG	0	NEG	0	0.07
	A-5	44					0.87	NEG	0	TRACE	3	NEG	0	NEG	0	NEG	0	0.05
	A-5	46					1.00	NEG	0	SL	6	SL	5	NEG	0	NEG	0	0.19
						Mean	0.97	NEG	0	TRACE	3	TRACE	3	NEG	0	NEG	0	0.12
						SD	0.08		0		3		3		0		0	0.07
						SE	0.03		0		1		1		0		0	0.03

Table 3 (continued). FY 90 pathology summary for the 3.05 x 2.44 x2.44- m enclosure, configurations A -1 through B-9/2.

			INSTRUMENT CYLINDER														
RANGE,	CONFIG.	ANIMAL	Pmax,	Psm,	EIP	CHARGE	LW/BW,	LUNGS		PHARYNX/		TRACHEA		GI TRACT		SOLID AB.	ADJ.SEV.
ft/m			kPa	kPa	kPa^2*ms	WT., g	%			LARYNX						ORGANS	INDEX
4.7/1.43	A-1	7	423.3	140.3	17154	227	0.89	NEG	0	TRACE	4	SL	7	TRACE	4	NEG	0	0.28
	A-3	27					1.03	NEG	0	TRACE	3	SL	6	TRACE	3	NEG	0	0.22
	A-6	59					0.97	NEG	0	SL	6	TRACE	2	TRACE	3	NEG	0	0.30
	A-7	69					0.80	SL	5	SL	5	SL	5	TRACE	3	NEG	0	0.31
	A-5	47					0.97	TRACE	4	TRACE	4	NEG	0	TRACE	4	NEG	0	0.50
						Mean	0.93	TRACE	2	TRACE	4	TRACE	4	TRACE	3	NEG	0	0.32
						SD	0.09		2		1		3		1		0	0.11
						SE	0.04		1		1		1		0		0	0.05
4.7/1.43	A-5	49OD	550.2	143.7	15804	227	OD PRE	SL		TRACE		TRACE		PMD		NEG		
4.7/1.43	A-1	10**	700.6	228.9	50372	454AIR	0.78	SL	16	SL	7	SL	7	MOD	24	NEG	0	7.24
	A-3	30				454	0.92	SL	12	SL	7	SL	7	SL	9	TRACE	3	0.69
	A-6	61					1.19	SL	12	SL	12	TRACE	4	SL	6	NEG	0	0.59
	A-7	72					0.99	SL	14	SL	16	SL	7	SL	18	NEG	0	0.99
	A-5	50					1.01	SL	12	MOD	20	SL	5	SL	16	NEG	0	0.95
	A-5	52					0.99	TRACE	4	SL	8	SL	5	SL	9	NEG	0	0.47
						Mean	0.98	SL	12	SL	12	SL	6	SL	14	TRACE	1	1.82
						SD	0.13		4		5		1		7		1	2.66
						SE	0.05		2		2		1		3		1	1.09
4.7/1.43	A-1	13	1356.7	344.1	133852	907	1.74	EXT	44	MOD	20	SL	18	MOD	28	SL	12	3.50
	A-3	33					1.06	MOD	30	SL	8	MOD	20	MOD	24	TRACE	4	1.99
	A-6	63					1.74	EXT	52	MOD	20	SL	18	MOD	26	NEG	0	2.73
	A-7	75					0.98	MOD	30	SL	7	SL	9	MOD	20	TRACE	4	1.43
	A-5	53					1.13	M-EXT	36	MOD	22	MOD	28	MOD	24	NEG	0	2.09
	A-5	55					1.01	MOD	30	MOD	20	SL	16	EXT	36	SL	15	4.34
						Mean	1.28	EXT	37	SL	16	SL	18	MOD	26	SL	6	2.68
						SD	0.36		9		7		6		5		6	1.08
						SE	0.15		4		3		3		2		3	0.44

Table 3 (continued). FY 90 pathology summary for the 3.05 x 2.44 x2.44- m enclosure, configurations A -1 through B-9/2.

RANGE, ft/m	CONFIG.	ANIMAL	INSTRUMENT CYLINDER Pmax, kPa	Psm, kPa	EIP kPa^2*ms	CHARGE WT., g	LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
5.6/1.71	A-9	95	624.8	159.0	36206	454	1.26	SL	21	SL	6	SL	5	SL	9	NEG	0	0.71
	A-9	98					0.96	SL	5	SL	14	SL	6	TRACE	3	NEG	0	0.48
	A-9/2	101					0.99	SL	12	SL	9	SL	5	SL	8	NEG	0	0.79
	A-9/2	104					0.96	SL	21	SL	6	SL	12	SL	5	TRACE	4	1.10
	A-9/3	107					1.10	MOD	27	MOD	20	SL	8	MOD	20	NEG	0	1.47
	A-9/3	110					0.96	TRACE	3	SL	6	SL	7	SL	6	NEG	0	0.66
						Mean	1.04	SL	15	SL	10	SL	7	SL	9	TRACE	1	0.87
						SD	0.12		10		6		3		6		2	0.36
						SE	0.05		4		2		1		2		1	0.15
5.6/1.71	B-9/2	126	685.6	134.9	20451	454	1.19	MOD	24	SL	16	SL	7	SL	5	NEG	0	0.87
	B-9	129					1.03	SL	12	SL	8	SL	8	SL	6	NEG	0	0.65
	B-9	132					0.89	SL	14	MOD	18	SL	9	SL	5	NEG	0	0.79
						Mean	1.04	SL	17	SL	14	SL	8	SL	5	NEG	0	0.77
						SD	0.15		6		5		1		1		0	0.11
						SE	0.09		4		3		1		0		0	0.07
5.6/1.71	A-10	113	616.2	227.9	55974	2-227	1.11	SL	12	EXT	24	SL	6	SL	7	NEG	0	0.96
	A-10	116					1.23	EXT	39	MOD	18	SL	18	MOD	24	TRACE	3	1.80
	A-10/2	120					1.31	M-EXT	36	MOD	20	MOD	20	MOD	24	NEG	0	1.76
						Mean	1.22	MOD	29	MOD	21	SL	15	SL	18	TRACE	1	1.51
						SD	0.10		15		3		8		10		2	0.48
						SE	0.06		9		2		4		6		1	0.28
5.6/1.71	A-10	118	855.8	287.6	77721	227-454	1.19	M-EXT	36	MOD	22	SL	16	MOD	28	TRACE	3	1.87
	A-10/2	122					1.22	MOD	24	MOD	18	MOD	20	MOD	22	NEG	0	1.57
	A-10/2	124					1.06	SL	16	SL	8	MOD	20	MOD	20	NEG	0	1.46
						Mean	1.16	MOD	25	SL	16	MOD	19	MOD	23	TRACE	1	1.64
						SD	0.09		10		7		2		4		2	0.21
						SE	0.05		6		4		1		2		1	0.12
6.6/2.01	A-8	77	539.1	170.0	28426	454	0.99	TRACE	4	SL	7	SL	7	NEG	0	NEG	0	0.46
	A-8	80					1.03	TRACE	4	SL	6	SL	6	MOD	20	NEG	0	0.84
	A-8/3	86					0.84	TRACE	3	SL	5	SL	6	SL	16	NEG	0	0.57
	A-8/4	89					0.86	SL	20	TRACE	3	SL	6	SL	14	NEG	0	0.76
	A-8/5	92					0.98	SL	16	SL	7	SL	6	SL	12	NEG	0	0.73
						Mean	0.94	SL	9	SL	6	SL	6	SL	12	NEG	0	0.67
						SD	0.08		8		2		0		8		0	0.15
						SE	0.04		4		1		0		3		0	0.07

Table 3 (continued). FY 90 pathology summary for the 3.05 x 2.44 x2.44- m enclosure, configurations A -1 through B-9/2.

			INSTRUMENT CYLINDER															
RANGE, ft/m	CONFIG.	ANIMAL	Pmax, kPa	Psm, kPa	EIP kPa^2*ms	CHARGE WT., g	LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
6.6/2.01	A-8/2	83	NO DATA	NO DATA	NO DATA	907	1.14	MOD	24	MOD	20	SL	12	MOD	22	TRACE	4	1.63
8.9/2.71	A-9	96	715.0	331.2	64450	454	1.01	M-EXT	36	MOD	20	SL	7	MOD	24	MOD	24	5.22
	A-9	99					1.03	MOD	30	SL	8	SL	10	SL	11	EXT	36	2.83
	A-9/2	102					1.19	MOD	30	SL	14	MOD	20	MOD	22	SL	5	1.64
	A-9/2	105					0.94	MOD	33	SL	7	SL	7	MOD	20	MOD	24	4.72
	A-9/3	108					1.06	MOD	33	MOD	20	SL	9	MOD	22	TRACE	4	1.56
	A-9/3	111					1.05	MOD	30	MOD	18	SL	8	MOD	20	EXT	32	5.06
						Mean	1.05	MOD	32	SL	15	SL	10	MOD	20	MOD	21	3.51
						SD	0.08		2		6		5		5		13	1.71
						SE	0.03		1		2		2		2		6	0.70
8.9/2.71	B-9/2	127	NO DATA	NO DATA	NO DATA	454.0	1.62	MOD	33	MOD	18	SL	18	SL	18	TRACE	4	2.61
	B-9	130					1.50	M-EXT	36	SL	12	SL	14	MOD	22	SL	5	2.59
	B-9	133					1.11	MOD	33	MOD	22	SL	18	MOD	22	TRACE	4	2.76
						Mean	1.41	MOD	34	MOD	17	SL	17	MOD	21	TRACE	4	2.65
						SD	0.27		2		5		2		2		1	0.09
						SE	0.15		1		3		1		1		0	0.05
9.8/2.99	A-8	78	791.2	341.6	57535	454	1.04	EXT	39	SL	16	MOD	20	SL	18	MOD	24	3.26
	A-8	81					0.97	M-EXT	36	SL	6	SL	8	MOD	20	MOD	24	2.85
	A-8/3	87					1.18	EXT	42	SL	16	MOD	20	SL	10	NEG	0	1.49
	A-8/4	90					0.98	SL	20	MOD	18	SL	8	MOD	26	NEG	0	1.30
	A-8/5	93					1.26	MOD	22	MOD	18	MOD	22	SL	18	NEG	0	1.42
						Mean	1.09	MOD	32	SL	15	SL	16	SL	18	SL	10	2.07
						SD	0.13		10		5		7		6		13	0.92
						SE	0.06		5		2		3		3		6	0.41
9.8/2.99	A-8/2	84**	1503.8	552.4	170248	907AIR	1.80	EXT	60	SL	16	SL	18	MOD	26	SL	5	8.54
	CONTROL	1C					0.83	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
	CONTROL	42C					0.91	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
	CONTROL	43C					DISEASE	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
	CONTROL	114C					0.93	NEG	0	NEG	0	SL	6	NEG	0	NEG	0	0.11
	CONTROL	134C					1.02	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
						Mean	0.92	NEG	0	NEG	0	TRACE	1	NEG	0	NEG	0	0.02
						SD	0.08		0		0		3		0		0	0.05
						SE	0.03		0		0		1		0		0	0.02

** Animal died from blast injury

OD - Animal died from a drug overdose

Table 4. FY 91 pathology and pressure-time summary for the 4.88 x 3.05 x 2.44 -and 3.05 x 1.52 x 2.44 - m enclosures for configurations C-1 through D-1/4 , orientation tests and combined controls.

			INSTRUMENT CYLINDER															
RANGE, ft/m	CONFIG.	ANIMAL	Pmax, kPa	Psm, kPa	EIP, kPa^2*ms	CHARGE WT., g	LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
4.88 X 3.05 X 2.44 - m Enclosure																		
4/1.22	C-1	256	157.9	58.7	3343	57	1.11	SL	5	NEG	0	NEG	0	NEG	0	NEG	0	0.08
	C-1	259					1.03	NEG	0	NEG	0	TRACE	3	NEG	0	NEG	0	0.05
	C-1/2	265					0.98	TRACE	3	SL	5	NEG	0	NEG	0	NEG	0	0.13
	C-1/3	271					0.87	NEG	0	SL	5	NEG	0	NEG	0	NEG	0	0.08
	C-1/4	277					1.03	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
						Mean	1.00	TRACE	2	TRACE	2	TRACE	1	NEG	0	NEG	0	0.07
						SD	0.09		2		3		1		0		0	0.05
						SE	0.04		1		1		1		0		0	0.02
7/2.13	C-1	257	119.5	41.8	2267	57	1.00	NEG	0	SL	6	NEG	0	NEG	0	NEG	0	0.10
	C-1	260					0.96	NEG	0	NEG	0	TRACE	3	NEG	0	NEG	0	0.05
	C-1/2	267					0.92	NEG	0	TRACE	3	NEG	0	NEG	0	NEG	0	0.05
	C-1/3	273					1.02	SL	10	NEG	0	NEG	0	NEG	0	NEG	0	0.16
	C-1/4	279					1.06	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
						Mean	0.99	TRACE	2	TRACE	2	TRACE	1	NEG	0	NEG	0	0.07
						SD	0.05		4		3		1		0		0	0.06
						SE	0.02		2		1		1		0		0	0.03
8/2.44	C-1	258	197.5	75.3	4146	57	0.96	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
	C-1	261					0.95	SL	12	NEG	0	NEG	0	NEG	0	NEG	0	0.19
	C-1/2	266					0.99	NEG	0	SL	6	NEG	0	NEG	0	NEG	0	0.10
	C-1/3	272					1.11	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
	C-1/4	278					1.04	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
						Mean	1.01	TRACE	2	TRACE	1	NEG	0	NEG	0	NEG	0	0.06
						SD	0.07		5		3		0		0		0	0.09
						SE	0.03		2		1		0		0		0	0.04
4/1.22	C-1	250	267.9	80.0	7031	113	1.02	NEG	0	SL	6	NEG	0	TRACE	3	NEG	0	0.16
	C-1	253					1.19	SL	12	NEG	0	NEG	0	NEG	0	NEG	0	0.19
	C-1/2	262					0.89	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
	C-1/3	268					0.90	SL	5	TRACE	3	SL	9	NEG	0	NEG	0	0.29
	C-1/4	274					1.15	NEG	0	SL	7	NEG	0	NEG	0	NEG	0	0.12
						Mean	1.03	TRACE	3	TRACE	3	TRACE	2	TRACE	1	NEG	0	0.15
						SD	0.14		5		3		4		1		0	0.11
						SE	0.06		2		1		2		1		0	0.05

Table 4(continued). FY 91 pathology and pressure-time summary for the 4.88 x 3.05 x 2.44 -and 3.05 x 1.52 x 2.44 - m enclosures for configurations C-1 through D-1/4 , orientation tests and combined controls.

			INSTRUMENT CYLINDER																
RANGE, ft/m	CONFIG.	ANIMAL	Pmax, kPa	Psm, kPa	EIP, kPa^2*ms	CHARGE WT., g	LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
7/2.13	C-1	251	205.3	71.0	7044	113	0.86	NEG	0	TRACE	4	SL	7	NEG	0	NEG	0	0.19
	C-1	254					0.99	SL	6	SL	5	TRACE	3	NEG	0	NEG	0	0.23
	C-1/2	264					0.85	TRACE	4	SL	5	SL	5	NEG	0	NEG	0	0.24
	C-1/3	270					0.90	TRACE	3	SL	5	NEG	0	NEG	0	NEG	0	0.13
	C-1/4	276					1.04	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
						Mean	0.93	TRACE	3	TRACE	4	TRACE	3	NEG	0	NEG	0	0.16
						SD	0.08		3		2		3		0		0	0.10
						SE	0.04		1		1		1		0		0	0.04
8/2.44	C-1	252	331.8	105.2	9110	113	1.03	TRACE	4	SL	6	TRACE	3	NEG	0	NEG	0	0.22
	C-1	255					1.05	TRACE	3	NEG	0	SL	6	NEG	0	NEG	0	0.16
	C-1/2	263					0.95	NEG	0	NEG	0	SL	5	NEG	0	NEG	0	0.09
	C-1/3	269					0.94	TRACE	4	SL	6	NEG	0	TRACE	3	NEG	0	0.23
	C-1/4	275					1.05	NEG	0	TRACE	3	NEG	0	NEG	0	NEG	0	0.05
						Mean	1.00	TRACE	2	TRACE	3	TRACE	3	TRACE	1	NEG	0	0.15
						SD	0.05		2		3		3		1		0	0.08
						SE	0.02		1		1		1		1		0	0.04
4/1.22	C-1	135	424.1	123.3	11164	454	1.04	SL	21	SL	5	SL	7	SL	5	NEG	0	0.92
	C-1	145					1.20	MOD	27	SL	6	SL	12	SL	7	NEG	0	1.10
	C-1/2	154					1.18	SL	18	SL	6	SL	9	SL	5	NEG	0	0.82
	C-1/3	163					0.97	SL	16	SL	5	SL	6	MOD	26	NEG	0	1.28
	C-1/4	173					1.01	SL	14	SL	8	SL	7	SL	7	NEG	0	0.82
						Mean	1.08	SL	19	SL	6	SL	8	SL	10	NEG	0	0.99
						SD	0.10		5		1		2		9		0	0.20
						SE	0.05		2		1		1		4		0	0.09
7/2.13	C-1	136	549.2	159.2	30131	454	1.11	MOD	30	SL	8	SL	18	SL	5	TRACE	4	1.12
	C-1	146					1.05	SL	6	SL	5	SL	14	MOD	22	NEG	0	0.89
	C-1/2	155					1.03	SL	16	SL	6	SL	7	SL	16	NEG	0	0.81
	C-1/3	164					0.95	MOD	24	SL	7	SL	6	SL	8	NEG	0	0.77
	C-1/4	174					0.84	SL	14	SL	7	SL	7	MOD	22	TRACE	3	0.99
						Mean	1.00	SL	18	SL	7	SL	10	SL	15	TRACE	1	0.92
						SD	0.10		9		1		5		8		2	0.14
						SE	0.05		4		1		2		4		1	0.06

Table 4(continued). FY 91 pathology and pressure-time summary for the 4.88 x 3.05 x 2.44 -and 3.05 x 1.52 x 2.44 - m enclosures for configurations C-1 through D-1/4 , orientation tests and combined controls.

			INSTRUMENT CYLINDER															
RANGE,	CONFIG.	ANIMAL	Pmax,	Psm,	EIP,	CHARGE	LW/BW,	LUNGS		PHARYNX/		TRACHEA		GI TRACT		SOLID		ADJ.SEV.
ft/m			kPa	kPa	kPa^2*ms	WT., g	%			LARYNX						AB. ORGANS		INDEX
8/2.44	C-1	137	839.4	243.6	39729	454	1.09	MOD	24	SL	6	SL	7	MOD	24	SL	7	1.26
	C-1	147					0.92	SL	18	SL	7	SL	14	MOD	20	SL	5	1.18
	C-1/2	156					1.06	SL	20	SL	12	SL	6	SL	6	NEG	0	0.75
	C-1/3	165					0.94	SL	12	SL	6	SL	12	SL	10	NEG	0	0.71
	C-1/4	175					0.95	MOD	30	SL	16	SL	12	MOD	22	TRACE	3	1.48
						Mean	0.99	SL	21	SL	9	SL	10	SL	16	TRACE	3	1.08
						SD	0.08		7		4		3		8		3	0.33
						SE	0.03		3		2		2		4		1	0.15
4/1.22	C-1	138	891.4	182.4	31580	907	1.54	EXT	52	SL	7	EXT	40	MOD	26	TRACE	4	2.52
	C-1	148					1.44	EXT	39	EXT	44	SL	7	MOD	24	SL	5	2.46
	C-1/2	157					1.40	EXT	48	SL	6	SL	12	MOD	28	NEG	0	1.86
	C-1/3	166					1.11	EXT	44	EXT	44	SL	7	EXT	39	SL	9	3.74
	C-1/4	176					1.01	MOD	27	SL	16	SL	5	MOD	28	TRACE	4	1.65
						Mean	1.30	EXT	42	EXT	23	SL	14	EXT	29	TRACE	4	2.45
						SD	0.23		10		19		15		6		3	0.82
						SE	0.10		4		9		7		3		1	0.36
7/2.13	C-1	139	603.8	197.6	54001	907	1.13	MOD	36	SL	8	SL	18	MOD	24	NEG	0	1.52
	C-1	149					0.95	MOD	30	SL	7	SL	7	MOD	24	NEG	0	1.21
	C-1/2	158					0.95	MOD	22	SL	7	SL	9	SL	18	TRACE	4	1.09
	C-1/3	167					0.87	MOD	33	SL	10	SL	8	MOD	24	SL	9	2.53
	C-1/4	177					0.91	MOD	22	SL	14	SL	5	,MOD	24	NEG	0	1.17
						Mean	0.96	MOD	29	SL	9	SL	9	MOD	23	TRACE	3	1.50
						SD	0.10		6		3		5		3		4	0.60
						SE	0.04		3		1		2		1		2	0.27
8/2.44	C-1	140	915.7	358.6	85195	907	1.14	MOD	33	MOD	18	MOD	20	EXT	36	SL	12	2.31
	C-1	150**					1.55	EXT	42	MOD	18	EXT	44	EXT	36	TRACE	4	11.53
	C-1/2	159					1.26	EXT	39	MOD	18	EXT	32	EXT	30	SL	5	3.42
	C-1/3	168					0.96	EXT	39	SL	12	SL	14	MOD	24	SL	6	2.70
	C-1/4	178					1.04	MOD	22	EXT	24	MOD	22	MOD	26	MOD	28	5.49
						Mean	1.19	MOD	35	MOD	18	MOD	26	EXT	30	SL	11	5.09
						SD	0.23		8		4		12		6		10	3.80
						SE	0.10		4		2		5		2		4	1.70

Table 4(continued). FY 91 pathology and pressure-time summary for the 4.88 x 3.05 x 2.44 -and 3.05 x 1.52 x 2.44 - m enclosures for configurations C-1 through D-1/4 , orientation tests and combined controls.

			INSTRUMENT CYLINDER															
RANGE,	CONFIG.	ANIMAL	Pmax,	Psm,	EIP,	CHARGE	LW/BW,	LUNGS		PHARYNX/		TRACHEA		GI TRACT		SOLID		ADJ.SEV.
ft/m			kPa	kPa	kPa^2*ms	WT., g	%			LARYNX						AB. ORGANS		INDEX
4/1.22	C-1	141**	1171.8	295.3	100337	1361	1.96	EXT	60	MOD	22	SL	18	MOD	26	NEG	0	5.10
	C-1	151**					1.59	EXT	56	SL	14	MOD	20	EXT	36	SL	9	7.48
	C-1/2	160					1.78	EXT	56	MOD	18	MOD	20	EXT	39	SL	18	4.12
	C-1/3	169					2.01	EXT	56	SL	16	SL	18	EXT	42	NEG	0	3.70
	C-1/4	179					1.14	EXT	52	MOD	22	SL	18	EXT	42	TRACE	4	2.87
						Mean	1.70	EXT	56	MOD	18	MOD	19	EXT	37	SL	6	4.65
						SD	0.35		3		4		1		7		8	1.77
						SE	0.16		1		2		0		3		3	0.79
7/2.13	C-1	142**	957.5	305.1	126012	1361	1.88	EXT	52	SL	16	MOD	22	EXT	42	SL	9	9.49
	C-1	152					1.29	EXT	39	SL	5	SL	12	EXT	39	NEG	0	1.72
	C-1/2	161**					1.28	M-EXT	36	SL	8	SL	18	EXT	36	MOD	20	10.66
	C-1/3	170					1.16	EXT	39	SL	12	SL	7	MOD	24	SL	15	2.78
	C-1/4	180**					1.12	EXT	39	SL	16	SL	6	MOD	28	TRACE	4	6.10
						Mean	1.35	EXT	41	SL	11	SL	13	EXT	34	SL	10	6.15
						SD	0.31		6		5		7		8		8	3.95
						SE	0.14		3		2		3		3		4	1.77
8/2.44	C-1	143**	1131.6	482.9	162605	1361	2.45	EXT	60	MOD	22	EXT	40	EXT	39	TRACE	4	14.24
	C-1	153**					1.63	EXT	42	EXT	40	EXT	40	EXT	36	SL	12	8.48
	C-1/2	162**					1.34	M-EXT	36	SL	7	EXT	36	MOD	26	MOD	28	7.35
	C-1/3	171**					1.14	EXT	39	SL	6	SL	14	EXT	30	MOD	28	10.45
	C-1/4	181**					1.47	EXT	42	MOD	18	MOD	24	EXT	39	SL	15	9.43
						Mean	1.61	EXT	44	MOD	19	EXT	31	EXT	34	SL	17	9.99
						SD	0.50		9		14		11		6		10	2.64
						SE	0.23		4		6		5		3		5	1.18
3.05 x 1.52 x 2.44 - m Enclosure																		
3/0.91	D-1	182	377.0	119.4	14265	113	1.01	NEG	0	NEG	0	NEG	0	TRACE	4	NEG	0	0.08
	D-1	191					0.96	NEG	0	TRACE	3	NEG	0	NEG	0	NEG	0	0.05
	D-1/2	202					0.83	NEG	0	TRACE	3	NEG	0	NEG	0	NEG	0	0.05
	D-1/3	211					1.11	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
	D-1/4	218					0.89	SL	14	SL	5	NEG	0	SL	8	NEG	0	0.47
						Mean	0.96	TRACE	3	TRACE	2	NEG	0	TRACE	2	NEG	0	0.13
						SD	0.11		6		2		0		4		0	0.19
						SE	0.05		3		1		0		2		0	0.09

Table 4(continued). FY 91 pathology and pressure-time summary for the 4.88 x 3.05 x 2.44 -and 3.05 x 1.52 x 2.44 - m enclosures for configurations C-1 through D-1/4 , orientation tests and combined controls.

			INSTRUMENT CYLINDER															
RANGE, ft/m	CONFIG.	ANIMAL	Pmax, kPa	Psm, kPa	EIP, kPa^2*ms	CHARGE WT., g	LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
4/1.22	D-1	184	359.1	114.0	11210	113	0.90	TRACE	4	TRACE	4	NEG	0	TRACE	3	NEG	0	0.19
	D-1	193					0.98	NEG	0	TRACE	3	TRACE	3	NEG	0	NEG	0	0.10
	D-1/2	200					0.93	TRACE	4	SL	7	SL	6	NEG	0	NEG	0	0.29
	D-1/3	209					0.97	SL	6	SL	8	NEG	0	NEG	0	NEG	0	0.23
	D-1/4	219					0.99	SL	10	TRACE	4	TRACE	3	NEG	0	NEG	0	0.28
						Mean	0.95	SL	5	SL	5	TRACE	2	TRACE	1	NEG	0	0.22
						SD	0.04		4		2		3		1		0	0.08
						SE	0.02		2		1		1		1		0	0.03
4.2/1.28	D-1	183	463.3	123.4	13212	113	0.90	NEG	0	SL	7	NEG	0	NEG	0	NEG	0	0.12
	D-1	192					1.02	SL	8	NEG	0	TRACE	3	NEG	0	NEG	0	0.18
	D-1/2	201					0.88	NEG	0	TRACE	3	NEG	0	NEG	0	NEG	0	0.05
	D-1/3	210					1.02	SL	6	TRACE	3	NEG	0	NEG	0	NEG	0	0.14
	D-1/4	220					1.11	TRACE	3	NEG	0	NEG	0	SL	7	NEG	0	0.30
						Mean	0.99	TRACE	3	TRACE	3	TRACE	1	TRACE	1	NEG	0	0.16
						SD	0.10		4		3		1		3		0	0.09
						SE	0.04		2		1		1		1		0	0.04
3/0.91	D-1	185	846.3	191.3	34473	227	0.88	SL	5	SL	5	NEG	0	MOD	24	NEG	0	0.83
	D-1	194					0.90	SL	12	SL	5	SL	5	SL	12	NEG	0	0.61
	D-1/2	205					1.04	SL	12	TRACE	4	NEG	0	MOD	20	NEG	0	0.67
	D-1/3	214					1.16	NEG	0	TRACE	3	NEG	0	SL	18	NEG	0	0.43
	D-1/4	221					1.09	SL	12	TRACE	4	NEG	0	SL	18	NEG	0	0.74
						Mean	1.01	SL	8	TRACE	4	TRACE	1	SL	18	NEG	0	0.66
						SD	0.12		5		1		2		4		0	0.15
						SE	0.05		2		0		1		2		0	0.07
4/1.22	D-1	187	726.8	185.1	29471	227	1.07	SL	10	SL	8	SL	5	NEG	0	NEG	0	0.38
	D-1	196					1.05	TRACE	4	SL	8	SL	5	MOD	20	NEG	0	0.70
	D-1/2	203					1.25	SL	12	SL	5	TRACE	3	SL	5	NEG	0	0.43
	D-1/3	212					0.91	SL	12	SL	5	SL	6	SL	12	NEG	0	0.69
	D-1/4	222					0.94	SL	8	TRACE	4	TRACE	3	SL	7	TRACE	3	0.46
						Mean	1.04	SL	9	SL	6	TRACE	4	SL	9	TRACE	1	0.53
						SD	0.13		3		2		1		8		1	0.15
						SE	0.06		1		1		1		3		1	0.07

Table 4(continued). FY 91 pathology and pressure-time summary for the 4.88 x 3.05 x 2.44 -and 3.05 x 1.52 x 2.44 - m enclosures for configurations C-1 through D-1/4 , orientation tests and combined controls.

			INSTRUMENT CYLINDER															
RANGE, ft/m	CONFIG.	ANIMAL	Pmax, kPa	Psm, kPa	EIP, kPa^2*ms	CHARGE WT., g	LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
4.2/1.28	D-1	186	717.6	173.9	29446	227	0.94	SL	14	TRACE	3	NEG	0	NEG	0	NEG	0	0.41
	D-1	195					0.97	TRACE	4	SL	7	SL	5	SL	5	NEG	0	0.37
	D-1/2	204					1.27	MOD	24	TRACE	4	SL	6	SL	8	NEG	0	0.72
	D-1/3	213					1.08	SL	12	TRACE	4	NEG	0	SL	14	NEG	0	0.60
	D-1/4	223					1.06	SL	12	SL	5	SL	5	SL	10	NEG	0	0.57
						Mean	1.06	SL	13	SL	5	TRACE	3	SL	7	NEG	0	0.53
						SD	0.13		7		2		3		5		0	0.14
						SE	0.06		3		1		1		2		0	0.06
3/0.91	D-1	188	1338.5	272.0	82213	454	1.02	MOD	27	MOD	18	TRACE	3	MOD	28	NEG	0	1.68
	D-1	197					0.97	SL	20	SL	7	TRACE	4	MOD	20	NEG	0	1.09
	D-1/2	208					1.49	EXT	44	SL	8	SL	6	MOD	24	NEG	0	1.73
	D-1/3	217					1.36	MOD	32	SL	7	SL	10	EXT	39	NEG	0	1.80
	D-1/4	224					1.36	MOD	27	TRACE	3	SL	5	MOD	26	NEG	0	1.57
						Mean	1.24	MOD	30	SL	9	SL	6	MOD	27	NEG	0	1.57
						SD	0.23		9		6		3		7		0	0.28
						SE	0.10		4		3		1		3		0	0.13
4/1.22	D-1	190	1091.6	238.1	66990	454	0.96	MOD	33	MOD	20	SL	5	MOD	26	NEG	0	1.64
	D-1	199					1.20	MOD	36	MOD	18	SL	18	MOD	20	TRACE	3	1.67
	D-1/2	206					1.44	EXT	39	SL	14	SL	6	MOD	24	TRACE	4	1.64
	D-1/3	215					0.91	SL	18	TRACE	4	SL	5	MOD	28	SL	5	2.25
	D-1/4	225					1.00	MOD	30	SL	7	SL	6	MOD	24	TRACE	3	1.44
						Mean	1.10	MOD	31	SL	13	SL	8	MOD	24	TRACE	3	1.73
						SD	0.22		8		7		6		3		2	0.31
						SE	0.10		4		3		3		1		1	0.14
4.2/1.28	D-1	189	1022.4	261.8	74263	454	1.30	MOD	30	SL	6	SL	5	MOD	26	NEG	0	1.36
	D-1	198					1.51	EXT	39	SL	6	SL	6	MOD	20	NEG	0	1.24
	D-1/2	207					1.60	EXT	39	SL	8	TRACE	4	MOD	26	NEG	0	1.51
	D-1/3	216					1.02	SL	18	SL	8	SL	6	MOD	20	TRACE	4	1.19
	D-1/4	226					1.11	MOD	33	SL	16	SL	5	MOD	26	NEG	0	1.57
						Mean	1.31	MOD	32	SL	9	SL	5	MOD	24	TRACE	1	1.37
						SD	0.25		9		4		1		3		2	0.17
						SE	0.11		4		2		0		1		1	0.07

Table 4(continued). FY 91 pathology and pressure-time summary for the 4.88 x 3.05 x 2.44 -and 3.05 x 1.52 x 2.44 - m enclosures for configurations C-1 through D-1/4 , orientation tests and combined controls.

			INSTRUMENT CYLINDER															
RANGE,	CONFIG.	ANIMAL	Pmax,	Psm,	EIP,	CHARGE	LW/BW,	LUNGS		PHARYNX/		TRACHEA		GI TRACT		SOLID		ADJ.SEV.
ft/m			kPa	kPa	kPa^2*ms	WT., g	%			LARYNX						AB. ORGANS		INDEX
						Right-Side-on at 1.22 m												
4/1.22	FF.ORIEN	228	759.2	88.3	9256	1361	1.07	SL	21	MOD	18	SL	18	EXT	39	TRACE	4	3.03
		230					1.16	M-EXT	36	SL	8	MOD	24	EXT	39	TRACE	4	3.19
		233					1.21	EXT	48	EXT	44	SL	14	MOD	24	NEG	0	2.5
		235					1.18	EXT	39	SL	7	SL	5	MOD	24	NEG	0	1.47
						Mean	1.16	MOD	36	MOD	19	SL	15	EXT	31	TRACE	2	2.55
						SD	0.06		11		17		8		9		2	0.78
						SE	0.03		6		9		4		4		1	0.39
						Left-Side-on at 1.22 m												
4/1.22	FF.ORIEN	229	759.2	88.3	9256	1361	0.99	MOD	24	SL	6	NEG	0	SL	7	TRACE	3	0.86
		231					1.07	MOD	27	SL	8	SL	10	SL	5	TRACE	3	1.06
		232					1.16	SL	21	SL	8	SL	6	SL	18	NEG	0	1.23
		234					1.15	MOD	33	SL	14	SL	16	SL	9	NEG	0	1.38
						Mean	1.09	MOD	26	SL	9	SL	8	SL	10	TRACE	2	1.13
						SD	0.08		5		3		7		6		2	0.22
						SE	0.04		3		2		3		3		1	0.11
						Face-on at 1.22 m												
4/1.22	FF.ORIEN	237	788.9	98.2	10714	1361	1.01	MOD	30	SL	16	EXT	32	EXT	36	NEG	0	2.33
		239					0.98	MOD	30	EXT	40	SL	16	MOD	26	NEG	0	2.12
		240					1.00	MOD	30	MOD	20	EXT	40	MOD	24	TRACE	3	2.25
		242					0.81	MOD	33	MOD	20	MOD	28	MOD	26	TRACE	3	2.12
						Mean	0.95	MOD	31	EXT	24	EXT	29	MOD	28	TRACE	2	2.21
						SD	0.09		2		11		10		5		2	0.10
						SE	0.05		1		5		5		3		1	0.05
						Back-on at 1.22 m												
4/1.22	FF.ORIEN	236	788.9	98.2	10714	1361	1.34	MOD	24	TRACE	3	SL	5	SL	5	NEG	0	0.79
		238					2.11	EXT	48	TRACE	4	SL	12	EXT	33	NEG	0	2.88
		241					1.19	SL	18	TRACE	4	NEG	0	MOD	24	NEG	0	0.98
		243					1.23	SL	18	NEG	0	SL	6	MOD	24	NEG	0	1.02
						Mean	1.47	MOD	27	TRACE	3	SL	6	MOD	22	NEG	0	1.42
						SD	0.43		14		2		5		12		0	0.98
						SE	0.22		7		1		2		6		0	0.49

Table 4(continued). FY 91 pathology and pressure-time summary for the 4.88 x 3.05 x 2.44 -and 3.05 x 1.52 x 2.44 - m enclosures for configurations C-1 through D-1/4 , orientation tests and combined controls.

			INSTRUMENT CYLINDER															
RANGE,	CONFIG.	ANIMAL	Pmax,	Psm,	EIP,	CHARGE	LW/BW,	LUNGS		PHARYNX/		TRACHEA		GI TRACT		SOLID		ADJ.SEV.
ft/m			kPa	kPa	kPa^2*ms	WT., g	%			LARYNX						AB. ORGANS		INDEX
						45 degrees right at 1.22 m												
4/1.22	FF.ORIEN	245	784.0	127.0	7649	1361	1.36	EXT	52	TRACE	3	SL	6	MOD	24	NEG	0	1.75
		247					1.39	M-EXT	36	TRACE	3	SL	5	MOD	20	NEG	0	1.27
						Mean	1.38	EXT	44	TRACE	3	SL	6	MOD	22	NEG	0	1.51
						SD	0.02		11		0		1		3		0	0.34
						SE	0.02		8		0		1		2		0	0.24
						45 degrees left at 1.22 m												
4/1.22	FF.ORIEN	244	784.0	127.0	7649	1361	1.39	MOD	28	SL	5	SL	5	NEG	0	NEG	0	0.77
		246					1.15	M-EXT	36	SL	14	NEG	0	NEG	0	NEG	0	0.95
						Mean	1.27	MOD	32	SL	10	TRACE	3	NEG	0	NEG	0	0.86
						SD	0.17		6		6		4		0		0	0.13
						SE	0.12		4		5		3		0		0	0.09
						Right -Side-on at 2.44 m												
8/2.44	FF.ORIEN	248	165.8	49.9	1908	1361	0.98	TRACE	4	SL	6	NEG	0	SL	6	NEG	0	0.16
		249					0.83	SL	5	SL	5	TRACE	3	SL	7	NEG	0	0.36
						Mean	0.91	SL	5	SL	6	TRACE	2	SL	7	NEG	0	0.26
						SD	0.11		1		1		2		1		0	0.14
						SE	0.08		1		1		2		1		0	0.10
						Combined Control Data - FY 90 & 91												
		1					0.83	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
		42					0.91	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
		43					DISEASED		0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
		114					0.93	NEG	0	NEG	0	SL	6	NEG	0	NEG	0	0.11
		134					1.02	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
		144					1.02	NEG	0	TRACE	3	NEG	0	NEG	0	NEG	0	0.05
		172					0.79	NEG	0	SL	7	SL	7	NEG	0	NEG	0	0.24
		227					0.98	NEG	0	NEG	0	NEG	0	NEG	0	NEG	0	0.00
		280					1.16	NEG	0	TRACE	4	NEG	0	NEG	0	NEG	0	0.07
						Mean	0.96		0		2		1		0		0	0.05
						SD	0.12		0		3		3		0		0	0.08
						SE	0.04		0		1		1		0		0	0.03

** Animal died from blast injury

Table 5. Instrumentation cylinder pressure-time comparison between calibration shots with no animals and test shots with animals.

Charge Weight, g	Configur-tion and Test	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Charge Weight, g	Configur-tion and Test	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms
	Cylinder at 0.91 m from charge					Cylinder at 0.91 m from charge			
114	A-1 cal	315.7	77.6	1026.8	114	A-1 s01	257.2	58.1	1120.9
227	A-1 cal	529.6	137.7	2823.1	227	A-1 s01	473.9	93.1	2857.0
454	A-1 cal	832.0	165.6	3201.1	454	A-1 s01	993.0	175.9	3539.2
907	A-1 cal	1688.3	264.0	5161.9	907	A-1 s01	1906.5	272.8	5444.5
114	A-2 cal	245.3	92.1	1112.9	114	A-2 s01	293.2	96.2	1256.5
227	A-2 cal	551.3	128.7	2146.4	227	A-2 s01	669.3	119.5	2293.2
454	A-2 cal	732.8	170.8	3711.6	454	A-2 s01	740.8	161.3	3759.3
907	A-2 cal	1293.1	236.7	5965.3	907	A-2 s01	1264.6	287.1	6153.8
114	A-3 cal	224.3	53.7	1173.3	114	A-3 s01	268.5	56.1	1133.0
227	A-3 cal	411.2	89.9	2178.9	227	A-3 s01	373.4	82.0	1965.2
454	A-3 cal	629.1	137.3	3911.0	454	A-3 s01	513.7	127.4	3717.6
907	A-3 cal	1189.5	222.4	5730.0	907	A-3 s01	947.8	216.3	5909.1
Parameter Compared			Linear Regression Equation				Statistics		
Pmax test vs. Pmax cal			y = -23.63783 + 1.03973x			n = 12 df = 10 t = 12.158 p < 0.001 Correlation Coefficient = 0.9678 R^2 = 0.9366			
	Cylinder at 1.22 m from charge					Cylinder at 1.22 m from charge			
114	A-4 cal	171.1	72.8	1349.9	114	A-4 s01	225.4	71.9	1367.0
227	A-4 cal	233.8	100.6	2146.6	227	A-4 s01	303.6	107.1	2432.4
454	A-4 cal	503.3	164.5	3516.8	454	A-4 s01	686.8	193.4	4091.1
907	A-4 cal	868.0	241.7	5971.3	907	A-4 s01	946.8	271.8	6429.7
114	A-6 cal	602.7	128.7	1439.6	114	A-6 s01	573.7	151.2	1465.8
227	A-6 cal	1198.5	191.7	2384.6	227	A-6 s01	844.9	199.1	2696.7
454	A-6 cal	2687.4	217.6	4145.1	454	A-6 s01	886.2	202.5	4451.0
907	A-6 cal	3254.9	338.3	6314.2	907	A-6 s01	1241.4	285.5	6507.0
Parameter Compared			Linear Regression Equation				Statistics		
Pmax test vs. Pmax cal			y = 426.2997 + 0.241436x			n = 8 df = 6 t = 3.5518 p = 0.012 Correlation Coefficient = 0.8232 R^2 = 0.6777			
	Cylinder at 1.43 m from charge					Cylinder at 1.43 m from charge			
114	A-5 cal	277.5	89.2	1325.0	114	A-5 s01	238.6	93.9	1384.5
227	A-5 cal	355.7	137.9	2439.7	227	A-5 s01	391.6	139.4	2455.2
454	A-5 cal	746.7	221.3	3762.8	454	A-5 s01	697.7	223.5	4154.8
907	A-5 cal	1310.8	354.3	6405.7	907	A-5 s01	1460.5	344.8	6582.9
114	A-7 cal	271.7	90.4	1473.7	114	A-7 s01	232.5	87.8	1354.3
227	A-7 cal	541.0	138.2	2519.0	227	A-7 s01	550.2	143.7	2424.2
454	A-7 cal	621.1	226.1	4426.5	454	A-7 s01	706.3	239.8	4154.7
907	A-7 cal	1109.3	344.5	6690.5	907	A-7 s01	1149.2	342.6	7244.3
Parameter Compared			Linear Regression Equation				Statistics		
Pmax test vs. Pmax cal			y = -55.93354 + 1.12223x			n = 8 df = 6 t = 20.9323 p < 0.001 Correlation Coefficient = 0.9932 R^2 = 0.9865			
Cylinder at 0.91, 2.01 and 2.99 m from charge					Cylinder at 0.91, 2.01 and 2.99 m from charge				
454	A-8/5 cal	2986.9	164.5	2957.9	454	A-8/5 t6	1343.1	157.0	2994.9
454	A-8 cal	430.6	189.7	3363.2	454	A-8 t2	405.6	188.2	3620.3
454	A-8/4 cal	457.0	183.7	3992.8	454	A/84 t5	711.9	158.6	3689.2
454	A-8/3 cal	832.5	352.5	3659.3	454	A-8/3 t4	791.2	341.6	3961.3
Parameter Compared			Linear Regression Equation				Statistics		
Pmax test vs. Pmax cal			y = 459.1789 + 0.300634x			n = 4 df = 2 t = 3.8797 p = 0.060 Correlation Coefficient = 0.9395 R^2 = 0.8827			

Table 6. Comparison of injury levels in the 4.88 x 3.05 x 2.44-m enclosure with freefield injuries and orientation changes.

RANGE, ft/m	Pmax, kPa	Psm, kPa		LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX*
Animals exposed right-side-on to 1361g charge detonations in the 4.88 x 3.05 x 2.44-m enclosure.															
4/1.22	1171.8	295.3	Mean	1.70	EXT	56	MOD	18	MOD	19	EXT	37	SL	6	4.65
			SD	0.35		3		4		1		7		8	1.77
	2 Deaths		SE	0.16		1		2		0		3		3	0.79
	n=5		Range	[1.14-2.01]		[52-60]		[11-22]		[18-20]		[26-42]		[0-18]	[2.87-7.48]
8/2.44	1131.6	482.9	Mean	1.61	EXT	44	MOD	19	EXT	31	EXT	34	SL	17	9.99
			SD	0.50		9		14		11		6		10	2.64
	5 Deaths		SE	0.23		4		6		5		3		5	1.18
	n=5		Range	[1.14-2.45]		[36-60]		[6-40]		[14-40]		[26-39]		[4-28]	[7.35-14.24]
Animals exposed in various orientations to 1361g charge detonations in the freefield.															
4/1.22	759.2	88.3	Mean	1.16	MOD	36	MOD	19	SL	15	EXT	32	TRACE	2	2.55
			SD	0.06		11		17		8		9		2	0.78
Right-side-on to blast			SE	0.03		6		9		4		4		1	0.39
	n=4		Range	[1.07-1.21]		[21-48]		[7-44]		[5-24]		[24-39]		[0-4]	[1.47-3.19]
4/1.22	759.2	88.3	Mean	1.09	MOD	26	SL	9	SL	8	SL	10	TRACE	2	1.13
			SD	0.08		5		3		7		6		2	0.22
Left-side-on to blast			SE	0.04		3		2		3		3		1	0.11
	n=4		Range	[0.99-1.16]		[21-33]		[6-14]		[0-16]		[5-18]		[0-3]	[0.86-1.38]
4/1.22	788.9	98.2	Mean	0.95	MOD	31	MOD	24	EXT	29	MOD	28	TRACE	2	2.21
			SD	0.09		2		11		10		5		2	0.10
Face-on to blast			SE	0.05		1		5		5		3		1	0.05
	n=4		Range	[0.81-1.01]		[30-33]		[16-40]		[16-40]		[24-36]		[0-3]	[2.12-2.33]
4/1.22	788.9	98.2	Mean	1.47	MOD	27	Trace	3	SL	6	MOD	22	NEG	0	1.42
			SD	0.43		14		2		5		12		0	0.98
Back-on to blast			SE	0.22		7		1		2		6		0	0.49
	n=4		Range	[1.19-2.11]		[18-48]		[0-4]		[0-12]		[5-33]		[0-0]	[0.79-2.88]
4/1.22	784.0	127.0	Mean	1.38	EXT	44	Trace	3	SL	6	MOD	22	NEG	0	1.51
			SD	0.02		11		0		1		3		0	0.34
45degrees right			SE	0.02		8		0		1		2		0	0.24
	n=2		Range	[1.36-1.38]		[36-52]		[3-3]		[5-6]		[20-24]		[0-0]	[1.27-1.75]
4/1.22	784.0	127.0	Mean	1.27	MOD	32	SL	10	Trace	3	Neg	0	NEG	0	0.86
			SD	0.17		6		6		4		0		0	0.13
45degrees left			SE	0.12		4		5		3		0		0	0.09
	n=2		Range	[1.15-1.39]		[28-36]		[5-14]		[0-5]		[0-0]		[0-0]	[0.77-0.95]
8/2.44	165.8	49.9	Mean	0.91	SL	5	SL	6	Trace	2	Neg	0	NEG	0	0.26
			SD	0.11		1		1		2		0		0	0.14
Right-side-on to blast			SE	0.08		1		1		2		0		0	0.10
	n=2		Range	[0.83-0.98]		[4-5]		[5-6]		[0-3]		[0-0]		[0-0]	[0.16-.36]
One-way ANOVA for			F-ratio	3.20		9.33		2.34		8.05		10.63		4.69	19.60
9 groups			Significance	0.0136		0.0001		0.0528		0.0001		0.0001		0.0019	0.0001

*Adjusted Severity of Injury Index (eardrum injury deleted)

Table 7. Changes in injury levels as a function of single or dual charge detonations and location in the 3.05 x 2.44 x 2.44 m enclosure.

RANGE, ft/m	Pmax, kPa	Psm, kPa	EIP kPa^2*ms	CHARGE WT., g		LW/BW, %	LUNGS		PHARYNX/ LARYNX		TRACHEA		GI TRACT		SOLID AB. ORGANS		ADJ.SEV. INDEX
Configurations A-9 to A-9/2																	
3/0.91	1470.4	209.2	44238	454	Mean	1.68	EXT	53	EXT	24	SL	17	EXT	34	SL	8	3.44
					SD	0.17		7		12		12		9		7	0.97
					SE	0.07		3		5		5		4		3	0.40
					Range	[1.44-1.91]		[39-60]		[16-48]		[7-40]		[22-42]		[0-18]	[2.40-4.96]
					n	6		6		6		6		6		6	6
3-9.6/ .91-2.93	592.4	164.8	40944	2-227	Mean	1.04	SL	21	SL	11	SL	6	SL	17	NEG	0	1.17
					SD	0.07		0		6		1		10		0	0.25
					SE	0.04		0		4		0		6		0	0.15
					Range	[0.99-1.12]		[21-21]		[7-18]		[5-6]		[6-24]		[0-0]	[0.89-1.39]
					n	3		3		3		3		3		3	3
3-9.6/ .91-2.93	872.3	246.3	77269	227-454	Mean	1.34	EXT	41	SL	14	SL	14	MOD	28	TRACE	1	2.59*
					SD	0.17		9		6		7		7		2	1.20
					SE	0.10		5		3		4		4		1	0.69
					Range	[1.15-1.46]		[30-48]		[7-18]		[4-20]		[22-36]		[0-3]	[1.80-3.97]
					n	3		3		3		3		3		3	3
Configurations A-10 to A-10/2																	
5.6-1.71	624.8	159.0	36206	454	Mean	1.04	SL	15	SL	10	SL	7	SL	9	TRACE	1	0.87
					SD	0.12		10		6		3		6		2	0.36
					SE	0.05		4		2		1		2		1	0.15
					Range	[0.96-1.26]		[3-27]		[6-20]		[5-12]		[3-20]		[0-4]	[0.66-1.47]
					n	6		6		6		6		6		6	6
5.6-1.71	616.2	227.9	55974	2-227	Mean	1.22	MOD	29	MOD	21	SL	15	SL	18	TRACE	1	1.51
					SD	0.10		15		3		8		10		2	0.48
					SE	0.06		9		2		4		6		1	0.28
					Range	[1.11-1.31]		[12-39]		[18-24]		[6-20]		[7-24]			[0.96-1.80]
					n	3		3		3		3		3		3	3
5.6-1.71	855.8	287.6	77721	227-454	Mean	1.16	MOD	25	SL	16	MOD	19	MOD	23	TRACE	1	1.64
					SD	0.09		10		7		2		4		2	0.21
					SE	0.05		6		4		1		2		1	0.12
					Range	[1.06-1.22]		[16-36]		[8-22]		[16-20]		[20-28]		[0-3]	[1.46-1.87]
					n	3		3		3		3		3		3	3

* One animal died at 1.25 hrs postexposure, changing the S.I. from 1.98 to 3.97. Mean would have been 1.93.

Table 8. Peak intrathoracic pressures and maximum chest wall velocities predicted by the "Bowen Single Lung Model" * for the single versus simultaneous dual charge detonations in the 3.05 x 2.44 x 2.44-m enclosure.

Test Description	Charge Weight, g	Gauge Number	Measured Pressure-time Parameters Pmax, kPa	Psm, kPa	EIP, kPa^2*ms	Calculated Intrathoracic Pressure, kPa	Chest Wall velocity, m/s	Animal Response S.I.	Lw/Bw %	Lung Hem. Distribution Rt.	Lt
A-9	454	1	1135.6	126.2	24025	135.4	5.7				
3ft/0.91m		2	886.1	173.6	36270	309.0	6.7				
Test 2		4	2969.3	397.8	94045	868.6	16.7				
12/4/90		Mean	1663.7	232.5	51447	437.7	9.7	2.40	1.79	[+++]	[+]
Sheep 97		SD	1137.6	145.1	37396	383.2	6.1				
A-10	227-454	1	966.0	295.8	100844	429.9	10.6				
3/9.6ft		2	778.5	196.8	53694	406.8	7.5				
0.91/2.93m		4	864.3	280.9	90660	391.4	8.4				
Test 3		Mean	869.6	257.8	81733	409.4	8.8	3.97**	1.41	[++]	[+]
1/9/91		SD	93.9	53.4	24810	19.4	1.6				
Sheep117											
A-10/2	227-454	1	795.9	230.4	69224	378.7	7.1				
5.6/5.6ft		2	568.5	312.8	74445	400.7	9.7				
1.71/1.71m		4	1117.7	282.9	103327	933.3	11.0				
Test 5		Mean	827.4	275.4	82332	570.9	9.3	1.57	1.22	[+]	[+]
1/29/91***		SD	275.9	41.7	18369	314.0	2.0				
Sheep 122											
One-way Anova		F-ratio	1.45	0.16	1.19	0.27	0.04				
for 3 groups		Significance	0.3069	0.8531	0.3670	0.7721	0.9628				

* Lung model software furnished courtsey of H. Axelsson, National Defence Research Establishment, Sweden.
** Animal died at 1.25 hrs postexposure, changing the S.I.for the animal from 1.98 to 3.97
*** Test occurred 1/16/90, data transferred 1/29/90.

Table 9. Comparison between injury levels in a quasi-static vs nonquasi-static pressure environment.

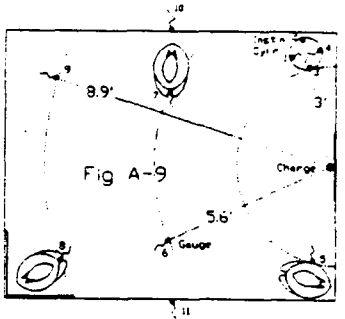
Range, ft/m	Pmax, kPa	Psm, kPa	EIP kPa^2*ms		LW/BW, %	Lungs *	Pharynx * Larynx	Trachea *	GI Tract *	Solid Abd'l. Organs	Adj. Sev. Index**
454g C-4 Charge Detonated in Corner of Chamber with Door Locked, Vent Closed											
3/0.91	1470.0	209.0	44238	Mean	1.68	Extensive 53	Extensive 24	Slight 17	Extensive 34	Slight 8	3.44
				SD	0.17	Injury 7	Injury 12	Injury 12	Injury 9	Injury 7	0.97
				SE	0.07	3	5	5	4	3	0.40
				Range	[1.44-1.91]	[39-60]	[16-48]	[8-40]	[22-42]	[0-18]	[2.40-4.96]
				n	6	6	6	6	6	6	6
5.6/1.71	624.8	159.0	36206	Mean	1.04	Slight 15	Slight 10	Slight 7	Slight 9	Trace 1	0.87
				SD	0.12	Injury 10	Injury 6	Injury 3	Injury 6	Injury 2	0.36
				SE	0.05	4	2	1	2	1	0.15
				Range	[0.96-1.26]	[3-27]	[6-20]	[5-12]	[3-20]	[0-4]	[0.48-1.47]
				n	6	6	6	6	6	6	6
8.9/2.71	715.0	331.2	64450	Mean	1.05	Moderate 32	Slight 15	Slight 10	Moderate 20	Moderate 21	3.51
				SD	0.08	Injury 2	Injury 6	Injury 5	Injury 5	Injury 13	1.71
				SE	0.03	1	2	2	2	6	0.70
				Range	[0.94-1.19]	[30-36]	[7-20]	[7-20]	[11-24]	[4-36]	[1.56-5.22]
				n	6	6	6	6	6	6	6
454g C-4 Charge Detonated in Corner of Chamber with Door Open, Vent Open											
3/.91	930.4	148.3	27443	Mean	1.62	Extensive 52	Moderate 22	Slight 17	Moderate 26	Trace 3	2.36
				SD	0.13	Injury 4	Injury 0	Injury 2	Injury 2	Injury 2	0.23
				SE	0.07	2	0	1	1	1	0.13
				Range	[1.51-1.76]	[48-56]	[22-22]	[14-18]	[24-28]	[0-4]	[2.14-2.60]
				n	3	3	3	3	3	3	3
5.6/1.71	685.6	134.9	20451	Mean	1.04	Slight 17	Slight 14	Slight 8	Slight 5	Negative 0	0.77
				SD	0.15	Injury 6	Injury 5	Injury 1	Injury 1	Injury 0	0.11
				SE	0.09	4	3	1	0	0	0.07
				Range	[0.89-1.04]	[12-14]	[8-18]	[7-9]	[5-6]	[0-0]	[0.65-.87]
				n	3	3	3	3	3	3	3
8.9/2.71	NoData	NoData	NoData	Mean	1.41	Moderate 34	Moderate 17	Slight 17	Moderate 21	Trace 4	2.65
				SD	0.27	Injury 2	Injury 5	Injury 2	Injury 2	Injury 1	0.09
				SE	0.15	1	3	1	1	0	0.05
				Range	[1.11-1.62]	[33-36]	[12-22]	[14-18]	[18-22]	[4-5]	[2.59-2.76]
				n	3	3	3	3	3	3	3
One-way ANOVA for six groups				F-ratio	19.69	29.2	2.59	2.28	16.35	5.66	7.55
				Significance	0.0001	0.0001	0.0559	0.0837	0.0001	0.0022	0.0005

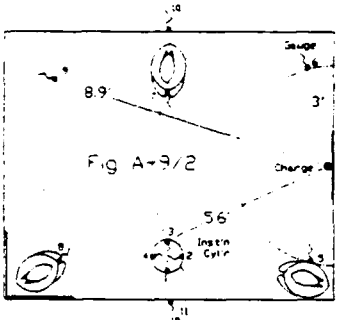
*pathology score **adjusted severity of injury index (eardrum injury deleted)

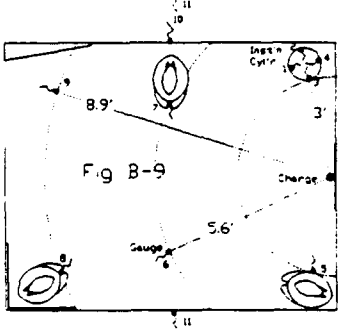
Table 10. Wall and side-on gauge pressure-time parameters in both quasi-static and nonquasi-static blast overpressure environments in the 3.05 x 2.44 x 2.44 m enclosure.

Gage No.	Range, ft/m	Test	Pmax, kPa	Psm, kPa	Imax, kPa*ms	Test	Pmax, kPa	Psm, kPa	Imax kpa*ms	Ratios Pmax	Psm	Imax
		Configuration A-9				Configuration B-9				A-9 / B-9[G1]		
6	5.6/1.71	11/27/90	249.3	143.4	4492	2/4/91	260.4	114.5	1630	1.0	1.3	2.8
10	6.3/1.92	cal shot	456.8	178.6	4357	cal shot	581.2	220.7	1942	0.8	0.8	2.2
11	6.3/1.92	no	532.6	171.9	3674	no	610.1	177.4	935	0.9	1.0	3.9
9	8.9/2.71	animals	376.2	218.1	4149	animals	284.8	95.9	524	1.3	2.3	7.9
		Configuration A-9/2				Configuration B-9/2				(A-9/2) / (B-9/2)[G2]		
6	3/0.91	12/5/90	1577.1	186.4	3913	1/29/91	NoData	NoData	NoData	NoData	NoData	NoData
10	6.3/1.92	cal shot	502.6	189.4	4291	cal shot	559.7	238.9	1622	0.9	0.8	2.6
11	6.3/1.92	no	736.0	193.0	3522	no	836.1	172.7	1215	0.9	1.1	2.9
9	8.9/2.71	animals	422.8	212.2	4271	animals	227.6	96.1	740	1.9	2.2	5.8
		Configuration A-9				Configuration B-9				A-9 / B-9[G3]		
6	5.6/1.71	11/30/90	238.2	115.5	3015	2/5/91	NoData	NoData	NoData	NoData	NoData	NoData
10	6.3/1.92	test 01	817.3	192.6	4070	test 02	448.8	243.6	2080	1.8	0.8	2.0
11	6.3/1.92	with	608.3	163.9	3586	with	624.7	161.4	1223	1.0	1.0	2.9
9	8.9/2.71	animals	474.4	231.2	4130	animals	367.2	89.3	No Data	1.3	2.6	NoData
										[G4]		
6	5.6/1.71	12/4/90	260.2	152.8	4905	2/6/91	274.9	147.3	2061	0.9	1.0	2.4
10	6.3/1.92	test 02	511.0	180.0	3922	test 03	681.2	189.8	1742	0.8	0.9	2.3
11	6.3/1.92	with	624.2	159.2	3596	with	476.6	148.6	1136	1.3	1.1	3.2
9	8.9/2.71	animals	409.0	220.1	4289	animals	194.6	86.3	676	2.1	2.6	6.3
		Configuration A-9/2				Configuration B-9/2				(A-9/2) / (B-9/2)[G5]		
6	3/0.91	12/6/90	2045.0	209.8	5152	2/1/91	1487.4	233.8	3119	1.4	0.9	1.7
10	6.3/1.92	test 03	946.3	232.8	4428	test 01	613.9	243.1	1888	1.5	1.0	2.3
11	6.3/1.92	with	631.3	162.5	3819	with	NoData	NoData	NoData	NoData	NoData	NoData
9	8.9/2.71	animals	474.4	233.0	4451	animals	242.3	80.5	No Data	2.0	2.9	NoData
						KANOVA for Pmax,Psm,Imax ratios				Mean Rank		
6	3/0.91	12/10/90	1204.6	192.2	4275	N=45 H-Value=25.08 p=0.0001				Pmax	Psm	Imax
10	6.3/1.92	test 04	606.4	175.3	4471	H-Corrected for Ties= 25.25				16.0	16.1	36.9
11	6.3/1.92	with	676.4	176.6	3765				n=	15	15	15
9	8.9/2.71	animals	536.2	228.5	4344	KANOVA for [G1] vs [G4] ratios				Mean Rank		
						N=24 H-Value=0.04 p=0.8393				[G1]=12.21	n=12	
						H-Corrected for Ties= 0.04				[G4]=12.79	n=12	

KANOVA: Kruskal-Wallis analysis of variance for nonparametric data.
Configuration A-9 and A-9/2 are with door locked and vent closed.
Configuration B-9 and B-9/2 are with door open and vent open.







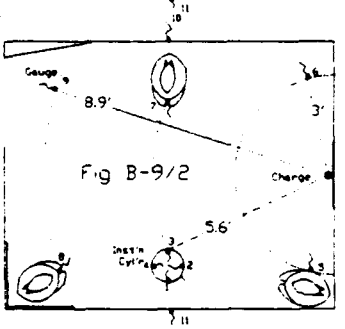


Table 11. Incidence of lung injury as a function of loading density in various structural volumes.

Enclosure	Enclosure Volume m^3	Charge Weight, kg	Loading Density, Kg/m^3	Mean Lung Wt. % of Body Wt	Lung Injury		
					r/n	Percent Incidence	Severity
M-47 tank/ Batelle Box	5.6	0.028	0.0050	0.86	[0/2]	0	Negative
		0.057	0.0102	0.81	[0/4]	0	Negative
		0.113	0.0202	0.82	[3/4]	75	Trace to Slight
		0.227	0.0405	1.18	[4/4]	100	Slight to Extensive
		0.454	0.0811	1.88	[4/4]	100	Extensive (2/4 Deaths)
APC	8.5	0.057	0.0067	0.96	[0/2]	0	Negative
		0.113	0.0133	0.83	[1/12]	8	Trace
		0.227	0.0267	0.92	[9/10]	90	Slight to Extensive
		0.454	0.0534	1.63	[6/6]	100	Extensive
EG&G Enclosure	11.3	0.113	0.0100	0.97	[8/15]	53	Trace to Slight
		0.227	0.0201	1.04	[14/15]	93	Trace to Moderate
		0.454	0.0402	1.22	[15/15]	100	Slight to Extensive
MICV	12.0	0.226	0.0189	1.14	[2/6]	33	Slight
		0.340	0.0283	1.11	[7/12]	58	Slight
		0.454	0.0378	1.10	[10/12]	83	Slight to Moderate
		0.567	0.0472	1.18	[23/23]	100	Moderate
		0.680	0.0567	1.46	[12/12]	100	Extensive (5/12 Deaths)
LANL Bunker/ EG&G Enclosure	18.2	0.114	0.0063	0.91	[2/18]	11	Trace to Slight
		0.227	0.0125	0.93	[15/25]	60	Trace to Moderate
		2-0.227	0.0249	1.13	[6/6]	100	Slight to Extensive
		0.454	0.0249	1.16	[69/69]	100	Trace to Ext (1/69 Deaths)
		227-454	0.0374	1.25	[6/6]	100	Slight to Extensive
		0.907	0.0498	1.33	[21/21]	100	Slight to Ext (3/21 Deaths)
		1.361	0.0748	2.54	[2/2]	100	Extensive (2/2 Deaths)
EG&G Enclosure	36.3	0.057	0.0016	1.00	[4/15]	27	Trace to Slight
		0.113	0.0031	0.99	[8/15]	53	Trace to Slight
		0.454	0.0125	1.02	[15/15]	100	Slight to Moderate
		0.907	0.0250	1.15	[15/15]	100	Mod to Ext (1/15 Deaths)
		1.361	0.0375	1.55	[15/15]	100	Extensive (10/15 Deaths)

APPENDIX A

CHARGE-TARGET CONFIGURATIONS

3.05 x 2.44 x 2.44 m

Enclosure

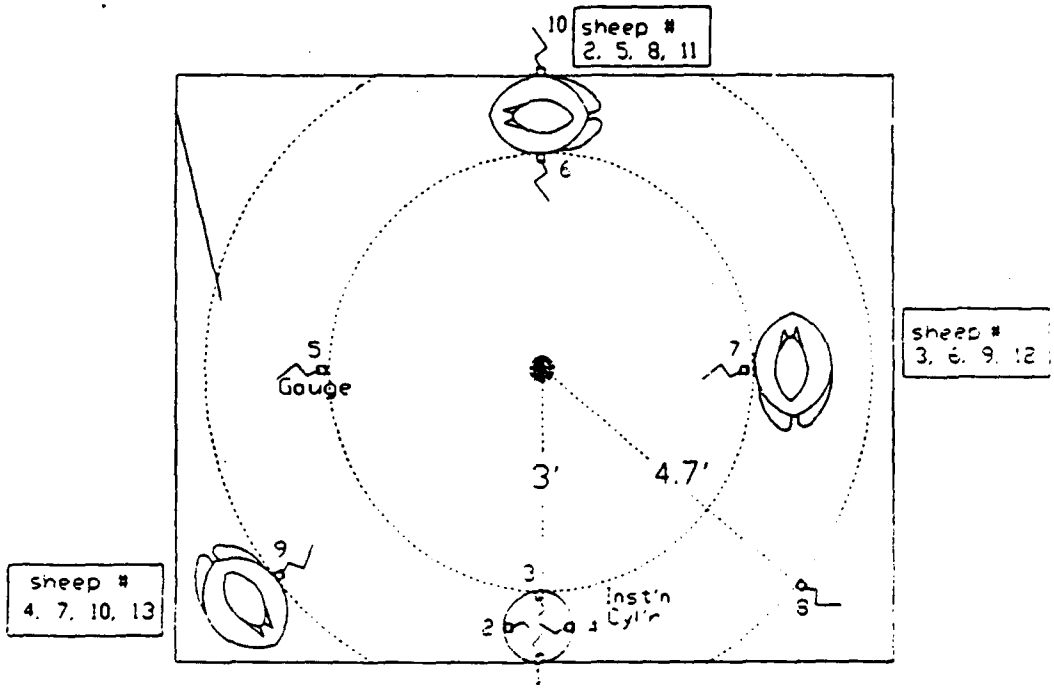


Figure A-1. Overhead view of configuration A-1

3.05 x 2.44 x 2.44 m

Enclosure

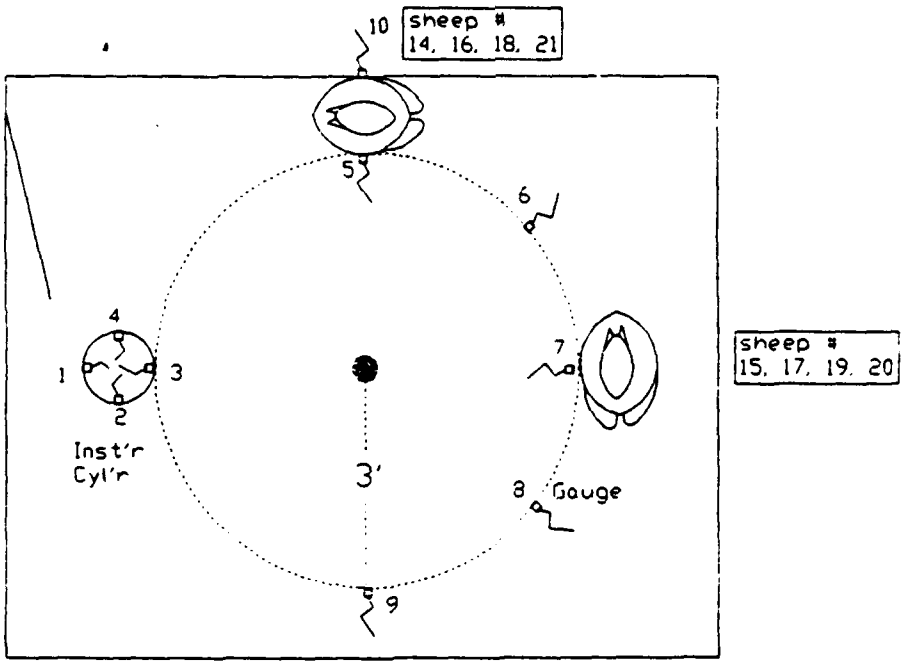


Figure A-2. Overhead view of configuration A-2

3.05 x 2.44 x 2.44 m

Enclosure

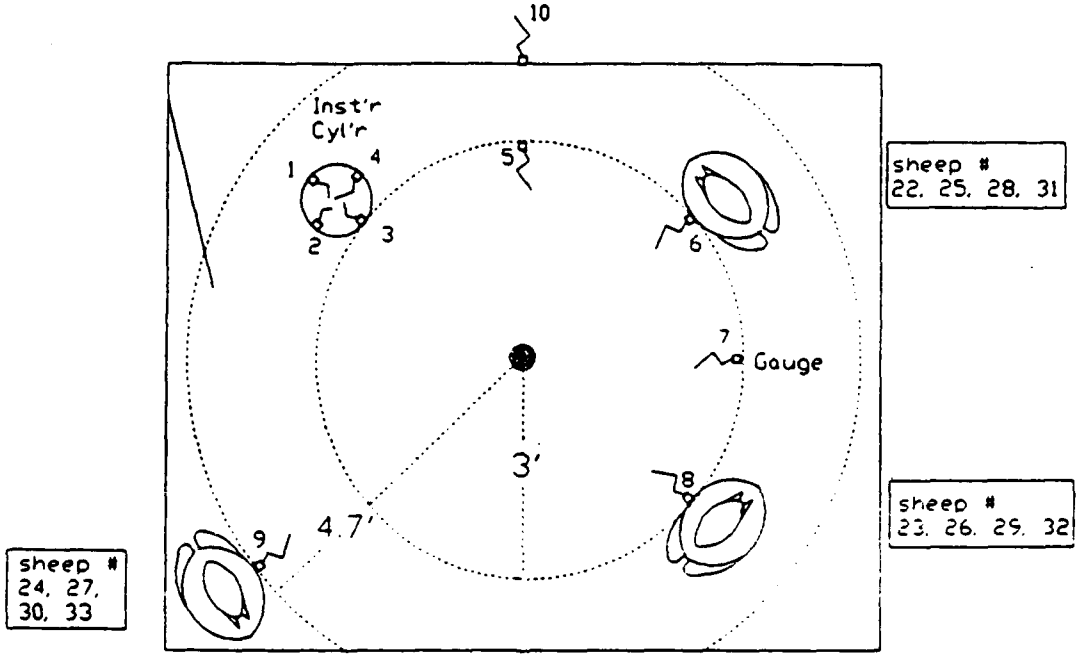


Figure A-3. Overhead view of configuration A-3

3.05 x 2.44 x 2.44 m

Enclosure

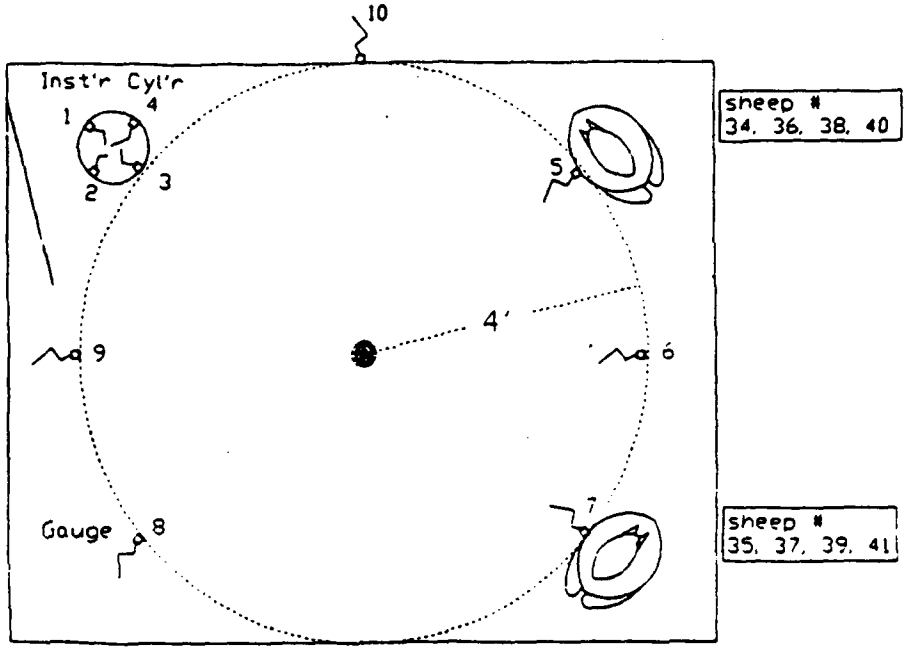


Figure A-4. Overhead view of configuration A-4

3.05 x 2.44 x 2.44 m

Enclosure

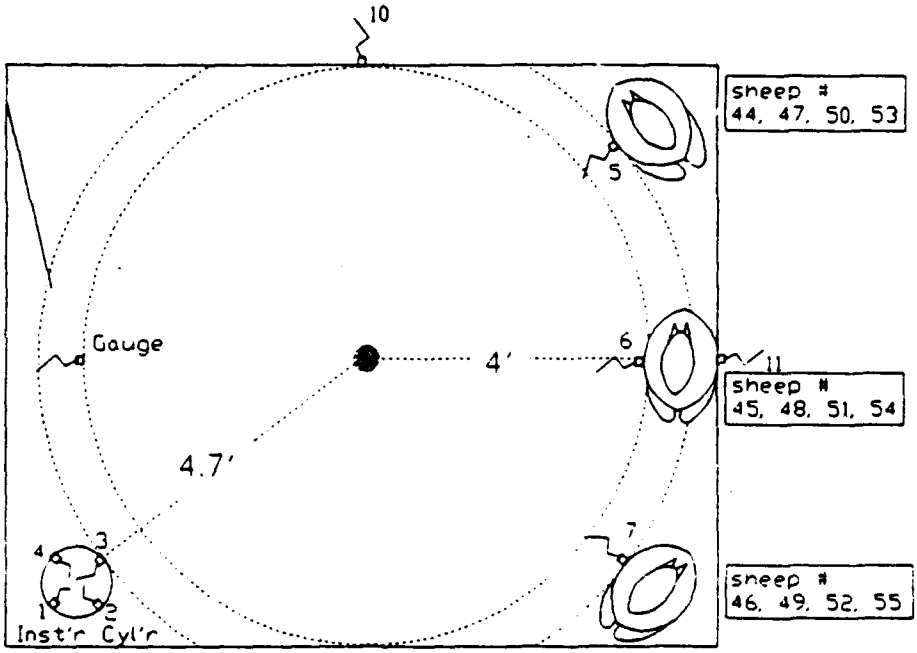


Figure A-5. Overhead view of configuration A-5

3.05 x 2.44 x 2.44 m

Enclosure

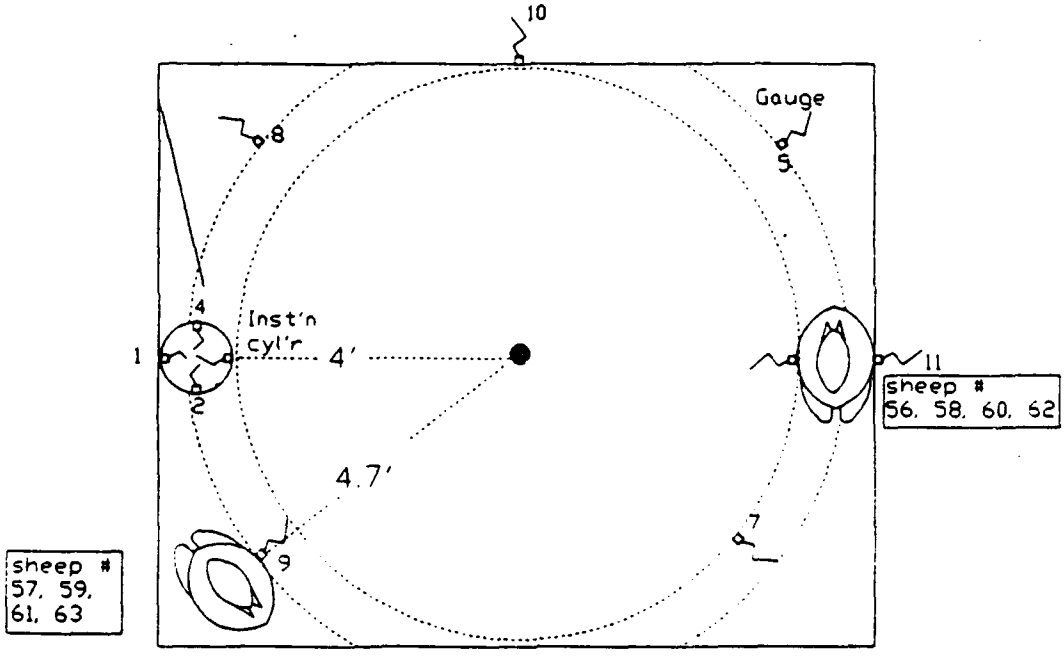


Figure A-6. Overhead view of congiguration A-6

3.05 x 2.44 x 2.44 m

Enclosure

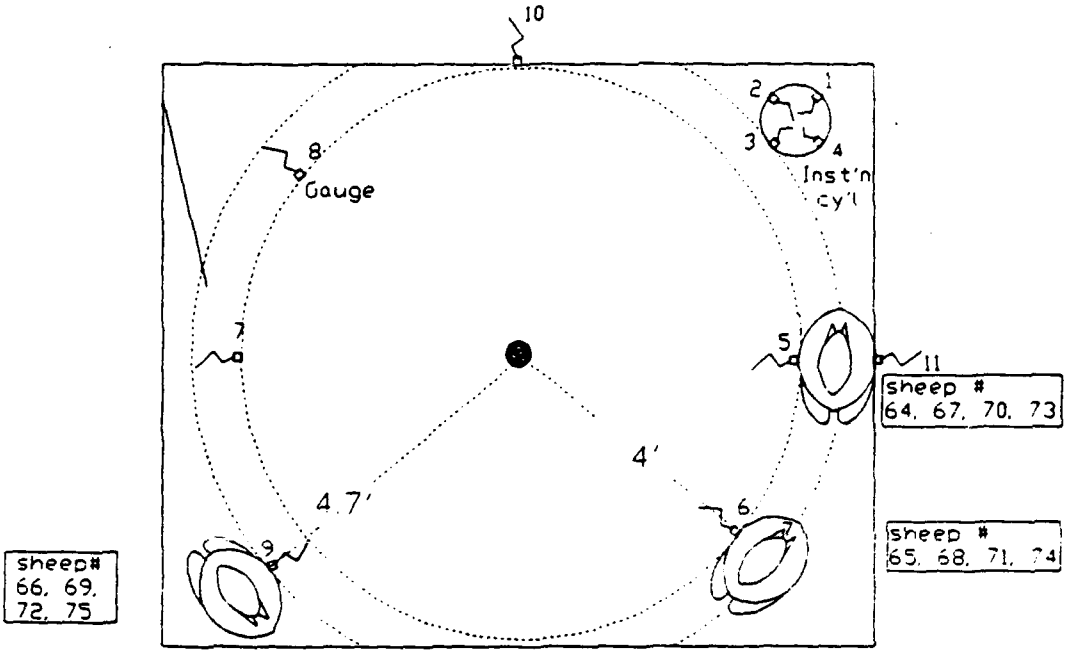


Figure A-7. Overhead view of configuration A-7

3.05 x 2.44 x 2.44 m

Enclosure

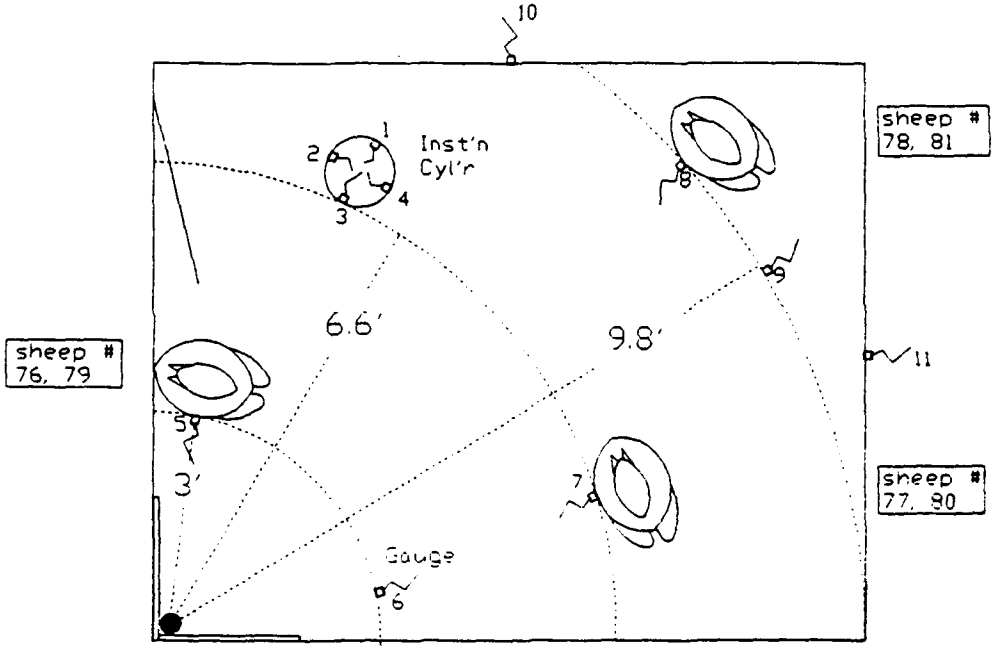


Figure A-8. Overhead view of configuration A-8

3.05 x 2.44 x 2.44 m

Enclosure

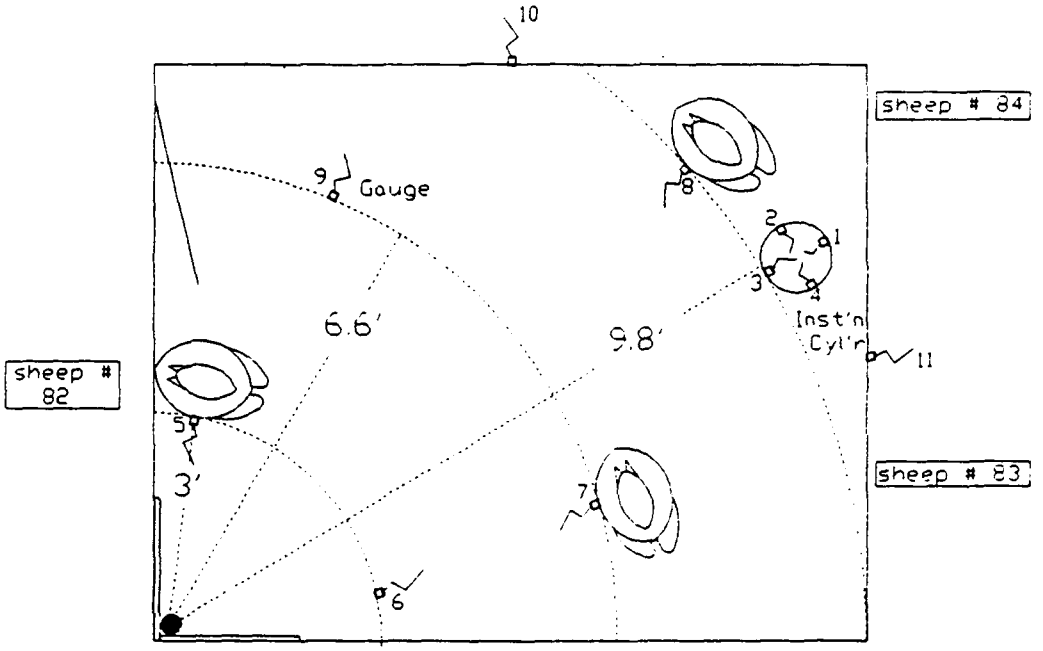


Figure A-9. Overhead view of configuration A-8/2

3.05 x 2.44 x 2.44 m

Enclosure

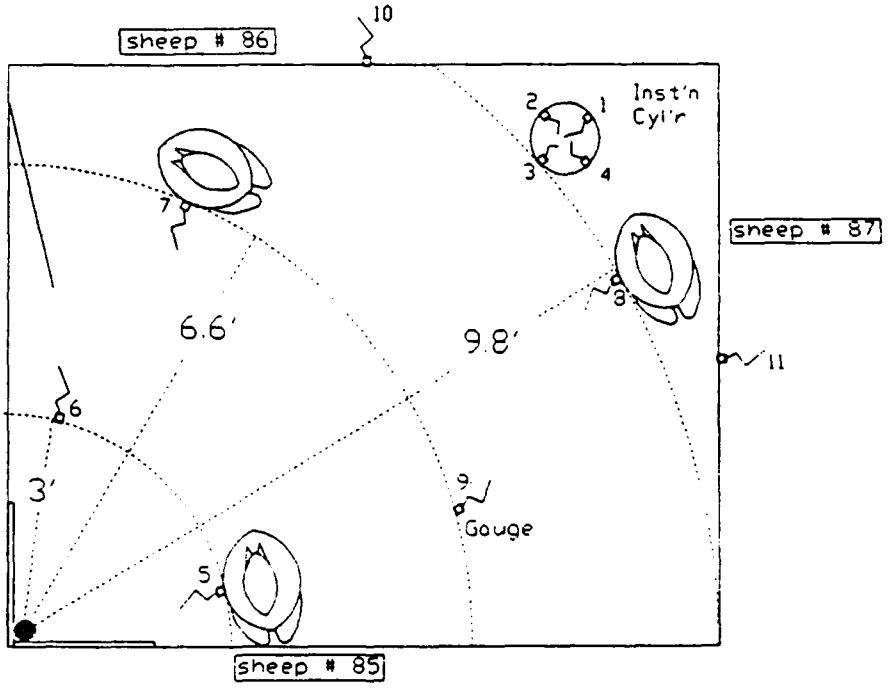


Figure A-10. Overhead view of configuration A-8/3

3.05 x 2.44 x 2.44 m

Enclosure

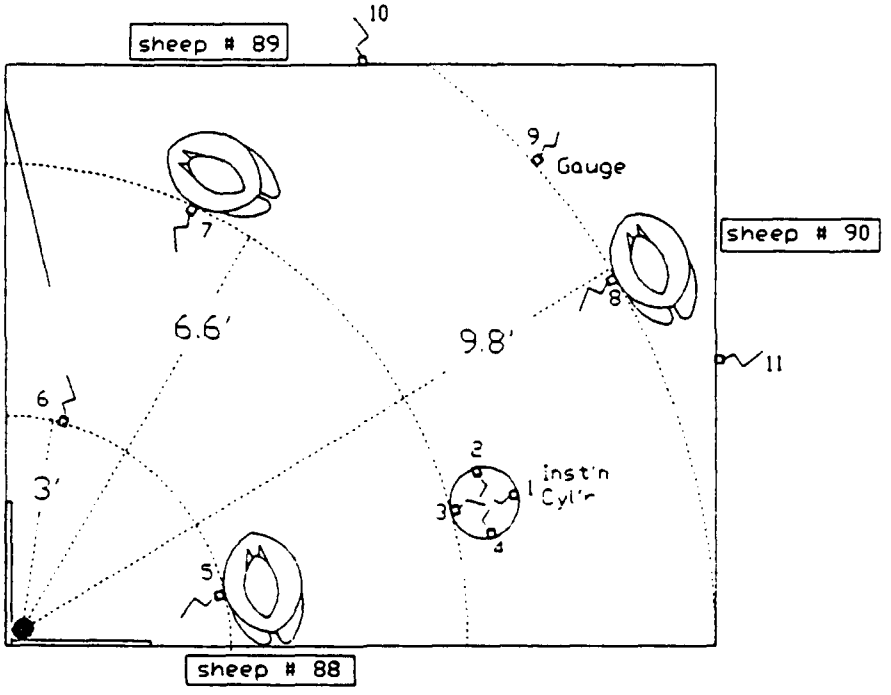


Figure A-11. Overhead view of configuration A-8/4

3.05 x 2.44 x 2.44 m

Enclosure

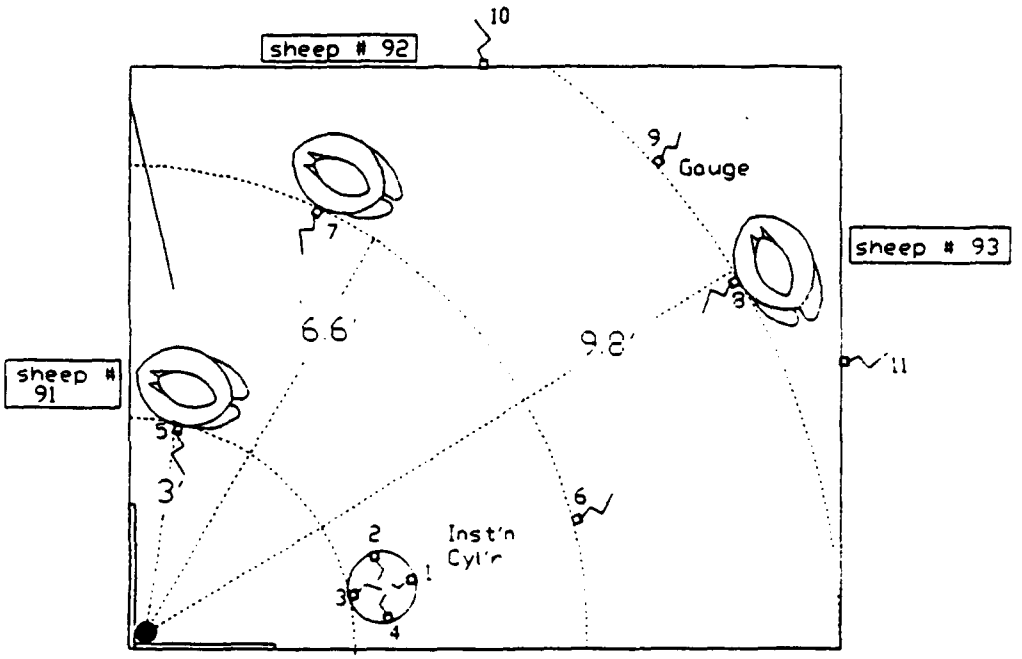


Figure A-12. Overhead view of configuration A-8/5

3.05 x 2.44 x 2.44 m

Enclosure

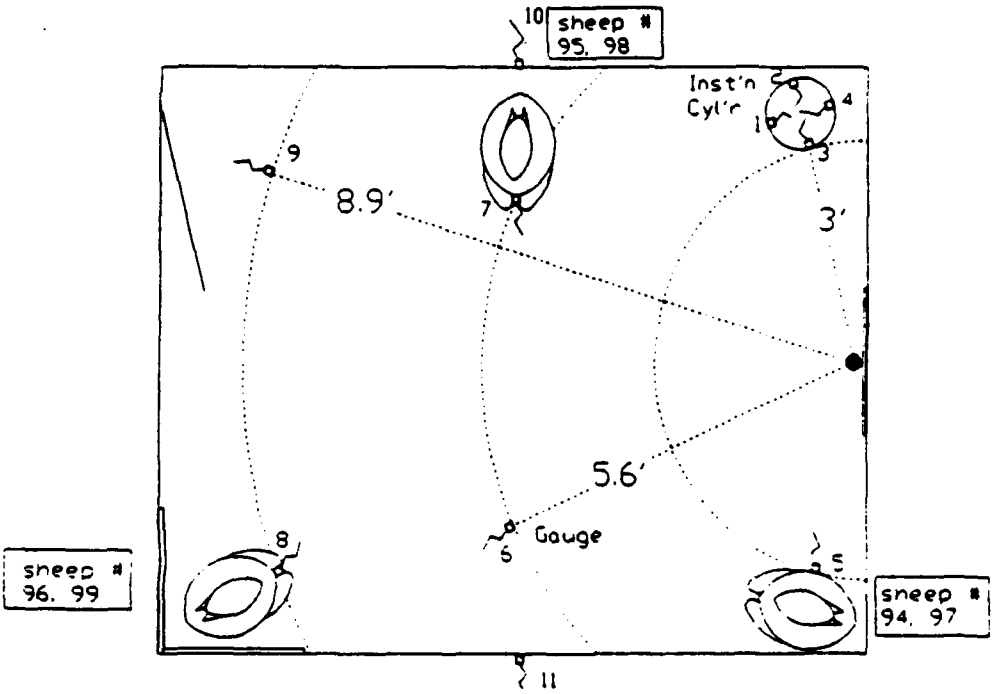


Figure A-13. Overhead view of configuration A-9

3.05 x 2.44 x 2.44 m

Enclosure

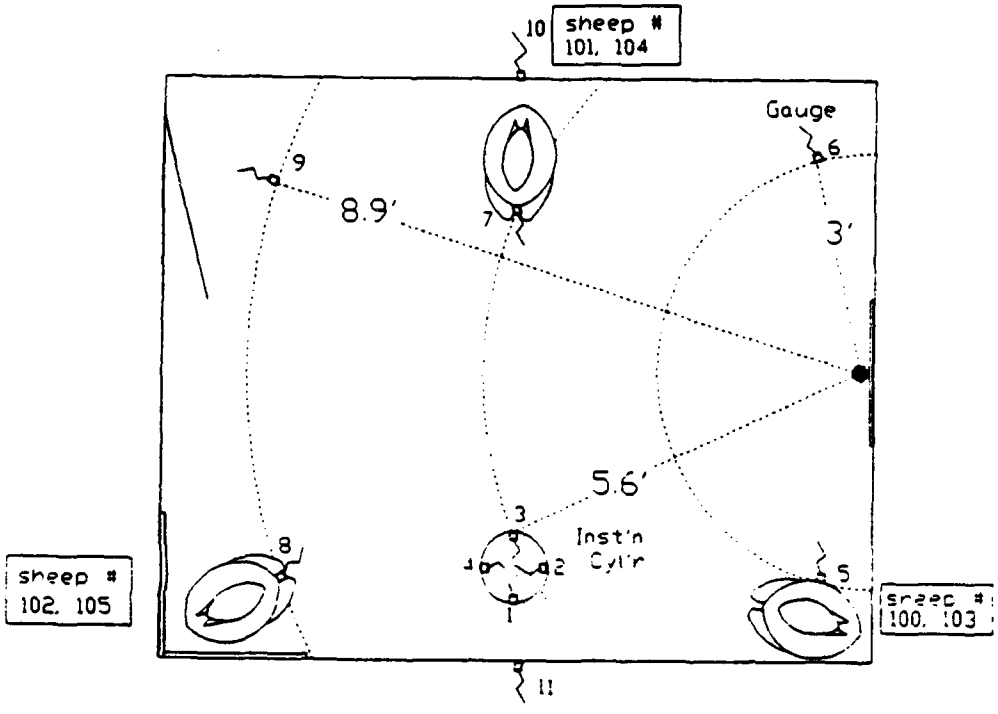


Figure A-14. Overhead view of configuration A-9/2

3.05 x 2.44 x 2.44 m

Enclosure

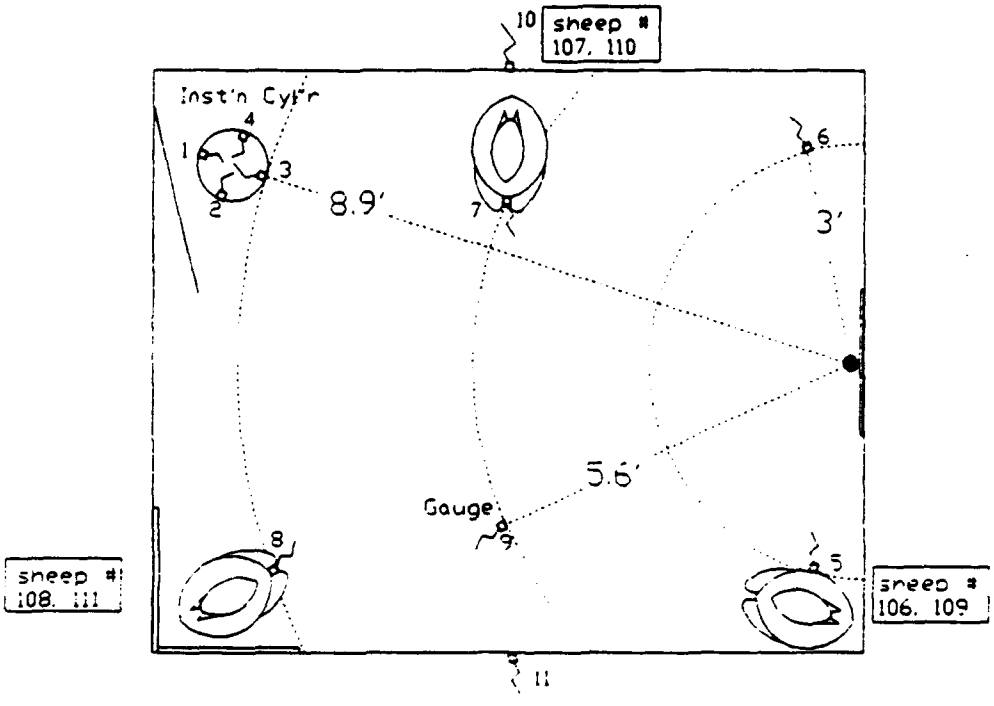


Figure A-15. Overhead view of configuration A-9/3

3.05 x 2.44 x 2.44 m

Enclosure

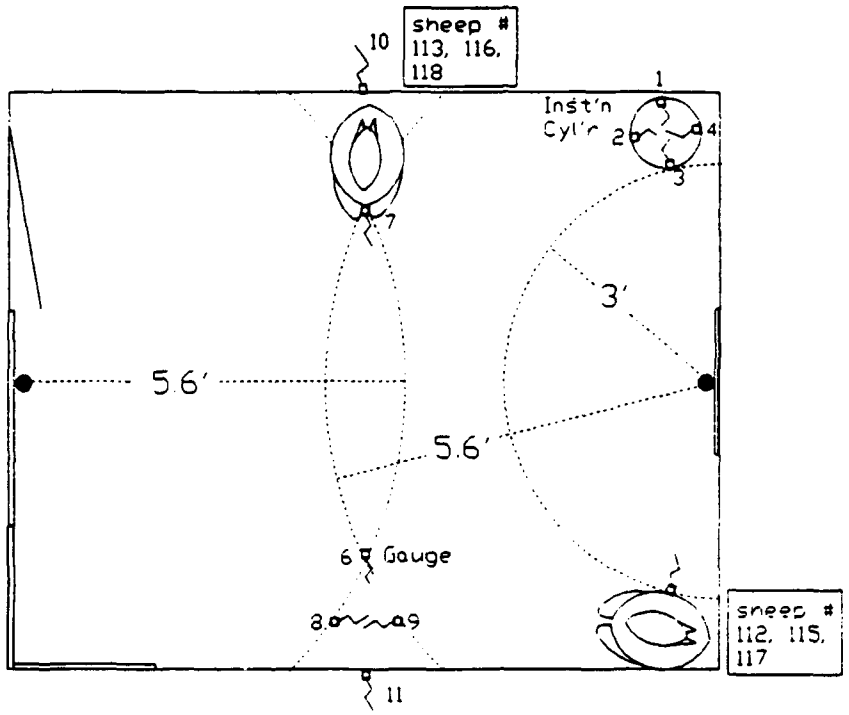


Figure A-16. Overhead view of configuration A-10

3.05 x 2.44 x 2.44 m

Enclosure

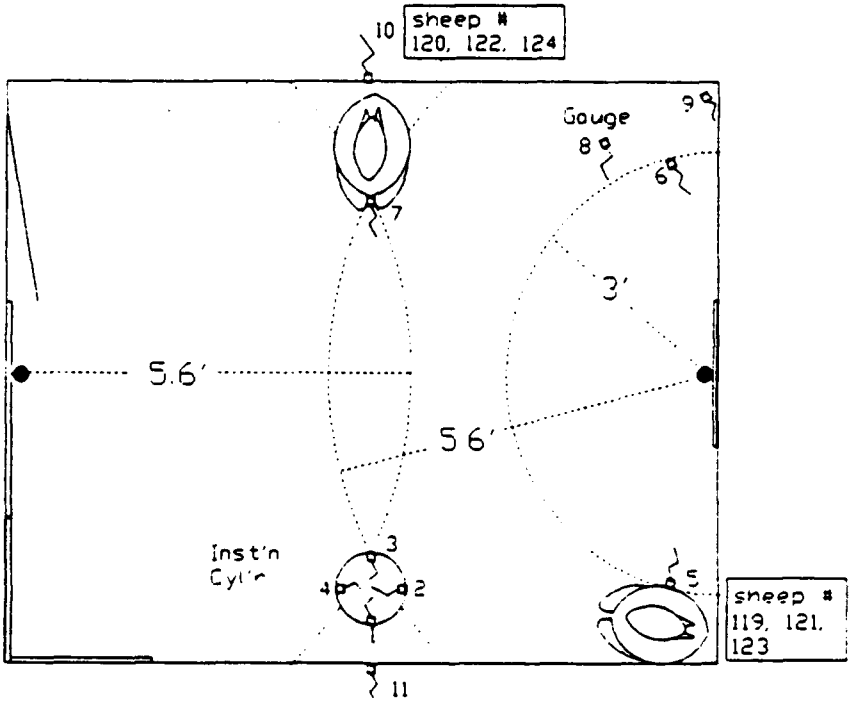


Figure A-17. Overhead view of configuration A-10/2

3.05 x 2.44 x 2.44 m

Enclosure

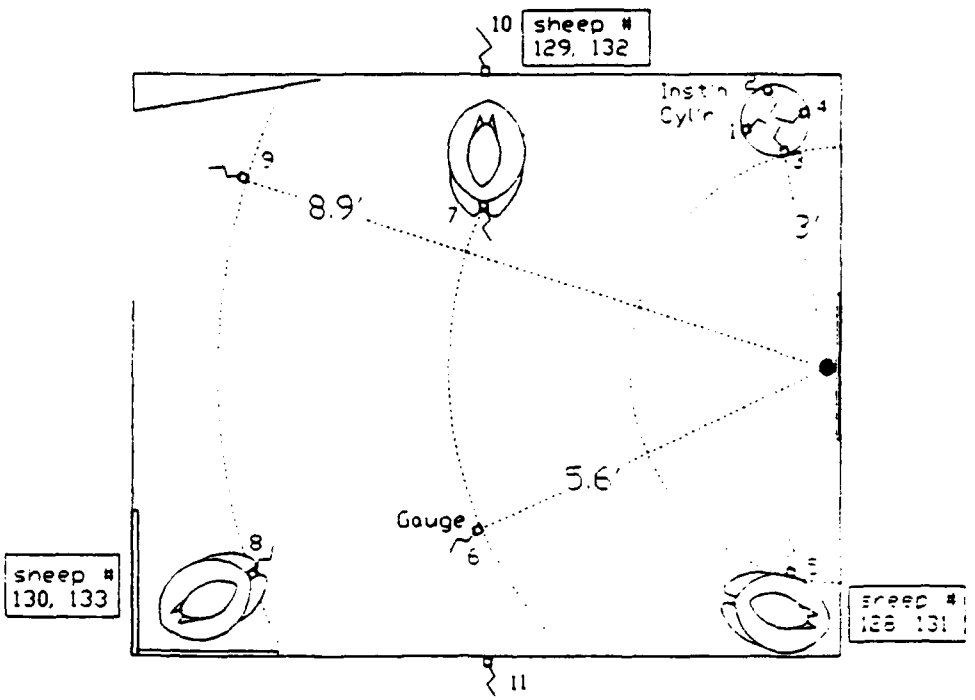


Figure A-18. Overhead view of configuration B-9

3.05 x 2.44 x 2.44 m

Enclosure

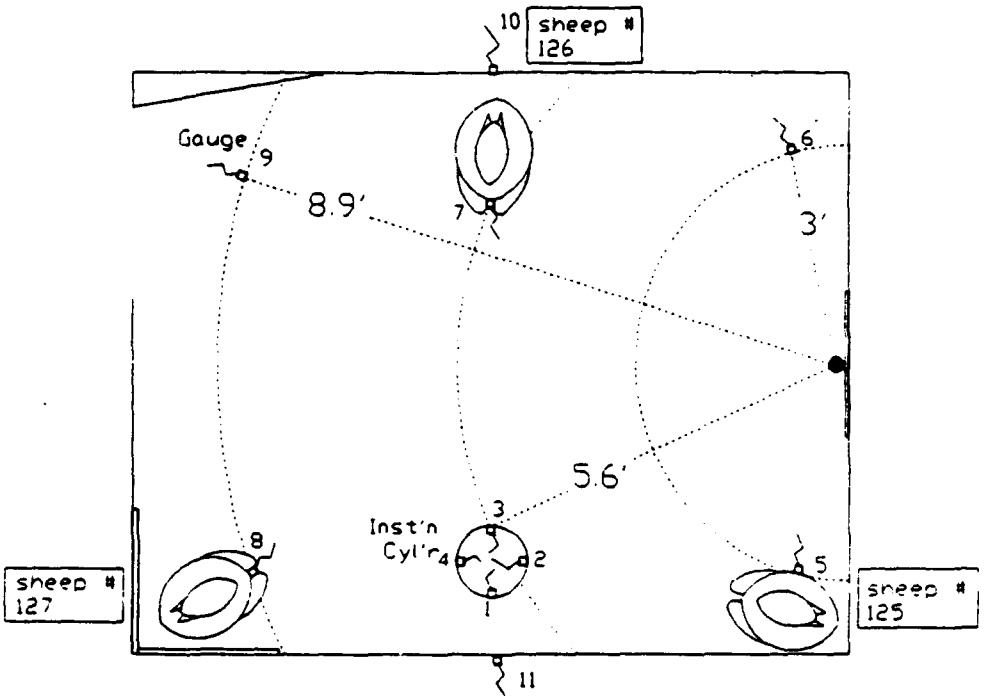


Figure A-19. Overhead view of configuration B-9/2

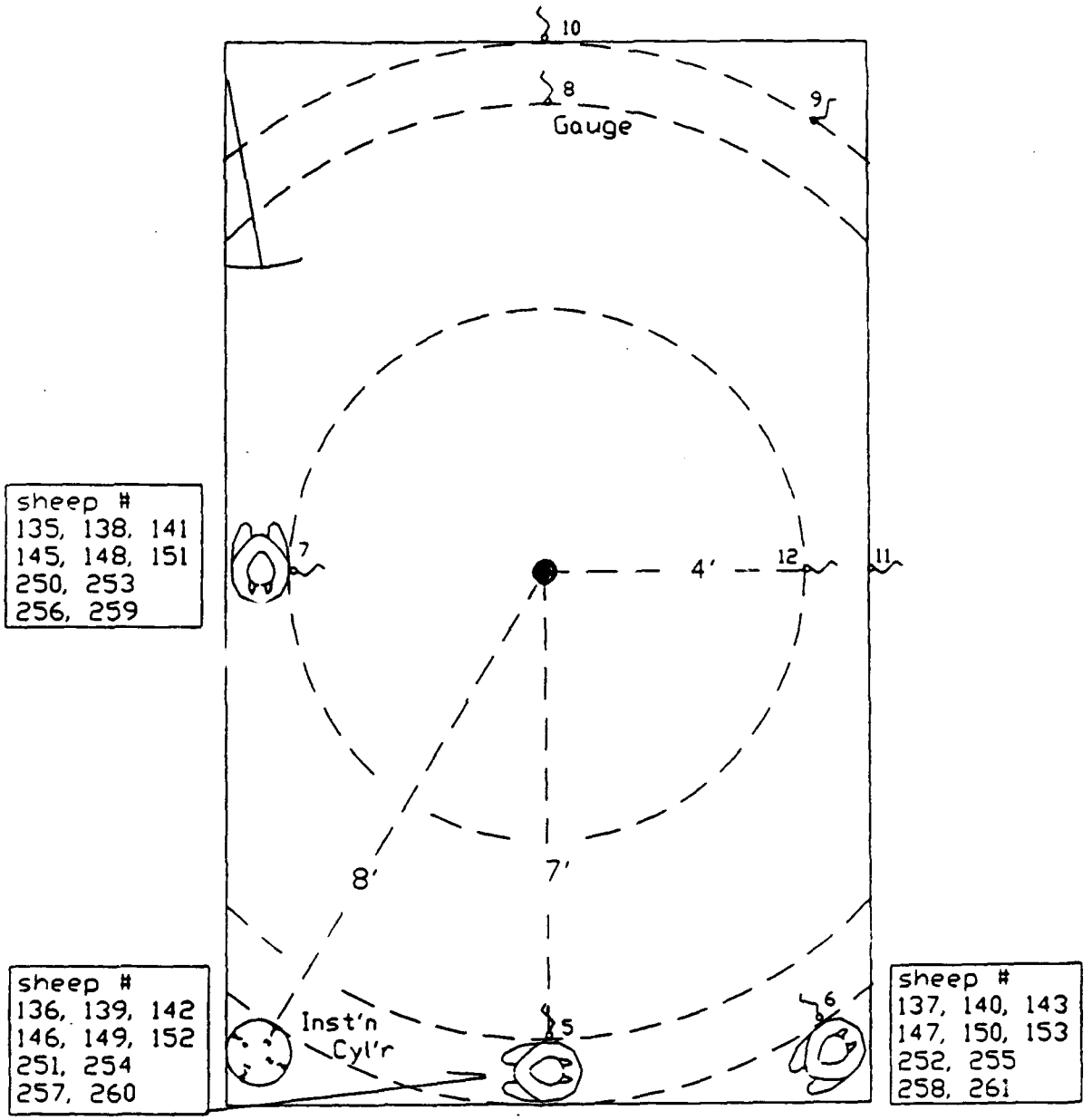


Figure A-20. Overhead view of configuration C-1

4.88 x 3.05 x 2.44 m

Enclosure

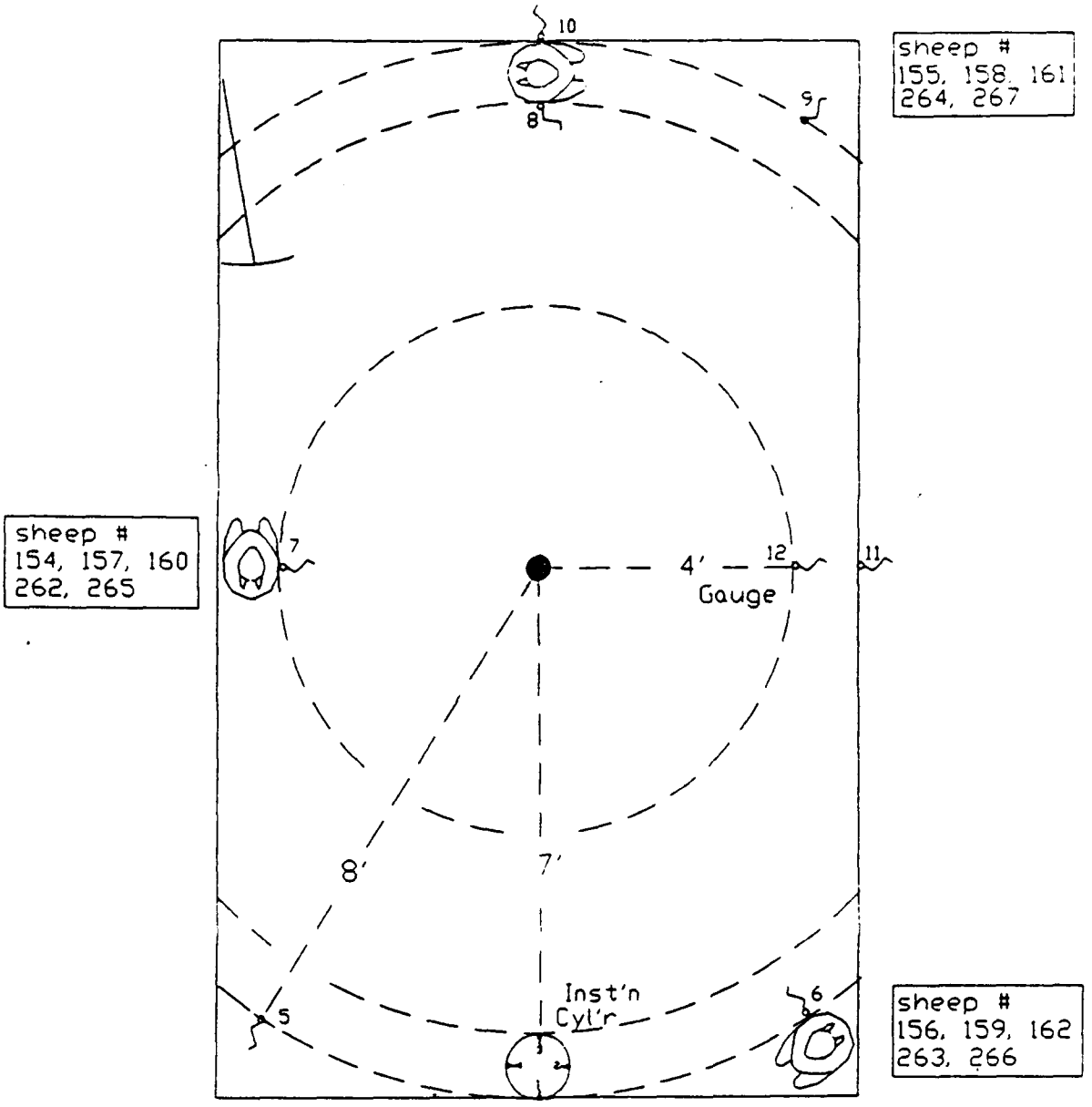


Figure A-21. Overhead view of configuration C-1/2

4.88 x 3.05 x 2.44 m

Enclosure

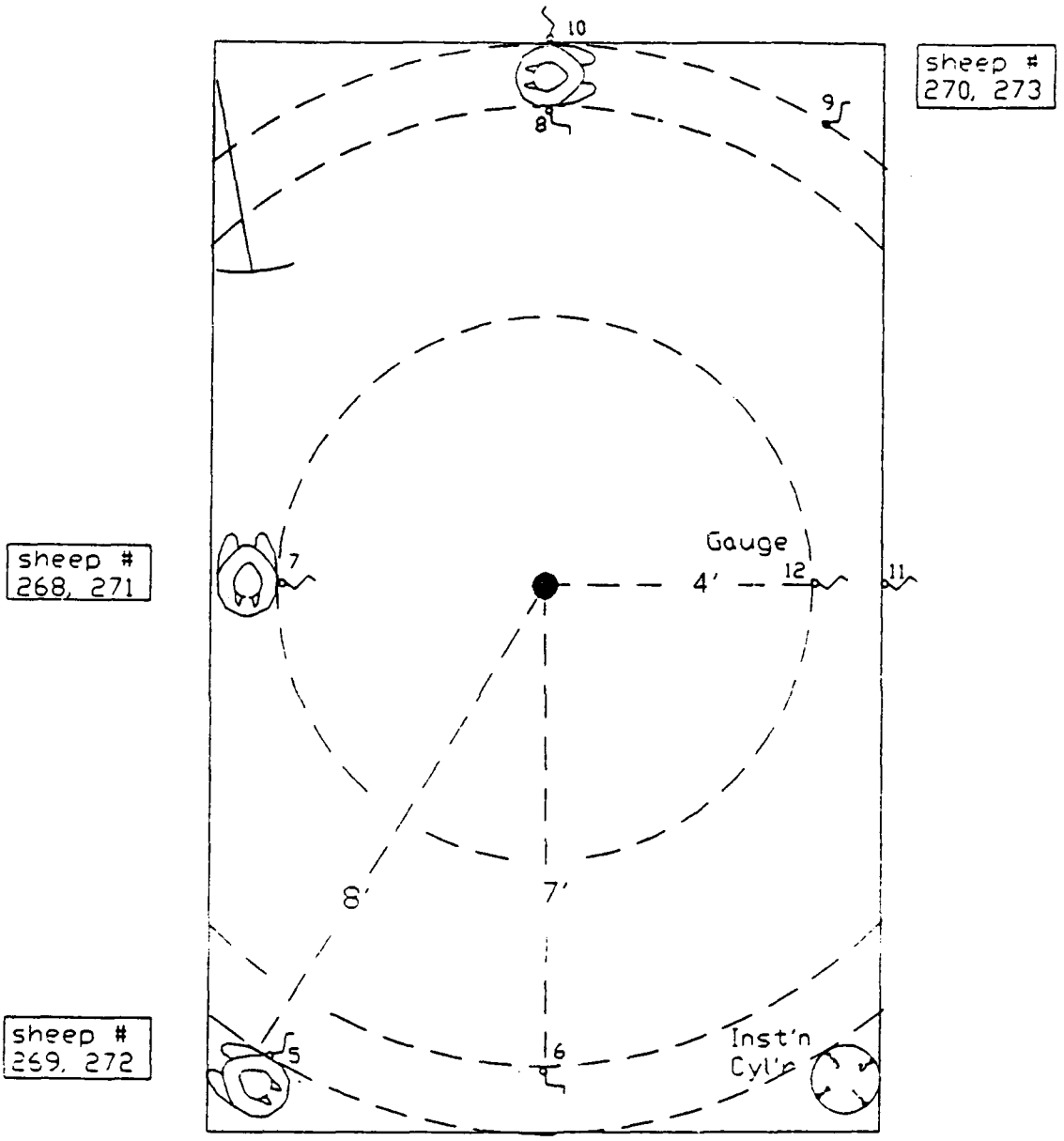


Figure A-22. Overhead view of configuration C-1/3a

4.88 x 3.05 x 2.44 m

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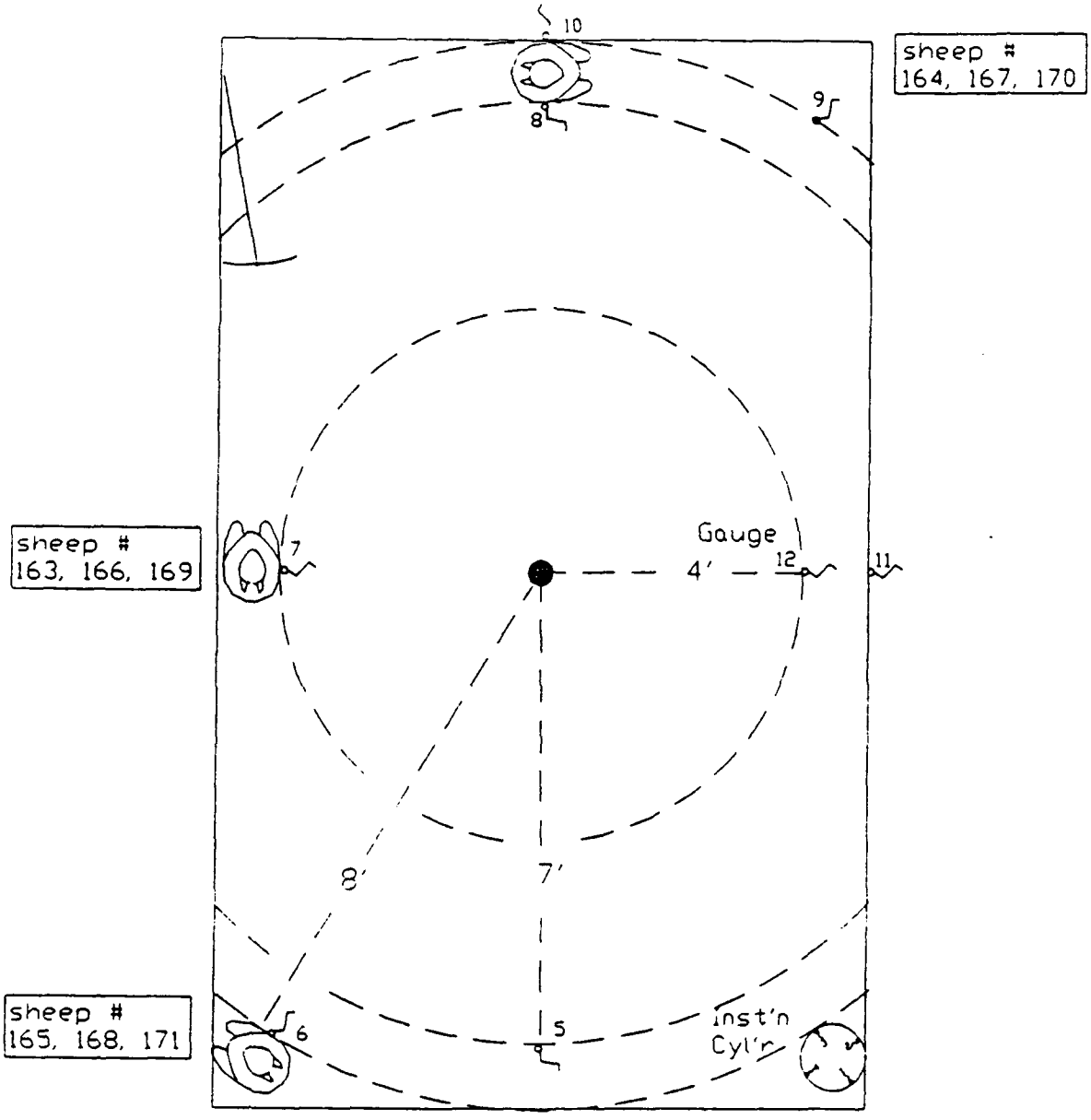

Figure A-23. Overhead view of configuration C-1/3b

4.88 x 3.05 x 2.44 m

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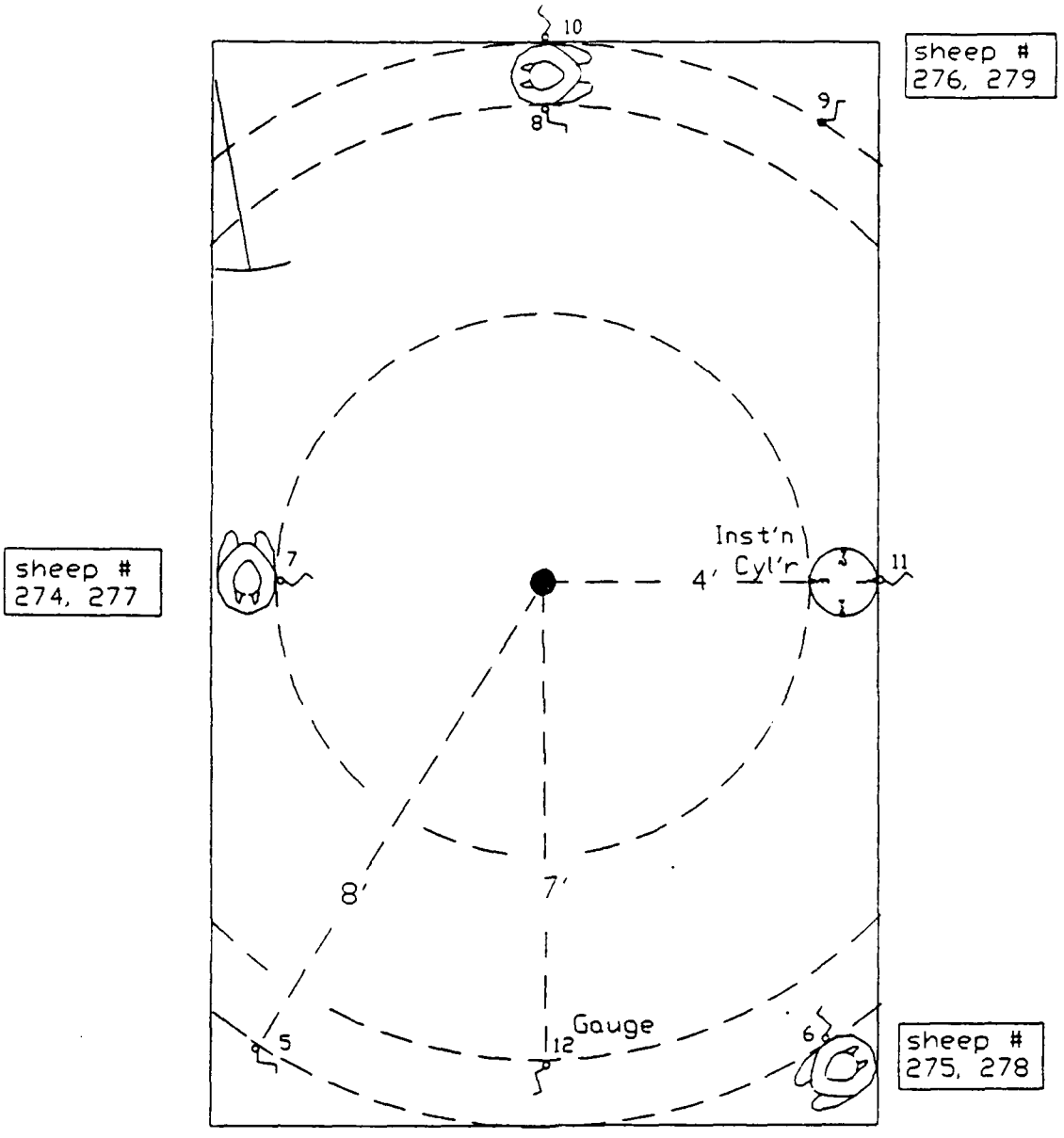

Figure A-24. Overhead view of configuration C-1/4a

4.88 x 3.05 x 2.44 m

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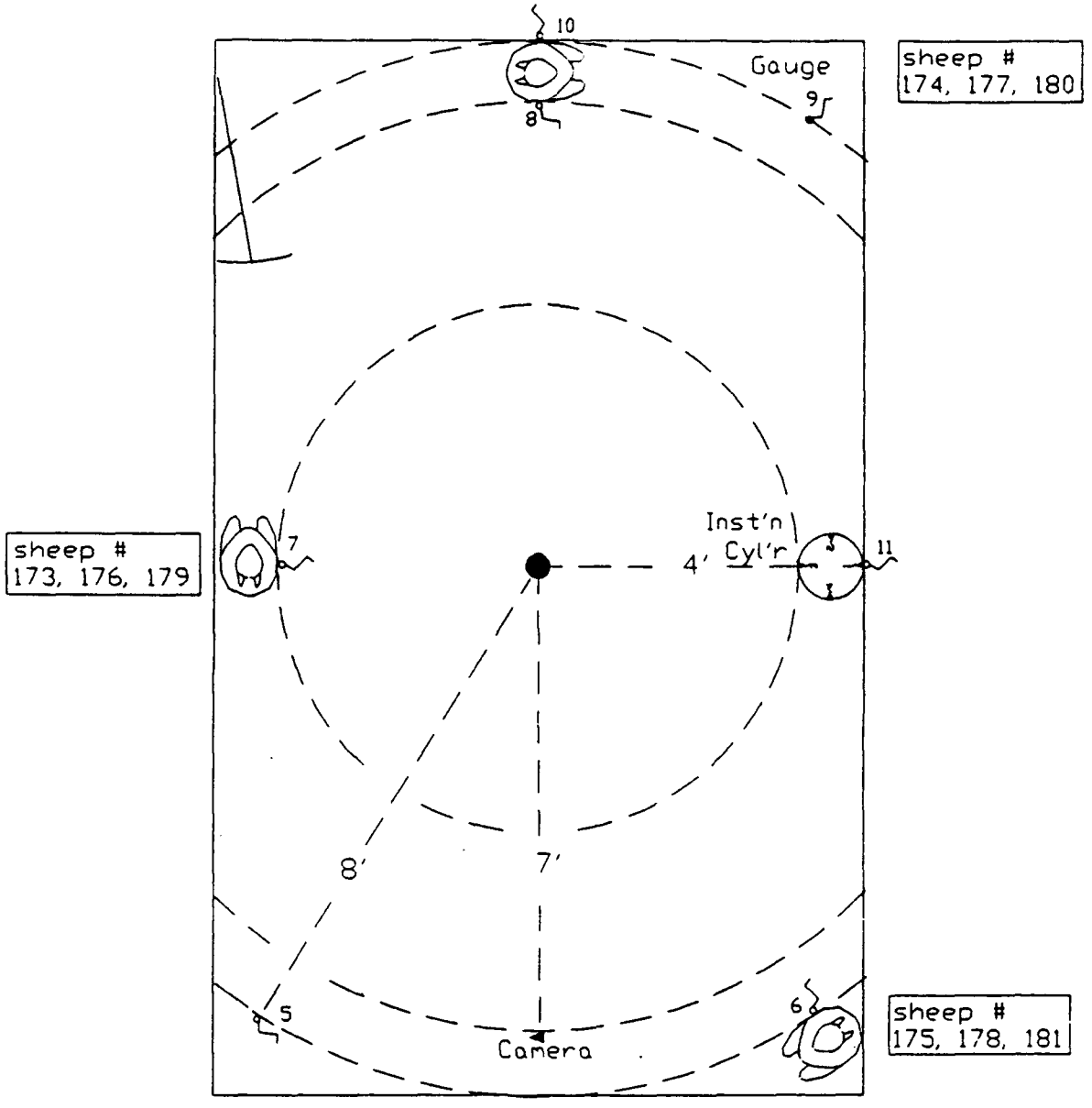


Figure A-25. Overhead view of configuration C-1/4b

3.05 x 1.52 x 2.44 m

Enclosure

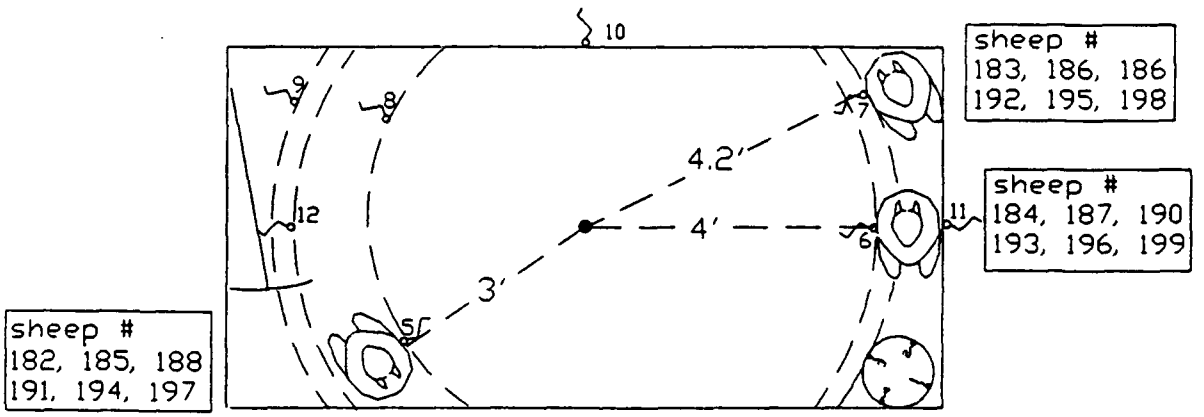


Figure A-26. Overhead view of configuration D-1

3.05 x 1.52 x 2.44 m

Enclosure

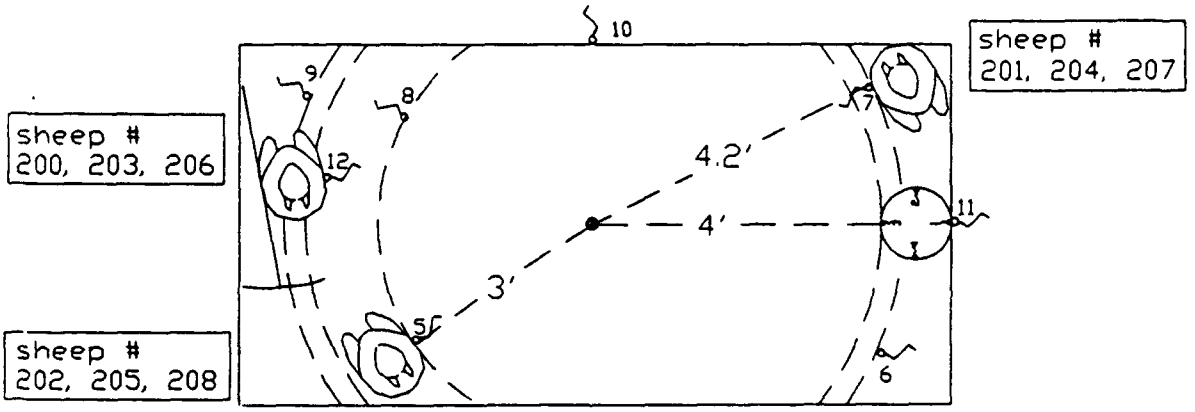


Figure A-27. Overhead view of configuration D-1/2

3.05 x 1.52 x 2.44 m

Enclosure

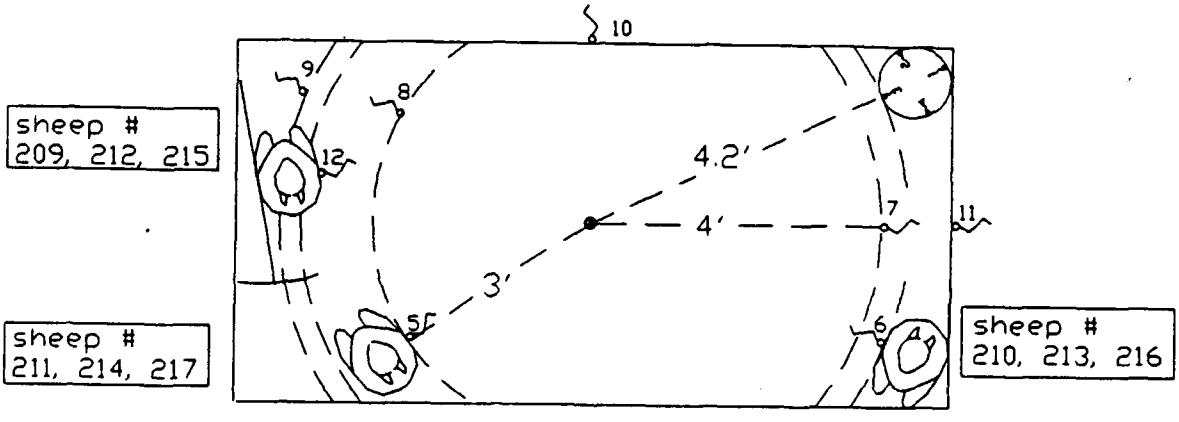


Figure A-28. Overhead view of configuration D-1/3

3.05 x 1.52 x 2.44 m

Enclosure

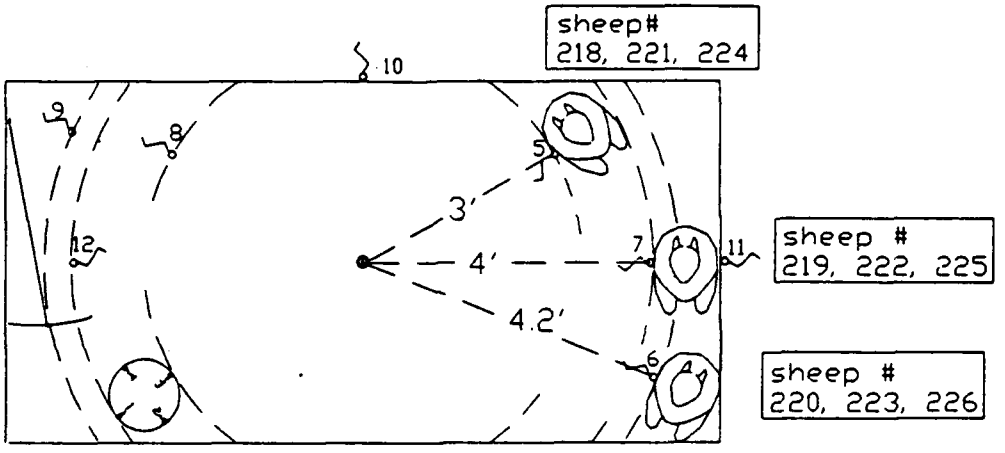


Figure A-29. Overhead view of configuration D-1/4

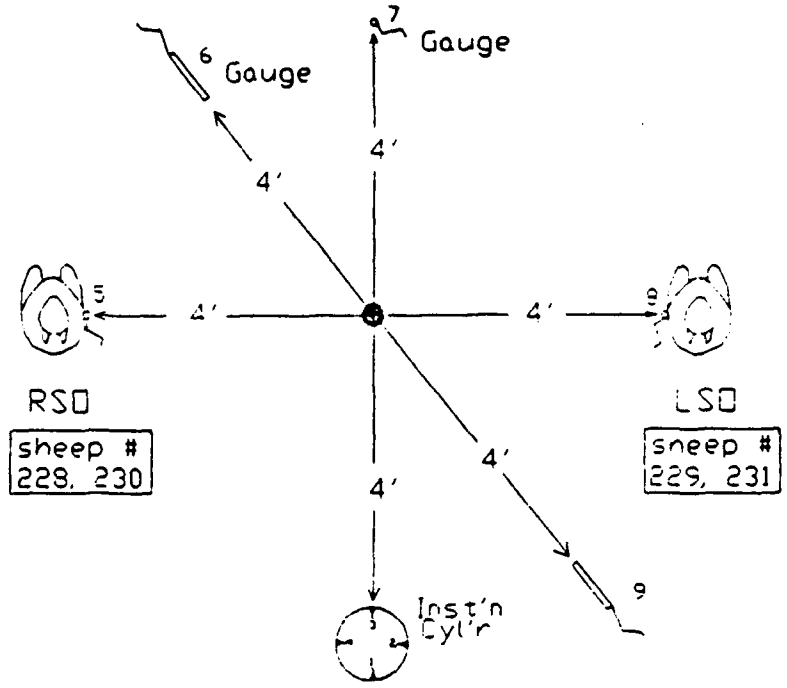


Figure A-30. Overhead view of configuration C-2

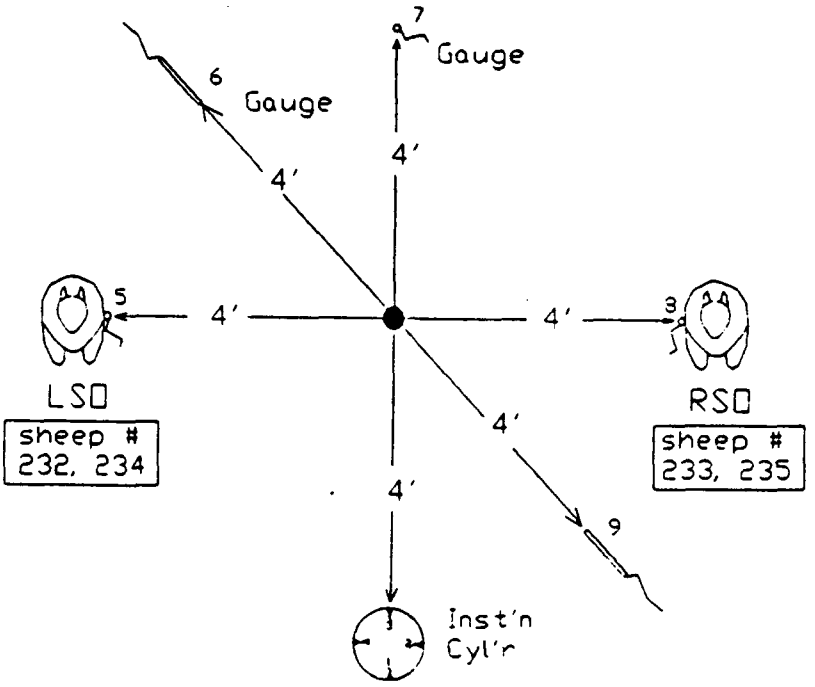


Figure A-31. Overhead view of configuration C-3

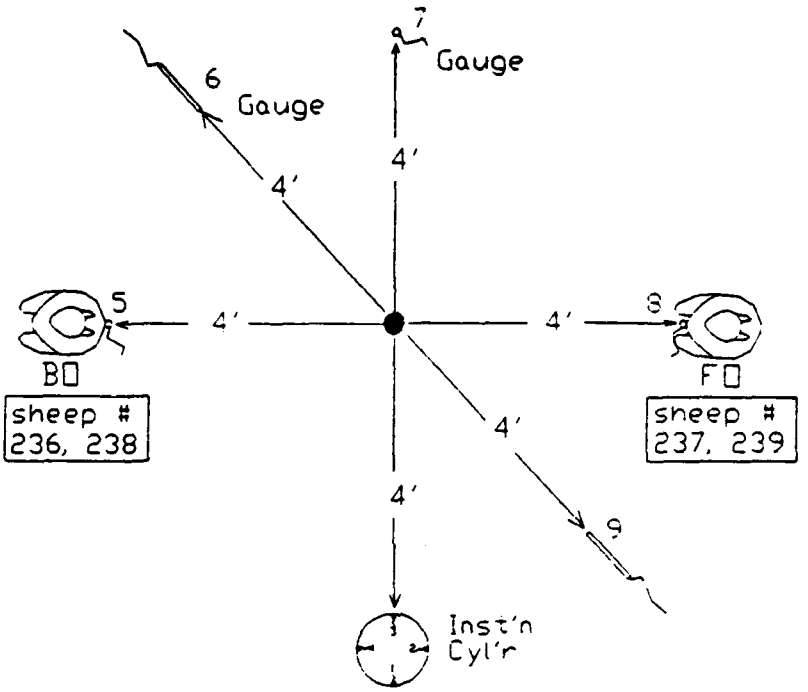


Figure A-32. Overhead view of configuration C-4

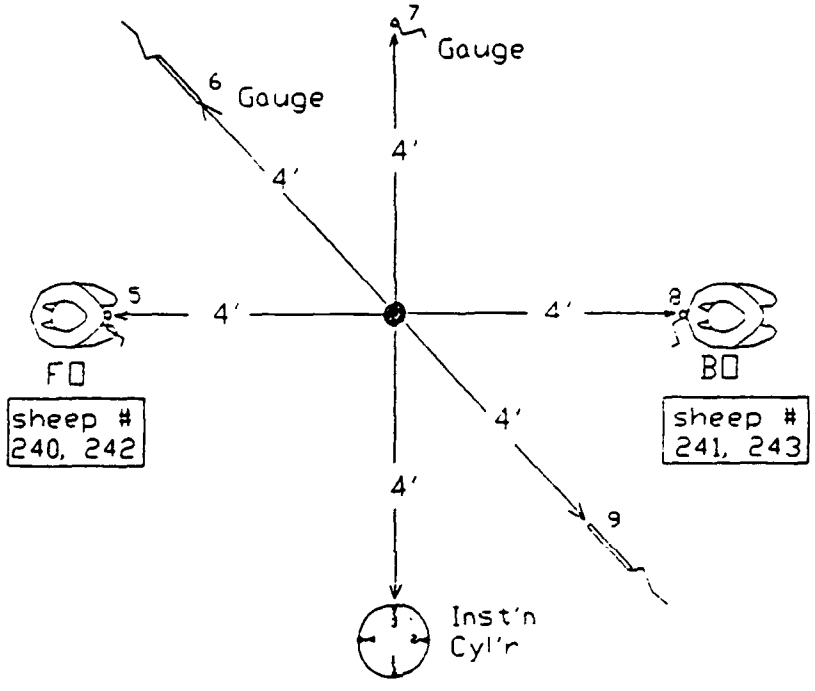


Figure A-33. Overhead view of configuration C-5

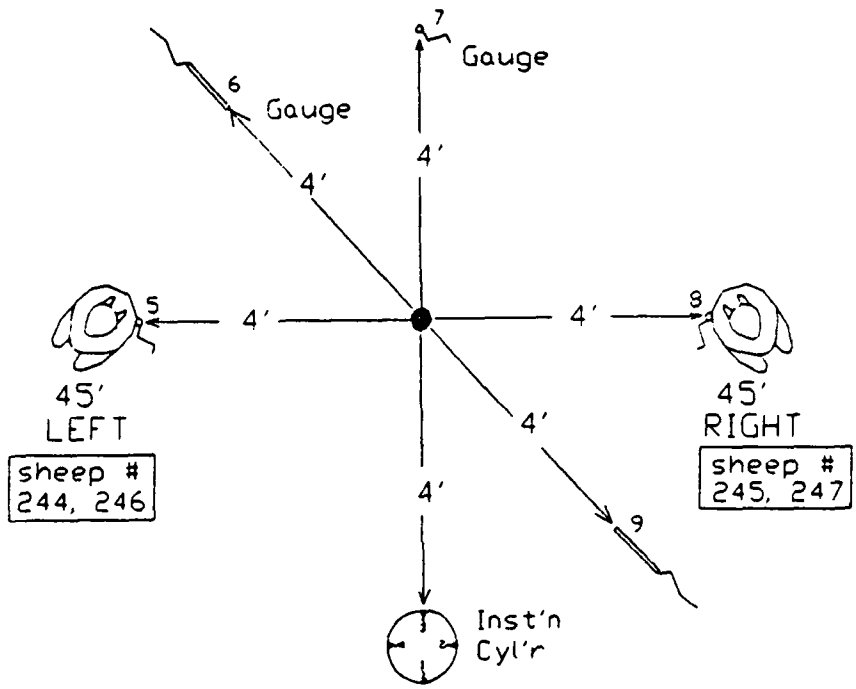


Figure A-34. Overhead view of configuration C-6

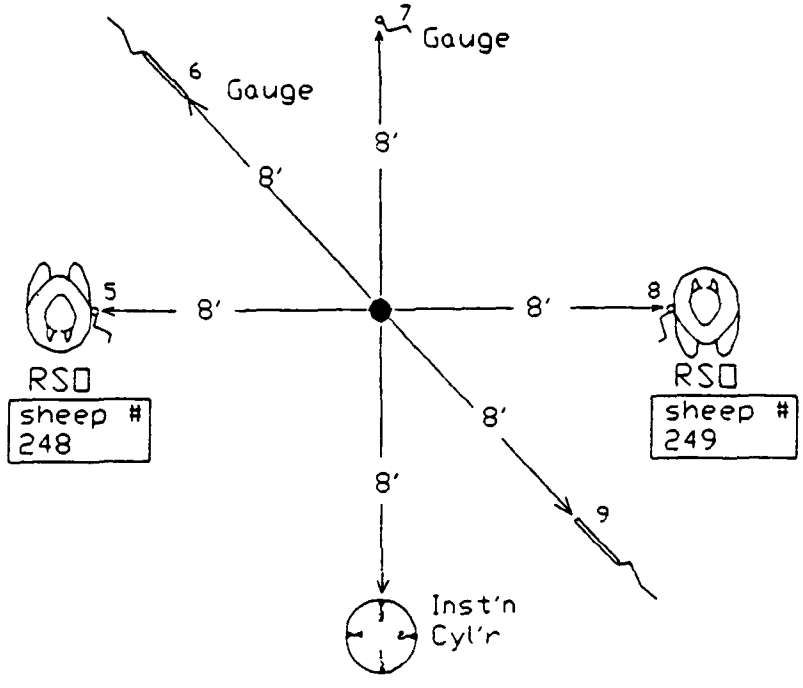


Figure A-35. Overhead view of configuration C-7

APPENDIX B

PRESSURE-TIME DATA

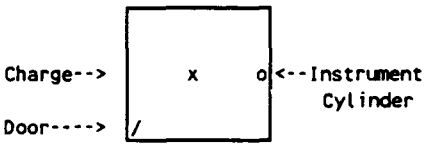
Table B-1. Instrumentation cylinder pressure-time summary at the 3 ft/0.9 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-1. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/30/90	114	1(BO)	297.3	63.3	1197.9	75.6	3546.9	7092.6
S01		2(SO)	233.0	58.2	691.5	60.7	1403.9	3324.6
A-1		3(FO)*	1108.2	86.2	416.0	1108.2	NO DATA	11778.9
		4(SO)	241.2	52.7	1473.4	40.3	1977.8	4018.1
Mean			257.2	58.1	1120.9	58.9	2309.5	4811.8
SD			35.0	5.3	396.6	17.7	1109.3	2005.5
7/31/90	227	1(BO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
S01		2(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
A-1		3(FO)*	1184.9	125.8	430.1	1184.9	NO DATA	22316.3
		4(SO)	473.9	93.1	2857.0	111.6	2954.5	15325.9
Mean			473.9	93.1	2857.0	111.6	2954.5	15325.9
SD								
8/1/90	454	1(BO)	1126.3	208.5	3951.9	311.5	7091.6	71508.7
S01		2(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
A-1		3(FO)*	4573.6	251.2	1224.1	4573.6	NO DATA	NO DATA
		4(SO)	859.7	143.3	3126.5	228.4	3206.3	33987.6
Mean			993.0	175.9	3539.2	270.0	5149.0	52748.2
SD			188.5	46.1	583.6	58.8	2747.3	26531.4
8/2/90	907	1(BO)	2607.1	319.2	5603.4	892.0	8235.0	204499.3
S01		2(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
A-1		3(FO)*	5882.3	359.5	8774.9	2808.5	426.9	358452.1
		4(SO)	1205.9	226.4	5285.5	345.8	6574.8	85894.9
Mean			1906.5	272.8	5444.5	618.9	7404.9	145197.1
SD			990.8	65.6	224.8	386.2	1173.9	83866.0

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.



Enclosure Configuration A-1

Note. Recording site ambient pressure = 83 kPa

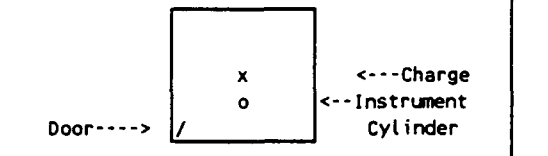
Table B-2. Instrumentation cylinder pressure-time summary at the 3 ft/0.9 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-2. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/7/90	114	1(BO)	374.9	164.6	1452.3	118.6	4918.3	11933.4
S01		2(SO)	202.9	55.2	1045.6	54.4	2329.3	3866.5
A-2		3(FO)*	702.7	83.5	680.8	419.3	2343.0	8501.2
		4(SO)	301.7	68.8	1271.7	82.1	3430.0	4540.1
Mean			293.2	96.2	1256.5	85.0	3559.2	6780.0
SD			86.3	59.6	203.8	32.2	1299.3	4475.7
8/8/90	227	1(BO)	1115.0	193.9	2463.3	378.1	8806.0	24280.3
S01		2(SO)	398.3	70.9	1868.7	118.7	5273.8	7492.3
A-2		3(FO)*	1176.5	128.5	1367.6	547.6	1329.6	24348.0
		4(SO)	494.5	93.6	2547.5	105.0	4662.2	10757.5
Mean			669.3	119.5	2293.2	200.6	6247.3	14176.7
SD			389.0	65.5	370.0	153.9	2236.9	8901.0
8/9/90	454	1(BO)	830.1	233.8	4073.0	215.7	8244.4	53429.0
S01		2(SO)	560.1	113.2	2749.7	169.0	6417.2	21215.5
A-2		3(FO)*	3809.6	222.1	748.2	1765.1	268.3	95663.5
		4(SO)	832.1	136.8	4455.3	195.2	7504.4	33713.6
Mean			740.8	161.3	3759.3	193.3	7388.7	36119.4
SD			156.5	63.9	895.0	23.4	919.1	16240.9
8/10/90	907	1(BO)	1400.5	373.0	6602.1	294.1	10548.7	142417.4
S01		2(SO)	946.9	234.9	5719.1	280.4	10153.5	75260.2
A-2		3(FO)*	5924.6	338.4	1069.1	2850.8	399.1	242523.7
		4(SO)	1446.3	253.5	6140.1	381.0	7716.8	77050.8
Mean			1264.6	287.1	6153.8	318.5	9473.0	98242.8
SD			276.1	74.9	441.7	54.6	1533.7	38266.8

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

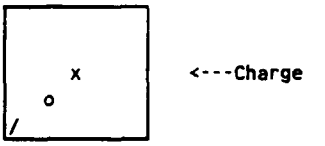


Enclosure Configuration A-2

Note. Recording site ambient pressure = 83 kPa

Table B-3. Instrumentation cylinder pressure-time summary at the 3 ft/0.91 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-3. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/15/90	114	1(BO)	230.1	53.3	1202.6	45.9	2277.0	3568.9
S01		2(SO)	331.9	58.6	1059.3	158.8	2752.2	4756.4
A-3		3(FO)*	1044.6	96.1	1023.7	1044.6	NO DATA	11710.5
		4(SO)	243.4	56.5	1137.1	48.6	2325.2	3986.1
Mean			268.5	56.1	1133.0	84.4	2451.5	4103.8
SD			55.3	2.7	71.7	64.4	261.6	602.4
8/20/90	227	1(BO)	297.6	94.7	2040.4	42.5	2151.0	8956.9
S01		2(SO)	336.8	71.3	1763.9	96.4	4263.1	9038.3
A-3		3(FO)*	1169.9	115.4	1634.1	562.7	1775.8	21525.0
		4(SO)	485.8	80.1	2091.4	112.9	3770.2	10807.3
Mean			373.4	82.0	1965.2	83.9	3394.8	9600.8
SD			99.3	11.8	176.2	36.8	1105.0	1045.6
8/21/90	454	1(BO)	529.3	157.9	4209.0	106.7	5024.4	33516.9
S01		2(SO)	569.8	103.3	2699.3	178.1	6878.0	17836.6
A-3		3(FO)*	5726.8	347.3	1571.5	3407.9	640.7	158654.2
		4(SO)	442.0	120.9	4244.6	99.9	4925.2	30219.4
Mean			513.7	127.4	3717.6	128.2	5609.2	27191.0
SD			65.3	27.9	882.1	43.3	1099.9	8267.2
8/22/90	907	1(BO)	639.6	256.9	6560.0	84.4	4307.3	94164.6
S01		2(SO)	1160.0	184.4	4148.1	492.1	6026.8	59212.2
A-3		3(FO)*	5849.5	342.1	4031.7	2743.7	395.1	212164.7
		4(SO)	1043.7	207.6	7019.3	222.8	8062.8	91907.8
Mean			947.8	216.3	5909.1	266.4	6132.3	81761.5
SD			273.1	37.0	1542.3	207.3	1880.0	19560.9



Enclosure Configuration A-3

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

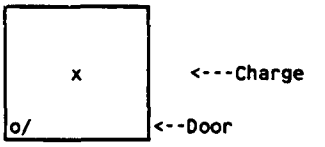
Table B-4. Instrumentation cylinder pressure-time summary at the 4 ft/1.22 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-4. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/4/90	114	1(BO)	231.4	76.1	1529.8	59.9	2884.2	5471.0
S01		2(SO)	243.1	85.1	1275.4	69.7	3362.0	5430.1
A-4		3(FO)*	481.8	61.6	1215.1	207.9	2754.5	6723.8
		4(SO)	201.7	54.4	1295.8	44.1	2123.3	3573.7
Mean			225.4	71.9	1367.0	57.9	2789.8	4824.9
SD			21.3	15.8	141.4	12.9	624.7	1083.8
9/5/90	227	1(BO)	334.5	134.0	2610.8	88.9	4300.1	15179.3
S01		2(SO)	261.0	108.8	2330.2	74.7	3571.2	10995.8
A-4		3(FO)*	995.9	118.5	1114.9	477.7	6589.6	13833.5
		4(SO)	315.2	78.6	2356.3	73.3	3616.8	9534.1
Mean			303.6	107.1	2432.4	79.0	3829.4	11903.1
SD			38.1	27.7	155.0	8.6	408.3	2929.9
9/6/90	454	1(BO)	433.0	242.0	4347.5	137.3	6308.5	46438.0
S01		2(SO)	441.2	172.3	4003.8	130.0	5455.6	35251.5
A-4		3(FO)*	2118.4	199.6	3475.8	2118.4	NO DATA	59137.5
		4(SO)	1186.3	166.0	3921.9	369.4	8017.2	38066.5
Mean			686.8	193.4	4091.1	212.2	6593.8	39918.7
SD			432.6	42.2	225.8	136.2	1304.4	5818.7
9/7/90	907	1(BO)	692.3	344.6	7460.3	196.5	9319.4	129786.0
S01		2(SO)	952.4	211.2	4658.3	274.2	8774.6	59450.4
A-4		3(FO)*	2890.8	313.4	6112.4	1358.8	4065.5	144909.7
		4(SO)	1195.8	259.6	7170.6	305.0	8512.1	101324.9
Mean			946.8	271.8	6429.7	258.6	8868.7	96853.8
SD			251.8	67.5	1540.9	55.9	411.8	35380.3

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.



Enclosure Configuration A-4

Note. Recording site ambient pressure = 83 kPa

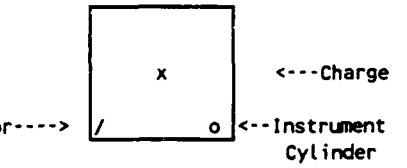
Table B-5. Instrumentation cylinder pressure-time summary at the 4.7 ft/1.43 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-5. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/13/90	114	1(BO)	241.5	109.4	1513.9	70.3	3262.8	11000.7
S01		2(SO)	281.9	81.7	1243.2	82.2	3899.5	6683.2
A-5		3(FO)*	293.6	57.4	1283.6	63.7	3013.2	4400.0
		4(SO)	192.3	90.6	1396.3	46.1	2244.8	5433.0
Mean			238.6	93.9	1384.5	66.2	3135.7	7705.6
SD			44.9	14.1	135.7	18.4	834.6	2921.3
9/14/90	227	1(BO)	357.2	172.1	2762.0	88.8	4221.2	24148.7
S01		2(SO)	479.5	110.7	2236.7	156.2	5742.8	15164.9
A-5		3(FO)*	633.5	98.3	2002.7	168.0	2954.2	12460.1
		4(SO)	338.2	135.4	2366.8	71.3	3552.4	13159.9
Mean			391.6	139.4	2455.2	105.4	4505.5	17491.2
SD			76.7	30.9	273.6	44.8	1122.5	5852.1
9/17/90	454	1(BO)	717.2	291.8	4518.8	198.2	8319.8	67853.3
S01		2(SO)	841.0	194.4	3768.5	284.4	9094.0	45718.5
A-5		3(FO)*	1122.8	180.5	3942.8	314.8	5707.5	46140.2
		4(SO)	534.8	184.2	4177.1	118.7	5205.4	36005.9
Mean			697.7	223.5	4154.8	200.4	7539.7	49859.2
SD			154.0	59.4	375.6	82.9	2058.3	16322.5
9/18/90	907	1(BO)	1368.5	446.4	7414.2	417.1	10557.0	167949.2
S01		2(SO)	1921.8	291.0	5304.8	774.3	8993.8	117588.2
A-5		3(FO)*	2698.3	333.8	6399.8	1105.3	3240.9	151764.4
		4(SO)	1091.2	297.1	7029.7	273.0	6664.3	106197.6
Mean			1460.5	344.8	6582.9	488.1	8738.4	130578.3
SD			422.9	88.0	1123.4	258.1	1958.9	32861.4

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.



Enclosure Configuration A-5

Note. Recording site ambient pressure = 83 kPa

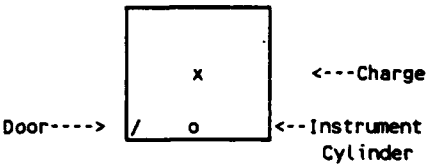
Table B-6. Instrumentation cylinder pressure-time summary at the 4 ft/1.22 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-6. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/25/90	114	1(BO)	995.2	210.9	1792.6	364.6	5334.1	37613.5
S01		2(SO)	303.9	116.2	1106.1	88.6	4294.2	7152.8
A-6		3(FO)*	496.6	80.5	1230.9	140.4	4105.8	7732.6
		4(SO)	422.1	126.6	1498.6	107.6	4469.9	10830.6
Mean			573.7	151.2	1465.8	186.9	4699.4	18532.3
SD			369.8	51.9	344.4	154.2	556.6	16626.8
9/26/90	227	1(BO)	1387.8	281.9	3065.4	535.9	16454.4	78335.1
S01		2(SO)	672.2	155.9	2438.1	219.5	6843.0	16935.1
A-6		3(FO)*	891.9	107.6	1870.8	448.1	4661.8	18152.9
		4(SO)	474.6	159.5	2586.6	120.8	5290.6	19128.7
Mean			844.9	199.1	2696.7	292.1	9529.3	38133.0
SD			480.5	71.7	327.8	216.9	6047.3	34833.3
9/27/90	454	1(BO)	1170.9	256.1	4518.4	293.2	14157.0	104122.0
S01		2(SO)	878.6	169.9	4330.2	236.6	6323.6	36808.8
A-6		3(FO)*	2083.7	180.0	1928.9	2083.7	NO DATA	46930.7
		4(SO)	609.0	181.4	4504.4	147.4	7050.1	46698.8
Mean			886.2	202.5	4451.0	225.7	9176.9	62543.2
SD			281.0	46.8	104.8	73.5	4328.2	36346.3
9/28/90	907	1(BO)	1957.0	372.2	6722.3	654.7	21093.3	219683.9
S01		2(SO)	786.8	243.5	5869.3	234.4	7642.5	88171.8
A-6		3(FO)*	2936.2	310.2	5680.5	1769.1	5611.5	177678.0
		4(SO)	980.3	240.7	6929.4	265.2	8619.0	104483.8
Mean			1241.4	285.5	6507.0	384.8	12451.6	137446.5
SD			627.3	75.1	561.9	234.3	7499.8	71685.2

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

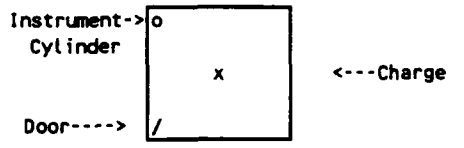


Enclosure Configuration A-6

Note. Recording site ambient pressure = 83 kPa

Table 8-7. Instrumentation cylinder pressure-time summary at the 4.7 ft/1.43 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-7. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
10/2/90	114	1(BO)	251.5	99.7	1471.0	64.2	3067.8	7963.0
S01		2(SO)	264.6	67.7	1252.2	73.8	3539.1	5549.0
A-7		3(FO)*	320.9	51.7	1085.1	87.0	4157.3	4715.7
		4(SO)	181.4	95.9	1339.7	39.4	1960.3	5379.7
Mean			232.5	87.8	1354.3	59.1	2855.7	6297.2
SD			44.7	17.5	110.1	17.8	810.5	1445.1
10/3/90	227	1(BO)	778.0	183.9	2822.0	239.1	8807.9	23872.3
S01		2(SO)	516.7	97.1	1930.5	159.8	5911.4	9987.4
A-7		3(FO)*	632.4	95.2	1918.5	195.4	3171.3	12485.8
		4(SO)	355.9	150.1	2520.1	72.4	3542.3	13551.9
Mean			550.2	143.7	2424.2	157.1	6087.2	15803.9
SD			213.0	43.8	453.4	83.4	2637.2	7211.2
10/4/90	454	1(BO)	737.5	293.9	4624.5	226.8	8982.4	71525.2
S01		2(SO)	851.2	202.9	3776.5	237.7	7060.7	44532.7
A-7		3(FO)*	1143.8	180.0	3775.9	400.9	5675.7	42226.9
		4(SO)	530.1	222.7	4063.1	126.4	5718.8	38140.1
Mean			706.3	239.8	4154.7	197.0	7254.0	51399.3
SD			162.8	47.9	431.4	61.4	1640.4	17720.2
10/5/90	907	1(BO)	1019.6	440.4	7939.4	285.5	13536.2	181317.1
S01		2(SO)	1530.8	273.0	6521.8	513.8	12898.8	125066.2
A-7		3(FO)*	2223.8	270.8	7002.9	796.9	4624.9	134659.4
		4(SO)	897.1	314.3	7271.7	241.1	7852.5	114816.2
Mean			1149.2	342.6	7244.3	346.8	11429.2	140399.8
SD			336.1	87.2	709.2	146.3	3113.8	35804.1



Enclosure Configuration A-7

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

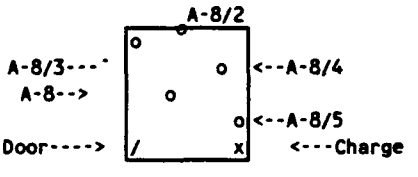
* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

Table B-8. Instrumentation cylinder pressure-time summary for various ranges in the 3.05 x 2.44 x 2.44- m enclosure for charges detonated in a corner in configurations A-8 through A-8/5. Shots with sheep in the chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 2 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/16/90	454	1(BO)	620.4	120.5	3771.2	137.8	5002.3	26283.1
T6		2(SO)	1306.8	112.2	1727.0	547.3	790.3	19975.1
A-8/5		3(FO)*	2945.4	364.1	3762.4	1049.3	1632.7	137176.0
3ft/0.91m		4(SO)	2102.2	238.2	3486.5	630.6	14512.4	64731.3
Mean			1343.1	157.0	2994.9	438.6	6768.3	36996.5
SD			741.6	70.5	1107.2	263.8	7029.4	24225.2
10/31/90	454	1(BO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
T1		2(SO)	484.0	173.8	3026.4	158.1	7645.8	25098.3
A-8		3(FO)*	769.0	252.9	3276.4	247.1	8794.9	40884.4
6.6ft/2.01m		4(SO)	400.4	160.0	3772.0	117.0	5741.7	26383.5
Mean			442.2	166.9	3399.2	137.6	6693.8	25740.9
SD			59.1	9.8	527.2	29.1	1346.4	908.8
11/1/90	454	1(BO)	444.8	246.8	4098.4	118.2	5691.6	35727.2
T2		2(SO)	403.5	165.9	3118.3	123.3	5926.3	25642.5
A-8		3(FO)*	1013.3	232.4	3040.8	349.8	8615.5	39807.4
6.6ft/2.01m		4(SO)	368.6	151.8	3644.2	92.0	4587.2	23929.0
Mean			405.6	188.2	3620.3	111.2	5401.7	28432.9
SD			38.1	51.3	490.5	16.8	715.1	6374.9
11/14/90	454	1(BO)	796.9	181.1	4483.9	221.5	9419.9	42166.9
T5		2(SO)	822.6	175.5	2726.1	339.2	11098.3	26337.1
A-8/4		3(FO)*	1259.0	229.0	2980.4	761.2	1138.8	42827.4
6.6ft/2.01 m		4(SO)	516.1	119.2	3857.6	116.3	5313.0	22800.4
Mean			711.9	158.6	3689.2	225.7	8610.4	30434.8
SD			170.0	34.2	890.9	111.5	2976.4	10313.0
11/12/90	454	1(BO)	777.8	350.1	4571.6	190.7	7499.9	68227.0
T-4		2(SO)	1057.4	403.5	3371.6	339.5	16503.5	60937.1
A-8/3		3(FO)*	579.5	236.2	3294.8	171.9	8542.6	36456.0
9.8ft/2.99 m		4(SO)	538.3	271.3	3940.6	110.1	5456.7	43441.2
Mean			791.2	341.6	3961.3	213.4	9820.0	57535.1
SD			259.8	66.5	600.3	116.4	5877.5	12738.3
11/7/90	907	1(BO)	1432.6	511.8	6571.2	483.2	15459.2	178383.6
T3		2(SO)	1669.4	594.8	5066.4	530.1	11341.7	153752.9
A-8/2		3(FO)*	995.2	408.6	11180.4	242.0	11133.2	189831.2
9.8ft/2.99 m		4(SO)	1409.5	550.5	7495.8	345.5	11024.3	178606.1
Mean			1503.8	552.4	6377.8	452.9	12608.4	170247.5
SD			143.8	41.5	1226.2	95.9	2474.0	14285.2

Instrumentation Cylinder Configurations A-8 to A-8/5 --- o



Enclosure
Configurations A-8 to A-8/5

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

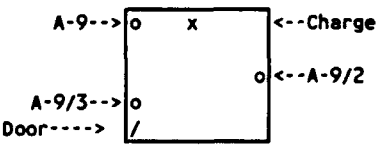
Table B-9. Instrumentation cylinder pressure-time summary for various ranges in the 3.05 x 2.44 x 2.44- m enclosure for charges detonated against one wall in configurations A-9 through A-9/3. Shots with sheep in the chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/30/90	454	1(BO)	1290.7	153.8	535.5	402.8	4312.8	29846.8
T-1		2(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
A-9		3(FO)*	3038.0	297.6	1025.3	985.7	1861.1	134055.1
0.91 m		4(SO)	2540.9	403.2	4903.9	1155.7	2570.2	102866.5
Mean			1277.2	185.7	1813.1	519.5	2294.3	44237.8
SD			884.0	176.4	3088.9	532.4	1232.2	51632.7
12/4/90	454	1(BO)	1135.6	126.6	483.2	228.2	7948.7	24025.5
T-2		2(SO)	886.1	173.6	2572.2	259.6	6532.7	36270.7
A-9		3(FO)*	2996.3	377.1	4717.4	1416.2	2656.8	157243.0
0.91 m		4(SO)	2969.3	397.8	3860.0	1311.6	425.0	94045.3
Mean			1663.7	232.7	2305.1	599.8	4968.8	51447.2
SD			1137.6	144.9	1704.2	616.6	3998.2	37395.7
12/6/90	454	1(SO)	558.7	144.4	3906.3	132.4	5892.9	32434.8
T-3		2(SO)	1153.7	177.8	3812.8	666.0	3892.0	47005.6
A-9/2		3(SO)	434.8	116.3	3047.7	97.6	4450.8	18080.0
1.71 m		4(BO)	504.4	188.4	3997.5	111.0	5524.8	36599.6
Mean			662.9	156.7	3691.1	251.8	4940.1	33530.0
SD			331.1	32.8	435.5	276.5	928.7	11984.9
12/10/90	454	1(SO)	556.3	134.0	3815.3	168.3	7421.6	28704.8
T-4		2(SO)	648.3	189.9	3105.3	231.6	8407.6	33451.1
A-9/2		3(SO)	534.3	111.0	2822.8	130.1	4051.3	18586.4
1.71 m		4(BO)	607.8	210.0	4973.7	163.6	8120.6	54490.1
Mean			586.7	161.2	3679.3	173.4	7000.3	33808.1
SD			51.3	46.4	958.7	42.4	2009.1	15117.5
12/12/90	454	1(BO)	967.3	493.6	4747.3	257.6	6837.6	98112.8
T-5		2(SO)	736.7	302.5	3478.6	221.1	8092.7	50728.7
A-9/3		3(FO)*	292.1	189.3	3825.0	51.5	2480.0	38914.5
2.71 m		4(SO)	438.9	196.4	3947.4	112.0	4830.9	44126.9
Mean			714.3	330.8	4057.8	196.9	6587.1	64322.8
SD			264.9	150.6	641.5	75.8	1645.3	29448.6
12/13/90	454	1(BO)	1008.8	495.4	4574.7	287.0	7331.3	93983.1
T-6		2(SO)	669.2	286.7	2933.4	205.2	7507.8	42575.9
A-9/3		3(FO)*	392.6	179.7	3508.5	96.9	4722.1	36331.6
2.71 m		4(SO)	469.4	212.9	4665.7	122.9	5354.1	57170.8
Mean			715.8	331.7	4057.9	205.0	6731.1	64576.6
SD			272.7	146.5	974.9	82.1	1195.7	26491.7

Instrumentation Cylinder Configurations A-9 to A-9/3 --- o

Cylinder gauge numbers and orientation

(BO) Back-on to blast
(SO) Side-on to blast
(FO) Face-on to blast



Enclosure Configurations A-9 to A-9/3

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

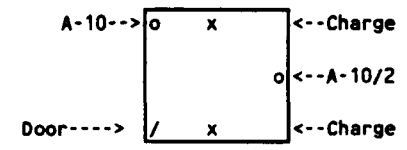
Table B-10. Instrumentation cylinder pressure-time summary at various ranges in the 3.05 x 2.44 x 2.44- m enclosure for two charges detonated simultaneously against opposite walls in configurations A-10 through A-10/2. Shots with sheep in the chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
12/20/90	2-227	1(BO)	619.6	173.2	4159.5	190.6	8803.3	47409.6
T-1		2(SO)	559.4	137.8	2886.8	197.6	4970.9	31850.5
A-10		3(FO)*	3019.2	268.0	4448.2	1801.8	338.7	112235.8
0.91 m		4(SO)	799.8	228.4	5386.3	183.8	6497.7	61690.7
Mean			659.6	179.8	4144.2	190.7	6757.3	46983.6
SD			125.1	45.7	1249.8	6.9	1929.3	14924.7
1/8/91	2-227	1(BO)	578.8	146.9	2712.7	178.2	7113.9	36427.7
T-2		2(SO)	471.3	152.9	4111.0	164.8	5885.4	33380.5
A-10		3(FO)*	3001.6	270.7	4111.7	1414.4	282.9	111209.3
0.91 m		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			525.1	149.9	3411.9	171.5	6499.7	34904.1
SD			76.0	4.2	988.7	9.5	868.7	2154.7
1/9/91	227-454	1(BO)	966.0	295.8	5369.7	309.2	13122.0	100844.4
T-3		2(SO)	778.5	196.8	4578.5	228.2	5977.8	53693.6
A-10		3(FO)*	3023.2	265.3	5468.8	1443.1	6234.4	141786.2
0.91 m		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			872.3	246.3	4974.1	268.7	9549.9	77269.0
SD			132.6	70.0	559.5	57.3	5051.7	33340.7
1/15/91	2-227	1(SO)	991.2	350.3	4934.2	301.7	9655.2	95859.3
T-4		2(SO)	389.5	177.2	4022.2	125.9	5582.4	35676.8
A-10/2		3(SO)	476.1	182.8	3863.1	140.1	6066.4	38342.5
1.71 m		4(SO)	607.8	201.4	5493.9	167.6	7301.0	54016.3
Mean			616.2	227.9	4578.4	183.8	7151.3	55973.7
SD			265.7	82.2	771.5	80.5	1819.4	27794.0
1/16/91	227-454	1(SO)	795.9	230.4	5980.4	195.0	9073.2	69224.0
T-5		2(SO)	568.5	312.8	4810.2	183.8	5624.6	74445.9
A-10/2		3(SO)	584.6	196.8	4334.4	124.2	5858.1	56145.1
1.71 m		4(SO)	1117.7	282.9	6409.2	310.3	8002.8	103327.5
Mean			766.7	255.7	5383.6	203.3	7139.7	75785.6
SD			255.9	52.0	972.6	77.8	1675.4	19909.4
1/25/91	227-454	1(SO)	1076.0	219.9	5792.7	274.1	6549.0	73562.6
T-6		2(SO)	622.3	356.3	5593.7	191.1	6625.3	86474.5
A-10/2		3(SO)	606.0	234.2	6028.8	128.8	6283.6	78929.8
1.71 m		4(SO)	1475.1	467.4	6392.7	NO DATA	NO DATA	NO DATA
Mean			944.9	319.5	5952.0	198.0	6486.0	79655.6
SD			415.2	116.1	343.4	72.9	179.4	6486.5

Instrumentation Cylinder Configurations A-10 to A-10/2 --- o

Cylinder gauge numbers and orientation

(BO) Back-on to blast
(SO) Side-on to blast
(FO) Face-on to blast



Enclosure
Configurations A-10 and A-10/2

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

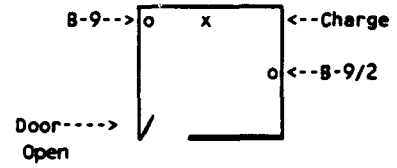
Table B-11. Instrumentation cylinder pressure-time summary at various ranges in the 3.05 x 2.44 x 2.44- m enclosure for charges detonated against a wall and with the door open in configurations B-9 and B-9/2. Shots with sheep in the chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
2/5/91	454	1(BO)	1077.3	177.8	740.2	234.7	2809.4	37878.1
T-2		2(SO)	831.3	137.0	950.3	285.2	2910.2	18732.8
B-9		3(FO)*	2996.3	389.2	29614.3	952.1	1904.1	144356.6
0.91 m		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			954.3	157.4	845.3	260.0	2859.8	28305.5
SD			173.9	28.8	148.6	35.7	71.3	13537.8
2/6/91	454	1(BO)	1032.9	152.2	1038.6	202.6	4403.9	34031.9
T-3		2(SO)	779.9	126.2	1079.8	252.5	2624.8	19129.8
B-9		3(FO)*	3038.0	395.9	1292.3	1001.9	1995.8	138140.8
0.91 m		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			906.4	139.2	1059.2	227.6	3514.4	26580.9
SD			178.9	18.4	29.1	35.3	1258.0	10537.4
2/1/91	454	1(SO)	690.2	136.0	1160.5	193.7	3875.0	21759.8
T-1		2(SO)	936.0	171.6	962.9	403.8	2263.1	26606.5
B-9/2		3(SO)	430.7	97.0	833.7	118.2	2211.6	12986.6
1.71 m		4(BO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			685.6	134.9	985.7	238.6	2783.2	20451.0
SD			252.7	37.3	164.6	148.0	945.8	6903.6

Instrumentation Cylinder Configurations B-9 to B-9/2 --- o

Cylinder gauge number orientations

(BO) Back-on to blast
(SO) Side-on to blast
(FO) Face-on to blast



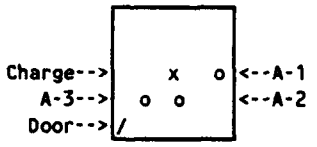
Enclosure
Configurations B-9 and B-9/2

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

Table B-12. Instrumentation cylinder mean values at the 3 ft/ 0.91 m range in the 3.05 x 2.44 x 2.44-m enclosure for configurations A-1 through A-3. Shots with sheep in the chamber.

Date	Charge Weight, g	Config-uration	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/30/90	114	A-1	257.2	58.1	1120.9	58.9	2309.5	4811.8
8/7/90		A-2	293.2	96.2	1256.5	85.0	3559.2	6780.0
8/15/90		A-3	268.5	56.1	1133.0	84.4	2451.5	4103.8
Mean			273.0	70.1	1170.1	76.1	2773.4	5231.9
SD			18.4	22.6	75.0	14.9	684.2	1386.7
7/31/90	227	A-1	473.9	93.1	2857.0	111.6	2954.5	15325.9
8/8/90		A-2	669.3	119.5	2293.2	200.6	6247.3	14176.7
8/20/90		A-3	373.4	82.0	1965.2	83.9	3394.8	9600.8
Mean			505.5	98.2	2371.8	132.0	4198.9	13034.5
SD			150.5	19.3	451.1	61.0	1787.6	3028.6
8/1/90	454	A-1	993.0	175.9	3539.2	270.0	5149.0	52748.2
8/9/90		A-2	740.8	161.3	3759.3	193.3	7388.7	36119.4
8/21/90		A-3	513.7	127.4	3717.6	128.2	5609.2	27191.0
Mean			749.2	154.9	3672.0	197.2	6049.0	38686.2
SD			239.8	24.9	116.9	71.0	1182.8	12970.5
8/2/90	907	A-1	1906.5	272.8	5444.5	618.9	7404.9	145197.1
8/10/90		A-2	1264.6	287.1	6153.8	318.5	9473.0	98242.8
8/22/90		A-3	947.8	216.3	5909.1	266.4	6132.3	81761.5
Mean			1373.0	258.7	5835.8	401.3	7670.1	108400.5
SD			488.5	37.4	360.3	190.3	1686.1	32915.1



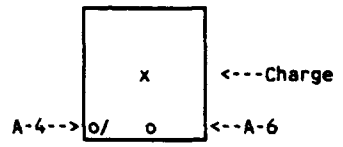
Enclosure
Configurations A-1 to A-3

Instrumentation cylinder = o

Note. Recording site ambient pressure = 83 kPa

Table B-13. Instrumentation cylinder mean values at the 4 ft/1.22 m range in the 3.05 x 2.44 x 2.44- m enclosure for configurations A-4 and A-6. Shots with sheep in the chamber.

Date and Test	Charge Weight, g	Config-uration	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/4/90	114	A-4	225.4	71.9	1367.0	57.9	2789.8	4824.9
9/25/90		A-6	573.7	151.2	1465.8	186.9	4699.4	18532.3
9/5/90	227	A-4	303.6	107.1	2432.4	79.0	3829.4	11903.1
9/26/90		A-6	844.9	199.1	2696.7	292.1	9529.3	38133.0
9/6/90	454	A-4	686.8	193.4	4091.1	212.2	6593.8	39918.7
9/27/90		A-6	886.2	202.6	4451.0	225.7	9176.9	62543.2
9/7/90	907	A-4	946.8	271.8	6429.7	258.6	8868.7	96853.8
9/28/90		A-6	1241.4	285.5	6507.0	384.8	12451.6	137446.5



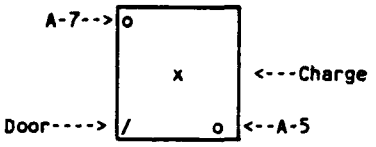
Enclosure
Configurations A-4 and A-6

Door = /
Instrumentation cylinder = o

Note. Recording site ambient pressure = 83 kPa

Table B-14. Instrumentation cylinder mean values at the 4.7 ft/1.43 m range in the 3.05 x 2.44 x 2.44- m enclosure for configurations A-5 and A-7. Shots with sheep in the chamber.

Date and Test	Charge Weight, g	Config-uration	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/13/90	114	A-5	238.6	93.9	1384.5	66.2	3135.7	7705.6
10/2/90		A-7	232.5	87.8	1354.3	59.1	2855.7	6297.2
Mean			235.6	90.9	1369.4	62.7	2995.7	7001.4
SD			4.3	4.3	21.4	5.0	198.0	995.9
9/14/90	227	A-5	391.6	139.4	2455.2	105.4	4505.5	17491.2
10/2/90		A-7	550.2	143.7	2424.2	157.1	6087.2	15803.9
Mean			470.9	141.6	2439.7	131.3	5296.4	16647.6
SD			112.1	3.0	21.9	36.6	1118.4	1193.1
9/17/90	454	A-5	697.7	223.5	4154.8	200.4	7539.7	49859.2
10/4/90		A-7	706.3	239.8	4154.7	197.0	7254.0	51399.3
Mean			702.0	231.7	4154.8	198.7	7396.9	50629.3
SD			6.1	11.5	0.1	2.4	202.0	1089.0
9/18/90	907	A-5	1460.5	344.8	6582.9	488.1	8738.4	130578.3
10/5/90		A-7	1149.2	342.6	7244.3	346.8	11429.2	140399.8
Mean			1304.9	343.7	6913.6	417.5	10083.8	135489.1
SD			220.1	1.6	467.7	99.9	1902.7	6944.8



Enclosure
Configurations A-5 and A-7

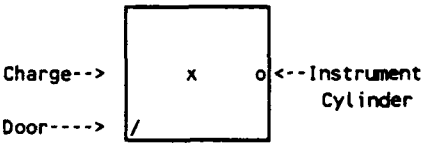
Instrumentation cylinder = o

Note. Recording site ambient pressure = 83 kPa

Table B-15. Instrumentation cylinder pressure-time summary at the 3 ft/0.91 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-1. No sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/26/90	114	1(BO)	500.4	91.8	1198.4	176.7	7569.2	14715.4
CAL		2(SO)	170.0	63.4	573.7	60.3	2179.6	3259.8
A-1		3(FO)*	1100.3	95.2	308.7	1100.3	NO DATA	12613.1
		4(SO)	276.6	77.6	1308.4	54.9	2394.3	4553.5
Mean			315.7	77.6	1026.8	97.3	4047.7	7509.6
SD			168.6	14.2	396.3	68.8	3051.6	6273.9
7/26/90	227	1(BO)	770.0	171.8	2834.0	263.7	10999.9	42671.0
CAL		2(SO)	345.5	85.5	1033.7	106.9	2190.6	7299.1
B		3(FO)*	1184.4	126.9	723.3	1184.4	NO DATA	23695.8
		4(SO)	473.4	155.9	4601.5	105.8	4770.6	26875.9
Mean			529.6	137.7	2823.1	158.8	5987.0	25615.3
SD			217.8	45.9	1783.9	90.8	4528.9	17719.6
7/26/90	454	1(BO)	1137.2	220.0	4695.9	392.9	18471.4	91350.8
CAL		2(SO)	539.7	123.1	1998.0	156.4	4321.4	17937.1
A-1		3(FO)*	4610.6	224.7	785.9	4610.6	NO DATA	106152.7
		4(SO)	819.0	153.6	2909.4	258.0	4362.3	34276.0
Mean			832.0	165.6	3201.1	269.1	9051.7	47854.6
SD			299.0	49.5	1372.4	118.6	8157.7	38544.5
7/29/90	907	1(BO)	2744.4	363.6	5593.9	1175.2	21345.6	258290.0
CAL		2(SO)	929.6	174.7	2574.8	281.0	6580.0	38988.7
A-1		3(FO)*	3341.6	312.0	2915.1	3341.6	NO DATA	150963.0
		4(SO)	1391.0	253.7	7316.9	366.6	6855.5	110701.3
Mean			1688.3	264.0	5161.9	607.6	11593.7	135993.3
SD			943.2	94.9	2400.4	493.4	8446.5	111816.9

Calibration shot, no animals



<--Instrument Cylinder

Enclosure Configuration A-1

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

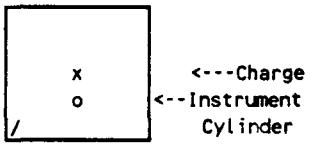
Table B-16. Instrumentation cylinder pressure-time summary at the 3 ft/0.91 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-2. No sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/6/90	114	1(BO)	289.3	155.7	1326.9	77.5	3701.0	10398.3
CAL		2(SO)	169.1	44.2	697.3	60.4	2933.5	2793.1
A-2		3(FO)*	990.3	89.4	415.3	597.0	1974.7	11046.2
		4(SO)	277.6	76.3	1314.6	57.4	2852.1	5561.2
Mean			245.3	92.1	1112.9	65.1	3162.2	6250.9
SD			66.3	57.4	360.0	10.8	468.4	3849.2
8/6/90	227	1(BO)	717.0	213.3	2835.3	167.2	7353.5	27571.9
CAL		2(SO)	383.5	63.9	1120.9	129.0	5716.6	6991.2
A-2		3(FO)*	1175.9	121.6	637.5	606.3	3033.9	24135.3
		4(SO)	553.3	108.9	2482.9	129.1	6309.7	11581.7
Mean			551.3	128.7	2146.4	141.8	6459.9	15381.6
SD			166.8	76.6	905.4	22.0	828.7	10803.7
8/6/90	454	1(BO)	862.4	280.1	4751.3	240.4	10329.6	68605.2
CAL		2(SO)	511.0	78.7	1327.9	163.1	7808.2	13781.5
A-2		3(FO)*	5625.8	245.9	1193.7	5625.8	NO DATA	139015.5
		4(SO)	825.1	153.6	5055.6	224.9	8671.0	42095.6
Mean			732.8	170.8	3711.6	209.5	8936.3	41494.1
SD			193.0	101.8	2069.9	40.9	1281.5	27416.8
8/6/90	907	1(BO)	1422.0	311.1	7227.0	429.9	13778.8	133301.3
CAL		2(SO)	1111.3	185.1	4633.8	302.9	8638.5	55177.4
A-2		3(FO)*	5921.9	404.5	13879.3	2115.0	3891.6	481134.2
		4(SO)	1345.9	213.9	6035.0	341.6	5740.3	71079.8
Mean			1293.1	236.7	5965.3	358.1	9385.9	86519.5
SD			161.9	66.0	1298.0	65.1	4071.0	41287.1

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.



<---Charge
<--Instrument
Cylinder

Enclosure Configuration A-2

Note. Recording site ambient pressure = 83 kPa

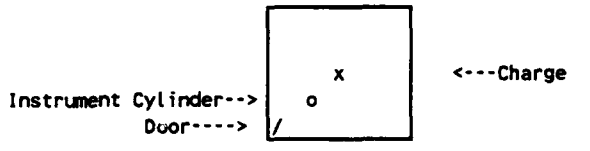
Table B-17. Instrumentation cylinder pressure-time summary at the 3 ft /0.91 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-3. No sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/14/90	114	1(BO)	221.3	59.7	1199.0	43.5	2200.6	3784.5
CAL		2(SO)	219.8	47.0	940.0	66.3	3244.2	3309.6
A-3		3(FO)*	1019.5	135.8	555.0	1019.5	NO DATA	19405.0
		4(SO)	231.7	54.5	1380.8	39.6	1884.5	4322.5
Mean			224.3	53.7	1173.3	49.8	2443.1	3805.5
SD			6.5	6.4	221.5	14.4	711.5	506.8
8/14/90	227	1(BO)	521.3	103.8	2364.7	117.2	5944.2	11041.9
CAL		2(SO)	346.5	79.7	1913.9	101.8	4581.4	8713.6
A-3		3(FO)*	1161.6	137.4	5743.6	474.2	4048.0	45379.0
		4(SO)	365.8	86.1	2258.0	86.8	4279.3	11329.2
MEAN			411.2	89.9	2178.9	101.9	4935.0	10361.6
SD			95.8	12.5	235.6	15.2	887.0	1434.4
8/14/90	454	1(BO)	478.5	173.9	4252.8	113.7	5448.8	34698.8
CAL		2(SO)	580.7	118.8	3155.5	179.4	6884.3	22908.8
A-3		3(FO)*	3593.3	242.9	338.4	2130.9	400.6	71253.6
		4(SO)	828.0	119.2	4324.8	227.6	6620.7	31845.1
Mean			629.1	137.3	3911.0	173.6	6317.9	29817.6
SD			179.7	31.7	655.3	57.2	764.1	6151.0
8/14/93	907	1(BO)	1283.2	260.9	6436.8	230.7	7575.2	97269.1
CAL		2(SO)	1051.1	206.1	4121.6	332.1	9385.1	61269.7
A-3		3(FO)*	5849.5	496.2	10298.2	3509.7	561.6	381520.2
		4(SO)	1234.3	200.1	6631.6	278.2	6998.1	85800.7
Mean			1189.5	222.4	5730.0	280.3	7986.1	81446.5
SD			122.4	33.5	1396.3	50.7	1245.4	18390.4

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.



Enclosure Configuration A-3

Note. Recording site ambient pressure = 83 kPa

Table B-18. Instrumentation cylinder pressure-time summary at the 4 ft/1.22 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-4. No sheep in chamber.

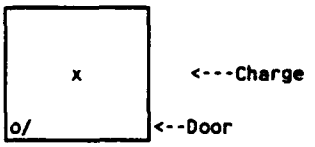
Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/27/90	114	1(BO)	171.2	82.6	1606.1	46.2	2282.5	5687.2
CAL		2(SO)	154.1	82.6	1168.6	47.6	2294.0	5186.4
A-4		3(FO)*	544.1	67.1	845.4	248.4	2663.7	6061.9
		4(SO)	188.0	53.2	1275.1	45.2	2130.6	3381.6
Mean			171.1	72.8	1349.9	46.3	2235.7	4751.7
SD			17.0	17.0	228.1	1.2	91.2	1212.7
8/27/90	227	1(BO)	258.7	135.1	2479.9	67.3	3255.4	12809.6
CAL		2(SO)	236.1	95.5	1849.9	69.5	3410.0	7070.9
A-4		3(FO)*	1326.8	123.2	1639.0	475.8	99.0	16501.8
		4(SO)	206.6	71.1	2109.9	50.1	2431.6	6470.4
Mean			233.8	100.6	2146.6	62.3	3032.3	8783.6
SD			26.1	32.3	316.6	10.6	526.0	3499.5
8/27/90	454	1(BO)	573.6	232.7	4051.2	154.9	6446.4	45035.9
CAL		2(SO)	387.0	126.5	3018.5	129.0	5476.8	23226.2
A-4		3(FO)*	2161..5	150.7	586.4	1046.6	159.1	33258.3
		4(SO)	549.2	134.4	3480.7	133.2	5564.1	29980.4
Mean			503.3	164.5	3516.8	139.0	5829.1	32747.5
SD			101.4	59.2	517.3	13.9	536.4	11165.1
8/27/90	907	1(BO)	840.7	300.5	7070.6	557.8	8163.3	107947.8
CAL		2(SO)	608.9	216.6	4413.9	187.9	7913.8	56335.5
A-4		3(FO)*	2945.6	309.4	3584.0	1775.7	426.2	117728.0
		4(SO)	1154.4	208.0	6429.4	290.1	7104.2	76646.5
Mean			868.0	241.7	5971.3	345.3	7727.1	80309.9
SD			273.8	51.1	1386.3	191.0	553.7	26000.4

Calibration shots, no animals

Cylinder gauge numbers and orientation

1(BO) Back-on to blast
2(SO) Side-on to blast
3(FO)* Face-on to blast
4(SO) Side-on to blast

* Gauge no.3 not used to calculate mean.



Enclosure Configuration A-4

Note. Recording site ambient pressure = 83 kPa

Table B-19. Instrumentation cylinder pressure-time summary at the 4.7 ft/1.43 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-5. No sheep in chamber.

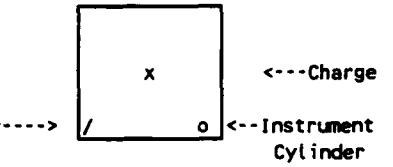
Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/11/90	114	1(BO)	320.0	99.4	1515.2	97.4	4523.4	10930.5
CAL		2(SO)	257.8	86.6	1239.7	82.6	3909.7	6817.8
A-5		3(FO)*	294.3	54.0	795.9	65.2	3063.0	3486.7
		4(SO)	254.8	81.5	1220.2	61.4	2961.1	4926.5
Mean			277.5	89.2	1325.0	80.5	3798.1	7558.3
SD			36.8	9.2	165.0	18.1	787.1	3069.7
9/11/90	227	1(BO)	335.7	160.5	2921.6	83.6	4089.9	22263.9
CAL		2(SO)	434.6	120.8	2265.0	127.9	5334.5	15044.1
A-5		3(FO)*	403.8	83.1	1490.5	121.7	4804.3	8498.0
		4(SO)	296.9	132.4	2132.4	62.6	3098.0	11808.2
Mean			355.7	137.9	2439.7	91.4	4174.1	16372.1
SD			71.0	20.4	422.6	33.3	1120.6	5352.9
9/11/90	454	1(BO)	864.4	285.7	4551.8	258.8	12577.9	72549.7
CAL		2(SO)	812.4	187.2	2966.9	235.9	7430.4	39940.5
A-5		3(FO)*	1295.7	184.3	3156.0	420.6	4894.0	41551.0
		4(SO)	563.2	190.9	3769.7	132.2	6583.1	32873.8
Mean			746.7	221.3	3762.8	209.0	8863.8	48454.7
SD			161.0	55.8	792.5	67.5	3244.3	21163.9
9/11/90	907	1(BO)	1283.6	508.2	7747.1	401.7	16716.5	194950.6
CAL		2(SO)	1557.1	270.9	4709.7	470.4	5471.7	103164.5
A-5		3(FO)*	2313.2	293.1	5143.9	629.4	4569.2	125682.2
		4(SO)	1091.7	283.7	6760.3	287.4	7717.3	104730.1
Mean			1310.8	354.3	6405.7	386.5	9968.5	134281.7
SD			233.9	133.5	1549.4	92.4	5950.8	52546.6

calibration shots, no animals

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.



Enclosure Configuration A-5

Note. Recording site ambient pressure = 83 kPa

Table B-20. Instrumentation cylinder pressure-time summary at the 4 ft/1.22 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-6. No sheep in chamber.

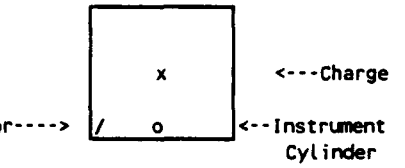
Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/20/90	114	1(BO)	No Data	No Data	No Data	No Data	No Data	No Data
CAL		2(SO)	818.0	146.9	1403.0	502.5	176.9	12998.5
A-6		3(FO)*	451.4	84.8	1084.7	126.5	3669.8	7368.2
		4(SO)	387.3	110.4	1476.2	98.8	4744.1	9635.6
Mean			602.7	128.7	1439.6	300.7	2460.5	11317.1
SD			304.6	25.8	51.8	285.5	3229.5	2377.9
9/20/90	227	1(BO)	1862.1	261.6	2338.2	663.3	13541.9	86460.2
CAL		2(SO)	1261.4	156.8	2375.1	601.8	4195.8	22513.9
A-6		3(FO)*	982.3	116.2	2131.8	318.4	3324.3	20319.0
		4(SO)	472.0	156.7	2440.6	123.8	6142.8	19296.4
Mean			1198.5	191.7	2384.6	463.0	7960.2	42756.8
SD			697.2	60.5	51.9	295.3	4931.0	37882.4
9/20/90	454	1(BO)	1076.1	273.8	4733.5	279.0	13317.4	104471.6
CAL		2(SO)	6369.0	191.4	3582.8	3494.6	32387.7	108415.8
A-6		3(FO)*	2209.9	202.4	3712.4	1062.0	9473.2	71485.4
		4(SO)	617.2	187.6	4119.0	162.1	7017.8	47417.3
Mean			2687.4	217.6	4145.1	1311.9	17574.3	86768.2
SD			3196.6	48.7	575.8	1891.2	13209.8	34135.9
9/20/90	907	1(BO)	1931.2	439.1	6719.0	645.7	12484.9	193906.9
CAL		2(SO)	6611.1	335.0	5147.0	5729.9	58009.8	367968.2
A-6		3(FO)*	2937.5	269.4	4256.1	1402.4	2703.8	137574.7
		4(SO)	1222.4	240.9	7076.7	338.3	8763.0	118976.4
Mean			3254.9	338.3	6314.2	2238.0	26419.2	226950.5
SD			2928.1	99.1	1026.6	3028.0	27421.5	127742.5

Calibration shots, no animals

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.



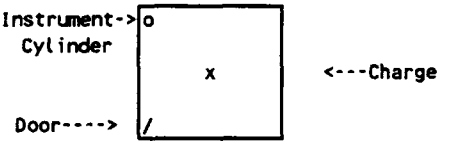
Enclosure Configuration A-6

Note. Recording site ambient pressure = 83 kPa

Table B-21. Instrumentation cylinder pressure-time summary at the 4.7 ft/1.43 m range in the 3.05 x 2.44 x 2.44- m enclosure configuration A-7. No sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
10/16/90	114	1(BO)	363.4	108.6	1690.3	93.2	4377.2	10438.8
CAL		2(SO)	257.1	81.1	1351.7	78.2	3718.0	6772.2
A-7		3(FO)*	340.5	52.6	1211.0	77.0	3658.5	4588.8
		4(SO)	194.7	81.5	1379.2	45.2	2225.9	5298.4
Mean			271.7	90.4	1473.7	72.2	3440.4	7503.1
SD			85.3	15.8	188.1	24.6	1102.2	2647.0
10/16/90	227	1(BO)	747.6	175.7	2900.5	277.8	4437.6	24940.7
CAL		2(SO)	453.7	93.4	2158.7	126.8	6229.7	10805.0
A-7		3(FO)*	564.0	89.8	2124.5	132.5	4898.1	11542.0
		4(SO)	421.8	145.6	2497.7	101.0	4921.1	14312.2
Mean			541.0	138.2	2519.0	168.5	5196.1	16686.0
SD			179.6	41.6	371.4	95.5	927.2	7360.7
10/16/90	454	1(BO)	652.3	271.7	4743.0	177.0	6621.4	71698.7
CAL		2(SO)	726.0	196.4	4152.2	246.2	9187.1	49868.9
A-7		3(FO)*	1051.9	154.8	3550.0	261.2	5743.6	39059.8
		4(SO)	485.0	210.3	4384.2	114.7	5680.6	41493.9
Mean			621.1	226.1	4426.5	179.3	7163.0	54353.8
SD			123.5	40.1	297.7	65.8	1814.9	15593.9
10/16/90	907	1(BO)	899.6	482.9	7763.6	309.7	13627.0	174476.2
CAL		2(SO)	1554.3	276.0	5018.0	553.7	13846.5	94832.6
A-7		3(FO)*	2523.5	280.0	5726.8	869.2	6160.9	126539.3
		4(SO)	874.0	274.5	7290.0	216.2	10336.7	99306.3
Mean			1109.3	344.5	6690.5	359.9	12603.4	122871.7
SD			385.6	119.9	1467.7	174.3	1966.1	44746.8

Calibration shots, no animals



Enclosure Configuration A-7

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

Table B-22. Instrumentation cylinder pressure-time summary at various ranges in the 3.05 x 2.44 x 2.44- m enclosure for charges detonated in a corner in configurations A-8 through A-8/5. No sheep in chamber

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 2 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/15/90	454	1(BO)	607.5	129.6	4264.2	141.0	5061.6	30719.1
CAL		2(SO)	6113.9	91.2	256.6	6113.9	NO DATA	47834.4
A-8/5		3(FO)*	2959.8	308.9	785.3	1456.3	2172.7	114816.9
0.91m		4(SO)	2239.2	272.8	4352.9	1140.8	1834.3	74401.7
Mean			2986.9	164.5	2957.9	2465.2	2298.6	50985.1
SD			2828.3	95.7	2339.8	3199.1	2282.0	22011.1
10/26/90	454	1(BO)	584.5	252.8	4276.3	172.4	8290.5	38285.4
CAL		2(SO)	346.2	159.2	2373.4	110.6	5305.0	22132.0
A-8		3(FO)*	1585.2	269.0	2952.0	574.7	6363.5	53312.0
2.01m		4(SO)	361.1	157.1	3440.0	105.6	5229.5	24570.1
Mean			430.6	189.7	3363.2	129.5	6275.0	28329.2
SD			133.5	54.7	953.8	37.2	1745.9	8708.1
11/13/90	454	1(BO)	379.6	206.6	4284.8	100.9	4729.2	33994.4
CAL		2(SO)	576.9	214.1	4027.5	211.6	9553.1	17169.2
A-8/4		3(FO)*	1051.4	234.8	2990.0	348.3	571.2	33634.2
2.01 m		4(SO)	414.4	130.4	3666.0	93.8	4469.2	19700.5
Mean			457.0	183.7	3992.8	135.4	6250.5	23621.4
SD			105.3	46.3	310.9	66.1	2863.1	9072.0
11/9/90	454	1(BO)	880.1	354.4	4257.7	232.8	8913.2	67660.8
CAL		2(SO)	1048.5	380.2	3040.4	278.9	6516.3	54714.6
A-8/3		3(FO)*	560.4	232.4	2284.2	141.7	6959.1	32824.8
2.99 m		4(SO)	568.9	323.0	3679.7	159.4	7813.8	48852.0
Mean			832.5	352.5	3659.3	223.7	7747.8	57075.8
SD			243.3	28.6	608.9	60.3	1199.8	9624.1
11/8/90	907	1(BO)	1316.4	600.3	6995.6	430.0	19813.3	219137.9
CAL		2(SO)	1161.6	545.0	4453.3	403.3	10382.1	134756.0
A-8/2		3(FO)*	1562.3	430.9	5986.2	635.1	14948.1	143328.8
2.99 m		4(SO)	1401.0	519.6	6661.2	327.0	10069.0	159501.6
Mean			1293.0	555.0	6036.7	386.8	13421.5	171131.8
SD			121.4	41.3	1381.4	53.5	5537.7	43376.5

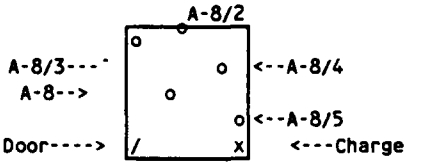
Calibration shots, no animals

Instrumentation Cylinder Configurations A-8 to A-8/5 --- o

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.



Enclosure Configurations A-8 to A-8/5

Note. Recording site ambient pressure = 83 kPa

Table B-23. Instrumentation cylinder pressure-time summary at various ranges in the 3.05 x 2.44 x 2.44- m enclosure for charges detonated against one wall in configurations A-9 through A-9/3. No sheep in chamber.

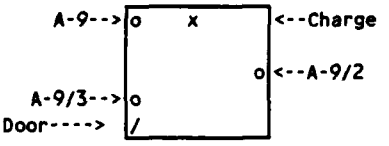
Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/27/90	454	1(BO)	1335.3	115.7	160.7	520.5	5537.8	63473.0
CAL		2(SO)	1239.4	188.5	3550.3	430.9	4707.0	43899.5
A-9		3(FO)*	3017.8	484.8	22853.5	1069.4	2079.0	301536.1
0.91 m		4(SO)	2291.6	391.2	547.1	689.0	1592.9	91178.5
Mean			1622.1	231.8	1419.4	546.8	3945.9	66183.7
SD			581.8	142.8	1855.5	131.0	2079.7	23755.8
12/5/90	454	1(SO)	482.2	159.0	3608.0	110.8	5350.8	28850.5
CAL		2(SO)	1251.0	205.7	2108.2	537.2	5791.0	43815.5
A-9/2		3(SO)	635.4	115.8	2311.6	229.0	4683.8	18084.9
1.71 m		4(BO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			789.5	160.2	2675.9	292.3	5275.2	30250.3
SD			406.9	45.0	813.6	220.1	557.5	12922.3
12/11/90	454	1(BO)	1140.0	520.9	5162.3	410.9	9604.1	104761.0
CAL		2(SO)	766.0	293.4	2882.0	212.8	4962.0	46583.9
A-9/3		3(FO)*	337.3	190.8	2938.1	69.8	3245.8	32422.8
2.71 m		4(SO)	481.6	250.7	5693.5	145.0	7010.5	56954.6
Mean			795.9	355.0	4579.3	256.2	7192.2	69433.2
SD			330.2	145.3	1493.7	138.2	2326.4	31031.1

Calibration shots, no animals

Instrumentation Cylinder Configurations A-9 to A-9/3 --- o

Cylinder gauge numbers and orientation

(BO) Back-on to blast
(SO) Side-on to blast
(FO) Face-on to blast



Enclosure Configurations A-9 to A-9/3

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

Table B-24. Instrumentation cylinder pressure-time summary at various ranges in the 3.05 x 2.44 x 2.44- m enclosure for two charges detonated simultaneously against opposite walls in configurations A-10 through A-10/2. No sheep in chamber.

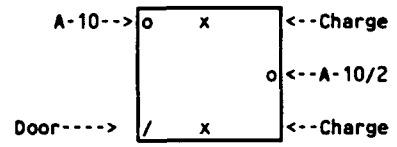
Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
12/18/90	2-227	1(BO)	807.8	156.2	3726.2	243.6	11786.0	42323.2
CAL		2(SO)	681.3	157.1	4350.5	211.5	7580.2	37894.1
A-10		3(FO)*	3019.2	321.8	5048.1	3019.2	NO DATA	129585.1
0.91 m		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			744.6	156.7	4038.4	227.6	9683.1	40108.7
SD			89.4	0.6	441.4	22.7	2973.9	3131.8
12/18/90	227-454	1(BO)	1388.7	286.9	4985.5	441.7	14081.9	14081.9
CAL		2(SO)	632.9	188.5	4205.9	202.3	8143.5	55636.3
A-10		3(FO)*	3036.7	242.4	2325.7	1873.2	299.7	109093.6
0.91 m		4(SO)	864.3	280.9	6416.6	197.1	8854.6	90659.6
Mean			962.0	252.1	5202.7	280.4	10360.0	53459.3
SD			387.2	55.2	1121.2	139.7	3242.8	38335.2
1/14/91	2-227	1(SO)	900.2	289.2	3812.2	289.3	12533.9	87889.4
CAL		2(SO)	441.4	189.8	3810.1	152.5	6735.4	40649.5
A-10/2		3(SO)	620.5	181.8	3872.0	132.6	4369.5	39658.8
1.71 m		4(SO)	557.8	181.0	4427.6	110.0	5318.6	43550.2
Mean			630.0	210.5	3980.5	171.1	7239.4	52937.0
SD			194.8	52.7	299.5	80.7	3661.1	23360.0
1/14/91	227-454	1(SO)	617.6	229.4	5360.7	151.1	7152.6	67496.6
CAL		2(SO)	680.8	345.5	4696.1	217.6	6633.2	81234.1
A-10/2		3(SO)	667.1	211.8	4997.6	185.4	7672.1	64339.1
1.71 m		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			655.2	262.2	5018.1	184.7	7152.6	71023.3
SD			33.2	72.6	332.8	33.3	519.5	8982.7

Calibration shots, no animals

Instrumentation Cylinder Configurations A-10 to A-10/2 --- o

Cylinder gauge numbers and orientation

(BO) Back-on to blast
(SO) Side-on to blast
(FO) Face-on to blast



Enclosure
Configurations A-10 and A-10/2

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

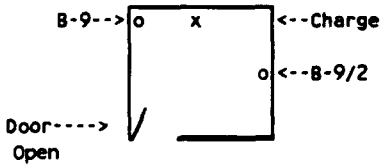
Table B-25. Instrumentation cylinder pressure-time summary at various ranges in the 3.05 x 2.44 x 2.44- m enclosure for charges detonated against a wall and with the door open in configurations B-9 and B-9/2. No sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
?/4/91	454	1(BO)	1221.4	185.8	1386.7	416.1	1085.2	41442.1
CAL		2(SO)	859.8	88.8	398.8	401.6	1143.8	12764.4
B-9		3(FO)*	3046.1	299.0	518.9	1435.5	2664.3	126362.6
0.91 m		4(SO)	3082.8	590.4	1821.8	1323.4	5939.3	237532.2
Mean			1721.3	288.3	1202.4	713.7	2722.8	97246.2
SD			1192.8	266.1	729.2	528.1	2785.8	122334.4
2/1/91	454	1(SO)	1233.4	166.4	1151.5	329.6	4373.1	31349.8
T-1		2(SO)	1268.0	163.2	1083.0	781.7	2057.6	31818.0
B-9/2		3(SO)	560.4	119.5	990.5	188.5	2418.9	17093.8
1.71 m		4(BO)	4775.8	234.4	1308.9	2472.4	3125.1	81061.6
Mean			1959.4	170.9	1133.5	943.1	2993.7	40330.8
SD			1905.6	47.4	134.3	1050.5	1020.9	28000.5

Instrumentation Cylinder Configurations B-9 to B-9/2 --- o

Cylinder gauge number orientations

(BO) Back-on to blast
(SO) Side-on to blast
(FO) Face-on to blast



Open

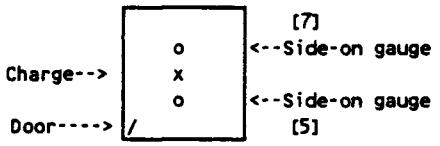
Enclosure
Configurations B-9 and B-9/2

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

Table B-26. Pressure-time summary at the 3 ft/0.91 m range in the 3.05 x 2.44 x 2.44- m enclosure for side-on gauges 5 and 7 in configurations A-1 and A-3. Shots with sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/30/90	A-1(5)	114	292.3	111.0	4755.1	66.2	3292.5	6558.4
8/15/90	A-3(7)		283.2	87.6	4590.2	36.8	1797.7	3207.9
Mean			287.8	99.3	4672.7	51.5	2545.1	4883.2
SD			6.4	16.5	116.6	20.8	1057.0	2369.2
7/31/90	A-1(5)	227	447.2	117.3	3301.0	126.7	5776.3	8747.5
8/20/90	A-3(7)		415.9	102.6	5659.0	106.2	5301.6	16233.7
Mean			431.6	110.0	4480.0	116.5	5539.0	12490.6
SD			22.1	10.4	1667.4	14.5	335.7	5293.5
8/1/90	A-1(5)	454	888.0	172.0	3729.0	230.4	2203.0	26979.0
8/21/90	A-3(7)		860.5	197.6	8308.5	170.9	6464.5	66183.8
Mean			874.3	184.8	6018.8	200.7	4333.8	46581.4
SD			19.4	18.1	3238.2	42.1	3013.3	27722.0
8/2/90	A-1(5)	907	1500.0	428.3	20561.2	343.2	15827.9	309883.3
8/22/90	A-3(7)		1089.9	277.4	9443.3	237.6	7616.5	127985.8
Mean			1295.0	352.9	15002.3	290.4	11722.2	218934.6
SD			290.0	106.7	7861.5	74.7	5806.3	128621.0

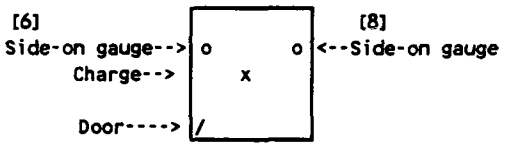


Enclosure
Configurations A-1 and A-3

Note. Recording site ambient pressure = 83 kPa

Table B-27. Pressure-time summary at the 3 ft /0.91 m range in the 3.05 x 2.44 x 2.44- m enclosure for side-on gauges 6 and 8 in configuration A-2. Shots with sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/7/90	A-2(6)	114	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
	A-2(8)		273.8	30.2	176.2	169.2	NO DATA	1298.6
Mean			273.8	30.2	176.2	169.2	NO DATA	1298.6
SD								
8/8/90	A-2(6)	227	420.3	62.7	1991.6	155.6	3344.4	5875.0
	A-2(8)		606.1	69.0	2278.3	309.9	NODATA	9060.0
Mean			513.2	65.9	2135.0	232.8	3344.4	7467.5
SD			131.4	4.5	202.7	109.1		2252.1
8/9/90	A-2(6)	454	648.8	103.2	3243.4	213.0	2182.2	17983.8
	A-2(8)		671.9	132.1	3559.1	227.8	3207.0	29164.1
Mean			660.4	117.7	3401.3	220.4	2694.6	23574.0
SD			16.3	20.4	223.2	10.5	724.6	7905.7
8/10/90	A-2(6)	907	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
	A-2(8)		886.3	318.2	13733.1	222.3	10291.0	218285.0
Mean			886.3	318.2	13733.1	222.3	10291.0	218285.0
SD								

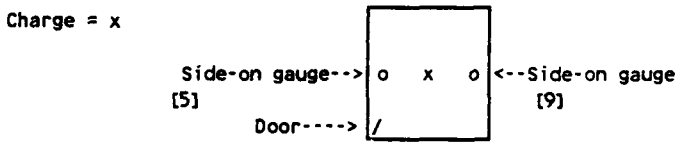


Enclosure
Configuration A-2

Note. Recording site ambient pressure = 83 kPa

Table B-28. Pressure-time summary at the 3ft/0.91 m range in the 3.05 x 2.44 x 2.44- m enclosure for side-on gauges 5 and 9 in configurations A-2 and A-3. Shots with sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/7/90	A-2(9)	114	402.1	52.6	1536.9	157.9	685.8	3244.5
8/15/90	A-3(5)		270.8	48.7	1141.7	64.1	2378.3	3253.1
Mean			336.5	50.7	1339.3	111.0	1532.1	3248.8
SD			92.8	2.8	279.4	66.3	1196.8	6.1
8/8/90	A-2(9)	227	420.7	71.9	2168.7	118.0	2479.0	7119.8
8/20/90	A-3(5)		479.2	72.8	1969.5	157.8	1940.7	8107.2
Mean			450.0	72.4	2069.1	137.9	2209.9	7613.5
SD			41.4	0.6	140.9	28.1	380.6	698.2
8/9/90	A-2(9)	454	856.8	120.1	3144.3	296.5	3108.1	20824.6
8/21/90	A-3(5)		975.6	75.8	2323.7	975.6	NO DATA	9347.5
Mean			916.2	98.0	2734.0	636.1	3108.1	15086.1
SD			84.0	31.3	580.3	480.2		8115.5
8/10/90	A-2(9)	907	2086.4	217.8	5814.9	947.1	16638.3	83492.7
8/22/90	A-3(5)		1019.6	282.3	9410.9	243.5	9047.9	112224.7
Mean			1553.0	250.1	7612.9	595.3	12843.1	97858.7
SD			754.3	45.6	2542.8	497.5	5367.2	20316.6

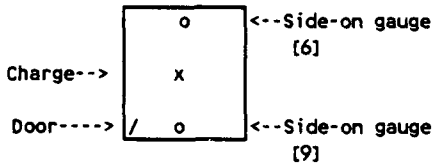


Enclosure
Configurations A-2 to A-3

Note. Recording site ambient pressure = 83 kPa

Table B-29. Pressure-time summary at the 4 ft/1.22 m range in the 3.05 x 2.44 x 2.44- m enclosure. for side-on guages 6 and 9 in configurtations A-4 and A-5. Shots with sheep in chamber.

Date	Configur-ation and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/4/90	A-4(6)	114	270.9	95.3	1368.7	94.1	4591.9	5328.8
9/4/90	A-4(9)		158.4	97.3	1474.6	50.8	2512.3	4897.2
9/13/90	A-5(9)		190.6	87.1	1406.6	57.7	2797.0	4462.3
Mean			206.6	93.2	1416.6	67.5	3300.4	4896.1
SD			57.9	5.4	53.7	23.3	1127.5	433.3
9/5/90	A-4(6)	227	387.2	105.2	2008.5	114.1	5691.1	10697.2
9/5/90	A-4(9)		359.9	109.3	2593.9	93.9	4147.3	9983.9
9/17/90	A-5(9)		284.3	100.1	2380.2	79.6	3920.4	8782.4
Mean			343.8	104.9	2327.5	95.9	4586.3	9821.2
SD			53.7	4.6	296.2	17.3	963.5	967.7
9/6/90	A-4(6)	454	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
9/6/90	A-4(9)		505.9	140.0	4372.5	126.3	5414.3	26331.3
9/17/90	A-5(9)		456.5	140.5	3952.5	110.5	4293.8	24199.1
Mean			481.2	140.3	4162.5	118.4	4854.1	25265.2
SD			34.9	0.4	297.0	11.2	792.3	1507.7
9/7/90	A-4(6)	907	726.9	234.2	7333.3	187.2	6606.4	97977.6
9/7/90	A-4(9)		988.4	238.5	7155.5	255.4	7140.5	83614.4
9/18/90	A-5(9)		NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			571.8	157.6	4829.6	147.5	4582.3	60530.7
SD			184.9	3.0	125.7	48.2	377.7	10156.3

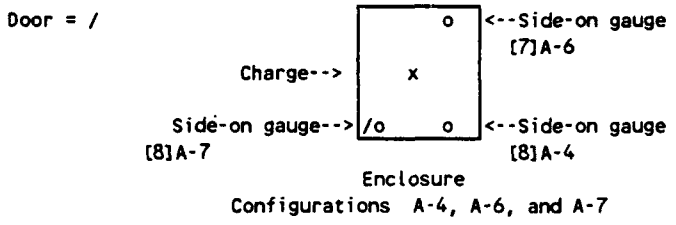


Enclosure
Configurations A-4 and A-5

Note. Recording site ambient pressure = 83 kPa

Table B-30. Pressure-time summary at the 4 ft/1.22 m range in the 3.05 x 2.44 x 2.44 m enclosure for side-on gauges 7 and 8 in configurations A-4, A-6 and A-7. Shots with sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/4/90	A-4(8)	114	155.5	66.6	2574.2	51.0	2549.1	6969.4
9/25/90	A-6(7)		167.5	82.7	2803.4	66.5	3266.7	8961.2
10/2/90	A-7(8)		147.4	51.8	1349.5	40.5	1940.4	3171.5
Mean			156.8	67.0	2242.4	52.7	2585.4	6367.4
SD			10.1	15.5	781.7	13.1	663.9	2941.4
9/5/90	A-4(8)	227	268.0	79.1	3286.7	72.3	3592.3	7907.7
9/26/90	A-6(7)		250.8	103.3	3308.7	78.4	3830.8	13235.9
10/3/90	A-7(8)		213.7	80.1	2601.2	56.1	2786.2	9173.6
Mean			244.2	87.5	3065.5	68.9	3403.1	10105.7
SD			27.8	13.7	402.3	11.5	547.4	2783.7
9/6/90	A-4(8)	454	466.1	199.2	6378.2	134.1	6332.4	58985.9
9/27/90	A-6(7)		361.0	159.9	NO DATA	87.2	4272.4	26642.6
10/4/90	A-7(8)		420.9	124.2	4155.3	103.9	4056.8	25978.4
Mean			416.0	161.1	5266.8	108.4	4887.2	37202.3
SD			52.7	37.5	1571.8	23.8	1256.2	18868.1
9/7/90	A-4(8)	907	750.2	342.1	10749.6	223.9	10965.4	169911.3
9/28/90	A-6(7)		760.9	214.6	5399.8	200.2	6553.7	61399.8
10/5/90	A-7(8)		794.0	233.0	6632.3	218.2	7080.9	95204.5
Mean			768.4	263.2	7593.9	214.1	8200.0	108838.5
SD			22.8	68.9	2801.5	12.4	2409.4	55525.7

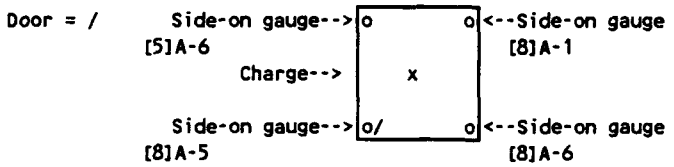


Enclosure
Configurations A-4, A-6, and A-7

Note. Recording site ambient pressure = 83 kPa

Table B-31. Pressure-time summary at the 1.43 m range in the 3.05 x 2.44 x 2.44 m enclosure for side-on gauges 5 and 8 in configurations A-1, A-5 and A-6. Shots with sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/30/90	A-1(8)	114	166.3	38.3	1074.6	48.3	2331.5	2543.6
9/13/90	A-5(8)		113.0	51.5	1109.5	37.9	1856.0	2800.6
9/25/90	A-6(5)		107.9	49.1	1281.6	32.1	1570.8	2903.1
9/25/90	A-6(8)		118.9	55.7	1372.9	38.2	1899.9	3199.8
Mean			126.5	48.7	1209.7	39.1	1914.6	2861.8
SD			26.9	7.4	141.5	6.7	313.9	271.4
7/31/90	A-1(8)	227	283.1	59.7	1939.3	78.8	2167.4	5500.0
9/14/90	A-5(8)		188.5	81.2	2188.8	59.5	2947.8	8107.3
9/26/90	A-6(5)		175.2	100.1	3674.4	57.8	2839.0	13339.3
9/26/90	A-6(8)		179.7	80.7	NO DATA	50.5	2502.9	8116.4
Mean			206.6	80.4	2600.8	61.7	2614.3	8765.8
SD			51.3	16.5	938.1	12.1	353.0	3288.2
8/1/90	A-1(8)	454	454.1	108.9	3598.0	143.3	4688.8	19027.1
9/17/90	A-5(8)		357.0	148.2	4089.5	106.1	4533.7	29437.9
9/27/90	A-6(5)		305.1	173.5	4538.5	103.7	5042.8	34883.3
9/27/90	A-6(8)		365.8	149.7	3710.8	105.6	4881.7	29039.8
Mean			370.5	145.1	3984.2	114.7	4786.8	28097.0
SD			61.8	26.8	425.1	19.1	222.3	6608.2
8/2/90	A-1(8)	907	883.5	210.1	6775.6	225.0	6769.2	80272.0
9/18/90	A-5(8)		529.8	221.5	5976.5	159.8	6260.8	77002.0
9/28/90	A-6(5)		456.2	189.8	3846.8	137.9	6211.2	46354.6
9/28/90	A-6(8)		522.3	262.8	6393.9	166.9	7006.5	100150.7
Mean			598.0	221.1	5748.2	172.4	6561.9	75944.8
SD			193.2	30.8	1308.9	37.2	389.1	22221.2



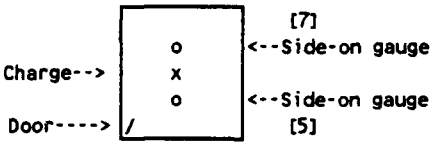
Enclosure
Configurations A-1,A-5 and A-6

Note. Recording site ambient pressure = 83 kPa

Table B-32. Pressure-time summary at the 3 ft/0.91 m range in the 3.05 x 2.44 x 2.44 m enclosure for side-on gauges 5 and 7 in configurations A-1 and A-3. No sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/26/90	A-1(5)	114	261.9	61.7	1912.8	79.1	3317.8	4063.9
8/14/90	A-3(7)		297.6	82.5	2956.0	59.4	2888.7	7405.9
Mean			279.8	72.1	2434.4	69.3	3103.3	5734.9
SD			25.2	14.7	737.7	13.9	303.4	2363.2
7/26/90	A-1(5)	227	624.4	98.4	2421.0	252.3	2697.3	9416.2
8/14/90	A-3(7)		419.5	115.4	5063.1	89.2	4409.9	17747.6
Mean			522.0	106.9	3742.1	170.8	3553.6	13581.9
SD			144.9	12.0	1868.2	115.3	1211.0	5891.2
7/26/90	A-1(5)	454	699.8	139.6	2112.6	209.6	2689.3	21237.0
8/14/90	A-3(7)		889.2	192.3	6882.0	182.2	7816.0	66085.0
Mean			794.5	166.0	4497.3	195.9	5252.7	43661.0
SD			133.9	37.3	3372.5	19.4	3625.1	31712.3
7/26/90	A-1(5)	907	1002.0	256.7	6452.0	294.1	4593.0	95806.7
8/14/90	A-3(7)		832.2	397.1	15113.4	306.4	15189.7	286612.0
Mean			917.1	326.9	10782.7	300.3	9891.4	191209.4
SD			120.1	99.3	6124.5	8.7	7493.0	134919.7

Calibration shots, no animals



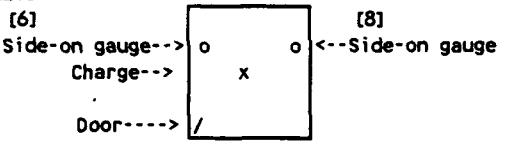
Enclosure
Configurations A-1 and A-3

Note. Recording site ambient pressure = 83 kPa

Table B-33. Pressure-time summary at the 3 ft/0.91 m range in the 3.05 x 2.44 x 2.44 m enclosure for side-on gauges 6 and 8 in configuration A-2. No sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/6/90	A-2(6)	114	207.9	50.4	1325.1	100.6	4963.6	12674.1
	A-2(8)		284.5	36.2	1147.6	129.4	1256.1	2253.2
Mean			246.2	43.3	1236.4	115.0	3109.9	7463.7
SD			54.2	10.0	125.5	20.4	2621.6	7368.7
8/6/90	A-2(6)	227	200.4	55.0	2078.2	67.5	3374.4	6682.1
	A-2(8)		504.0	74.0	2225.3	214.2	2380.7	7002.4
Mean			352.2	64.5	2151.8	140.9	2877.6	6842.3
SD			214.7	13.4	104.0	103.7	702.7	226.5
8/6/90	A-2(6)	454	343.4	106.3	3804.6	166.4	8238.1	41976.6
	A-2(8)		931.3	108.5	3823.6	323.8	3047.3	25240.8
Mean			637.4	107.4	3814.1	245.1	5642.7	33608.7
SD			415.7	1.6	13.4	111.3	3670.4	11834.0
8/6/90	A-2(6)	907	486.9	205.4	7896.9	202.6	10096.0	70433.1
	A-2(8)		838.7	142.8	4184.9	270.6	3088.6	40610.2
Mean			662.8	174.1	6040.9	236.6	6592.3	55521.7
SD			248.8	44.3	2624.8	48.1	4955.0	21088.0

Calibration shots, no animals



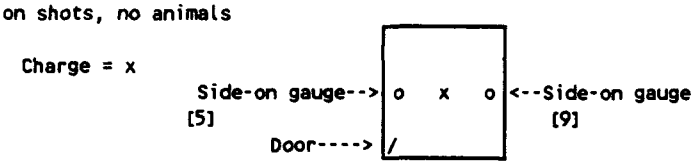
Enclosure
Configuration A-2

Note. Recording site ambient pressure = 83 kPa

Table B-34. Pressure-time summary at the 3 ft/0.91 m range in the 3.05 x 2.44 x 2.44- m enclosure. for side-on gauges 5 and 9 in configurations A-2 and A-3. No sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/6/90	A-2(9)	114	351.1	49.1	1064.7	109.6	2549.0	2746.5
8/14/90	A-3(5)		267.0	48.0	1527.6	60.5	2542.8	2527.0
Mean			309.1	48.6	1296.2	85.1	2545.9	2636.8
SD			59.5	0.8	327.3	34.7	4.4	155.2
8/6/90	A-2(9)	227	562.7	79.8	2218.0	167.6	2157.3	7679.1
8/14/90	A-3(5)		457.2	75.2	2061.6	110.9	2139.9	7018.0
Mean			510.0	77.5	2139.8	139.3	2148.6	7348.6
SD			74.6	3.3	110.6	40.1	12.3	467.5
8/6/90	A-2(9)	454	648.3	140.6	4251.6	141.7	5785.4	27987.3
8/14/90	A-3(5)		744.6	145.6	3399.7	218.3	6215.5	24431.0
Mean			696.5	143.1	3825.7	180.0	3108.1	26209.2
SD			68.1	3.5	602.4	54.2		2514.7
8/6/90	A-2(9)	907	1392.9	264.8	8057.3	384.5	5585.0	104502.5
8/14/90	A-3(5)		869.2	219.3	4928.8	223.3	5460.3	60301.7
Mean			1131.1	242.1	6493.1	303.9	5522.7	82402.1
SD			370.3	32.2	2212.2	114.0	88.2	31254.7

Calibration shots, no animals



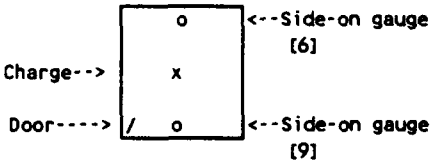
Enclosure
Configurations A-2 to A-3

Note. Recording site ambient pressure = 83 kPa

Table B-35. Pressure-time summary at the 4 ft/1.22 m range in the 3.05 x 2.44 x 2.44- m enclosure for side-on gauges 6 and 9 in configurations A-4 and A-5. No sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/27/90	A-4(6)	114	241.2	87.7	1331.1	80.9	3975.4	4992.3
8/27/90	A-4(9)		158.0	81.1	1307.5	47.5	2263.4	4057.0
9/11/90	A-5(9)		176.2	86.7	1313.6	58.2	2827.0	4349.3
Mean			191.8	85.2	1317.4	62.2	3021.9	4466.2
SD			43.7	3.6	12.3	17.1	872.5	478.5
8/27/90	A-4(6)	227	569.8	116.5	2567.6	175.6	4621.0	12549.2
8/27/90	A-4(9)		281.2	103.0	2332.9	83.7	4075.8	8597.5
9/11/90	A-5(9)		290.1	94.4	2430.3	83.2	4151.6	7929.6
Mean			380.4	104.6	2443.6	114.2	4282.8	9692.1
SD			164.1	11.1	117.9	53.2	295.3	2496.8
8/27/90	A-4(6)	454	376.7	161.3	4441.4	114.9	5558.1	32805.2
8/27/90	A-4(9)		549.2	134.4	3480.7	NO DATA	NO DATA	NO DATA
9/11/90	A-5(9)		NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			463.0	147.9	3961.1	114.9	5558.1	32805.2
SD			122.0	19.0	679.3			
8/27/90	A-4(6)	907	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
8/27/90	A-4(9)		NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
9/11/90	A-5(9)		730.8	201.8	5493.0	182.5	6485.0	59865.3
Mean			730.8	201.8	5493.0	182.5	6485.0	59865.3
SD								

Calibration shots, no animals



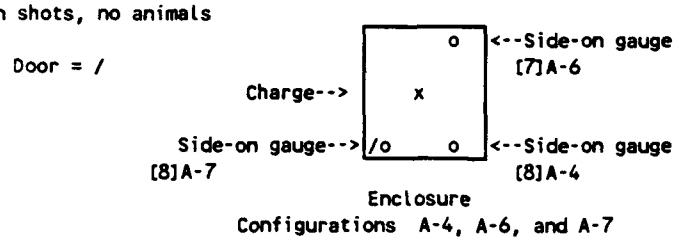
Enclosure
Configurations A-4 and A-5

Note. Recording site ambient pressure = 83 kPa

Table B-36. Pressure-time summary at the 4 ft/1.22 m range in the 3.05 x 2.44 x 2.44- m enclosure for side-on gauges 7 and 8 in configurations A-4, A-6 and A-7. No sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/27/90	A-4(8)	114	155.9	64.2	2214.1	50.7	2527.0	5267.7
9/20/90	A-6(7)		160.4	76.8	2091.3	46.8	2299.9	7007.2
10/16/90	A-7(8)		168.4	53.4	1343.6	57.6	2843.1	3239.7
Mean			161.6	64.8	1883.0	51.7	2556.7	5171.5
SD			6.3	11.7	471.2	5.5	272.8	1885.6
8/27/90	A-4(8)	227	328.6	102.0	3348.3	95.9	4782.8	14113.0
9/20/90	A-6(7)		283.9	111.6	2966.6	83.3	3984.2	11423.2
10/16/90	A-7(8)		243.8	77.5	2426.8	67.0	3320.9	7720.7
Mean			285.4	97.0	2913.9	82.1	4029.3	11085.6
SD			42.4	17.6	463.0	14.5	732.0	3209.5
8/27/90	A-4(8)	454	397.2	165.7	5496.5	133.9	6682.7	54429.1
9/20/90	A-6(7)		497.0	171.9	6481.2	139.3	6861.6	47389.8
10/16/90	A-7(8)		497.4	134.3	4657.4	130.9	6320.2	31955.5
Mean			463.9	157.3	5545.0	134.7	6621.5	44591.5
SD			57.7	20.2	912.9	4.3	275.8	11495.2
8/27/90	A-4(8)	907	574.4	331.7	10601.6	196.8	9802.4	165366.2
9/20/90	A-6(7)		2951.4	400.2	11315.7	1058.1	7999.6	212168.2
10/16/90	A-7(8)		796.6	256.2	8108.7	210.8	7581.0	105257.6
Mean			1440.8	329.4	10008.7	488.6	8461.0	160930.7
SD			1312.9	72.0	1683.7	493.3	1180.4	53593.1

Calibration shots, no animals



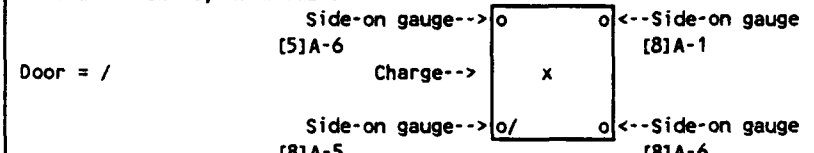
Enclosure
Configurations A-4, A-6, and A-7

Note. Recording site ambient pressure = 83 kPa

Table B-37. Pressure-time summary at the 4.7 ft/1.43 m range in the 3.05 x 2.44 x 2.44- m enclosure for side-on gauges 5 and 8 in configurations A-1, A-5 and A-6. No sheep in chamber.

Date	Configuration and (Gauge Number)	Charge Weight, g	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/26/90	A-1(8)	114	164.5	42.5	611.7	44.9	2195.7	2673.4
9/11/90	A-5(8)		124.8	48.5	1098.2	37.2	2827.3	2547.7
9/20/90	A-6(5)		67.1	43.7	1155.8	19.2	951.0	1637.4
9/20/90	A-6(8)		117.5	52.1	1362.5	40.0	1967.8	3208.2
Mean			118.5	46.7	1057.1	35.3	1985.5	2516.7
SD			40.0	4.4	317.8	11.2	779.6	652.4
7/26/90	A-1(8)	227	261.9	74.5	2028.6	70.7	3526.7	7754.8
9/11/90	A-5(8)		165.2	78.4	1996.5	54.1	2674.3	7591.8
9/20/90	A-6(5)		214.7	98.8	2936.2	58.9	2881.4	10983.0
9/20/90	A-6(8)		174.2	90.1	2432.5	55.2	2746.4	8804.8
Mean			204.0	85.5	2348.5	59.7	2957.2	8783.6
SD			44.2	11.1	439.2	7.6	389.2	1561.7
7/26/90	A-1(8)	454	490.4	146.6	4755.8	120.9	5918.6	24046.5
9/11/90	A-5(8)		375.8	131.0	3441.1	115.6	4755.6	25171.6
9/20/90	A-6(5)		310.3	159.5	4454.9	102.1	5077.0	38166.1
9/20/90	A-6(8)		450.3	139.8	4127.5	119.0	5142.1	26467.4
Mean			406.7	144.2	4194.8	114.4	5223.3	28462.9
SD			79.9	12.0	564.2	8.5	493.3	6544.0
7/26/90	A-1(8)	907	656.4	244.4	7237.3	182.4	9015.1	82136.6
9/11/90	A-5(8)		673.6	244.7	5082.1	184.7	5754.1	74745.9
9/20/90	A-6(5)		565.4	256.3	8543.3	176.4	8298.4	101585.9
9/20/90	A-6(8)		824.8	253.4	6312.7	227.3	7233.8	97090.9
Mean			680.1	249.7	6793.9	192.7	7575.4	88889.8
SD			107.5	6.1	1462.7	23.3	1417.7	12571.2

Calibration shots, no animals



Enclosure
Configurations A-1,A-5 and A-6

Note. Recording site ambient pressure = 83 kPa

Table B-38. Side-on, wall, and animal gauge pressure-time summary at various ranges in the 3.05 x 2.44 x 2.44- m enclosure for configurations A-9, A-9/2, B-9 and B-9/2. Shots with sheep in chamber

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/30/90	454	5	2601.9	199.2	665.6	1608.2	289.5	69759.9
T-1		6	238.2	115.5	3015.4	73.7	3641.0	15417.2
A-9		7	360.5	112.1	3397.1	104.0	5125.7	15594.8
		8	411.4	195.0	4173.9	115.8	5007.4	36585.5
		9	474.4	231.2	4130.1	117.4	5104.6	37303.9
		10	817.3	192.6	4070.4	220.2	10780.2	58877.6
		11	608.3	163.9	3586.1	268.7	5365.7	33911.0
12/4/90	454	5	2691.2	240.7	338.6	NO DATA	NO DATA	89340.0
T-2		6	260.2	152.8	4904.5	97.2	4851.5	31324.1
A-9		7	369.5	123.6	3378.1	89.1	4429.3	15479.0
		8	337.9	184.1	4188.1	96.4	4093.9	35325.9
		9	409.0	220.1	4288.9	120.4	5822.9	36330.4
		10	511.0	180.0	3921.8	137.1	6718.1	41296.4
		11	624.2	159.2	3596.0	183.8	4216.6	33423.4
12/6/90	454	5	1987.3	226.4	2548.4	NO DATA	NO DATA	75697.4
T-3		6	2045.0	209.8	5151.7	1341.6	91.2	54167.7
A-9/2		7	266.8	142.5	3426.6	70.0	3495.4	15254.6
		8	321.3	174.6	4380.2	100.9	4733.4	33103.5
		9	474.4	233.0	4451.4	115.0	5011.5	38894.5
		10	946.3	232.8	4427.6	239.6	5371.3	62146.6
		11	631.3	162.5	3819.1	207.1	7497.5	38333.4
12/10/90	454	5	2657.6	258.8	2021.0	1601.8	243.5	104000.4
T-4		6	1204.6	192.2	4275.2	440.9	1169.3	37725.9
A-9/2		7	338.2	141.4	3374.3	80.7	3650.6	16773.5
		8	331.0	185.1	3851.0	97.7	4243.5	31535.1
		9	536.2	228.5	4343.7	128.8	5533.5	36464.7
		10	606.4	175.3	4471.0	161.0	8045.1	48139.3
		11	676.4	176.6	3764.6	202.7	8896.8	35425.9
2/1/91	454	5	2574.4	211.6	728.0	NO DATA	NO DATA	66954.6
T-1		6	1487.4	233.8	3118.5	463.5	2964.8	68024.6
B-9/2		7	1365.5	112.4	NO DATA	954.4	2550.2	12176.0
		8	441.3	213.9	1116.8	137.7	3418.4	23723.2
		9	242.3	80.5	NO DATA	NO DATA	NO DATA	NO DATA
		10	613.9	243.1	1888.2	174.4	3553.8	48438.4
		11	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
2/5/91	454	5	2348.8	269.8	375.7	NO DATA	NO DATA	92844.4
T-2		6	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
B-9		7	301.0	81.5	843.5	NO DATA	NO DATA	NO DATA
		8	385.3	201.5	1041.1	132.1	3126.1	24213.0
		9	367.2	89.3	NO DATA	97.7	1663.8	NO DATA
		10	448.8	243.6	2079.7	132.7	5359.2	46927.3
		11	624.7	161.4	1223.0	285.0	3772.3	27563.1
2/6/91	454	5	1832.0	210.3	547.8	NO DATA	NO DATA	55461.2
T-3		6	274.9	147.3	2060.9	93.3	3036.9	19362.2
B-9		7	376.6	82.0	482.7	100.3	1924.2	NO DATA
		8	282.5	184.3	1154.7	106.2	2583.8	22426.9
		9	194.6	86.3	676.2	63.2	1792.0	NO DATA
		10	681.2	189.8	1742.1	189.6	6148.0	40267.4
		11	476.6	148.6	1135.6	235.7	4506.1	22731.6

Refer to Appendix A, Figures A-13, A-14, A-18 and A-19 for gauge locations. Number 5, 7 and 8 were on animals. Number 6 and 9 were side-on free air gauges and 10 and 11 were mounted in the wall.

Note. Recording site ambient pressure = 83 kPa

Table B-39. Side-on, wall, and animal gauge pressure-time summary at various ranges in the 3.05 x 2.44 x 2.44- m enclosure for configurations A-9, A-9/2, B-9 and B-9/2. No sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 2 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/27/90	454	5	1650.3	271.3	9564.0	773.5	1927.5	106384.8
CAL		6	249.3	143.4	4491.7	77.5	3852.0	24742.7
A-9		7	215.9	120.2	2864.2	59.2	2892.5	17484.3
		8	370.6	236.5	4191.0	113.0	4751.5	41678.4
		9	376.2	218.1	4149.3	106.6	4636.4	38346.6
		10	456.8	178.6	4356.7	116.3	5734.4	39332.4
		11	532.6	171.9	3673.6	147.8	5282.4	36858.0
12/5/90	454	5	1364.5	189.4	5746.4	813.5	126.9	46489.3
CAL		6	1577.1	186.4	3912.6	751.1	1865.7	33490.3
A-9/2		7	252.6	91.6	2261.8	74.5	3715.2	10136.2
		8	392.8	251.3	4604.5	104.9	4612.8	44767.5
		9	422.8	212.2	4270.9	96.6	4191.6	34388.0
		10	502.6	189.4	4291.4	128.0	6181.3	39768.2
		11	736.0	193.0	3522.3	257.7	6000.4	40486.7
1/29/91	454	5	1320.1	96.3	1209.2	637.7	1114.7	19779.7
CAL		6	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
B-9/2		7	267.2	94.8	955.9	63.4	1550.2	9474.2
		8	396.1	234.7	1255.8	126.4	3028.7	25525.9
		9	227.6	96.1	739.8	64.1	1777.6	7726.1
		10	559.7	238.9	1621.5	165.2	3878.5	37540.1
		11	836.1	172.7	1215.1	335.5	6184.5	37205.0
2/4/91	454	5	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
CAL		6	260.4	114.5	1629.6	94.0	2735.1	14486.1
B-9		7	113.3	18.3	485.6	13.0	460.4	495.0
		8	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
		9	284.8	95.9	523.9	85.7	2374.9	6102.6
		10	581.2	220.7	1941.6	165.7	6248.3	43332.5
		11	610.1	177.4	934.9	242.9	1601.3	25692.9

Refer to Appendix A, Figures A-13, A-14, A-18 and A-19 for gauge locations. Calibration shots no animals. Numbers 5 to 9 were side-on free air gauges and 10 and 11 were mounted in the wall.

Note. Recording site ambient pressure = 83 kPa

Table B-40. Sheep gauge pressure-time summary for various ranges in the 3.05 x 2.44 x 2.44- m enclosure for configurations A-1 to B-9/2.

Date and Test	Charge Weight, g	Gauge Number	Sheep Number Distance (ft)	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/30/90	114	6	#2@3ft	302.7	50.9	1211.5	124.4	1148.7	4078.8
S01		7	#3@3ft	405.6	61.1	1068.7	5047.3	5841.8	3324.6
A-1		9	#4@4.7ft	146.0	49.6	1272.2	49.2	2391.5	3689.2
7/31/90	227	6	#5@3ft	1171.2	115.6	2560.5	1171.2	NO DATA	22160.8
S01		7	#6@3ft	662.9	79.0	1528.5	302.4	1527.9	10627.5
A-1		9	#7@4.7ft	278.3	85.4	2310.1	65.9	2984.4	10619.1
8/1/90	454	6	#8@3ft	917.2	139.4	3741.1	461.1	4913.1	3013.1
S01		7	#9@3ft	1129.8	109.0	2635.2	411.8	1838.2	27138.6
A-1		9	#10@4.7ft	455.2	120.1	3866.6	103.7	3366.9	27599.3
8/2/90	907	6	#11@3ft	1362.8	267.4	7682.2	413.5	3734.7	121916.5
S01		7	#12@3ft	3894.4	179.2	4484.7	1468.3	2642.9	99242.0
A-1		9	#13@4.7ft	990.4	222.0	6226.2	277.6	7562.1	86031.6
8/7/90	114	5	#14@3ft	577.1	50.4	1389.6	429.4	853.6	4541.3
A-2	S01	7	#15@3ft	297.0	60.9	755.8	107.2	2597.0	5267.7
8/8/90	227	5	#16@3ft	1051.0	117.5	1680.1	883.5	551.3	16727.5
A-2	S01	7	#17@3ft	619.2	91.8	2280.6	155.6	3344.4	14230.3
8/9/90	454	5	#18@3ft	1354.5	185.1	13613.3	1354.5	NO DATA	36475.7
A-2	S01	7	#19@3ft	1013.5	143.0	4475.4	282.9	5783.4	44454.5
8/10/90	907	5	#20@3ft	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
A-2	S01	7	#21@3ft	1247.0	205.9	6923.9	335.5	7865.8	102890.3
8/15/90	114	6	#22@3ft	427.1	74.3	1118.7	267.9	1412.2	6226.3
S01		8	#23@3ft	388.2	99.6	2289.5	126.7	1652.7	9733.7
A-3		9	#24@4.7ft	148.6	47.7	1139.4	31.3	1554.9	3204.8
8/20/90	227	6	#25@3ft	753.1	102.9	2031.3	753.1	NO DATA	14918.0
S01		8	#26@3ft	544.4	92.4	2605.0	237.2	1245.8	11043.8
A-3		9	#27@4.7ft	245.9	81.2	2284.7	59.3	2903.3	9055.2
8/21/90	454	6	#28@3ft	1498.6	291.4	20629.9	904.9	253.4	39156.3
S01		8	#29@3ft	1270.4	179.2	6048.6	416.2	3849.5	68282.1
A-3		9	#30@4.7ft	637.1	133.5	3998.3	153.4	9128.9	30895.4
8/22/90	907	6	#31@3ft	3532.9	221.3	7243.2	1476.9	330.8	142415.7
S01		8	#32@3ft	2718.0	326.8	8245.8	1080.9	285.4	202047.4
A-3		9	#33@4.7ft	1411.7	257.4	7110.7	424.7	6943.6	113992.0
9/4/90	114	5	#34@4ft	257.3	61.5	1491.2	70.6	3338.7	4975.5
A-4	S01	7	#35@4ft	284.0	60.6	1727.1	70.7	2983.7	6298.4
9/5/90	227	5	#36@4ft	372.1	100.8	2773.0	97.3	4135.0	13326.5
A-4	S01	7	#37@4ft	403.1	87.8	2417.3	108.8	2845.0	11961.5
9/6/90	454	5	#38@4ft	1141.5	139.2	8294.6	719.2	6567.8	27848.6
A-4	S01	7	#39@4ft	724.0	143.2	4477.2	220.3	4827.4	39490.7
9/7/90	907	5	#40@4ft	364.1	101.3	3626.1	126.0	5082.6	21235.4
A-4	S01	7	#41@4ft	1276.4	220.5	9596.9	395.4	8172.2	114530.9

Table B-40(cont'd). Sheep gauge pressure-time summary for various ranges in the 3.05 x 2.44 x 2.44- m enclosure for configurations A-1 to B-9/2.

Date and Test	Charge Weight, g	Gauge Number	Sheep Number Distance (ft)	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/13/90	114	5	#44@4.7ft	250.8	48.8	783.6	77.1	3613.9	3795.5
S01		6	#45@4ft	253.8	68.9	1390.8	85.7	4155.9	6743.0
A-5		7	#46@4.7ft	177.8	46.6	1063.2	42.1	2041.8	3262.5
9/14/90	227	5	#47@4.7ft	339.6	102.9	4181.8	92.8	3475.6	13899.8
S01		6	#48@4ft	385.4	111.2	2521.2	147.7	3936.6	13404.2
A-5		7	#49@4.7ft	291.3	95.0	2186.0	69.8	3075.6	9543.6
9/17/90	454	5	#50@4.7ft	618.9	132.4	5062.7	169.4	3938.2	34363.5
S01		6	#51@4ft	1026.3	145.0	3941.2	350.6	3173.3	41628.9
A-5		7	#52@4.7ft	452.8	186.3	4594.5	120.3	5255.3	40448.5
9/18/90	907	5	#53@4.7ft	5665.9	112.4	7015.8	154.7	4221.0	25467.0
S01		6	#54@4ft	1341.1	225.2	6554.8	498.3	3619.0	112662.1
A-5		7	#55@4.7ft	1038.0	244.0	13781.7	303.7	6361.6	109573.3
9/25/90	114	6	#56@4ft	261.3	69.9	1055.6	83.3	4021.5	5999.6
A-6	S01	9	#57@4.7ft	261.5	56.8	1341.7	92.0	3536.6	4220.5
9/26/90	227	6	#58@4ft	588.7	102.6	2591.0	197.3	3002.3	18015.3
A-6	S01	9	#59@4.7ft	442.6	95.5	2521.9	129.2	4776.6	12111.5
9/27/90	454	6	#60@4ft	997.3	152.5	3892.3	377.5	3400.0	44741.7
A-6	S01	9	#61@4.7ft	645.3	150.1	4486.4	183.7	5427.7	35576.5
9/28/90	907	6	#62@4ft	1078.7	245.8	7410.5	458.7	7190.8	114055.3
A-6	S01	9	#63@4.7ft	6119.7	6143.8	127968.8	6042.7	127475.9	91915912.0
10/2/90	114	5	#64@4ft	264.9	79.3	1440.6	80.1	3943.8	8395.9
S01		6	#65@4ft	214.7	60.7	1299.8	62.3	3078.8	4223.1
A-7		9	#66@4.7ft	170.0	49.7	1286.4	47.4	2318.2	3873.7
10/3/90	227	5	#67@4ft	715.6	127.8	2461.4	237.9	2515.3	18446.6
S01		6	#68@4ft	442.2	87.4	2587.2	140.1	3954.2	12896.1
A-7		9	#69@4ft	385.2	83.6	2482.3	105.0	3965.0	11512.2
10/4/90	454	5	#70@4ft	632.8	119.6	3519.8	193.8	4600.5	31607.5
S01		6	#71@4ft	863.0	135.6	4295.2	282.1	3487.3	38071.1
A-7		9	#72@4.7ft	477.9	146.0	4332.4	123.4	4169.8	34265.0
10/5/90	907	5	#73@4ft	1081.1	267.3	20354.9	459.6	5516.7	104056.1
S01		6	#74@4ft	1203.3	209.6	7274.6	427.3	3168.6	91130.5
A-7		9	#75@4.7ft	815.2	220.8	7153.2	216.2	7709.6	90913.0
10/31/90	454	5	#76@3ft	2649.2	291.2	659.8	1695.2	2508.9	105099.8
T-1		7	#77@6.6ft	729.2	178.1	2029.0	201.1	2830.6	23161.1
A-8		8	#78@9.8ft	405.8	196.7	2926.3	109.2	5289.5	26140.2
11/1/90	454	5	#79@3ft	2508.2	257.2	1602.6	1228.7	1960.9	83386.1
T-2		7	#80@6.6ft	549.4	162.7	3015.3	149.1	5496.6	20513.8
A-8		8	#81@9.8ft	411.7	234.9	3764.2	112.9	5442.3	35250.3

Table B-40(cont'd). Sheep gauge pressure-time summary for various ranges in the 3.05 x 2.44 x 2.44- m enclosure for configurations A-1 to B-9/2.

Date and Test	Charge Weight, g	Gauge Number	Sheep Number Distance (ft)	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/7/90	454	5	#82@3ft	2736.2	432.2	4282.1	1710.5	2463.1	224260.0
T-3		7	#83@6.6ft	740.8	215.6	4249.5	182.4	6358.5	47870.0
A-8/2		8	#84@9.8ft	838.5	452.7	6277.6	259.1	10873.8	106443.2
11/12/90	454	5	#85@3ft	2068.7	149.4	449.8	1127.5	1709.4	56170.5
T-4		7	#86@6.6ft	497.5	201.7	3284.0	131.4	6408.5	30003.0
A-8/3		8	#87@9.8ft	337.5	232.3	2505.4	97.9	3977.4	33009.4
11/14/90	454	5	#88@3ft	2148.0	162.6	3482.5	848.8	1297.0	58065.7
T-5		7	#89@6.6ft	663.5	215.3	3090.3	190.1	6622.9	30203.8
A-8/4		8	#90@9.8ft	375.4	200.8	2990.6	112.1	4849.1	32834.8
11/16/90	454	5	#91@3ft	1401.2	203.6	2319.8	601.7	1073.4	48926.7
T-6		7	#92@6.6ft	542.0	192.3	3351.9	159.1	5764.1	30070.1
A-8/5		8	#93@9.8ft	606.7	223.0	3807.6	168.1	6194.1	40601.6
11/30/90	454	5	#94@3ft	2601.9	199.2	665.6	1608.2	289.5	69759.9
T-1		7	#95@5.6ft	360.5	112.1	3397.1	104.0	5125.7	15594.8
A-9		8	#96@9.8ft	411.4	195.0	4173.9	115.8	5007.4	36585.5
12/4/90	454	5	#97@3ft	2691.2	240.7	338.6	NO DATA	NO DATA	8934.0
T-2		7	#98@5.6ft	369.5	123.6	3378.1	89.1	4429.3	15479.0
A-9		8	#99@9.8ft	337.9	184.1	4188.1	96.4	4093.9	35325.9
12/6/90	454	5	#100@3ft	1987.3	226.4	2548.4	NO DATA	NO DATA	75697.4
T-3		7	#101@5.6ft	266.8	142.5	3426.6	70.0	3495.4	15254.6
A-9/2		8	#102@9.8ft	321.3	174.6	4380.2	100.9	4733.4	33103.5
12/10/90	454	5	#103@3ft	2657.6	258.8	2021.0	1601.8	243.5	104000.4
T-4		7	#104@5.6ft	338.2	141.4	3374.2	80.7	3650.6	16773.5
A-9/2		8	#105@9.8ft	331.0	185.1	3851.0	97.7	4243.5	31535.1
12/12/90	454	5	#106@3ft	2644.6	225.1	313.3	NO DATA	NO DATA	81141.8
T-5		7	#107@5.6ft	374.0	109.9	2562.1	74.5	3695.1	10811.9
A-9/3		8	#108@9.8ft	259.4	179.7	3941.7	98.6	4831.9	31404.7
12/13/90	454	5	#109@3ft	2680.8	243.2	2985.9	1666.5	2999.6	102441.6
T-6		7	#110@5.6ft	479.4	100.0	3436.9	106.1	4046.0	16578.4
A-9/3		8	#111@9.8ft	359.5	189.0	4248.8	121.8	5044.4	39267.8
12/20/90	2-227	5	#112@3ft	1310.6	135.4	3701.4	1310.6	NO DATA	37864.6
A-10	T-1	7	#113@5.6ft	630.0	169.4	4000.1	123.2	4689.8	33200.8
1/8/91	2-227	5	#115@3ft	1850.8	205.6	1546.5	867.2	211.6	53889.6
A-10	T-2	7	#116@5.6ft	678.8	183.6	4128.2	154.8	5868.5	39177.5
1/9/91	227-454	5	#117@3ft	1630.9	247.1	4040.4	964.4	235.3	64744.7
A-10	T-3	7	#118@5.6ft	387.8	170.4	4399.2	71.1	3493.8	38377.0
1/15/91	2-227	5	#119@3ft	2016.8	179.4	2158.8	2016.8	NO DATA	48328.7
A-10/2	T-4	7	#120@5.6ft	621.2	202.8	4097.2	172.1	6558.2	44179.3
1/16/91	227-454	5	#121@3ft	1483.3	237.0	2277.2	462.6	2227.7	54499.9
A-10/2	T-5	7	#122@5.6ft	508.8	178.1	4306.1	89.5	4309.2	37321.0

Table B-40(cont'd). Sheep gauge pressure-time summary for various ranges in the 3.05 x 2.44 x 2.44- m enclosure for configurations A-1 to B-9/2.

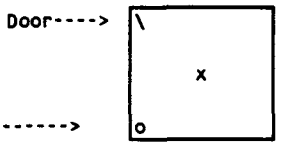
Date and Test	Charge Weight, g	Gauge Number	Sheep Number Distance (ft)	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
1/25/91	227-454	5	#123@3ft	1306.7	236.5	5047.2	362.4	2049.8	70064.1
A-10/2	T-6	7	#124@5.6ft	327.0	169.5	4196.0	45.8	2285.1	33772.7
2/1/91	454	5	#125@3ft	2574.4	211.6	728.0	NO DATA	NO DATA	66954.6
T-1		7	#126@5.6ft	1365.5	112.4	NO DATA	954.4	2550.2	12176.0
B-9/2		8	#127@8.9ft	441.3	213.9	1116.8	137.7	3418.4	23723.2
2/5/91	454	5	#128@3ft	2348.8	269.8	375.7	NO DATA	NO DATA	92844.4
T-2		7	#129@5.6ft	301.0	81.5	843.5	NO DATA	NO DATA	NO DATA
B-9		8	#130@8.9ft	385.3	201.5	1041.1	132.1	3126.1	24213.0
2/6/91	454	5	#131@3ft	1832.0	210.3	547.8	NO DATA	NO DATA	55461.2
T-3		7	#132@5.6ft	376.6	82.0	482.7	100.3	1924.2	NO DATA
B-9		8	#133@8.9ft	282.5	184.3	1154.7	106.2	2583.8	22426.9

Refer to Appendix A, Figures A-1 to A-19 for animal locations in the chamber.

Note. Recording site ambient pressure = 83 kPa.

Table B-41. Instrumentation cylinder pressure-time summary at the 8 ft/2.44 m range in the 4.88 x 3.05 x 2.44- m enclosure configuration C-1. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/5/91	57	1(BO)	234.0	101.5	1077.5	69.4	2970.0	6015.3
T18		2(SO)	123.9	48.8	268.2	40.1	1716.7	2060.5
C-1		3(FO)*	120.3	58.9	480.3	37.7	1659.3	2990.6
		4(SO)	256.4	85.1	750.4	68.1	2720.5	5744.6
Mean			204.8	78.5	698.7	59.2	2469.1	4606.8
SD			70.9	27.0	407.1	16.5	663.4	2209.3
11/6/91	57	1(BO)	188.6	99.9	1430.0	55.7	2400.9	5806.3
T19		2(SO)	183.3	47.2	281.3	59.0	2490.1	2021.8
C-1		3(FO)*	101.6	55.4	299.4	27.4	1253.7	2689.7
		4(SO)	229.4	79.3	806.3	55.4	2398.7	5125.8
Mean			200.4	75.5	839.2	56.7	2429.9	4318.0
SD			25.2	26.6	575.1	2.0	52.1	2017.4
10/30/91	113	1(BO)	263.3	137.0	1523.7	73.6	3656.2	10923.0
T16		2(SO)	179.6	55.2	590.0	58.5	2884.5	3756.1
C-1		3(FO)*	209.3	66.3	1182.0	52.0	2402.0	5542.3
		4(SO)	583.0	121.2	1511.4	177.8	8870.2	13200.3
Mean			342.0	104.5	1208.4	103.3	5137.0	9293.1
SD			212.9	43.4	535.6	65.0	3256.0	4928.5
11/1/91	113	1(BO)	287.1	138.1	1573.9	89.2	4433.4	12385.2
T17		2(SO)	176.4	63.1	594.7	57.7	2561.5	4116.2
C-1		3(FO)*	204.2	64.9	967.9	58.7	2697.7	5325.4
		4(SO)	694.1	131.1	1430.0	191.1	2523.3	15302.3
Mean			385.9	110.8	1199.5	112.7	3172.7	10601.2
SD			272.6	41.4	528.7	69.7	1091.9	5802.5
4/9/91	454	1(BO)	589.8	228.8	2525.1	145.1	7151.1	37567.6
T1		2(SO)	908.0	266.6	2858.3	318.1	3744.3	33729.8
C-1		3(FO)*	262.4	145.1	2804.4	60.2	3010.9	16137.3
		4(SO)	681.3	177.4	2600.6	187.5	8404.8	25521.6
Mean			726.4	224.3	2661.3	216.9	6433.4	32273.0
SD			163.8	44.8	174.7	90.2	2411.7	6153.7



Instrument Cylinder------->

Enclosure Configuration C-1

Cylinder gauge numbers and orientation

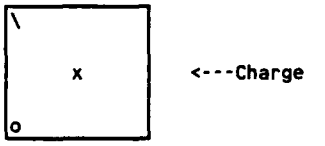
1(BO) Back-on to blast
2(SO) Side-on to blast
3(FO)* Face-on to blast
4(SO) Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

Table B-41(cont'd). Instrumentation cylinder pressure-time summary at the 8 ft/2.44 m range in the 4.88 x 3.05 x 2.44- m enclosure configuration C-1. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
4/23/91	454	1(BO)	602.3	209.1	2789.4	159.7	7177.3	35543.1
T4		2(SO)	1067.8	461.0	3999.0	349.8	12450.5	86197.8
C-1		3(FO)*	278.7	141.1	2797.5	65.0	3245.3	16544.9
		4(SO)	556.1	155.1	2380.8	152.1	5470.0	24234.8
Mean			742.1	275.1	3056.4	220.5	8365.9	48658.6
SD			283.0	163.3	841.5	112.0	3638.9	32998.0
4/10/91	907	1(BO)	961.8	404.2	4922.7	259.4	11232.1	113999.3
T2		2(SO)	757.5	371.0	5288.4	231.9	9043.7	81251.3
C-1		3(FO)*	505.0	238.2	5600.2	120.9	6033.9	52347.2
		4(SO)	678.0	288.4	4963.9	151.4	6709.0	66329.9
Mean			799.1	354.5	5058.3	214.2	8994.9	87193.5
SD			146.4	59.6	200.3	56.1	2261.9	24383.9
4/24/91	907	1(BO)	1141.0	424.4	4227.1	275.0	13564.9	113658.0
T5		2(SO)	971.3	392.1	5624.5	366.1	11215.3	94504.0
C-1		3(FO)*	558.2	262.4	4955.8	115.3	5746.0	48647.8
		4(SO)	981.5	284.2	5103.4	242.5	11911.5	70863.4
Mean			1031.3	366.9	4985.0	294.5	12230.6	93008.5
SD			95.2	73.4	706.2	64.1	1206.9	21436.5
4/11/91	1361	1(BO)	1569.5	577.7	5848.5	415.5	14998.0	227143.4
T3		2(SO)	855.5	472.1	7913.4	333.1	13205.1	165116.2
C-1		3(FO)*	675.1	342.4	7012.9	159.8	7697.8	95085.4
		4(SO)	1108.9	408.8	6201.3	302.9	11213.5	127289.1
Mean			1178.0	486.2	6654.4	350.5	13138.9	173182.9
SD			362.0	85.3	1104.5	58.3	1893.1	50413.5
4/25/91	1361	1(BO)	1097.5	547.2	6343.8	298.1	13162.1	193853.0
T6		2(SO)	929.1	476.2	7211.7	356.2	15834.9	148059.3
C-1		3(FO)*	680.9	343.3	7500.3	182.1	8688.4	103119.2
		4(SO)	1228.9	415.5	6589.1	309.3	14526.7	114168.2
Mean			1085.2	479.6	6714.9	321.2	14507.9	152026.8
SD			150.3	65.9	447.4	30.8	1336.5	39990.3



Cylinder gauge numbers and orientation

Instrument Cylinder------->

1(BO) Back-on to blast
2(SO) Side-on to blast
3(FO)* Face-on to blast
4(SO) Side-on to blast

Enclosure Configuration C-1

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

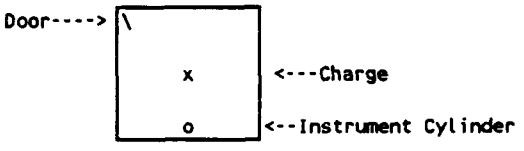
Table B-42. Instrumentation cylinder pressure-time summary at the 7 ft/2.13 m range in the 4.88 x 3.05 x 2.44- m enclosure configuration C-1/2. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/13/91	57	1	199.4	59.8	1390.1	69.9	3408.3	4152.5
T21		2	69.7	33.0	335.4	26.5	1306.6	1270.4
C-1/2		3*	116.1	34.0	406.0	31.0	1522.2	1834.6
		4	89.3	32.6	584.5	21.0	1043.4	1378.1
Mean			119.5	41.8	770.0	39.1	1919.4	2267.0
SD			69.9	15.6	551.3	26.8	1296.1	1633.8
11/21/91	113	1	327.6	97.0	2085.2	108.5	5154.5	13334.1
T20		2	130.4	56.6	679.0	45.7	2175.6	3531.7
C-1/2		3*	145.9	51.9	668.0	41.7	2038.0	3698.3
		4	157.9	59.3	1067.7	39.6	1946.8	4265.6
Mean			205.3	71.0	1277.3	64.6	3092.3	7043.8
SD			106.8	22.6	726.2	38.1	1789.6	5459.9
5/1/91	454	1	1046.5	208.0	1468.7	420.7	13465.8	55126.2
T7		2	330.7	140.3	2980.0	102.7	4943.3	18221.4
C-1/2		3*	443.1	144.6	2976.7	88.0	4301.0	24656.9
		4	270.4	130.8	2840.5	94.4	4700.7	17046.3
Mean			549.2	159.7	2429.7	205.9	7703.3	30131.3
SD			431.7	42.1	835.2	186.0	4992.0	21654.2
5/6/91	907	1	824.4	199.2	1959.7	280.2	13678.7	71621.2
T8		2	627.4	206.3	5174.1	215.1	7092.0	47527.5
C-1/2		3*	597.8	210.5	5803.9	158.8	7901.9	60525.8
		4	359.5	187.3	4961.3	84.5	4203.4	42853.6
Mean			603.8	197.6	4031.7	193.3	8324.7	54000.8
SD			233.3	9.6	1797.6	99.7	4856.4	15437.7
5/14/91	1361	1	1445.9	310.7	2917.0	556.7	14893.7	180332.1
T-9		2	868.7	353.3	7174.5	350.9	10888.6	120548.1
C-1/2		3*	974.0	255.8	6668.1	231.4	7246.7	97112.5
		4	558.0	251.2	6919.9	116.9	5843.7	77155.0
Mean			957.5	305.1	5670.5	341.5	10542.0	126011.7
SD			450.6	51.3	2388.0	220.1	4534.9	51805.1

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.



<---Charge

<--Instrument Cylinder

Enclosure Configuration C-1/2

Note. Recording site ambient pressure = 83 kPa

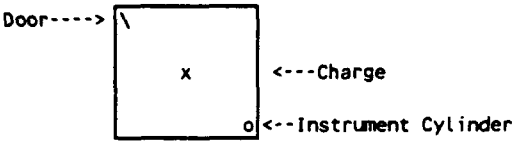
Table B-43. Instrumentation cylinder pressure-time summary at the 8 ft/2.44 m range in the 4.88 x 3.05 x 2.44- m enclosure configuration C-1/3. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/20/91	57	1(BO)	145.4	99.3	1101.3	44.7	2099.0	5303.8
T23		2(SO)	178.9	62.7	280.5	73.0	2926.6	3533.8
C-1/3		3(FO)*	113.1	44.6	431.6	28.6	1334.1	1848.6
		4(SO)	237.8	53.7	415.6	58.8	2362.8	1698.6
Mean			187.4	71.9	599.1	58.8	2462.8	3512.1
SD			46.8	24.2	440.1	14.2	422.8	1802.7
11/19/91	113	1(BO)	277.1	135.5	1641.7	82.8	4119.0	11004.5
T22		2(SO)	312.3	98.5	648.6	94.8	4708.8	8117.6
C-1/3		3(FO)*	131.9	62.1	943.8	45.8	2272.1	4276.9
		4(SO)	212.9	66.9	895.9	45.4	2056.7	3180.1
Mean			267.4	100.3	1062.1	74.3	3628.2	7434.1
SD			50.4	34.3	517.0	25.8	1392.5	3956.7
5/20/91	454	1(BO)	941.2	244.1	4131.3	274.2	13479.6	40419.6
T10		2(SO)	1695.3	251.1	9954.7	737.5	1563.6	52754.6
C-1/3		3(FO)*	432.7	162.5	3135.4	78.0	3887.1	17825.1
		4(SO)	512.7	198.9	2880.8	137.0	6318.8	21500.9
Mean			1049.7	231.4	5655.6	382.9	7120.7	38225.0
SD			598.7	28.3	3775.3	314.7	5998.3	15742.0
5/21/91	907	1(BO)	952.9	391.3	6254.4	319.5	13314.7	91302.2
T11		2(SO)	1114.8	364.2	8142.1	346.9	11839.1	76003.3
C-1/3		3(FO)*	476.2	226.7	4675.0	105.4	4916.2	44208.4
		4(SO)	682.0	307.9	4924.5	190.1	8709.1	58840.8
Mean			916.6	354.5	6440.3	285.5	11287.6	75382.1
SD			218.7	42.5	1616.8	83.7	2351.8	16239.6
5/22/91	1361	1(BO)						
T12		2(SO)			NO DATA			
C-1/3		3(FO)*						
		4(SO)						
Mean								
SD								

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.



<---Charge

<--Instrument Cylinder

Enclosure Configuration C-1/3

Note. Recording site ambient pressure = 83 kPa

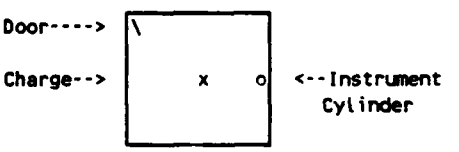
Table B-44. Instrumentation cylinder pressure-time summary at the 4 ft/1.22 m range in the 4.88 x 3.05 x 2.44- m enclosure configuration C-1/4. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/27/91	57	1	275.5	73.7	1020.0	91.7	4190.5	5943.6
T25		2	98.6	46.7	141.3	39.3	1833.8	2153.8
C-1/4		3*	258.9	47.6	399.4	60.3	2365.6	2633.5
		4	99.7	55.7	475.4	12.7	614.6	1932.4
Mean			157.9	58.7	545.6	47.9	2213.0	3343.3
SD			101.8	13.7	443.5	40.2	1817.9	2254.7
11/26/91	113	1	474.3	98.8	1826.2	141.9	6985.5	12985.2
T24		2	136.5	65.4	524.8	52.4	2617.0	4251.5
C-1/4		3*	458.4	76.1	617.9	196.7	2223.9	6035.9
		4	192.8	75.8	950.2	35.4	1761.8	3856.7
Mean			267.9	80.0	1100.4	76.6	3788.1	7031.1
SD			181.0	17.1	663.6	57.2	2801.9	5160.2
6/4/91	454	1	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
T13		2	444.9	117.3	3330.4	151.5	4642.8	10359.5
C-1/4		3*	1789.8	181.3	2068.2	758.3	6785.3	40759.1
		4	403.3	129.2	2133.2	74.3	3392.2	11969.4
Mean			424.1	123.3	2731.8	112.9	4017.5	11164.5
SD			29.4	8.4	846.5	54.6	884.3	1138.4
6/5/91	907	1	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
T14		2	987.5	194.9	8310.7	313.3	5187.6	38604.0
C-1/4		3*	2618.8	249.6	3383.8	831.3	6254.8	98382.4
		4	795.2	169.8	2096.0	254.4	4332.2	24556.5
Mean			891.4	182.4	5203.4	283.9	4759.9	31580.3
SD			136.0	17.7	4394.5	41.6	604.9	9933.1
6/6/91	1361	1	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
T15		2	1005.6	318.2	8076.1	321.7	5681.2	98699.4
C-1/4		3*	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
		4	1337.9	272.4	8390.6	385.1	6780.0	101973.8
Mean			1171.8	295.3	8233.4	353.4	6230.6	100336.6
SD			235.0	32.4	222.4	44.8	777.0	2315.4

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

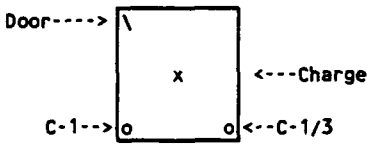


Enclosure Configuration C-1/4

Note. Recording site ambient pressure = 83 kPa

Table B-45. Instrumentation cylinder mean values at the 8 ft/2.44 m range in the 3.05 x 2.44 x 2.44- m enclosure for configurations C-1 and C-1/3. Shots with sheep in the chamber.

Date	Charge Weight, g	Config-uration	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
11/5/91	57	C-1	204.8	78.5	698.7	59.2	2469.1	4606.8
11/6/91		C-1	200.4	75.5	839.2	56.7	2429.9	4318.0
11/20/91		C-1/3	187.4	71.9	599.1	58.8	2462.8	3512.1
Mean			197.5	75.3	712.3	58.2	2453.9	4145.6
SD			9.0	3.3	120.6	1.3	21.1	567.3
10/30/91	113	C-1	342.0	104.5	1208.4	103.3	5137.0	9293.1
11/1/91		C-1	385.9	110.8	1199.5	112.7	3172.7	10601.2
11/19/91		C-1/3	267.4	100.3	1062.1	74.3	3628.2	7434.1
Mean			331.8	105.2	1156.7	96.8	3979.3	9109.5
SD			59.9	5.3	82.0	20.0	1028.1	1591.5
4/9/91	454	C-1	726.4	224.3	2661.3	216.9	6433.4	32273.0
4/23/91		C-1	742.1	275.1	3056.4	220.5	8365.9	48658.6
5/20/91		C-1/3	1049.7	231.4	5655.6	382.9	7120.7	38255.0
Mean			839.4	243.6	3791.1	273.4	7306.7	39728.9
SD			182.3	27.5	1626.7	94.8	979.6	8291.6
4/10/91	907	C-1	799.1	354.5	5058.3	214.2	8494.9	87193.5
4/24/91		C-1	1002.7	435.9	6219.6	294.5	12230.6	137591.9
5/21/91		C-1/3	916.6	354.5	6440.3	285.5	11287.6	75382.1
Mean			906.1	381.6	5906.1	264.7	10837.7	100055.8
SD			102.2	47.0	742.4	44.0	1664.1	33039.3
4/11/91	1361	C-1	1178.0	486.2	6654.4	350.5	13138.9	173182.9
4/25/91		C-1	1085.2	479.6	6714.9	321.2	14507.9	152026.8
5/22/91		C-1/3	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			1131.6	482.9	6684.7	335.9	13823.4	162604.9
SD			32.8	2.3	21.4	10.4	484.0	7479.8



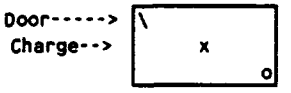
Enclosure
Configurations C-1 and C-1/3

Instrumentation cylinder =o

Note. Recording site ambient pressure = 83 kPa

Table B-46. Instrumentation cylinder pressure-time summary at the 4.2 ft/1.28 m range in the 3.05 x 1.52 x 2.44- m enclosure configuration D-1. Shots with sheep in chamber

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/1/91	113	1(BO)	377.6	140.5	1219.3	126.9	4228.9	13906.4
T1		2(SO)	261.3	117.6	2016.2	95.4	1934.3	11876.1
D-1		3(FO)*	359.3	80.2	1697.8	98.7	2222.1	8784.8
		4(SO)	403.0	122.1	1784.9	107.5	3011.9	16619.2
Mean			347.3	126.7	1673.5	109.9	3058.4	14133.9
SD			75.6	12.1	410.0	15.9	1148.0	2379.7
7/9/91	113	1(BO)	366.1	136.4	1283.3	94.7	3151.4	12484.2
T4		2(SO)	410.1	129.9	2017.3	162.8	2822.2	13286.0
D-1		3(FO)*	497.4	83.4	1884.2	159.3	3500.5	9138.4
		4(SO)	1217.8	134.7	1813.6	403.5	1391.2	16987.7
Mean			664.7	133.7	1704.7	220.3	2454.9	14252.6
SD			479.5	3.4	378.9	162.2	935.8	2402.3
7/2/91	227	1(BO)	614.5	150.2	1439.4	200.5	5454.2	24797.0
T2		2(SO)	854.4	178.4	3742.0	307.0	4475.7	30886.4
D-1		3(FO)*	670.6	135.9	3288.9	165.2	3246.4	26214.7
		4(SO)	714.0	208.3	3165.8	180.9	5461.6	40866.3
Mean			727.6	179.0	2782.4	229.5	5130.5	32183.2
SD			120.5	29.1	1198.2	67.9	567.1	8112.8
7/10/91	227	1(BO)	615.8	153.8	1205.8	189.4	2868.9	24278.5
T5		2(SO)	659.5	185.4	3399.5	255.6	3872.9	34635.3
D-1		3(FO)*	727.6	132.9	3196.8	203.4	3964.5	25915.9
		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			637.7	169.6	2302.7	222.5	3370.9	29456.9
SD			30.9	22.3	1551.2	46.8	709.9	7323.4
7/3/91	454	1(BO)	991.8	263.8	3905.4	380.1	4941.0	70267.0
T3		2(SO)	553.7	243.8	6405.4	179.3	5286.3	71378.6
D-1		3(FO)*	1391.8	212.2	5355.9	458.8	7459.8	74289.1
		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			772.8	253.8	5155.4	279.7	5113.7	70822.8
SD			309.8	14.1	1767.8	142.0	244.2	786.0
7/11/91	454	1(BO)	1263.3	231.2	2792.6	386.9	4872.9	53957.6
T6		2(SO)	1059.9	292.4	8780.9	417.2	5283.3	85863.7
D-1		3(FO)*	1386.2	232.0	4919.6	544.7	8699.6	85607.7
		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			1161.6	261.8	5786.8	402.1	5078.1	69910.7
SD			143.8	43.3	4234.4	21.4	290.2	22561.0



Enclosure Configuration D-1

Cylinder gauge numbers and orientation

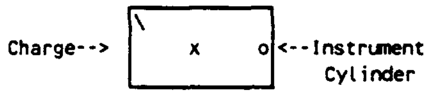
1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

Table B-47. Instrumentation cylinder pressure-time summary at the 4 ft/1.22 m range in the 3.05 x 1.52 x 2.44- m enclosure configuration D-1/2. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/24/91	113	1(BO)	380.1	112.0	410.2	148.1	5554.8	8814.9
T7		2(SO)	214.6	96.9	1886.1	76.8	3014.7	8508.7
D-1/2		3(FO)*	455.2	75.5	1755.8	137.0	2311.1	10577.0
		4(SO)	482.6	133.1	1723.0	148.2	4013.9	16305.9
Mean			359.1	114.0	1339.8	124.4	4194.5	11209.8
SD			135.2	18.2	809.1	41.2	1279.6	4416.0
7/25/91	227	1(BO)	796.8	222.2	1448.9	224.9	7671.9	35737.4
T8		2(SO)	398.6	146.4	3242.0	133.0	3815.5	20302.7
D-1/2		3(FO)*	908.7	137.4	2567.9	354.6	2442.2	22436.9
		4(SO)	985.1	186.7	3023.2	270.9	5358.7	32373.4
Mean			726.8	185.1	2571.4	209.6	5615.4	29471.2
SD			299.4	37.9	978.2	70.2	1941.0	8116.3
7/26/91	454	1(BO)	1709.0	244.8	1335.0	547.9	6697.2	74226.9
T9		2(SO)	828.2	227.9	5243.0	255.9	6172.6	58102.2
D-1/2		3(FO)*	1910.8	235.1	4278.4	717.1	1781.4	74697.4
		4(SO)	737.7	241.6	5437.8	208.0	5763.4	68640.8
Mean			1091.6	238.1	4005.3	337.3	6211.1	66990.0
SD			536.6	9.0	2314.6	184.0	468.1	8188.1



Enclosure Configuration D-1/2

Cylinder gauge numbers and orientation

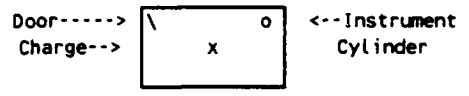
1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

Table B-48. Instrumentation cylinder pressure-time summary at the 4.2 ft/1.28 m range in the 3.05 x 1.52 x 2.44- m enclosure configuration D-1/3. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/31/91	113	1(BO)	450.0	108.1	1502.8	132.4	5960.4	11600.1
T10		2(SO)	377.3	114.1	1767.7	143.9	3369.8	12947.2
D-1/3		3(FO)*	343.0	77.0	1573.0	99.5	3226.0	7545.3
		4(SO)	306.3	106.9	1746.9	70.7	3248.4	9199.4
Mean			377.9	109.7	1672.5	115.7	4192.9	11248.9
SD			71.9	3.9	147.3	39.4	1531.9	1898.4
8/1/91	227	1(BO)	956.1	165.6	2226.6	298.5	4189.4	28251.4
T11		2(SO)	618.9	180.5	3213.8	218.8	3094.8	25145.9
D-1/3		3(FO)*	704.4	128.9	3358.6	201.6	3127.6	26308.9
		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			787.5	173.1	2720.2	258.7	3642.1	26698.7
SD			238.4	10.5	698.1	56.4	774.0	2195.9
8/2/91	454	1(BO)	1021.2	249.8	2728.4	262.8	4679.5	55026.9
T12		2(SO)	1244.2	289.7	6071.4	451.7	8002.3	109083.1
D-1/3		3(FO)*	1443.7	209.0	4050.2	460.2	3659.7	69265.5
		4(SO)	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA	NO DATA
Mean			1132.7	269.8	4399.9	357.3	6340.9	82055.0
SD			157.7	28.2	2363.9	133.6	2349.6	38223.5



Enclosure
Configuration D-1/3

Cylinder gauge numbers and orientation

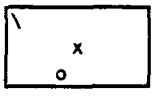
1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording sit ambient pressure = 83 kPa

Table 8-49. Instrumentation cylinder pressure-time summary at the 3 ft/0.91 m range in the 3.05 x 1.52 x 2.44- m enclosure configuration D-1/4. Shots with sheep in chamber.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
8/8/91	113	1(BO)	223.4	124.9	2138.6	49.2	2384.4	11653.7
T13		2(SO)	625.2	137.1	1410.7	288.9	1517.3	16259.7
D-1/4		3(FO)*	12281.1	101.4	1647.5	1228.1	NO DATA	15202.8
		4(SO)	282.3	96.3	2580.9	43.3	2146.4	14882.2
Mean			377.0	119.4	2043.4	127.1	2016.0	14265.2
SD			217.0	20.9	590.9	140.1	448.0	2364.2
8/9/91	227	1(BO)	645.8	231.6	3226.9	164.8	5751.7	29499.1
T14		2(SO)	1425.2	205.2	1783.4	536.6	2475.0	45469.7
D/1/4		3(FO)*	2112.0	179.2	4106.3	1258.3	221.5	52824.8
		4(SO)	467.9	137.1	3596.5	92.7	4303.9	28449.4
Mean			846.3	191.3	2868.9	264.7	4176.9	34472.7
SD			509.2	48.8	958.1	238.2	1642.0	9538.1
8/13/91	454	1(BO)	638.6	285.4	5217.5	202.0	7418.7	79532.3
T15		2(SO)	2537.5	322.4	3494.6	1196.6	2354.9	107554.8
D-1/4		3(FO)*	2931.5	239.8	3344.2	2931.5	NO DATA	95967.3
		4(SO)	839.5	208.2	5244.4	185.7	5615.4	59552.4
Mean			1338.5	272.0	4652.2	528.1	5129.7	82213.2
SD			1043.2	58.3	1002.6	579.0	2566.6	24113.2



<----Charge

Enclosure
Configuration D-1/4

Cylinder gauge numbers and orientation

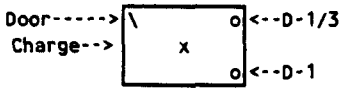
1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

Table B-50. Instrumentation cylinder mean values at the 4.2 ft/1.28 m range in the 3.05 x 1.52 x 2.44- m enclosure for configurations D-1 and D-1/3. Shots with sheep in chamber.

Date	Charge Weight, g	Config-uration	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
7/1/91	113	D-1	347.3	126.7	1673.5	109.9	3058.4	14133.9
7/9/91		D-1	664.7	133.7	1704.7	220.3	2454.9	14252.6
7/31/91		D-1/3	377.9	109.7	1672.5	115.7	4192.9	11248.9
Mean			463.3	123.4	1683.6	148.6	3235.4	13211.8
SD			175.1	12.3	18.3	62.1	882.4	1701.0
7/2/91	227	D-1	727.6	179.0	2782.4	229.5	5130.5	32183.2
7/10/91		D-1	637.7	169.6	2302.7	222.5	3370.9	29456.9
8/1/91		D-1/3	787.5	173.1	2720.2	258.7	3642.1	26698.7
Mean			717.6	173.9	2601.8	236.9	4047.8	29446.3
SD			75.4	4.8	260.9	19.2	947.4	2742.3
7/3/91	454	D-1	772.8	253.8	5155.4	279.7	5113.7	70822.8
7/11/91		D-1	1161.6	261.8	5786.8	402.1	5078.1	69910.7
8/2/91		D-1/3	1132.7	269.8	4399.9	357.3	6340.9	82055.0
Mean			1022.4	261.8	5114.0	346.4	5510.9	74262.8
SD			216.6	8.0	694.4	61.9	719.0	6763.6



Enclosure
Configurations D-1and D-1/3

Instrumentation Cylinder = o

Note. Recording site ambient pressure = 83 kPa

Table B-51. Instrumentation cylinder pressure-time summary for the freefield orientation effects experiments at 1.22 and 2.44 m(4 and 8 ft) from 1361-g charge detonations.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/4/91	1361	1(BO)	408.4	111.2	No Data	139.0	335.2	6914.6
T01		2(SO)	732.4	59.3	83.2	295.0	88.5	9601.4
Orientation		3(FO)*	5338.6	326.4	458.8	5338.6	0.0	200970.2
1.22m		4(SO)	897.9	76.9	No Data	401.8	561.0	9801.7
Mean			679.6	82.5	83.2	278.6	328.2	8772.6
SD			249.0	26.4		132.2	236.3	1612.2
9/5/91	1361	1(BO)	442.0	116.0	No Data	206.0	544.7	7823.2
T02		2(SO)	801.2	66.0	92.2	266.4	432.7	11121.3
Orientation		3(FO)*	5408.2	313.4	441.5	3249.6	376.9	189781.4
1.22m		4(SO)	1008.6	81.7	109.3	322.3	690.4	10031.8
Mean			750.6	87.9	100.8	264.9	555.9	9658.8
SD			286.7	25.6	12.1	58.2	129.2	1680.4
9/9/91	1361	1(BO)	507.4	98.3	NoData	307.5	147.6	6165.5
T03		2(SO)	687.4	73.1	102.0	422.6	682.9	9267.1
Orientation		3(FO)*	4804.7	345.3	484.7	3214.8	411.5	173881.1
1.22m		4(SO)	972.1	84.4	159.6	368.4	554.1	8942.3
Mean			722.3	85.3	130.8	366.2	461.5	8125.0
SD			234.3	12.6	40.7	57.6	279.4	1704.7
9/10/93	1361	1(BO)	566.7	124.4	NoData	165.9	305.3	8523.7
T04		2(SO)	1004.0	81.7	189.8	651.6	943.6	9425.3
Orientation		3(FO)*	7102.6	474.4	618.8	7102.6	NO DATA	297230.6
1.22m		4(SO)	1081.7	85.7	161.1	414.5	630.0	13451.5
Mean			884.1	97.3	175.5	410.7	626.3	10466.8
SD			277.6	23.6	20.3	242.9	319.2	2623.8
9/11/93	1361	1(BO)	322.9	94.4	NoData	119.6	305.2	4021.5
T05		2(SO)	642.8	60.5	84.1	410.5	597.6	11830.8
Orientation		3(FO)*	5245.7	332.2	467.9	5245.7	NO DATA	180663.4
1.22m		4(SO)	1226.2	122.0	NoData	432.9	587.0	13617.7
Mean			730.6	92.3	84.1	321.0	496.6	9823.3
SD			458.0	30.8		174.8	165.8	5103.4
9/12/91	1361	1(BO)	631.1	134.3	NoData	205.6	440.8	10960.2
T06		2(SO)	913.0	76.0	105.6	583.6	845.0	22695.5
Orientation		3(FO)*	8657.8	468.6	658.0	8657.8	NO DATA	460045.7
1.22m		4(SO)	1130.6	117.0	NoData	427.8	660.5	13404.1
Mean			891.6	109.1	105.6	405.7	648.8	15686.6
SD			250.4	29.9		190.0	202.4	6191.7

Refer to Appendix A, Figures A-30 to A-35 for Cylinder locations.

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

Table B-51(cont'd.). Instrumentation cylinder pressure-time summary for the freefiled orientation effects experiments at 1.22 and 2.44 m (4 and 8 ft) from 1361-g charge detonations.

Date and Test	Charge Weight, g	Gauge Number	Maximum Peak Pressure Pmax,kPa	Smoothed Peak Pressure Psm,kPa	Maximum Impulse Imax, kPa*ms	Average Pressure and Impulse Within 20 Percent of Peak P20,kPa	I20,kPa*ms	Effective Impulse Power EIP,kPa^2*ms
9/16/93	1361	1(BO)	462.9	123.5	No Data	163.1	437.2	7954.2
T07		2(SO)	797.4	62.1	86.7	303.4	450.2	8779.5
Orientation		3(FO)*	5663.5	342.4	366.2	3388.8	474.4	212193.7
1.22m		4(SO)	916.4	99.8	No Data	402.4	605.2	1168.1
Mean			725.6	95.1	86.7	289.6	497.5	5967.3
SD			235.1	31.0		120.2	93.5	4176.6
9/17/91	1361	1(BO)	368.8	99.7	No Data	146.5	290.6	4787.2
T08		2(SO)	778.3	61.4	86.4	350.7	538.7	10064.9
Orientation		3(FO)*	3644.2	261.1	366.2	1514.5	315.0	116989.2
1.22m		4(SO)	1275.8	127.8	180.8	375.9	580.4	19289.2
Mean			807.6	96.3	90.4	291.0	469.9	11380.4
SD			454.2	33.3	66.8	125.8	156.7	7340.0
9/19/93	1361	1(BO)	554.2	129.5	No Data	187.5	445.6	8010.7
T09		2(SO)	919.0	72.8	109.1	428.6	682.3	9542.6
Orientation		3(FO)*	7682.9	436.7	728.2	7682.9	NO DATA	314840.0
1.22m		4(SO)	1121.3	134.1	No Data	393.0	833.1	13496.2
Mean			864.8	112.1	109.1	336.4	653.7	10349.8
SD			287.4	34.1		130.1	195.3	2830.4
10/7/91	1361	1(BO)	427.2	104.7	No Data	142.4	442.0	8075.4
T10		2(SO)	735.2	246.2	No Data	231.6	7551.4	27591.7
Orientation		3(FO)*	6473.0	313.4	439.5	6473.0	NO DATA	275264.1
1.22m		4(SO)	946.8	74.9	No Data	308.4	605.7	7121.4
Mean			703.1	141.9	0.0	227.5	2866.4	14262.8
SD			261.3	91.5		83.1	4058.2	11553.0
10/21/91	1361	1(BO)	110.9	73.0	No Data	63.4	249.1	2225.6
T11		2(SO)	169.9	26.6	37.3	60.7	137.6	1702.6
Orientation		3(FO)*	603.1	133.8	224.0	164.0	353.6	11822.0
2.44m		4(SO)	216.6	50.2	No Data	64.6	157.4	1794.3
Mean			165.8	49.9	37.3	62.9	181.4	1907.5
SD			53.0	23.2		2.0	59.5	279.3

Refer to Apppendix A, Figures A-30 to A-35 for cylinder locations.

Cylinder gauge numbers and orientation

1(BO)	Back-on to blast
2(SO)	Side-on to blast
3(FO)*	Face-on to blast
4(SO)	Side-on to blast

* Gauge no.3 not used to calculate mean.

Note. Recording site ambient pressure = 83 kPa

APPENDIX C

PATHOLOGY WORKSHEETS

TABLE C-1

PATHOLOGY WORKSHEET

Project: ----- Complex Wave Fy 90 — Nature of Test

Study	Date	Shot	Animal	Orient.	Bw.,kg.	Species	Charge,g.	HOB, ft.	Range, ft.	Config.
Fy 90	7/30/90	1	2R	RSO	42.7	Sheep	114	4	3	A-1
	8/7/90	1	14L	RSO	40.4		114	4	3	A-2
	7/30/90	1	3L	RSO	40.0		114	4	3	A-1
	8/7/90	1	15R	RSO	40.9		114	4	3	A-2
	8/15/90	1	22R	RSO	37.7		114	4	3	A-3
	8/15/90	1	23L	RSO	33.6		114	4	3	A-3
Mean					39.2					
SD					3.2					
SE					1.3					
	7/31/90	1	5L	RSO	36.4	Sheep	227	4	3	A-1
	8/8/90	1	16R	RSO	41.8		227	4	3	A-2
	7/31/90	1	6R	RSO	35.5		227	4	3	A-1
	8/8/90	1	17L	RSO	40.9		227	4	3	A-2
	8/20/90	1	25R	RSO	35.0		227	4	3	A-3
	8/20/90	1	26L	RSO	35.7		227	4	3	A-3
Mean					37.6					
SD					3.0					
SE					1.2					
Fy 90	8/1/90	1	8R	RSO	40.9	Sheep	454	4	3	A-1
	8/9/90	1	18L	RSO	44.1		454	4	3	A-2
	8/1/90	1	9L	RSO	40.9		454	4	3	A-1
	8/9/90	1	19R	RSO	40.4		454	4	3	A-2
	8/21/90	1	28R	RSO	38.0		454	4	3	A-3
	8/21/90	1	29L	RSO	40.2		454	4	3	A-3
Mean					40.8					
SD					2.0					
SE					0.8					
	10/31/90	1	76GF	RSO	45.5		454	4	3	A-8
	11/1/90	1	79GF	RSO	43.0		454	4	3	A-8
	11/12/90	1	85(EART)	RSO	40.0		454	4	3	A-8/3
	11/14/90	1	88(EART)	RSO	40.9		454	4	3	A-8/4
	11/16/90	1	91(EART)	RSO	37.7		454	4	3	A-8/5
Mean					41.4					
SD					3.0					
SE					1.3					
	11/30/90	1	94(EART)	RSO	39.5		454	4	3	A-9
	12/4/90	1	97(EART)	RSO	41.1		454	4	3	A-9
	12/6/90	1	100(EART	RSO	44.3		454	4	3	A-9/2
	12/10/90	1	103(EART)	RSO	38.6		454	4	3	A-9/2
	12/12/90	1	106(EART)	RSO	44.8		454	4	3	A-9/3
	12/13/90	1	109(EART)	RSO	37.0		454	4	3	A-9/3
Mean					40.9					
SD					3.1					
SE					1.3					
	2/1/91	1	125(EAR)	RSO	34.1		454	4	3	B-9/2
	2/5/91	1	128(EAR)	RSO	34.5		454	4	3	B-9
	12/6/91	1	131(EAR)	RSO	34.1		454	4	3	B-9
MEAN					34.2					
SD					0.2					
SE					0.1					

Nature of Test				Lung Weights							Morbidity		
ge,g.	HOB, ft.	Range, ft.	Config.	RL	LL	TL	RLP	LLP	TLP	Fat/Surv.	TOS, hrs.	TOD,min.	CT
14	4	3	A-1	177.00	127.00	304.00	0.41	0.30	0.71	1.00	2.00		
:	4	3	A-2	200.00	143.00	343.00	0.49	0.35	0.84	1.00	1.00		
14	4	3	A-1	188.00	149.00	337.00	0.47	0.37	0.84	1.00	1.00		
14	4	3	A-2	212.00	152.00	364.00	0.52	0.37	0.89	1.00	2.00		
14	4	3	A-3	207.00	144.50	351.50	0.55	0.38	0.93	1.00	1.00		
14	4	3	A-3	186.00	132.50	318.50	0.55	0.39	0.94	1.00	2.00		
				195.00	141.33	336.33	0.50	0.36	0.86				
				13.51	9.68	21.93	0.05	0.03	0.08				
				5.51	3.95	8.95	0.02	0.01	0.03				
17	4	3	A-1	230.00	146.00	376.00	0.63	0.40	1.03	1.00		10.00	0.
17	4	3	A-2	231.00	153.00	384.00	0.55	0.37	0.92	1.00	1.00		
17	4	3	A-1	184.00	127.00	311.00	0.52	0.36	0.88	1.00	3.70		
17	4	3	A-2	218.00	161.50	379.50	0.53	0.39	0.92	1.00	2.00		
17	4	3	A-3	184.00	140.00	324.00	0.53	0.40	0.93	1.00	1.00		
17	4	3	A-3	208.00	135.00	338.00	0.57	0.38	0.95	1.00	2.50		
				209.17	143.75	352.08	0.56	0.38	0.94				
				21.25	12.46	31.68	0.04	0.02	0.05				
				8.67	5.09	12.93	0.02	0.01	0.02				
:	4	3	A-1	203.00	142.00	345.00	0.51	0.35	0.86	1.00	3.00		
:	4	3	A-2	237.00	167.50	404.50	0.54	0.38	0.92	1.00	1.00		
:	4	3	A-1	366.00	154.00	520.00	0.89	0.38	1.27	1.00	4.00		
:	4	3	A-2	317.00	157.50	474.50	0.78	0.39	1.17	1.00	2.00		
:	4	3	A-3	313.00	148.50	461.50	0.82	0.39	1.21	1.00	1.00		
:	4	3	A-3	234.50	117.50	352.00	0.58	0.29	0.87	1.00	2.00		
				278.42	147.83	426.25	0.69	0.36	1.05				
				62.75	17.16	70.64	0.16	0.04	0.19				
				25.62	7.01	28.84	0.07	0.02	0.08				
	4	3	A-8	530.00	207.00	737.00	1.16	0.46	1.62	1.00	1.00		
	4	3	A-8	539.50	204.00	743.50	1.25	0.47	1.73	1.00	2.00		
	4	3	A-8/3	260.00	141.00	401.00	0.65	0.35	1.00	1.00	3.00		
	4	3	A-8/4	208.00	145.00	353.00	0.51	0.35	0.86	1.00	2.50		
	4	3	A-8/5	582.00	169.00	751.00	1.54	0.45	1.99	1.00	2.00		
				423.90	173.20	597.10	1.02	0.42	1.44	1.00	2.10		
				175.42	31.39	201.70	0.43	0.06	0.49	0.00	0.74		
				78.45	14.04	90.20	0.19	0.03	0.22	0.00	0.33		
	4	3	A-9	331.00	238.50	569.50	0.84	0.60	1.44	1.00	1.00		
	4	3	A-9	489.00	246.00	735.00	1.19	0.60	1.79	1.00	2.50		
	4	3	A-9/2	523.00	321.00	844.00	1.18	0.72	1.91	1.00	2.50		
	4	3	A-9/2	475.00	199.50	674.50	1.23	0.52	1.75	1.00	3.00		
	4	3	A-9/3	515.00	208.00	723.00	1.15	0.46	1.61	1.00	1.00		
	4	3	A-9/3	375.00	205.00	580.00	1.01	0.55	1.57	1.00	1.00		
				451.33	236.33	687.67	1.10	0.58	1.68				
				79.34	45.62	103.59	0.15	0.09	0.17				
				32.39	18.63	42.29	0.06	0.04	0.07				
	4	3	B-9/2	357.00	243.00	600.00	1.05	0.71	1.76	1.00	1.00		
	4	3	B-9	368.50	185.00	553.50	1.07	0.54	1.60	1.00	1.00		
	4	3	B-9	355.50	161.00	516.50	1.04	0.47	1.51	1.00	2.50		
				360.33	196.33	556.67	1.05	0.57	1.62				
				7.11	42.16	41.84	0.02	0.12	0.13				
				4.11	24.34	24.16	0.01	0.07	0.07				

Morbidity						Morbidity	Severity	Of	Injury		Adjusted		External Lesions	
rs.	TOD,min.	COD	Pneumo.	Hemoper.	Hemothor.	Coron.Air	Cereb.Air		Ratios	Index	Index	Score	Possible	Ret
			0.00	0.00	0.00	0.00	0.00		0.75	0.75	0.33	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.36	0.36	0.11	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.35	0.35	0.15	5.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.32	0.32	0.20	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.52	0.52	0.32	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.35	0.35	0.05	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.44	0.44	0.19	0.83	56.00	
			0.00	0.00	0.00	0.00	0.00		0.17	0.17	0.11	2.06	0.00	
			0.00	0.00	0.00	0.00	0.00		0.07	0.07	0.05	0.83	0.00	
	10.00	0.00	0.00	0.00	0.00	0.00	0.00		1.96	1.96	1.83	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.83	0.83	0.73	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.81	0.81	0.61	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.83	0.83	0.70	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.57	0.57	0.47	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.46	0.46	0.33	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.91	0.91	0.78	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.54	0.54	0.54	0.00	0.00	
			0.00	0.00	0.00	0.00	0.00		0.22	0.22	0.22	0.00	0.00	
			0.00	0.00	0.00	0.00	0.00		1.73	1.73	1.48	5.00	56.00	
			0.00	0.00	0.00	0.00	0.00		1.91	1.91	1.61	5.00	56.00	
			0.00	0.00	0.00	0.00	0.00		2.71	2.71	2.31	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		1.66	1.66	1.44	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		1.94	1.94	1.64	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		1.15	1.15	1.02	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		1.85	1.85	1.58	1.67	56.00	
			0.00	0.00	0.00	0.00	0.00		0.51	0.51	0.42	2.58	0.00	
			0.00	0.00	0.00	0.00	0.00		0.21	0.21	0.17	1.05	0.00	
			0.00	0.00	0.00	0.00	0.00		2.08	2.08	1.96	0.00	56.00	
			0.00	1.00	0.00	0.00	0.00		3.19	4.19	4.19	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		1.95	1.95	1.90	0.00	56.00	
			0.00	1.00	0.00	0.00	0.00		2.24	3.24	3.24	5.00	56.00	
			0.00	1.00	0.00	0.00	0.00		2.85	3.85	3.55	5.00	56.00	
			0.00	0.60	0.00	0.00	0.00		2.66	3.06	2.97	2.00	56.00	
			0.00	0.55	0.00	0.00	0.00		0.53	1.02	1.01	2.74	0.00	
			0.00	0.24	0.00	0.00	0.00		0.24	0.45	0.45	1.22	0.00	
			0.00	1.00	0.00	0.00	0.00		2.91	3.91	3.79	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		2.40	2.40	2.40	6.00	56.00	
			0.00	1.00	0.00	0.00	0.00		2.87	3.87	3.77	0.00	56.00	
			0.00	1.00	0.00	0.00	0.00		4.06	5.06	4.96	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		2.41	2.41	2.41	0.00	56.00	
			1.00	0.00	0.00	0.00	0.00		2.42	3.42	3.30	0.00	56.00	
			0.17	0.50	0.00	0.00	0.00		2.84	3.51	3.44	1.00	56.00	
			0.41	0.55	0.00	0.00	0.00		0.64	1.01	0.97	2.45	0.00	
			0.17	0.22	0.00	0.00	0.00		0.26	0.41	0.40	1.00	0.00	
			0.00	0.00	0.00	0.00	0.00		2.67	2.67	2.60	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		2.14	2.14	2.14	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		2.45	2.45	2.33	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		2.42	2.42	2.36	0.00	56.00	
			0.00	0.00	0.00	0.00	0.00		0.27	0.27	0.23	0.00	0.00	
			0.00	0.00	0.00	0.00	0.00		0.15	0.15	0.13	0.00	0.00	

External Lesions				Fractures			Burns			Pharynx/Larynx			Trac
e	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Poss
.00	56.00	0.00	0.00	24.00	0.00	4.00	52.00	0.08	0.00	60.00	0.00	0.00	
.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0.05	0.00	
.00	56.00	0.09	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00	0.00	
.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00	5.00	
.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0.05	3.00	
.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0.05	0.00	
.83	56.00	0.01	0.00	24.00	0.00	0.67	52.00	0.01	1.50	60.00	0.03	1.33	
.04	0.00	0.04	0.00	0.00	0.00	1.63	0.00	0.03	1.64	0.00	0.03	2.16	
.83	0.00	0.01	0.00	0.00	0.00	0.67	0.00	0.01	0.67	0.00	0.01	0.88	
.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	6.00	60.00	0.10	8.00	
.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	6.00	60.00	0.10	0.00	
.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.10	5.00	
.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0.05	6.00	
.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	60.00	0.07	6.00	
.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0.05	0.00	
.00	56.00	0.00	0.00	24.00	0.00	2.67	52.00	0.05	4.67	60.00	0.08	4.17	
.00	0.00	0.00	0.00	0.00	0.00	4.13	0.00	0.08	1.51	0.00	0.03	3.37	
.00	0.00	0.00	0.00	0.00	0.00	1.69	0.00	0.03	0.61	0.00	0.01	1.38	
.00	56.00	0.09	0.00	24.00	0.00	12.00	52.00	0.23	5.00	60.00	0.08	16.00	
.00	56.00	0.09	0.00	24.00	0.00	10.00	52.00	0.19	8.00	60.00	0.13	18.00	
.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	18.00	60.00	0.30	16.00	
.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	16.00	60.00	0.27	6.00	
.00	56.00	0.00	0.00	24.00	0.00	7.00	52.00	0.13	6.00	60.00	0.10	0.00	
.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	0.08	5.00	
.67	56.00	0.03	0.00	24.00	0.00	6.17	52.00	0.12	9.67	60.00	0.16	10.17	
.58	0.00	0.05	0.00	0.00	0.00	5.08	0.00	0.10	5.82	0.00	0.10	7.44	
.05	0.00	0.02	0.00	0.00	0.00	2.07	0.00	0.04	2.38	0.00	0.04	3.04	
.00	56.00	0.00	0.00	24.00	0.00	13.00	52.00	0.25	22.00	60.00	0.37	0.00	
.00	56.00	0.00	0.00	24.00	0.00	13.00	52.00	0.25	18.00	60.00	0.30	18.00	
.00	56.00	0.00	0.00	24.00	0.00	11.00	52.00	0.21	22.00	60.00	0.37	14.00	
.00	56.00	0.09	0.00	24.00	0.00	12.00	52.00	0.23	20.00	60.00	0.33	18.00	
.00	56.00	0.09	0.00	24.00	0.00	12.00	52.00	0.23	20.00	60.00	0.33	22.00	
.00	56.00	0.04	0.00	24.00	0.00	12.20	52.00	0.23	20.40	60.00	0.34	14.60	
.74	0.00	0.05	0.00	0.00	0.00	0.84	0.00	0.02	1.67	0.00	0.03	8.53	
.22	0.00	0.02	0.00	0.00	0.00	0.37	0.00	0.01	0.75	0.00	0.01	3.82	
.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	18.00	60.00	0.30	20.00	
.00	56.00	0.11	0.00	24.00	0.00	12.00	52.00	0.23	22.00	60.00	0.37	14.00	
.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	20.00	60.00	0.33	8.00	
.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	48.00	60.00	0.80	40.00	
.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	20.00	60.00	0.33	7.00	
.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	16.00	60.00	0.27	14.00	
.00	56.00	0.02	0.00	24.00	0.00	12.00	52.00	0.23	26.00	60.00	0.40	17.17	
.45	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	11.93	0.00	0.20	12.14	
.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	4.87	0.00	0.08	4.96	
.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	22.00	60.00	0.37	18.00	
.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	22.00	60.00	0.37	14.00	
.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	22.00	60.00	0.37	18.00	
.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	22.00	60.00	0.37	16.67	
.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.31	
.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.53	

	Trachea			Lungs			Heart			Hollow Abdominal Organs		
tio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	12.00	48.00	0.25
0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	3.00	48.00	0.06
0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	3.00	48.00	0.06
0.00	5.00	55.00	0.09	0.00	64.00	0.00	0.00	48.00	0.00	5.00	48.00	0.10
0.05	3.00	55.00	0.05	10.00	64.00	0.16	0.00	48.00	0.00	3.00	48.00	0.06
0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00	0.00
0.03	1.33	55.00	0.02	1.67	64.00	0.03	0.00	48.00	0.00	4.33	48.00	0.09
0.03	2.16	0.00	0.04	4.08	0.00	0.06	0.00	0.00	0.00	4.08	0.00	0.09
0.01	0.88	0.00	0.02	1.67	0.00	0.03	0.00	0.00	0.00	1.67	0.00	0.03
0.10	8.00	55.00	0.15	33.00	64.00	0.52	18.00	48.00	0.38	26.00	48.00	0.54
0.10	0.00	55.00	0.00	24.00	64.00	0.38	0.00	48.00	0.00	5.00	48.00	0.10
0.10	5.00	55.00	0.09	12.00	64.00	0.19	6.00	48.00	0.13	5.00	48.00	0.10
0.05	6.00	55.00	0.11	12.00	64.00	0.19	5.00	48.00	0.10	12.00	48.00	0.25
0.07	6.00	55.00	0.11	12.00	64.00	0.19	0.00	48.00	0.00	5.00	48.00	0.10
0.05	0.00	55.00	0.00	10.00	64.00	0.16	0.00	48.00	0.00	6.00	48.00	0.13
0.08	4.17	55.00	0.08	17.17	64.00	0.27	4.83	48.00	0.10	9.83	48.00	0.20
0.03	3.37	0.00	0.06	9.26	0.00	0.14	7.00	0.00	0.15	8.38	0.00	0.17
0.01	1.38	0.00	0.03	3.78	0.00	0.06	2.86	0.00	0.06	3.42	0.00	0.07
0.08	16.00	55.00	0.29	21.00	64.00	0.33	0.00	48.00	0.00	22.00	48.00	0.46
0.13	18.00	55.00	0.33	21.00	64.00	0.33	0.00	48.00	0.00	26.00	48.00	0.54
0.30	16.00	55.00	0.29	52.00	64.00	0.81	16.00	48.00	0.33	20.00	48.00	0.42
0.27	6.00	55.00	0.11	36.00	64.00	0.56	0.00	48.00	0.00	24.00	48.00	0.50
0.10	0.00	55.00	0.00	33.00	64.00	0.52	0.00	48.00	0.00	36.00	48.00	0.75
0.08	5.00	55.00	0.09	18.00	64.00	0.28	0.00	48.00	0.00	24.00	48.00	0.50
0.16	10.17	55.00	0.18	30.17	64.00	0.47	2.67	48.00	0.06	25.33	48.00	0.53
0.10	7.44	0.00	0.14	12.92	0.00	0.20	6.53	0.00	0.14	5.61	0.00	0.12
0.04	3.04	0.00	0.06	5.28	0.00	0.08	2.67	0.00	0.06	2.29	0.00	0.05
0.37	0.00	55.00	0.00	44.00	64.00	0.69	4.00	48.00	0.08	24.00	48.00	0.50
0.30	18.00	55.00	0.33	52.00	64.00	0.81	7.00	48.00	0.15	52.00	48.00	1.08
0.37	14.00	55.00	0.25	39.00	64.00	0.61	0.00	48.00	0.00	22.00	48.00	0.46
0.33	18.00	55.00	0.33	36.00	64.00	0.56	0.00	48.00	0.00	30.00	48.00	0.63
0.33	22.00	55.00	0.40	48.00	64.00	0.75	8.00	48.00	0.17	28.00	48.00	0.58
0.34	14.40	55.00	0.26	43.80	64.00	0.68	3.80	48.00	0.08	31.20	48.00	0.65
0.03	8.53	0.00	0.16	6.50	0.00	0.10	3.77	0.00	0.08	12.05	0.00	0.25
0.01	3.82	0.00	0.07	2.91	0.00	0.05	1.69	0.00	0.04	5.39	0.00	0.11
0.30	20.00	55.00	0.36	39.00	64.00	0.61	0.00	48.00	0.00	42.00	48.00	0.88
0.37	14.00	55.00	0.25	56.00	64.00	0.88	5.00	48.00	0.10	22.00	48.00	0.46
0.33	8.00	55.00	0.15	60.00	64.00	0.94	8.00	48.00	0.17	36.00	48.00	0.75
0.80	40.00	55.00	0.73	52.00	64.00	0.81	7.00	48.00	0.15	42.00	48.00	0.88
0.33	7.00	55.00	0.13	52.00	64.00	0.81	0.00	48.00	0.00	39.00	48.00	0.81
0.27	14.00	55.00	0.25	56.00	64.00	0.88	5.00	48.00	0.10	24.00	48.00	0.50
0.40	17.17	55.00	0.31	52.50	64.00	0.82	4.17	48.00	0.09	34.17	48.00	0.71
0.20	12.14	0.00	0.22	7.26	0.00	0.11	3.43	0.00	0.07	8.95	0.00	0.19
0.08	4.96	0.00	0.09	2.96	0.00	0.05	1.40	0.00	0.03	3.66	0.00	0.08
0.37	18.00	55.00	0.33	56.00	64.00	0.88	6.00	48.00	0.13	28.00	48.00	0.58
0.37	14.00	55.00	0.25	48.00	64.00	0.75	0.00	48.00	0.00	26.00	48.00	0.54
0.37	18.00	55.00	0.33	52.00	64.00	0.81	0.00	48.00	0.00	24.00	48.00	0.50
0.37	16.67	55.00	0.30	52.00	64.00	0.81	2.00	48.00	0.04	26.00	48.00	0.54
0.00	2.31	0.00	0.04	4.00	0.00	0.06	3.46	0.00	0.07	2.00	0.00	0.04
0.00	1.33	0.00	0.02	2.31	0.00	0.04	2.00	0.00	0.04	1.15	0.00	0.02

Hollow Abdominal Organs			Solid Abdominal		rgans	Right Ears			Left Ears		
Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
12.00	48.00	0.25	0.00	44.00	0.00	12.00	40.00	0.30	5.00	40.00	0.13
3.00	48.00	0.06	0.00	44.00	0.00	10.00	40.00	0.25	0.00	40.00	0.00
3.00	48.00	0.06	0.00	44.00	0.00	4.00	40.00	0.10	4.00	40.00	0.10
5.00	48.00	0.10	0.00	44.00	0.00	0.00	40.00	0.00	5.00	40.00	0.13
3.00	48.00	0.06	0.00	44.00	0.00	4.00	40.00	0.10	4.00	40.00	0.10
0.00	48.00	0.00	0.00	44.00	0.00	12.00	40.00	0.30	0.00	40.00	0.00
4.33	48.00	0.09	0.00	44.00	0.00	7.00	40.00	0.18	3.00	40.00	0.08
4.08	0.00	0.09	0.00	0.00	0.00	5.02	0.00	0.13	2.37	0.00	0.06
1.67	0.00	0.03	0.00	0.00	0.00	2.05	0.00	0.05	0.97	0.00	0.02
26.00	48.00	0.54	0.00	44.00	0.00	5.00	40.00	0.13	0.00	40.00	0.00
5.00	48.00	0.10	0.00	44.00	0.00	0.00	40.00	0.00	4.00	40.00	0.10
5.00	48.00	0.10	0.00	44.00	0.00	4.00	40.00	0.10	4.00	40.00	0.10
12.00	48.00	0.25	0.00	44.00	0.00	5.00	40.00	0.13	0.00	40.00	0.00
5.00	48.00	0.10	0.00	44.00	0.00	0.00	40.00	0.00	4.00	40.00	0.10
6.00	48.00	0.13	0.00	44.00	0.00	5.00	40.00	0.13	0.00	40.00	0.00
9.83	48.00	0.20	0.00	44.00	0.00	3.17	40.00	0.08	2.00	40.00	0.05
8.38	0.00	0.17	0.00	0.00	0.00	2.48	0.00	0.06	2.19	0.00	0.05
3.42	0.00	0.07	0.00	0.00	0.00	1.01	0.00	0.03	0.89	0.00	0.02
22.00	48.00	0.46	0.00	44.00	0.00	0.00	40.00	0.00	10.00	40.00	0.25
26.00	48.00	0.54	0.00	44.00	0.00	12.00	40.00	0.30	0.00	40.00	0.00
20.00	48.00	0.42	0.00	44.00	0.00	12.00	40.00	0.30	4.00	40.00	0.10
24.00	48.00	0.50	0.00	44.00	0.00	4.00	40.00	0.10	5.00	40.00	0.13
36.00	48.00	0.75	6.00	44.00	0.14	0.00	40.00	0.00	12.00	40.00	0.30
24.00	48.00	0.50	3.00	44.00	0.07	5.00	40.00	0.13	0.00	40.00	0.00
25.33	48.00	0.53	1.50	44.00	0.03	5.50	40.00	0.14	5.17	40.00	0.13
5.61	0.00	0.12	2.51	0.00	0.06	5.43	0.00	0.14	5.00	0.00	0.12
2.29	0.00	0.05	1.02	0.00	0.02	2.22	0.00	0.06	2.04	0.00	0.05
24.00	48.00	0.50	3.00	44.00	0.07	5.00	40.00	0.13	0.00	40.00	0.00
52.00	48.00	1.08	12.00	44.00	0.27	MAX	40.00		0.00	40.00	0.00
22.00	48.00	0.46	0.00	44.00	0.00	2.00	40.00	0.05	0.00	40.00	0.00
30.00	48.00	0.63	3.00	44.00	0.07	0.00	40.00	0.00	0.00	40.00	0.00
28.00	48.00	0.58	0.00	44.00	0.00	12.00	40.00	0.30	0.00	40.00	0.00
31.20	48.00	0.65	3.60	44.00	0.08	3.80	40.00	0.10	0.00	40.00	0.00
12.05	0.00	0.25	4.93	0.00	0.11	5.25	0.00	0.13	0.00	0.00	0.00
5.39	0.00	0.11	2.20	0.00	0.05	2.35	0.00	0.06	0.00	0.00	0.00
42.00	48.00	0.88	18.00	44.00	0.41	INF	40.00		5.00	40.00	0.13
22.00	48.00	0.46	0.00	44.00	0.00	N/A	40.00		0.00	40.00	0.00
36.00	48.00	0.75	9.00	44.00	0.20	4.00	40.00	0.10	0.00	40.00	0.00
42.00	48.00	0.88	16.00	44.00	0.36	4.00	40.00	0.10	0.00	40.00	0.00
39.00	48.00	0.81	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
24.00	48.00	0.50	3.00	44.00	0.07	5.00	40.00	0.13	0.00	40.00	0.00
34.17	48.00	0.71	8.33	44.00	0.19	2.17	40.00	0.05	0.83	40.00	0.02
8.95	0.00	0.19	7.34	0.00	0.17	2.22	0.00	0.06	2.04	0.00	0.05
3.66	0.00	0.08	3.00	0.00	0.07	0.91	0.00	0.02	0.83	0.00	0.02
28.00	48.00	0.58	4.00	44.00	0.09	3.00	40.00	0.08	0.00	40.00	0.00
26.00	48.00	0.54	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
24.00	48.00	0.50	4.00	44.00	0.09	5.00	40.00	0.13	0.00	40.00	0.00
26.00	48.00	0.54	2.67	44.00	0.06	2.67	40.00	0.07	0.00	40.00	0.00
2.00	0.00	0.04	2.31	0.00	0.05	2.52	0.00	0.06	0.00	0.00	0.00
1.15	0.00	0.02	1.33	0.00	0.03	1.45	0.00	0.04	0.00	0.00	0.00

PATHOLOGY WORKSHEET

Project: ----- Complex Wave Fy 90

Study	Date	Shot	Animal	Orient.	Bw.,kg.	Species	Charg
Fy 90	12/20/91	1	112(EART)	RSOFO	39.1	Sheep	2-2
	1/8/91	1	115(EART)	RSOFO	44.3		2-2
	1/15/91	1	119(EAR)	RSOFO	46.6		2-2
MEAN					43.3		
SD					3.8		
SE					2.2		
Fy 90	1/9/91	1	117(EAR)	RSOFO	39.1		227-
	1/16/91	1	121(EAR)	RSOFO	35.2		227-
	1/25/91	1	123(EAR)	RSOFO	40.2		227-
MEAN					38.2		
SD					2.6		
SE					1.5		
Fy 90	8/2/90	1	11L	RSO	38.6	Sheep	907
	8/10/90	1	21R	RSO	37.5		907
	8/2/90	1	12R	RSO	38.6		907
	8/10/90	1	20L	RSO	41.1		907
	8/22/90	1	31R	RSO	42.3		907
		1	32L	RSO	41.2		907
Mean					39.9		
SD					1.9		
SE					0.8		
	11/7/90	1	82(EART)	RSO	41.8		907
Fy 90	9/4/90	1	34R	RSO	40.5	Sheep	114
		1	35L	RSO	43.9		114
	10/2/90	1	65(EART)	RSO	38.6		114
MEAN					41.0		
SD					2.7		
SE					1.6		
	9/13/90	1	45(3L4R)	RSO	38.2		114
	9/15/90	1	56(GF)	RSO	41.4		114
	10/2/90	1	64(GF)	RSO	39.1		114
MEAN					39.6		
SD					1.7		
SE					1.0		
Fy 90	9/5/90	1	36R	RSO	48.4	Sheep	227
		1	37L	RSO	43.9		227
	10/3/90	1	68(EART)	RSO	44.5		227
MEAN					45.6		
SD					2.4		
SE					1.4		
	9/14/90	1	48(3L4R)	RSO	42.5		227
	9/26/90	1	58(GF)	RSO	44.5		227
	10/3/90	1	67(GF)	RSO	38.0		227
MEAN					41.7		
SD					3.3		
SE					1.9		

	Nature of Test					Lung Weights							
,kg.	Species	Charge,g.	HOB, ft.	Range, ft.	Config.	RL	LL	TL	RLP	LLP	TLP	Fat/Surv.	TOS
.1	Sheep	2-227	4	3-9.6	A-10	239.00	149.00	388.00	0.61	0.38	0.99	1.00	
.3		2-227	4	3-9.6	A-10	326.00	169.00	495.00	0.74	0.38	1.12	1.00	
.6		2-227	4	3-9.6	A-10/2	282.50	187.50	470.00	0.61	0.40	1.01	1.00	
.3						282.50	168.50	451.00	0.65	0.39	1.04		
.8						43.50	19.25	55.97	0.08	0.01	0.07		
.2						25.11	11.12	32.32	0.04	0.01	0.06		
.1		227-454	4	3-9.6	A-10	343.00	210.00	553.00	0.88	0.54	1.41	2.00	
.2		227-454	4	3-9.6	A-10/2	359.00	156.00	515.00	1.02	0.44	1.46	1.00	
.2		227-454	4	3-9.6	A-10/2	291.00	171.00	462.00	0.72	0.43	1.15	1.00	
.2						331.00	179.00	510.00	0.87	0.47	1.34		
.6						35.55	27.87	45.71	0.15	0.06	0.17		
.5						20.53	16.09	26.39	0.09	0.04	0.10		
.6	Sheep	907	4	3	A-1	367.00	257.00	624.00	0.95	0.67	1.62	1.00	
.5		907	4	3	A-2	329.00	196.00	525.00	0.88	0.52	1.40	1.00	
.6		907	4	3	A-1	534.00	185.00	719.00	1.38	0.48	1.86	1.00	
.1		907	4	3	A-2	291.50	144.50	436.00	0.71	0.35	1.06	1.00	
.3		907	4	3	A-3	413.00	185.00	598.00	0.98	0.44	1.42	1.00	
.2		907	4	3	A-3	386.00	160.00	546.00	0.94	0.39	1.33	2.00	
.9						386.75	187.92	574.67	0.97	0.48	1.45		
.9						83.87	38.78	96.26	0.22	0.11	0.27		
.8						34.24	15.83	39.30	0.09	0.05	0.11		
.8		907	4	3	A-8/2	490.00	174.00	664.00	1.17	0.42	1.59	2.00	
.5	Sheep	114	4	4	A-4	235.00	163.50	398.50	0.58	0.40	0.98	1.00	1
.9		114	4	4	A-4	219.00	152.00	371.00	0.50	0.35	0.85	1.00	2
.6		114	4	4	A-7	182.00	129.00	311.00	0.47	0.33	0.81	1.00	2
.0						212.00	148.17	360.17	0.52	0.36	0.88		
7						27.18	17.57	44.74	0.06	0.04	0.09		
6						15.70	10.14	25.83	0.03	0.02	0.05		
.2		114	4	4	A-5	185.00	138.00	323.00	0.48	0.39	0.85	1.00	2
.4		114	4	4	A-6	273.00	196.00	469.00	0.66	0.47	1.13	1.00	1
.1		114	4	4	A-7	184.50	134.50	319.00	0.47	0.34	0.82	1.00	1
6						214.17	156.17	370.33	0.54	0.40	0.93		
7						50.95	34.54	85.47	0.11	0.07	0.17		
0						29.42	19.94	49.35	0.06	0.04	0.10		
4	Sheep	227	4	4	A-4	244.00	179.00	423.00	0.50	0.37	0.87	1.00	1
9		227	4	4	A-4	242.00	169.00	411.00	0.55	0.38	0.94	1.00	2
5		227	4	4	A-7	252.50	191.00	443.50	0.57	0.43	1.00	1.00	2
6						246.17	179.67	425.83	0.56	0.39	0.94		
						5.58	11.02	16.43	0.04	0.03	0.07		
						3.22	6.36	9.49	0.02	0.02	0.04		
5		227	4	4	A-5	214.00	151.00	365.00	0.51	0.36	0.86	1.00	2
5		227	4	4	A-6	272.00	205.00	477.00	0.61	0.46	1.07	1.00	1
0		227	4	4	A-7	242.00	195.00	437.00	0.64	0.52	1.15	1.00	1
7						242.67	183.67	426.33	0.59	0.45	1.03		
						29.01	28.73	56.76	0.07	0.08	0.15		
						16.75	16.59	32.77	0.04	0.05	0.09		

		Morbidity						Morbidity	Severity	Of Injury		Adjusted
TLP	Fat/Surv.	TOS, hrs.	TOD,min.	COD	Pneumo.	Hemoper.	Hemother.	Coron.Air	Cereb.Air	Ratios	Index	Index
0.99	1.00	1.00			0.00	0.00	0.00	0.00	0.00	1.35	1.35	1.22
1.12	1.00	3.00			0.00	0.00	0.00	0.00	0.00	0.89	0.89	0.89
1.01	1.00	3.00			0.00	0.00	0.00	0.00	0.00	1.39	1.39	1.39
1.04					0.00	0.00	0.00	0.00	0.00	1.21	1.21	1.17
0.07					0.00	0.00	0.00	0.00	0.00	0.28	0.28	0.25
0.04					0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.15
1.41	2.00		1.25	1.00	0.00	0.00	0.00	0.00	0.00	2.11	4.22	3.97
1.46	1.00	1.00			0.00	0.00	0.00	0.00	0.00	1.80	1.80	1.80
1.15	1.00	1.00			0.00	0.00	0.00	0.00	0.00	2.00	2.00	2.00
1.34					0.00	0.00	0.00	0.00	0.00	1.97	2.67	2.59
0.17					0.00	0.00	0.00	0.00	0.00	0.16	1.34	1.20
0.10					0.00	0.00	0.00	0.00	0.00	0.09	0.77	0.69
1.62	1.00	1.00			0.00	1.00	0.00	0.00	0.00	3.67	4.67	4.07
1.40	1.00	1.00			0.00	1.00	0.00	0.00	0.00	3.37	4.37	3.99
1.86	1.00	3.00			0.00	0.00	0.00	0.00	0.00	2.90	2.90	2.47
1.06	1.00	3.00			0.00	0.00	0.00	0.00	0.00	2.86	2.86	2.34
1.42	1.00	1.50			0.00	0.00	0.00	0.00	0.00	3.38	3.38	3.08
1.33	2.00		38.00		0.00	1.00	0.00	2.00	0.00	2.64	11.28	10.68
1.45					0.00	0.50	0.00	0.33	0.00	3.14	4.91	4.44
0.27					0.00	0.55	0.00	0.82	0.00	0.39	3.21	3.15
0.11					0.00	0.22	0.00	0.33	0.00	0.16	1.31	1.28
1.59	2.00		31.00		0.00	3.00	0.00	0.00	0.00	4.55	15.10	14.85
0.98	1.00	1.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.85	1.00	2.00			0.00	0.00	0.00	0.00	0.00	0.34	0.34	0.24
0.81	1.00	2.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.88					0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.08
0.09					0.00	0.00	0.00	0.00	0.00	0.19	0.19	0.14
0.05					0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.08
0.85	1.00	2.00			0.00	0.00	0.00	0.00	0.00	0.61	0.61	0.56
1.13	1.00	1.00			0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08
0.82	1.00	1.00			0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.20
0.93					0.00	0.00	0.00	0.00	0.00	0.30	0.30	0.28
0.17					0.00	0.00	0.00	0.00	0.00	0.28	0.28	0.25
0.10					0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.14
0.87	1.00	1.00			0.00	0.00	0.00	0.00	0.00	0.38	0.38	0.38
0.94	1.00	2.00			0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.08
1.00	1.00	2.00			0.00	0.00	0.00	0.00	0.00	0.40	0.40	0.15
0.94					0.00	0.00	0.00	0.00	0.00	0.29	0.29	0.21
0.07					0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.16
0.04					0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.09
0.86	1.00	2.00			0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.11
1.07	1.00	1.00			0.00	0.00	0.00	0.00	0.00	0.45	0.45	0.45
1.15	1.00	1.00			0.00	0.00	0.00	0.00	0.00	0.81	0.81	0.71
1.03					0.00	0.00	0.00	0.00	0.00	0.45	0.45	0.42
0.15					0.00	0.00	0.00	0.00	0.00	0.35	0.35	0.30
0.09					0.00	0.00	0.00	0.00	0.00	0.20	0.20	0.17

Adjusted		External Lesions				Fractures			Burns			Pharynx/Larynx	
Index	Index	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	
1.35	1.22	0.00	56.00	0.00	0.00	24.00	0.00	10.00	52.00	0.19	8.00	60.00	
0.89	0.89	0.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	7.00	60.00	
1.39	1.39	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	18.00	60.00	
1.21	1.17	0.00	56.00	0.00	0.00	24.00	0.00	10.00	52.00	0.19	11.00	60.00	
0.28	0.25	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.04	6.08	0.00	
0.16	0.15	0.00	0.00	0.00	0.00	0.00	0.00	1.15	0.00	0.02	3.51	0.00	
4.22	3.97	0.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	16.00	60.00	
1.80	1.80	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	7.00	60.00	
2.00	2.00	0.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	18.00	60.00	
2.67	2.59	0.00	56.00	0.00	0.00	24.00	0.00	11.00	52.00	0.21	13.67	60.00	
1.34	1.20	0.00	0.00	0.00	0.00	0.00	0.00	1.73	0.00	0.03	5.86	0.00	
0.77	0.69	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.02	3.38	0.00	
4.67	4.07	6.00	56.00	0.11	0.00	24.00	0.00	11.00	52.00	0.21	18.00	60.00	
4.37	3.99	5.00	56.00	0.09	0.00	24.00	0.00	9.00	52.00	0.17	22.00	60.00	
2.90	2.47	0.00	56.00	0.00	0.00	24.00	0.00	10.00	52.00	0.19	16.00	60.00	
2.86	2.34	0.00	56.00	0.00	0.00	24.00	0.00	7.00	52.00	0.13	20.00	60.00	
3.38	3.08	0.00	56.00	0.00	0.00	24.00	0.00	11.00	52.00	0.21	20.00	60.00	
11.28	10.68	0.00	56.00	0.00	0.00	24.00	0.00	5.00	52.00	0.10	16.00	60.00	
4.91	4.44	1.83	56.00	0.03	0.00	24.00	0.00	8.83	52.00	0.17	18.67	60.00	
3.21	3.15	2.86	0.00	0.05	0.00	0.00	0.00	2.40	0.00	0.05	2.42	0.00	
1.31	1.28	1.17	0.00	0.02	0.00	0.00	0.00	0.98	0.00	0.02	0.99	0.00	
15.10	14.85	0.00	56.00	0.00	0.00	24.00	0.00	13.00	52.00	0.25	48.00	60.00	
0.00	0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.34	0.24	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	
0.00	0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.11	0.08	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	2.00	60.00	
0.19	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.46	0.00	
0.11	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	
0.61	0.56	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	
0.08	0.08	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.20	0.20	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.30	0.28	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	1.00	60.00	
0.28	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	0.00	
0.16	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	
0.38	0.38	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.08	0.08	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	
0.40	0.15	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	
0.29	0.21	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	2.67	60.00	
0.18	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.52	0.00	
0.10	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	0.00	
0.11	0.11	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	
0.45	0.45	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	
0.81	0.71	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	
0.45	0.42	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	60.00	
0.35	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.73	0.00	
0.20	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	

ıryn	x/Larynx		Trachea			Lungs			Heart			Hollow Abdomin	
Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possibl	
60.00	0.13	6.00	55.00	0.11	21.00	64.00	0.33	0.00	48.00	0.00	22.00	48.	
60.00	0.12	5.00	55.00	0.09	21.00	64.00	0.33	0.00	48.00	0.00	6.00	48.	
60.00	0.30	6.00	55.00	0.11	21.00	64.00	0.33	0.00	48.00	0.00	24.00	48.	
60.00	0.18	5.67	55.00	0.10	21.00	64.00	0.33	0.00	48.00	0.00	17.33	48.	
0.00	0.10	0.58	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	9.87	0.	
0.00	0.06	0.33	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	5.70	0.	
60.00	0.27	7.00	55.00	0.13	48.00	64.00	0.75	0.00	48.00	0.00	26.00	48.	
60.00	0.12	20.00	55.00	0.36	44.00	64.00	0.69	0.00	48.00	0.00	22.00	48.	
60.00	0.30	14.00	55.00	0.25	30.00	64.00	0.47	0.00	48.00	0.00	36.00	48.	
60.00	0.23	13.67	55.00	0.25	40.67	64.00	0.64	0.00	48.00	0.00	28.00	48.	
0.00	0.10	6.51	0.00	0.12	9.45	0.00	0.15	0.00	0.00	0.00	7.21	0.	
0.00	0.06	3.76	0.00	0.07	5.46	0.00	0.09	0.00	0.00	0.00	4.16	0.	
60.00	0.30	20.00	55.00	0.36	60.00	64.00	0.94	16.00	48.00	0.33	39.00	48.	
60.00	0.37	40.00	55.00	0.73	39.00	64.00	0.61	10.00	48.00	0.21	36.00	48.	
60.00	0.27	20.00	55.00	0.36	56.00	64.00	0.88	8.00	48.00	0.17	26.00	48.	
60.00	0.33	22.00	55.00	0.40	52.00	64.00	0.81	0.00	48.00	0.00	26.00	48.	
60.00	0.33	36.00	55.00	0.65	60.00	64.00	0.94	20.00	48.00	0.42	22.00	48.	
60.00	0.27	7.00	55.00	0.13	42.00	64.00	0.66	14.00	48.00	0.29	39.00	48.	
60.00	0.31	24.17	55.00	0.44	51.50	64.00	0.80	11.33	48.00	0.24	31.33	48.	
0.00	0.04	12.04	0.00	0.22	9.07	0.00	0.14	7.00	0.00	0.15	7.53	0.	
0.00	0.02	4.92	0.00	0.09	3.70	0.00	0.06	2.86	0.00	0.06	3.07	0.	
60.00	0.80	52.00	55.00	0.95	52.00	64.00	0.81	8.00	48.00	0.17	39.00	48.	
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.	
60.00	0.10	4.00	55.00	0.07	4.00	64.00	0.06	0.00	48.00	0.00	0.00	48.	
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.	
60.00	0.03	1.33	55.00	0.02	1.33	64.00	0.02	0.00	48.00	0.00	0.00	48.	
0.00	0.06	2.31	0.00	0.04	2.31	0.00	0.04	0.00	0.00	0.00	0.00	0.	
0.00	0.03	1.33	0.00	0.02	1.33	0.00	0.02	0.00	0.00	0.00	0.00	0.	
60.00	0.05	4.00	55.00	0.07	4.00	64.00	0.06	18.00	48.00	0.38	0.00	48.	
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	4.00	48.	
60.00	0.00	3.00	55.00	0.05	0.00	64.00	0.00	0.00	48.00	0.00	7.00	48.	
60.00	0.02	2.33	55.00	0.04	1.33	64.00	0.02	6.00	48.00	0.13	3.67	48.	
0.00	0.03	2.08	0.00	0.04	2.31	0.00	0.04	10.39	0.00	0.22	3.51	0.	
0.00	0.02	1.20	0.00	0.02	1.33	0.00	0.02	6.00	0.00	0.13	2.03	0.	
60.00	0.00	5.00	55.00	0.09	0.00	64.00	0.00	0.00	48.00	0.00	14.00	48.	
60.00	0.08	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.	
60.00	0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	5.00	48.	
60.00	0.04	1.67	55.00	0.03	0.00	64.00	0.00	0.00	48.00	0.00	6.33	48.	
0.00	0.04	2.89	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	7.09	0.	
0.00	0.02	1.67	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	4.10	0.	
60.00	0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	3.00	48.	
60.00	0.10	3.00	55.00	0.05	12.00	64.00	0.19	5.00	48.00	0.10	0.00	48.	
60.00	0.05	6.00	55.00	0.11	27.00	64.00	0.42	0.00	48.00	0.00	6.00	48.	
60.00	0.07	3.00	55.00	0.05	13.00	64.00	0.20	1.67	48.00	0.03	3.00	48.	
0.00	0.03	3.00	0.00	0.05	13.53	0.00	0.21	2.89	0.00	0.06	3.00	0.	
0.00	0.02	1.73	0.00	0.03	7.81	0.00	0.12	1.67	0.00	0.03	1.73	0.	

Hollow Abdominal Organs			Solid Abdominal		rgans	Right Ears			Left Ears		
ore	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
22.00	48.00	0.46	0.00	44.00	0.00	5.00	40.00	0.13	0.00	40.00	0.00
6.00	48.00	0.13	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
24.00	48.00	0.50	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
17.33	48.00	0.36	0.00	44.00	0.00	1.67	40.00	0.04	0.00	40.00	0.00
9.87	0.00	0.21	0.00	0.00	0.00	2.89	0.00	0.07	0.00	0.00	0.00
5.70	0.00	0.12	0.00	0.00	0.00	1.67	0.00	0.04	0.00	0.00	0.00
26.00	48.00	0.54	3.00	44.00	0.07	0.00	40.00	0.00	5.00	40.00	0.13
22.00	48.00	0.46	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
36.00	48.00	0.75	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
28.00	48.00	0.58	1.00	44.00	0.02	0.00	40.00	0.00	1.67	40.00	0.04
7.21	0.00	0.15	1.73	0.00	0.04	0.00	0.00	0.00	2.89	0.00	0.07
4.16	0.00	0.09	1.00	0.00	0.02	0.00	0.00	0.00	1.67	0.00	0.04
39.00	48.00	0.81	0.00	44.00	0.00	12.00	40.00	0.30	12.00	40.00	0.30
36.00	48.00	0.75	3.00	44.00	0.07	3.00	40.00	0.08	12.00	40.00	0.30
26.00	48.00	0.54	3.00	44.00	0.07	5.00	40.00	0.13	12.00	40.00	0.30
26.00	48.00	0.54	5.00	44.00	0.11	21.00	40.00	0.53	0.00	40.00	0.00
22.00	48.00	0.46	3.00	44.00	0.07	0.00	40.00	0.00	12.00	40.00	0.30
39.00	48.00	0.81	4.00	44.00	0.09	12.00	40.00	0.30	0.00	40.00	0.00
31.33	48.00	0.65	3.00	44.00	0.07	8.83	40.00	0.22	8.00	40.00	0.20
7.53	0.00	0.16	1.67	0.00	0.04	7.68	0.00	0.19	6.20	0.00	0.15
3.07	0.00	0.06	0.68	0.00	0.02	3.13	0.00	0.08	2.53	0.00	0.06
39.00	48.00	0.81	28.00	44.00	0.64	5.90	40.00	0.13	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	2.00	40.00	0.05	2.00	40.00	0.05
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.67	40.00	0.02	0.67	40.00	0.02
0.00	0.00	0.00	0.00	0.00	0.00	1.15	0.00	0.03	1.15	0.00	0.03
0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.02	0.67	0.00	0.02
0.00	48.00	0.00	0.00	44.00	0.00	2.00	40.00	0.05	0.00	40.00	0.00
4.00	48.00	0.08	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
7.00	48.00	0.15	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
3.67	48.00	0.08	0.00	44.00	0.00	0.67	40.00	0.02	0.00	40.00	0.00
3.51	0.00	0.07	0.00	0.00	0.00	1.15	0.00	0.03	0.00	0.00	0.00
2.03	0.00	0.04	0.00	0.00	0.00	0.67	0.00	0.02	0.00	0.00	0.00
14.00	48.00	0.29	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
5.00	48.00	0.10	0.00	44.00	0.00	10.00	40.00	0.25	0.00	40.00	0.00
6.33	48.00	0.13	0.00	44.00	0.00	3.33	40.00	0.08	0.00	40.00	0.00
7.09	0.00	0.15	0.00	0.00	0.00	5.77	0.00	0.14	0.00	0.00	0.00
4.10	0.00	0.09	0.00	0.00	0.00	3.33	0.00	0.08	0.00	0.00	0.00
3.00	48.00	0.06	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
6.00	48.00	0.13	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
3.00	48.00	0.06	0.00	44.00	0.00	1.33	40.00	0.03	0.00	40.00	0.00
3.00	0.00	0.06	0.00	0.00	0.00	2.31	0.00	0.06	0.00	0.00	0.00
1.73	0.00	0.04	0.00	0.00	0.00	1.33	0.00	0.03	0.00	0.00	0.00

PATHOLOGY WORKSHEET

Project: ----- Complex Wave Fy 90

Study	Date	Shot	Animal	Orient.	Bw.,kg.	Species	Charge,g.	Nat
Fy 90	9/6/90	1	38R	RSO	48.4	Sheep	454	
		1	39L	RSO	42.0		454	
	10/4/90	1	71(EART)	RSO	39.1		454	
MEAN					43.2			
SD					4.8			
SE					2.7			
	9/17/90	1	51(3L4R)	RSO	37.5		454	
	9/27/90	1	60(GF)	RSO	50.7		454	
	10/4/90	1	70(GF)	RSO	40.0		454	
MEAN					42.7			
SD					7.0			
SE					4.0			
Fy 90	9/7/90	1	40R	RSO	40.5	Sheep	907	
		1	41L	RSO	43.6		907	
	10/5/90	1	74(EART)	RSO	41.8		907	
MEAN					42.0			
SD					1.6			
SE					0.9			
	9/18/90	1	54(3L4R)	RSO	40.0		907	
	9/28/90	1	62(GF)	RSO	44.1		907	
	10/5/90	1	73(GF)	RSO	39.5		907	
MEAN					41.2			
SD					2.5			
SE					1.5			
Fy 90	7/30/90	1	4R	RSO	38.6	Sheep	114	
	8/15/90	1	24L	RSO	36.4		114	
	9/25/90	1	57(FP)	RSO	40.9		114	
	10/2/90	1	66(FP)	RSO	36.8		114	
	9/13/90	1	44(1L2R)	RSO	41.4		114	
		1	46(2L1R)	RSO	36.4		114	
Mean					38.4			
SD					2.3			
SE					0.9			
Fy 90	7/31/90	1	7L	RSO	38.6	Sheep	227	
	8/20/90	1	27R	RSO	35.7		227	
	9/26/90	1	59(FP)	RSO	46.4		227	
	10/3/90	1	69(FP)	RSO	39.8		227	
	9/14/90	1	47(1L2R)	RSO	38.6		227	
		1	49(2L1R)	RSO			227	
Mean					39.8			
SD					4.0			
SE					1.8			
Fy 90	8/1/90	1	10R	RSO	43.2	Sheep	454	
	8/21/90	1	30L	RSO	33.4		454	
	9/27/90	1	61(FP)	RSO	44.5		454	
	10/4/90	1	72(FP)	RSO	48.2		454	
	9/17/90	1	50(1L2R)	RSO	40.2		454	
		1	52(2L1R)	RSO	39.8		454	
Mean					41.6			
SD					5.0			
SE					2.1			

	Nature of Test						Lung Weights						
nt.	Bw., kg.	Species	Charge, g.	HOB, ft.	Range, ft.	Config.	RL	LL	TL	RLP	LLP	TLP	Fat/
0	48.4	Sheep	454	4	4	A-4	221.50	153.00	374.50	0.50	0.35	0.85	1
0	42.0		454	4	4	A-4	226.00	154.00	380.00	0.54	0.37	0.90	1
0	39.1		454	4	4	A-7	219.00	160.00	379.00	0.56	0.41	0.97	1
	43.2						222.17	155.67	377.83	0.53	0.38	0.91	
	4.8						3.55	3.79	2.93	0.03	0.03	0.06	
	2.7						2.05	2.19	1.69	0.02	0.02	0.03	
0	37.5		454	4	4	A-5	200.00	137.50	337.50	0.53	0.37	0.90	1
0	50.7		454	4	4	A-6	324.00	337.00	661.00	0.64	0.66	1.30	1
0	40.0		454	4	4	A-7	200.00	149.00	349.00	0.50	0.37	0.87	1
	42.7						241.33	207.83	449.17	0.56	0.47	1.02	
	7.0						71.59	112.01	183.56	0.07	0.17	0.24	
	4.0						41.33	64.67	105.97	0.04	0.10	0.14	
0	40.5	Sheep	907	4	4	A-4	332.00	175.00	507.00	0.82	0.43	1.25	1
0	43.6		907	4	4	A-4	259.50	155.50	415.00	0.60	0.36	0.95	1
0	41.8		907	4	4	A-7	223.00	145.50	368.50	0.53	0.35	0.88	1
	42.0						271.50	158.67	430.17	0.65	0.38	1.03	
	1.6						55.48	15.00	70.48	0.15	0.04	0.20	
	0.9						32.03	8.66	40.69	0.09	0.03	0.11	
0	40.0		907	4	4	A-5	238.50	146.00	384.50	0.60	0.36	0.96	1
0	44.1		907	4	4	A-6	340.00	421.00	761.00	0.77	0.95	1.73	1
0	39.5		907	4	4	A-7	326.50	234.50	561.00	0.83	0.59	1.42	1
	41.2						301.67	267.17	568.83	0.73	0.63	1.37	
	2.5						55.12	140.38	188.37	0.12	0.30	0.39	
	1.5						31.82	81.05	108.76	0.07	0.17	0.22	
0	38.6	Sheep	114	4	4.7	A-1	215.00	162.00	377.00	0.56	0.42	0.98	1.
0	36.4		114	4	4.7	A-3	212.00	151.00	363.00	0.58	0.41	0.99	1.
0	40.9		114	4	4.7	A-6	256.00	188.50	444.50	0.63	0.46	1.09	1.
0	36.8		114	4	4.7	A-7	194.00	136.00	330.00	0.53	0.37	0.90	1.
0	41.4		114	4	4.7	A-5	216.50	145.00	361.50	0.52	0.35	0.87	1.
0	36.4		114	4	4.7	A-5	210.00	154.00	364.00	0.58	0.42	1.00	1.
	38.4						217.25	156.08	373.33	0.57	0.41	0.97	
	2.3						20.63	18.12	38.18	0.04	0.04	0.08	
	0.9						8.42	7.40	15.59	0.02	0.02	0.03	
0	38.6	Sheep	227	4	4.7	A-1	200.00	145.00	345.00	0.52	0.37	0.89	1.
0	35.7		227	4	4.7	A-3	214.50	153.00	367.50	0.60	0.43	1.03	1.
0	46.4		227	4	4.7	A-6	250.00	198.00	448.00	0.54	0.43	0.97	1.
0	39.8		227	4	4.7	A-7	187.00	131.00	318.00	0.47	0.33	0.80	1.
0	38.6		227	4	4.7	A-5	218.00	156.50	374.50	0.56	0.41	0.97	1.
0			227	4	4.7	A-5							
	39.8						213.90	156.70	370.60	0.54	0.39	0.93	1.
	4.0						23.65	25.08	48.57	0.05	0.04	0.09	0.
	1.8						10.58	11.22	21.72	0.02	0.02	0.04	0.
50	43.2	Sheep	454	4	4.7	A-1	193.00	143.00	336.00	0.45	0.33	0.78	2.
50	33.4		454	4	4.7	A-3	177.50	130.00	307.50	0.53	0.39	0.92	1.
50	44.5		454	4	4.7	A-6	300.00	231.50	531.50	0.67	0.52	1.19	1.
50	48.2		454	4	4.7	A-7	275.00	202.00	477.00	0.57	0.42	0.99	1.
50	40.2		454	4	4.7	A-5	241.50	166.50	408.00	0.60	0.41	1.01	1.
50	39.8		454	4	4.7	A-5	226.50	168.00	394.50	0.57	0.42	0.99	1.
	41.6						235.58	173.50	409.08	0.57	0.42	0.98	
	5.0						46.92	37.62	84.23	0.07	0.06	0.13	
	2.1						19.16	15.36	34.39	0.03	0.03	0.05	

			Morbidity				Morbidity Severity Of Injury					A
LP	TLP	Fat/Surv.	TOS, hrs.	TOD,min.	COD	Pneumo.	Nemoper.	Nemothor.	Coron.Air	Cereb.Air	Ratios	Index
.35	0.85	1.00	1.00			0.00	0.00	0.00	0.00	0.00	1.14	1.14
.37	0.90	1.00	3.00			0.00	1.00	0.00	0.00	0.00	1.21	2.21
.41	0.97	1.00	2.00			0.00	0.00	0.00	0.00	0.00	1.00	1.00
.38	0.91					0.00	0.33	0.00	0.00	0.00	1.12	1.45
.03	0.06					0.00	0.58	0.00	0.00	0.00	0.10	0.66
.02	0.03					0.00	0.33	0.00	0.00	0.00	0.06	0.38
.37	0.90	1.00		2.00	0.00	0.00	0.00	0.00	0.00	0.00	1.42	1.42
.66	1.30	1.00	1.00			0.00	0.00	0.00	0.00	0.00	1.63	1.63
.37	0.87	1.00	1.00			0.00	0.00	0.00	0.00	0.00	1.12	1.12
.47	1.02					0.00	0.00	0.00	0.00	0.00	1.39	1.39
.17	0.24					0.00	0.00	0.00	0.00	0.00	0.26	0.26
.10	0.14					0.00	0.00	0.00	0.00	0.00	0.15	0.15
.43	1.25	1.00		1.00	0.00	0.00	0.00	0.00	0.00	0.00	2.49	2.49
.36	0.95	1.00	1.00			0.00	0.00	0.00	0.00	0.00	1.77	1.77
.35	0.88	1.00	1.00			0.00	0.00	0.00	0.00	0.00	1.83	1.83
.38	1.03					0.00	0.00	0.00	0.00	0.00	2.03	2.03
.04	0.20					0.00	0.00	0.00	0.00	0.00	0.40	0.40
.03	0.11					0.00	0.00	0.00	0.00	0.00	0.23	0.23
36	0.96	1.00	3.00			0.00	3.00	0.00	0.00	0.00	2.96	5.96
.95	1.73	1.00	1.00			0.00	0.00	0.00	0.00	0.00	2.44	2.44
.59	1.42	1.00	1.00			0.00	1.00	0.00	0.00	0.00	1.90	2.90
.63	1.37					0.00	1.33	0.00	0.00	0.00	2.43	3.77
.30	0.39					0.00	1.53	0.00	0.00	0.00	0.53	1.91
.17	0.22					0.00	0.88	0.00	0.00	0.00	0.31	1.11
42	0.98	1.00	3.00			0.00	0.00	0.00	0.00	0.00	0.48	0.48
.41	0.99	1.00	3.00			0.00	0.00	0.00	0.00	0.00	0.41	0.41
46	1.09	1.00	2.00			0.00	0.00	0.00	0.00	0.00	0.33	0.33
37	0.90	1.00	3.00			0.00	0.00	0.00	0.00	0.00	0.07	0.07
35	0.87	1.00	1.00			0.00	0.00	0.00	0.00	0.00	0.18	0.18
42	1.00	1.00	3.00			0.00	0.00	0.00	0.00	0.00	0.49	0.49
41	0.97					0.00	0.00	0.00	0.00	0.00	0.33	0.33
04	0.08					0.00	0.00	0.00	0.00	0.00	0.17	0.17
02	0.03					0.00	0.00	0.00	0.00	0.00	0.07	0.07
37	0.89	1.00	3.50			0.00	0.00	0.00	0.00	0.00	0.58	0.58
43	1.03	1.00	3.00			0.00	0.00	0.00	0.00	0.00	0.35	0.35
43	0.97	1.00	3.50			0.00	0.00	0.00	0.00	0.00	0.30	0.30
33	0.80	1.00	3.00			0.00	0.00	0.00	0.00	0.00	0.31	0.31
41	0.97	1.00	2.50			0.00	0.00	0.00	0.00	0.00	0.50	0.50
				PRESHOT	0.00							
39	0.93	1.00	3.10			0.00	0.00	0.00	0.00	0.00	0.41	0.41
04	0.09	0.00	0.42			0.00	0.00	0.00	0.00	0.00	0.12	0.12
02	0.04	0.00	0.19			0.00	0.00	0.00	0.00	0.00	0.06	0.06
33	0.78	2.00		1.00	1.00	0.00	0.00	0.00	2.00	0.00	1.74	7.49
39	0.92	1.00	4.00			0.00	0.00	0.00	0.00	0.00	0.81	0.81
52	1.19	1.00	3.00			0.00	0.00	0.00	0.00	0.00	0.64	0.64
42	0.99	1.00	5.00			0.00	0.00	0.00	0.00	0.00	0.99	0.99
41	1.01	1.00	1.00			0.00	0.00	0.00	0.00	0.00	1.05	1.05
42	0.99	1.00	3.00			0.00	0.00	0.00	0.00	0.00	0.50	0.50
42	0.98					0.00	0.00	0.00	0.33	0.00	0.95	1.91
36	0.13					0.00	0.00	0.00	0.82	0.00	0.64	2.74
03	0.05					0.00	0.00	0.00	0.33	0.00	0.18	1.12

jury		Adjusted	External Lesions				Fractures		Burns				Pharynx/
ctios	Index	Index	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Poss
1.14	1.14	1.12	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	
1.21	2.21	2.21	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	
1.00	1.00	0.90	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	24.00	
1.12	1.65	1.61	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	11.00	
0.10	0.66	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.27	
0.06	0.38	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.51	
1.42	1.42	1.32	0.00	56.00	0.00	0.00	24.00	0.00	6.00	52.00	0.12	7.00	
1.63	1.63	1.53	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	
1.12	1.12	1.12	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	7.00	
1.39	1.39	1.32	0.00	56.00	0.00	0.00	24.00	0.00	4.67	52.00	0.09	7.00	
0.26	0.26	0.21	0.00	0.00	0.00	0.00	0.00	0.00	4.16	0.00	0.08	0.00	
0.15	0.15	0.12	0.00	0.00	0.00	0.00	0.00	0.00	2.40	0.00	0.05	0.00	
2.49	2.49	2.36	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	9.00	
1.77	1.77	1.47	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	5.00	
1.83	1.83	1.28	0.00	56.00	0.00	0.00	24.00	0.00	11.00	52.00	0.21	8.00	
2.03	2.03	1.70	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	7.33	
0.40	0.40	0.58	0.00	0.00	0.00	0.00	0.00	0.00	1.73	0.00	0.03	2.08	
0.23	0.23	0.33	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.02	1.20	
5.96	5.96	5.74	5.00	56.00	0.09	0.00	24.00	0.00	10.00	52.00	0.19	20.00	
2.44	2.44	2.44	0.00	56.00	0.00	0.00	24.00	0.00	22.00	52.00	0.42	18.00	
1.90	2.90	2.90	0.00	56.00	0.00	0.00	24.00	0.00	11.00	52.00	0.21	22.00	
2.43	3.77	3.69	1.67	56.00	0.03	0.00	24.00	0.00	14.33	52.00	0.28	20.00	
0.53	1.91	1.79	2.89	0.00	0.05	0.00	0.00	0.00	6.66	0.00	0.13	2.00	
0.31	1.11	1.03	1.67	0.00	0.03	0.00	0.00	0.00	3.84	0.00	0.07	1.15	
0.48	0.48	0.08	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	
0.41	0.41	0.11	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	
0.33	0.33	0.21	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	
0.07	0.07	0.07	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	
0.18	0.18	0.05	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	
0.49	0.49	0.19	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	
0.33	0.33	0.12	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.17	
0.17	0.17	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.71	
0.07	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	
0.58	0.58	0.28	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	
0.35	0.35	0.22	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	
0.30	0.30	0.30	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	
0.31	0.31	0.31	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	
0.50	0.50	0.50	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	
0.41	0.41	0.32	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.40	
0.12	0.12	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	
0.06	0.06	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	
7.74	7.49	7.24	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	
0.81	0.81	0.69	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	
0.64	0.64	0.59	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	12.00	
0.99	0.99	0.99	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	16.00	
1.05	1.05	0.95	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	20.00	
0.50	0.50	0.47	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	8.00	
1.95	1.91	1.82	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	11.67	
2.44	2.74	2.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.39	
1.18	1.12	1.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.20	

Pharynx/Larynx			Trachea			Lungs			Heart			Hollow Abc	
re	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Po
4.00	60.00	0.07	5.00	55.00	0.09	24.00	64.00	0.38	0.00	48.00	0.00	28.00	
5.00	60.00	0.08	6.00	55.00	0.11	18.00	64.00	0.28	5.00	48.00	0.10	26.00	
24.00	60.00	0.40	6.00	55.00	0.11	12.00	64.00	0.19	0.00	48.00	0.00	10.00	
11.00	60.00	0.18	5.67	55.00	0.10	18.00	64.00	0.28	1.67	48.00	0.03	21.33	
11.27	0.00	0.19	0.58	0.00	0.01	6.00	0.00	0.09	2.89	0.00	0.06	9.87	
6.51	0.00	0.11	0.33	0.00	0.01	3.46	0.00	0.05	1.67	0.00	0.03	5.70	
7.00	60.00	0.12	6.00	55.00	0.11	21.00	64.00	0.33	5.00	48.00	0.10	22.00	
7.00	60.00	0.12	12.00	55.00	0.22	39.00	64.00	0.61	14.00	48.00	0.29	14.00	
7.00	60.00	0.12	6.00	55.00	0.11	12.00	64.00	0.19	0.00	48.00	0.00	22.00	
7.00	60.00	0.12	8.00	55.00	0.15	24.00	64.00	0.38	6.33	48.00	0.13	19.33	
0.00	0.00	0.00	3.46	0.00	0.06	13.75	0.00	0.21	7.09	0.00	0.15	4.62	
0.00	0.00	0.00	2.00	0.00	0.04	7.94	0.00	0.12	4.10	0.00	0.09	2.67	
9.00	60.00	0.15	20.00	55.00	0.36	56.00	64.00	0.88	10.00	48.00	0.21	26.00	
5.00	60.00	0.08	7.00	55.00	0.13	30.00	64.00	0.47	0.00	48.00	0.00	26.00	
8.00	60.00	0.13	6.00	55.00	0.11	21.00	64.00	0.33	0.00	48.00	0.00	24.00	
7.33	60.00	0.12	11.00	55.00	0.20	35.67	64.00	0.56	3.33	48.00	0.07	25.33	
2.08	0.00	0.03	7.81	0.00	0.14	18.18	0.00	0.28	5.77	0.00	0.12	1.15	
1.20	0.00	0.02	4.51	0.00	0.08	10.49	0.00	0.16	3.33	0.00	0.07	0.67	
20.00	60.00	0.33	12.00	55.00	0.22	30.00	64.00	0.47	18.00	48.00	0.38	28.00	
18.00	60.00	0.30	20.00	55.00	0.36	52.00	64.00	0.81	0.00	48.00	0.00	26.00	
22.00	60.00	0.37	6.00	55.00	0.11	36.00	64.00	0.56	0.00	48.00	0.00	28.00	
20.00	60.00	0.33	12.67	55.00	0.23	39.33	64.00	0.61	6.00	48.00	0.13	27.33	
2.00	0.00	0.03	7.02	0.00	0.13	11.37	0.00	0.18	10.39	0.00	0.22	1.15	
1.15	0.00	0.02	4.06	0.00	0.07	6.57	0.00	0.10	6.00	0.00	0.13	0.67	
0.00	60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	4.00	48.00	0.08	0.00	
0.00	60.00	0.00	6.00	55.00	0.11	0.00	64.00	0.00	0.00	48.00	0.00	0.00	
6.00	60.00	0.10	6.00	55.00	0.11	0.00	64.00	0.00	0.00	48.00	0.00	0.00	
4.00	60.00	0.07	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	
3.00	60.00	0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	
6.00	60.00	0.10	5.00	55.00	0.09	0.00	64.00	0.00	0.00	48.00	0.00	0.00	
3.17	60.00	0.05	2.83	55.00	0.05	0.00	64.00	0.00	0.67	48.00	0.01	0.00	
2.71	0.00	0.05	3.13	0.00	0.06	0.00	0.00	0.00	1.63	0.00	0.03	0.00	
1.11	0.00	0.02	1.28	0.00	0.02	0.00	0.00	0.00	0.67	0.00	0.01	0.00	
4.00	60.00	0.07	7.00	55.00	0.13	0.00	64.00	0.00	0.00	48.00	0.00	4.00	
3.00	60.00	0.05	6.00	55.00	0.11	0.00	64.00	0.00	0.00	48.00	0.00	3.00	
6.00	60.00	0.10	2.00	55.00	0.04	0.00	64.00	0.00	5.00	48.00	0.10	3.00	
5.00	60.00	0.08	5.00	55.00	0.09	5.00	64.00	0.08	0.00	48.00	0.00	3.00	
4.00	60.00	0.07	0.00	55.00	0.00	4.00	64.00	0.06	14.00	48.00	0.29	4.00	
4.40	60.00	0.07	4.00	55.00	0.07	1.80	64.00	0.03	3.80	48.00	0.08	3.40	
1.14	0.00	0.02	2.92	0.00	0.05	2.49	0.00	0.04	6.10	0.00	0.13	0.55	
0.51	0.00	0.01	1.30	0.00	0.02	1.11	0.00	0.02	2.73	0.00	0.06	0.24	
7.00	60.00	0.12	7.00	55.00	0.13	16.00	64.00	0.25	30.00	48.00	0.63	24.00	
7.00	60.00	0.12	7.00	55.00	0.13	12.00	64.00	0.19	0.00	48.00	0.00	9.00	
12.00	60.00	0.20	4.00	55.00	0.07	12.00	64.00	0.19	0.00	48.00	0.00	6.00	
16.00	60.00	0.27	7.00	55.00	0.13	14.00	64.00	0.22	0.00	48.00	0.00	18.00	
20.00	60.00	0.33	5.00	55.00	0.09	12.00	64.00	0.19	0.00	48.00	0.00	16.00	
8.00	60.00	0.13	5.00	55.00	0.09	4.00	64.00	0.06	0.00	48.00	0.00	9.00	
11.67	60.00	0.19	5.83	55.00	0.11	11.67	64.00	0.18	5.00	48.00	0.10	13.67	
5.39	0.00	0.09	1.33	0.00	0.02	4.08	0.00	0.06	12.25	0.00	0.26	6.83	
2.20	0.00	0.04	0.54	0.00	0.01	1.67	0.00	0.03	5.00	0.00	0.10	2.79	

Hollow Abdominal Organs			Solid Abdominal		rgans	Right Ears				Left Ears	
core	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
28.00	48.00	0.58	0.00	44.00	0.00	1.00	40.00	0.03	0.00	40.00	0.00
26.00	48.00	0.54	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
10.00	48.00	0.21	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
21.33	48.00	0.44	1.33	44.00	0.03	1.67	40.00	0.04	0.00	40.00	0.00
9.87	0.00	0.21	2.31	0.00	0.05	2.08	0.00	0.05	0.00	0.00	0.00
5.70	0.00	0.12	1.33	0.00	0.03	1.20	0.00	0.03	0.00	0.00	0.00
22.00	48.00	0.46	4.00	44.00	0.09	0.00	40.00	0.00	4.00	40.00	0.10
14.00	48.00	0.29	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
22.00	48.00	0.46	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
19.33	48.00	0.40	2.67	44.00	0.06	1.33	40.00	0.03	1.33	40.00	0.03
4.62	0.00	0.10	2.31	0.00	0.05	2.31	0.00	0.06	2.31	0.00	0.06
2.67	0.00	0.06	1.33	0.00	0.03	1.33	0.00	0.03	1.33	0.00	0.03
26.00	48.00	0.54	3.00	44.00	0.07	0.00	40.00	0.00	5.00	40.00	0.13
26.00	48.00	0.54	4.00	44.00	0.09	0.00	40.00	0.00	12.00	40.00	0.30
24.00	48.00	0.50	0.00	44.00	0.00	12.00	40.00	0.30	10.00	40.00	0.25
25.33	48.00	0.53	2.33	44.00	0.05	4.00	40.00	0.10	9.00	40.00	0.23
1.15	0.00	0.02	2.08	0.00	0.05	6.93	0.00	0.17	3.61	0.00	0.09
0.67	0.00	0.01	1.20	0.00	0.03	4.00	0.00	0.10	2.08	0.00	0.05
28.00	48.00	0.58	21.00	44.00	0.48	8.00	40.00	0.20	1.00	40.00	0.03
26.00	48.00	0.54	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
28.00	48.00	0.58	3.00	44.00	0.07	0.00	40.00	0.00	0.00	40.00	0.00
27.33	48.00	0.57	8.00	44.00	0.18	2.67	40.00	0.07	0.33	40.00	0.01
1.15	0.00	0.02	11.36	0.00	0.26	4.62	0.00	0.12	0.58	0.00	0.01
0.67	0.00	0.01	6.56	0.00	0.15	2.67	0.00	0.07	0.33	0.00	0.01
0.00	48.00	0.00	0.00	44.00	0.00	4.00	40.00	0.10	12.00	40.00	0.30
0.00	48.00	0.00	0.00	44.00	0.00	12.00	40.00	0.30	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	5.00	40.00	0.13
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	MAX	40.00		5.00	40.00	0.13
0.00	48.00	0.00	0.00	44.00	0.00	12.00	40.00	0.30	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	5.60	40.00	0.14	3.67	40.00	0.09
0.00	0.00	0.00	0.00	0.00	0.00	6.07	0.00	0.15	4.76	0.00	0.12
0.00	0.00	0.00	0.00	0.00	0.00	2.71	0.00	0.07	1.94	0.00	0.05
4.00	48.00	0.08	0.00	44.00	0.00	12.00	40.00	0.30	0.00	40.00	0.00
3.00	48.00	0.06	0.00	44.00	0.00	0.00	40.00	0.00	5.00	40.00	0.13
3.00	48.00	0.06	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
3.00	48.00	0.06	0.00	44.00	0.00	MAX	40.00		TICK	40.00	
4.00	48.00	0.08	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
						0.00	40.00	0.00	0.00	40.00	0.00
3.40	48.00	0.07	0.00	44.00	0.00	2.40	40.00	0.06	1.00	40.00	0.03
0.55	0.00	0.01	0.00	0.00	0.00	5.37	0.00	0.13	2.24	0.00	0.06
0.24	0.00	0.01	0.00	0.00	0.00	2.40	0.00	0.06	1.00	0.00	0.03
24.00	48.00	0.50	0.00	44.00	0.00	0.00	40.00	0.00	5.00	40.00	0.13
9.00	48.00	0.19	3.00	44.00	0.07	5.00	40.00	0.13	0.00	40.00	0.00
6.00	48.00	0.13	0.00	44.00	0.00	1.00	40.00	0.03	1.00	40.00	0.03
18.00	48.00	0.38	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
16.00	48.00	0.33	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
9.00	48.00	0.19	0.00	44.00	0.00	1.00	40.00	0.03	0.00	40.00	0.00
13.67	48.00	0.28	0.50	44.00	0.01	1.83	40.00	0.05	1.00	40.00	0.03
6.83	0.00	0.14	1.22	0.00	0.03	2.14	0.00	0.05	2.00	0.00	0.05
2.79	0.00	0.06	0.50	0.00	0.01	0.87	0.00	0.02	0.82	0.00	0.02

PATHOLOGY WORKSHEET

Project: ----- Complex Wave Fy 90 — Nature of Test

Study	Date	Shot	Animal	Orient.	Bw.,kg.	Species	Charge,g.	HOB, ft.	Range, ft.	
Fy 90	8/2/90	1	13L	RSO	39.1	Sheep	907	4	4.7	
	8/22/90	1	33R	RSO	52.5		907	4	4.7	
	9/28/90	1	63(FP)	RSO	45.5		907	4	4.7	
	10/5/90	1	75(FP)	RSO	40.5		907	4	4.7	
	9/18/90	1	53(1L2R)	RSO	39.5		907	4	4.7	
		1	55(2L1R)	RSO	36.4		907	4	4.7	
Mean					42.3					
SD					5.8					
SE					2.4					
Fy90	11/30/90	1	95(GF)	LSO	40.9	Sheep	454	4	5.6	
	12/4/90	1	98(GF)	LSO	38.2		454	4	5.6	
	12/6/90	1	101(GF)	LSO	41.4		454	4	5.6	
	12/10/90	1	104(GF)	LSO	40.5		454	4	5.6	
	12/12/90	1	107(GF)	LSO	39.8		454	4	5.6	
	12/13/90	1	110(GF)	LSO	39.1		454	4	5.6	
Mean					40.0					
SD					1.2					
SE					0.5					
	2/1/91	1	126(EAR)	LSO	33.2		454	4	5.6	
	2/5/91	1	129(EAR)	LSO	34.5		454	4	5.6	
	2/6/91	1	132(EAR)	LSO	32.5		454	4	5.6	
MEAN					33.6					
SD					1.0					
SE					0.6					
Fy 90	12/20/91	1	113(GF)	LSRSO	36.4		2-227	4	5.6	
	1/8/91	1	116(EART)	LSRSO	35.7		2-227	4	5.6	
	1/15/91	1	120(EAR)	LSRSO	39.5		2-227	4	5.6	A
MEAN					37.2					
SD					2.0					
SE					1.2					
Fy90	1/9/91	1	118(EAR)	LSRSO	43.6		227-454	4	5.6	
	1/16/91	1	122(EAR)	LSRSO	36.4		227-454	4	5.6	A
	1/25/91	1	124(EAR)	LSRSO	38.4		227-454	4	5.6	A
MEAN					39.5					
SD					3.7					
SE					2.1					
Fy 90	10/31/90	1	77(EART)	RSO	40.5	Sheep	454	4	6.6	
	11/1/90	1	80(EART)	RSO	41.6		454	4	6.6	
	11/12/90	1	86(GF)	RSO	43.6		454	4	6.6	A
	11/14/90	1	89(GF)	RSO	41.1		454	4	6.6	A
	11/16/90	1	92(GF)	RSO	38.6		454	4	6.6	A
MEAN					41.1					
SD					1.8					
SE					0.8					
Fy 90	11/7/90	1	83(GF)	RSO	38.2	Sheep	907	4	6.6	A

Nature of Test			Lung Weights								Morbidity	
HOB, ft.	Range, ft.	Config.	RL	LL	TL	RLP	LLP	TLP	Fat/Surv.	TOS, hrs.	TOD,min.	COD
4	4.7	A-1	446.00	233.00	679.00	1.14	0.60	1.74	1.00	4.00		
4	4.7	A-3	328.50	229.50	558.00	0.62	0.44	1.06	1.00	4.00		
4	4.7	A-6	475.00	316.00	791.00	1.05	0.69	1.74	1.00	3.00		
4	4.7	A-7	237.00	158.00	395.00	0.59	0.39	0.98	1.00	4.00		
4	4.7	A-5	280.00	166.00	446.00	0.71	0.42	1.13	1.00	1.00		
4	4.7	A-5	203.00	162.00	365.00	0.56	0.45	1.01	1.00	4.00		
			328.25	210.75	539.00	0.78	0.50	1.28				
			111.12	61.78	169.19	0.25	0.12	0.36				
			45.37	25.22	69.07	0.10	0.05	0.15				
4	5.6	A-9	265.50	249.00	514.50	0.65	0.61	1.26	1.00	3.00		
4	5.6	A-9	206.00	163.50	367.50	0.57	0.43	0.96	1.00	1.00		
4	5.6	A-9/2	228.50	178.50	407.00	0.55	0.43	0.99	1.00	4.00		
4	5.6	A-9/2	220.00	169.50	389.50	0.54	0.42	0.96	1.00	5.00		
4	5.6	A-9/3	240.00	199.00	439.00	0.60	0.50	1.10	1.00	3.00		
4	5.6	A-9/3	214.00	162.00	376.00	0.55	0.41	0.96	1.00	2.50		
			228.67	186.92	415.58	0.58	0.47	1.04				
			21.83	33.30	54.71	0.06	0.08	0.12				
			8.91	13.59	22.34	0.02	0.03	0.05				
4	5.6	B-9/2	223.00	173.00	396.00	0.67	0.52	1.19	1.00	2.50		
4	5.6	B-9	203.00	152.50	355.50	0.59	0.44	1.03	1.00	3.00		
4	5.6	B-9	166.00	124.00	290.00	0.51	0.28	0.89	1.00	4.50		
			197.33	149.83	347.17	0.59	0.41	1.04				
			28.92	24.61	53.49	0.08	0.12	0.15				
			16.70	14.21	30.88	0.05	0.07	0.09				
4	5.6	A-10	217.50	186.50	404.00	0.60	0.51	1.11	1.00	2.50		
4	5.6	A-10	285.00	155.00	440.00	0.80	0.43	1.23	1.00	1.00		
4	5.6	A-10/2	272.00	245.50	517.50	0.69	0.62	1.31	1.00	1.00		
			258.17	195.67	453.83	0.70	0.52	1.22				
			35.81	45.94	58.00	0.10	0.10	0.10				
			20.68	26.52	33.49	0.06	0.06	0.06				
4	5.6	A-10	266.50	252.00	518.50	0.61	0.58	1.19	1.00	3.50		
4	5.6	A-10/2	272.00	171.00	443.00	0.75	0.47	1.22	1.00	3.00		
4	5.6	A-10/2	226.00	182.00	408.50	0.59	0.47	1.06	1.00	3.00		
			254.83	201.67	456.67	0.65	0.51	1.16				
			25.12	43.94	56.26	0.09	0.06	0.09				
			14.50	25.37	32.48	0.05	0.04	0.05				
4	6.6	A-8	231.50	168.00	399.50	0.57	0.42	0.99	1.00	3.00		
4	6.6	A-8	248.00	182.50	430.50	0.60	0.44	1.03	1.00	1.00		
4	6.6	A-8/3	218.50	148.00	366.50	0.50	0.34	0.84	1.00	1.00		
4	6.6	A-8/4	215.00	138.50	353.50	0.52	0.34	0.86	1.00	1.00		
4	6.6	A-8/5	216.50	162.00	378.50	0.56	0.42	0.98	1.00	1.00		
			225.90	159.80	385.70	0.55	0.39	0.94				
			13.98	17.18	30.23	0.04	0.05	0.08				
			6.25	7.68	13.52	0.02	0.02	0.04				
4	6.6	A-8/2	255.00	180.00	435.00	0.67	0.47	1.14	1.00	4.00		

Morbidity				Morbidity Severity Of Injury					Adjusted		External Les	
TOS, hrs.	TOD,min.	COD	Pneumo	Hemoper.	Hemothor.	Coron.Air	Cereb.Air	Ratios	Index	Index	Score	Possible
4.00			0.00	1.00	0.00	0.00	0.00	2.62	3.62	3.50	0.00	56.(
4.00			0.00	0.00	0.00	0.00	0.00	2.11	2.11	1.99	0.00	56.(
3.00			0.00	0.00	0.00	0.00	0.00	2.73	2.73	2.73	0.00	56.(
4.00			0.00	0.00	0.00	0.00	0.00	1.53	1.53	1.43	0.00	56.(
1.00			0.00	0.00	0.00	0.00	0.00	2.32	2.32	2.09	0.00	56.(
4.00			0.00	2.00	0.00	0.00	0.00	2.64	4.64	4.34	0.00	56.(
			0.00	0.50	0.00	0.00	0.00	2.32	2.82	2.68	0.00	56.(
			0.00	0.84	0.00	0.00	0.00	0.65	1.13	1.08	0.00	0.(
			0.00	0.34	0.00	0.00	0.00	0.19	0.46	0.44	0.00	0.(
3.00			0.00	0.00	0.00	0.00	0.00	1.11	1.11	0.71	0.00	56.(
1.00			0.00	0.00	0.00	0.00	0.00	0.48	0.48	0.48	0.00	56.(
4.00			0.00	0.00	0.00	0.00	0.00	0.79	0.79	0.79	0.00	56.(
5.00			0.00	0.00	0.00	0.00	0.00	1.20	1.20	1.10	0.00	56.(
3.00			0.00	0.00	0.00	0.00	0.00	1.57	1.57	1.47	0.00	56.(
2.50			0.00	0.00	0.00	0.00	0.00	0.66	0.66	0.66	0.00	56.(
			0.00	0.00	0.00	0.00	0.00	0.97	0.97	0.87	0.00	56.(
			0.00	0.00	0.00	0.00	0.00	0.40	0.40	0.36	0.00	0.(
			0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.15	0.00	0.(
2.50			0.00	0.00	0.00	0.00	0.00	0.87	0.87	0.87	0.00	56.(
3.00			0.00	0.00	0.00	0.00	0.00	0.65	0.65	0.65	0.00	56.(
4.50			0.00	0.00	0.00	0.00	0.00	0.79	0.79	0.79	0.00	56.(
			0.00	0.00	0.00	0.00	0.00	0.77	0.77	0.77	0.00	56.(
			0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.11	0.00	0.(
			0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.07	0.00	0.(
2.50			0.00	0.00	0.00	0.00	0.00	1.21	1.21	0.96	0.00	56.(
1.00			0.00	0.00	0.00	0.00	0.00	1.88	1.88	1.80	0.00	56.(
1.00			0.00	0.00	0.00	0.00	0.00	1.76	1.76	1.76	0.00	56.(
			0.00	0.00	0.00	0.00	0.00	1.62	1.62	1.51	0.00	56.(
			0.00	0.00	0.00	0.00	0.00	0.36	0.36	0.48	0.00	0.(
			0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.28	0.00	0.(
3.50			0.00	0.00	0.00	0.00	0.00	1.87	1.87	1.87	0.00	56.(
3.00			0.00	0.00	0.00	0.00	0.00	1.57	1.57	1.57	0.00	56.(
3.00			0.00	0.00	0.00	0.00	0.00	1.46	1.46	1.46	0.00	56.(
			0.00	0.00	0.00	0.00	0.00	1.64	1.64	1.64	0.00	56.(
			0.00	0.00	0.00	0.00	0.00	0.21	0.21	0.21	0.00	0.(
			0.00	0.00	0.00	0.00	0.00	0.12	0.12	0.12	0.00	0.(
3.00			0.00	0.00	0.00	0.00	0.00	0.71	0.71	0.46	0.00	56.(
1.00			0.00	0.00	0.00	0.00	0.00	0.84	0.84	0.84	0.00	56.(
1.00			0.00	0.00	0.00	0.00	0.00	0.57	0.57	0.57	0.00	56.(
1.00			0.00	0.00	0.00	0.00	0.00	0.76	0.76	0.76	0.00	56.(
1.00			0.00	0.00	0.00	0.00	0.00	0.95	0.95	0.73	0.00	56.(
			0.00	0.00	0.00	0.00	0.00	0.77	0.77	0.67	0.00	56.(
			0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.15	0.00	0.(
			0.00	0.00	0.00	0.00	0.00	0.06	0.06	0.07	0.00	0.(
4.00			0.00	0.00	0.00	0.00	0.00	1.93	1.93	1.63	0.00	56.(

Adjusted	External Lesions				Fractures			Burns			Pharynx/Larynx		
Index	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
3.50	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	20.00	60.00	0
1.99	0.00	56.00	0.00	0.00	24.00	0.00	5.00	52.00	0.10	8.00	60.00	0
2.73	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	20.00	60.00	0
1.43	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	7.00	60.00	0
2.09	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	22.00	60.00	0
4.34	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	20.00	60.00	0
2.68	0.00	56.00	0.00	0.00	24.00	0.00	6.33	52.00	0.12	16.17	60.00	0
1.08	0.00	0.00	0.00	0.00	0.00	0.00	3.39	0.00	0.07	6.77	0.00	0
0.44	0.00	0.00	0.00	0.00	0.00	0.00	1.38	0.00	0.03	2.76	0.00	0
0.71	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0
0.48	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	14.00	60.00	0
0.79	0.00	56.00	0.00	0.00	24.00	0.00	10.00	52.00	0.19	9.00	60.00	0
1.10	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	6.00	60.00	0
1.47	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	20.00	60.00	0
0.66	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	6.00	60.00	0
0.87	0.00	56.00	0.00	0.00	24.00	0.00	5.67	52.00	0.11	10.17	60.00	0
0.36	0.00	0.00	0.00	0.00	0.00	0.00	4.46	0.00	0.09	5.74	0.00	0
0.15	0.00	0.00	0.00	0.00	0.00	0.00	1.82	0.00	0.03	2.34	0.00	0
0.87	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	16.00	60.00	0
0.65	0.00	56.00	0.00	0.00	24.00	0.00	3.00	52.00	0.06	8.00	60.00	0
0.79	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0
0.77	0.00	56.00	0.00	0.00	24.00	0.00	1.00	52.00	0.02	14.00	60.00	0
0.11	0.00	0.00	0.00	0.00	0.00	0.00	1.73	0.00	0.03	5.29	0.00	0
0.07	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.02	3.06	0.00	0
0.96	0.00	56.00	0.00	0.00	24.00	0.00	6.00	52.00	0.12	24.00	60.00	0
1.80	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0
1.76	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	20.00	60.00	0
1.51	0.00	56.00	0.00	0.00	24.00	0.00	2.00	52.00	0.04	20.67	60.00	0
0.48	0.00	0.00	0.00	0.00	0.00	0.00	3.46	0.00	0.07	3.06	0.00	0
0.28	0.00	0.00	0.00	0.00	0.00	0.00	2.00	0.00	0.04	1.76	0.00	0
1.87	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	22.00	60.00	0
1.57	0.00	56.00	0.00	0.00	24.00	0.00	4.00	52.00	0.08	18.00	60.00	0
1.46	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	8.00	60.00	0
1.64	0.00	56.00	0.00	0.00	24.00	0.00	4.00	52.00	0.08	16.00	60.00	0
0.21	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.08	7.21	0.00	0
0.12	0.00	0.00	0.00	0.00	0.00	0.00	2.31	0.00	0.04	4.16	0.00	0
0.46	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	7.00	60.00	0
0.84	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	6.00	60.00	0
0.57	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	0
0.76	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0
0.73	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	0
0.67	0.00	56.00	0.00	0.00	24.00	0.00	3.20	52.00	0.06	5.60	60.00	0
0.15	0.00	0.00	0.00	0.00	0.00	0.00	4.38	0.00	0.08	1.67	0.00	0
0.07	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.00	0.04	0.75	0.00	0
1.63	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	20.00	60.00	0

x/Larynx		Trachea			Lungs			Heart			Hollow Abdominal C	
sible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible
60.00	0.33	18.00	55.00	0.33	44.00	64.00	0.69	14.00	48.00	0.29	28.00	48.00
60.00	0.13	20.00	55.00	0.36	30.00	64.00	0.47	16.00	48.00	0.33	24.00	48.00
60.00	0.33	18.00	55.00	0.33	52.00	64.00	0.81	27.00	48.00	0.56	26.00	48.00
60.00	0.12	9.00	55.00	0.16	30.00	64.00	0.47	0.00	48.00	0.00	20.00	48.00
60.00	0.37	28.00	55.00	0.51	36.00	64.00	0.56	0.00	48.00	0.00	24.00	48.00
60.00	0.33	16.00	55.00	0.29	30.00	64.00	0.47	0.00	48.00	0.00	36.00	48.00
60.00	0.27	18.17	55.00	0.33	37.00	64.00	0.58	9.50	48.00	0.20	26.33	48.00
0.00	0.11	6.15	0.00	0.11	9.19	0.00	0.14	11.31	0.00	0.24	5.43	0.00
0.00	0.05	2.51	0.00	0.05	3.75	0.00	0.06	4.62	0.00	0.10	2.22	0.00
60.00	0.10	5.00	55.00	0.09	21.00	64.00	0.33	0.00	48.00	0.00	9.00	48.00
60.00	0.23	6.00	55.00	0.11	5.00	64.00	0.08	0.00	48.00	0.00	3.00	48.00
60.00	0.15	5.00	55.00	0.09	12.00	64.00	0.19	0.00	48.00	0.00	8.00	48.00
60.00	0.10	12.00	55.00	0.22	21.00	64.00	0.33	5.00	48.00	0.10	5.00	48.00
60.00	0.33	8.00	55.00	0.15	27.00	64.00	0.42	0.00	48.00	0.00	20.00	48.00
60.00	0.10	7.00	55.00	0.13	3.00	64.00	0.05	5.00	48.00	0.10	6.00	48.00
60.00	0.17	7.17	55.00	0.13	14.83	64.00	0.23	1.67	48.00	0.03	8.50	48.00
0.00	0.10	2.64	0.00	0.05	9.68	0.00	0.15	2.58	0.00	0.05	6.02	0.00
0.00	0.04	1.08	0.00	0.02	3.95	0.00	0.06	1.05	0.00	0.02	2.46	0.00
60.00	0.27	7.00	55.00	0.13	24.00	64.00	0.38	0.00	48.00	0.00	5.00	48.00
60.00	0.13	8.00	55.00	0.15	12.00	64.00	0.19	0.00	48.00	0.00	6.00	48.00
60.00	0.30	9.00	55.00	0.16	14.00	64.00	0.22	0.00	48.00	0.00	5.00	48.00
60.00	0.23	8.00	55.00	0.15	16.67	64.00	0.26	0.00	48.00	0.00	5.33	48.00
0.00	0.09	1.00	0.00	0.02	6.43	0.00	0.10	0.00	0.00	0.00	0.58	0.00
0.00	0.05	0.58	0.00	0.01	3.71	0.00	0.06	0.00	0.00	0.00	0.33	0.00
60.00	0.40	6.00	55.00	0.11	12.00	64.00	0.19	0.00	48.00	0.00	7.00	48.00
60.00	0.30	18.00	55.00	0.33	39.00	64.00	0.61	0.00	48.00	0.00	24.00	48.00
60.00	0.33	20.00	55.00	0.36	36.00	64.00	0.56	0.00	48.00	0.00	24.00	48.00
60.00	0.34	14.67	55.00	0.27	29.00	64.00	0.45	0.00	48.00	0.00	18.33	48.00
0.00	0.05	7.57	0.00	0.14	14.80	0.00	0.23	0.00	0.00	0.00	9.81	0.00
0.00	0.03	4.37	0.00	0.08	8.54	0.00	0.13	0.00	0.00	0.00	5.67	0.00
60.00	0.37	16.00	55.00	0.29	36.00	64.00	0.56	0.00	48.00	0.00	28.00	48.00
60.00	0.30	20.00	55.00	0.36	24.00	64.00	0.38	0.00	48.00	0.00	22.00	48.00
60.00	0.13	20.00	55.00	0.36	16.00	64.00	0.25	7.00	48.00	0.15	20.00	48.00
60.00	0.27	18.67	55.00	0.34	25.33	64.00	0.40	2.33	48.00	0.05	23.33	48.00
0.00	0.12	2.31	0.00	0.04	10.07	0.00	0.16	4.04	0.00	0.08	4.16	0.00
0.00	0.07	1.33	0.00	0.02	5.81	0.00	0.09	2.33	0.00	0.05	2.40	0.00
60.00	0.12	7.00	55.00	0.13	4.00	64.00	0.06	0.00	48.00	0.00	0.00	48.00
60.00	0.10	6.00	55.00	0.11	4.00	64.00	0.06	0.00	48.00	0.00	20.00	48.00
60.00	0.08	6.00	55.00	0.11	3.00	64.00	0.05	0.00	48.00	0.00	16.00	48.00
60.00	0.05	6.00	55.00	0.11	20.00	64.00	0.31	0.00	48.00	0.00	14.00	48.00
60.00	0.12	6.00	55.00	0.11	16.00	64.00	0.25	0.00	48.00	0.00	12.00	48.00
60.00	0.09	6.20	55.00	0.11	9.40	64.00	0.15	0.00	48.00	0.00	12.40	48.00
0.00	0.03	0.45	0.00	0.01	7.99	0.00	0.12	0.00	0.00	0.00	7.54	0.00
0.00	0.01	0.20	0.00	0.00	3.57	0.00	0.06	0.00	0.00	0.00	3.37	0.00
60.00	0.33	12.00	55.00	0.22	24.00	64.00	0.38	0.00	48.00	0.00	22.00	48.00

llow Abdominal Organs			Solid Abdominal rgans			Right Ears			Left Ears		
e	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
8.00	48.00	0.58	12.00	44.00	0.27	5.00	40.00	0.13	0.00	40.00	0.00
4.00	48.00	0.50	4.00	44.00	0.09	0.00	40.00	0.00	5.00	40.00	0.13
6.00	48.00	0.54	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.42	4.00	44.00	0.09	4.00	40.00	0.10	MAX	40.00	
4.00	48.00	0.50	0.00	44.00	0.00	4.00	40.00	0.10	5.00	40.00	0.13
6.00	48.00	0.75	15.00	44.00	0.34	12.00	40.00	0.30	0.00	40.00	0.00
6.33	48.00	0.55	5.83	44.00	0.13	4.17	40.00	0.10	5.00	40.00	0.13
5.43	0.00	0.11	6.27	0.00	0.14	4.68	0.00	0.11	4.68	0.00	0.11
2.22	0.00	0.05	2.56	0.00	0.06	1.80	0.00	0.04	1.97	0.00	0.05
9.00	48.00	0.19	0.00	44.00	0.00	4.00	40.00	0.10	12.00	40.00	0.30
3.00	48.00	0.06	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
8.00	48.00	0.17	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
5.00	48.00	0.10	4.00	44.00	0.09	0.00	40.00	0.00	4.00	40.00	0.10
0.00	48.00	0.42	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
6.00	48.00	0.13	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
8.50	48.00	0.18	0.67	44.00	0.02	1.33	40.00	0.03	1.60	40.00	0.04
6.02	0.00	0.13	1.63	0.00	0.04	2.07	0.00	0.05	2.07	0.00	0.05
2.46	0.00	0.05	0.67	0.00	0.02	0.84	0.00	0.02	0.92	0.00	0.02
5.00	48.00	0.10	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
6.00	48.00	0.13	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
5.00	48.00	0.10	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
5.33	48.00	0.11	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.58	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.33	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7.00	48.00	0.15	0.00	44.00	0.00	5.00	40.00	0.13	5.00	40.00	0.13
6.00	48.00	0.50	3.00	44.00	0.07	3.00	40.00	0.08	0.00	40.00	0.00
6.00	48.00	0.50	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
3.33	48.00	0.38	1.00	44.00	0.02	2.67	40.00	0.07	1.67	40.00	0.04
7.81	0.00	0.20	1.73	0.00	0.04	2.52	0.00	0.06	2.89	0.00	0.07
5.67	0.00	0.12	1.00	0.00	0.02	1.45	0.00	0.04	1.67	0.00	0.04
3.00	48.00	0.58	3.00	44.00	0.07	0.00	40.00	0.00	0.00	40.00	0.00
2.00	48.00	0.46	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.42	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
3.33	48.00	0.49	1.00	44.00	0.02	0.00	40.00	0.00	0.00	40.00	0.00
6.16	0.00	0.09	1.73	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
2.40	0.00	0.05	1.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	10.00	40.00	0.25	0.00	40.00	0.00
0.00	48.00	0.42	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.33	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.29	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
2.00	48.00	0.25	0.00	44.00	0.00	4.00	40.00	0.10	5.00	40.00	0.13
2.40	48.00	0.26	0.00	44.00	0.00	2.80	40.00	0.07	1.00	40.00	0.03
7.54	0.00	0.16	0.00	0.00	0.00	4.38	0.00	0.11	2.24	0.00	0.06
4.37	0.00	0.07	0.00	0.00	0.00	1.96	0.00	0.05	1.00	0.00	0.03
2.00	48.00	0.46	4.00	44.00	0.09	12.00	40.00	0.30	0.00	40.00	0.00

PATHOLOGY WORKSHEET

Project: ----- Complex Wave Fy 90

Study	Date	Shot	Animal	Orient.	Bw.,kg.	Species	Nature of Test: Charge,g.	HOB, ft.	Range, ft.	Con
fy 90	11/30/90	1	96(FP)	FO	39.3	Sheep	454	4	8.9	A
	12/4/90	1	99(FP)	FO	44.3		454	4	8.9	A
	12/6/90	1	102(FP)	FO	41.8		454	4	8.9	A-
	12/10/90	1	105(FP)	FO	39.8		454	4	8.9	A-
	12/12/90	1	108(FP)	FO	38.0		454	4	8.9	A-
	12/13/90	1	111(FP)	FO	37.0		454	4	8.9	A-
Mean					40.0					
SD					2.7					
SE					1.1					
	2/1/91	1	127(EAR)	FO	34.5		454	4	8.9	B-
	2/5/91	1	130(EAR)	FO	33.0		454	4	8.9	B-
	2/6/91	1	133(EAR)	FO	34.1		454	4	8.9	B-
MEAN					33.9					
SD					0.8					
SE					0.4					
Fy 90	10/31/90	1	78(FP)	RSO	42.7	Sheep	454	4	9.8	A-
	11/1/90	1	81(FP)	RSO	42.0		454	4	9.8	A-
	11/12/90	1	87(FP)	RSO	38.0		454	4	9.8	A-8
	11/14/90	1	90(FP)	RSO	40.2		454	4	9.8	A-8
	11/16/90	1	93(FP)	RSO	34.1		454	4	9.8	A-8
MEAN					39.4					
SD					3.5					
SE					1.6					
Fy 90	11/7/90	1	84(FP)	RSO	43.4	Sheep	907	4	9.8	A-8
Fy 90	7/6/90	CONTROL	1		45.5	Sheep				
	9/12/90	CONTROL	42		37.5					
	9/12/90	CONTROL	43		38.0					
	12/19/90	CONTROL	114		39.5					
	2/7/91	CONTROL	134		36.1					
MEAN					39.3					
SD					3.7					
SE					1.6					

ature of Test			Lung Weights								Morbidity	
HOB, ft.	Range, ft.	Config.	RL	LL	TL	RLP	LLP	TLP	Fat/Surv.	TOS, hrs.	TOD, min.	COD
4	8.9	A-9	216.50	180.50	397.00	0.55	0.46	1.01	1.00	4.00		
4	8.9	A-9	265.50	191.00	456.50	0.60	0.43	1.03	1.00	3.50		
4	8.9	A-9/2	255.00	242.00	497.00	0.61	0.58	1.19	1.00	1.00		
4	8.9	A-9/2	204.00	169.50	373.50	0.51	0.43	0.94	1.00	1.00		
4	8.9	A-9/3	209.00	192.00	401.00	0.55	0.51	1.06	1.00	4.50		
4	8.9	A-9/3	221.50	168.50	390.00	0.60	0.40	1.05	1.00	4.00		
			228.58	190.58	419.17	0.57	0.47	1.05				
			25.47	27.13	47.35	0.04	0.07	0.08				
			10.40	11.08	19.33	0.02	0.03	0.03				
4	8.9	B-9/2	291.00	266.50	557.50	0.84	0.77	1.62	1.00	4.00		
4	8.9	B-9	224.00	271.00	495.00	0.68	0.82	1.50	1.00	4.00		
4	8.9	B-9	200.00	180.00	380.00	0.59	0.53	1.11	1.00	1.00		
			238.33	239.17	477.50	0.70	0.71	1.41				
			47.16	51.29	90.03	0.13	0.16	0.27				
			27.23	29.61	51.98	0.07	0.09	0.15				
4	9.8	A-8	247.50	194.50	442.00	0.58	0.46	1.04	1.00	4.50		
4	9.8	A-8	232.50	176.50	409.00	0.55	0.42	0.97	1.00	3.50		
4	9.8	A-8/3	2[illegible]5.50	243.00	448.50	0.54	0.64	1.18	1.00	4.50		
4	9.8	A-8/4	224.50	168.50	393.00	0.56	0.42	0.98	1.00	4.00		
4	9.8	A-8/5	246.00	184.00	430.00	0.72	0.54	1.26	1.00	4.00		
			231.20	193.30	424.50	0.59	0.50	1.09				
			17.26	29.39	23.16	0.07	0.09	0.13				
			7.72	13.14	10.36	0.03	0.04	0.06				
4	9.8	A-8/2	444.00	339.00	783.00	1.02	0.78	1.80	2.00		3.00	
			216.00	162.00	378.00	0.47	0.36	0.83	1.00	1.00		
			200.00	140.00	340.00	0.53	0.37	0.91	1.00	1.00		
			DISEASE					DISEASE	1.00	2.00		
			208.00	160.00	368.00	0.53	0.41	0.93	1.00	1.00		
			210.00	157.00	367.00	0.58	0.43	1.02	1.00	1.00		
			208.50	154.75	363.25	0.53	0.39	0.92				
			6.61	10.05	16.28	0.05	0.03	0.08				
			2.96	4.49	7.28	0.02	0.01	0.03				

rbidity					Morbidity	Severity	Of Injury		Adjusted	External Lesions		
OD,min.	COD	Pneumo.	Hemoper.	Hemothor.	Coron.Air	Cereb.Air	Ratios	Index	Index	Score	Possible	Ratio
		0.00	3.00	0.00	0.00	0.00	2.22	5.22	5.22	0.00	56.00	0.00
		0.00	1.00	0.00	0.00	0.00	1.83	2.83	2.83	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	1.64	1.64	1.64	0.00	56.00	0.00
		0.00	3.00	0.00	0.00	0.00	1.72	4.72	4.72	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	1.86	1.86	1.56	0.00	56.00	0.00
		0.00	3.00	0.00	0.00	0.00	2.16	5.16	5.06	0.00	56.00	0.00
		0.00	1.67	0.00	0.00	0.00	1.91	3.57	3.51	0.00	56.00	0.00
		0.00	1.51	0.00	0.00	0.00	0.24	1.66	1.71	0.00	0.00	0.00
		0.00	0.61	0.00	0.00	0.00	0.10	0.68	0.70	0.00	0.00	0.00
		0.00	1.00	0.00	0.00	0.00	1.73	2.73	2.61	0.00	56.00	0.00
		0.00	1.00	0.00	0.00	0.00	1.59	2.59	2.59	0.00	56.00	0.00
		0.00	1.00	0.00	0.00	0.00	1.76	2.76	2.76	0.00	56.00	0.00
		0.00	1.00	0.00	0.00	0.00	1.69	2.69	2.65	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.09	0.00	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.00	0.00
		0.00	1.00	0.00	0.00	0.00	2.36	3.36	3.26	0.00	56.00	0.00
		0.00	1.00	0.00	0.00	0.00	1.85	2.85	2.85	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	1.59	1.59	1.49	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	1.30	1.30	1.30	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	1.52	1.52	1.42	0.00	56.00	0.00
		0.00	0.40	0.00	0.00	0.00	1.73	2.13	2.07	0.00	56.00	0.00
		0.00	0.55	0.00	0.00	0.00	0.41	0.92	0.92	0.00	0.00	0.00
		0.00	0.24	0.00	0.00	0.00	0.18	0.41	0.41	0.00	0.00	0.00
3.00		0.00	0.00	0.00	2.00	0.00	2.27	8.54	8.54	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.11	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.00	56.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.05	0.00	0.00	0.00
		0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.00	0.00	0.00

Adjusted	External Lesions				Fractures		Burns			Pharynx/Larynx		
Index	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
5.22	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	20.00	60.00	0.
2.83	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	8.00	60.00	0.
1.64	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	14.00	60.00	0.
4.72	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	0.
1.56	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	20.00	60.00	0.
5.06	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0.
3.51	0.00	56.00	0.00	0.00	24.00	0.00	1.33	52.00	0.03	14.50	60.00	0.
1.71	0.00	0.00	0.00	0.00	0.00	0.00	3.27	0.00	0.06	5.86	0.00	0.
0.70	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.00	0.03	2.39	0.00	0.
2.61	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0.
2.59	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	12.00	60.00	0.
2.76	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	22.00	60.00	0.
2.65	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	17.33	60.00	0.
0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.03	0.00	0.
0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.91	0.00	0.
3.26	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	16.00	60.00	0.
2.85	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.
1.49	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	16.00	60.00	0.
1.30	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0.
1.42	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0.
2.07	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	14.80	60.00	0.
0.92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.02	0.00	0.
0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.24	0.00	0.
8.54	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	16.00	60.00	0.
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.
0.11	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.
0.02	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.
0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.
0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.

/Larynx			Trachea		Lungs			Heart			Hollow Abdominal Org	
ible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible
50.00	0.33	7.00	55.00	0.13	36.00	64.00	0.56	0.00	48.00	0.00	24.00	48.00
60.00	0.13	10.00	55.00	0.18	30.00	64.00	0.47	0.00	48.00	0.00	11.00	48.00
60.00	0.23	20.00	55.00	0.36	30.00	64.00	0.47	0.00	48.00	0.00	22.00	48.00
50.00	0.12	7.00	55.00	0.13	33.00	64.00	0.52	0.00	48.00	0.00	20.00	48.00
60.00	0.33	9.00	55.00	0.16	33.00	64.00	0.52	0.00	48.00	0.00	22.00	48.00
50.00	0.30	8.00	55.00	0.15	30.00	64.00	0.47	0.00	48.00	0.00	20.00	48.00
50.00	0.24	10.17	55.00	0.18	32.00	64.00	0.50	0.00	48.00	0.00	19.83	48.00
0.00	0.10	4.96	0.00	0.09	2.45	0.00	0.04	0.00	0.00	0.00	4.58	0.00
0.00	0.04	2.02	0.00	0.04	1.00	0.00	0.02	0.00	0.00	0.00	1.87	0.00
60.00	0.30	18.00	55.00	0.33	33.00	64.00	0.52	0.00	48.00	0.00	18.00	48.00
60.00	0.20	14.00	55.00	0.25	36.00	64.00	0.56	0.00	48.00	0.00	22.00	48.00
60.00	0.37	18.00	.00	0.33	33.00	64.00	0.52	0.00	48.00	0.00	22.00	48.00
50.00	0.29	16.67	.00	0.30	34.00	64.00	0.53	0.00	48.00	0.00	20.67	48.00
0.00	0.08	2.31	0.00	0.04	1.73	0.00	0.03	0.00	0.00	0.00	2.31	0.00
0.00	0.05	1.33	0.00	0.02	1.00	0.00	0.02	0.00	0.00	0.00	1.33	0.00
50.00	0.27	20.00	55.00	0.36	39.00	64.00	0.61	5.00	48.00	0.10	18.00	48.00
50.00	0.10	8.00	55.00	0.15	36.00	64.00	0.56	4.00	48.00	0.08	20.00	48.00
50.00	0.27	20.00	55.00	0.36	42.00	64.00	0.66	0.00	48.00	0.00	10.00	48.00
50.00	0.30	8.00	55.00	0.15	20.00	64.00	0.31	0.00	48.00	0.00	26.00	48.00
50.00	0.30	22.00	55.00	0.40	22.00	64.00	0.34	0.00	48.00	0.00	18.00	48.00
60.00	0.25	15.60	55.00	0.28	31.80	64.00	0.50	1.80	48.00	0.04	18.40	48.00
0.00	0.08	6.99	0.00	0.13	10.11	0.00	0.16	2.69	0.00	0.05	5.73	0.00
0.00	0.04	3.12	0.00	0.06	4.52	0.00	0.07	1.11	0.00	0.02	2.56	0.00
60.00	0.27	18.00	55.00	0.33	60.00	64.00	0.94	4.00	48.00	0.08	26.00	48.00
50.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00
50.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00
50.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00
50.00	0.00	6.00	55.00	0.11	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00
50.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00
50.00	0.00	1.20	55.00	0.02	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00
0.00	0.00	2.68	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	1.20	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

llow Abdominal Organs			Solid Abdominal		rgans	Right Ears			Left Ears		
e	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
.00	48.00	0.50	24.00	44.00	0.55	0.00	40.00	0.00	0.00	40.00	0.00
1.00	48.00	0.23	36.00	44.00	0.82	0.00	40.00	0.00	0.00	40.00	0.00
2.00	48.00	0.46	5.00	44.00	0.11	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.42	24.00	44.00	0.55	0.00	40.00	0.00	0.00	40.00	0.00
2.00	48.00	0.46	4.00	44.00	0.09	12.00	40.00	0.30	0.00	40.00	0.00
0.00	48.00	0.42	32.00	44.00	0.73	4.00	40.00	0.10	0.00	40.00	0.00
9.83	48.00	0.41	20.83	44.00	0.47	2.67	40.00	0.07	3.20	40.00	0.08
4.58	0.00	0.10	13.48	0.00	0.31	4.84	0.00	0.12	4.84	0.00	0.12
1.87	0.00	0.04	5.50	0.00	0.13	1.98	0.00	0.05	2.17	0.00	0.05
3.00	48.00	0.38	4.00	44.00	0.09	0.00	40.00	0.00	5.00	40.00	0.13
2.00	48.00	0.46	5.00	44.00	0.11	0.00	40.00	0.00	0.00	40.00	0.00
2.00	48.00	0.46	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
0.67	48.00	0.43	4.33	44.00	0.10	0.00	40.00	0.00	1.67	40.00	0.04
2.31	0.00	0.05	0.58	0.00	0.01	0.00	0.00	0.00	2.89	0.00	0.07
1.33	0.00	0.03	0.33	0.00	0.01	0.00	0.00	0.00	1.67	0.00	0.04
3.00	48.00	0.38	24.00	44.00	0.55	0.00	40.00	0.00	4.00	40.00	0.10
0.00	48.00	0.42	24.00	44.00	0.55	WAX	40.00		INF	40.00	
0.00	48.00	0.21	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
6.00	48.00	0.54	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
8.00	48.00	0.38	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
8.40	48.00	0.38	9.60	44.00	0.22	2.00	40.00	0.05	1.00	40.00	0.03
5.73	0.00	0.12	13.15	0.00	0.30	2.31	0.00	0.06	2.00	0.00	0.05
2.56	0.00	0.05	5.88	0.00	0.13	1.15	0.00	0.03	1.00	0.00	0.03
6.00	48.00	0.54	5.00	44.00	0.11	INF	40.00		0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE C-2

PATHOLOGY WORKSHEET							
Project:	FY91 COMPLEX WAVES						
Study	Date	Shot	Animal	Orient.	Bw., kg.	Species	Charge
FY91	11/5/91	1	256	RSO	36.4	Sheep	57
	11/6/91		259		44.3		57
	11/13/91		265		41.6		57
	11/20/91		271		44.8		57
	11/27/91		277		36.4		57
MEAN					40.7		
SD					4.1		
SE					1.8		
FY91	11/5/91	1	257	RSO	41.4	Sheep	57
	11/6/91		260		40.0		57
	11/13/91		267		41.4		57
	11/20/91		273		44.3		57
	11/27/91		279		38.9		57
MEAN					41.2		
SD					2.0		
SE					0.9		
FY91	11/5/91	1	258	RSO	41.8	Sheep	57
	11/6/91		261		38.9		57
	11/13/91		266		45.2		57
	11/20/91		272		40.9		57
	11/27/91		278		36.8		57
MEAN					40.7		
SD					3.2		
SE					1.6		
FY91	10/30/91	1	250	RSO	44.9	Sheep	113
	11/1/91		253		41.6		113
	11/12/91		262		41.4		113
	11/19/91		268		42.7		113
	11/26/91		274		44.3		113
MEAN					43.0		
SD					1.6		
SE					0.7		
FY91	10/30/91	1	251	RSO	42.0	Sheep	113
	11/1/91		254		41.8		113
	11/12/91		264		47.7		113
	11/19/91		270		42.7		113
	11/26/91		276		37.7		113
MEAN					42.6		
SD					3.6		
SE					1.6		
FY91	10/30/91	1	252	RSO	44.5	Sheep	113
	11/1/91		255		39.3		113
	11/12/91		263		41.8		113
	11/19/91		269		45.5		113
	11/26/91		275		40.7		113
MEAN					42.4		
SD					2.6		
SE					1.2		

Nature of Test				Lung Weights								
Species	Charge, g.	HOB, ft.	Range, ft	Config.	RL	LL	TL	RLP	LLP	TLP	Fat/Surv.	TOS, hrs
Sheep	57	4	4	C-1	241.50	161.50	403.00	0.66	0.44	1.11	1	2.50
	57	4	4	C-1	267.00	192.50	459.50	0.60	0.43	1.03	1	1.50
	57	4	4	C-1/2	228.50	180.00	408.50	0.55	0.43	0.98	1	3.75
	57	4	4	C-1/3	227.50	162.00	389.50	0.51	0.36	0.87	1	1.50
	57	4	4	C-1/4	215.00	161.50	376.50	0.59	0.44	1.03	1	3.25
					235.90	171.50	407.40	0.58	0.42	1.00		2.50
					19.75	14.17	31.66	0.06	0.03	0.09		1.02
					8.83	6.34	14.16	0.03	0.02	0.04		0.45
Sheep	57	4	7	C-1	234.50	180.50	415.00	0.57	0.44	1.00	1	3.50
	57	4	7	C-1	219.00	163.00	382.00	0.55	0.41	0.96	1	2.50
	57	4	7	C-1/2	219.00	160.50	379.50	0.53	0.39	0.92	1	2.75
	57	4	7	C-1/3	258.50	191.50	450.00	0.58	0.43	1.02	1	3.75
	57	4	7	C-1/4	233.50	179.50	413.00	0.60	0.46	1.06	1	2.25
					232.90	175.00	407.90	0.57	0.43	0.99		2.95
					16.16	13.01	28.84	0.03	0.03	0.05		0.65
					7.23	5.82	12.90	0.01	0.01	0.02		0.29
Sheep	57	4	8	C-1	235.00	166.50	401.50	0.56	0.40	0.96	1	1.50
	57	4	8	C-1	210.00	159.00	369.00	0.54	0.41	0.95	1	4.00
	57	4	8	C-1/2	261.50	184.00	445.50	0.58	0.41	0.99	1	2.00
	57	4	8	C-1/3	265.00	188.00	453.00	0.65	0.46	1.11	1	2.75
	57	4	8	C-1/4	223.00	160.50	383.50	0.61	0.44	1.04	1	1.25
					238.90	171.60	410.50	0.59	0.42	1.01		2.30
					23.95	13.52	37.29	0.04	0.03	0.07		1.11
					10.71	6.04	16.68	0.02	0.01	0.03		0.50
Sheep	113	4	4	C-1	261.50	198.00	459.50	0.58	0.44	1.02	1	1.50
	113	4	4	C-1	278.50	216.00	494.50	0.67	0.52	1.19	1	4.25
	113	4	4	C-1/2	216.00	152.50	368.50	0.52	0.37	0.89	1	1.50
	113	4	4	C-1/3	222.00	160.50	382.50	0.52	0.38	0.90	1	2.50
	113	4	4	C-1/4	289.00	220.50	509.50	0.65	0.50	1.15	1	1.50
					253.40	189.50	442.90	0.59	0.44	1.03		2.25
					32.97	31.61	64.34	0.07	0.07	0.14		1.20
					14.74	14.05	28.77	0.03	0.03	0.06		0.54
Sheep	113	4	7	C-1	205.50	157.00	362.50	0.49	0.37	0.86	1	3.00
	113	4	7	C-1	240.00	175.00	415.00	0.57	0.42	0.99	1	1.50
	113	4	7	C-1/2	241.50	163.50	405.00	0.51	0.34	0.85	1	4.00
	113	4	7	C-1/3	221.00	163.00	384.00	0.52	0.38	0.90	1	1.25
	113	4	7	C-1/4	227.00	167.00	394.00	0.60	0.44	1.04	1	4.00
					227.00	165.10	392.10	0.54	0.39	0.93		2.75
					14.81	6.60	20.22	0.05	0.04	0.08		1.32
					6.62	2.95	9.04	0.02	0.02	0.04		0.59
Sheep	113	4	8	C-1	273.50	184.50	458.00	0.61	0.41	1.03	1	4.00
	113	4	8	C-1	238.00	176.00	414.00	0.61	0.44	1.05	1	3.00
	113	4	8	C-1/2	229.00	167.50	396.50	0.55	0.40	0.95	1	2.75
	113	4	8	C-1/3	254.50	171.50	426.00	0.56	0.38	0.94	1	3.75
	113	4	8	C-1/4	250.50	176.50	427.00	0.62	0.43	1.05	1	2.75
					249.10	175.20	424.30	0.59	0.41	1.00		3.25
					16.98	6.36	22.50	0.03	0.02	0.05		0.59
					7.60	2.84	10.06	0.01	0.01	0.02		0.26

Surv.	TOS, hrs.	Morbidity TOD, min.	COD	Morbidity Pneumo.	Hemoper.	Hemothor.	Coron.Air	Cereb.Air	Severity of Injur Ratios	Index	Adjusted Index	Exter Score
1	2.50			0.0	0.0	0.0	0.0	0.0	0.08	0.08	0.08	0.00
1	1.50			0.0	0.0	0.0	0.0	0.0	0.05	0.05	0.05	0.00
1	3.75			0.0	0.0	0.0	0.0	0.0	0.13	0.13	0.13	0.00
1	1.50			0.0	0.0	0.0	0.0	0.0	0.08	0.08	0.08	0.00
1	3.25			0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	2.50			0.0	0.0	0.0	0.0	0.0	0.07	0.07	0.07	0.00
	1.02			0.0	0.0	0.0	0.0	0.0	0.05	0.05	0.05	0.00
	0.45			0.0	0.0	0.0	0.0	0.0	0.02	0.02	0.02	0.00
1	3.50			0.0	0.0	0.0	0.0	0.0	0.10	0.10	0.10	0.00
1	2.50			0.0	0.0	0.0	0.0	0.0	0.05	0.05	0.05	0.00
1	2.75			0.0	0.0	0.0	0.0	0.0	0.05	0.05	0.05	0.00
1	3.75			0.0	0.0	0.0	0.0	0.0	0.16	0.16	0.16	0.00
1	2.25			0.0	0.0	0.0	0.0	0.0	0.38	0.38	0.00	0.00
	2.95			0.0	0.0	0.0	0.0	0.0	0.15	0.15	0.07	0.00
	0.65			0.0	0.0	0.0	0.0	0.0	0.13	0.13	0.06	0.00
	0.29			0.0	0.0	0.0	0.0	0.0	0.06	0.06	0.03	0.00
1	1.50			0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
1	4.00			0.0	0.0	0.0	0.0	0.0	0.44	0.44	0.19	0.00
1	2.00			0.0	0.0	0.0	0.0	0.0	0.20	0.20	0.10	0.00
1	2.75			0.0	0.0	0.0	0.0	0.0	0.10	0.10	0.00	0.00
1	1.25			0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	2.30			0.0	0.0	0.0	0.0	0.0	0.15	0.15	0.06	0.00
	1.11			0.0	0.0	0.0	0.0	0.0	0.18	0.18	0.08	0.00
	0.50			0.0	0.0	0.0	0.0	0.0	0.08	0.08	0.04	0.00
1	1.50			0.0	0.0	0.0	0.0	0.0	0.16	0.16	0.16	0.00
1	4.25			0.0	0.0	0.0	0.0	0.0	0.19	0.19	0.19	0.00
1	1.50			0.0	0.0	0.0	0.0	0.0	0.10	0.10	0.00	0.00
1	2.50			0.0	0.0	0.0	0.0	0.0	0.29	0.29	0.29	0.00
1	1.50			0.0	0.0	0.0	0.0	0.0	0.12	0.12	0.12	0.00
	2.25			0.0	0.0	0.0	0.0	0.0	0.17	0.17	0.15	0.00
	1.20			0.0	0.0	0.0	0.0	0.0	0.08	0.08	0.11	0.00
	0.54			0.0	0.0	0.0	0.0	0.0	0.03	0.03	0.05	0.00
1	3.00			0.0	0.0	0.0	0.0	0.0	0.19	0.19	0.19	0.00
1	1.50			0.0	0.0	0.0	0.0	0.0	0.23	0.23	0.23	0.00
1	4.00			0.0	0.0	0.0	0.0	0.0	0.24	0.24	0.24	0.00
1	1.25			0.0	0.0	0.0	0.0	0.0	0.13	0.13	0.13	0.00
1	4.00			0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00	0.00
	2.75			0.0	0.0	0.0	0.0	0.0	0.16	0.16	0.16	0.00
	1.32			0.0	0.0	0.0	0.0	0.0	0.10	0.10	0.10	0.00
	0.59			0.0	0.0	0.0	0.0	0.0	0.04	0.04	0.04	0.00
	4.00			0.0	0.0	0.0	0.0	0.0	0.22	0.22	0.22	0.00
	3.00			0.0	0.0	0.0	0.0	0.0	0.16	0.16	0.16	0.00
	2.75			0.0	0.0	0.0	0.0	0.0	0.09	0.09	0.09	0.00
	3.75			0.0	0.0	0.0	0.0	0.0	0.23	0.23	0.23	0.00
	2.75			0.0	0.0	0.0	0.0	0.0	0.05	0.05	0.05	0.00
	3.25			0.0	0.0	0.0	0.0	0.0	0.15	0.15	0.15	0.00
	0.59			0.0	0.0	0.0	0.0	0.0	0.08	0.08	0.08	0.00
	0.26			0.0	0.0	0.0	0.0	0.0	0.03	0.03	0.03	0.00

Justed Index	Exter Score	al Lesions Possible	Ratio	Score	Fractures Possible	Ratio	Score	Burns Possible	Ratio	Score	Pharynx/Lary Possible	x Ratio
0.08	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.05	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.13	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	0.08
0.08	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	0.08
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.07	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	2.00	60.00	0.03
0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.74	0.00	0.05
0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.22	0.00	0.02
0.10	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.10
0.05	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.05	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0.05
0.16	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.07	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	1.80	60.00	0.03
0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.68	0.00	0.04
0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.02
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.19	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.10	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.10
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.06	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	1.20	60.00	0.02
0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.68	0.00	0.04
0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.02
0.16	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.10
0.19	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.29	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0.05
0.12	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	0.12
0.15	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.20	60.00	0.05
0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.27	0.00	0.05
0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.46	0.00	0.02
0.19	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	60.00	0.07
0.23	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	0.08
0.24	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	0.08
0.13	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	0.08
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.16	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.80	60.00	0.06
0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	0.00	0.04
0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.02
0.22	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.10
0.16	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.09	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	0.00
0.23	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.10
0.05	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0.05
0.15	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0.05
0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.00	0.00	0.05
0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.00	0.02

x/Lary		Trachea			Lungs			Heart			Hollow Abdominal	
ssible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possibl
60.00	0.00	0.00	55.00	0.00	5.00	64.00	0.08	0.00	48.00	0.00	0.00	48.0
60.00	0.00	3.00	55.00	0.05	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.08	0.00	55.00	0.00	3.00	64.00	0.05	0.00	48.00	0.00	0.00	48.0
60.00	0.08	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.03	0.60	55.00	0.01	1.60	64.00	0.03	0.00	48.00	0.00	0.00	48.0
0.00	0.05	1.34	0.00	0.02	2.30	0.00	0.04	0.00	0.00	0.00	0.00	0.0
0.00	0.02	0.60	0.00	0.01	1.03	0.00	0.02	0.00	0.00	0.00	0.00	0.0
60.00	0.10	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.00	3.00	55.00	0.05	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.00	0.00	55.00	0.00	10.00	64.00	0.16	0.00	48.00	0.00	0.00	48.0
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.03	0.60	55.00	0.01	2.00	64.00	0.03	0.00	48.00	0.00	0.00	48.0
0.00	0.04	1.34	0.00	0.02	4.47	0.00	0.07	0.00	0.00	0.00	0.00	0.0
0.00	0.02	0.60	0.00	0.01	2.00	0.00	0.03	0.00	0.00	0.00	0.00	0.0
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.00	0.00	55.00	0.00	12.00	64.00	0.19	0.00	48.00	0.00	0.00	48.0
60.00	0.10	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.02	0.00	55.00	0.00	2.40	64.00	0.04	0.00	48.00	0.00	0.00	48.0
0.00	0.04	0.00	0.00	0.00	5.37	0.00	0.08	0.00	0.00	0.00	0.00	0.0
0.00	0.02	0.00	0.00	0.00	2.40	0.00	0.04	0.00	0.00	0.00	0.00	0.0
60.00	0.10	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	3.00	48.0
60.00	0.00	0.00	55.00	0.00	12.00	64.00	0.19	0.00	48.00	0.00	0.00	48.0
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.05	9.00	55.00	0.16	5.00	64.00	0.08	0.00	48.00	0.00	0.00	48.0
60.00	0.12	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.0
60.00	0.05	1.80	55.00	0.03	3.40	64.00	0.05	0.00	48.00	0.00	0.60	48.0
0.00	0.05	4.02	0.00	0.07	5.27	0.00	0.08	0.00	0.00	0.00	1.34	0.0
0.00	0.02	1.80	0.00	0.03	2.36	0.00	0.04	0.00	0.00	0.00	0.60	0.0
60.00	0.07	7.00	55.00	0.13	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00
60.00	0.08	3.00	55.00	0.05	6.00	64.00	0.09	0.00	48.00	0.00	0.00	48.0
60.00	0.08	5.00	55.00	0.09	4.00	64.00	0.06	0.00	48.00	0.00	0.00	48.00
60.00	0.08	0.00	55.00	0.00	3.00	64.00	0.05	0.00	48.00	0.00	0.00	48.00
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00
60.00	0.06	3.00	55.00	0.05	2.60	64.00	0.04	0.00	48.00	0.00	0.00	48.00
0.00	0.04	3.08	0.00	0.06	2.61	0.00	0.04	0.00	0.00	0.00	0.00	0.00
0.00	0.02	1.38	0.00	0.03	1.17	0.00	0.02	0.00	0.00	0.00	0.00	0.00
60.00	0.10	3.00	55.00	0.05	4.00	64.00	0.06	0.00	48.00	0.00	0.00	48.00
60.00	0.00	6.00	55.00	0.11	3.00	64.00	0.05	0.00	48.00	0.00	0.00	48.00
60.00	0.00	5.00	55.00	0.09	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00
60.00	0.10	0.00	55.00	0.00	4.00	64.00	0.06	0.00	48.00	0.00	3.00	48.00
60.00	0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00	48.00
60.00	0.05	2.80	55.00	0.05	2.20	64.00	0.03	0.00	48.00	0.00	0.60	48.00
0.00	0.05	2.77	0.00	0.05	2.05	0.00	0.03	0.00	0.00	0.00	1.34	0.00
0.00	0.02	1.24	0.00	0.02	0.92	0.00	0.01	0.00	0.00	0.00	0.60	0.00

Hollow Abdominal Organs			Solid Abdominal Organs			Right Ears			Left Ears		
Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	5.00	40.00	0.13	10.00	40.00	0.25
0.00	48.00	0.00	0.00	44.00	0.00	1.00	40.00	0.03	2.00	40.00	0.05
0.00	0.00	0.00	0.00	0.00	0.00	2.24	0.00	0.06	4.47	0.00	0.11
0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.03	2.00	0.00	0.05
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	10.00	40.00	0.25
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	4.00	40.00	0.10
0.00	48.00	0.00	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.80	40.00	0.02	2.80	40.00	0.07
0.00	0.00	0.00	0.00	0.00	0.00	1.79	0.00	0.04	4.38	0.00	0.11
0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.02	1.96	0.00	0.05
3.00	48.00	0.06	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.60	48.00	0.01	0.00	44.00	0.00	0.80	40.00	0.02	0.00	40.00	0.00
1.34	0.00	0.03	0.00	0.00	0.00	1.79	0.00	0.04	0.00	0.00	0.00
0.60	0.00	0.01	0.00	0.00	0.00	0.80	0.00	0.02	0.00	0.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
3.00	48.00	0.06	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.60	48.00	0.01	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
1.34	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.60	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

PATHOLOGY WORKSHEET

Project: FY91 COMPLEX WAVES

Study	Date	Shot	Animal	Orient.	Bw.,kg.	Species	Charge,g.	HOB,	Nature of
FY91	4/9/91	1	135	RSO	43.9	Sheep	454	4	
	4/23/91		145		40.0		454	4	
	5/1/91		154		41.8		454	4	
	5/20/91		163		41.6		454	4	
	6/4/91		173		40.7		454	4	
MEAN					41.6				
SD					1.5				
SE					0.7				
	4/9/91	1	136	RSO	39.8	Sheep	454	4	
	4/23/91		146		38.4		454	4	
	5/1/91		155		42.7		454	4	
	5/20/91		164		44.1		454	4	
	6/4/91		174		42.3		454	4	
MEAN					41.5				
SD					2.3				
SE					1.0				
	4/9/91	1	137	RSO	39.5	Sheep	454	4	
	4/23/91		147		42.3		454	4	
	5/1/91		156		46.4		454	4	
	5/20/91		165		44.3		454	4	
	6/4/91		175		43.0		454	4	
MEAN					43.1				
SD					2.5				
SE					1.1				
	4/10/91	1	138	RSO	40.2	Sheep	907	4	
	4/24/91		148		38.2		907	4	
	5/6/91		157		45.5		907	4	
	5/21/91		166		44.1		907	4	
	6/5/91		176		43.4		907	4	
MEAN					42.3				
SD					3.0				
SE					1.3				
	4/10/91	1	139	RSO	42.7	Sheep	907	4	
	4/24/91		149		50.4		907	4	
	5/6/91		158		42.3		907	4	
	5/21/91		167		40.7		907	4	
	6/5/91		177		40.5		907	4	
MEAN					43.3				
SD					4.1				
SE					1.8				
	4/10/91	1	140	RSO	42.3	Sheep	907	4	
	4/24/91		150		40.0		907	4	
	5/6/91		159		41.8		907	4	
	5/21/91		168		41.1		907	4	
	6/5/91		178		40.9		907	4	
MEAN					41.2				
SD					0.9				
SE					0.4				

Nature of Test				Lung Weights								Morbi.
harge,g.	HOB, ft.	Range,ft	Config.	RL	LL	TL	RLP	LLP	TLP	Fat/Surv.	TOS, hrs.	TOD,#
454	4	4	C-1	254.00	203.00	457.00	0.58	0.46	1.04	1	1.25	
454	4	4	C-1	282.50	198.50	481.00	0.71	0.50	1.20	1	4.00	
454	4	4	C-1/2	283.00	210.50	493.50	0.68	0.50	1.18	1	3.00	
454	4	4	C-1/3	229.50	175.50	405.00	0.55	0.42	0.97	1	3.00	
454	4	4	C-1/4	235.00	174.50	409.50	0.58	0.43	1.01	1	2.00	
				256.80	192.40	449.20	0.62	0.46	1.08		2.65	
				25.37	16.46	40.51	0.07	0.04	0.10		1.05	
				11.35	7.36	18.12	0.03	0.02	0.05		0.47	
454	4	7	C-1	252.00	190.00	442.00	0.63	0.48	1.11	1	3.00	
454	4	7	C-1	230.00	173.00	403.00	0.60	0.45	1.05	1	2.70	
454	4	7	C-1/2	253.00	186.00	439.00	0.59	0.44	1.03	1	1.00	
454	4	7	C-1/3	239.00	180.00	419.00	0.54	0.41	0.95	1	4.50	
454	4	7	C-1/4	206.50	147.00	353.50	0.49	0.35	0.84	1	1.00	
				236.10	175.20	411.30	0.57	0.43	1.00		2.44	
				19.11	17.02	35.98	0.06	0.05	0.10		1.48	
				8.54	7.61	16.09	0.02	0.02	0.05		0.66	
454	4	8	C-1	263.00	168.00	431.00	0.67	0.43	1.09	1	4.00	
454	4	8	C-1	230.50	158.50	389.00	0.54	0.37	0.92	1	1.00	
454	4	8	C-1/2	282.00	210.00	492.00	0.61	0.45	1.06	1	2.00	
454	4	8	C-1/3	237.50	180.00	417.50	0.54	0.41	0.94	1	1.00	
454	4	8	C-1/4	227.00	182.00	409.00	0.53	0.42	0.95	1	4.00	
				248.00	179.70	427.70	0.58	0.42	0.99		2.40	
				23.66	19.43	39.04	0.06	0.03	0.08		1.52	
				10.58	8.69	17.46	0.03	0.01	0.03		0.68	
907	4	4	C-1	366.00	252.00	618.00	0.91	0.63	1.54	1	1.00	
907	4	4	C-1	348.50	202.50	551.00	0.91	0.53	1.44	1	4.00	
907	4	4	C-1/2	432.50	205.50	638.00	0.95	0.45	1.40	1	1.00	
907	4	4	C-1/3	282.00	206.50	488.50	0.64	0.47	1.11	1	1.00	
907	4	4	C-1/4	247.00	192.00	439.00	0.57	0.44	1.01	1	4.00	
				335.20	211.70	546.90	0.80	0.50	1.30		2.20	
				72.81	23.25	84.30	0.18	0.08	0.23		1.64	
				32.56	10.40	37.70	0.08	0.04	0.10		0.73	
907	4	7	C-1	254.00	230.00	484.00	0.59	0.54	1.13	1	2.50	
907	4	7	C-1	273.00	204.00	477.00	0.54	0.40	0.95	1	3.00	
907	4	7	C-1/2	228.50	173.50	402.00	0.54	0.41	0.95	1	4.00	
907	4	7	C-1/3	189.00	167.00	356.00	0.46	0.41	0.87	1	3.00	
907	4	7	C-1/4	214.50	155.50	370.00	0.53	0.38	0.91	1	3.00	
				231.80	186.00	417.80	0.53	0.43	0.96		3.10	
				32.91	30.44	59.67	0.05	0.06	0.10		0.55	
				14.72	13.62	26.68	0.02	0.03	0.04		0.24	
907	4	8	C-1	272.00	212.00	484.00	0.64	0.50	1.14	1	4.00	
907	4	8	C-1	355.00	263.50	618.50	0.89	0.66	1.55	2		1
907	4	8	C-1/2	291.00	234.00	525.50	0.70	0.56	1.26	1	2.00	
907	4	8	C-1/3	213.00	182.00	395.00	0.52	0.44	0.96	1	4.00	
907	4	8	C-1/4	242.50	184.00	426.50	0.59	0.45	1.04	1	1.00	
				274.70	215.10	489.90	0.67	0.52	1.19		2.20	
				53.77	34.54	87.84	0.14	0.09	0.23		1.50	
				24.05	15.45	39.28	0.06	0.04	0.10		0.67	

	Morbidity		Morbidity						Severity of Injur		Adjusted	Exter	al Le
rv.	TOS, hrs.	TOD, min.	COD	Pneumo.	Hemoper.	Hemothor.	Coron.Air	Cereb.Air	Ratios	Index	Index	Score	Pos
	1.25			0.0	0.0	0.0	0.0	0.0	1.00	1.00	0.92	0.00	
	4.00			0.0	0.0	0.0	0.0	0.0	1.10	1.10	1.10	0.00	
	3.00			0.0	0.0	0.0	0.0	0.0	0.82	0.82	0.82	0.00	
	3.00			0.0	0.0	0.0	0.0	0.0	1.28	1.28	1.28	0.00	
	2.00			0.0	0.0	0.0	0.0	0.0	0.82	0.82	0.82	0.00	
	2.65			0.0	0.0	0.0	0.0	0.0	1.00	1.00	0.99	0.00	
	1.05			0.0	0.0	0.0	0.0	0.0	0.20	0.20	0.20	0.00	
	0.47			0.0	0.0	0.0	0.0	0.0	0.09	0.09	0.09	0.00	
	3.00			0.0	0.0	0.0	0.0	0.0	1.25	1.25	1.12	0.00	
	2.70			0.0	0.0	0.0	0.0	0.0	0.89	0.89	0.89	0.00	
	1.00			0.0	0.0	0.0	0.0	0.0	0.81	0.81	0.81	0.00	
	4.50			0.0	0.0	0.0	0.0	0.0	0.97	0.97	0.77	0.00	
	1.00			0.0	0.0	0.0	0.0	0.0	1.09	1.09	0.99	0.00	
	2.44			0.0	0.0	0.0	0.0	0.0	1.00	1.00	0.92	0.00	
	1.48			0.0	0.0	0.0	0.0	0.0	0.17	0.17	0.14	0.00	
	0.66			0.0	0.0	0.0	0.0	0.0	0.08	0.08	0.06	0.00	
	4.00			0.0	0.0	0.0	0.0	0.0	1.31	1.31	1.26	0.00	
	1.00			0.0	0.0	0.0	0.0	0.0	1.33	1.33	1.18	0.00	
	2.00			0.0	0.0	0.0	0.0	0.0	0.80	0.80	0.75	0.00	
	1.00			0.0	0.0	0.0	0.0	0.0	0.71	0.71	0.71	0.00	
	4.00			0.0	0.0	0.0	0.0	0.0	1.48	1.48	1.48	0.00	
	2.40			0.0	0.0	0.0	0.0	0.0	1.13	1.13	1.08	0.00	
	1.52			0.0	0.0	0.0	0.0	0.0	0.35	0.35	0.33	0.00	
	0.68			0.0	0.0	0.0	0.0	0.0	0.16	0.16	0.15	0.00	
	1.00			0.0	0.0	0.0	0.0	0.0	2.52	2.52	2.52	0.00	
	4.00			0.0	0.0	0.0	0.0	0.0	2.46	2.46	2.46	0.00	
	1.00			0.0	0.0	0.0	0.0	0.0	1.96	1.96	1.86	0.00	
	1.00			0.0	1.0	0.0	0.0	0.0	2.74	3.74	3.74	0.00	
	4.00			0.0	0.0	0.0	0.0	0.0	1.65	1.65	1.65	0.00	
	2.20			0.0	0.2	0.0	0.0	0.0	2.27	2.47	2.45	0.00	
	1.64			0.0	0.4	0.0	0.0	0.0	0.45	0.80	0.81	0.00	
	0.73			0.0	0.2	0.0	0.0	0.0	0.20	0.36	0.36	0.00	
	2.50			0.0	0.0	0.0	0.0	0.0	1.62	1.62	1.52	0.00	
	3.00			0.0	0.0	0.0	0.0	0.0	1.21	1.21	1.21	0.00	
	4.00			0.0	0.0	0.0	0.0	0.0	1.09	1.09	1.09	0.00	
	3.00			0.0	1.0	0.0	0.0	0.0	1.53	2.53	2.53	0.00	
	3.00			0.0	0.0	0.0	0.0	0.0	1.17	1.17	1.17	0.00	
	3.10			0.0	0.2	0.0	0.0	0.0	1.33	1.53	1.51	0.00	
	0.55			0.0	0.4	0.0	0.0	0.0	0.24	0.60	0.60	0.00	
	0.24			0.0	0.2	0.0	0.0	0.0	0.11	0.27	0.27	0.00	
	4.00			0.0	0.0	0.0	0.0	0.0	2.31	2.31	2.31	0.00	
		1	1	0.0	0.0	0.0	2.0	1.0	2.81	11.63	11.53	0.00	
	2.00			0.0	1.0	0.0	0.0	0.0	2.67	3.67	3.42	0.00	
	4.00			0.0	1.0	0.0	0.0	0.0	1.70	2.70	2.70	0.00	
	1.00			0.0	3.0	0.0	0.0	0.0	2.49	5.49	5.49	0.00	
	2.20			0.0	1.0	0.0	0.4	0.2	2.40	5.16	5.09	0.00	
	1.50			0.0	1.2	0.0	0.9	0.4	0.43	3.82	3.80	0.00	
	0.67			0.0	0.5	0.0	0.4	0.2	0.19	1.71	1.70	0.00	

sted	Exter	al Lesions			Fractures			Burns			Pharynx/Larynx		
ndex	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
0.92	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	5.00	60.00	0.08
1.10	0.00	56.00	0.00	0.00	24.00	0.00	11.00	52.00	0.21	6.00	60.00	0.10
0.82	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	6.00	60.00	0.10
1.28	0.00	56.00	0.00	0.00	24.00	0.00	10.00	52.00	0.19	5.00	60.00	0.08
0.82	0.00	56.00	0.00	0.00	24.00	0.00	10.00	52.00	0.19	8.00	60.00	0.13
0.99	0.00	56.00	0.00	0.00	24.00	0.00	9.80	52.00	0.19	6.00	60.00	0.10
0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.00	0.02	1.22	0.00	0.02
0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.01	0.55	0.00	0.01
1.12	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	8.00	60.00	0.13
0.89	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	0.08
0.81	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.10
0.77	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	0.12
0.99	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	0.12
0.92	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.60	60.00	0.11
0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.00	0.02
0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.01
1.26	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.10
1.18	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	0.12
0.75	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	12.00	60.00	0.20
0.71	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.10
1.48	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	16.00	60.00	0.27
1.08	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	9.40	60.00	0.16
0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.45	0.00	0.07
0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.99	0.00	0.03
2.52	0.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	7.00	60.00	0.12
2.46	0.00	56.00	0.00	0.00	24.00	0.00	11.00	52.00	0.21	44.00	60.00	0.73
1.86	0.00	56.00	0.00	0.00	24.00	0.00	11.00	52.00	0.21	6.00	60.00	0.10
3.74	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	44.00	60.00	0.73
1.65	0.00	56.00	0.00	0.00	24.00	0.00	10.00	52.00	0.19	16.00	60.00	0.27
2.45	0.00	56.00	0.00	0.00	24.00	0.00	10.60	52.00	0.20	23.40	60.00	0.39
0.81	0.00	0.00	0.00	0.00	0.00	0.00	1.14	0.00	0.02	19.20	0.00	0.32
0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.01	8.59	0.00	0.14
1.52	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	8.00	60.00	0.13
1.21	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	0.12
1.09	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	0.12
2.53	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	10.00	60.00	0.17
1.17	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	14.00	60.00	0.23
1.51	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	9.20	60.00	0.15
0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.95	0.00	0.05
0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32	0.00	0.02
2.31	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0.30
1.53	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0.30
3.42	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0.30
2.70	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	12.00	60.00	0.20
5.49	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	24.00	60.00	0.40
5.09	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0.30
3.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.24	0.00	0.07
1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	0.00	0.03

ry Mx			Trachea			Lungs			Heart			Hollow Abdominal Organs		
ole	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	R
00	0.08	7.00	55.00	0.13	21.00	64.00	0.33	5.00	48.00	0.10	5.00	48.00	
00	0.10	12.00	55.00	0.22	27.00	64.00	0.42	0.00	48.00	0.00	7.00	48.00	
00	0.10	9.00	55.00	0.16	18.00	64.00	0.28	0.00	48.00	0.00	5.00	48.00	
00	0.08	6.00	55.00	0.11	16.00	64.00	0.25	5.00	48.00	0.10	26.00	48.00	
00	0.13	7.00	55.00	0.13	14.00	64.00	0.22	0.00	48.00	0.00	7.00	48.00	
00	0.10	8.20	55.00	0.15	19.20	64.00	0.30	2.00	48.00	0.04	10.00	48.00	
00	0.02	2.39	0.00	0.04	5.07	0.00	0.08	2.74	0.00	0.06	9.00	0.00	
00	0.01	1.07	0.00	0.02	2.27	0.00	0.04	1.22	0.00	0.03	4.02	0.00	
00	0.13	18.00	55.00	0.33	30.00	64.00	0.47	0.00	48.00	0.00	5.00	48.00	
00	0.08	14.00	55.00	0.25	6.00	64.00	0.09	0.00	48.00	0.00	22.00	48.00	
00	0.10	7.00	55.00	0.13	16.00	64.00	0.25	0.00	48.00	0.00	16.00	48.00	
00	0.12	6.00	55.00	0.11	24.00	64.00	0.38	0.00	48.00	0.00	8.00	48.00	
00	0.12	7.00	55.00	0.13	14.00	64.00	0.22	0.00	48.00	0.00	22.00	48.00	
00	0.11	10.40	55.00	0.19	18.00	64.00	0.28	0.00	48.00	0.00	14.60	48.00	
00	0.02	5.32	0.00	0.10	9.27	0.00	0.14	0.00	0.00	0.00	7.86	0.00	
00	0.01	2.38	0.00	0.04	4.15	0.00	0.06	0.00	0.00	0.00	3.52	0.00	
00	0.10	7.00	55.00	0.13	24.00	64.00	0.38	0.00	48.00	0.00	24.00	48.00	
00	0.12	14.00	55.00	0.25	18.00	64.00	0.28	0.00	48.00	0.00	20.00	48.00	
00	0.20	6.00	55.00	0.11	20.00	64.00	0.31	0.00	48.00	0.00	6.00	48.00	
00	0.10	12.00	55.00	0.22	12.00	64.00	0.19	0.00	48.00	0.00	10.00	48.00	
00	0.27	12.00	55.00	0.22	30.00	64.00	0.47	0.00	48.00	0.00	22.00	48.00	
00	0.16	10.20	55.00	0.19	20.80	64.00	0.33	0.00	48.00	0.00	16.40	48.00	
00	0.07	3.49	0.00	0.06	6.72	0.00	0.11	0.00	0.00	0.00	7.92	0.00	
00	0.03	1.56	0.00	0.03	3.01	0.00	0.05	0.00	0.00	0.00	3.54	0.00	
00	0.12	40.00	55.00	0.73	52.00	64.00	0.81	0.00	48.00	0.00	26.00	48.00	
00	0.73	7.00	55.00	0.13	39.00	64.00	0.61	8.00	48.00	0.17	24.00	48.00	
00	0.10	12.00	55.00	0.22	48.00	64.00	0.75	0.00	48.00	0.00	28.00	48.00	
00	0.73	7.00	55.00	0.13	44.00	64.00	0.69	0.00	48.00	0.00	39.00	48.00	
00	0.27	5.00	55.00	0.09	27.00	64.00	0.42	0.00	48.00	0.00	28.00	48.00	
00	0.39	14.20	55.00	0.26	42.00	64.00	0.66	1.60	48.00	0.03	29.00	48.00	
00	0.32	14.65	0.00	0.27	9.67	0.00	0.15	3.58	0.00	0.07	5.83	0.00	
00	0.14	6.55	0.00	0.12	4.32	0.00	0.07	1.60	0.00	0.03	2.61	0.00	
00	0.13	18.00	55.00	0.33	36.00	64.00	0.56	0.00	48.00	0.00	24.00	48.00	
00	0.12	7.00	55.00	0.13	30.00	64.00	0.47	0.00	48.00	0.00	24.00	48.00	
00	0.12	9.00	55.00	0.16	22.00	64.00	0.34	0.00	48.00	0.00	18.00	48.00	
00	0.17	8.00	55.00	0.15	33.00	64.00	0.52	0.00	48.00	0.00	24.00	48.00	
00	0.23	5.00	55.00	0.09	22.00	64.00	0.34	0.00	48.00	0.00	24.00	48.00	
00	0.15	9.40	55.00	0.17	28.60	64.00	0.45	0.00	48.00	0.00	22.80	48.00	
00	0.05	5.03	0.00	0.09	6.39	0.00	0.10	0.00	0.00	0.00	2.68	0.00	
00	0.02	2.25	0.00	0.04	2.86	0.00	0.04	0.00	0.00	0.00	1.20	0.00	
00	0.30	20.00	55.00	0.36	33.00	64.00	0.52	5.00	48.00	0.10	36.00	48.00	
00	0.30	44.00	55.00	0.80	42.00	64.00	0.66	8.00	48.00	0.17	36.00	48.00	
00	0.30	32.00	55.00	0.58	39.00	64.00	0.61	9.00	48.00	0.19	30.00	48.00	
00	0.20	14.00	55.00	0.25	39.00	64.00	0.61	0.00	48.00	0.00	24.00	48.00	
00	0.40	22.00	55.00	0.40	22.00	64.00	0.34	8.00	48.00	0.17	26.00	48.00	
00	0.30	26.40	55.00	0.48	35.00	64.00	0.55	6.00	48.00	0.13	30.40	48.00	
00	0.07	11.78	0.00	0.21	7.97	0.00	0.12	3.67	0.00	0.08	5.55	0.00	
00	0.03	5.27	0.00	0.10	3.56	0.00	0.06	1.64	0.00	0.03	2.48	0.00	

Hollow Abdominal Organs			Solid Abdominal Organs			Right Ears			Left Ears		
Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
5.00	48.00	0.10	0.00	44.00	0.00	3.00	40.00	0.08	0.00	40.00	0.00
7.00	48.00	0.15	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
5.00	48.00	0.10	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
26.00	48.00	0.54	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
7.00	48.00	0.15	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
10.00	48.00	0.21	0.00	44.00	0.00	0.60	40.00	0.02	0.00	40.00	0.00
9.00	0.00	0.19	0.00	0.00	0.00	1.34	0.00	0.03	0.00	0.00	0.00
4.02	0.00	0.08	0.00	0.00	0.00	0.60	0.00	0.02	0.00	0.00	0.00
5.00	48.00	0.10	4.00	44.00	0.09	5.00	40.00	0.13	0.00	40.00	0.00
22.00	48.00	0.46	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
16.00	48.00	0.33	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
8.00	48.00	0.17	0.00	44.00	0.00	4.00	40.00	0.10	4.00	40.00	0.10
22.00	48.00	0.46	3.00	44.00	0.07	0.00	40.00	0.00	4.00	40.00	0.10
14.60	48.00	0.30	1.40	44.00	0.03	1.80	40.00	0.05	1.60	40.00	0.04
7.86	0.00	0.16	1.95	0.00	0.04	2.49	0.00	0.06	2.19	0.00	0.05
3.52	0.00	0.07	0.87	0.00	0.02	1.11	0.00	0.03	0.98	0.00	0.02
24.00	48.00	0.50	7.00	44.00	0.16	2.00	40.00	0.05	0.00	40.00	0.00
20.00	48.00	0.42	5.00	44.00	0.11	1.00	40.00	0.03	5.00	40.00	0.13
6.00	48.00	0.13	0.00	44.00	0.00	2.00	40.00	0.05	0.00	40.00	0.00
10.00	48.00	0.21	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
22.00	48.00	0.46	3.00	44.00	0.07	0.00	40.00	0.00	0.00	40.00	0.00
16.40	48.00	0.34	3.00	44.00	0.07	1.00	40.00	0.03	1.00	40.00	0.03
7.92	0.00	0.17	3.08	0.00	0.07	1.00	0.00	0.03	2.24	0.00	
3.54	0.00	0.07	1.38	0.00	0.03	0.45	0.00	0.01	1.00	0.00	
26.00	48.00	0.54	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
24.00	48.00	0.50	5.00	44.00	0.11	0.00	40.00	0.00	0.00	40.00	0.00
28.00	48.00	0.58	0.00	44.00	0.00	0.00	40.00	0.00	4.00	40.00	0.10
39.00	48.00	0.81	9.00	44.00	0.20	0.00	40.00	0.00	0.00	40.00	0.00
28.00	48.00	0.58	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
29.00	48.00	0.60	4.40	44.00	0.10	0.00	40.00	0.00	0.80	40.00	0.02
5.83	0.00	0.12	3.21	0.00	0.07	0.00	0.00	0.00	1.79	0.00	0.04
2.61	0.00	0.05	1.44	0.00	0.03	0.00	0.00	0.00	0.80	0.00	0.02
24.00	48.00	0.50	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
24.00	48.00	0.50	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
18.00	48.00	0.38	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
24.00	48.00	0.50	9.00	44.00	0.20	0.00	40.00	0.00	0.00	40.00	0.00
24.00	48.00	0.50	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
22.80	48.00	0.48	2.60	44.00	0.06	0.80	40.00	0.02	0.00	40.00	0.00
2.68	0.00	0.06	3.97	0.00	0.09	1.79	0.00	0.04	0.00	0.00	0.00
1.20	0.00	0.03	1.78	0.00	0.04	0.80	0.00	0.02	0.00	0.00	0.00
36.00	48.00	0.75	12.00	44.00	0.27	0.00	40.00	0.00	0.00	40.00	0.00
36.00	48.00	0.75	4.00	44.00	0.09	1.00	40.00	0.03	1.00	40.00	0.03
30.00	48.00	0.63	5.00	44.00	0.11	5.00	40.00	0.13	5.00	40.00	0.13
24.00	48.00	0.50	6.00	44.00	0.14	0.00	40.00	0.00	0.00	40.00	0.00
26.00	48.00	0.54	28.00	44.00	0.64	0.00	40.00	0.00	0.00	40.00	0.00
30.40	48.00	0.63	11.00	44.00	0.25	1.20	40.00	0.03	1.20	40.00	0.03
5.55	0.00	0.12	10.00	0.00	0.23	2.17	0.00	0.05	2.17	0.00	0.05
2.48	0.00	0.05	4.47	0.00	0.10	0.97	0.00	0.02	0.97	0.00	0.02

PATHOLOGY WORKSHEET

Project: FY91 COMPLEX WAVES — Nature of Test

Study	Date	Shot	Animal	Orient.	Bw.,kg.	Species	Charge,g.	HOB, ft.	Range,ft	Co
	4/11/91	1	141	RSO	39.8	Sheep	1361	4	4	
	4/25/91		151		41.8		1361	4	4	
	5/14/91		160		41.6		1361	4	4	C
	5/22/91		169		40.7		1361	4	4	C
	6/6/91		179		43.6		1361	4	4	C
MEAN					41.5					
SD					1.4					
SE					0.6					
	4/11/91	1	142	RSO	37.5	Sheep	1361	4	7	C
	4/25/91		152		40.5		1361	4	7	C
	5/14/91		161		42.5		1361	4	7	C-
	5/22/91		170		42.7		1361	4	7	C-
	6/6/91		180		43.9		1361	4	7	C-
MEAN					41.4					
SD					2.5					
SE					1.1					
	4/11/91	1	143	RSO	42.3	Sheep	1361	4	8	C
	4/25/91		153		40.5		1361	4	8	C
	5/14/91		162		41.1		1361	4	8	C-
	5/22/91		171		40.5		1361	4	8	C-
	6/6/91		181		40.9		1361	4	8	C-
MEAN					41.1					
SD					0.7					
SE					0.3					
FY91	7/1/91	1	182	RSO	40.7	Sheep	113	4	3	D
	7/9/91		191		40.5		113	4	3	D
	7/24/91		202		40.5		113	4	3	D-
	7/31/91		211		42.3		113	4	3	D-
	8/8/91		218		45.5		113	4	3	D-
MEAN					41.9					
SD					2.1					
SE					1.0					
	7/1/91	1	184	RSO	45.0	Sheep	113	4	4	D
	7/9/91		193		45.5		113	4	4	D
	7/24/91		200		39.5		113	4	4	D-
	7/31/91		209		40.7		113	4	4	D-
	8/8/91		219		39.5		113	4	4	D-
MEAN					42.0					
SD					3.0					
SE					1.3					
	7/1/91	1	183	RSO	41.8	Sheep	113	4	4.2	D-
	7/9/91		192		41.1		113	4	4.2	D-
	7/24/91		201		40.2		113	4	4.2	D-
	7/31/91		210		41.1		113	4	4.2	D-
	8/8/91		220		43.2		113	4	4.2	D-
MEAN					41.5					
SD					1.1					
SE					0.5					

Nature of Test					Lung Weights							
Species	Charge, g.	HOB, ft.	Range, ft	Config.	RL	LL	TL	RLP	LLP	TLP	Fat/Surv.	TOS, h
Sheep	1361	4	4	C-1	441.50	340.00	781.50	1.11	0.85	1.96	2	
	1361	4	4	C-1	392.50	270.50	663.00	0.94	0.65	1.59	2	
	1361	4	4	C-1/2	443.00	296.50	739.50	1.06	0.71	1.78	1	3.5(
	1361	4	4	C-1/3	497.00	320.00	817.00	1.22	0.79	2.01	1	4.0(
	1361	4	4	C-1/4	312.00	187.00	499.00	0.72	0.43	1.14	1	4.0(
					417.20	282.80	700.00	1.01	0.69	1.70		2.3(
					69.46	59.52	126.16	0.19	0.16	0.35		0.2(
					31.07	26.62	56.42	0.09	0.07	0.16		0.1(
Sheep	1361	4	7	C-1	318.00	388.00	706.00	0.85	1.03	1.88	2	
	1361	4	7	C-1	256.50	264.00	520.50	0.63	0.65	1.29	1	4.0(
	1361	4	7	C-1/2	270.50	275.00	545.50	0.64	0.65	1.28	2	
	1361	4	7	C-1/3	248.50	245.50	494.00	0.58	0.57	1.16	1	3.0(
	1361	4	7	C-1/4	252.50	241.00	493.50	0.58	0.55	1.12	2	
					269.20	282.70	551.90	0.66	0.69	1.35		1.4(
					28.51	60.46	88.79	0.11	0.20	0.31		0.7(
					12.75	27.04	39.71	0.05	0.09	0.14		0.3(
Sheep	1361	4	8	C-1	516.00	520.00	1036.00	1.22	1.23	2.45	2	
	1361	4	8	C-1	380.00	281.00	661.00	0.94	0.69	1.63	2	
	1361	4	8	C-1/2	309.00	243.00	552.00	0.75	0.59	1.34	2	
	1361	4	8	C-1/3	220.00	242.50	462.50	0.54	0.60	1.14	2	
	1361	4	8	C-1/4	350.00	253.00	603.00	0.86	0.62	1.47	2	
					355.00	307.90	662.90	0.86	0.75	1.61		
					108.30	119.60	220.94	0.25	0.27	0.50		
					48.43	53.49	98.81	0.11	0.12	0.23		
Sheep	113	4	3	D-1	244.00	169.00	413.00	0.60	0.42	1.01	1	4.25
	113	4	3	D-1	221.00	166.50	387.00	0.55	0.41	0.96	1	2.50
	113	4	3	D-1/2	193.00	145.00	338.00	0.48	0.36	0.83	1	1.50
	113	4	3	D-1/3	274.50	197.00	471.50	0.65	0.47	1.11	1	1.25
	113	4	3	D-1/4	232.00	173.00	405.00	0.51	0.38	0.89	1	1.25
					232.90	170.10	402.90	0.56	0.41	0.96		2.15
					29.95	18.55	48.16	0.07	0.04	0.11		1.28
					13.39	8.30	21.54	0.03	0.02	0.05		0.57
Sheep	113	4	4	D-1	234.00	171.00	405.00	0.52	0.38	0.90	1	1.50
	113	4	4	D-1	255.00	192.00	447.00	0.56	0.42	0.98	1	1.33
	113	4	4	D-1/2	215.00	154.00	369.00	0.54	0.39	0.93	1	3.50
	113	4	4	D-1/3	237.00	159.00	396.00	0.58	0.39	0.97	1	2.00
	113	4	4	D-1/4	224.00	166.50	390.50	0.57	0.42	0.99	1	3.75
					233.00	168.50	401.50	0.55	0.40	0.95		2.42
					15.05	14.69	28.68	0.02	0.02	0.04		1.13
					6.73	6.57	12.83	0.01	0.01	0.02		0.51
Sheep	113	4	4.2	D-1	217.00	158.00	375.00	0.52	0.38	0.90	1	3.00
	113	4	4.2	D-1	243.50	174.50	418.00	0.59	0.42	1.02	1	4.00
	113	4	4.2	D-1/2	205.00	147.00	352.00	0.51	0.37	0.88	1	2.50
	113	4	4.2	D-1/3	237.00	180.50	417.50	0.58	0.44	1.02	1	3.00
	113	4	4.2	D-1/4	273.50	208.00	481.50	0.63	0.48	1.11	1	2.50
					235.20	173.60	408.80	0.57	0.42	0.99		3.00
					26.37	23.36	49.53	0.05	0.04	0.10		0.61
					11.79	10.45	22.15	0.02	0.02	0.04		0.27

			Morbidity		Morbidity					Severity of Injur		Adjusted
TLP	Fat/Surv.	TOS, hrs.	TOD,min.	COD	Pneumo.	Hemoper.	Hemother.	Coron.Air	Cereb.Air	Ratios	Index	Index
.96	2		46	1	0.0	0.0	0.0	0.0	0.0	2.67	5.35	5.10
.59	2		34	1	0.0	1.0	0.0	0.0	0.0	2.74	7.48	7.48
.78	1	3.50			0.0	1.0	0.0	0.0	0.0	3.12	4.12	4.12
.01	1	4.00			0.0	1.0	0.0	0.0	0.0	2.70	3.70	3.70
.14	1	4.00			0.0	0.0	0.0	0.0	0.0	2.87	2.87	2.87
.70		2.30	16		0.0	0.6	0.0	0.0	0.0	2.82	4.70	4.65
.35		0.29	8		0.0	0.5	0.0	0.0	0.0	0.18	1.79	1.77
.16		0.13	4		0.0	0.2	0.0	0.0	0.0	0.08	0.80	0.79
.88	2		180	1	0.0	2.0	0.0	0.0	0.0	2.75	9.49	9.49
.29	1	4.00			0.0	0.0	0.0	0.0	0.0	1.72	1.72	1.72
.28	2		24	1	0.0	3.0	0.0	0.0	0.0	2.33	10.66	10.66
.16	1	3.00			0.0	1.0	0.0	0.0	0.0	1.78	2.78	2.78
.12	2		120	07	0.0	1.0	0.0	0.0	0.0	2.05	6.10	6.10
.35		1.40	65		0.0	1.4	0.0	0.0	0.0	2.13	6.15	6.15
.31		0.71	79		0.0	1.1	0.0	0.0	0.0	0.42	3.95	3.95
.14		0.32	35		0.0	0.5	0.0	0.0	0.0	0.19	1.77	1.77
.45	2		20	1	0.0	1.0	0.0	2.0	1.0	3.37	14.74	14.24
.63	2		13	1	0.0	1.0	0.0	0.0	0.0	3.36	8.73	8.48
.34	2		10	1	0.0	1.0	0.0	0.0	0.0	2.90	7.80	7.35
.14	2		3	1	0.0	3.0	0.0	0.0	0.0	2.35	10.70	10.45
.47	2		54	1	0.0	2.0	0.0	0.0	0.0	2.71	9.43	9.43
.61			20		0.0	1.6	0.0	0.4	0.2	2.94	10.28	9.99
.50			20		0.0	0.9	0.0	0.9	0.4	0.44	2.71	2.64
.23			9		0.0	0.4	0.0	0.4	0.2	0.20	1.21	1.18
.01	1	4.25			0.0	0.0	0.0	0.0	0.0	0.08	0.08	0.08
.96	1	2.50			0.0	0.0	0.0	0.0	0.0	0.05	0.05	0.05
.83	1	1.50			0.0	0.0	0.0	0.0	0.0	0.15	0.15	0.05
.11	1	1.25			0.0	0.0	0.0	0.0	0.0	0.00	0.00	0.00
.89	1	1.25			0.0	0.0	0.0	0.0	0.0	0.47	0.47	0.47
.96		2.15			0.0	0.0	0.0	0.0	0.0	0.15	0.15	0.13
.11		1.28			0.0	0.0	0.0	0.0	0.0	0.19	0.19	0.19
.05		0.57			0.0	0.0	0.0	0.0	0.0	0.08	0.08	0.09
.90	1	1.50			0.0	0.0	0.0	0.0	0.0	0.29	0.29	0.19
.98	1	1.33			0.0	0.0	0.0	0.0	0.0	0.10	0.10	0.10
.93	1	3.50			0.0	0.0	0.0	0.0	0.0	0.29	0.29	0.29
.97	1	2.00			0.0	0.0	0.0	0.0	0.0	0.23	0.23	0.23
.99	1	3.75			0.0	0.0	0.0	0.0	0.0	0.28	0.28	0.28
.95		2.42			0.0	0.0	0.0	0.0	0.0	0.24	0.24	0.22
.04		1.13			0.0	0.0	0.0	0.0	0.0	0.08	0.08	0.07
.02		0.51			0.0	0.0	0.0	0.0	0.0	0.04	0.04	0.03
.90	1	3.00			0.0	0.0	0.0	0.0	0.0	0.12	0.12	0.12
.02	1	4.00			0.0	0.0	0.0	0.0	0.0	0.18	0.18	0.18
.88	1	2.50			0.0	0.0	0.0	0.0	0.0	0.18	0.18	0.05
.02	1	3.00			0.0	0.0	0.0	0.0	0.0	0.14	0.14	0.14
.11	1	2.50			0.0	0.0	0.0	0.0	0.0	0.30	0.30	0.30
.99		3.00			0.0	0.0	0.0	0.0	0.0	0.18	0.18	0.16
.10		0.61			0.0	0.0	0.0	0.0	0.0	0.07	0.07	0.09
.04		0.27			0.0	0.0	0.0	0.0	0.0	0.03	0.03	0.04

Adjusted Index	External Lesions			Fractures			Burns			Pharynx/Larynx		
	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	R
5.10	0.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	22.00	60.00	
7.48	0.00	56.00	0.00	0.00	24.00	0.00	11.00	52.00	0.21	14.00	60.00	
4.12	0.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	18.00	60.00	
3.70	0.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	16.00	60.00	
2.87	0.00	56.00	0.00	0.00	24.00	0.00	12.00	52.00	0.23	22.00	60.00	
4.65	0.00	56.00	0.00	0.00	24.00	0.00	11.80	52.00	0.23	18.40	60.00	
1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.01	3.58	0.00	
0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	1.60	0.00	
9.49	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	16.00	60.00	
1.72	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	
10.66	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	8.00	60.00	
2.78	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	12.00	60.00	
6.10	0.00	56.00	0.00	0.00	24.00	0.00	3.00	52.00	0.06	16.00	60.00	
6.15	0.00	56.00	0.00	0.00	24.00	0.00	0.60	52.00	0.01	11.40	60.00	
3.95	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.00	0.03	4.88	0.00	
1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.01	2.18	0.00	
14.24	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	22.00	60.00	
8.48	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	40.00	60.00	
7.35	0.00	56.00	0.00	0.00	24.00	0.00	3.00	52.00	0.06	7.00	60.00	
10.45	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	
9.43	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	
9.99	0.00	56.00	0.00	0.00	24.00	0.00	0.60	52.00	0.01	18.60	60.00	
2.64	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.00	0.03	13.81	0.00	
1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.01	6.18	0.00	
0.08	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.05	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	
0.05	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	
0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.47	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	
0.13	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	2.20	60.00	
0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	0.00	
0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.00	
0.19	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	60.00	
0.10	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	
0.29	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	
0.23	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	8.00	60.00	
0.28	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	60.00	
0.22	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.20	60.00	
0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.17	0.00	
0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.97	0.00	
0.12	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	
0.18	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.05	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	
0.14	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	
0.30	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.16	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	2.60	60.00	
0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.88	0.00	
0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29	0.00	

Pharynx/Larynx			Trachea			Lungs			Heart			Hollow Abdomi	
Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Score	Poss
60.00	0.37	18.00	55.00	0.33	60.00	64.00	0.94	7.00	48.00	0.15	26.00		4
60.00	0.23	20.00	55.00	0.36	56.00	64.00	0.88	5.00	48.00	0.10	36.00		4
60.00	0.30	20.00	55.00	0.36	56.00	64.00	0.88	6.00	48.00	0.13	39.00		4
60.00	0.27	18.00	55.00	0.33	56.00	64.00	0.88	6.00	48.00	0.13	42.00		4
60.00	0.37	18.00	55.00	0.33	52.00	64.00	0.81	8.00	48.00	0.17	42.00		4
60.00	0.31	18.80	55.00	0.34	56.00	64.00	0.88	6.40	48.00	0.13	37.00		4
0.00	0.06	1.10	0.00	0.02	2.83	0.00	0.04	1.14	0.00	0.02	6.63		0
0.00	0.03	0.69	0.00	0.01	1.26	0.00	0.02	0.51	0.00	0.01	2.97		0
60.00	0.27	22.00	55.00	0.40	52.00	64.00	0.81	9.00	48.00	0.19	42.00		4
60.00	0.08	12.00	55.00	0.22	39.00	64.00	0.61	0.00	48.00	0.00	39.00		4
60.00	0.13	18.00	55.00	0.33	36.00	64.00	0.56	5.00	48.00	0.10	36.00		4
60.00	0.20	7.00	55.00	0.13	39.00	64.00	0.61	0.00	48.00	0.00	24.00		4
60.00	0.27	6.00	55.00	0.11	39.00	64.00	0.61	16.00	48.00	0.33	28.00		4
60.00	0.19	13.00	55.00	0.24	41.00	64.00	0.64	6.00	48.00	0.13	33.80		4
0.00	0.08	6.93	0.00	0.13	6.28	0.00	0.10	6.75	0.00	0.14	7.56		0
0.00	0.04	3.10	0.00	0.06	2.81	0.00	0.04	3.02	0.00	0.06	3.38		0
60.00	0.37	40.00	55.00	0.73	60.00	64.00	0.94	9.00	48.00	0.19	39.00		4
60.00	0.67	40.00	55.00	0.73	42.00	64.00	0.66	8.00	48.00	0.17	36.00		4
60.00	0.12	36.00	55.00	0.65	36.00	64.00	0.56	5.00	48.00	0.10	26.00		4
60.00	0.10	14.00	55.00	0.25	39.00	64.00	0.61	0.00	48.00	0.00	30.00		4
60.00	0.30	24.00	55.00	0.44	42.00	64.00	0.66	8.00	48.00	0.17	39.00		4
60.00	0.31	30.80	55.00	0.56	43.80	64.00	0.68	6.00	48.00	0.13	34.00		4
0.00	0.23	11.65	0.00	0.21	9.39	0.00	0.15	3.67	0.00	0.08	5.79		0
0.00	0.10	5.12	0.00	0.09	4.20	0.00	0.07	1.64	0.00	0.03	2.59		0
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	4.00		4
60.00	0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		4
60.00	0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		4
60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		4
60.00	0.08	0.00	55.00	0.00	14.00	64.00	0.22	0.00	48.00	0.00	8.00		4
60.00	0.04	0.00	55.00	0.00	2.80	64.00	0.04	0.00	48.00	0.00	2.40		4
0.00	0.04	0.00	0.00	0.00	6.26	0.00	0.10	0.00	0.00	0.00	3.58		0
0.00	0.02	0.00	0.00	0.00	2.80	0.00	0.04	0.00	0.00	0.00	1.60		0
60.00	0.07	0.00	55.00	0.00	4.00	64.00	0.06	0.00	48.00	0.00	3.00		4
60.00	0.05	3.00	55.00	0.05	0.00	64.00	0.00	0.00	48.00	0.00	0.00		4
60.00	0.12	6.00	55.00	0.11	4.00	64.00	0.06	0.00	48.00	0.00	0.00		4
60.00	0.13	0.00	55.00	0.00	6.00	64.00	0.09	0.00	48.00	0.00	0.00		4
60.00	0.07	3.00	55.00	0.05	10.00	64.00	0.16	0.00	48.00	0.00	0.00		4
60.00	0.09	2.40	55.00	0.04	6.80	64.00	0.08	0.00	48.00	0.00	0.60		4
0.00	0.04	2.51	0.00	0.05	3.63	0.00	0.06	0.00	0.00	0.00	1.34		0
0.00	0.02	1.12	0.00	0.02	1.62	0.00	0.03	0.00	0.00	0.00	0.60		0
60.00	0.12	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		4
60.00	0.00	3.00	55.00	0.05	8.00	64.00	0.13	0.00	48.00	0.00	0.00		4
60.00	0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		4
60.00	0.05	0.00	55.00	0.00	6.00	64.00	0.09	0.00	48.00	0.00	0.00		4
60.00	0.00	0.00	55.00	0.00	3.00	64.00	0.05	5.00	48.00	0.10	7.00		4
60.00	0.04	0.60	55.00	0.01	3.40	64.00	0.05	1.00	48.00	0.02	1.40		4
0.00	0.05	1.34	0.00	0.02	3.58	0.00	0.06	2.24	0.00	0.05	3.13		0
0.00	0.02	0.60	0.00	0.01	1.60	0.00	0.03	1.00	0.00	0.02	1.40		0

llow Abdominal Organs			Solid Abdominal Organs			Right Ears			Left Ears		
core	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
5.00	48.00	0.54	0.00	44.00	0.00	5.00	40.00	0.13	0.00	40.00	0.00
5.00	48.00	0.75	9.00	44.00	0.20	0.00	40.00	0.00	0.00	40.00	0.00
9.00	48.00	0.81	18.00	44.00	0.41	0.00	40.00	0.00	0.00	40.00	0.00
2.00	48.00	0.88	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
2.00	48.00	0.88	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
7.00	48.00	0.77	6.20	44.00	0.14	1.00	40.00	0.03	0.00	40.00	0.00
5.63	0.00	0.14	7.56	0.00	0.17	2.24	0.00	0.06	0.00	0.00	0.00
2.97	0.00	0.06	3.38	0.00	0.08	1.00	0.00	0.03	0.00	0.00	0.00
2.00	48.00	0.88	9.00	44.00	0.20	0.00	40.00	0.00	0.00	40.00	0.00
9.00	48.00	0.81	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
5.00	48.00	0.75	20.00	44.00	0.45	0.00	40.00	0.00	0.00	40.00	0.00
4.00	48.00	0.50	15.00	44.00	0.34	0.00	40.00	0.00	0.00	40.00	0.00
3.00	48.00	0.58	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
5.80	48.00	0.70	9.60	44.00	0.22	0.00	40.00	0.00	0.00	40.00	0.00
7.56	0.00	0.16	8.08	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00
5.38	0.00	0.07	3.61	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
9.00	48.00	0.81	4.00	44.00	0.09	5.00	40.00	0.13	5.00	40.00	0.13
5.00	48.00	0.75	12.00	44.00	0.27	5.00	40.00	0.13	0.00	40.00	0.00
5.00	48.00	0.54	28.00	44.00	0.64	4.00	40.00	0.10	5.00	40.00	0.13
0.00	48.00	0.63	28.00	44.00	0.64	0.00	40.00	0.00	5.00	40.00	0.13
9.00	48.00	0.81	15.00	44.00	0.34	0.00	40.00	0.00	0.00	40.00	0.00
3.00	48.00	0.71	17.60	44.00	0.40	2.80	40.00	0.07	3.00	40.00	0.08
5.79	0.00	0.12	10.48	0.00	0.24	2.59	0.00	0.06	2.74	0.00	0.07
2.59	0.00	0.05	4.69	0.00	0.11	1.16	0.00	0.03	1.22	0.00	0.03
4.00	48.00	0.08	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	2.00	40.00	0.05	2.00	40.00	0.05
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
8.00	48.00	0.17	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
2.40	48.00	0.05	0.00	44.00	0.00	0.40	40.00	0.01	0.40	40.00	0.01
3.58	0.00	0.07	0.00	0.00	0.00	0.89	0.00	0.02	0.89	0.00	0.02
1.60	0.00	0.03	0.00	0.00	0.00	0.40	0.00	0.01	0.40	0.00	0.01
5.00	48.00	0.06	0.00	44.00	0.00	2.00	40.00	0.05	2.00	40.00	0.05
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.60	48.00	0.01	0.00	44.00	0.00	0.40	40.00	0.01	0.40	40.00	0.01
1.34	0.00	0.03	0.00	0.00	0.00	0.89	0.00	0.02	0.89	0.00	0.02
0.60	0.00	0.01	0.00	0.00	0.00	0.40	0.00	0.01	0.40	0.00	0.01
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	5.00	40.00	0.13
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
7.00	48.00	0.15	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
1.40	48.00	0.03	0.00	44.00	0.00	0.00	40.00	0.00	1.00	40.00	0.03
3.13	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	2.24	0.00	0.06
1.40	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.03

PATHOLOGY WORKSHEET								
Project:	FY91 COMPLEX WAVES							Nature of T
Study	Date	Shot	Animal	Orient.	Bw.,kg.	Species	Charge,g.	HOB, ft.
FY91	7/2/91	1	185	RSO	46.8	Sheep	227	4
	7/10/91		194		45.2		227	4
	7/25/91		205		41.6		227	4
	8/1/91		214		41.6		227	4
	8/9/91		221		40.9		227	4
MEAN					43.2			
SD					2.6			
SE					1.2			
	7/2/91	1	187	RSO	41.6	Sheep	227	4
	7/10/91		196		43.2		227	4
	7/25/91		203		41.8		227	4
	8/1/91		212		48.4		227	4
	8/9/91		222		41.6		227	4
MEAN					43.3			
SD					2.9			
SE					1.3			
	7/2/91	1	186	RSO	40.9	Sheep	227	4
	7/10/91		195		39.5		227	4
	7/25/91		204		40.2		227	4
	8/1/91		213		40.7		227	4
	8/9/91		223		44.1		227	4
MEAN					41.1			
SD					1.8			
SE					0.8			
Fy91	7/3/91	1	188	RSO	42.7	Sheep	454	4
	7/11/91		197		41.1		454	4
	7/24/91		208		40.7		454	4
	8/2/91		217		43.2		454	4
	8/13/91		224		43.2		454	4
MEAN					42.2			
SD					1.2			
SE					0.5			
	7/3/91	1	190	RSO	42.7	Sheep	454	4
	7/11/91		199		40.7		454	4
	7/26/91		206		41.8		454	4
	8/2/91		215		44.1		454	4
	8/13/91		225		42.3		454	4
MEAN					42.3			
SD					1.2			
SE					0.6			
	7/3/91	1	189	RSO	43.9	Sheep	454	4
	7/11/91		198		41.8		454	4
	7/26/91		207		42.0		454	4
	8/2/91		216		45.0		454	4
	8/13/91		226		39.8		454	4
MEAN					42.5			
SD					2.0			
SE					0.9			

	Nature of Test					Lung Weights						
kg.	Species	Charge,g.	HOB, ft.	Range,ft	Config.	RL	LL	TL	RLP	LLP	TLP	Fat/Surv.
.8	Sheep	227	4	3	D-1	248.00	163.00	411.00	0.53	0.35	0.88	1
.2		227	4	3	D-1	239.50	166.00	405.50	0.53	0.37	0.90	1
.6		227	4	3	D-1/2	251.00	180.00	431.00	0.60	0.43	1.04	1
.6		227	4	3	D-1/3	282.50	200.00	482.50	0.68	0.48	1.16	1
.9		227	4	3	D-1/4	257.00	189.00	446.00	0.63	0.46	1.09	1
.2						255.60	179.60	435.20	0.59	0.42	1.01	
6						16.31	15.53	30.98	0.07	0.06	0.12	
2						7.29	6.95	13.86	0.03	0.03	0.05	
.6	Sheep	227	4	4	D-1	262.00	184.50	446.50	0.63	0.44	1.07	1
.2		227	4	4	D-1	260.00	192.00	452.00	0.60	0.44	1.05	1
.8		227	4	4	D-1/2	280.00	241.50	521.50	0.67	0.58	1.25	1
.4		227	4	4	D-1/3	252.00	190.50	442.50	0.52	0.39	0.91	1
.6		227	4	4	D-1/4	225.50	166.50	392.00	0.54	0.40	0.94	1
.3						255.90	195.00	450.90	0.59	0.45	1.04	
9						19.84	27.90	46.22	0.06	0.08	0.13	
3						8.87	12.48	20.67	0.03	0.03	0.06	
.9	Sheep	227	4	4.2	D-1	222.50	161.00	383.50	0.54	0.39	0.94	1
.5		227	4	4.2	D-1	226.00	155.50	381.50	0.57	0.39	0.97	1
.2		227	4	4.2	D-1/2	305.50	204.00	509.50	0.76	0.51	1.27	1
.7		227	4	4.2	D-1/3	241.00	200.00	441.00	0.59	0.49	1.08	1
.1		227	4	4.2	D-1/4	265.50	204.00	469.50	0.60	0.46	1.06	1
.1						252.10	184.90	437.00	0.61	0.45	1.06	
8						34.32	24.46	55.39	0.09	0.06	0.13	
8						15.35	10.94	24.77	0.04	0.02	0.06	
.7	Sheep	454	4	3	D-1	287.00	150.00	437.00	0.67	0.35	1.02	1
.1		454	4	3	D-1	240.00	160.00	400.00	0.58	0.39	0.97	1
.7		454	4	3	D-1/2	409.00	198.50	607.50	1.00	0.49	1.49	1
.2		454	4	3	D-1/3	371.00	217.00	588.00	0.86	0.50	1.36	1
.2		454	4	3	D-1/4	385.00	203.00	588.00	0.89	0.47	1.36	1
.2						338.40	185.70	524.10	0.80	0.44	1.24	
2						71.66	29.06	97.61	0.17	0.07	0.23	
5						32.05	13.00	43.65	0.08	0.03	0.10	
7	Sheep	454	4	4	D-1	212.00	198.00	410.00	0.50	0.46	0.96	1
7		454	4	4	D-1	246.50	240.00	486.50	0.61	0.59	1.20	1
8		454	4	4	D-1/2	264.00	338.00	602.00	0.63	0.81	1.44	1
1		454	4	4	D-1/3	237.50	166.00	403.50	0.54	0.38	0.91	1
3		454	4	4	D-1/4	232.50	188.50	421.00	0.55	0.45	1.00	1
3						238.50	226.10	464.60	0.57	0.54	1.10	
						19.06	68.06	83.63	0.05	0.17	0.22	
						8.52	30.44	37.40	0.02	0.08	0.10	
9	Sheep	454	4	4.2	D-1	368.00	202.50	570.50	0.84	0.46	1.30	1
8		454	4	4.2	D-1	378.00	253.00	631.00	0.90	0.61	1.51	1
0		454	4	4.2	D-1/2	408.00	262.00	670.00	0.97	0.62	1.60	1
0		454	4	4.2	D-1/3	257.50	200.00	457.50	0.57	0.44	1.02	1
8		454	4	4.2	D-1/4	222.50	220.00	442.50	0.56	0.55	1.11	1
5						326.80	227.50	554.30	0.77	0.54	1.31	
						81.54	28.63	101.74	0.19	0.08	0.25	
						36.46	12.80	45.50	0.09	0.04	0.11	

Fat/Surv.	TOS, hrs.	Morbidity TOD,min.	COD	Morbidity Pneumo.	Hemoper.	Hemothor.	Coron.Air	Cereb.Air	Severity of Injur Ratios	Index	Adjusted Index
1	1.50			0.0	0.0	0.0	0.0	0.0	0.83	0.83	0.83
1	1.50			0.0	0.0	0.0	0.0	0.0	0.61	0.61	0.61
1	1.00			0.0	0.0	0.0	0.0	0.0	0.77	0.77	0.67
1	3.25			0.0	0.0	0.0	0.0	0.0	0.43	0.43	0.43
1	2.50			0.0	0.0	0.0	0.0	0.0	0.74	0.74	0.74
	1.95			0.0	0.0	0.0	0.0	0.0	0.68	0.68	0.66
	0.91			0.0	0.0	0.0	0.0	0.0	0.16	0.16	0.15
	0.41			0.0	0.0	0.0	0.0	0.0	0.07	0.07	0.07
1	3.75			0.0	0.0	0.0	0.0	0.0	0.38	0.38	0.38
1	3.50			0.0	0.0	0.0	0.0	0.0	0.70	0.70	0.70
1	2.50			0.0	0.0	0.0	0.0	0.0	0.43	0.43	0.43
1	1.00			0.0	0.0	0.0	0.0	0.0	0.69	0.69	0.69
1	1.50			0.0	0.0	0.0	0.0	0.0	0.46	0.46	0.46
	2.45			0.0	0.0	0.0	0.0	0.0	0.53	0.53	0.53
	1.20			0.0	0.0	0.0	0.0	0.0	0.15	0.15	0.15
	0.54			0.0	0.0	0.0	0.0	0.0	0.07	0.07	0.07
1	2.00			0.0	0.0	0.0	0.0	0.0	0.41	0.41	0.41
1	2.75			0.0	0.0	0.0	0.0	0.0	0.50	0.50	0.37
1	3.50			0.0	0.0	0.0	0.0	0.0	0.72	0.72	0.72
1	2.25			0.0	0.0	0.0	0.0	0.0	0.70	0.70	0.60
1	3.75			0.0	0.0	0.0	0.0	0.0	0.57	0.57	0.57
	2.85			0.0	0.0	0.0	0.0	0.0	0.58	0.58	0.54
	0.76			0.0	0.0	0.0	0.0	0.0	0.13	0.13	0.14
	0.34			0.0	0.0	0.0	0.0	0.0	0.06	0.06	0.06
1	1.00			0.0	0.0	0.0	0.0	0.0	1.81	1.81	1.68
1	1.50			0.0	0.0	0.0	0.0	0.0	1.17	1.17	1.09
1	2.75			0.0	0.0	0.0	0.0	0.0	1.73	1.73	1.73
1	4.50			0.0	0.0	0.0	0.0	0.0	1.80	1.80	1.80
1	1.50			0.0	0.0	0.0	0.0	0.0	1.69	1.69	1.57
	2.25			0.0	0.0	0.0	0.0	0.0	1.64	1.64	1.57
	1.41			0.0	0.0	0.0	0.0	0.0	0.27	0.27	0.28
	0.63			0.0	0.0	0.0	0.0	0.0	0.12	0.12	0.13
1	3.75			0.0	0.0	0.0	0.0	0.0	1.76	1.76	1.64
1	4.00			0.0	0.0	0.0	0.0	0.0	1.77	1.77	1.67
1	1.25			0.0	0.0	0.0	0.0	0.0	1.89	1.89	1.64
1	1.75			0.0	1.0	0.0	0.0	0.0	1.25	2.25	2.25
1	3.00			0.0	0.0	0.0	0.0	0.0	1.69	1.69	1.44
	2.75			0.0	0.2	0.0	0.0	0.0	1.67	1.87	1.73
	1.21			0.0	0.4	0.0	0.0	0.0	0.25	0.22	0.31
	0.54			0.0	0.2	0.0	0.0	0.0	0.11	0.10	0.14
1	1.50			0.0	0.0	0.0	0.0	0.0	1.36	1.36	1.36
1	2.75			0.0	0.0	0.0	0.0	0.0	1.29	1.29	1.24
1	4.00			0.0	0.0	0.0	0.0	0.0	1.51	1.51	1.51
1	3.00			0.0	0.0	0.0	0.0	0.0	1.19	1.19	1.19
1	4.50			0.0	0.0	0.0	0.0	0.0	1.57	1.57	1.57
	3.15			0.0	0.0	0.0	0.0	0.0	1.38	1.38	1.37
	1.17			0.0	0.0	0.0	0.0	0.0	0.16	0.16	0.17
	0.52			0.0	0.0	0.0	0.0	0.0	0.07	0.07	0.07

usted	Exter	al Lesions			Fractures			Burns			Pharynx/Lary x		
Index	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ra
0.83	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	5.00	60.00	C
0.61	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	C
0.67	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	60.00	C
0.43	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	C
0.74	0.00	56.00	0.00	0.00	24.00	0.00	6.00	52.00	0.12	4.00	60.00	C
0.66	0.00	56.00	0.00	0.00	24.00	0.00	3.00	52.00	0.06	4.20	60.00	0
0.15	0.00	0.00	0.00	0.00	0.00	0.00	4.24	0.00	0.08	0.84	0.00	0
0.07	0.00	0.00	0.00	0.00	0.00	0.00	1.90	0.00	0.04	0.37	0.00	0
0.38	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	8.00	60.00	C
0.70	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	8.00	60.00	C
0.43	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	C
0.69	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	C
0.46	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	60.00	0
0.53	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0
0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.87	0.00	0
0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.84	0.00	0
0.41	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	0
0.37	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	0
0.72	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	60.00	0
0.60	0.00	56.00	0.00	0.00	24.00	0.00	3.00	52.00	0.06	4.00	60.00	0
0.57	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	0
0.54	0.00	56.00	0.00	0.00	24.00	0.00	0.60	52.00	0.01	4.60	60.00	0
0.14	0.00	0.00	0.00	0.00	0.00	0.00	1.34	0.00	0.03	1.52	0.00	0
0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.01	0.68	0.00	0
1.68	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	18.00	60.00	0
1.09	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	7.00	60.00	0
1.73	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	8.00	60.00	0
1.80	0.00	56.00	0.00	0.00	24.00	0.00	10.00	52.00	0.19	7.00	60.00	0
1.57	0.00	56.00	0.00	7.00	24.00	0.29	9.00	52.00	0.17	3.00	60.00	0
1.57	0.00	56.00	0.00	1.40	24.00	0.06	9.00	52.00	0.17	8.60	60.00	0.
0.28	0.00	0.00	0.00	3.13	0.00	0.13	0.71	0.00	0.01	5.59	0.00	0
0.13	0.00	0.00	0.00	1.40	0.00	0.06	0.32	0.00	0.01	2.50	0.00	0.
1.64	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	20.00	60.00	0
1.67	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	18.00	60.00	0.
1.64	0.00	56.00	0.00	0.00	24.00	0.00	5.00	52.00	0.10	14.00	60.00	0.
2.25	0.00	56.00	0.00	0.00	24.00	0.00	6.00	52.00	0.12	4.00	60.00	0.
1.44	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	7.00	60.00	0.
1.73	0.00	56.00	0.00	0.00	24.00	0.00	5.60	52.00	0.11	12.60	60.00	0.
0.31	0.00	0.00	0.00	0.00	0.00	0.00	3.51	0.00	0.07	6.91	0.00	0.
0.14	0.00	0.00	0.00	0.00	0.00	0.00	1.57	0.00	0.03	3.09	0.00	0.
1.36	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	6.00	60.00	0.
1.24	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	0.
1.51	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	8.00	60.00	0.
1.19	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	8.00	60.00	0.
1.57	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	16.00	60.00	0.
1.37	0.00	56.00	0.00	0.00	24.00	0.00	6.40	52.00	0.12	8.80	60.00	0.
0.17	0.00	0.00	0.00	0.00	0.00	0.00	3.58	0.00	0.07	4.15	0.00	0.
0.07	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.00	0.03	1.85	0.00	0.

ynx/Lary x			Trachea			Lungs			Heart			Hollow Abdominal	
Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible
60.00	0.08	0.00	55.00	0.00	5.00	64.00	0.08	0.00	48.00	0.00	24.00	48.00
60.00	0.08	5.00	55.00	0.09	12.00	64.00	0.19	0.00	48.00	0.00	12.00	48.00
60.00	0.07	0.00	55.00	0.00	12.00	64.00	0.19	0.00	48.00	0.00	20.00	48.00
60.00	0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	18.00	48.00
60.00	0.07	0.00	55.00	0.00	12.00	64.00	0.19	0.00	48.00	0.00	18.00	48.00
60.00	0.07	1.00	55.00	0.02	8.20	64.00	0.13	0.00	48.00	0.00	18.40	48.00
0.00	0.01	2.24	0.00	0.04	5.50	0.00	0.09	0.00	0.00	0.00	4.34	0.00
0.00	0.01	1.00	0.00	0.02	2.66	0.00	0.04	0.00	0.00	0.00	1.94	0.00
60.00	0.13	5.00	55.00	0.09	10.00	64.00	0.16	0.00	48.00	0.00	0.00	48.00
60.00	0.13	5.00	55.00	0.09	4.00	64.00	0.06	0.00	48.00	0.00	20.00	48.00
60.00	0.08	3.00	55.00	0.05	12.00	64.00	0.19	0.00	48.00	0.00	5.00	48.00
60.00	0.08	6.00	55.00	0.11	12.00	64.00	0.19	3.00	48.00	0.06	12.00	48.00
60.00	0.07	3.00	55.00	0.05	8.00	64.00	0.13	0.00	48.00	0.00	7.00	48.00
60.00	0.10	4.40	55.00	0.08	9.20	64.00	0.14	0.60	48.00	0.01	8.80	48.00
8.00	0.03	1.34	0.00	0.02	3.35	0.00	0.05	1.34	0.00	0.03	7.60	0.00
0.00	0.01	0.60	0.00	0.01	1.50	0.00	0.02	0.60	0.00	0.01	3.40	0.00
60.00	0.05	0.00	55.00	0.00	14.00	64.00	0.22	7.00	48.00	0.15	0.00	48.00
60.00	0.12	5.00	55.00	0.09	4.00	64.00	0.06	0.00	48.00	0.00	5.00	48.00
60.00	0.07	6.00	55.00	0.11	24.00	64.00	0.38	0.00	48.00	0.00	8.00	48.00
60.00	0.07	0.00	55.00	0.00	12.00	64.00	0.19	0.00	48.00	0.00	14.00	48.00
60.00	0.08	5.00	55.00	0.09	12.00	64.00	0.19	0.00	48.00	0.00	10.00	48.00
60.00	0.08	3.20	55.00	0.06	13.20	64.00	0.21	1.40	48.00	0.03	7.40	48.00
0.00	0.03	2.95	0.00	0.05	7.16	0.00	0.11	3.13	0.00	0.07	5.27	0.00
0.00	0.01	1.32	0.00	0.02	3.20	0.00	0.05	1.40	0.00	0.03	2.36	0.00
60.00	0.30	3.00	55.00	0.05	27.00	64.00	0.42	8.00	48.00	0.17	28.00	48.00
60.00	0.12	4.00	55.00	0.07	20.00	64.00	0.31	0.00	48.00	0.00	20.00	48.00
60.00	0.13	6.00	55.00	0.11	44.00	64.00	0.69	6.00	48.00	0.13	24.00	48.00
60.00	0.12	10.00	55.00	0.18	32.00	64.00	0.50	0.00	48.00	0.00	39.00	48.00
60.00	0.05	5.00	55.00	0.09	27.00	64.00	0.42	0.00	48.00	0.00	26.	48.00
60.00	0.14	5.60	55.00	0.10	30.00	64.00	0.47	2.80	48.00	0.06	27.40	48.00
0.00	0.09	2.70	0.00	0.05	8.92	0.00	0.14	3.90	0.00	0.08	7.13	0.00
0.00	0.04	1.21	0.00	0.02	3.99	0.00	0.06	1.74	0.00	0.04	3.19	0.00
60.00	0.33	5.00	55.00	0.09	33.00	64.00	0.52	0.00	48.00	0.00	26.00	48.00
60.00	0.30	18.00	55.00	0.33	36.00	64.00	0.56	0.00	48.00	0.00	20.00	48.00
60.00	0.23	6.00	55.00	0.11	39.00	64.00	0.61	0.00	48.00	0.00	26.00	48.00
60.00	0.07	5.00	55.00	0.09	18.00	64.00	0.28	0.00	48.00	0.00	28.00	48.00
60.00	0.12	6.00	55.00	0.11	30.00	64.00	0.47	0.00	48.00	0.00	24.00	48.00
60.00	0.21	8.00	55.00	0.15	31.20	64.00	0.49	0.00	48.00	0.00	26.40	48.00
0.00	0.12	5.61	0.00	0.10	8.11	0.00	0.13	0.00	0.00	0.00	2.97	0.00
0.00	0.05	2.51	0.00	0.05	3.62	0.00	0.06	0.00	0.00	0.00	1.33	0.00
60.00	0.10	5.00	55.00	0.09	30.00	64.00	0.47	0.00	48.00	0.00	26.00	48.00
60.00	0.10	6.00	55.00	0.11	39.00	64.00	0.61	0.00	48.00	0.00	20.00	48.00
60.00	0.13	4.00	55.00	0.07	39.00	64.00	0.61	0.00	48.00	0.00	26.00	48.00
60.00	0.13	6.00	55.00	0.11	18.00	64.00	0.28	0.00	48.00	0.00	20.00	48.00
60.00	0.27	5.00	55.00	0.09	33.00	64.00	0.52	0.00	48.00	0.00	26.00	48.00
60.00	0.15	5.20	55.00	0.09	31.80	64.00	0.50	0.00	48.00	0.00	23.60	48.00
0.00	0.07	0.84	0.00	0.02	8.64	0.00	0.14	0.00	0.00	0.00	3.29	0.00
0.00	0.03	0.37	0.00	0.01	3.87	0.00	0.06	0.00	0.00	0.00	1.47	0.00

Hollow Abdominal Organs			Solid Abdominal Organs			Right Ears			Left Ears		
Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
24.00	48.00	0.50	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
12.00	48.00	0.25	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
20.00	48.00	0.42	0.00	44.00	0.00	0.00	40.00	0.00	4.00	40.00	0.10
18.00	48.00	0.38	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
18.00	48.00	0.38	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
18.40	48.00	0.38	0.00	44.00	0.00	0.00	40.00	0.00	0.80	40.00	0.02
4.34	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	1.79	0.00	0.04
1.94	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.02
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
20.00	48.00	0.42	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
5.00	48.00	0.10	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
12.00	48.00	0.25	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
7.00	48.00	0.15	3.00	44.00	0.07	0.00	40.00	0.00	0.00	40.00	0.00
8.80	48.00	0.18	0.60	44.00	0.01	0.00	40.00	0.00	0.00	40.00	0.00
7.60	0.00	0.16	1.34	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
3.40	0.00	0.07	0.60	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
0.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
5.00	48.00	0.10	0.00	44.00	0.00	0.00	40.00	0.00	5.00	40.00	0.13
8.00	48.00	0.17	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
14.00	48.00	0.29	0.00	44.00	0.00	0.00	40.00	0.00	4.00	40.00	0.10
10.00	48.00	0.21	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
7.40	48.00	0.15	0.00	44.00	0.00	0.00	40.00	0.00	1.80	40.00	0.05
5.27	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00	2.49	0.00	0.06
2.36	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	0.03
28.00	48.00	0.58	0.00	44.00	0.00	0.00	40.00	0.00	5.00	40.00	0.13
20.00	48.00	0.42	0.00	44.00	0.00	0.00	40.00	0.00	3.00	40.00	0.08
24.00	48.00	0.50	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
39.00	48.00	0.81	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
26.00	48.00	0.54	0.00	44.00	0.00	0.00	40.00	0.00	5.00	40.00	0.13
27.40	48.00	0.57	0.00	44.00	0.00	0.00	40.00	0.00	2.60	40.00	0.07
7.13	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	2.51	0.00	0.06
3.19	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.00	0.03
26.00	48.00	0.54	0.00	44.00	0.00	0.00	40.00	0.00	5.00	40.00	0.13
20.00	48.00	0.42	3.00	44.00	0.07	0.00	40.00	0.00	4.00	40.00	0.10
24.00	48.00	0.50	4.00	44.00	0.09	0.00	40.00	0.00	10.00	40.00	0.25
28.00	48.00	0.58	5.00	44.00	0.11	0.00	40.00	0.00	0.00	40.00	0.00
24.00	48.00	0.50	3.00	44.00	0.07	0.00	40.00	0.00	10.00	40.00	0.25
24.40	48.00	0.51	3.00	44.00	0.07	0.00	40.00	0.00	5.80	40.00	0.15
12.97	0.00	0.06	1.87	0.00	0.04	0.00	0.00	0.00	4.27	0.00	0.11
1.33	0.00	0.03	0.84	0.00	0.02	0.00	0.00	0.00	1.91	0.00	0.05
26.00	48.00	0.54	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
20.00	48.00	0.42	0.00	44.00	0.00	0.00	40.00	0.00	2.00	40.00	0.05
26.00	48.00	0.54	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
20.00	48.00	0.42	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
26.00	48.00	0.54	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
13.60	48.00	0.49	0.80	44.00	0.02	0.00	40.00	0.00	0.40	40.00	0.01
13.29	0.00	0.07	1.79	0.00	0.04	0.00	0.00	0.00	0.89	0.00	0.02
11.47	0.00	0.03	0.80	0.00	0.02	0.00	0.00	0.00	0.40	0.00	0.01

PATHOLOGY WORKSHEET

Project: FY91 COMPLEX WAVES

Study	Date	Shot	Animal	Orient.	Bw.,kg.	Species	Charge,g.
	9/4/91	1	228	RSO	45.5	Sheep	1361
	9/5/91		230		41.6		1361
	9/9/91		233		40.9		1361
	9/10/91		235		41.4		1361
MEAN					42.4		
SD					2.1		
SE					1.1		
	9/4/91	1	229	LSO	45.5	Sheep	1361
	9/5/91		231		42.3		1361
	9/9/91		232		40.9		1361
	9/10/91		234		40.9		1361
MEAN					42.6		
SD					2.2		
SE					1.1		
	9/11/91	1	237	FACE-ON	40.7	Sheep	1361
	9/12/91		239		42.5		1361
	9/16/91		240		45.5		1361
	9/17/91		242		48		1361
MEAN					44.2		
SD					3.2		
SE					1.6		
	9/11/91	1	236	BACK-ON	41.4	SHEEP	1361
	9/12/91		238		42		1361
	9/16/91		241		45.5		1361
	9/17/91		243		47.7		1361
MEAN					44.2		
SD					3.0		
SE					1.5		
	9/19/91	1	245	45 RIGHT	43.2	Sheep	1361
	10/7/91		247		45.7		1361
MEAN					44.5		
SD					1.8		
SE					1.3		
	9/19/91	1	244	45 LEFT	42.3	Sheep	1361
	10/7/91		246		46.4		1361
MEAN					44.4		
SD					2.9		
SE					2.1		
	10/21/91		248	RSO	45.2	Sheep	1361
	10/21/91		249		43.9		1361
MEAN					44.6		
SD					0.9		
SE					0.7		
			COMBINED CONTROL DATA -- FY90 & FY91				
FY90/91	7/6/90		1		45.5	Sheep	
	9/12/90		42		37.5		
	9/12/90		43		38.0	LUNGS WERE DISEASED	
	12/19/90		114		39.5		
	2/7/91		134		36.1		
	4/12/91		144		38.0		
	6/3/91		172		44.5		
	8/20/91		227		44.1		
	11/25/91		280		38.2		
MEAN					40.2		
SD					3.5		
SE					1.2		

	Nature of Test						Lung Weights						
ent.	Bw., kg.	Species	Charge, g.	HOB, ft.	Range, ft	Config.	RL	LL	TL	RLP	LLP	TLP	Fat
SO	45.5	Sheep	1361	4	4	FF.ORIEN	313.50	175.00	488.50	0.69	0.38	1.07	
	41.6		1361	4	4		325.00	159.50	484.50	0.78	0.38	1.16	
	40.9		1361	4	4		321.50	173.00	494.50	0.79	0.42	1.21	
	41.4		1361	4	4		329.50	158.00	487.50	0.80	0.38	1.18	
	42.4						322.38	166.38	488.75	0.77	0.39	1.16	
	2.1						6.76	8.86	4.19	0.05	0.02	0.06	
	1.1						3.38	4.43	2.10	0.03	0.01	0.03	
SO	45.5	Sheep	1361	4	4	FF.ORIEN	232.00	218.20	450.20	0.51	0.48	0.99	
	42.3		1361	4	4		235.00	216.00	451.00	0.56	0.51	1.07	
	40.9		1361	4	4		244.50	231.50	476.00	0.60	0.57	1.16	
	40.9		1361	4	4		239.00	231.50	470.50	0.58	0.57	1.15	
	42.4						237.63	224.30	461.93	0.56	0.53	1.09	
	2.2						5.41	8.36	13.27	0.04	0.05	0.08	
	1.1						2.70	4.18	6.64	0.02	0.02	0.04	
E-ON	40.7	Sheep	1361	4	4	FF.ORIEN	239.00	172.50	411.50	0.59	0.42	1.01	
	42.5		1361	4	4		237.00	178.00	415.00	0.56	0.42	0.98	
	45.5		1361	4	4		262.00	191.00	453.00	0.58	0.42	1.00	
	48		1361	4	4		237.50	152.50	390.00	0.49	0.32	0.81	
	44.2						243.88	173.50	417.38	0.56	0.40	0.95	
	3.2						12.11	16.01	26.20	0.05	0.05	0.09	
	1.6						6.06	8.00	13.10	0.02	0.02	0.05	
K-ON	41.4	SHEEP	1361	4	4	FF.ORIEN	362.00	191.00	553.00	0.87	0.46	1.34	
	42		1361	4	4		631.50	255.00	886.50	1.50	0.61	2.11	
	45.5		1361	4	4		322.50	219.50	542.00	0.71	0.48	1.19	
	47.7		1361	4	4		345.00	241.50	586.50	0.72	0.51	1.23	
	44.2						415.25	226.75	642.00	0.95	0.52	1.47	
	3.0						145.07	27.97	164.09	0.37	0.07	0.43	
	1.5						72.54	13.98	82.05	0.19	0.03	0.22	
RIGHT	43.2	Sheep	1361	4	4	FF. ORIEN	423.00	166.50	589.50	0.98	0.38	1.36	
	45.7		1361	4	4		439.50	195.00	634.50	0.96	0.43	1.39	
	44.5						431.25	180.75	612.00	0.97	0.41	1.38	
	1.8						11.67	20.15	31.82	0.01	0.04	0.02	
	1.3						8.25	14.25	22.50	0.01	0.02	0.01	
LEFT	42.3	Sheep	1361	4	4	FF.ORIEN	292.50	294.00	586.50	0.69	0.70	1.39	
	46.4		1361	4	4		246.50	286.00	532.50	0.53	0.62	1.15	
	44.4						269.50	290.00	559.50	0.61	0.66	1.27	
	2.9						32.53	5.66	38.18	0.11	0.06	0.17	
	2.1						25.00	4.00	27.00	0.08	0.04	0.12	
SO	45.2	Sheep	1361	4	8	FF.ORIEN	256.00	185.00	441.00	0.57	0.41	0.98	
	43.9		1361	4	8		213.50	152.00	365.50	0.49	0.35	0.83	
	44.6						234.75	168.50	403.25	0.53	0.38	0.91	
	0.9						30.05	23.33	53.39	0.06	0.04	0.11	
	0.7						21.25	16.50	37.75	0.04	0.03	0.07	
ATA	FY90 & FY91												
	45.5	Sheep					216.00	162.00	378.00	0.47	0.36	0.83	
	37.5						200.00	140.00	340.00	0.53	0.37	0.91	
	38.0	LUNGS WERE DISEASED					302.00	240.00	542.00	0.79	0.63		
	39.5						208.00	160.00	368.00	0.53	0.41	0.93	
	36.1						210.00	157.00	367.00	0.58	0.43	1.02	
	38.0						222.00	166.50	388.50	0.58	0.44	1.02	
	44.5						205.00	146.00	351.00	0.46	0.33	0.79	
	44.1						251.00	180.50	431.50	0.57	0.41	0.98	
	38.2						254.00	189.00	443.00	0.66	0.49	1.16	
	40.2						229.78	171.22	401.00	0.57	0.43	0.96	
	3.5						33.30	29.96	62.97	0.10	0.09	0.12	
	1.2						11.10	9.99	20.99	0.03	0.03	0.04	

			Morbidity		Morbidity					Severity of Injur		Adjus
TLP	Fat/Surv.	TOS, hrs.	TOD,min.	COD	Pneumo.	Hemoper.	Hemothor.	Coron.Air	Cereb.Air	Ratios	Index	Ir
1.07	1	1.25			0.0	1.0	0.0	0.0	0.0	2.03	3.03	3
1.16	1	3.00			0.0	1.0	0.0	0.0	0.0	2.19	3.19	3
1.21	1	1.75			0.0	0.0	0.0	0.0	0.0	2.50	2.50	2
1.18	1	3.25			0.0	0.0	0.0	0.0	0.0	1.47	1.47	1
1.16		2.3			0.0	0.5	0.0	0.0	0.0	2.05	2.55	2
0.06		1.0			0.0	0.6	0.0	0.0	0.0	0.43	0.78	0
0.03		0.5			0.0	0.3	0.0	0.0	0.0	0.21	0.39	0
0.99	1	3.00			0.0	0.0	0.0	0.0	0.0	1.11	1.11	1
1.07	1	1.50			0.0	0.0	0.0	0.0	0.0	1.06	1.06	1
1.16	1	3.50			0.0	0.0	0.0	0.0	0.0	1.23	1.23	1
1.15	1	1.50			0.0	0.0	0.0	0.0	0.0	1.38	1.38	1
1.09		2.6			0.0	0.0	0.0	0.0	0.0	1.20	1.20	1
0.08		1.0			0.0	0.0	0.0	0.0	0.0	0.14	0.14	0
0.04		0.5			0.0	0.0	0.0	0.0	0.0	0.07	0.07	0
1.01	1	3.00			0.0	0.0	0.0	0.0	0.0	2.93	2.93	2
0.98	1	1.50			0.0	0.0	0.0	0.0	0.0	2.17	2.17	2
1.00	1	3.50			0.0	0.0	0.0	0.0	0.0	2.85	2.85	2
0.81	1	1.50			0.0	0.0	0.0	0.0	0.0	2.12	2.12	2
0.95		2.6			0.0	0.0	0.0	0.0	0.0	2.52	2.52	2
0.09		1.0			0.0	0.0	0.0	0.0	0.0	0.43	0.43	0
0.05		0.5			0.0	0.0	0.0	0.0	0.0	0.22	0.22	0
1.34	1	1.50			0.0	0.0	0.0	0.0	0.0	0.79	0.79	0
2.11	1	3.00			0.0	1.0	0.0	0.0	0.0	1.88	2.88	2
1.19	1	2.00			0.0	0.0	0.0	0.0	0.0	1.08	1.08	0
1.23	1	3.00			0.0	0.0	0.0	0.0	0.0	1.02	1.02	1
1.47		2.6			0.0	0.3	0.0	0.0	0.0	1.19	1.44	1
0.43		0.8			0.0	0.5	0.0	0.0	0.0	0.47	0.96	0
0.22		0.4			0.0	0.3	0.0	0.0	0.0	0.24	0.48	0
1.36	1	1.50			0.0	0.0	0.0	0.0	0.0	1.88	1.88	1
1.39	1	3.00			0.0	0.0	0.0	0.0	0.0	1.27	1.27	1
1.38		2.3			0.0	0.0	0.0	0.0	0.0	1.57	1.57	1
0.02		1.1			0.0	0.0	0.0	0.0	0.0	0.43	0.43	0
0.01		0.8			0.0	0.0	0.0	0.0	0.0	0.30	0.30	0
1.39	1	3.00			0.0	0.0	0.0	0.0	0.0	1.14	1.14	0
1.15	1	1.50			0.0	0.0	0.0	0.0	0.0	1.00	1.00	0
1.27		2.3			0.0	0.0	0.0	0.0	0.0	1.07	1.07	0
0.17		1.1			0.0	0.0	0.0	0.0	0.0	0.10	0.10	0
0.12		0.8			0.0	0.0	0.0	0.0	0.0	0.07	0.07	0
0.98	1	1.25			0.0	0.0	0.0	0.0	0.0	0.16	0.16	0
0.83	1	2.75			0.0	0.0	0.0	0.0	0.0	0.39	0.39	0
0.91		2.0			0.0	0.0	0.0	0.0	0.0	0.27	0.27	0
0.11		1.1			0.0	0.0	0.0	0.0	0.0	0.16	0.16	0
0.07		0.8			0.0	0.0	0.0	0.0	0.0	0.11	0.11	0
0.83	1				0.0	0.0	0.0	0.0	0.0	0.00	0.00	0
0.91	1	1.00			0.0	0.0	0.0	0.0	0.0	0.00	0.00	0
	1	2.00			0.0	0.0	0.0	0.0	0.0	0.00	0.00	0
0.93	1	1.00			0.0	0.0	0.0	0.0	0.0	0.11	0.11	0
1.02	1				0.0	0.0	0.0	0.0	0.0	0.00	0.00	0
1.02	1	1.00			0.0	0.0	0.0	0.0	0.0	0.05	0.05	0
0.79	1	1.50			0.0	0.0	0.0	0.0	0.0	0.24	0.24	0
0.98	1	1.00			0.0	0.0	0.0	0.0	0.0	0.00	0.00	0
1.16	1	1.75			0.0	0.0	0.0	0.0	0.0	0.07	0.07	0
0.96					0.0	0.0	0.0	0.0	0.0	0.05	0.05	0
0.12					0.0	0.0	0.0	0.0	0.0	0.06	0.06	0
0.04					0.0	0.0	0.0	0.0	0.0	0.03	0.03	0

Injur	Adjusted	Exter	al Lesions			Fractures			Burns			Pharynx/Lary	
Index	Index	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	
3.03	3.03	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	18.00	60.00	
3.19	3.19	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	8.00	60.00	
2.50	2.50	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	44.00	60.00	
1.47	1.47	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	7.00	60.00	
2.55	2.55	0.00	56.00	0.00	0.00	24.00	0.00	8.25	52.00	0.16	19.25	60.00	
0.78	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.01	17.23	0.00	
0.39	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	8.62	0.00	
1.11	0.86	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	6.00	60.00	
1.06	1.06	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	8.00	60.00	
1.23	1.23	6.00	56.00	0.11	0.00	24.00	0.00	9.00	52.00	0.17	8.00	60.00	
1.38	1.38	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	14.00	60.00	
1.20	1.13	1.50	56.00	0.03	0.00	24.00	0.00	8.50	52.00	0.16	9.00	60.00	
0.14	0.22	3.00	0.00	0.05	0.00	0.00	0.00	0.58	0.00	0.01	3.46	0.00	
0.07	0.11	1.50	0.00	0.03	0.00	0.00	0.00	0.29	0.00	0.01	1.73	0.00	
2.93	2.33	6.00	56.00	0.11	0.00	24.00	0.00	8.00	52.00	0.15	16.00	60.00	
2.17	2.12	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	40.00	60.00	
2.85	2.25	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	20.00	60.00	
2.12	2.12	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	20.00	60.00	
2.52	2.21	1.50	56.00	0.03	0.00	24.00	0.00	8.00	52.00	0.15	24.00	60.00	
0.43	0.10	3.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	10.83	0.00	
0.22	0.05	1.50	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	5.42	0.00	
0.79	0.79	0.00	56.00	0.00	0.00	24.00	0.00	9.00	52.00	0.17	3.00	60.00	
2.88	2.88	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	4.00	60.00	
1.08	0.98	0.00	56.00	0.00	0.00	24.00	0.00	7.00	52.00	0.13	4.00	60.00	
1.02	1.02	0.00	56.00	0.00	0.00	24.00	0.00	7.00	52.00	0.13	0.00	60.00	
1.44	1.42	0.00	56.00	0.00	0.00	24.00	0.00	7.75	52.00	0.15	2.75	60.00	
0.96	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.96	0.00	0.02	1.89	0.00	
0.48	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.01	0.95	0.00	
1.88	1.75	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	3.00	60.00	
1.27	1.27	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	3.00	60.00	
1.57	1.51	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	3.00	60.00	
0.43	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
0.30	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1.14	0.77	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	5.00	60.00	
1.00	0.95	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	14.00	60.00	
1.07	0.86	0.00	56.00	0.00	0.00	24.00	0.00	8.00	52.00	0.15	9.50	60.00	
0.10	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.36	0.00	
0.07	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.50	0.00	
0.16	0.16	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	6.00	60.00	
0.39	0.36	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.00	60.00	
0.27	0.26	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	5.50	60.00	
0.16	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	
0.11	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	
0.00	0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.00	0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.00	0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.11	0.11	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.00	0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.05	0.05	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	3.00	60.00	
0.24	0.24	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	7.00	60.00	
0.00	0.00	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	0.00	60.00	
0.07	0.07	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	4.00	60.00	
0.05	0.05	0.00	56.00	0.00	0.00	24.00	0.00	0.00	52.00	0.00	1.56	60.00	
0.08	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.00	
0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.00	

Pharynx/Larynx				Trachea			Lungs			Heart			Hollow Abdo	
	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Score	Pos
01	60.00	0.30	18.00	55.00	0.33	21.00	64.00	0.33	0.00	48.00	0.00	39.00		
01	60.00	0.13	24.00	55.00	0.44	36.00	64.00	0.56	0.00	48.00	0.00	39.00		
01	60.00	0.73	14.00	55.00	0.25	48.00	64.00	0.75	5.00	48.00	0.10	24.00		
01	60.00	0.12	5.00	55.00	0.09	39.00	64.00	0.61	0.00	48.00	0.00	24.00		
5	60.00	0.32	15.25	55.00	0.28	36.00	64.00	0.56	1.25	48.00	0.03	31.50		
3	0.00	0.29	7.97	0.00	0.14	11.22	0.00	0.18	2.50	0.00	0.05	8.66		
2	0.00	0.14	3.99	0.00	0.07	5.61	0.00	0.09	1.25	0.00	0.03	4.33		
01	60.00	0.10	0.00	55.00	0.00	24.00	64.00	0.38	0.00	48.00	0.00	7.00		
01	60.00	0.13	10.00	55.00	0.18	27.00	64.00	0.42	0.00	48.00	0.00	5.00		
01	60.00	0.13	6.00	55.00	0.11	21.00	64.00	0.33	0.00	48.00	0.00	18.00		
01	60.00	0.23	16.00	55.00	0.29	33.00	64.00	0.52	0.00	48.00	0.00	9.00		
0	60.00	0.15	8.00	55.00	0.15	26.25	64.00	0.41	0.00	48.00	0.00	9.75		
6	0.00	0.06	6.73	0.00	0.12	5.12	0.00	0.08	0.00	0.00	0.00	5.74		
3	0.00	0.03	3.37	0.00	0.06	2.56	0.00	0.04	0.00	0.00	0.00	2.87		
01	60.00	0.27	32.00	55.00	0.58	30.00	64.00	0.47	0.00	48.00	0.00	36.00		
01	60.00	0.67	16.00	55.00	0.29	30.00	64.00	0.47	0.00	48.00	0.00	26.00		
01	60.00	0.33	40.00	55.00	0.73	30.00	64.00	0.47	0.00	48.00	0.00	24.00		
01	60.00	0.33	28.00	55.00	0.51	33.00	64.00	0.52	0.00	48.00	0.00	26.00		
0	60.00	0.40	29.00	55.00	0.53	30.75	64.00	0.48	0.00	48.00	0.00	28.00		
3	0.00	0.18	10.00	0.00	0.18	1.50	0.00	0.02	0.00	0.00	0.00	5.42		
2	0.00	0.09	5.00	0.00	0.09	0.75	0.00	0.01	0.00	0.00	0.00	2.71		
01	60.00	0.05	5.00	55.00	0.09	24.00	64.00	0.38	0.00	48.00	0.00	5.00		
01	60.00	0.07	12.00	55.00	0.22	48.00	64.00	0.75	0.00	48.00	0.00	33.00		
01	60.00	0.07	0.00	55.00	0.00	18.00	64.00	0.28	0.00	48.00	0.00	24.00		
01	60.00	0.00	6.00	55.00	0.11	18.00	64.00	0.28	0.00	48.00	0.00	24.00		
5	60.00	0.05	5.75	55.00	0.10	27.00	64.00	0.42	0.00	48.00	0.00	21.50		
9	0.00	0.03	4.92	0.00	0.09	14.28	0.00	0.22	0.00	0.00	0.00	11.79		
5	0.00	0.02	2.46	0.00	0.04	7.14	0.00	0.11	0.00	0.00	0.00	5.89		
01	60.00	0.05	6.00	55.00	0.11	52.00	64.00	0.81	6.00	48.00	0.13	24.00		
01	60.00	0.05	5.00	55.00	0.09	36.00	64.00	0.56	0.00	48.00	0.00	20.00		
0	60.00	0.05	5.50	55.00	0.10	44.00	64.00	0.69	3.00	48.00	0.06	22.00		
3	0.00	0.00	0.71	0.00	0.01	11.31	0.00	0.18	4.24	0.00	0.09	2.83		
0	0.00	0.00	0.50	0.00	0.01	8.00	0.00	0.13	3.00	0.00	0.06	2.00		
01	60.00	0.08	5.00	55.00	0.09	28.00	64.00	0.44	0.00	48.00	0.00	0.00		
01	60.00	0.23	0.00	55.00	0.00	36.00	64.00	0.56	0.00	48.00	0.00	0.00		
0	60.00	0.16	2.50	55.00	0.05	32.00	64.00	0.50	0.00	48.00	0.00	0.00		
5	0.00	0.11	3.54	0.00	0.06	5.66	0.00	0.09	0.00	0.00	0.00	0.00		
0	0.00	0.08	2.50	0.00	0.05	4.00	0.00	0.06	0.00	0.00	0.00	0.00		
01	60.00	0.10	0.00	55.00	0.00	4.00	64.00	0.06	0.00	48.00	0.00	6.00		
01	60.00	0.08	3.00	55.00	0.05	5.00	64.00	0.08	0.00	48.00	0.00	7.00		
0	60.00	0.09	1.50	55.00	0.03	4.50	64.00	0.07	0.00	48.00	0.00	6.50		
1	0.00	0.01	2.12	0.00	0.04	0.71	0.00	0.01	0.00	0.00	0.00	0.71		
0	0.00	0.01	1.50	0.00	0.03	0.50	0.00	0.01	0.00	0.00	0.00	0.50		
01	60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		
01	60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		
01	60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		
01	60.00	0.00	6.00	55.00	0.11	0.00	64.00	0.00	0.00	48.00	0.00	0.00		
01	60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		
01	60.00	0.05	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		
01	60.00	0.12	7.00	55.00	0.13	0.00	64.00	0.00	0.00	48.00	0.00	0.00		
01	60.00	0.00	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		
01	60.00	0.07	0.00	55.00	0.00	0.00	64.00	0.00	0.00	48.00	0.00	0.00		
5	60.00	0.03	1.44	55.00	0.03	0.00	64.00	0.00	0.00	48.00	0.00	0.00		
	0.00	0.04	2.88	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	0.00	0.01	0.96	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00		

llow Abdominal Organs			Solid Abdominal Organs			Right Ears				Left Ears	
core	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio	Score	Possible	Ratio
9.00	48.00	0.81	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
9.00	48.00	0.81	4.00	44.00	0.09	0.00	40.00	0.00	0.00	40.00	0.00
4.00	48.00	0.50	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
4.00	48.00	0.50	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
1.50	48.00	0.66	2.00	44.00	0.05	0.00	40.00	0.00	0.00	40.00	0.00
8.66	0.00	0.18	2.31	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00
4.33	0.00	0.09	1.15	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00
7.00	48.00	0.15	3.00	44.00	0.07	0.00	40.00	0.00	10.00	40.00	0.25
5.00	48.00	0.10	3.00	44.00	0.07	0.00	40.00	0.00	0.00	40.00	0.00
8.00	48.00	0.38	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
9.00	48.00	0.19	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
9.75	48.00	0.20	1.50	44.00	0.03	0.00	40.00	0.00	2.50	40.00	0.06
5.74	0.00	0.12	1.73	0.00	0.04	0.00	0.00	0.00	5.00	0.00	0.13
2.87	0.00	0.06	0.87	0.00	0.02	0.00	0.00	0.00	2.50	0.00	0.06
6.00	48.00	0.75	0.00	44.00	0.00	12.00	40.00	0.30	12.00	40.00	0.30
6.00	48.00	0.54	0.00	44.00	0.00	2.00	40.00	0.05	0.00	40.00	0.00
4.00	48.00	0.50	3.00	44.00	0.07	12.00	40.00	0.30	12.00	40.00	0.30
6.00	48.00	0.54	3.00	44.00	0.07	0.00	40.00	0.00	0.00	40.00	0.00
8.00	48.00	0.58	1.50	44.00	0.03	6.50	40.00	0.16	6.00	40.00	0.15
5.42	0.00	0.11	1.73	0.00	0.04	6.40	0.00	0.16	6.93	0.00	0.17
2.71	0.00	0.06	0.87	0.00	0.02	3.20	0.00	0.08	3.46	0.00	0.09
5.00	48.00	0.10	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
3.00	48.00	0.69	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
4.00	48.00	0.50	0.00	44.00	0.00	4.00	40.00	0.10	0.00	40.00	0.00
4.00	48.00	0.50	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
1.50	48.00	0.45	0.00	44.00	0.00	1.00	40.00	0.03	0.00	40.00	0.00
1.79	0.00	0.25	0.00	0.00	0.00	2.00	0.00	0.05	0.00	0.00	0.00
5.89	0.00	0.12	0.00	0.00	0.00	1.00	0.00	0.03	0.00	0.00	0.00
.00	48.00	0.50	0.00	44.00	0.00	5.00	40.00	0.13	0.00	40.00	0.00
.00	48.00	0.42	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
2.00	48.00	0.46	0.00	44.00	0.00	2.50	40.00	0.06	0.00	40.00	0.00
2.83	0.00	0.06	0.00	0.00	0.00	3.54	0.00	0.09	0.00	0.00	0.00
2.00	0.00	0.04	0.00	0.00	0.00	2.50	0.00	0.06	0.00	0.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	3.00	40.00	0.08	12.00	40.00	0.30
.00	48.00	0.00	0.00	44.00	0.00	2.00	40.00	0.05	0.00	40.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	2.50	40.00	0.06	6.00	40.00	0.15
.00	0.00	0.00	0.00	0.00	0.00	0.71	0.00	0.02	8.49	0.00	0.21
.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.01	6.00	0.00	0.15
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	48.00	0.15	0.00	44.00	0.00	1.00	40.00	0.03	0.00	40.00	0.00
.50	48.00	0.07	0.00	44.00	0.00	0.50	40.00	0.01	0.00	40.00	0.00
.71	0.00	0.10	0.00	0.00	0.00	0.71	0.00	0.02	0.00	0.00	0.00
.50	0.00	0.07	0.00	0.00	0.00	0.50	0.00	0.01	0.00	0.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	48.00	0.00	0.00	44.00	0.00	0.00	40.00	0.00	0.00	40.00	0.00
.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00