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SOLID WASTE DRUM ARRAY FIRE PERFORMANCE [SEC 1 OF 7]

Pages: 151

THIS DOCUMENT WAS TOO LARGE TO SCAN AS A SINGLE DOCUMENT. IT REQUIRED BREAKING INTO SMALLER SECTIONS.

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SECTION: 1 OF 7

TITLE: Solid Waste Drum Array Fire Performance

AUTHOR: Louie RL

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ENGINEERING DATA TRANSMITTAL

Page 1 of 1

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7. Abstract

Fire hazards associated with drum storage of radioactively contaminated wastes are a major concern in DOE waste storage facilities. This report is the second of two reports on fire testing designed to provide data relative to the propagation of a fire among storage drum arrays. The first report covers testing of individual drums subjected to an initiating fire and the development of the analytical methodology to predict fire propagation among storage drum arrays. This report is the second report, which documents the results of drum array fire tests. The purpose of the array tests was to confirm the analytical methodology developed by Phase I fire testing. These tests provide conclusive evidence that fire will not propagate from drum to drum unless an continuous fuel source other than drum contents is provided.

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Solid Waste Drum Array Fire Performance

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Solid Waste Drum Array Fire Performance

1.0 INTRODUCTION

In earlier work [Rhodes et al., 1995], a methodology was developed which can be used to predict the performance of drums in various storage configurations during a fire. The performance of drums under fire conditions and the potential for fire propagation was assessed. In general, two failure modes were identified for the drums: (1) lid loss, and (2) lid seal failure. The basis for the analyses included both analytical and experimental results for drums exposed to specified fire conditions. Based on these results, predictions as to the extent of fire propagation and the performance of drums in storage configurations were made for several fire initiating events. It is believed that the results represent worst case conditions and serve as a conservative estimate of drum performance in an actual fire event.

The drum response model was developed to support FHA/SAR analyses for solid waste drum storage facilities. It has already been applied to a limited number of storage configurations including rack and stacked pallet drum arrays. The drum array fire tests, reported herein, were intended to validate the drum response model and show that it is a conservative tool which can be used to predict drum failures.

While the earlier drum testing was an essential element of establishing the validity of the models, it is also necessary to assess the models by comparison with drum array tests. Individual drum tests as performed earlier were instrumented thoroughly, the fire environment was controlled well, and a relatively large number of tests were performed. Array tests cannot be so thoroughly instrumented or controlled, and a very limited number of tests is possible. Array tests do, however, allow the various component phenomena to interact. This can give rise to phenomena which cannot occur in individual drum tests. An obvious example is drum array stability which inherently cannot be studied in single drum tests. Thus, the drum array testing was needed to validate the models developed. Another benefit of the drum array testing was to provide a more quantitative measure of the amount of drum contents expelled during the tests.

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2.0 OBJECTIVE

The purpose of the drum array fire tests was to demonstrate that the analytical methods developed in earlier work are predictive and yet somewhat conservative. The full-scale tests, which included both rack storage and palletized drum array configurations, were conducted. Using the methodologies developed, predictions of drum performance and extent of fire propagation were made for the full-scale tests. A comparison of these predictions with the actual test results would serve as a validation of the models generated in previous work efforts.

The following section provides the results of the predictions made prior to the drum array tests based on the test arrangements proposed in the test plan. Following that section, the details of the drum array experimental setups, the tests results, and discussion of the results are provided.

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3.0 PREDICTION OF DRUM PERFORMANCE IN FULL-SCALE FIRE TESTS

3.1 GENERAL

Based on the earlier work, the following analysis and predictions of the drum array test results were made. The methodologies that were used were expected to provide somewhat conservative drum performance estimates. These predictions were made and finalized prior to the conduct of the rack storage and pallet storage array tests. No changes to the analysis in this section were made based on the actual tests.

3.2 RESPONSE OF DRUMS TO FIRE EXPOSURES

As a result of the earlier drum fire tests, criteria were developed to indicate lid loss failure for a drum exposed to a fire. It was found that the steel drum wall temperature was in the range of 600-800°C for all of the drums at the time of lid loss failure. In no cases did lid loss occur when wall temperatures were below 600°C. Although all drums which experienced lid loss were in this temperature range, not all of the drums which achieved these temperatures experienced lid loss. Several drums in the range of 600°-750°C resulted in lid seal failure only. However, for temperatures exceeding 750°C, all of the drums resulted in lid loss failure.

All of the drums which experienced lid loss did so in less than three minutes. After this time, even if drum wall temperatures exceeded 600°C, lid loss did not occur. This resulted from the gasket seal decomposing and venting the drum prior to lid loss. Although criteria were established for lid loss, no systematic trend was observed for lid seal failure.

The thermal response of the drums was calculated using the Semi-Infinite Solid Contents Analyses presented in the earlier report. This model accounted for the packing density of the drum and provided temperature and pressure data for a drum exposed to an external heat flux. Based on the lid loss criteria above, it was determined that if an exposed drum wall section was heated to at least 600°C in less than approximately 180 seconds, then lid loss was possible. Further, if the drum was heated to above 750°C in less than 180 seconds, than lid loss failure was almost certain.

Based on the drum and fuel configurations in the rack and pallet storage tests, it was expected that the drums will generally either be completely exposed to the fire or they will be exposed on only one side. The thermal properties of the standard load were based on a material having a similar packing density. In this case, properties of regranulated cork were used. The thermal properties needed for the model were as follows:

ρ = 120 kg/m^3 (packing density of standard load drum is about 110 kg/m^3),
k = 0.045E-03 kW/m-°C, and
C_p = 1.88 kJ/kg-°C.

These values were based upon the packing density of the drum and literature data for materials with this bulk density.

Figures 1 and 2 show the calculated drum wall temperature results for a full and half perimeter exposure to a drum. For the full perimeter exposure, if the incident heat flux was less than about 40 kW/m^2, lid loss would not occur. For incident fluxes greater than about 70 kW/m^2, lid loss failure was expected. Between 40 and 70 kW/m^2, the failure mode of the drum would vary resulting in some lid loss drums and some lid seal failures. For the half perimeter exposure, the minimum critical flux was approximately 45 kW/m^2, and for incident heat fluxes greater than 75 kW/m^2, lid loss would be expected. Based on the calculated responses of drums to specified incident heat fluxes, the response of the drums during the fire tests was predicted.

3.3 RACK STORAGE TEST

Figures 3 and 4 provide diagrams of the proposed test arrangement for the rack storage test configuration. The configuration consisted of three rows of storage with each row being six tiers high (7.54 m). Two rows were back-to-back, and one row was separated from the other rows by a 1.57 m (5.2 ft) aisle. The rack system was anchored to the concrete floor of the test facility.

A total of 144 drums were used in the test. The overall weight of each drum was 79.6 kg (175.6 lb), and it contained both combustible and noncombustible materials. The drums were mounted in the racks using the containments pan and mesh arrangement. Seismic bars were also in place. The fire source consisted of approximately 208 L (53 gal) diesel fuel spilled into an area of about 16.6 m^2 (179 ft^2) as shown in Figure 3. The methodology developed in the earlier work was applied to this fire scenario in order to predict the number of drum failures and the extent of fire propagation.

3.3.1 Description of Fire Exposure

In order to determine the exposure to the drums, it was necessary to determine the burning behavior of the liquid pool fire. Based on the configuration of the fuel shown in Figure 3, estimates of the fire growth rate, maximum heat release rate, flame height, and burning duration were calculated.

Typically, flammable/combustible liquid pool fires grow to their maximum intensity very quickly. Since the fire growth time would be small compared to the overall burning duration, it was assumed that the pool fire burned at its maximum heat release rate for the duration of the experiment. The maximum heat release rate for the diesel pool fire was estimated as

$$\dot{Q} = \dot{m}'' A \Delta H_c \quad (1)$$

where $\dot{Q}$ = the heat release rate (kW),
$\dot{m}''$ = the steady mass burning rate per unit area (kg/m^2-s),

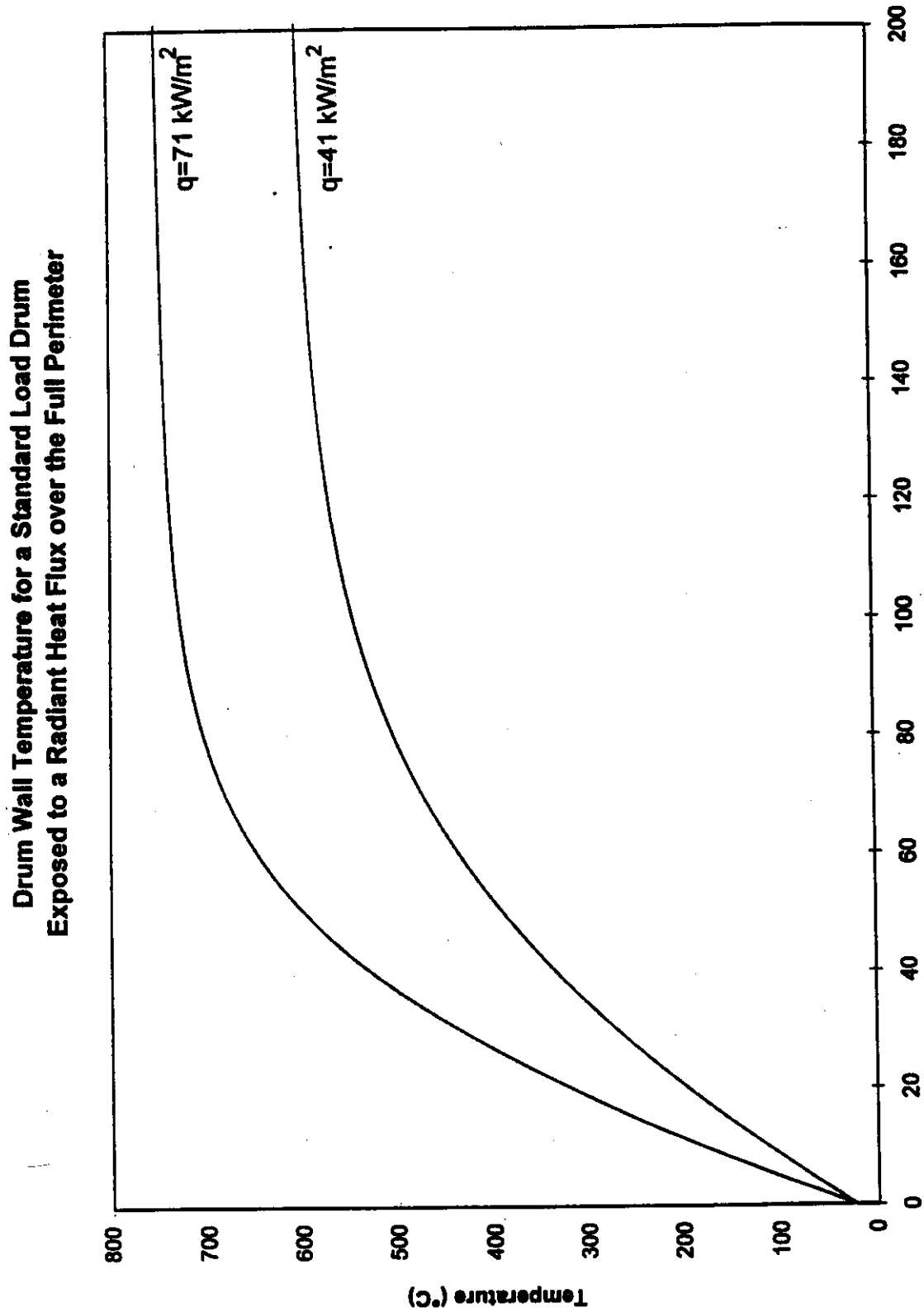


Figure 1. Drum Wall Temperatures — Full Perimeter

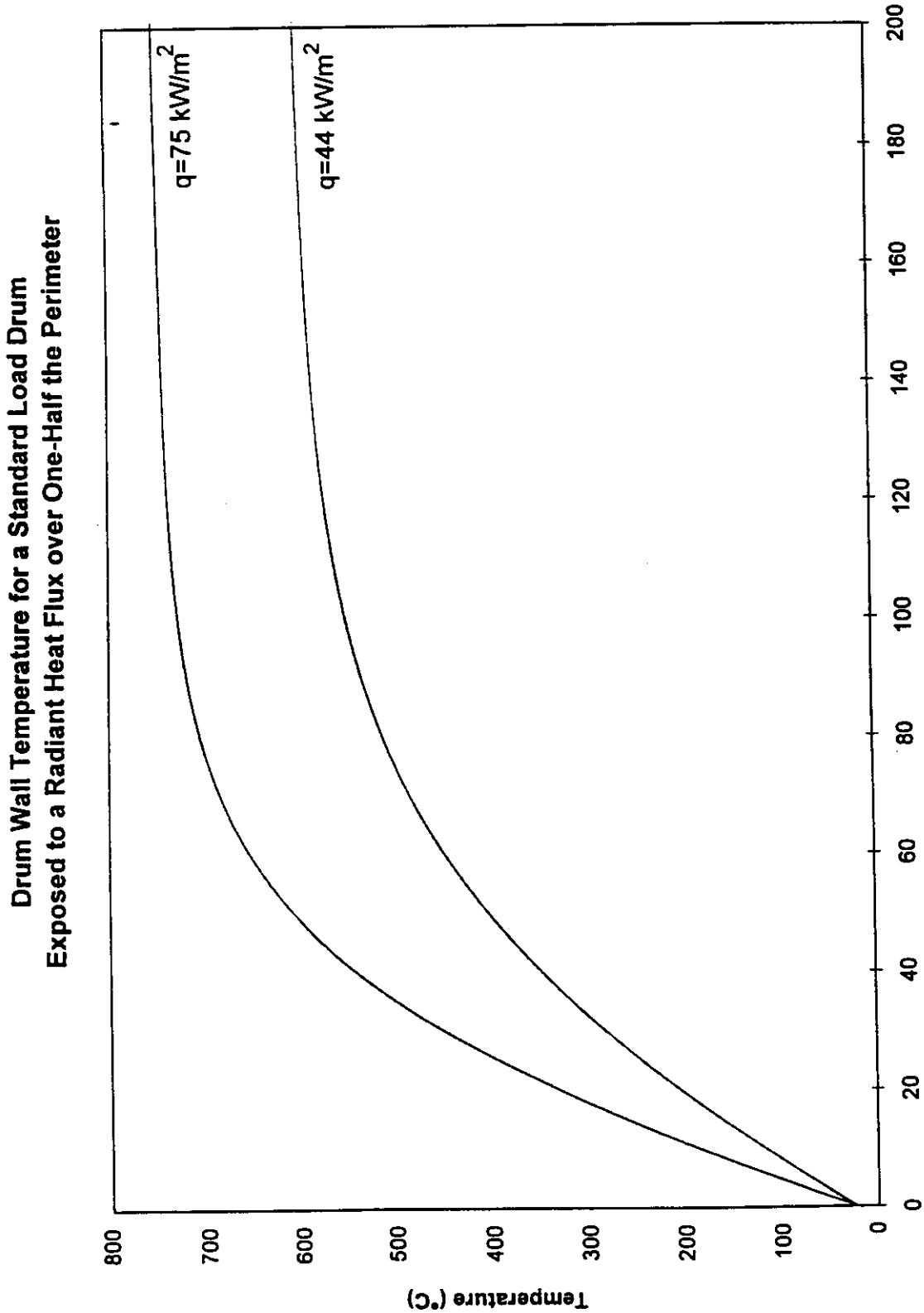


Figure 2. Drum Wall Temperatures — Half Perimeter

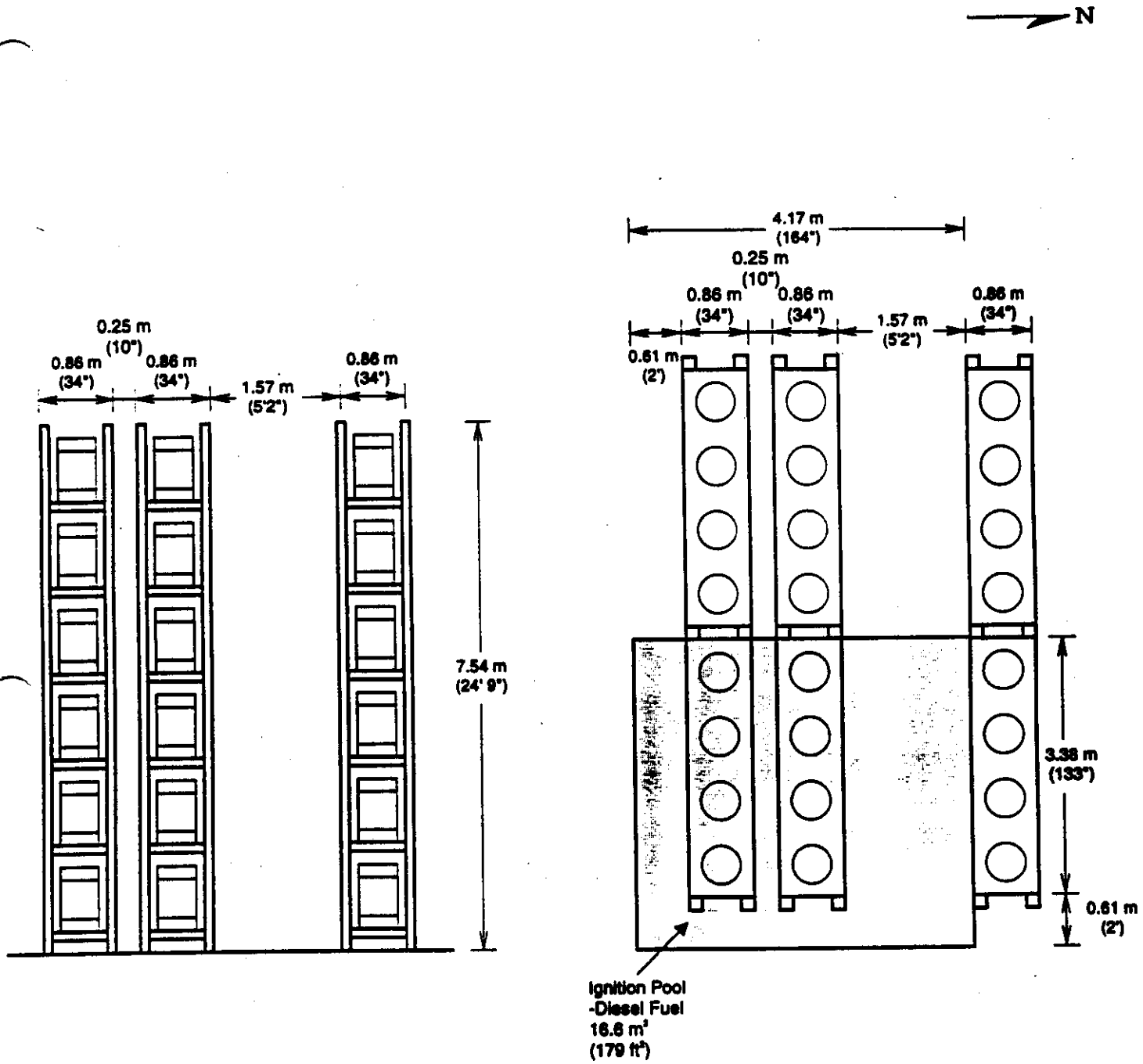
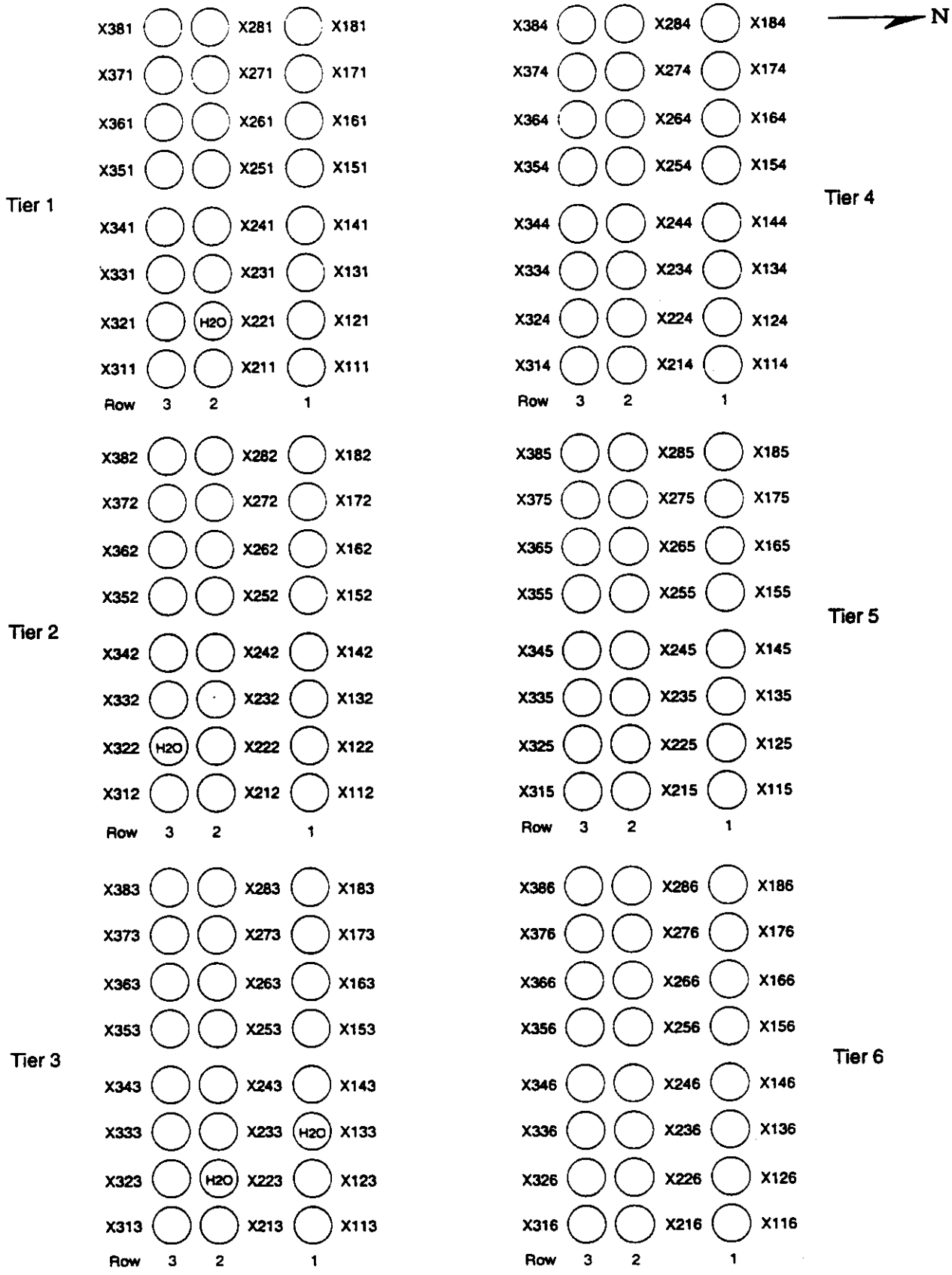


Figure 3. Planned Overall Rack Storage Experimental Setup



Note: Drum number indicates Test-Row-Bay-Tier.

Figure 4. Rack Storage Drum Location Diagram

A = the burn area (m^2), and
ΔH_c = the heat of combustion of the diesel fuel (kJ/kg).

Burning properties for the fuel can be obtained from either fire tests or in the literature. In this case, properties for kerosene were used since it had similar burning properties as diesel fuel and the information was available in the literature. The maximum burning rate and heat of combustion were provided by Babrauskas [1988] and were taken as 0.039 kg/m^2-s and 40 MJ/kg respectively. The area of the diesel pool shown in Figure 3 is about 16.6 m^2 (179 ft^2). From Equation 1, this yielded a maximum heat release rate of approximately 25.9 MW.

The height of the flame was estimated in order to determine how many tiers of drums would be exposed to the flames. For this, a correlation for the visible flame height (L_f) was used [Heskestad, 1988]:

$$L_f = 0.23\ \dot{Q}^{2/5} - 1.02\ D \qquad [m, kW] \tag{2}$$

where D is the equivalent diameter of the pool fire given by

$$D = 2\sqrt{\frac{A}{\pi}} \tag{3}$$

An equivalent diameter was used so that the height of the square base fire could be estimated by Equation 3 which was for a circular source fire. For a pool area of 16.6 m^2, this yielded an equivalent diameter of about 4.6 m (15.1 ft). From Equation 2, with a heat release rate of 25.9 MW, this yielded a visible flame height of about 8.7 m (28.6 ft). Since the height of the rack system is only 7.54 m (24.75 ft), the flame would be expected to directly expose all six tiers of the array. These predictions were made based on a planned pool area of 16.6 m^2 (179 ft^2). [Note: In the actual test, an 18.2 m^2 (196 ft^2) pool was actually used. This increase in pool size increases the flame height slightly but does not change the resulting damage.]

The burning duration of the fire is a function of the mass of fuel, the steady mass burning rate, and the area of the pool. The burning duration was estimated by

$$t_b = \frac{m}{\dot{m}'' A} \tag{4}$$

where t_b = the burning duration (s), and
m = the total mass of fuel (kg).

The total amount of diesel fuel was approximately 208 L (55 gal). Again using properties for kerosene, assuming a density of 0.825 kg/L [Kanury, 1975], this yielded a total fuel mass of about 171.6 kg. Using Equation 4 with a steady mass loss rate of 0.039 kg/m^2-s and a burn area of 16.6 m^2, this would provide a burning duration of 265 seconds (~4-5 minutes). [Note: In the actual test, 284 L (75 gal) of fuel was used.]

3.3.2 Predicted Response of Rack Storage Drums

The emissive power of the pool fire was estimated from the literature. The two principle correlations of emissive power available in the literature are by Mudan and Croce [1988] and Shokri and Beyler [1989]. The correlation of Mudan and Croce yielded an emissive power of 80 kW/m^2 for a 4.6 m diameter pool source. The Shokri and Beyler correlation yielded an emissive power of 53 kW/m^2 with data as high as 70 kW/m^2. Based on these results, a conservative estimate of 80 kW/m^2 was chosen for the emissive power. This indicates that any drum at the edge of the flame would be exposed to this flux and was expected to experience lid loss failure. Drums within the pool area would be within the flame and would be exposed to higher fluxes. These drums, within the flames, would experience lid loss. In Rows 2 and 3 (see Figure 4), drums in Bays 1-4 are fully engulfed by the flame. All six tiers of drums in these positions would be expected to experience lid loss failure. In the these rows, the first drum outside the pool fire (drums X25_ and X35_ in Figure 4) would be directly exposed to the pool fire and expected to experience lid loss. In Row 1, all drums in Bays 1-4 would be expected to experience lid loss since they also were directly adjacent to the pool. While this conclusion for the drums directly exposed to the edge of the fire is unlikely to be realized on the top two tiers due to flame shape and drum obstruction effects, these effects could not be excluded analytically.

The separation distance from the flame required to prevent lid loss is governed by the minimum heat flux required to cause lid loss. As indicated previously, this heat flux was in the range of 45 to 75 kW/m^2. To maintain conservatism in the prediction, calculations were based on a required heat flux of 45 kW/m^2. The configuration factor required to yield an incident flux of 45 kW/m^2 was 45/80 or 0.56. Of course, the configuration factor is reduced as one moves away from the pool, and at some distance, lid loss will no longer be possible. It then remains to determine which drums outside the flame have configuration factors in excess of 0.56, using the cylindrical flame model and a vertical target.

In Rows 2 and 3, drums X26_, X27_, X28_, X36_, X37_, and X38_ (see Figure 4) would be substantially shielded from the flame by drums between the target and the assumed cylindrical flame. As such, these drums were not expected to experience lid loss due to flame radiation. Thus, in Rows 2 and 3, the only drums outside the pool which would experience lid loss are drums X25_ and X35_.

In Row 1, for the Bay 5 drums, the configuration factors at the base level was approximately at the limiting configuration factor. As such, all tiers of that position were expected to be lost. Again, this appears to be somewhat conservative at the uppermost tiers. At Bay 6, at the midheight of the flame (around Tier 4), the configuration factor was greater than the critical value, but at the base of the bay the configuration factor was less than the critical value. As such, the middle four tiers only were expected to be lost. At Bay 7, at the midheight of the flame, the configuration factor was less than the critical value. As such, all tiers in this bay were less than the critical value, and no lid losses in this position were expected due to flame radiation from the pool. Thus, in Row 1 all drums in Bays 1-5 were expected to experience lid loss failure and drums in Tiers 2-5 at Bay 6 would also experience lid loss due to flame radiation.

In the earlier work, it was shown that the radiant energy from a burning drum was not sufficient to cause lid loss failure of neighboring drums. The analysis included both lateral and

vertical fire propagation. As such, no additional lid losses were expected due to exposure to burning drums.

As a result of the lid loss drums, the standard load contents would be expelled within the rack and onto the floor. As it was shown in the earlier testing, the average heat flux from drum content fires was on the order of 25 kW/m^2. Since this was less than the minimum heat flux required to cause lid loss, no additional lid loss failures would be expected due to drum content fires.

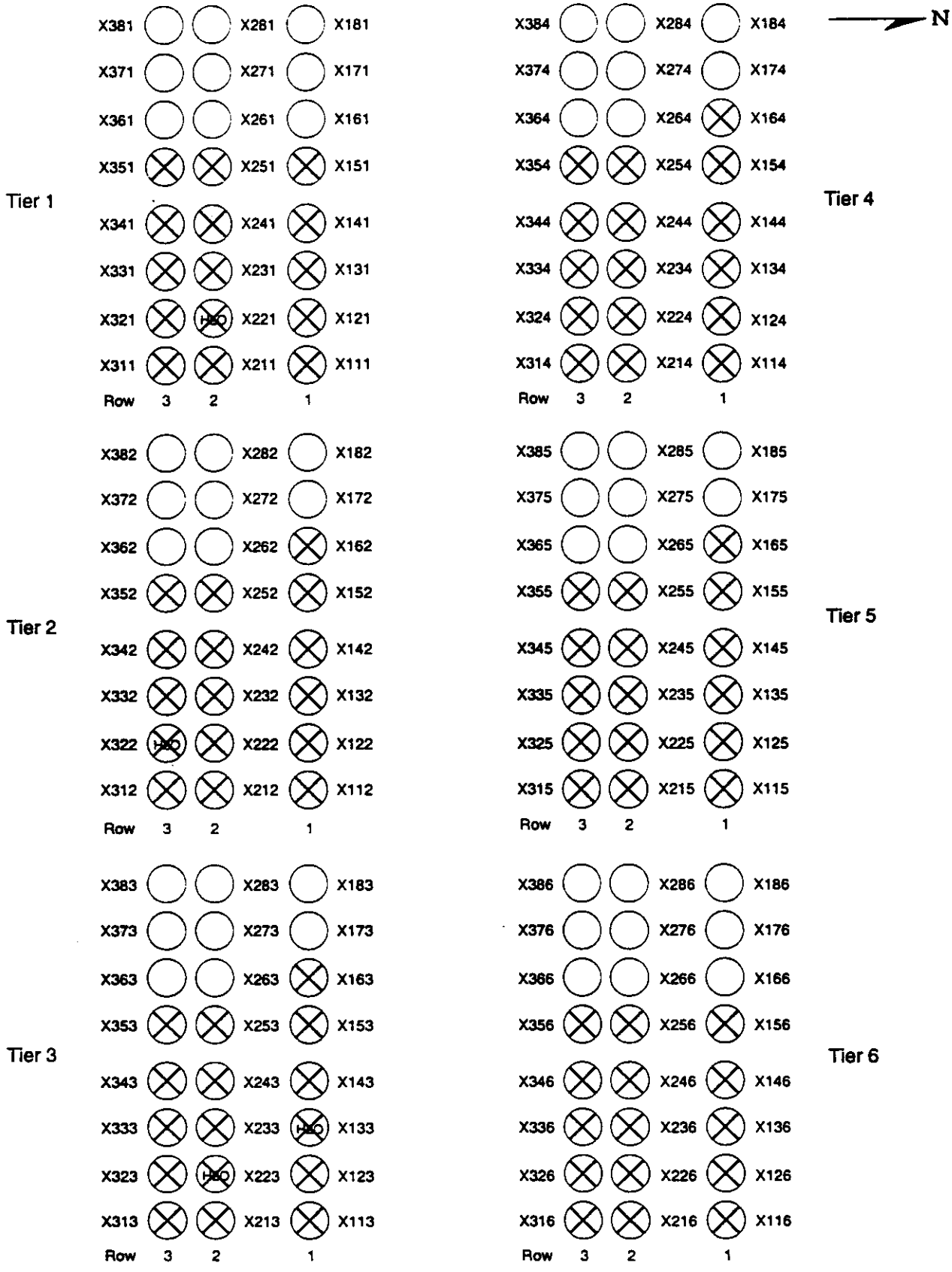
Based on a heat transfer analysis of the rack system in the earlier report, it was expected that the steel uprights would reach critical failure temperatures of 500 - 600°C within approximately 100 seconds. Failure of the steel members would cause deformation of the rack. Since seismic bars were in place and based on the geometry of the racks with respect to one-another, it was not expected that the drums would fall out of the rack. As such, no additional lid losses were expected due to failure of the rack system.

The drums which would experience lid loss due to the pool fire are summarized in Figure 5 in which an X is placed on these drums. The total number of drums conservatively predicted to experience lid loss are 48 within the pool area and 46 adjacent to the pool fire. These predictions treat the pool fire as a cylindrical radiator with an average flame emissive power of 80 kW/m^2 and a critical flux for lid loss of 45 kW/m^2.

If the emissive power used was 53 kW/m^2 as indicated by Shokri and Beyler and a critical heat flux for lid loss of 60 kW/m^2 (average of 45 and 75 kW/m^2 extremes) was used, then no drums outside the pool would experience lid loss. Since the accuracy of an average emissive power would be reduced as one approaches the pool edge, there are real changes in the appropriate emissive power depending on the height of the target. Based on these calculations, the number of drum lids lost outside the pool would be expected to be in the range of 0 to 46.

3.4 PALLET STORAGE TEST

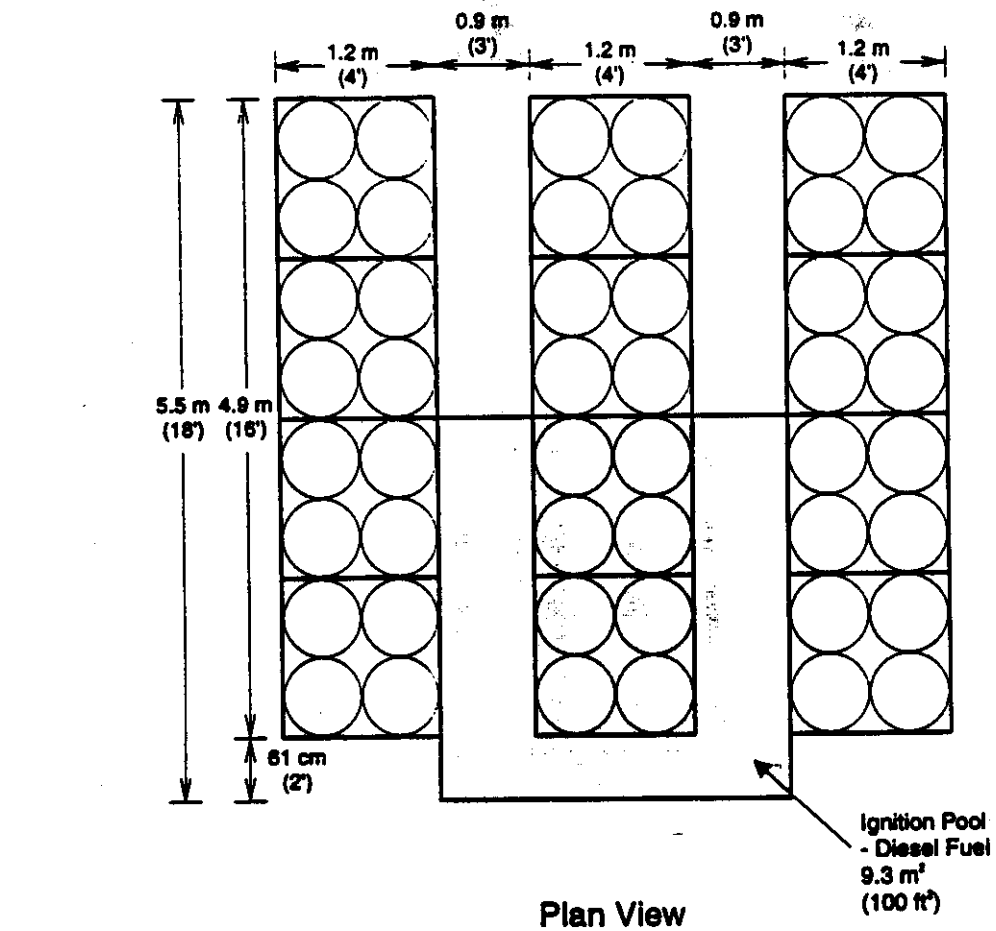
Figures 6 and 7 provide diagrams of the proposed test arrangement for the pallet storage test configuration. The configuration consisted of three rows of pallets with each row being three tiers high (~3.1 m assuming 15 cm high pallets). Two rows used wooden pallets and one row used steel pallets. The rows of pallets were separated by 0.91 m (3.0 ft) aisles. Within a row, the pallets were positioned flush with one another.



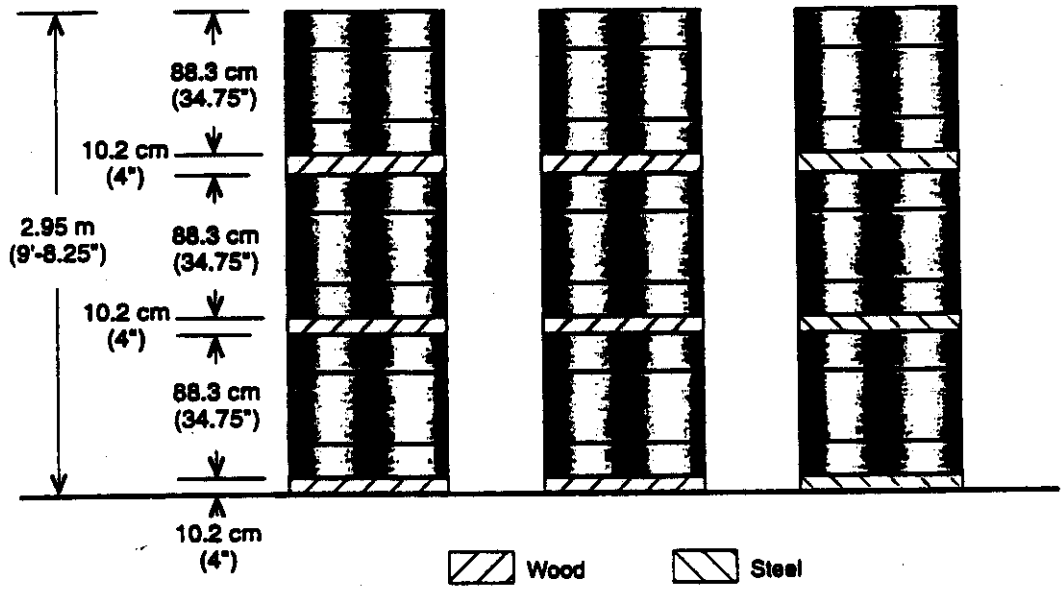
Note: Drum number indicates Test-Row-Bay-Tier.

⊗ Potential Lid Loss

Figure 5. Predicted Rack Storage Lid Losses

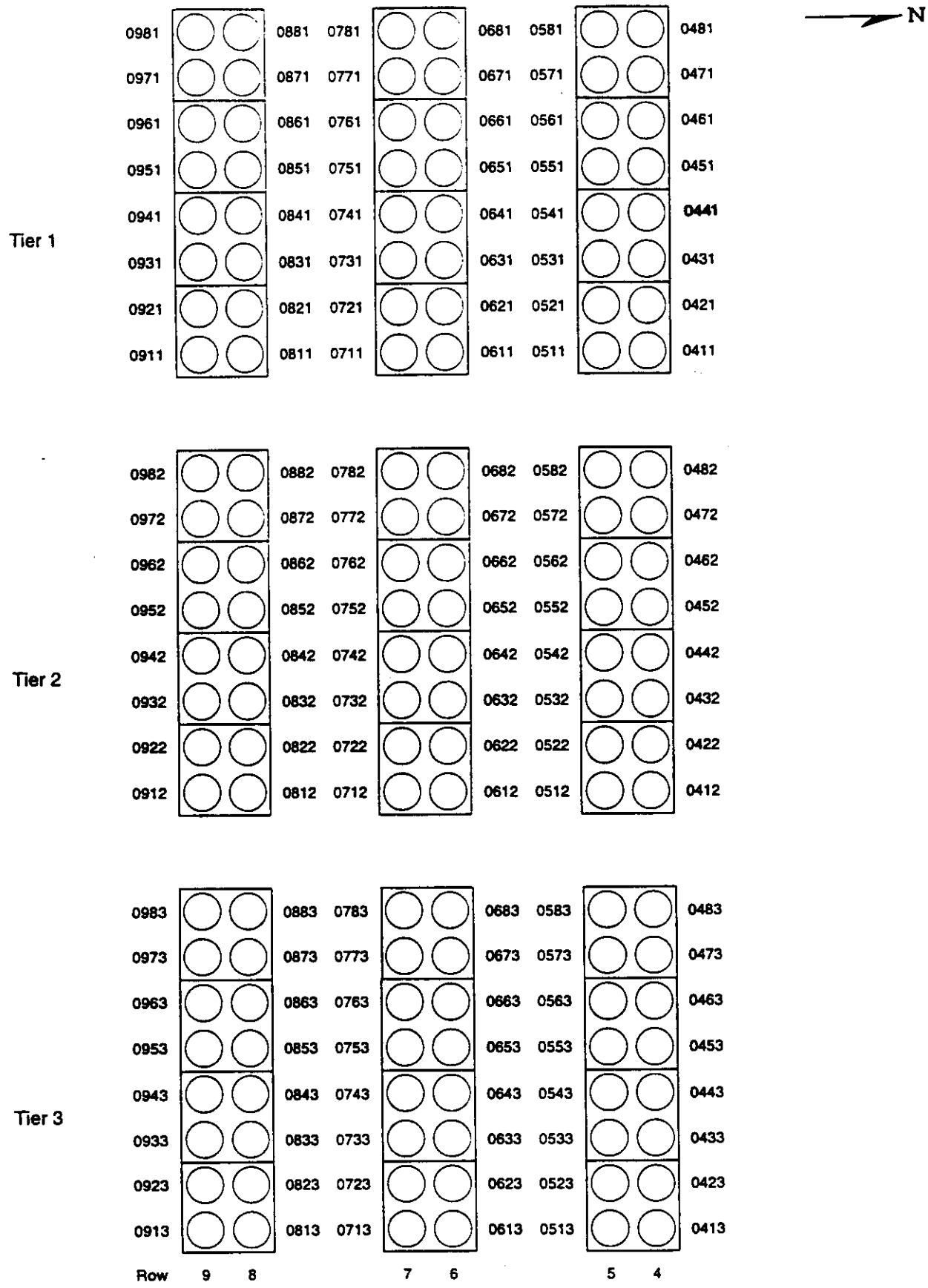


Plan View



Side View

Figure 6. Planned Overall Rack Storage Experimental Setup



Note: Drum number indicates Test-Row-Bay-Tier.

Figure 7. Pallet Storage Drum Location Diagram

A total of 144 drums were used in this test. The overall weight of each drum was 79.6 kg (175.6 lb), and it contained both combustible and noncombustible materials. Each pallet held four drums. The four drums were banded together by a single, horizontal, high tensile steel strap. The fire source consisted of approximately 135 L (35 gal) diesel fuel spilled into an area of about 9.3 m^2 (100 ft^2) as shown in Figure 5. The methodology developed in earlier work was applied to this fire scenario in order to predict the number of drum failures and the extent of fire propagation.

3.4.1 Description of Fire Exposure

In order to determine the exposure to the drums, it was necessary to determine the burning behavior of the liquid pool fire. Based on the configuration of the fuel shown in Figure 6, estimates of the fire growth rate, maximum heat release rate, flame height, and burning duration were calculated.

Typically, flammable/combustible liquid pool fires grow to their maximum intensity very quickly. Since the fire growth time would be small compared to the overall burning duration, it was assumed that the pool fire burned at its maximum heat release rate for the duration of the experiment. The maximum heat release rate for the diesel pool fire was estimated from Equation 1. For a pool area of 9.3 m^2, this yielded a maximum heat release rate of 14.5 MW. The height of the flame was estimated from Equations 2 and 3. The equivalent diameter of the pool was approximately 3.4 m, and the visible flame height was 7.1 m. Since the height of the pallet stacks is about 3.1 m, the flame would expose all three tiers of drums. The burning duration of the fire was calculated using Equation 4. The total amount of diesel fuel was 135 L. For a density of 0.825 kg/L, this yielded a total fuel mass of 111.4 kg. This would provide a burning duration of 307 seconds (~ 5 minutes). [Note: In the actual test, 142 L of fuel was used.] The predicted heat release and burn duration does not include a reduction in the burning rate due to shielding the pool surface by the drums.

3.4.2 Predicted Response of Pallet Storage Drums

The emissive power of the pool fire was estimated from the literature. The two principle correlations of emissive power available in the literature are by Mudan and Croce [1988] and Shokri and Beyler [1989]. The correlation of Mudan and Croce yielded an emissive power of 100 kW/m^2 for a 3.4 m diameter pool source. The Shokri and Beyler correlation yielded an emissive power of 55 kW/m^2 with data as high as 70 kW/m^2. Based on these results, a conservative estimate of 100 kW/m^2 was chosen for the emissive power. This indicates that any drum within the flame or at the edge of the flame would be exposed to this flux and was expected to experience lid loss failure. The drums on the first two pallet stacks in Rows 6 and 7 (drum nos. O6__ and O7__, Bays 1-4 in Figure 7) would be completely engulfed in the flames. It would be expected that all of these drums would experience lid loss failure. The drums in Rows 5 and 8 (drum nos. O5__ and O8__, Bays 1-4) and the drums in Bay 5 of Rows 6 and 7 (drum nos. O65_ and O75_) would be immediately adjacent to the pool fire and would be exposed to fluxes equivalent to the emissive power of the pool fire which exceeds the critical flux for lid loss failure. As such, these drums were expected to experience lid loss.

The separation distance from the flame required to prevent lid loss is governed by the minimum heat flux required to cause lid loss. As indicated previously, this heat flux was in the range of 45 to 75 kW/m^2. To maintain conservatism in the prediction, calculations were based on a required heat flux of 45 kW/m^2. The configuration factor required to yield an incident flux of 45 kW/m^2 is 45/100 or 0.45. Of course, the configuration factor is reduced as one moves away from the pool and at some distance lid loss will no longer be possible. It then remains to determine which drums outside the flame have configuration factors in excess of 0.45, using the cylindrical flame model and a vertical target.

Drums beyond Bay 5 in Rows 6 and 7 would be significantly shielded from the pool fire and were not expected to experience lid loss. Bays 5, 6, and 7 in Rows 5 and 8 were predicted to have configuration factors in excess of the critical values. However, this ignores the significant shielding provided by drums in Rows 6 and 7 in conjunction with the narrow aisle widths. Based on this shielding, only Bays 5 and 6 were expected to experience lid loss due to pool fire radiation.

The drums which were expected to experience lid loss due to pool fire radiation are all the drums within the pool as well as the following drums outside the pool: 051_, 052_, 053_, 054_, 055_, 056_, 065_, 075_, 081_, 082_, 083_, 084_, 085_, and 086_. Thus, 24 drums within the pool were expected to experience lid loss and 42 drums outside the pool were expected to experience lid loss due to pool fire radiation. These predictions treat the pool fire as a cylindrical radiator with an average flame emissive power of 100 kW/m^2 and a critical flux for lid loss of 45 kW/m^2.

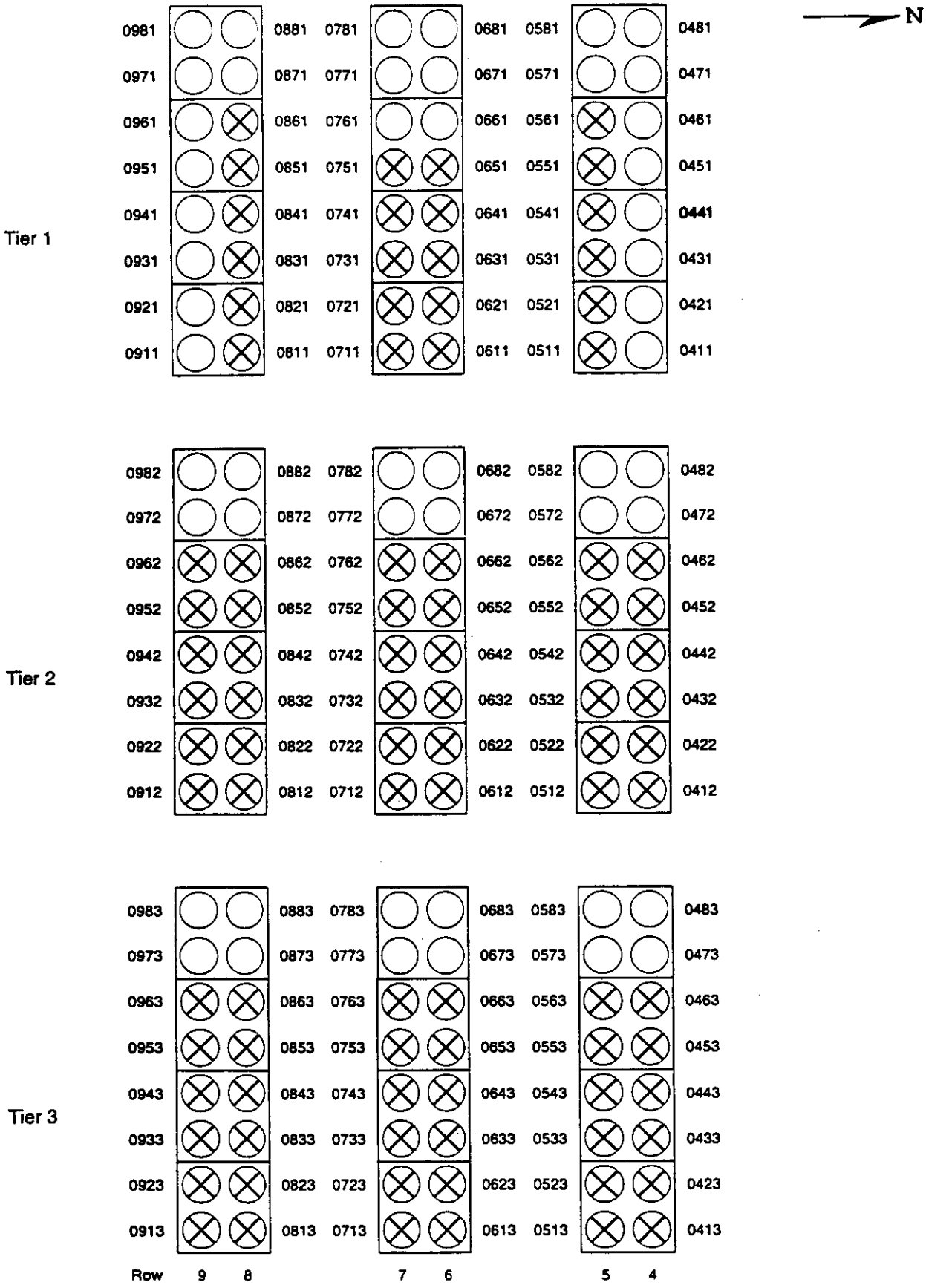
If the emissive power used was 55 kW/m^2 as indicated by Shokri and Beyler and a critical heat flux for lid loss of 60 kW/m^2 (average of 45 and 75 kW/m^2 extremes) were used, then no drums outside the pool would experience lid loss. Since the accuracy of an average emissive power would be reduced as one approaches the pool edge, there are real changes in the appropriate emissive power depending on the height of the target. Based on these calculations, the number of drum lids lost outside the pool would be expected to be in the range of 0 to 52.

When drums on the lower tiers experience lid loss failure, the force from the lid release could potentially tip over the pallet stacks above. A Drum Array Stability Model was developed in earlier work which calculated the minimum release pressure necessary to tip over the stacked drums. The model was based on the geometry and weight of the drums and pallets. No credit was taken for banding drums on the pallets. Since both steel and wooden pallets were used in the test, the minimum pressure required to topple the two types of pallets will vary. For the specific test arrangement shown in Figure 5, the mass of the drums was taken as 79.6 kg (175.6 lb) and the mass of the steel pallets was taken as 91 kg (200 lb). In the stability analysis, only the mass of the steel pallets were considered since these would be more difficult to topple than the wooden pallets. For a drum lid loss in the bottom tier, the minimum release pressure needed to topple the top two pallet stacks was approximately 20 psig. If the mass of the steel pallet was ignored, the minimum pressure was approximately 17 psig. This indicates that the critical pressure for the wooden pallet was between 17 and 20 psig. Based on the earlier drum response tests, failure pressures were measured to be in the range of 13 to 28 psig. As such, 20 psig is a reasonable failure pressure, and it would be expected that drums experiencing lid loss will topple the pallet stacks above.

Since at least some drums were predicted to experience lid loss in the first three pallets of each row, all drums on the top two tiers of these pallets would be expected to topple to the floor. The drums in Rows 4 and 5 and the drums in Rows 8 and 9 would be expected to fall away from the fire. For the center rows, the rotation of the pallet stacks depends on which drum experiences lid loss first. Drums which fall to the floor were assumed to lose their lids. The total number of drums which would lose their lids due to falling on the floor is 72. This includes the top two tiers of drums in positions 1-6 for all of the rows. Of the 72 drums, 44 would have experienced lid loss anyway, due to radiation from the flame. Although it is assumed that all of the drums which experience lid loss due to radiation from the fire will fail at pressures above 20 psig, it is likely that some might fail at lower pressures. In these cases, the pallet stacks may not topple, and the failure mode of the drums would be that described earlier for the pool fire radiation.

As a result of the lid loss drums, the standard load contents would be expelled on top of other drums and onto the floor. As it was shown in the earlier testing, the average heat flux from drum content fires was on the order of 25 kW/m^2. Since this is less than the minimum heat flux required to cause lid loss, no additional lid loss failures would be expected due to drum content fires.

The drums which experience lid loss due to the pool fire are summarized in Figure 8 in which an X is placed on these drums. The total number of drums conservatively predicted to experience lid loss are 66 due to radiation from the pool fire and an additional 28 due to drums falling to the floor. These predictions treat the pool fire as a cylindrical radiator with an average flame emissive power of 100 kW/m^2, and a critical flux for lid loss of 45 kW/m^2. It is further assumed that all drums experiencing lid loss due to radiation from the fire will cause the drums above to topple to the floor and lose their lids.



Note: Drum number indicates Test-Row-Bay-Tier.

⊗ Potential Lid Loss

Figure 8. Predicted Pallet Storage Lid Losses

4.0 EXPERIMENTAL - GENERAL

In this work, one rack storage array test and one pallet array test were conducted. These configurations represented the two primary storage types under consideration. In actual practice, the rack storage configuration may vary in the number of tiers included, the nature of the structure as well as the nature of the drum supports. The pallet configuration represented storage configurations in which the drums are stacked in vertical arrays. In actual practice, the number of drum levels within the array may vary, and the properties of the level separations may vary. In particular, current WHC practice and/or plans include pallets or plywood as level separations. The configurations which were used in these tests were reasonable representations of their respective storage configurations.

While the test setups used in the tests were intended to be representative of the general storage configurations in use, the initiating fire was designed to maximize the damage potential. Pool fires having a 1-2 m diameter yield the highest flame emissive power. Both smaller and larger diameters have lower emissive powers. As such, the pool fire initiating sources used for the tests were large enough to yield optically thick flames (1 m or more) providing the maximum exposure to the drums. In addition, the quantity of fuel was designed to burn longer than any drum lid loss failure time in earlier testing. This assured that if a lid loss could occur, it would occur in the testing. This is consistent with a philosophy of "testing to failure." While this philosophy cannot be fully implemented in a single test situation, the use of a very severe (optically thick and long duration) initiating source avoids the concern that a longer duration or larger pool fire might have a more severe effect. Clearly, if a shorter fire duration is expected in practice, the data will be of value up to the pool fire burn time expected.

The size of the storage array was dictated by the need for an optically thick initiating fire exposure as well as the need for the storage array to be sufficiently large relative to the initiating source such that fire propagation remote from the initiating source would be geometrically possible in the test. Implied in the test array size criterion was that if the fire propagates to the end of the storage array, it would be expected to propagate indefinitely. While this can only be assured in an indefinitely long storage array, the array length had be long enough to approach this limit credibly, but practically.

While instrumenting every drum in detail was desirable, this was not an economically feasible option. The level of instrumentation used was sufficient to allow the fire propagation to be understood in terms of the modeling and testing performed in the earlier work. Extensive use of thermocouples was made, since these are relatively inexpensive, very diagnostic, and do not interfere with drum movement. Pressure transducers on the drums were used to a lesser extent due to cost, data value, and the interference of transducer tubing on drum movement. Heat flux transducers were used in sufficient numbers to yield a reasonable mapping of the initiating fire heat fluxes. A few drum calorimeters were used in the tests to provide total heat input to selected locations. Since these drums were filled with water, they could potentially interfere with the outcome of the test. As such, their use was limited in number and were used in locations which were unlikely to interfere with the test outcome while still providing needed data.

4.1 TEST FACILITY

The tests were conducted at Southwest Research Institute (SwRI) in San Antonio, Texas [Parker, 1995]. The tests were conducted inside SwRI's Sprinkler/Research Building, which was 12.2 m (40 ft) wide x 18.3 m (60 ft) long with a 9.1 m (30 ft) high ceiling. Use of this facility reduced the effects of wind, rain, etc. on the fire tests. Ventilation during the tests consisted of opening the two personnel doors located in the northeast and northwest corners of the building, six louvered windows (4 ft x 4 ft) located at ground level along the periphery of the building and two large wall openings located at the top of the north and west walls.

4.2 INSTRUMENTATION

During the fire tests, measurements were made for temperatures, pressure rise inside selected drums, and total heat flux of the fire. Specific locations of the instrumentation used in each test is provided in Sections 5.2 and 6.2.

4.2.1 Temperatures

Temperatures were measured using bare 24 gauge, type K (chromel-alumel) thermocouples. The thermocouples were positioned at the following locations:

(1) Thermocouples Trees — either two (palletized storage) or three (rack storage) thermocouple trees were used to monitor the temperature at various heights above the floor of the pool fire.

(2) Drum wall temperatures — specific drums had thermocouples placed on the exterior surfaces. The thermocouples were positioned at one-fourth of the drum height up from the bottom and at one-fourth of the drum height down from the top. The thermocouples were welded to the exterior drum wall surface such that the two leads from the thermocouple wire were slightly flattened and welded approximately 3 mm (1/8 in.) apart to the cleaned drum surface. In instances where the thermocouple location was on a drum seam, the thermocouple was moved 25 mm (1 in.) to the left of the seam. Figure 9 provides a photograph showing the thermocouple placement on a test drum.

(3) Rack temperatures — Temperature measurements were also made at specific locations on the racks, containment pans, and support mesh during the rack storage test. These thermocouples were attached in a similar manner as those on the drum wall surfaces.

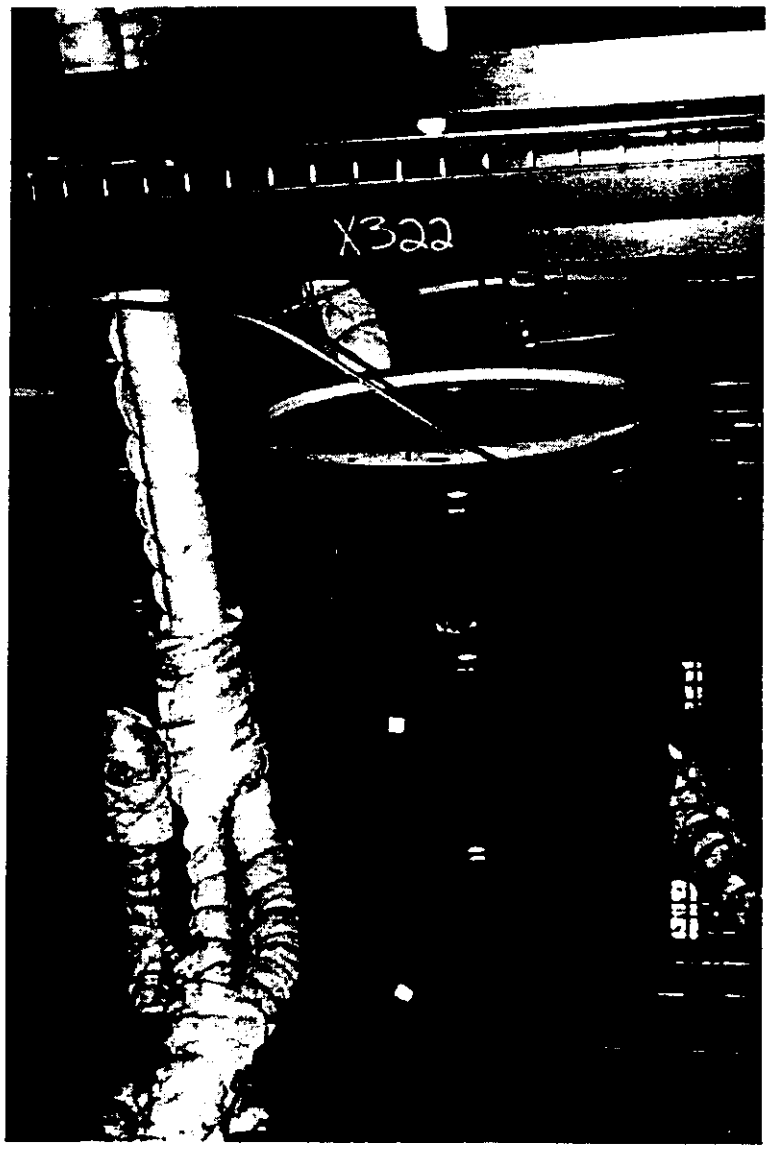


Figure 9. Drum with Temperature and Pressure Instrumentation

(4) Water temperatures — During the rack storage test, several water filled drums were used (see Section 4.5.1). The temperature of the water was measured at three locations inside the drum via Inconel sheathed, type K, thermocouples.

4.2.2 Pressure

The internal pressure rise of selected drums was measured during the fire tests. The pressures were monitored using 0-350 kPag (0-50 psig) transducers (Setra, Model No. 206). The pressure measurements were taken via a pressure tap placed in the drum wall approximately 25 mm (1 in.) below the top of the drum. Prior to each test, the pressure transducers were verified using a Beamex Pressure Calibrator, Model No. PG105. Prior to each test, the monitored drums were also checked for leaks prior to the test. The drums were pressurized to a pressure of 35 kPag (5 psig) and held for five minutes to verify tightness of the drum. Figure 9 also shows the placement of the pressure tap on a test drum.

4.2.3 Heat Flux

Total heat flux measurements were made at specific locations in order to measure the local heat flux of the fire. The measurement were made using 0-200 kW/m^2 Medtherm total heat flux transducers, Model No. 64-20-5B-19. The heat flux transducers were verified for proper operation prior to each test.

4.2.4 Mass Loss

The total mass loss for each drum was measured. Prior to and after each test, each drum was weighed, and its mass loss was calculated.

4.3 DATA ACQUISITION

Two different data acquisition systems were used during these tests. The first system was dedicated to the pressure transducers. This system consisted of an IBM-based data acquisition system setup to scan and record the outputs of the pressure transducers every 20 milliseconds. The second system was dedicated to the recording of the thermocouples and the heat flux transducers. This system consisted of seven Helios A-D converters each with its own IBM-based computer. The Helios data acquisition system was capable of reading 20 channels per second, but actually required approximately 1.76 seconds to read and save 20 channels to the computer disk. In instances where more than 20 channels of instrumentation were connected to one Helios, the actual scan time was increased to accommodate the delay in scanning and saving the data.

The instrumentation was broken down into groups according to similar instrumentation or location on the test assembly, and each group was connected to one of seven Helioses. The Helioses were setup to scan as fast as possible, and the raw data were processed to provide temperatures and total heat flux measurements every second. The values for every second were calculated using an Excel spreadsheet program which calculated a straight line

interpolation between each real data point. Post-test graphical analysis of the raw data and the processed data showed negligible differences between the two data sets.

4.4 VISUAL DOCUMENTATION

Documentation of the tests was provided by 35 mm photographs and video tape taken prior to each test, during each test, and after each test.

4.5 ADDITIONAL DOCUMENTATION

Data collection pertaining to drums and their combustible fuel content was recorded on the Drum Data Sheets. There is a data sheet for each drum used in each of the tests. As drums were removed from the test site, they were re-numbered (as needed) with the appropriate drum identification number. The drums were then weighed and inspected. A post-test video was taken of each drum and its contents by HAI personnel.

After the rack storage test, the rack system was assessed and documented, and deflections in the rack structure due to twisting, bending, or thermal expansion were measured with respect to the original position by HAI personnel.

4.6 DRUMS

A total of 144 drums were used in each test. The drums were new 17-H, 55-gallon (208-L) UN1A1 drums, painted black. The drums were identified as 1A2/Y1.5/100/95/USA/UL3. The drums were sealed using removable lids with styrene-butadiene sponge rubber gaskets and metal closure rings, rounded-section type. After loading, the closure rings were tightened per WHC specification [Carver, 1993] to 54.2 J (40.0 ft-lb) torque. The lids were torqued to 54.2 J (40.0 ft-lb), the bolt was backed off, and then re-tightened to 54.2 J (40.0 ft-lb). This resulted in a separation between the ends of the closure ring of 12.7 mm (0.5 in.) or less. On all drums, the closure ring was oriented with the bolt on the opposite side of the drum as the seam. The drums, gaskets, and closure rings used in these tests were the same as those used in the earlier work.

In the rack storage test, 140 of the drums represented typical WHC loaded drums [Boothe, 1994] and contained the standard load which was developed in the earlier work [Rhodes, et al. 1995]. Four drums were filled with water to serve as water calorimeters. In the palletized storage test, all of the drums contained the standard load. As each drum was prepared, it was identified with a painted number according to the drum location diagram for that test. All preparation was documented on a Drum Data Sheet. An example of a Drum Data Sheet is provided in Figure 10.

Rack Storage Drum Data Sheet

Drum No. _____

Description (Check):

_____ Standard load
_____ Instrumented for pressure
_____ Instrumented for temperature
_____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel		N/A	N/A
1/3 of the brown paper			
1/3 of the 10-mil plastic			
1/3 of the bond paper			
1/3 of the towels			
1/3 of the bags			
1/3 of the cut paper			
1/3 of the fabric			
1/3 of the rubber			
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date _____ Initial _____

Ring bolt placed opposite drum seam and in down position: Date _____ Initial _____

Lid sealed and torqued to 40 ft/lb: Date _____ Initial _____

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) _____ Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Figure 10. Drum Data Sheet

4.6.1 Water-filled Drums

Each of the water-filled drums had a Sureflow Corporation air operated diaphragm submersible pump Model No. 1500F placed inside the drum to mix the water, thus assuring a uniform temperature profile. The drums were filled with water to within 101.6 mm (4 in.) of the top and instrumented as described in Section 4.2.1. The actual placement of the drums in the rack storage test is provided in Section 5.0.

4.6.2 Standard Load Drums

Each of the non-water filled drums was loaded with the standard combustible load of 25.9 kg (57.0 lb) and a noncombustible load of 31.7 kg (70 lb) for an overall loading of 57.6 kg (127.0 lb) in each drum. Based on these values and the breakdown of the materials used in the earlier work, the average contents of each drum are given in Table 1.

Table 1. Drum Loading Breakdown

Material	Weight	Percent by Weight
Rubber	2.7 kg (6.0 lb)	4.7 percent
Plastic	13.4 kg (29.5 lb)	23.2 percent
Paper	6.6 kg (14.5 lb)	11.4 percent
Cotton	3.2 kg (7.0 lb)	5.5 percent
Steel	31.7 kg (70.0 lb)	55.2 percent
Total	**57.6 kg (127.0 lb)**	**100 percent**

The combustible drum contents consisted of the following commercially available items which simulate the actual drum contents:

- Rubber — The rubber material was simulated using neoprene rubber sheets approximately 3.2 mm (0.125 in.) thick and approximately 152.4 x 304.8 mm (6 in. x 12 in.).
- Plastic — The plastic commodities consisted of 50 percent by weight 6-mil polyethylene plastic bags and 50 percent by weight 10-mil polyethylene sheet.
- Paper — The paper consisted of 1/3 by weight brown paper sheet 0.61-m (24-in.) wide rolls, 1/3 by weight of 215.9 x 279.4-mm (8.5 x 11-in.) bond paper, and 1/3 by weight cut-up 108.0 x 139.7-mm (4.25 x 5.5-in.) bond paper (simulating filter paper).
- Cotton — The cotton consisted of 57 percent by weight cotton fabric and 43 percent by weight cotton towels.

Table 2 provides a breakdown of the combustible contents for the standard combustible load, and Table 3 provides the procedure for its loading into the drums. The loading procedure required that materials such as the brown paper, the plastic sheet, and the cotton fabric be unfolded when placed into the drums. This combustible loading required compression as it was placed into the drums, so that the entire load would be placed in the drum.

Table 2. Standard Combustible Loading

Combustible Contents	
Material	**Standard Loading**
Plastic bags	6.7 kg (14.8 lb)
10-mil plastic sheet	6.7 kg (14.8 lb)
Rubber, 15 x 30 cm (6 x 12 in.)	2.7 kg (6.0 lb)
Brown paper	2.2 kg (4.8 lb)
Bond paper, 22 x 28 cm (8.5 x 11 in.)	2.2 kg (4.8 lb)
Cut paper	2.2 kg (4.8 lb)
Cotton towels	1.4 kg (3.0 lb)
Cotton fabric	1.8 kg (4.0 lb)
Total	**25.9 kg (57.0 lb)**

Table 3. Standard Loading — Into Drum

Order Starting at the Bottom	Material
1	1/3 of the brown paper
2	1/3 of the 10-mil plastic
3	1/3 of the bond paper
4	1/3 of the towels
5	1/3 of the bags
6	1/3 of the cut paper
7	1/3 of the fabric
8	1/3 of the rubber
9	Repeat Nos. 1 - 8
10	Repeat Nos. 1 - 8

In addition to the standard combustible load, the noncombustible contents were composed of 50.8-mm (2-in.) diameter round carbon steel bar stock. Three pieces, each 0.66 m (26 in.) long, were placed vertically and evenly spaced along the inside wall of the drum. The primary purpose of the steel was to simulate the typical weight of the noncombustible contents.

Each drum was loaded according to the Rack Storage Drum Data Sheets shown in Figure 10 as follows:

(1) Insert three steel bars vertically along the sides of the drums,

(2) Place one-third of the standard load into the drum in the order shown in Table 3,

(3) Place one-third of the standard load into the drum in the order shown in Table 3, and

(4) Place final one-third of the standard load into the drum in the order shown in Table 3.

Upon completion of the loading, each drum was weighed to the nearest 0.09 kg (±0.2 lb) accuracy. The drum ID number and weight was then recorded on the Drum Data Sheet for each drum and all drums were loaded and positioned in the racks. The drums instrumented for internal pressure measurements were leak tested to ensure the integrity of the drum. The drums were pressurized to 34.5 kPa (5 psig) for a period of 5 minutes. After 5 minutes, the internal pressure could not be below 31.0 kPa (4.5 psig).

4.7 TEST PROCEDURES

In general, the following procedures were followed:

(1) loading, weighing and identification of test drums;

(2) instrumenting test drums as required;

(3) placement of test drums into rack array and development of drum ID versus position diagram;

(4) instrumentation of racks, pans, etc.;

(5) instrumentation and/or connection of pressure transducers, heat flux transducers, and thermocouples;

(6) verification of instrumentation after connection to data acquisition system;

(7) creation of fuel spill;

(8) verification of documentation;

(9) start of test;

(10) extinguishment as required; and

(11) post-test damage assessments.

A Pre-test Check List for each test is included in Appendix A and the Test Procedure Check List is included as Appendix B. All procedures were carried out by SwRI personnel and overseen by HAI test engineers. The test engineer or appointed designee verified and initialize all checklists and data sheets. Prior to the test being conducted, the HAI test supervisor verified that all items have been completed.

4.8 TEST TERMINATION

Data collection and video recording were continued after the completion of the 5-minute diesel fuel fire during which time the extent of fire propagation was assessed. The test was terminated when the HAI representatives determined that further fire propagation was unlikely and further drum seal failures were improbable or unless a safety hazard was noted. Upon termination of the test, extinguishment of all burning items was performed.

5.0 RACK STORAGE TEST

Figure 11 provides an overall view of the rack storage test arrangement configuration. The test configuration consisted of three racks, each measuring approximately 7.6 m (25 ft) long x 0.9 m (34 in.) wide x 7.9 m (26 ft) high, with each rack having six tiers. Racks 2 and 3 (middle and left racks, respectively) were positioned 254 mm (10 in.) apart and bolted together using rack spacers. Rack 1 (right rack) was free standing and separated from the double rack by a 1.57 m (5.17 ft) aisle space. Rack 1 was attached to the structural steel of the test facility using 76.2 x 76.2 mm (3 x 3 in.) angle iron welded at the top tier of the rack system, running horizontally to a supporting column.

Figure 12 provides a diagram of the drum placement in each of the racks. Figure 13 provides a plan view of the drum placement along with the drum numbering system that was used to uniquely identify each drum.

The drums in Row 1 were positioned with the bolts facing north, the bolts on the drums in Row 2 faced south, and the bolts on the drums in Row 3 faced north.

Figures 14 and 15 provide photographs of the rack storage array prior to test.

5.1 RACK SYSTEM

The rack system was provided by Los Alamos Technical Associates, Inc. (LATA) and installed by a local contractor familiar with the rack design, construction, and erection process. The rack system included containment pans attached to the mesh screen flooring under each drum. Seismic event bars were also installed for drum containment. Figures 16 and 17 provide diagrams showing this arrangement. Figure 18 provides a diagram of side supports. The rack system was anchored to the concrete floor of the test facility using concrete anchors. The single rack was also secured to the structural steel of the building. Each beam pair of the rack system had a rated capacity of 2,272.3 kg (6,000 lb), and each upright had a rated capacity of 14,515.1 kg (32,000 lb). The containment pans measured 736.6 wide x 711.2 long and 50.8 mm deep (29 wide x 28 long and 2 in. deep) and were suspended by "S" hooks from the mesh screen. There was a 152.4 mm (6 in.) air space between adjacent pans.

5.2 TEST INSTRUMENTATION

Figure 19 provides a diagram showing an overall view of the instrumentation layout used in this test. Figures 20 - 22 provide diagrams showing the thermocouple layout for the tree thermocouples. Figures 23 - 25 provide diagrams showing the thermocouple layout for the thermocouples mounted on the rack system, containment pans, and mesh. Figures 26 - 31 provide diagrams showing the instrumentation layout for each tier of the test array.

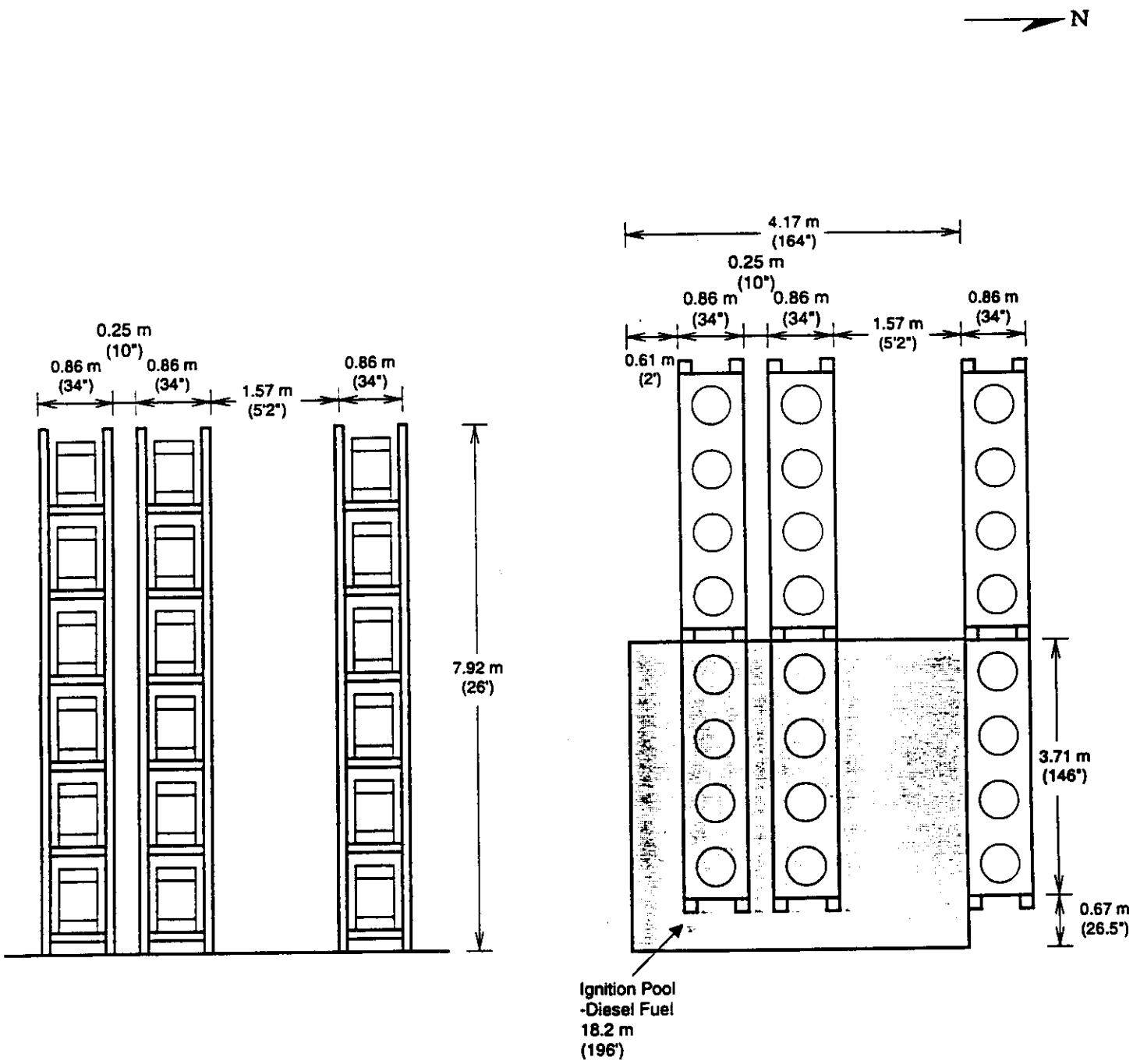


Figure 11. Overall Rack Storage Experimental Setup

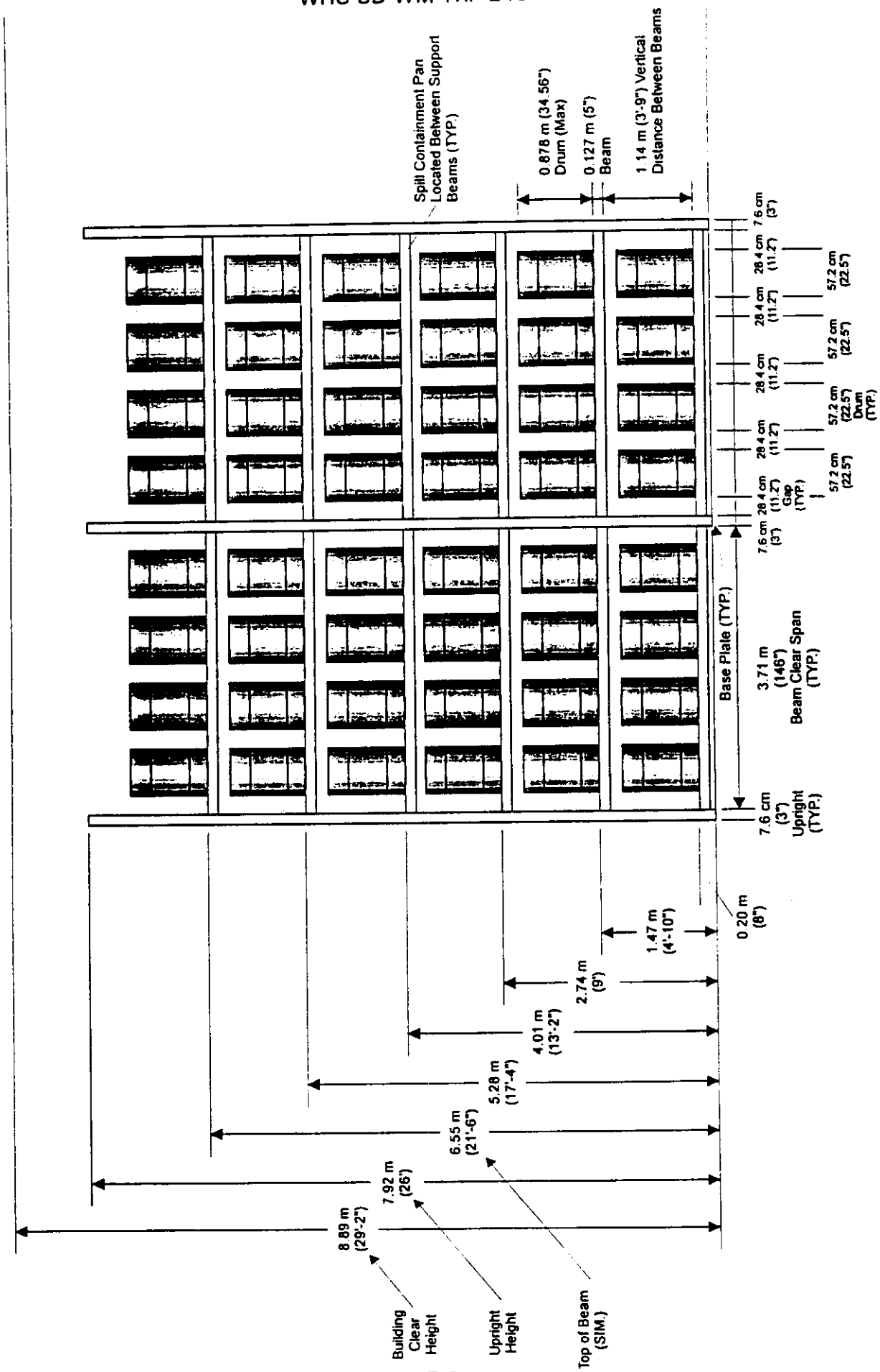
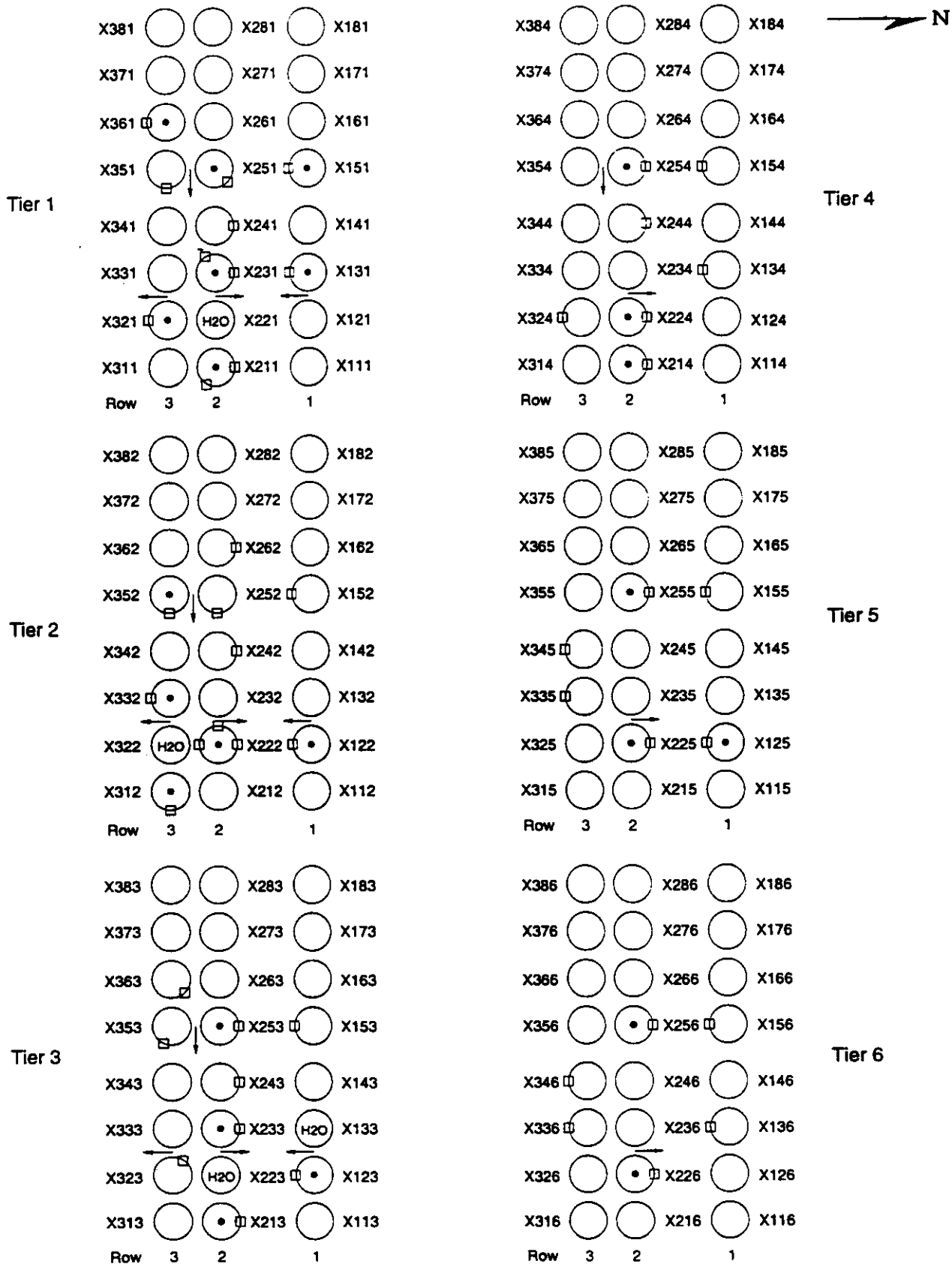


Figure 12. Face View of Rack Array



Note: Drum number indicates Test-Row-Bay-Tier

Figure 13. Rack Storage Drum Location Diagram



Figure 14. Pre-test Rack Storage Array

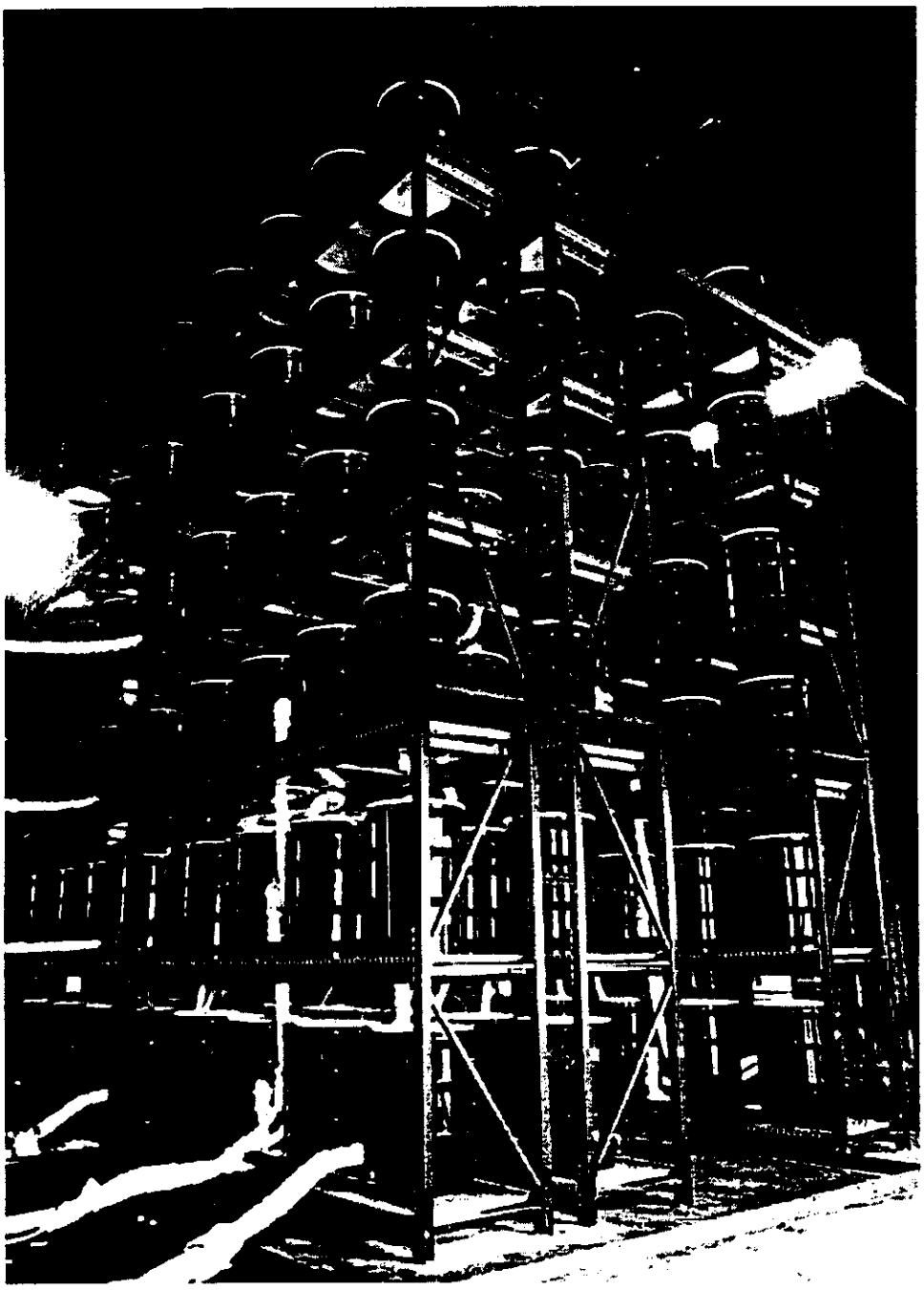


Figure 15. Pre-test Rack Storage Array, View Looking Northwest

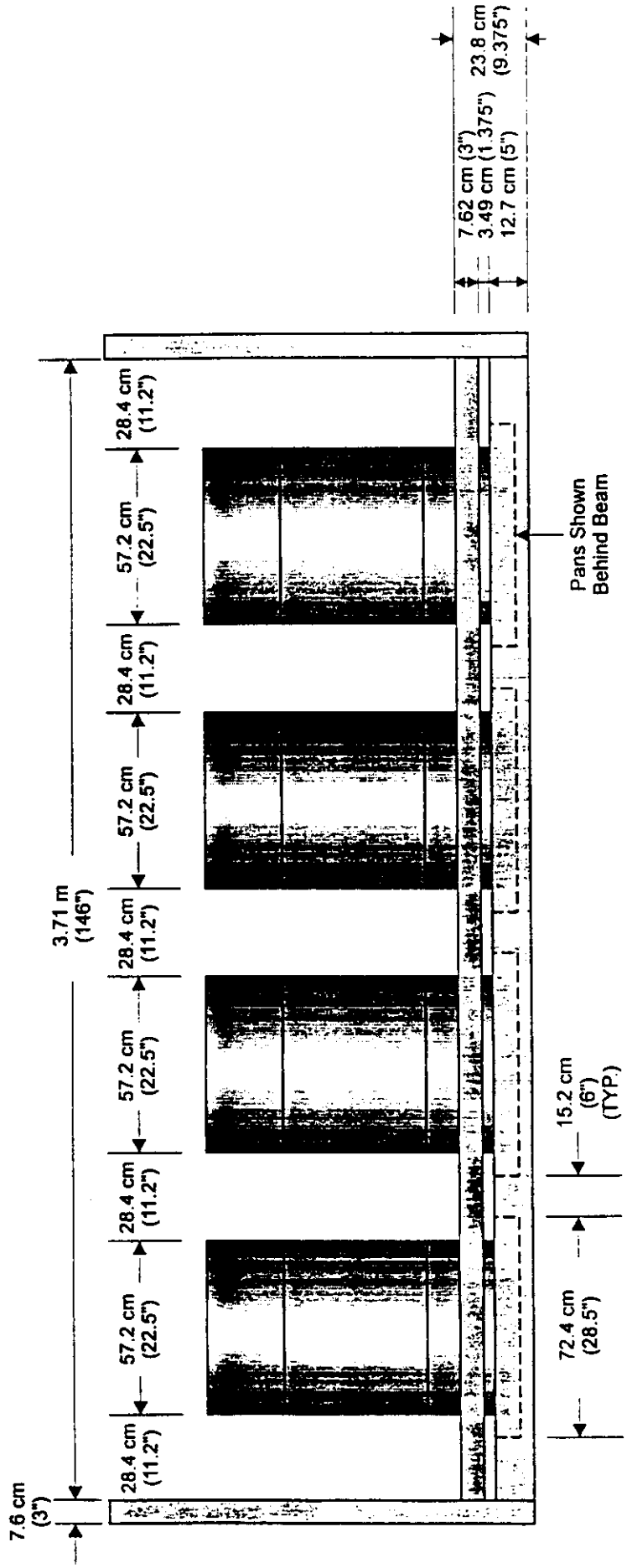
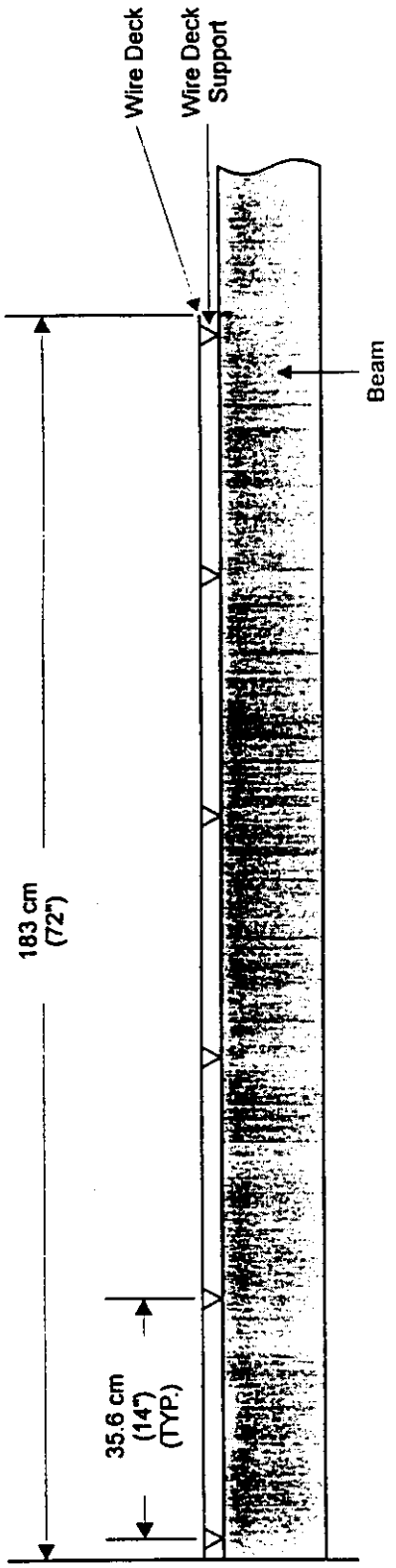


Figure 16. Drum Spacing and Seismic Event Bar Location



View A-A - Front view of deck & support (pan removed).

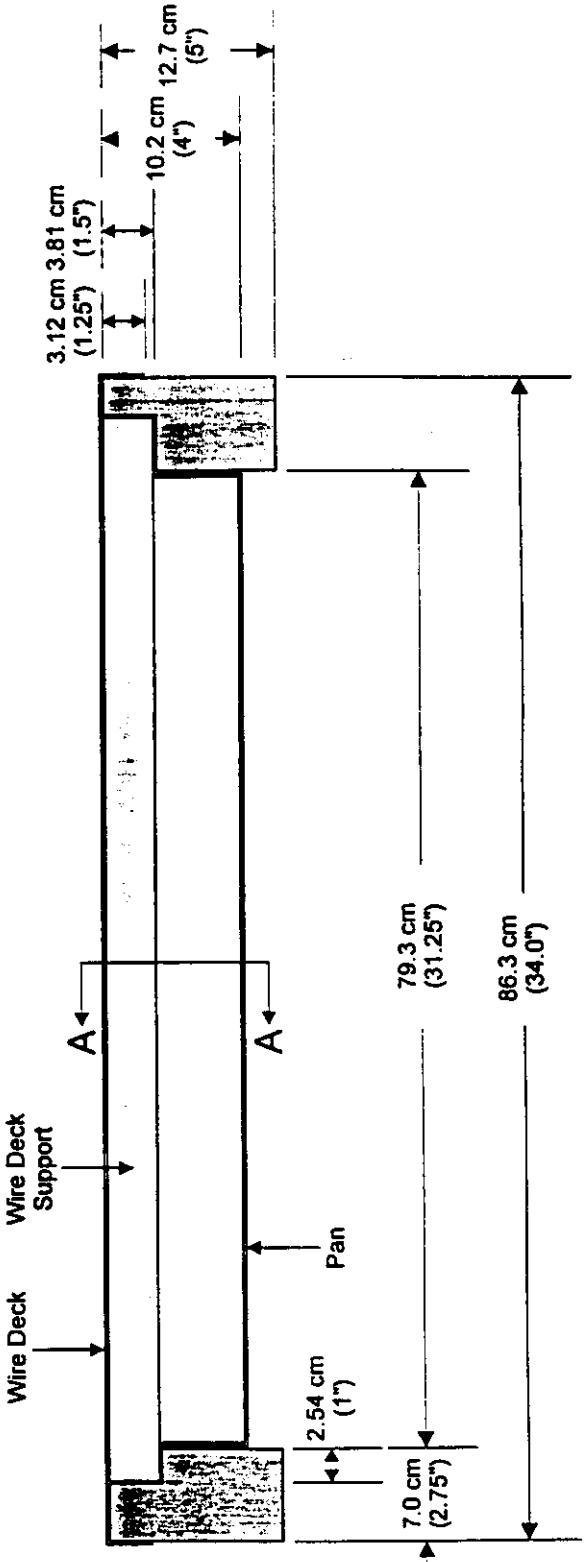


Figure 17. Side View of Rack and Pan on Beam Supports (S-hooks not shown for clarity)

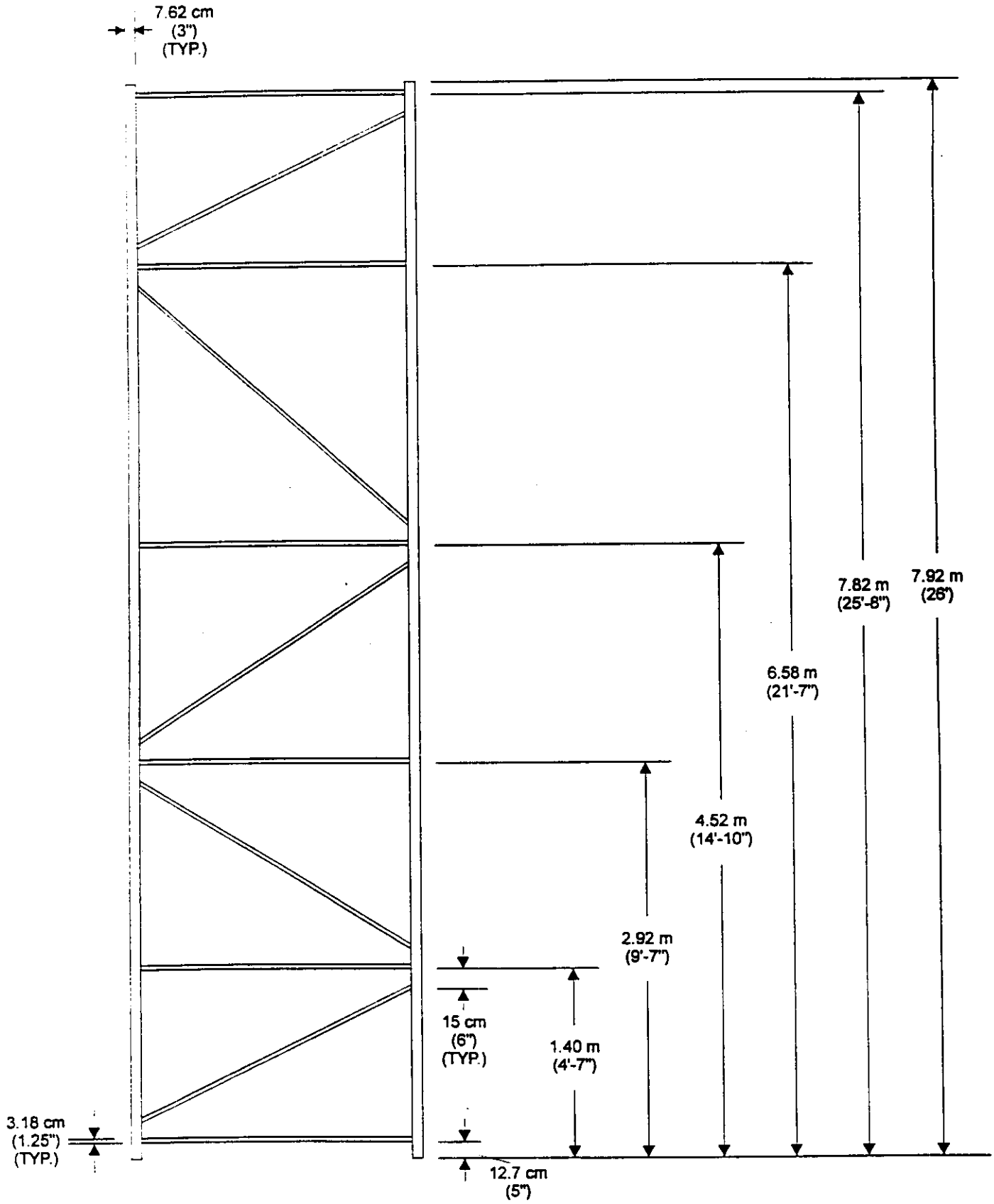
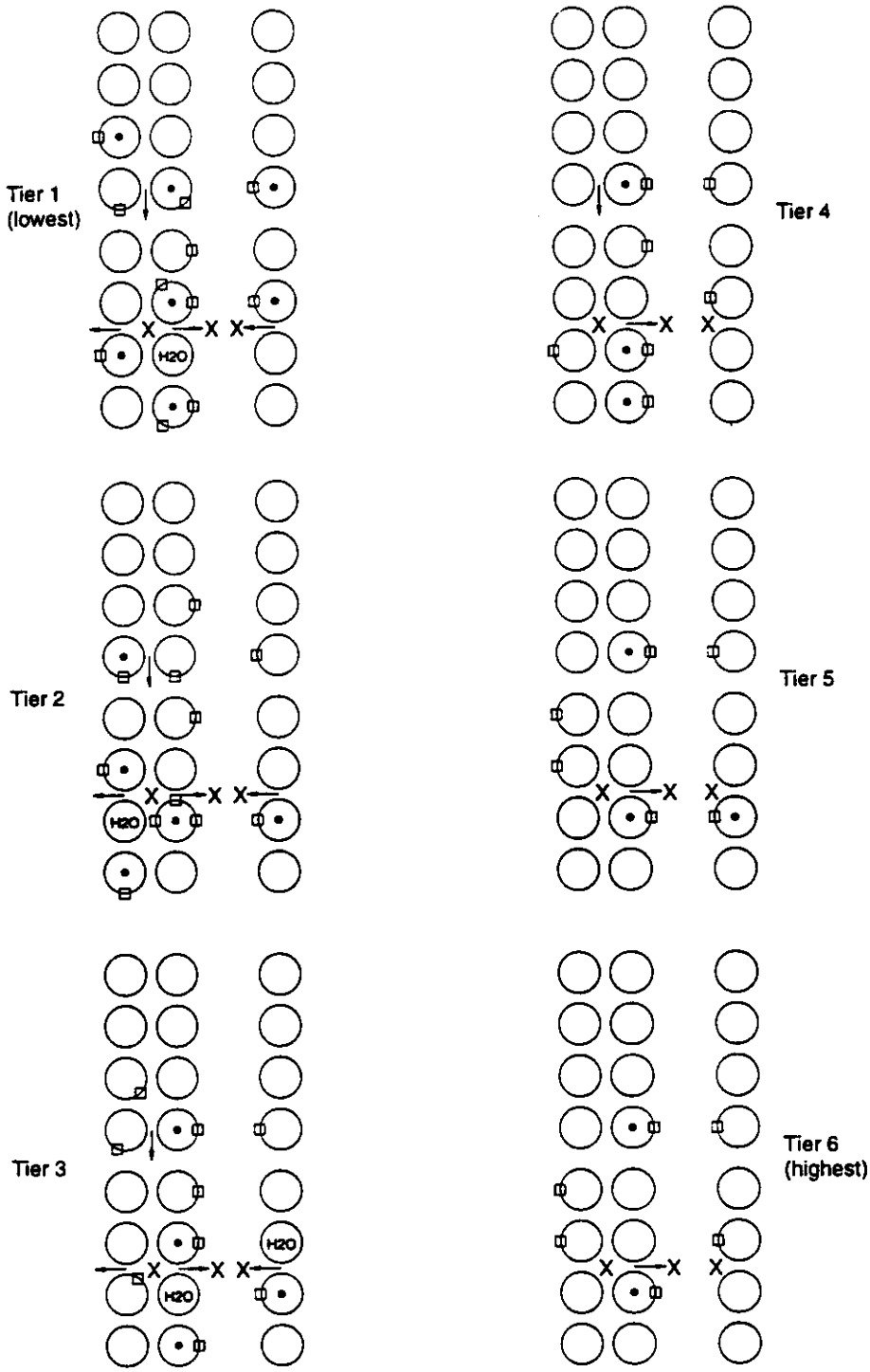


Figure 18. End View of a Rack



Notes:

Except As Noted, All Drums Standard Load - w/Steel

• = Pressure = 24 Locations

□ = Drum Surface - 50 Locations = 100 TC's

H2O = Temps - In H2O (3/Drum) = 12

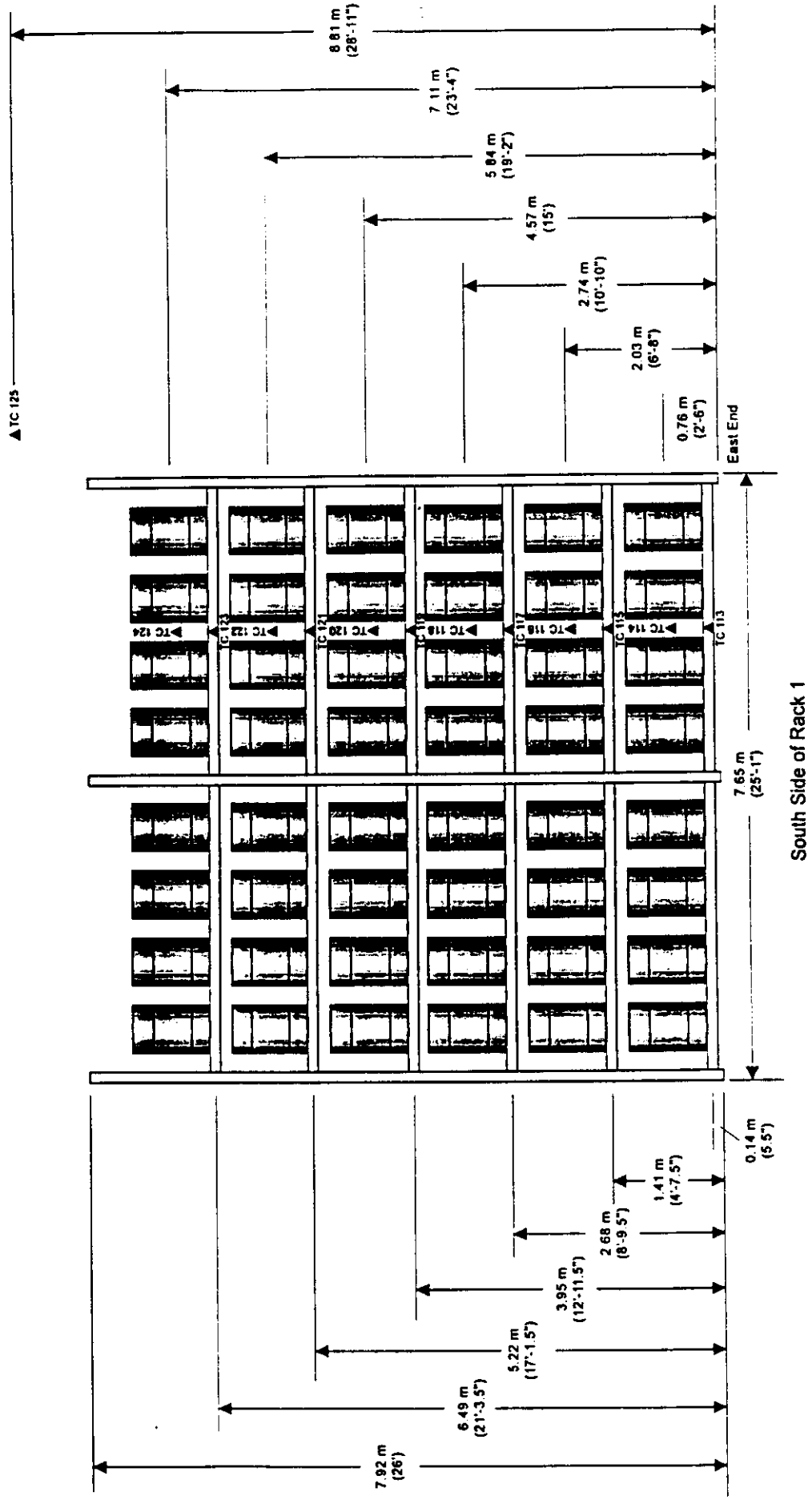
Temps On Racks/Pans = 41

X = Temp in Fire = TC Trees - Each 13 TC's X 3 = 39 TC's Total

→ = Heat Flux Gauges = 16 Total

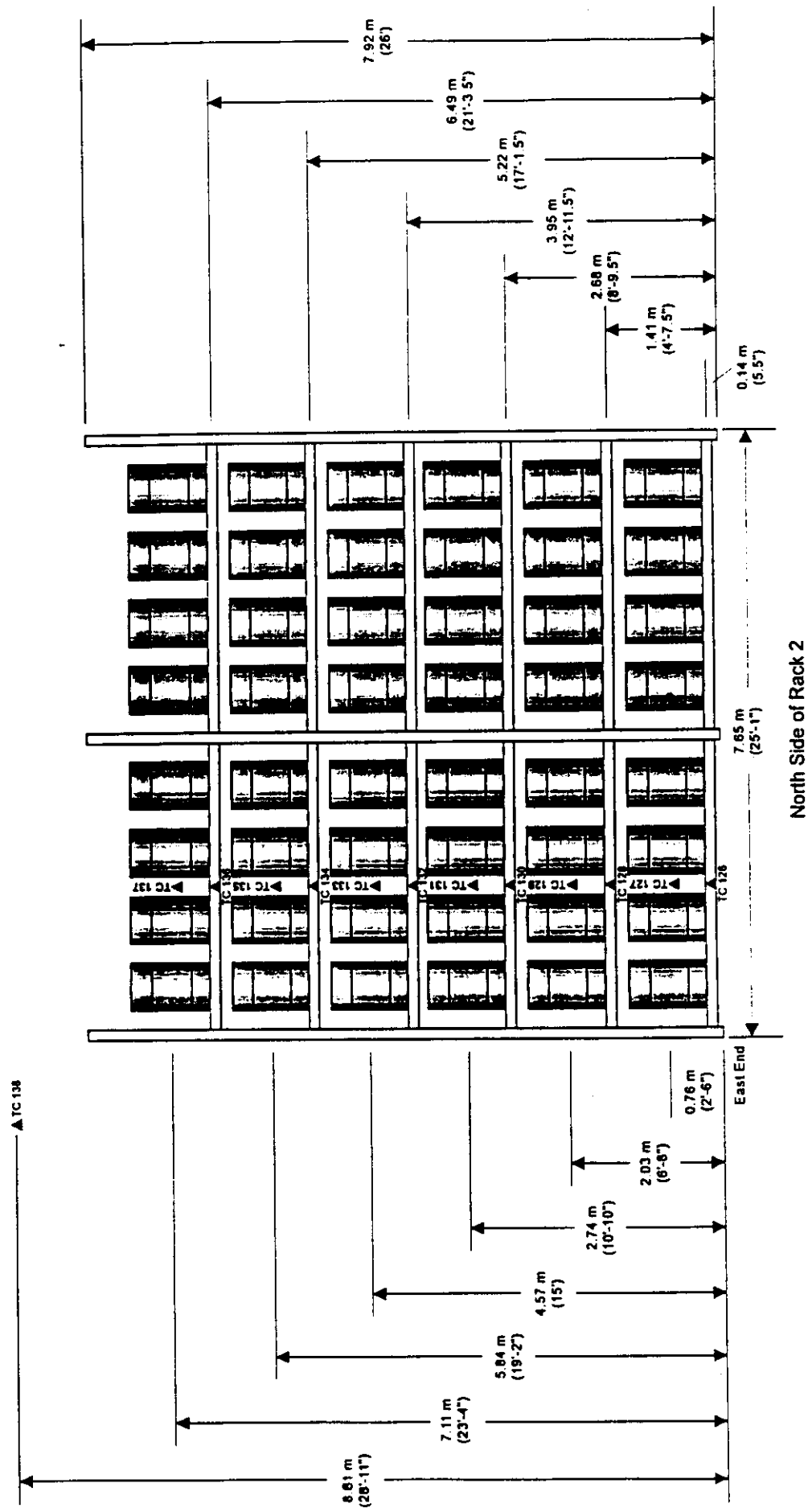
Total - 192 TC's

Figure 19. Rack Storage Experimental Setup and Instrumentation Layout



▲ Tree Thermocouple

Figure 20. Thermocouple Tree — Rack 1 — TC Layout



▲ Tree Thermocouple

Figure 21. Thermocouple Tree — Rack 2 — TC Layout

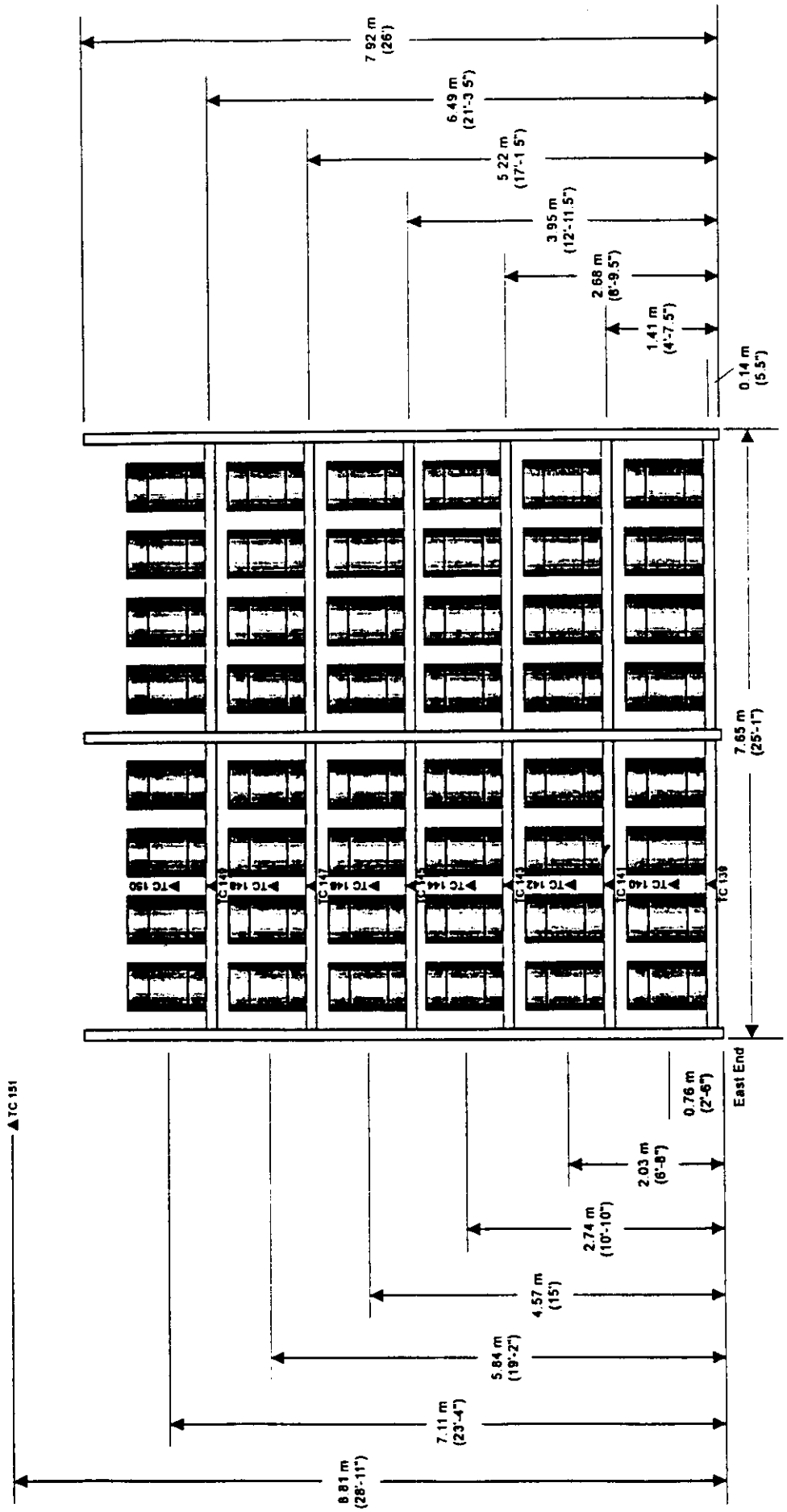


Figure 22. Thermocouple Tree — Rack 3 — TC Layout

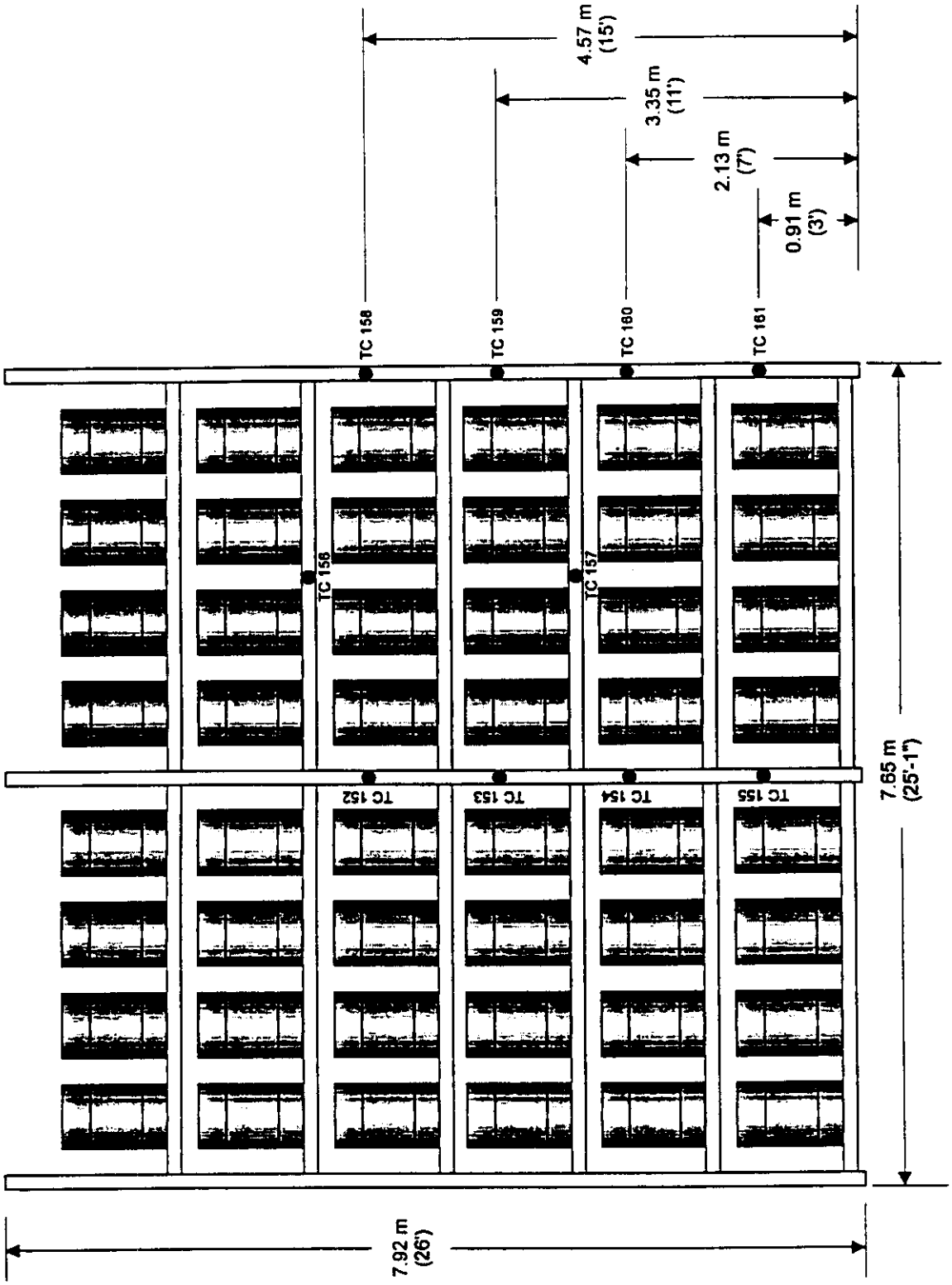


Figure 23. Thermocouples on Rack 1

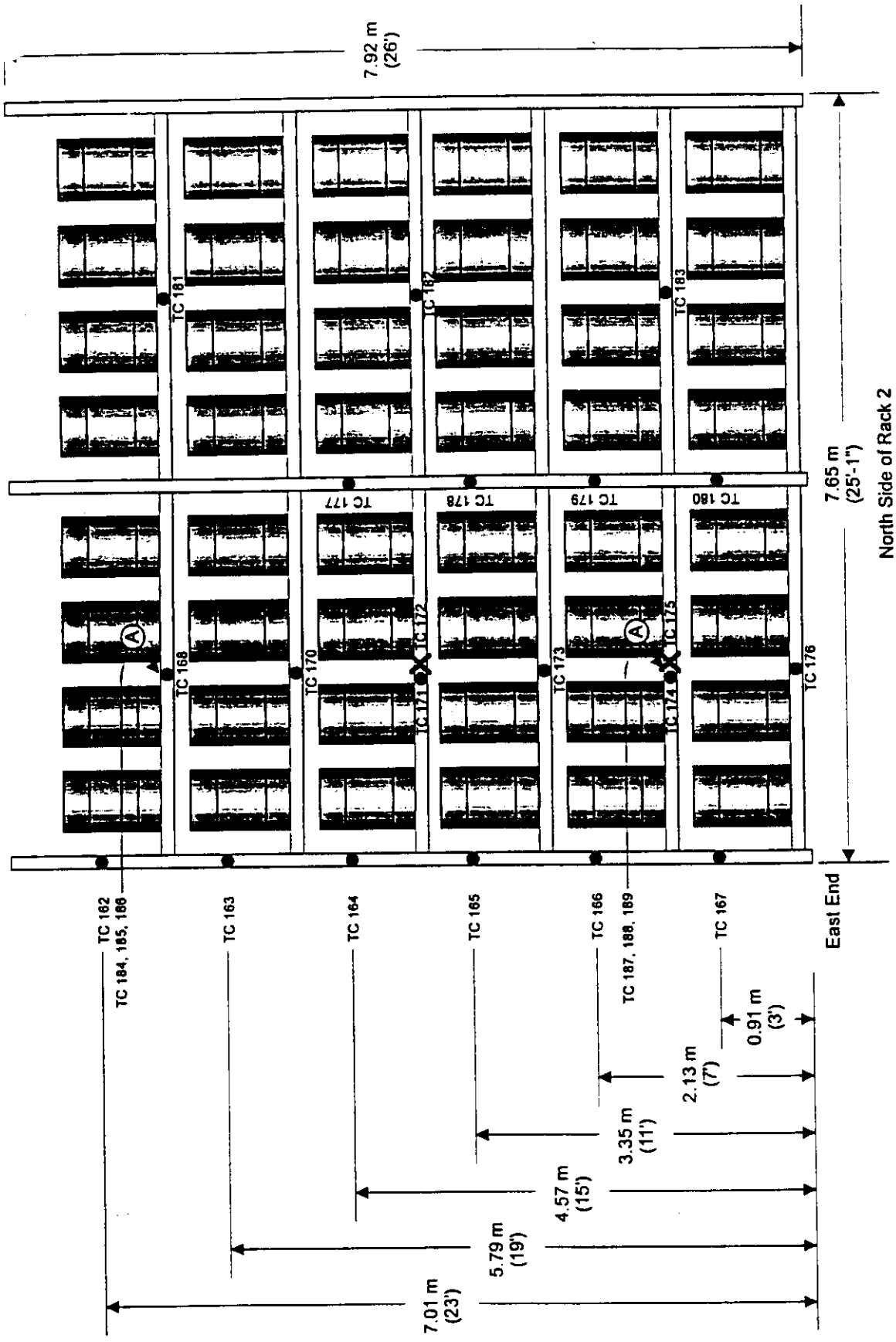


Figure 24. Thermocouples on Rack 2

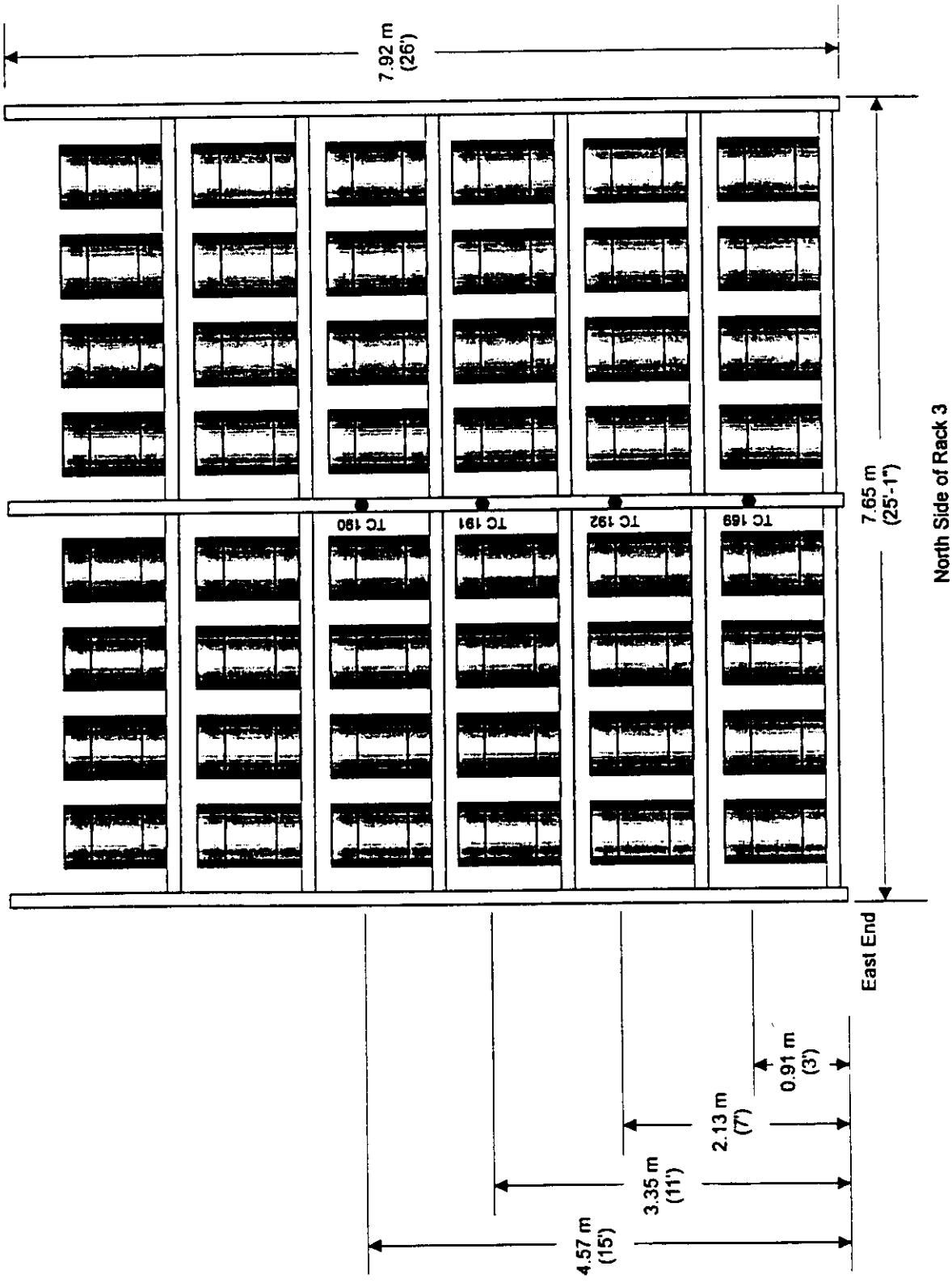


Figure 25. Thermocouples on Rack 3

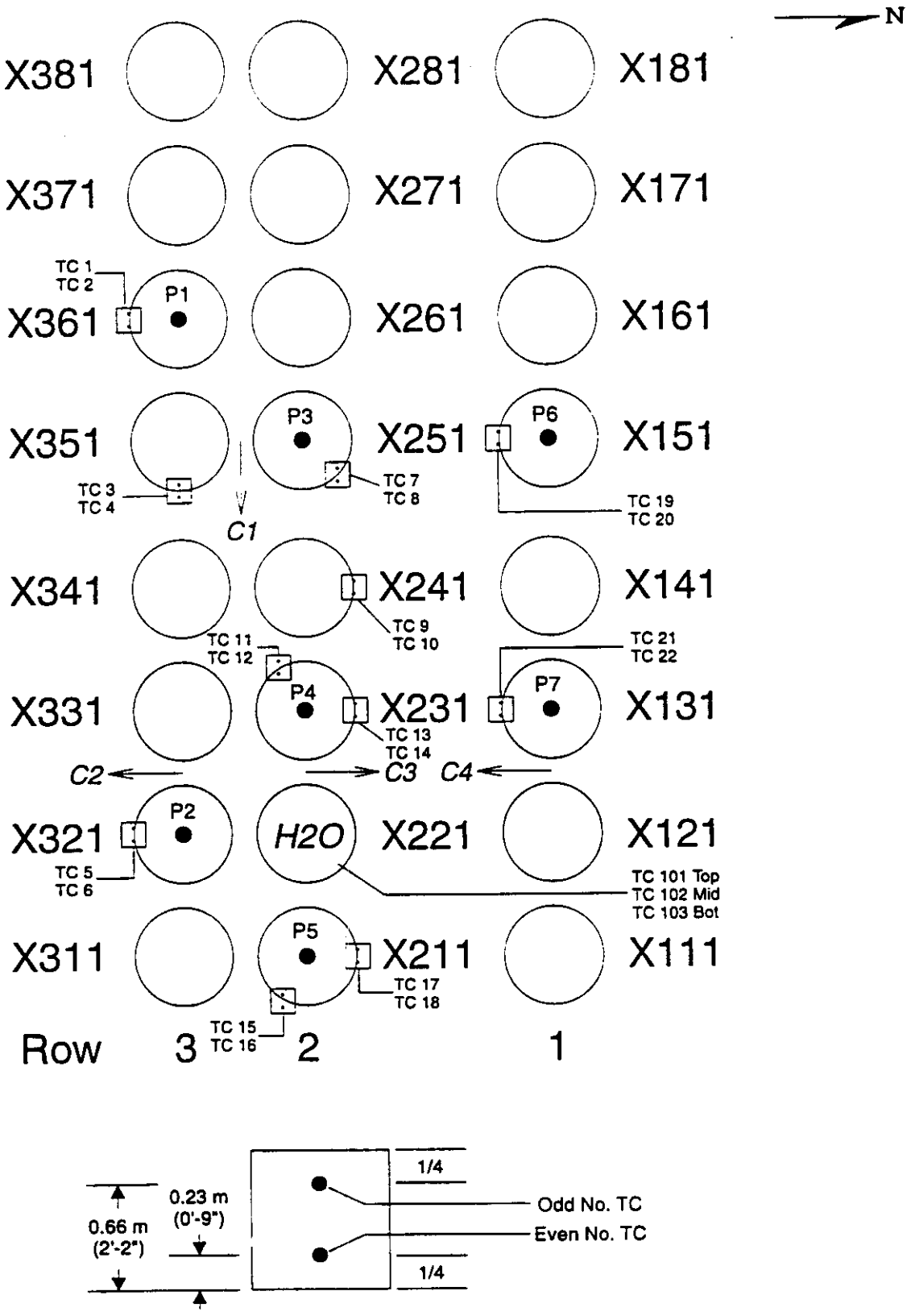


Figure 26. Instrumentation Layout — Tier 1

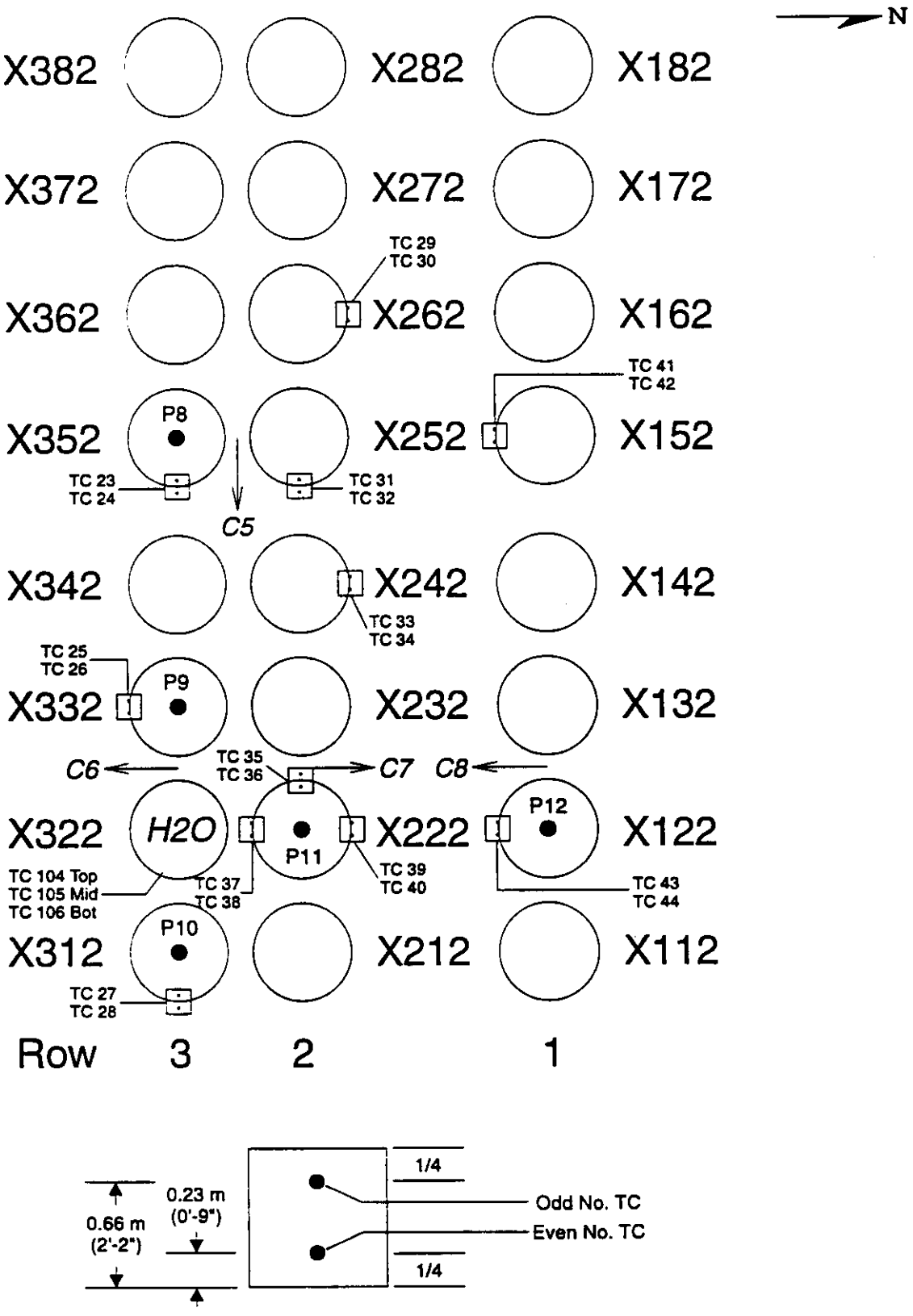


Figure 27. Instrumentation Layout — Tier 2

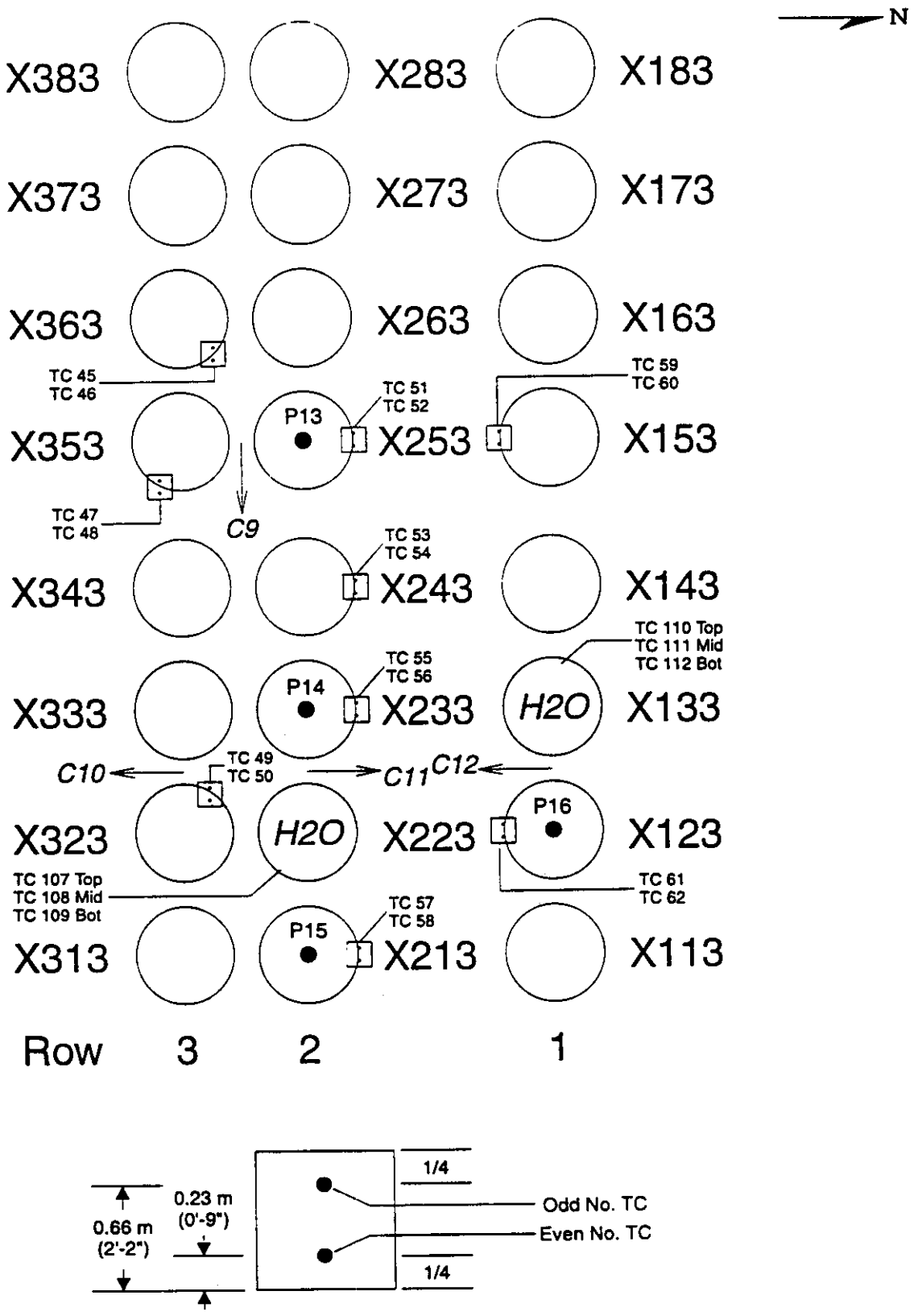


Figure 28. Instrumentation Layout — Tier 3

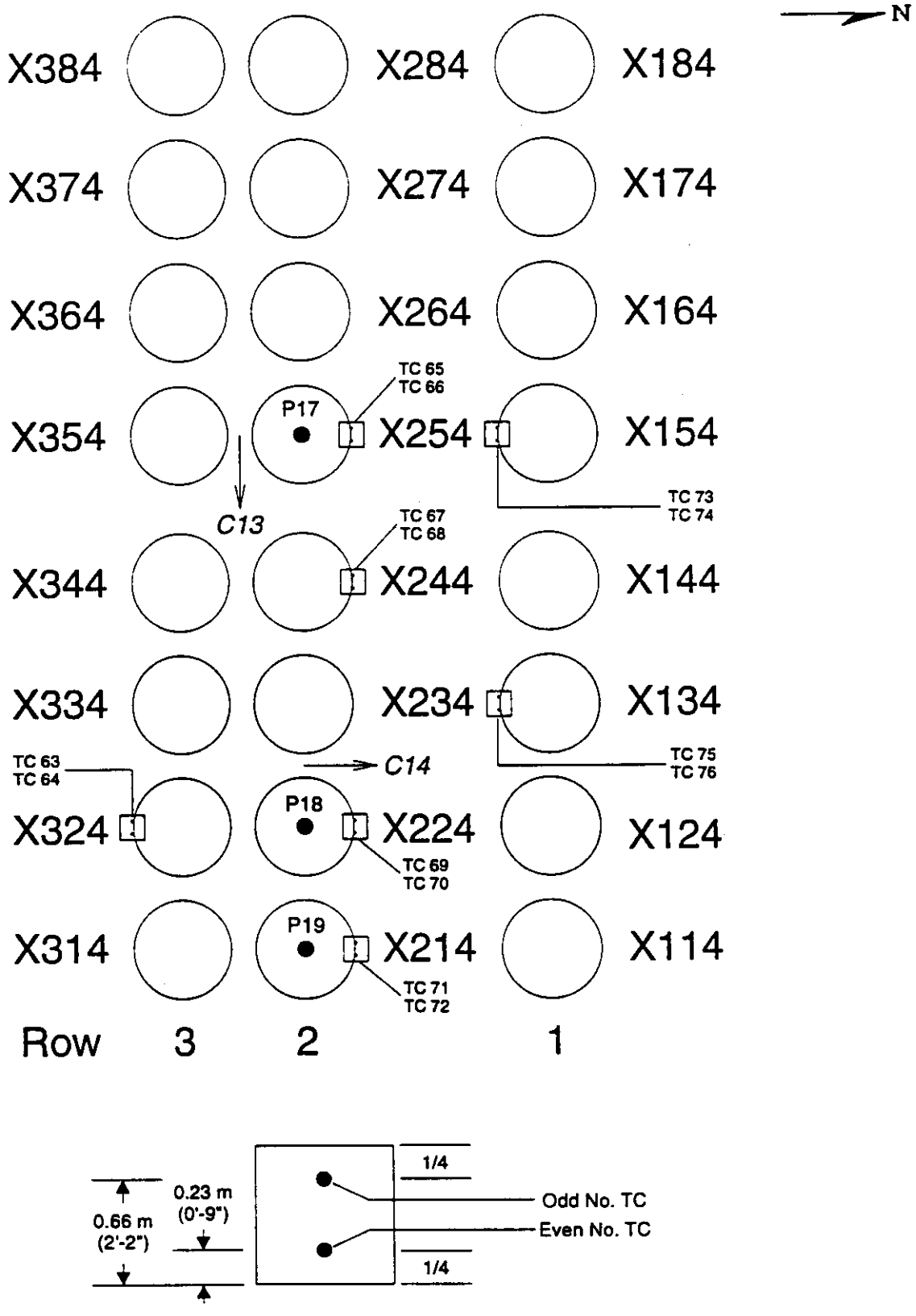


Figure 29. Instrumentation Layout — Tier 4

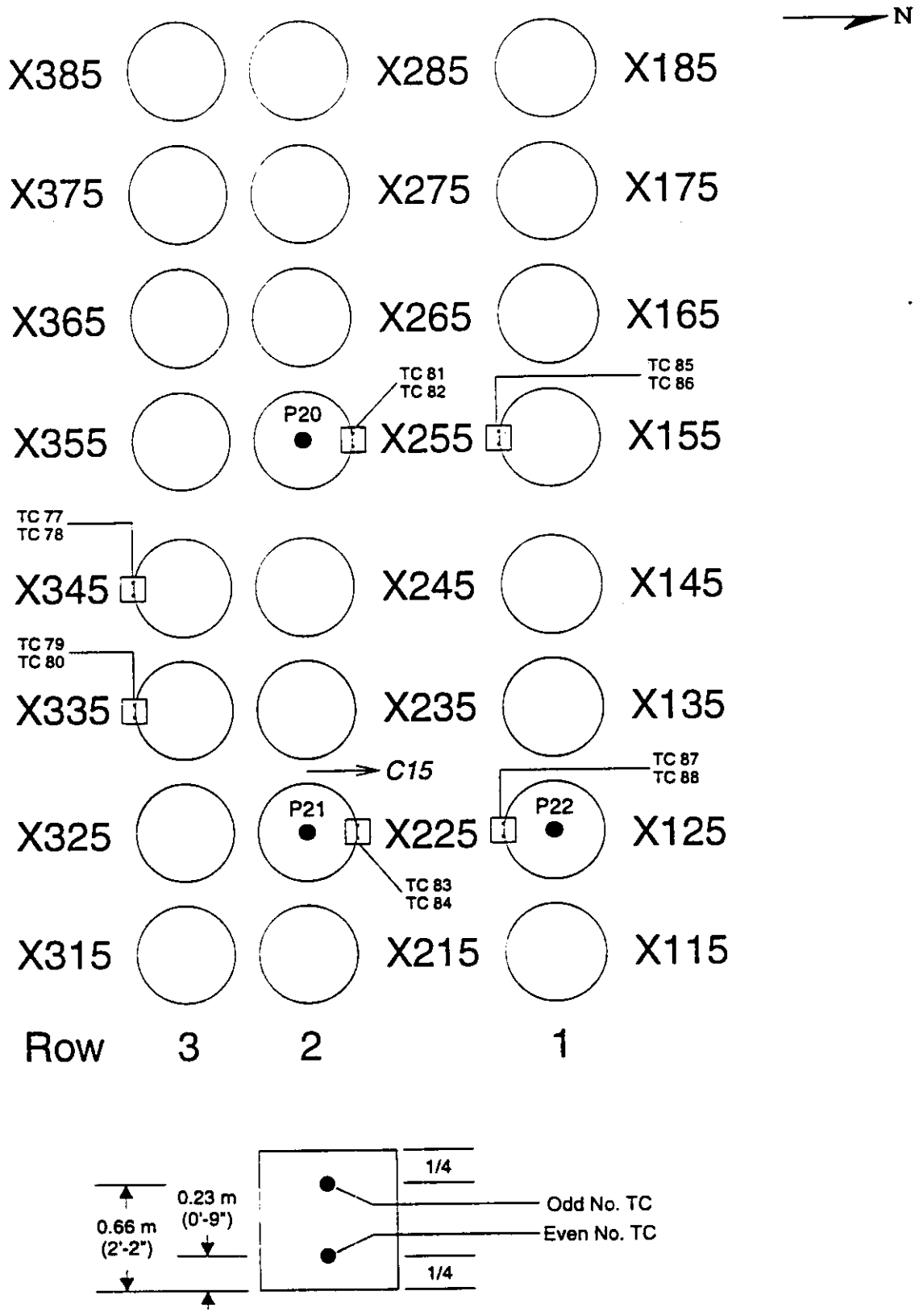


Figure 30. Instrumentation Layout — Tier 5

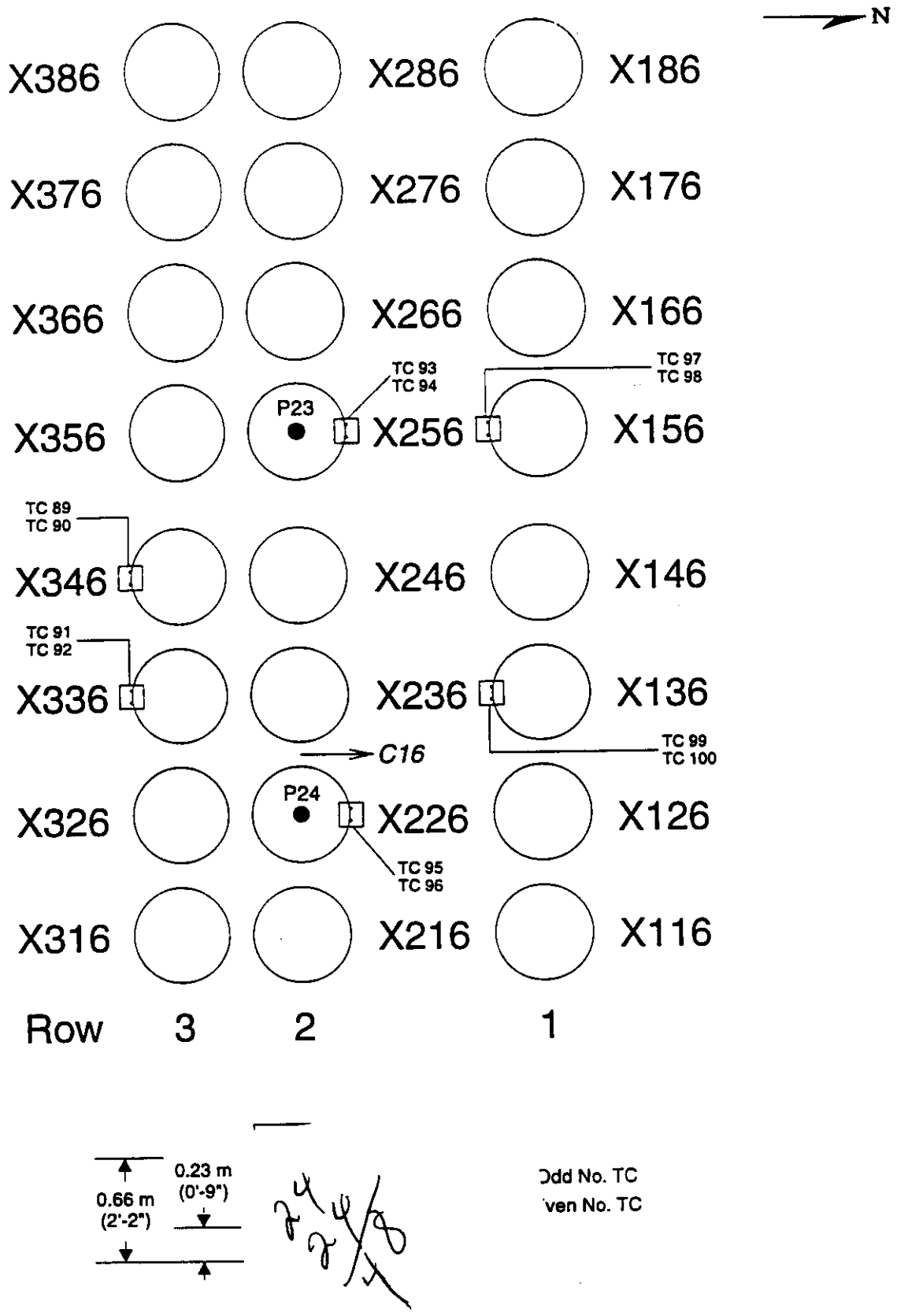


Figure 31. Instrumentation Layout — Tier 6

5.3 FIRE SOURCE

The ignition source for the rack storage test was a 18.3 m^2 (196.5 ft^2) diesel fuel pool fire positioned under a portion of the rack array as shown in Figure 11. The fuel spill area was constructed of a watertight dam, 4.2 m x 4.4 m (13.7 ft x 14.4 ft) utilizing 101.6 x 101.6 mm (3 x 3 in.) angle bolted to the concrete floor. Approximately a 25.4 mm (1 in.) deep layer of water was poured into the spill fire area and 265.0 L (70 gal) of diesel fuel was then spilled on top of the water. An additional 18.9 L (5 gal) of gasoline was poured over the diesel fuel to insure that the entire pool fire surface would ignite quickly and evenly. It was estimated that this quantity of fuel would provide a burn time of approximately five minutes. The 5-minute burn time was chosen based on previous work conducted by HAI, which showed that in engulfing fires, the drums experienced lid loss in less than 3 minutes. Additionally, the 265.0 L (70 gal) of fuel represented a conservatively high value for a credible fuel spill that could be experienced by WHC.

Blank

6.0 PALLETIZED STORAGE TEST

Figure 32 provides an overall view of the palletized storage test arrangement configuration. The test configuration consisted of three rows of palletized drums with each row being three tiers high. There were four drums per pallet and four pallets per row. The middle and left rows consisted of wooden pallets, and the right row consisted of steel pallets. The rows of pallets were separated by a 0.91 m (3 ft) aisle space. Within each row, the pallets were positioned flush with one another.

6.1 PALLETS AND BANDING

The steel pallets, similar to that in use at WHC, were provided by LATA. The pallets measured 1.2 x 1.2 m (48.25 x 48.25 in.) by 104.8 mm (4.1 in.) high and weighed approximately 29.0 kg (64.5 lb). All wood pallets were new and built by a local pallet company using hardwood. The wood pallets were approximately 1.2 x 1.2 m (48 x 48 in.) by 120.7 mm (4.75 in.) high and the average weight was 29.8 kg (65.8 lb). The weight of the wood pallets varied between 28 and 32 kg (62 lb and 70 lb). Figures 33 and 34 provide construction details of the steel and wood pallets, respectively.

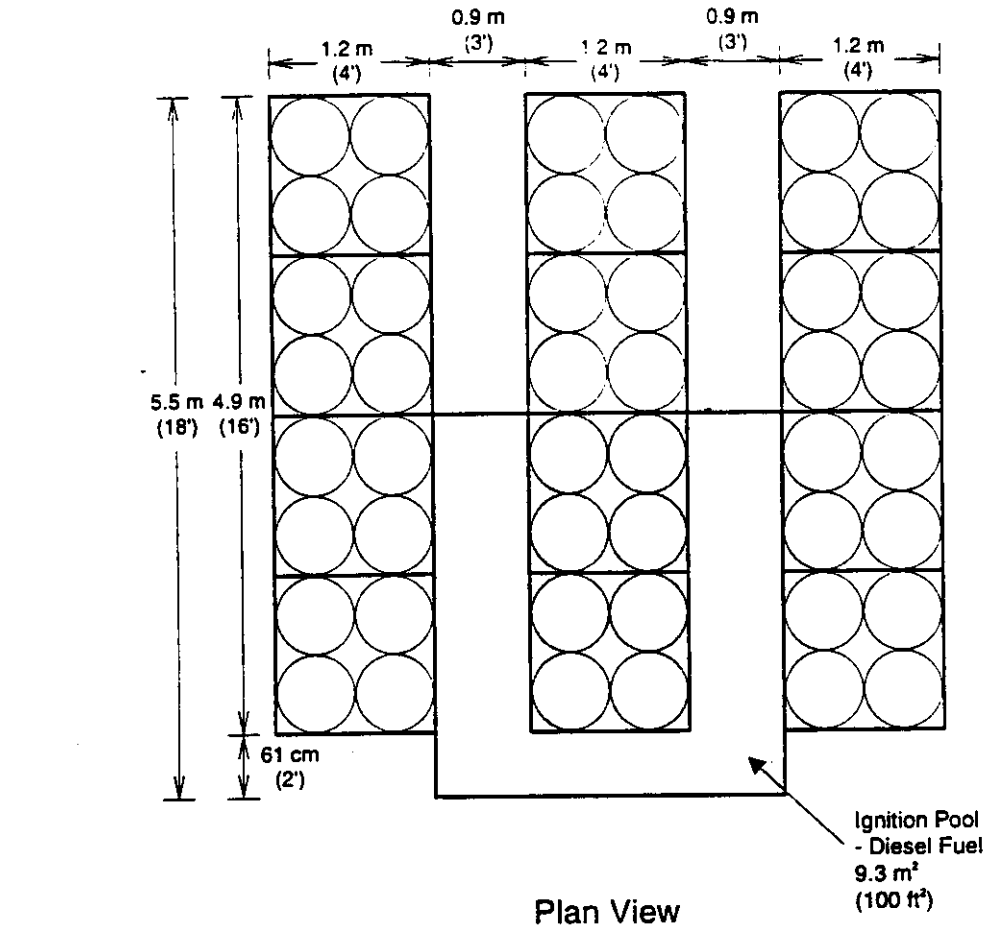
Four drums were loaded onto each pallet with the bolts facing into the center of the grouping, putting the seam at the corner of the pallet. A single horizontal band, located approximately 152.4 mm (6 in.) below the top of the drum, was used to secure the four drums together. The band was McMaster-Carr 6.4 x 0.5 mm (0.25 x 0.020 in.) thick high tensile steel strapping, Catalogue No. 2071T61. There was no specification for band tightness, except that the bands are secured "good and tight." Figure 35 provides a sketch of the pallet loading for each pallet. Figure 36 provides a plan view of the drum placement along with the drum numbering system that was used to uniquely identify each drum. Figures 37 and 38 provide photographs showing the pretest arrangement of the pallet array.

6.2 TEST INSTRUMENTATION

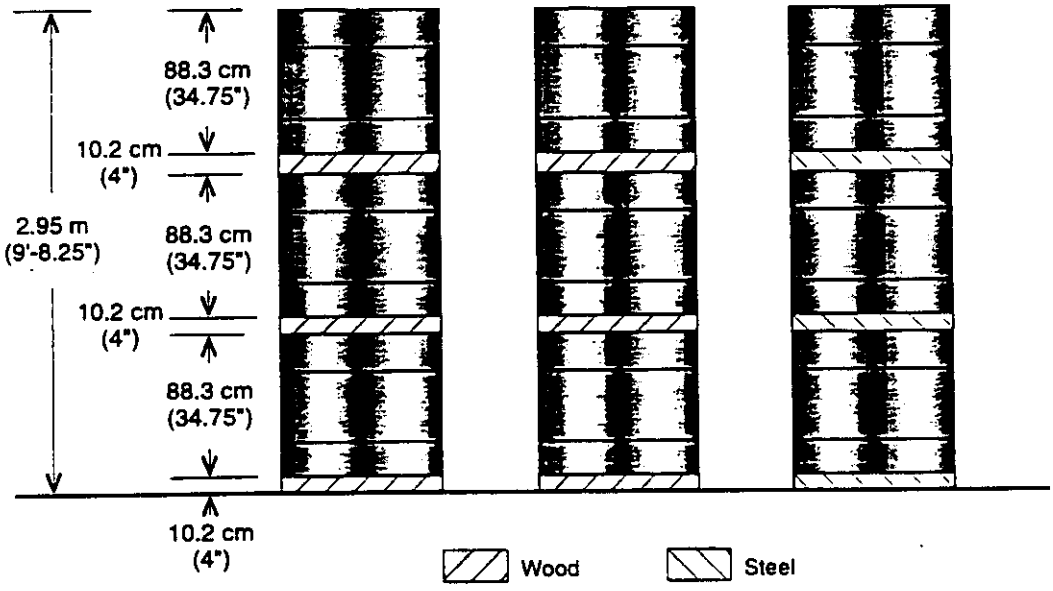
Figure 39 provides a diagram showing an overall view of the instrumentation layout used in this test. Figures 40 - 42 provide diagrams showing the instrumentation layout for each tier of the test array.

6.3 FIRE SOURCE

The ignition source for the palletized storage test was a 9.3 m^2 (100 ft^2) diesel fuel pool fire positioned under a portion of the pallet array as shown in Figure 32. The fuel spill area was constructed of a watertight dam 3.0 x 3.0 m (10 x 10 ft) utilizing 101.6 x 101.6 mm (3 x 3 in.) angle bolted to the concrete floor. Approximately a 25.4 mm (1 in.) deep layer of water was poured into the spill fire area and 132.5 L (35 gal) of diesel fuel were then spilled on top of the water. An additional 9.5 L (2.5 gal) of gasoline were poured over the diesel fuel

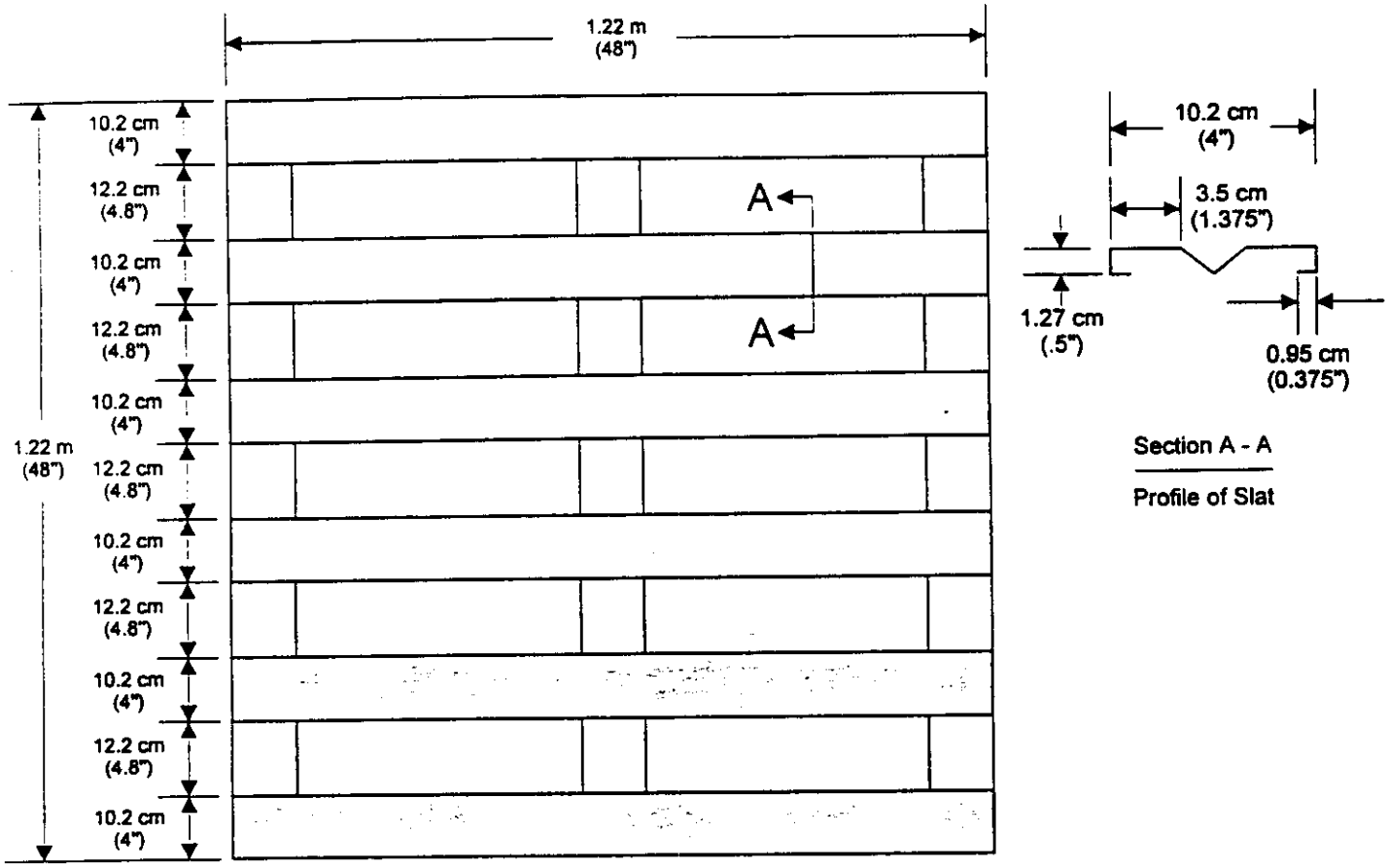


Plan View

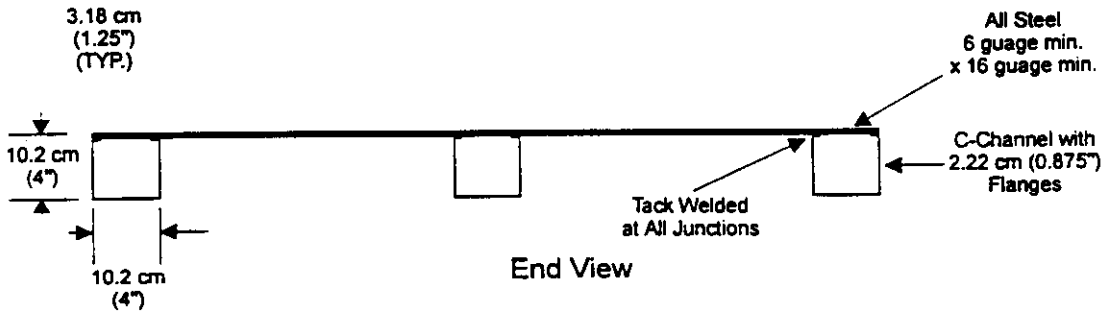


Side View

Figure 32. Overall Pallet Storage Setup

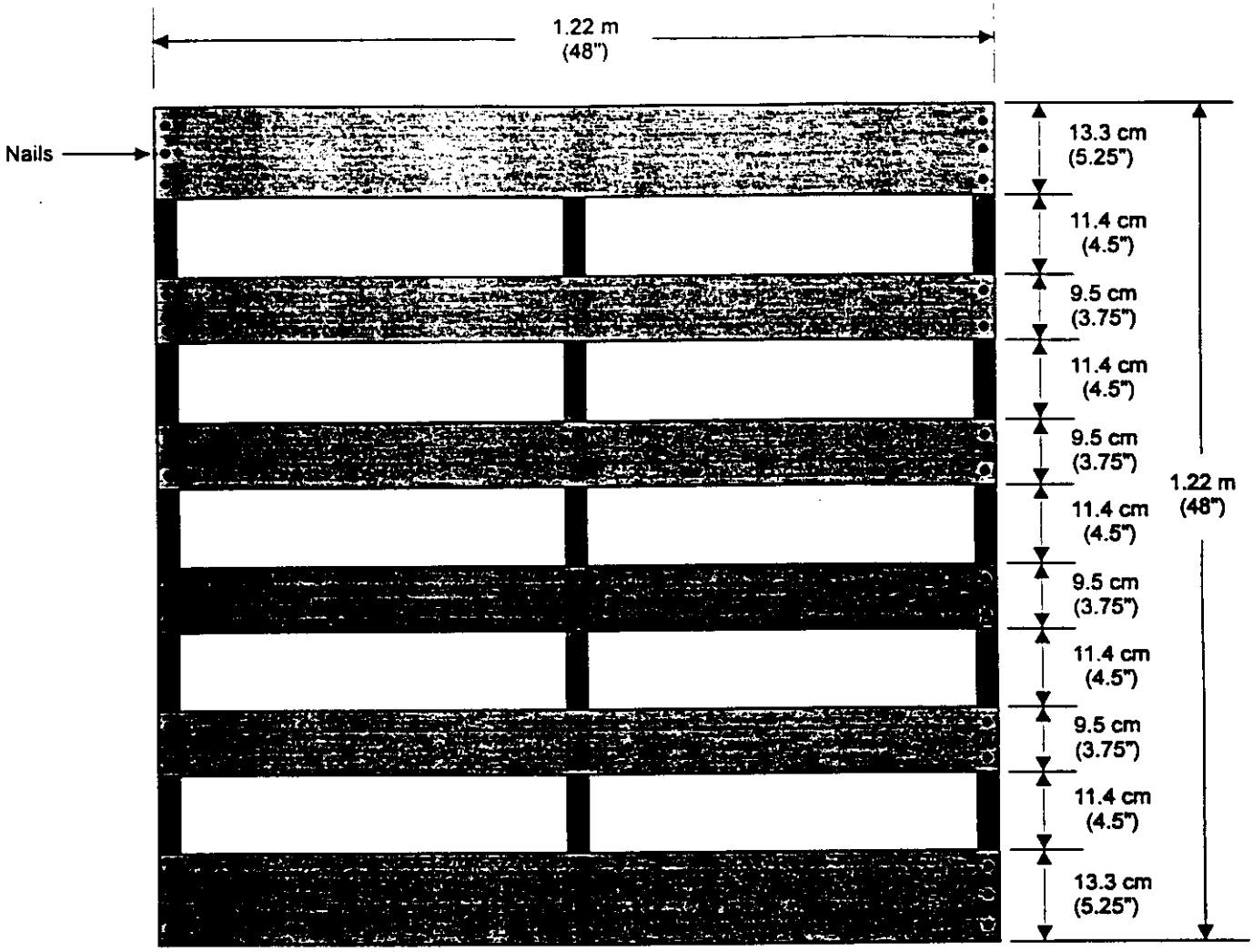


Top View

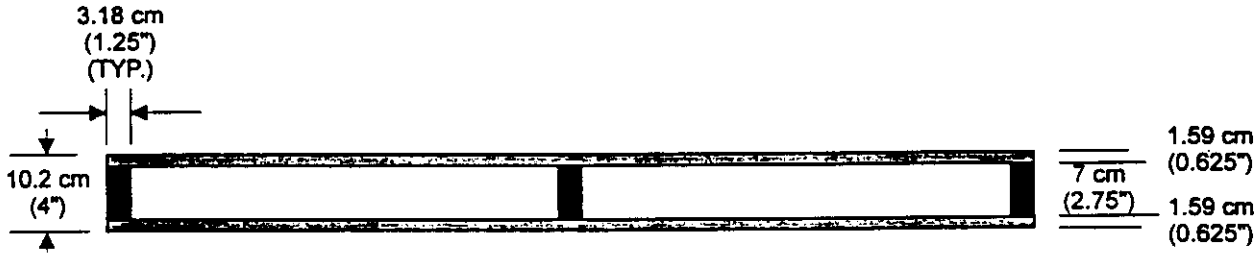


End View

Figure 33. Steel Pallet Construction



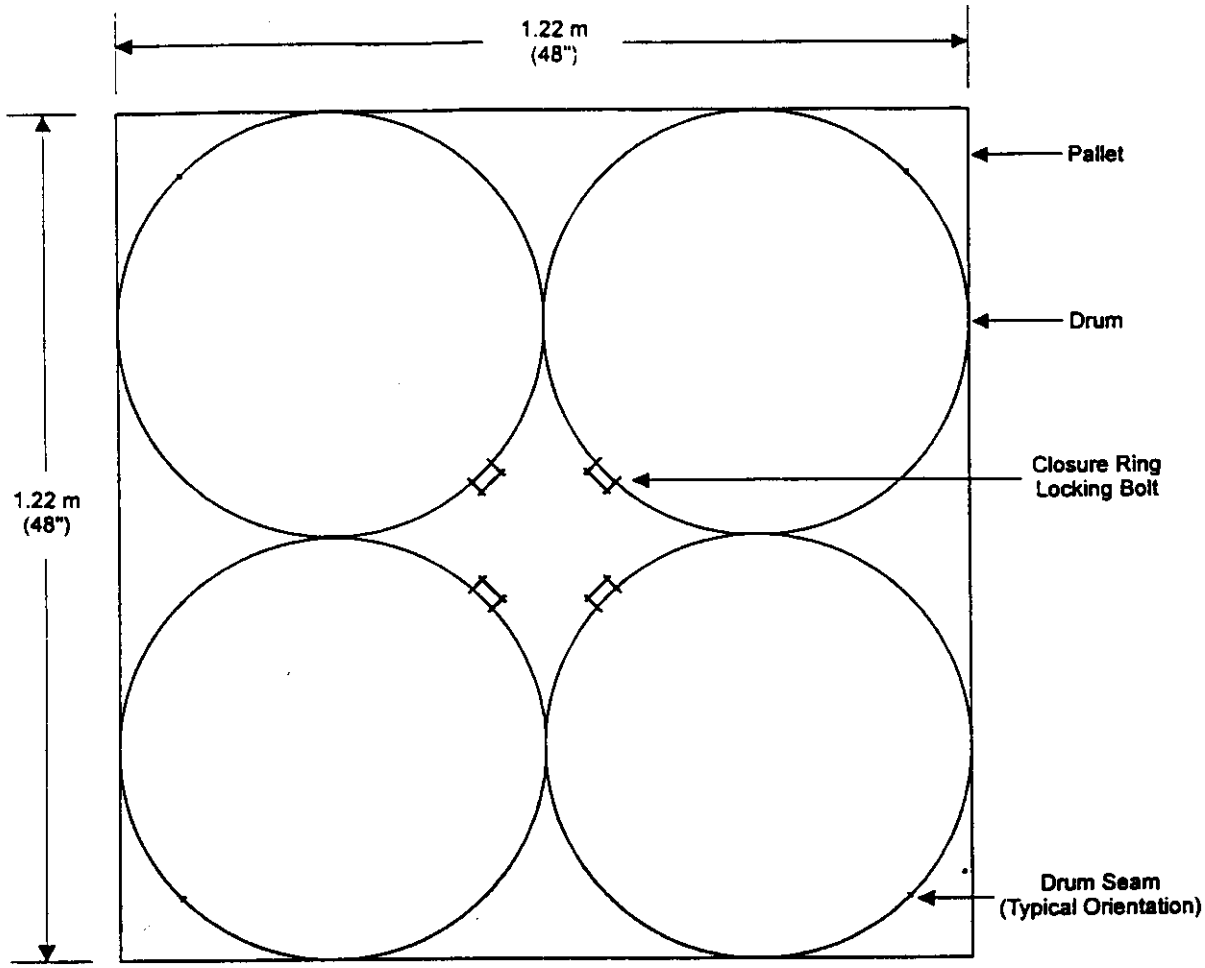
Top View (A)



End View

Note (A) Bottom is constructed similarly except with three 9.5 cm slats instead of four.

Figure 34. Wood Pallet Construction



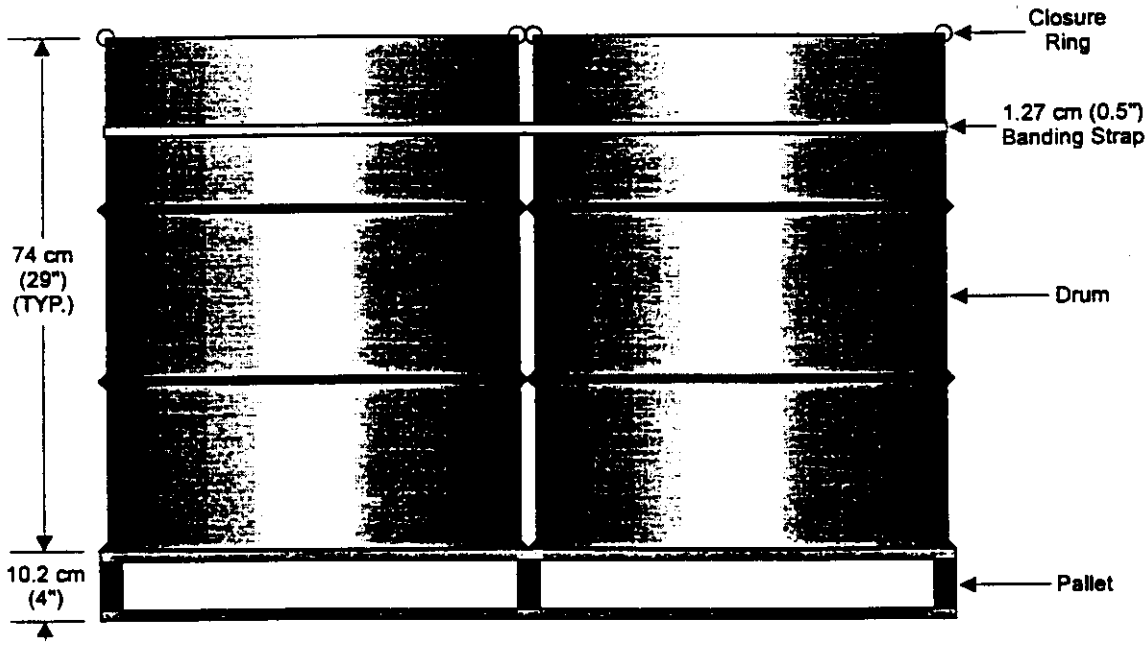
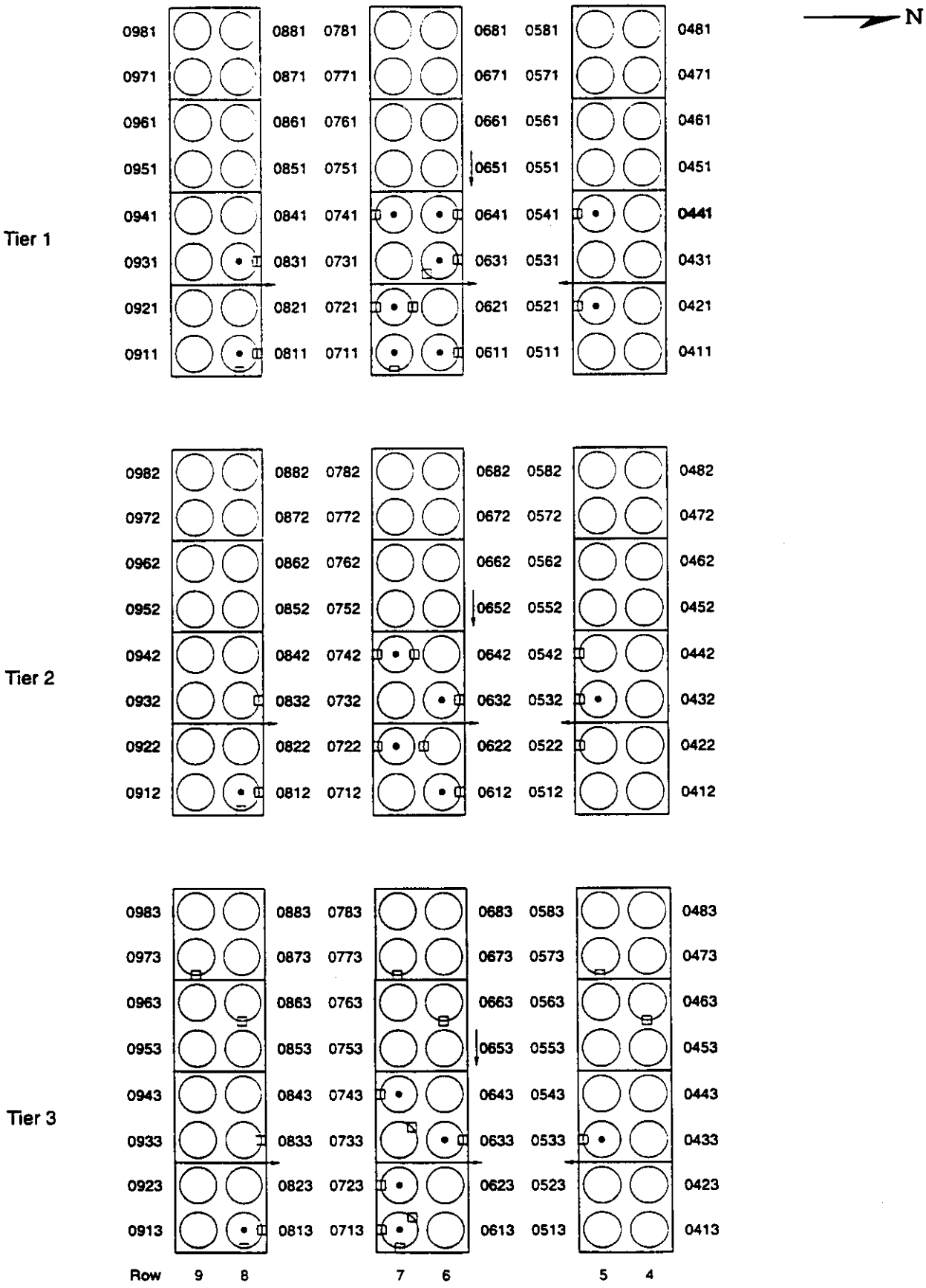


Figure 35. Drum Arrangement on Pallet



Note: Drum number indicates Test-Row-Bay-Tier

Figure 36. Pallet Storage Drum Location Diagram

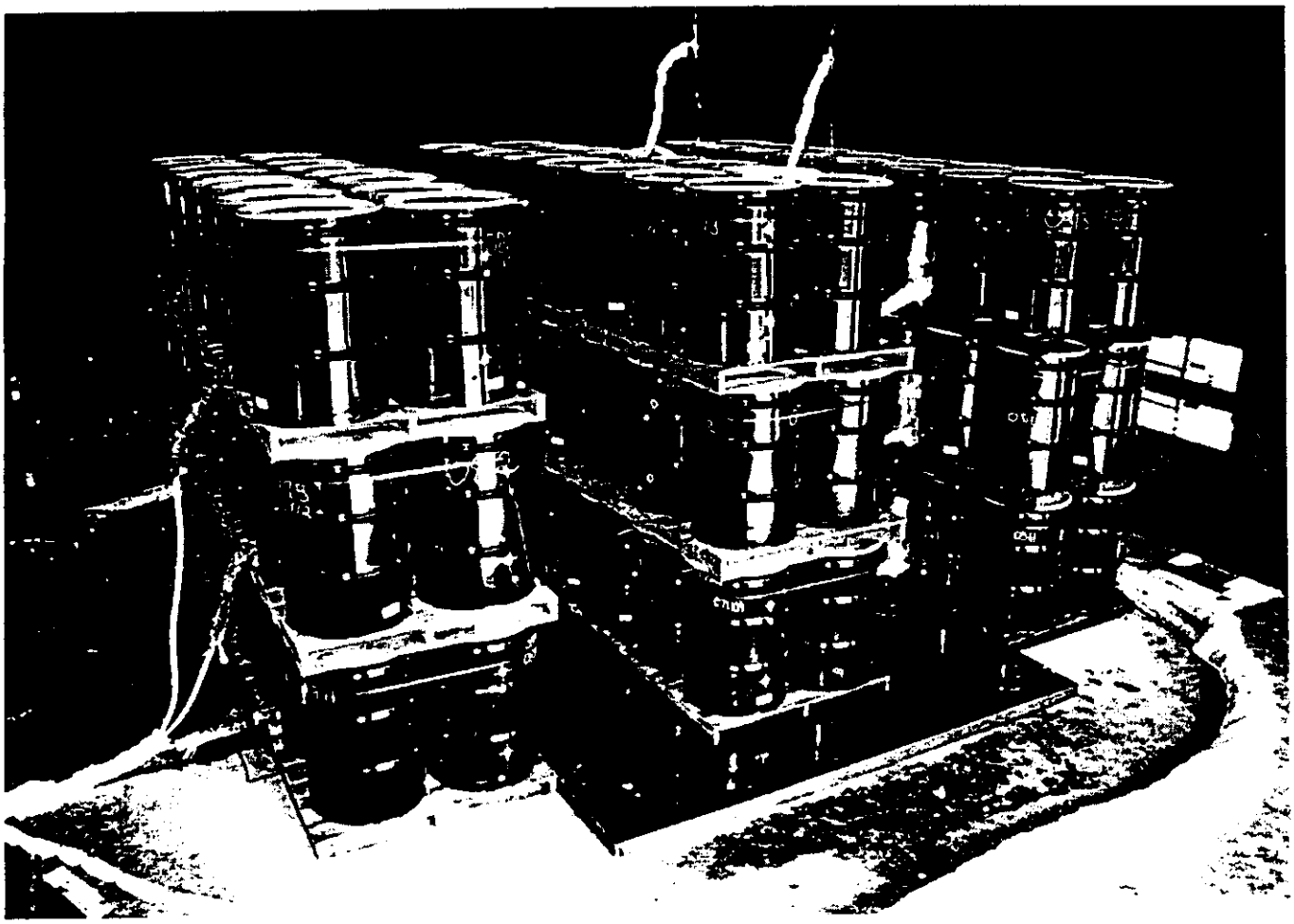


Figure 37. Pre-test Pallet Storage Array, View Looking Northwest

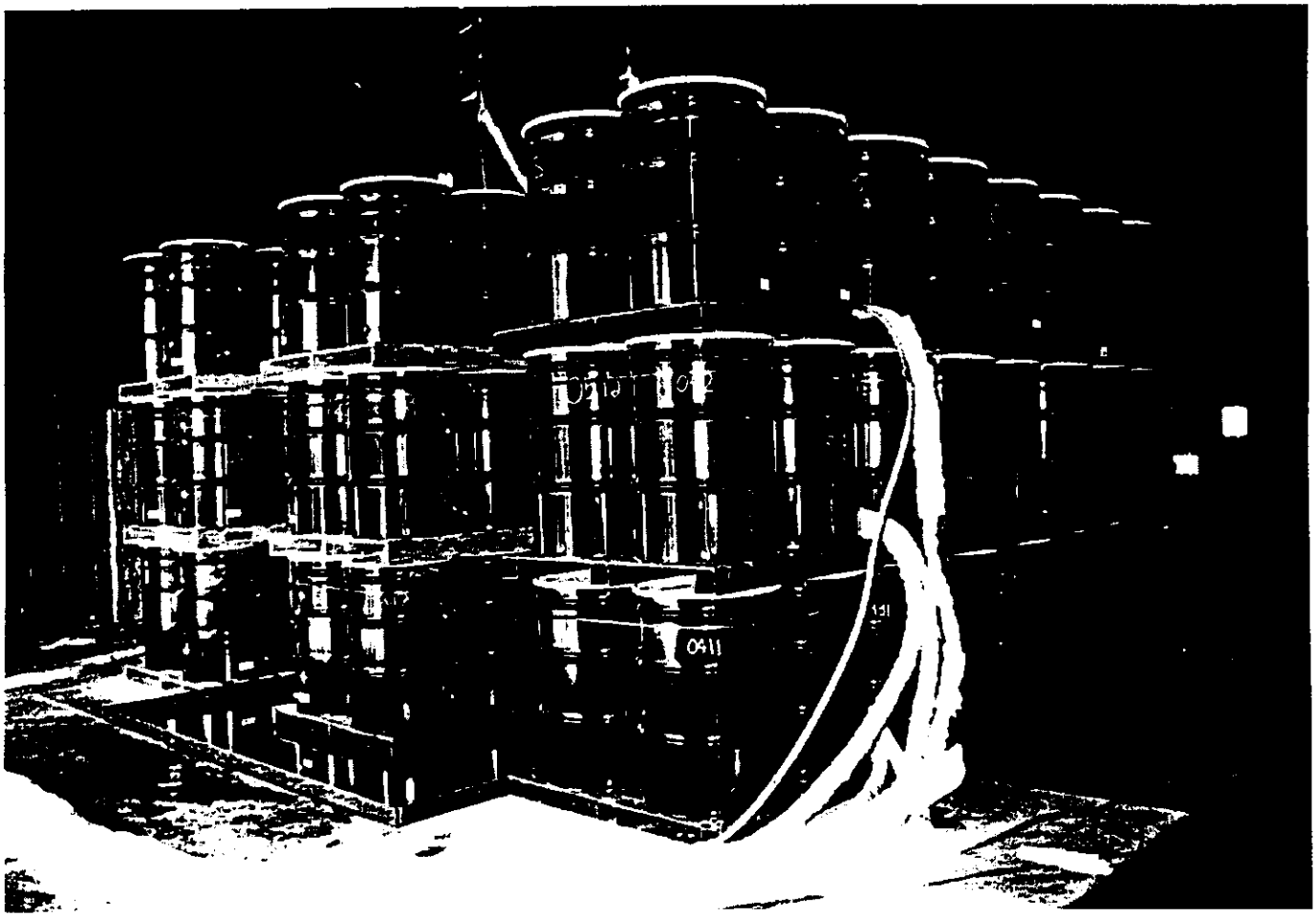
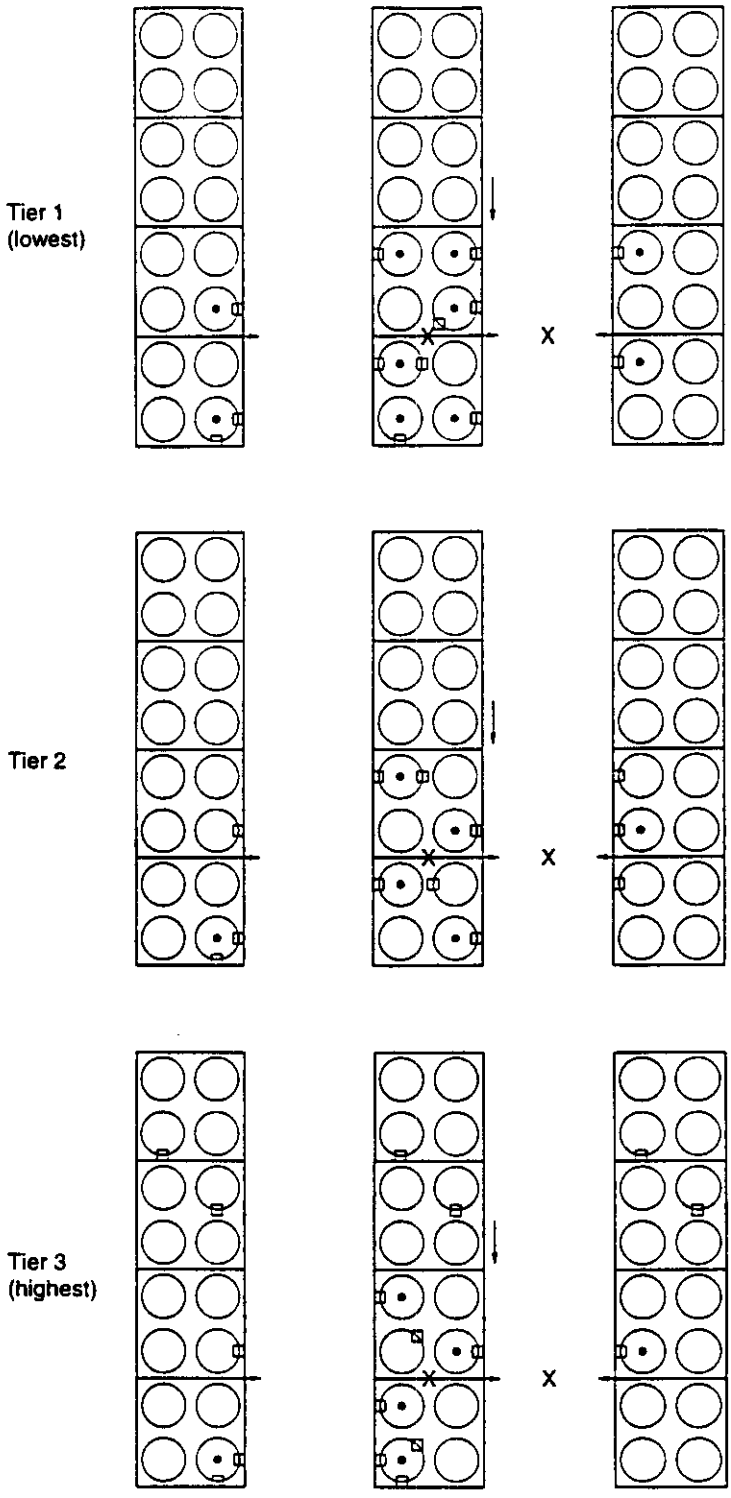


Figure 38. Pre-test Pallet Storage Array, View Looking Southwest



Notes:

All Drums Standard Load w/Steel

• = Pressure - 22 Locations

□ = Drum Surface - 2 Each - 42 Locations = 84

X = Temps In Fire - Two TC Trees - 15 TC's X 2 = 30 (every 61 cm (2') starting 61 cm above the floor)
Total – 114 TC's

→ = Heat Flux = 12 Total

Figure 39. Pallet Storage Experimental Setup and Instrumentation Layout

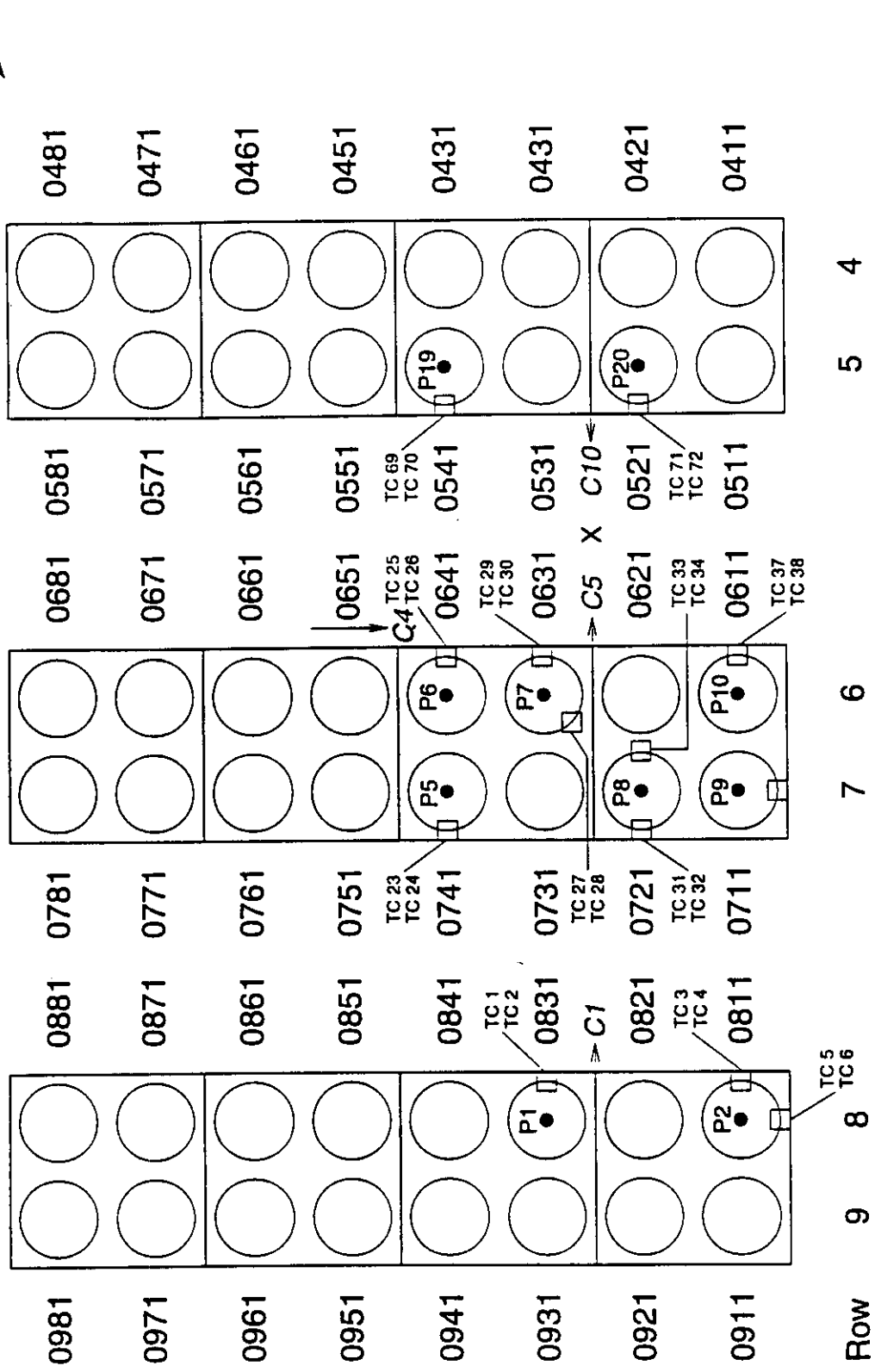


Figure 40. Instrumentation Layout — Tier 1

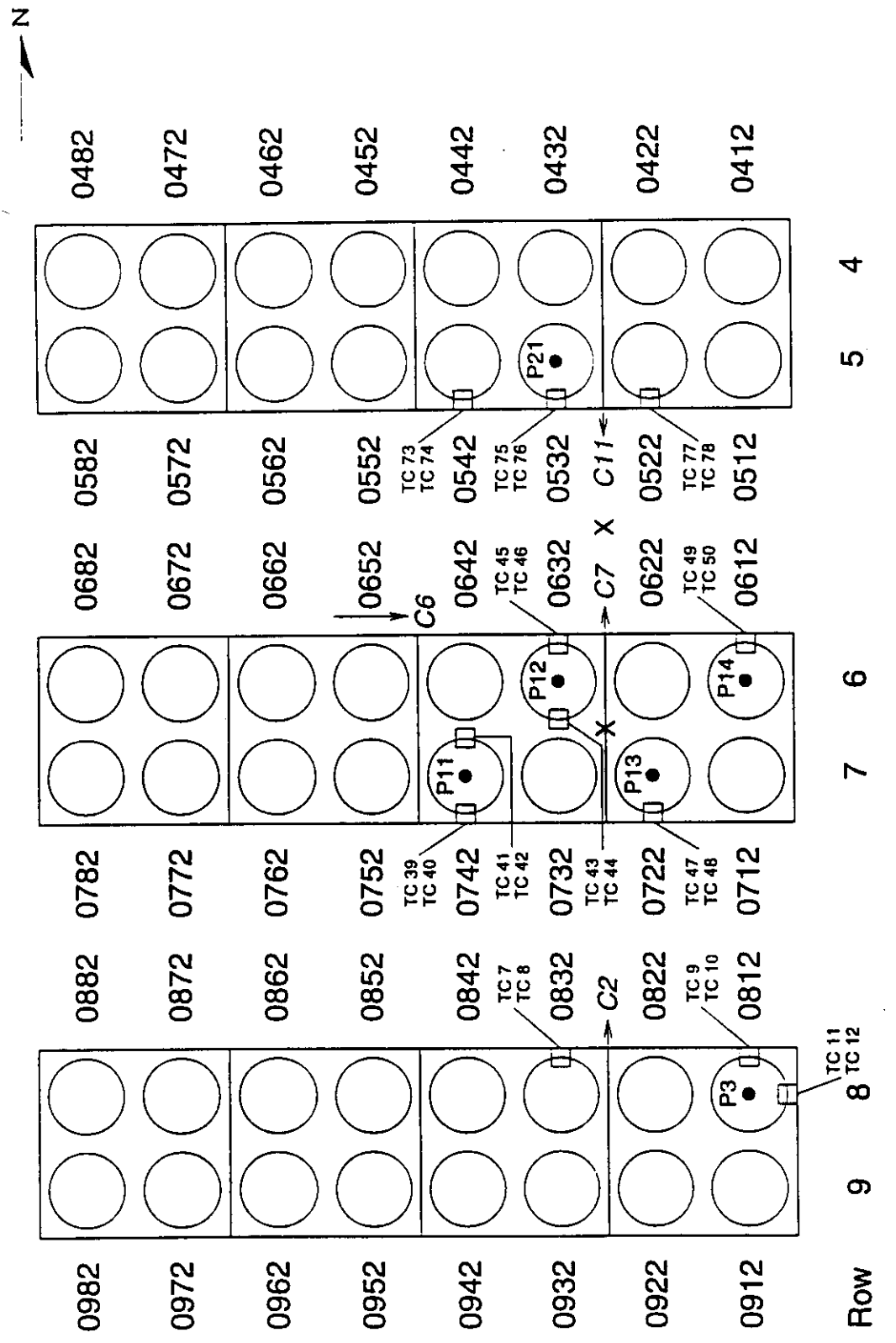
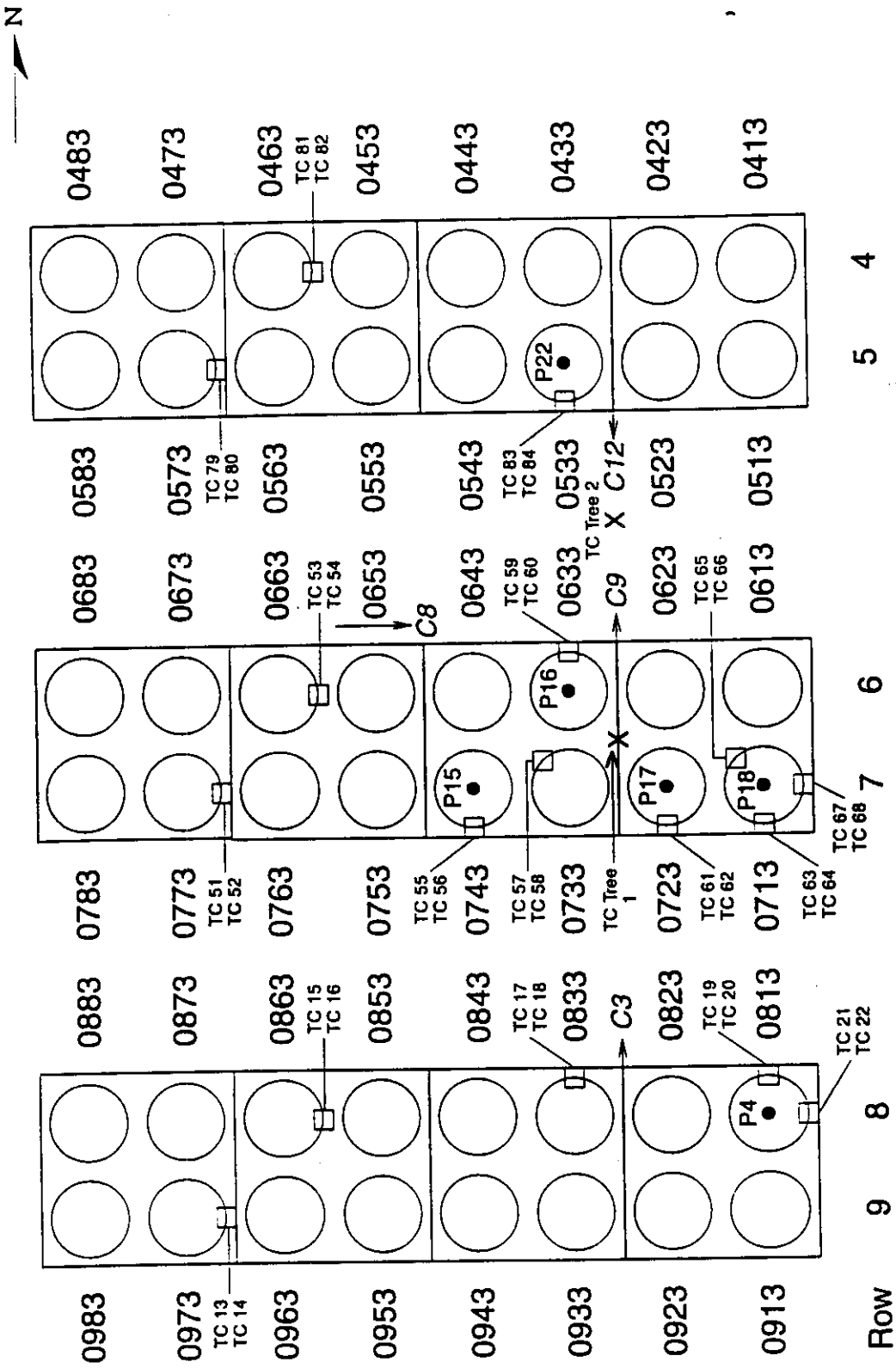


Figure 41. Instrumentation Layout — Tier 2



Note: TC Tree 1 TC 85-99 (floor to ceiling)
TC Tree 2 TC 100-114 (floor to ceiling)

Figure 42. Instrumentation Layout — Tier 3

to insure that the entire pool fire surface would ignite quickly and evenly. It was estimated that this quantity of fuel would provide a burn time of approximately five minutes. The 5-minute burn time was chosen based on previous work conducted by HAI, which showed that in the engulfing fires, the drums experienced lid loss in less than 3 minutes. Additionally, the 132.5 L (35 gal) of fuel represented a conservatively high value for a credible fuel spill that could be experienced by WHC.

Blank

7.0 TEST RESULTS

7.1 RACK STORAGE TEST

The rack storage test was conducted on June 6, 1995. The ambient temperature at the start of the test was 28°C (82°F). Data plots for the pressure, temperature, and heat flux data obtained during this test is provided in Appendix C.

7.1.1 Visual Observations

During the fire test, visual observations were made. A summary of the observations is provided in Appendix C. It should be noted that determinations of specific drums rupturing or exploding were difficult due to viewing angles and the engulfing pool fire itself.

The first drum exploded at 1:41 after ignition of the pool fire. Prior to this, flaming around the lids of several drums in the center of the pool fire was noted. During the test, the observers could hear the drums venting, and as the venting/pressure increased, the drum would explode. From the observations, it was estimated that 21 to 25 drums exploded during the test.

When several of the drums exploded, the lids would move upward and hit the underside of the containment pans. The force of the explosion and/or the lids would be sufficient to cause the containment pans to disengage from the "S" hook supports and either completely or partially fall on top of the drum below it.

During the test, two lids were expelled from the racks. One lid fell into the center aisle between racks 2 and 3 at 2:46 into the test. Another lid was noted on the southside of rack 3 after the test. Also on the southside of Rack 3, two containment pans had fallen out of the rack onto the floor. During the test, no other lids were violently expelled from the racks.

Several times during the fire, airborne flaming contents could be observed in the facility. Generally, these were small pieces of materials, and no significant amount of expelled contents was noted either on the floor or on/in the racks after the test.

At approximately 3:30 into the test, significant movement and distortion of the vertical uprights of racks 2 and 3 was noted. This distortion continued throughout the remainder of the test. The outermost vertical upright (southeast side) of Rack 3 basically collapsed on itself along with the other east side vertical upright of Rack 3 also showing collapse but not as extensive as the outermost upright. The effect of this collapse was to shift and distort rack 3 toward the southeast corner of the test building. Rack 2 also showed collapse of the east side uprights but not as extensive as that noted in Rack 3. The movement of Rack 3 also caused breakage of lower two horizontal ties between Rack 3 and Rack 2.

At approximately 5:24 into the test period, the pool fire was extinguished. At this time, all of the drums that were in the pool fire area in Racks 2 and 3 were burning. Figure 43 provides a photograph at this time into the test. The drums were burning through openings in the lids created when they exploded. Several of the drums in Row 2, Tiers 1-6 and Bays 1-4 were also burning around their lids. It appeared that these flames were approximately 76-152 mm (3-6 in.) in length.

After extinguishment was started, two additional drums in the upper portion of the pool fire area exploded. The pool fire was extinguished at approximately 6:30 into the test period. Due to continued movement/collapse of the uprights of Rack 3, and with safety considerations in mind, the test was terminated at 7:18 into the test period. At this time, extinguishment of the burning drums in Racks 2 and 3 was begun. The drums were extinguished at 10:30 into the test period.

7.1.2 Pressure Data

Of the 24 drums instrumented with pressure transducers, 8 were positioned west of the pool fire in Racks 2 and 3 (X151, X251, X361, X352, X253, X254, X255, and X256) and 4 were positioned adjacent to the pool fire in Rack 1 (X131, X122, X123, and X125). All of these drums experienced negligible pressure increase with a peak pressure measured being 35.9 kPa (5.20 psig) in Drum X131. The remaining 12 drums instrumented with pressure transducers were positioned inside the pool fire. The peak pressures measured ranged from 46.6 kPa (6.76 psig) (X226) to 15.3 kPa (16.72 psig) (X222) and averaged 68.3 kPa (9.9 psig). Table 4 shows the order each pressure transducer reached its peak pressure and the corresponding time.

Drum X224 reached a peak of approximately 46.6 kPa (6.75 psig) and then experienced a relatively slow venting to a pressure of approximately 17.2 kPa (2.5 psig). The pressure began to rise up to the peak of 49.3 kPa (7.15 psig) at which time the drum may have exploded or vented, resulting in a total pressure drop. This double spike, also observed on Drums X233, X225, and X226 may be attributed to a pressure rise until venting occurred which relieved the pressure, followed by an increase in pressure which the venting action could not relieve thus causing the drum to explode.

7.1.3 Total Heat Flux Data

A total of 22 total heat flux transducers (calorimeters) with 180° view angles were positioned at various locations throughout the rack system to define the heat flux environment imposed on the rack system and the drums from the pool fire. The first group of calorimeters (C1, C5, C9, and C13) were located outside the fire between Racks 2 and 3 looking east (into the fire) and measured peak total heat flux values between approximately 30 and 45 kW/m^2. The second group of calorimeters (C2, C6, and C10) were located in the fire on Rack 3 looking south (out of the fire) and measured peak total heat flux values between approximately 160 and 200 kW/m^2. The third group of calorimeters (C3, C7, and C11) were located in the fire on Rack 2 (Tiers 1, 2, and 3) looking north and measured peak total heat flux values of approximately 225 kW/m^2. Calorimeters C14, C15, and C16 located on Tiers 4, 5, and 6

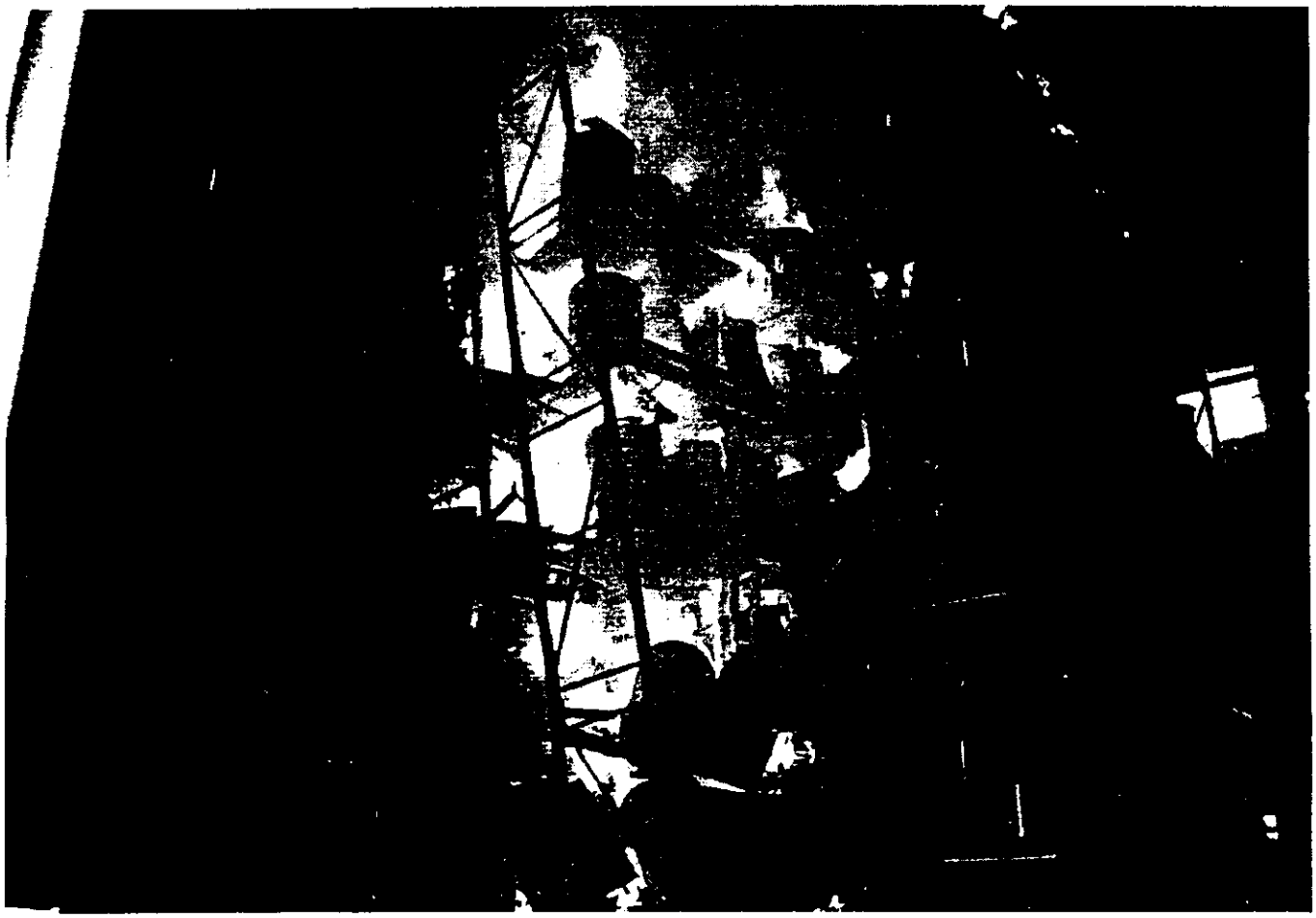


Figure 43. Rack Storage Test after Pool Fire Extinguishment

looking in the same direction as calorimeters C3, C7, and C11 measured peak total heat flux values of approximately 140 kW/m^2. The last group of calorimeters, C4, C8, and C12, were located outside the fire on Rack 1 looking south (into the fire) and measured peak total heat flux values of approximately 100 to 150 kW/m^2.

Table 4. Peak Pressures Measured For Each Drum

Order	Drum No.	Peak Pressure psig	Time (min:sec)
1	X222	16.5	1:41
2	X312	11.0	1:50
3	X211	12.4	1:51
4	X213	11.0	1:58
5	X321	10.0	2:01
6	X231	8.7	2:42
7	X214	11.0	2:43
8	X131	5.2	2:46
9	X122	3.0	3:27
10	X224	7.1	3:31
11	X225	7.8	3:58
12	X332	8.4	4:08
13	X233	7.5	4:33
14	X226	6.7	4:35
15	X123	2.7	4:56
16	X256	3.8	4:58
17	X251	1.4	5:29
18	X125	2.4	5:57
19	X361	0.4	6:27
20	X254	1.3	8:07
21	X255	2.6	8:14
22	X253	0.9	8;15
23	X352	0.9	8:16
24	X151	1.4	17:15

A typical hydrocarbon pool fire (one composed of diesel, gasoline, etc.) is characterized by total incident heat flux levels of approximately 200 kW/m^2 and temperatures ranging from

approximately 800 to 1100°C (1470 to 2000°F). Calorimeters C3, C7, and C11, which were totally immersed inside the fire, measured typical total heat flux values. The remaining calorimeters were located in positions facing the fire with obstructions in their view angle, (i.e. drums, rack members, etc.) or only intermittently was there flame filling the entire 180° view angle resulting in some cases very low total heat flux levels.

7.1.4 Drum Surface and Tree Temperatures

The peak surface temperatures measured on the drums positioned in the west half of the three racks (Bays 5, 6, 7, and 8) ranged in temperature from approximately 75 to 400°C (167 to 752°F). The drums in Bay 5, adjacent to the pool fire, ranged in peak temperature from 200 to 400°C (392 to 752°F) with the remaining drums staying below 100°C (212°F). The four drums in Rack 1 adjacent to the fire (Bays 1, 2, 3, and 4) ranged from 450 to 600°C (842 to 1112°F) with little change in temperature as a function of tier level. The drums which were situated directly inside the pool fire ranged in peak temperature from 300°C (572°F) to peaks as high as 1300°C (2370°F). It is interesting to note that the drums in Bay 4 were approximately 100 to 1000°C (212 to 1830°F) cooler as a result of intermittently being completely surrounded by a thick flame layer. The hottest location measured on the surface of a drum was in the 1st and 2nd bays of Rack 3. All peak surface temperatures measured on the drums in these locations were between 700 and 1300°C (1290 and 2370°F). It should be noted that as Racks 3 and 2 began to collapse, some of the drum surface thermocouples may have been dislodged. It was not possible to make a good assessment of this due to safety concerns during post-test observations.

Three water filled drums were located in Racks 2 and 3 inside the fire, and the fourth drum was located in Rack 1 adjacent to the fire. The three water drums in the fire reached an internal temperature of 100°C (212°F) at approximately 400 sec and remained at that level for the duration of the test. The internal temperatures in the water drum located in Rack 1 only rose approximately 10°C (50°F) above ambient. At the end of the fire test, all air operated pumps were operational and functioning properly.

Thermocouple (TC) Tree No. 1, 6 in. (152.4 mm) off Rack 1, measured peak temperatures up to approximately 800°C (1470°F) from Tiers 1 to 3 with averages between 500 and 600°C (930 and 1110°F). The TC's measuring temperatures at Tiers 4, 5, and 6 measured peaks between 600 and 700°C (1110 and 1290°F), and the averages dropped to approximately 400°C (750°F) with the hottest temperatures measured at the higher tiers. The ceiling TC peaked at approximately 800°C (1470°F) and averaged temperatures around 600 to 700°C (1110 to 1290°F). TC Tree No. 2, 152.4 mm (6 in.) off Rack 2, measured peak temperatures of 1000 to 1100°C (1830 to 2000°F) up to Tier 5 with averages around 1000°C (1830°F). The TC's around Tiers 4, 5, and 6 had some peaks around 1000°C (1830°F), but the average dropped to approximately 700 to 800°C (1290 to 1470°F). The ceiling TC measured a spike between 1300 to 1400°C (2370 to 2550°F), but averaged approximately 800°C (1470°F).

Temperatures measured by TC Tree No. 3, between Racks 2 and 3, measured peak temperatures of 1000°C (1830°F) at Tier 1 and increased to approximately 1300°C (2370°F) at Tiers 2 through 6 and the ceiling TC, with averages between 800 and 900°C (1470 and 1650°F) for all tiers and the ceiling TC. The average temperatures in this TC tree were higher

than measured by TC Trees 1 and 2 due to the large volume of flame inside the racks from both the pool fire and the burning drums and contents.

On Rack 1, TC's welded to the structural steel measured temperatures on the East end of the rack (TC's 158 through 161) of approximately 250 to 300°C (480 to 570°F), on the middle support (TC's 156 and 157) they ranged from 500 to 650°C (930 to 1200°F) (facing the fire), and at the center of the rack (TC's 152 through 155) they were approximately 250 to 300°C (480 to 570°F).

Temperatures measured on the East end of Rack 2 (TC's 162 through 167) ranged from 700 to 1200°C (1290 to 2190°F), as expected, since this end of the rack was immersed in the fire. TC's 167, 0.89 m (35 in.) above the ground and TC 166, 1.2 m (4 ft) above TC 167, measured steel temperatures of approximately 1100 to 1200°C (2000 to 2190°F) which led to the structural collapse of the rack system. TC's 168, 170, 171, 173, 174, and 176, located at the middle of the East half of Rack 2, measured steel temperatures ranging from 800 to 1100°C (1470 to 2000°F). TC's 177 through 180, attached to the middle of the north side of Rack 2, measured temperatures of approximately 200 to 300°C (390 to 570°F) and TC's 181 through 183, attached to the middle of the West half, North face of Rack 2, measured steel temperatures of 75 to 225°C (167 to 437°F). TC's 172 and 175, which were attached to the South side of Rack 2 (between Racks 2 and 3) in the middle of the East half, in the fire measured structural steel temperatures of approximately 1000°C (1830°F). Four TC's welded to the North side of Rack 3 (between Racks 2 and 3) at the middle of the rack system, measured steel temperatures ranging from 160 to 350°C (320 to 660°F).

A group of three TC's were (1) Welded to the bottom of Drum X232 (TC 187), (2) directly below the bottom center of the drum on the mesh (TC 188), and (3) directly below the bottom center of the drum, welded to the top of the pan (TC 189). Another group of three TC's were welded below Drum X236 (TC's 184, 185, 186, respectively). The TC's welded to the bottom of the drum and the wire mesh measured temperatures of approximately 700°C (1290°F) for Drum X236 and 850°C (1650°F) for Drum X232. The temperatures on the top of the pan were approximately 850°C (1650°F) under Drum X236, and the TC under Drum X232 malfunctioned, providing no temperature reading.

7.1.5 Drum and Rack Inspection

Post-test inspection of the drums showed that all drums in Racks 2 and 3 positioned in the pool fire (positions 1 through 4) experienced extensive burning of the contents and lid loss varying from a complete loss of lid (i.e., lid fallen to floor) to the lid being open (i.e., ruptured), but still attached to the drum. The remaining drums on the west half of Racks 2 and 3 and the entire Rack 1 were intact and showed no signs of lid loss or bulging. The lids in Rack 1 adjacent to the fire (Bays 1 through 4) remained on the drum without signs of rupture, but almost all experienced some degree of gasket burning around the bolt and/or on the fire side. The fire side of all drums had the paint burned off the drum, and Tiers 4 through 6 showed a heavy accumulation of soot. On the 3rd to 6th tier, the underside of the pans (facing lower tier drum lids) experienced a heavy accumulation of soot. The drums on the top three tiers of Racks 2 and 3 had a heavy accumulation of soot on them and experienced a slight amount of heat damage. Post-test examination of the drums was performed and the results are provided in Appendix D. Appendix D contains both the pre-test drum data sheets and the post-test drum data sheets for each test drum. Figure 44 provides a post-test damage

sketch of the drums showing lid loss information and burn patterns. In this sketch, the term "lid loss" pertains to those drums which had the lid completely separated from the drum, i.e., lid was completely out of closing ring. The term, "lid rupture," pertains to those drums which had the lid partially removed from the metal closure ring. Overall, a total of 19 lids were separated from the metal closure ring, and 18 lids were partially separated from the closure ring.

Drum weight loss values are provided in Figure 45. The weight loss values for the drums in the immediate fire area (Rows 2 and 3, Bays 1-4, Tiers 1-6) are suspect for the following reasons:

- Water was used to either extinguish or partially extinguish these drums, and while free water was poured out of the drums prior to post-test weighing, the cotton and charred materials did retain some of the water; and

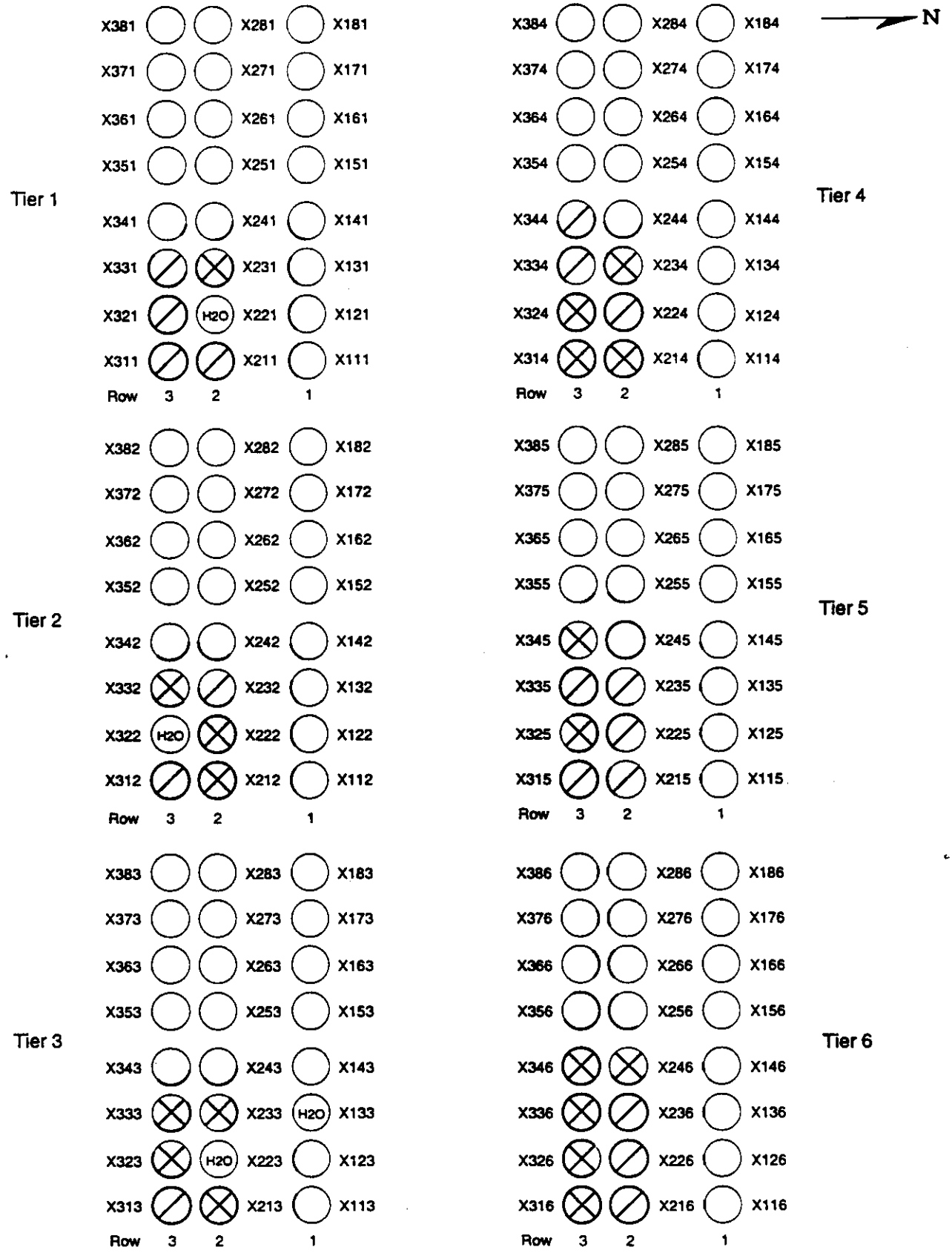
- Some of the drums continued to smolder after the test and could not be extinguished until they were removed from the test building. This delay allowed some drums to smolder for 12-16 hours.

It is estimated that the drums in the immediate fire area lost 50-75 percent of their combustible contents.

The drums in Rack 1 showed very little weight loss, i.e., from 0 - 0.3 kg (0 - 0.6 lb). The drums in Racks 2 and 3, Bays 5-8, Tiers 1-6 also showed very little weight loss. The drums in the sixth tier, outside the immediate fire area showed the greatest weight loss (0 - 0.5 kg (0 - 1.2 lb)) when compared to drums in the same position but in other tiers. This is probably due to their exposure in the hot layer for a longer period of time than the drums in the lower tiers.

The seismic bar on Tier 1 was bowed outward approximately 101.6 mm (4 in.) due to thermal expansion from the fire. The remaining main beams and seismic bars in Rack 1 did not show any visible signs of heat distortion. The west half of Racks 2 and 3 experienced no heat damage, but Tiers 4, 5, and 6 were heavily covered with soot. The main beams and seismic bars were intact and straight.

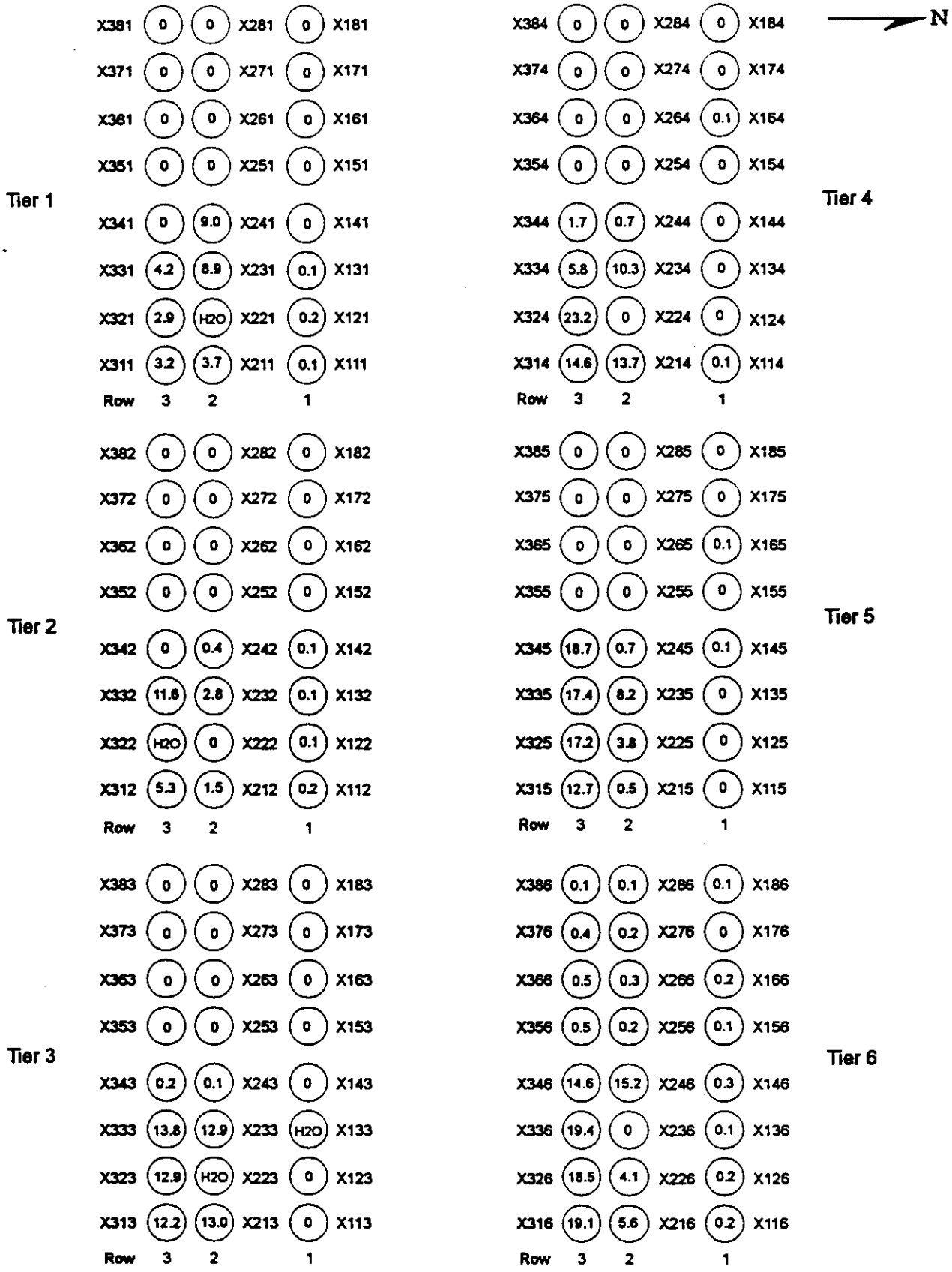
The east half of Racks 2 and 3 were completely destroyed and were listing approximately 0.91 to 1.2 m (3 to 4 ft) to the south at the top from their original positions. Figure 46 provides a diagram showing the distortion of the east end of Rack 3. The interior of the rack system collapsed onto itself with the drums on the 1st tier acting as columns and supporting the remaining tiers. The wire mesh that was used to support the drums in the



Note: Drum number indicates Test-Row-Bay-Tier.

⊗ Lid Loss ⊘ Rupture ◯ Burn Pattern

Figure 44. Post-test Drum Assessment



Note: Drum number indicates Test-Row-Bay-Tier.
Value = Weight Loss (kg)

Figure 45. Weight Loss Data — Rack Storage Test

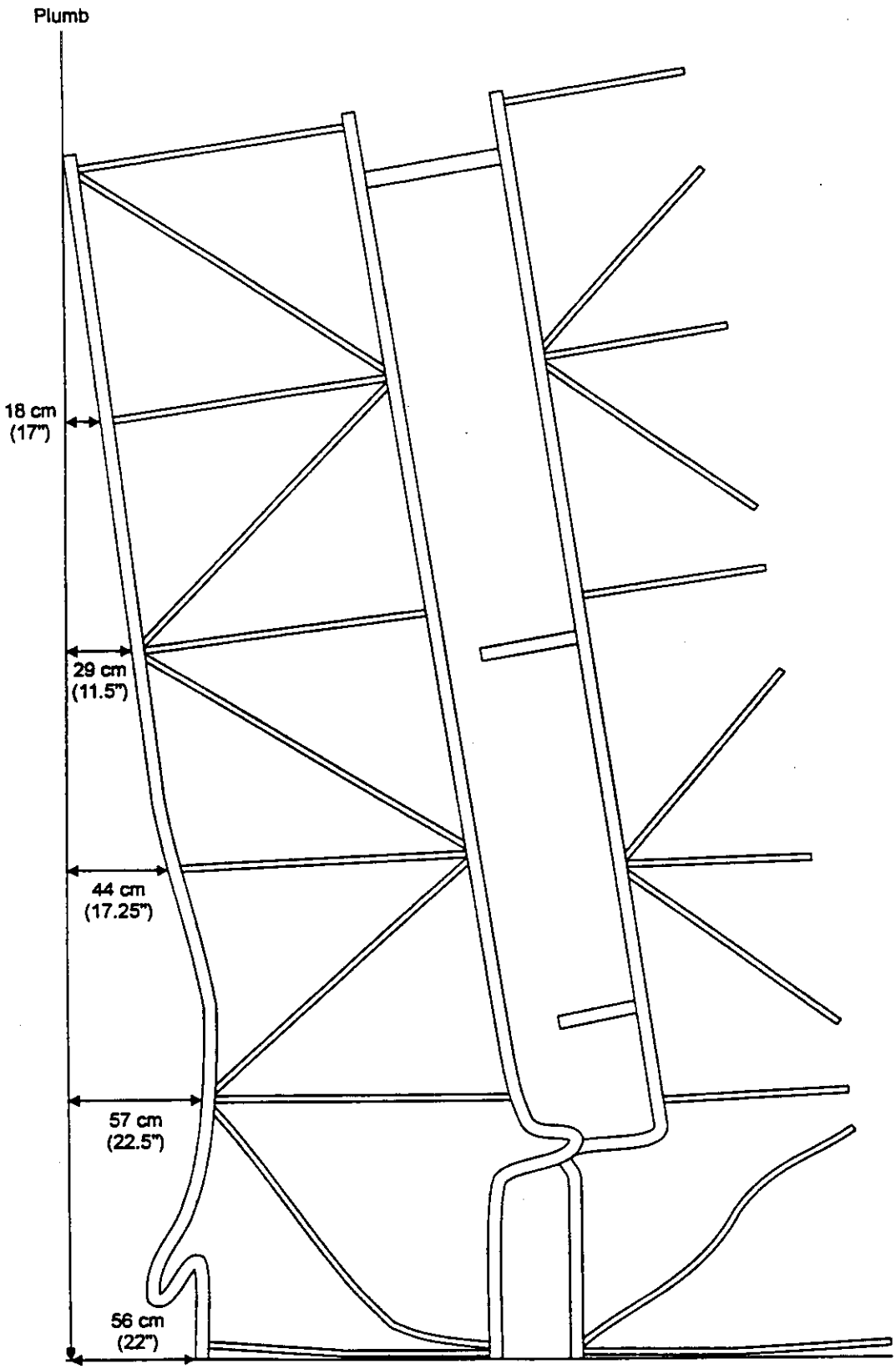


Figure 46. Post-test Damage, End of Rack 3

racks, was distorted such that the weight of the drums caused the mesh to collapse. This movement allowed the drums to rest on top of each other with the mesh and the containment pans in between the drums. The distortion of the rack also caused the drums to slightly topple between the horizontal beams. No drums fell out of the rack, but drums in Bays 1, 2, and 3 had fallen over to some degree with Bay 1 being the most severe. The seismic bars and the horizontal members provided the support so that the drums did not fall from the rack. The drums in Bay 4 were only slightly tilted to the east end of the rack. Figures 47 and 48 provide post-test photographs of the rack storage array.

7.2 PALLETIZED STORAGE TEST

The palletized storage test was conducted on June 12, 1995. The ambient temperature at the start of the tests was 23°C (73°F). Data plots for the pressures, temperature, and heat flux data obtained during this test is provided in Appendix E.

7.2.1 Visual Observations

During the fire test, visual observations were made. A summary of the observations is provided in Appendix E. It should be noted that determinations of specific drums rupturing or exploding were difficult due to viewing angles and the engulfing pool fire itself.

In general, the first drum exploded at 2:07 after ignition of the pool fire. Prior to this, flaming around the lids of several drums in the pool fire area was noted. During the test, the observers could hear the drums venting and as the venting/pressure increased, the drum would explode. From the observations, it was estimated that 14 - 16 drums exploded during the test.

During the test, no lids were completely expelled from the drums. Several times during the fire, a drum would explode, would expel burning pieces of drum contents, and these contents would become airborne. No large pieces of contents were expelled, and only several small pieces were observed on the floor, post-test.

At 5:46 into the test period, the extinguishment of the pool fire was initiated. The pool fire was extinguished at 5:57 into the test period. The drums in Rows 6, 7, 8, and 9, Bays 1-4, continued to burn after the pool fire was extinguished. The wood pallets were also burning in these areas. In Row 4, no burning of the drums was noted and in Row 5 several of the drums continued to burn around the lid area with small flames present.

The burning of the drums in Rows 6 - 9, Bays 1-4, gradually reduced in intensity as the drums cooled and the wood pallets completely burned and charred. At approximately 12 minutes, the drums in Rows 8 and 9, Bays 1-2, Tier 3, began to lean. The leaning was due to the disintegration of the wood pallet under these drums. The steel band did allow the drums to remain in place and they did not fall.

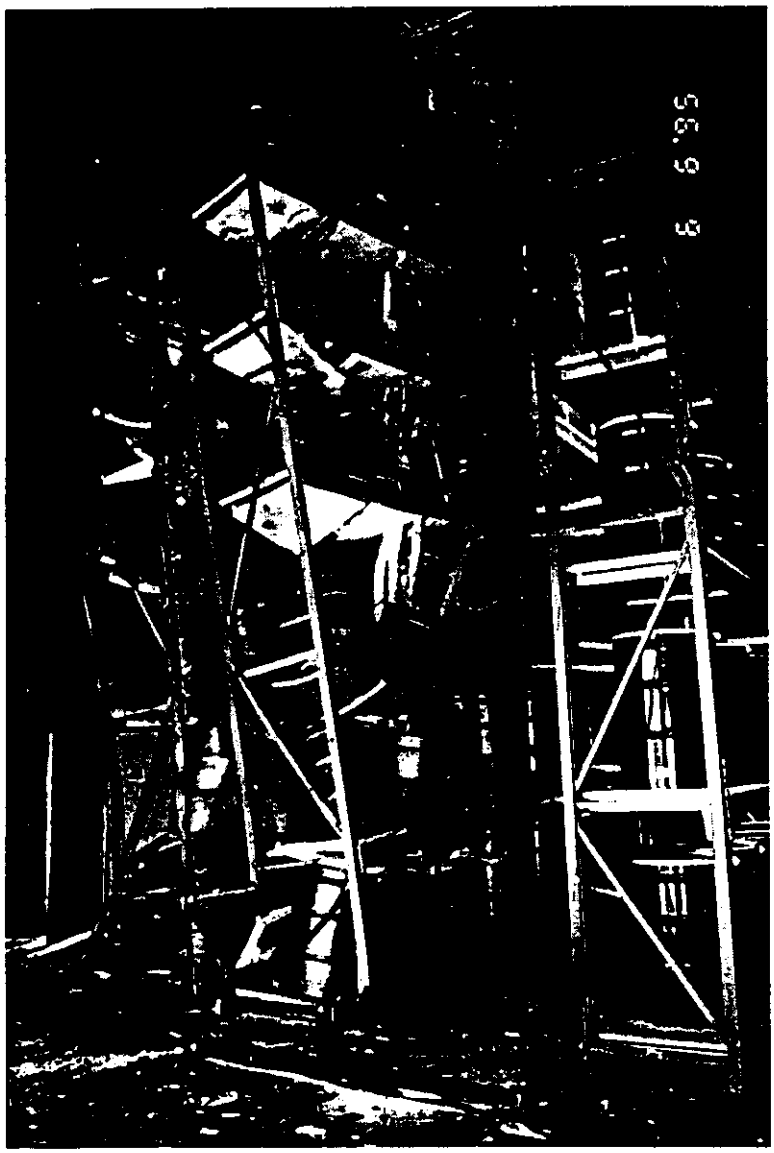


Figure 47. Post-test Photo — Rack Array

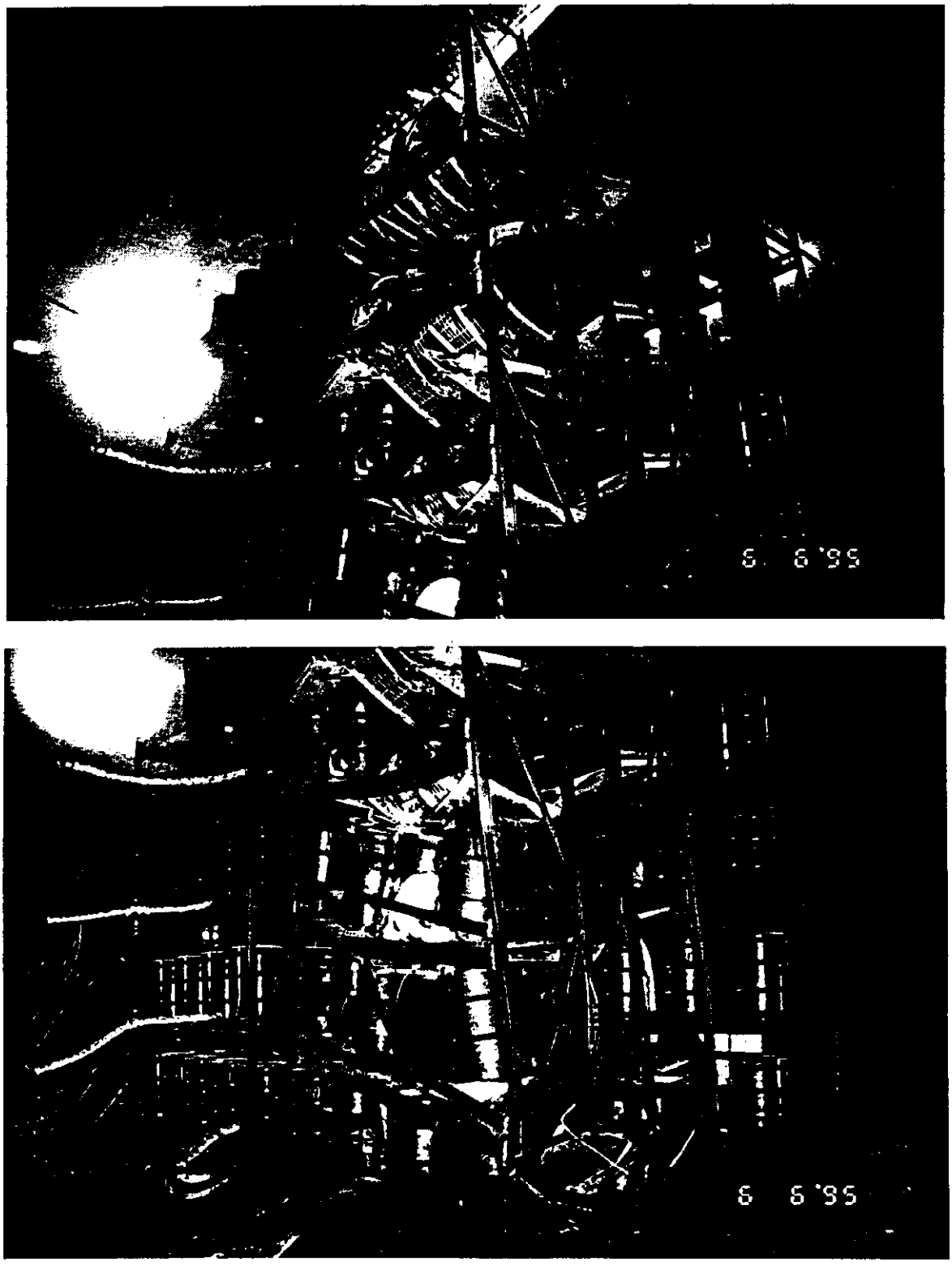


Figure 48. Post-test Photo — Rack 3

The fire slowly progressed to the west through Rows 6, 7, 8, and 9. The progression of the fire was due to the wood pallets burning. As the pallet burned, it would heat the drum below it, cause burning around the lid, the pallet fire would intensify and heat the drum above, which in turn would begin to burn around its lid. During this progression of fire, no drums exploded however, venting was occurring.

The fire did progress through Rows 6 and 7, and it progressed through three of the pallets for Rows 8 and 9. Figure 49 provides photographs showing the fire as is progressed through the pallet rows. The steel pallets did not exhibit any fire progression. Overall, it took approximately 70 minutes to progress through Rows 6 and 7.

During the test, no drums fell to the floor or toppled from their initial positions.

7.2.2 Pressure Data

Of the 22 drums instrumented with pressure transducers, 16 showed a sudden pressure drop and the internal pressure rose slowly in the remaining 6 drums before venting or cooling resulted in a slow pressure decrease. Table 5 shows the order each pressure transducer reached a peak pressure, the time it occurred.

Drum 0743 peaked at a pressure of approximately 27.6 kPa (4 psig) and then experienced a sharp pressure decrease due most likely to a quick venting, not an explosion because of the relatively slow pressure drop off to ambient. Immediately after venting, the internal drum pressure began to rise over approximately the next 300 sec to a peak pressure of approximately 43.1 kPa (6.25 psig) and then slowly vented to ambient.

Several of the drums (0612 and 0633) had a double spike in the internal pressure/time plots. This may be attributed to a pressure rise until venting occurred which relieved the pressure, followed by an increase in pressure which the venting action could not relieve thus causing the drum to explode.

7.2.3 Total Heat Flux Data

A total of 12 total heat flux transducers (calorimeters) with 180° view angles were positioned at various locations throughout the pallet system to define the heat flux environment imposed on the pallets and the drums in the pool fire.

The first group of calorimeters (C1, C2, and C3) were located outside the fire between Positions 2 and 3 of Row 8 looking north (into the fire) and measured peak total heat flux values between approximately 200 and 325 kW/m^2 with averages between 50 and 100 kW/m^2. The sharp peaks measured by C2 and C3 occurred at the same time possibly indicating that a nearby drum vented directly into the transducer' field of view, producing the extremely high instantaneous heat flux levels. The second group of calorimeters (C4, C6, and C8) were located on a vertical stand outside the fire next to Row 6, Position 5 drums looking east (into the fire) and measured peak total heat flux values between approximately 140 and

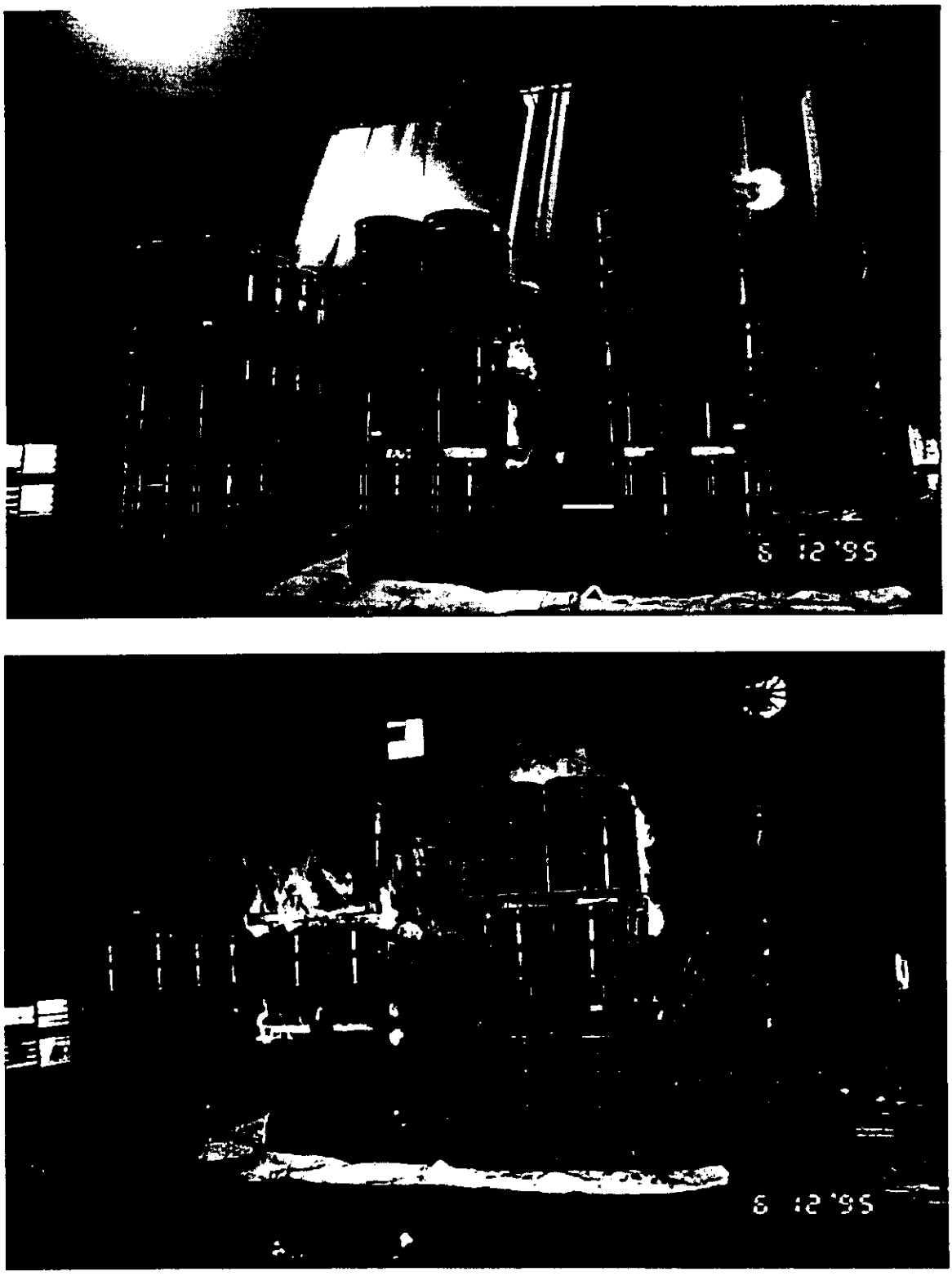


Figure 49. Burning Progressing through Pallet Array

225 kW/m^2 with averages around 100 kW/m^2. The third group of calorimeters (C5, C7, and C9) were located in the fire between Positions 2 and 3 of Row 6 looking north and measured peak total heat flux values of approximately 225 kW/m^2 with averages around 75 to 150 kW/m^2. Calorimeters C10, C11, and C12 were located outside the fire between Positions 2 and 3 of Row 5 looking south (into the fire) and measured peak total heat flux values of approximately 225 to 250 kW/m^2 and averages around 100 to 175 kW/m^2.

Table 5. Peak Pressures Measured by Each Drum

Order	Drum No.	Peak Pressure (psig)	Time (min:sec)
1	O631	16.5	2:27
2	O812	17.4	2:32
3	O811	11.4	2:32
4	O713	15.4	2:34
5	O632	17.3	2:35
6	O711	14.0	2:37
7	O721	12.0	2:40
8	O611	14.5	2:43
9	O612	9.5	2:47
10	O722	16.1	2:49
11	O813	14.7	2:54
12	O723	11.6	3:02
13	O741	3.1	3:12
14	O641	9.0	3:14
15	O521	12.8	3:17
16	O532	11.4	3:32
17	O633	9.9	4:05
18	O533	11.7	4:14
19	O541	6.9	4:44
20	O831	5.8	5:36
21	O742	8.6	8:38
22	O743	6.4	12:35

As with the rack storage test, the calorimeters which were not positioned in the fire measured total heat flux levels lower than the typical pool fire value 200 kW/m^2 probably because the flames did not fill the entire 180° view due to the turbulence of the fire. As the

wood pallets burned, Calorimeters C1, C2, C3, C5, C7, and C9 were shifted, changing their view, and Calorimeter C3 fell into the pool fire at 663 sec during the test. When the pool fire was initially extinguished at 346 sec, all transducers responded with a sharp drop off to 20 or 30 kW/m^2. Subsequent re-ignition of the pool fire can be seen as spikes on the graphs.

7.2.4 Drum Surface and Tree Temperatures

TC's welded to the surface of drums located directly in the pool fire measured peak surface temperatures between 800 and 1100°C (1470 to 2000°F) with Tier 1 being the coolest at 700 to 800°C (1290 to 1470°F) and Tier 2 the hottest at 1100°C (2000°F).

The drums located in Rows 6 and 7, Bay 4, were the coolest, approximately 500 to 700°C (930 to 1290°F) because there was not the total immersion in the flame. The drums in the first four bays of Rows 4, 5, 8 and 9, adjacent to the fire measured temperatures of approximately 500 to 600 °C (930 to 1110°F). Some peaks were around 1000°C (1830°F) as the fire was deflected into these rows.

As the fire propagated back through Rows 6 through 9, the initial temperatures were relatively low, under 200°C (390°F), but as the flame front approached, the surface temperatures peaked at around 800°C (1470°F).

TC Tree No. 1 (located in the fire between Rows 5 and 6, Bays 2 and 3) measured air temperatures in the first 1.2 m (4 ft) around 1000°C (1830°F), and every 1.2 m (4 ft) increment decreased by approximately 100°C (212°F). Until about 4.9 m (16 ft) above the floor (TC's 19 and 92), the temperature dropped to approximately 500°C (930°F), and over the next 3.7 m (12 ft), the average air temperature dropped slowly to approximately 350 to 400°C (660 to 750°F). The TC located 76.2 mm (3 in.) below the ceiling peaked at approximately 400°C with averages around 300°C. Because the pallets disrupted the pool fire, flame heights of less than 3.7 m (12 ft) were observed.

TC Tree No. 2 (between Rows 6 and 7, Bays 2 and 3, in the pallet array) measured air temperatures which peaked around 1000°C (1830°F) up to the ceiling, but occurred after 1000 sec when the pallet array was fully burning. In the first 1000 sec, TC Trees 1 and 2 measured very similar temperatures with the exception of the first 1.2 m (4 ft) where flame temperatures were measured by TC Tree No. 1. The peaks of 1000°C (1830°F) measured by TC Tree No. 2 lasted for approximately 500 sec.

7.2.5 Post-Test Pallet Inspection

Post-test inspection of the drums on the steel pallets (Rows 4 and 5) showed that only one drum (0521) experienced a lid loss. When the pallet above drum 0521 was lifted, the lid to drum 0521 was laying loose on top of the drum. Post-test examination of the drums showed that several failure mechanisms occurred. Figure 50 provides a photograph of Drum 0623 showing a ruptured lid. Figure 51 provides a photograph of Drum 0783 showing the bulging that occurred to many of the drums. This bulging may have allowed the drums to vent at the bottom seams of the drum. Figure 52 provides a photograph of Drum 0963 which shows that the bottom seam was ruptured allowing venting to occur. A majority of the drums adjacent to the fire showed signs of gasket burning around the bolt and/or on the fire side, and



Figure 50. Photo — Lid Rupture

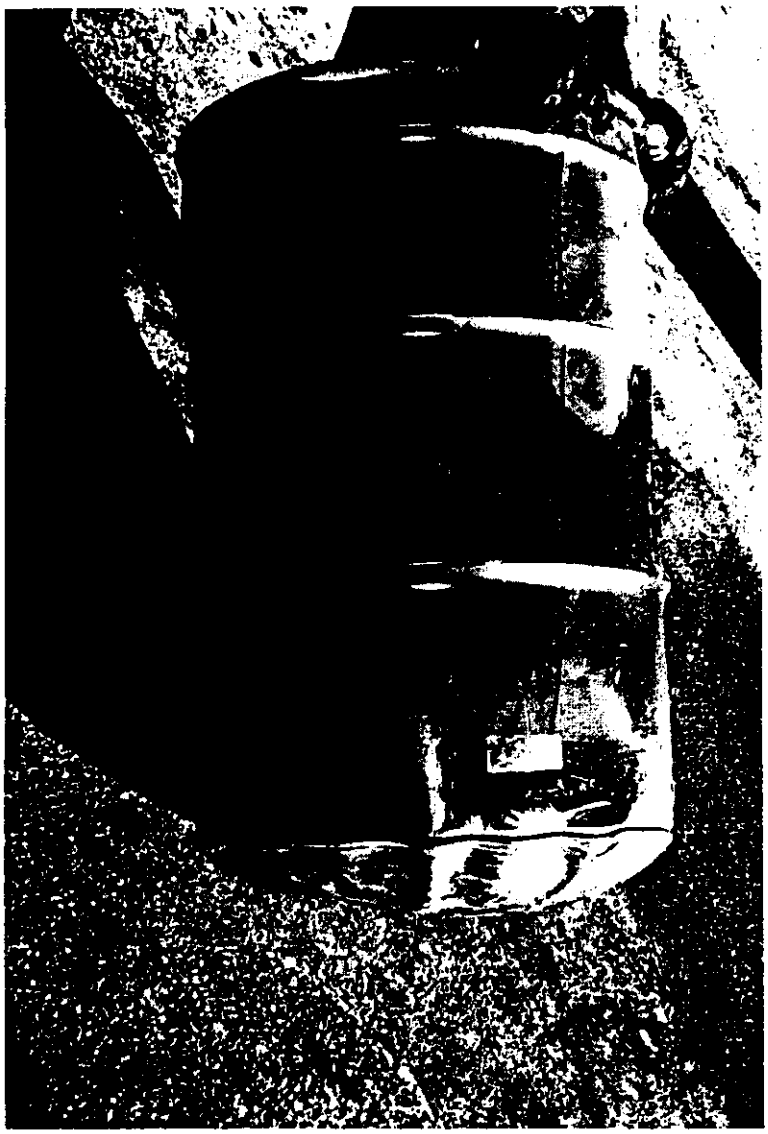


Figure 51. Photo — Bulging Drum

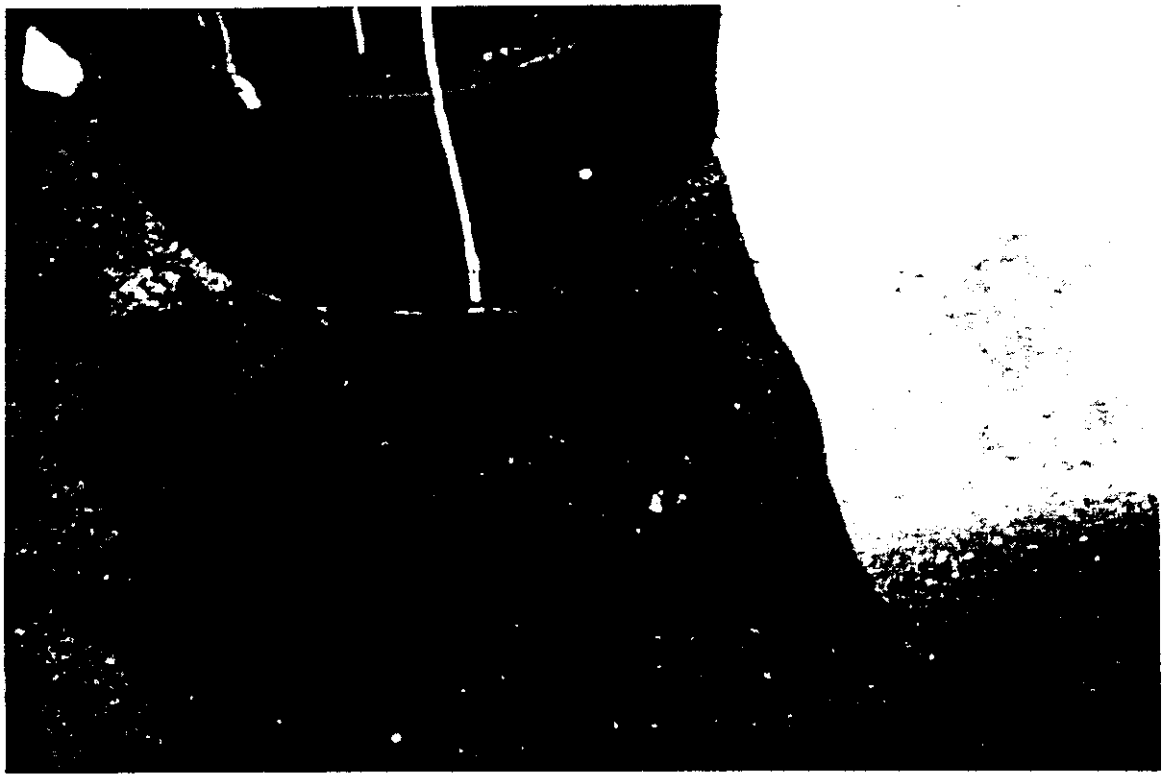


Figure 52. Photo — Seam Failure

the fire side of all drums had the paint burned off the drums. Post-test examination of the drums was performed and the results are provided in Appendix F. Appendix F contains both the pretest drum data sheets as well as the post-test drum data sheet for each test drum. Figure 53 provides a post-test damage sketch of the drums showing lid loss information and burn patterns. Overall, a total of 4 lids were separated from the metal closure ring, and 15 lids were partially separated from the closure ring.

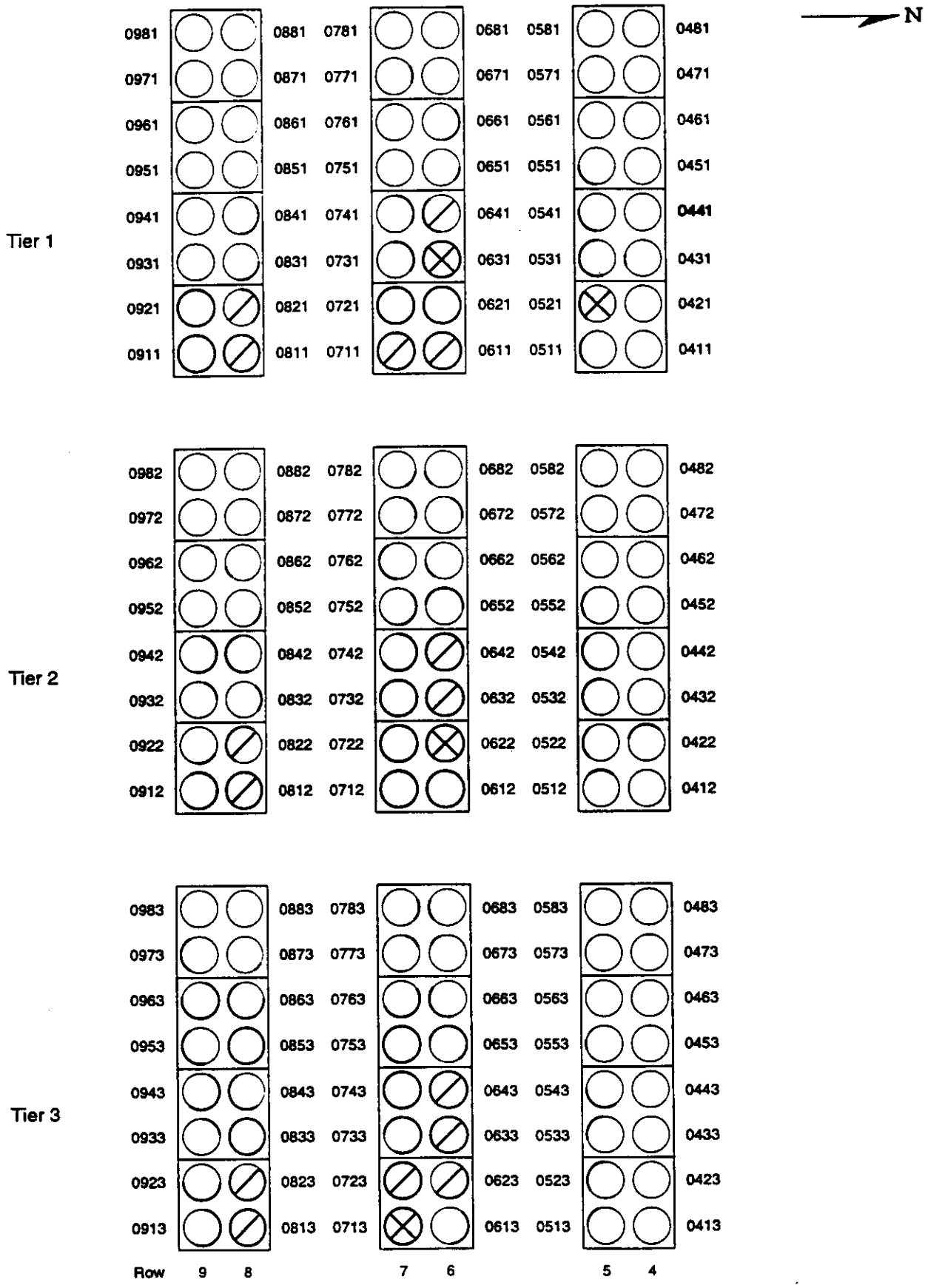
Drum weight loss values are provided in Figure 54. The weight loss values for the drums in the immediate fire area (Rows 6 and 7, Bays 1-4, Tiers 1-3) and the drums immediately adjacent (Rows 8 and 9, Bays 1-4, Tiers 1-3) are suspect for the following reasons:

- Water was used to either extinguish or partially extinguish some of these drums, and while free water was poured out of the drums prior to post-test weighing, the cotton and charred materials did retain some of the water; and

- Some of the drums continued to smoulder after the test and could not be extinguished until they were removed from the test building. This delay allowed some drums to smolder for 12-16 hours.

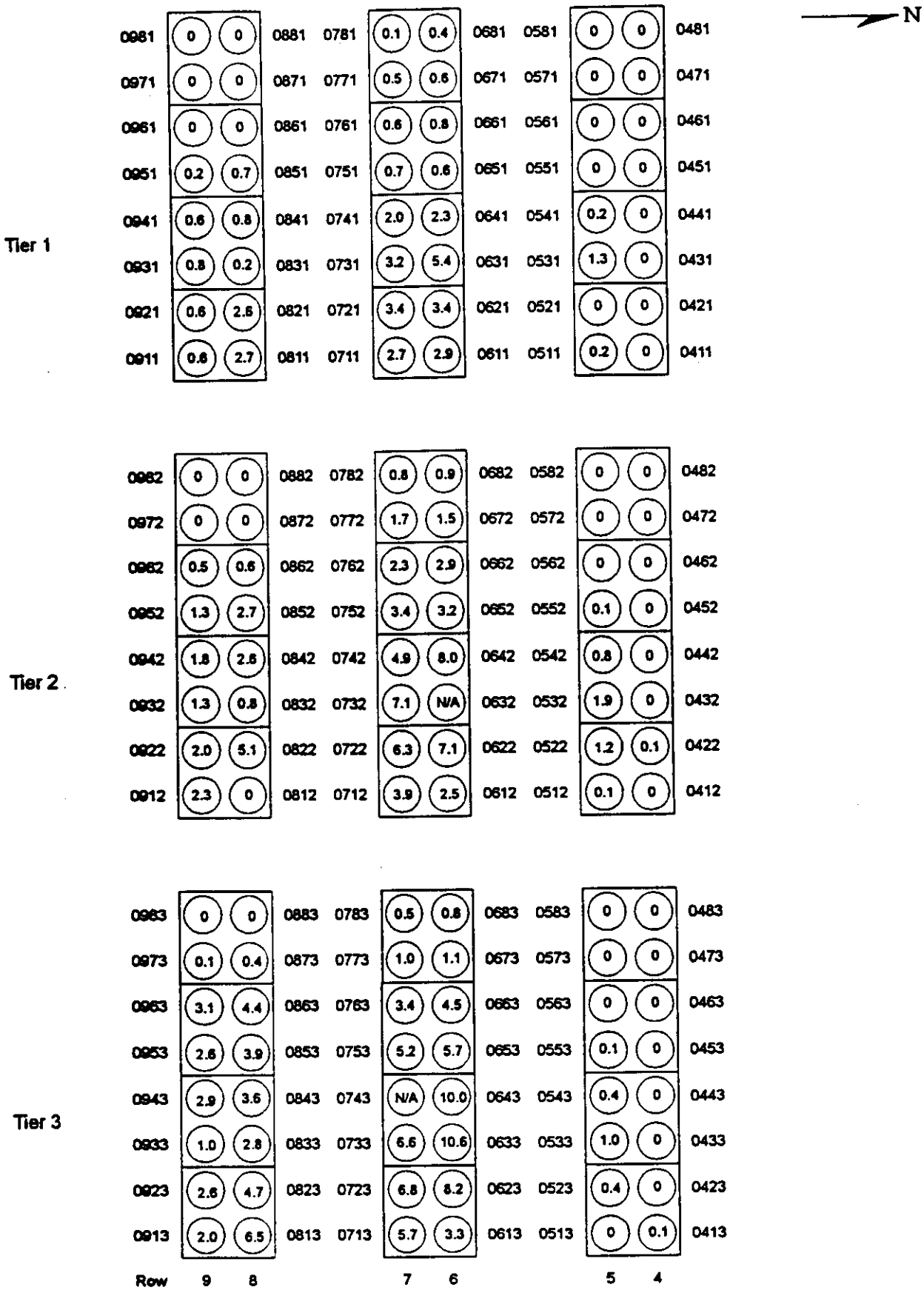
The drums in Row 4 showed very little weight loss, i.e., from 0 - 0.1 kg (0 - 0.2 lb). The drums in Row 5 also showed slightly higher weight loss, i.e., from 0 - 1.9 kg (0 - 4.2 lb). The drums in Rows 6, 7, 8, and 9 in Bays 5, 6, 7, and 8 show differing weight loss. The drums in Tier 3 generally show greater weight loss than the drums in Tier 2 which showed greater weight loss than the drums in Tier 1. This is due to the fire spreading through the pallet array such that the higher tiers exhibited more flaming than in the lower tiers.

The steel pallets were not deformed in any way due to the heat from the fire. The drums positioned on the wood pallets inside the pool fire area experienced extensive burning of the contents and the lids were ruptured (i.e., not completely loose from the closure ring). The four wooden pallets (two in the flames and the two adjacent to the flames) were completely consumed and the drums on the upper tiers of these pallets had started to fall over (i.e., lean) during the test. Figures 55 and 56 provide post-test photographs of the rack storage array test.



Note: Drum number indicates Test-Row-Bay-Tier.
⊗ Lid Loss ⊘ Rupture ◯ Burn Pattern

Figure 53. Pallet Storage Drum Location Diagram



Note: Drum number indicates Test-Row-Bay-Tier.
Value = Weight Loss (kg)

Figure 54. Weight Loss Data — Pallet Array Test

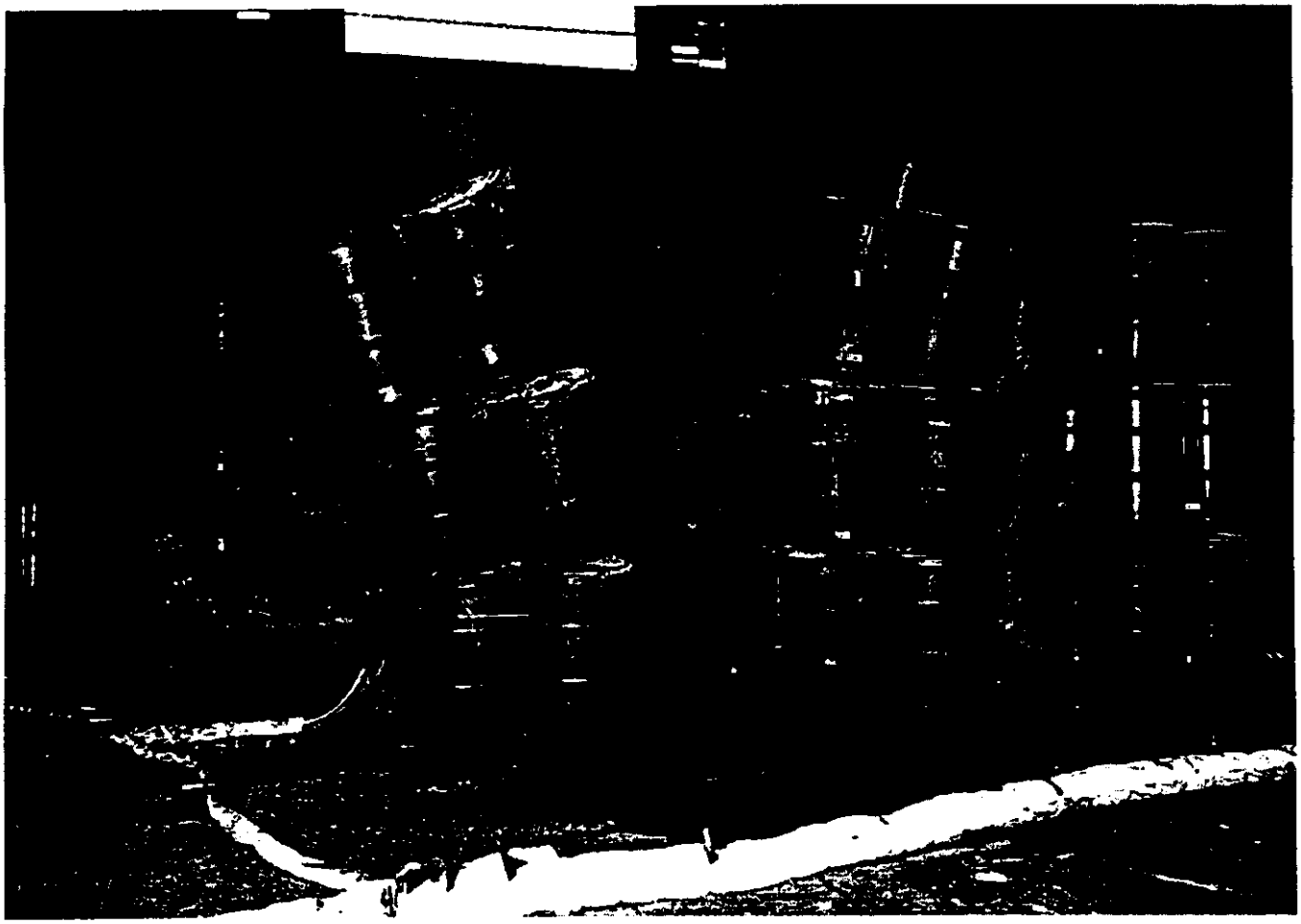


Figure 55. Photo of Post-test Pallet Array

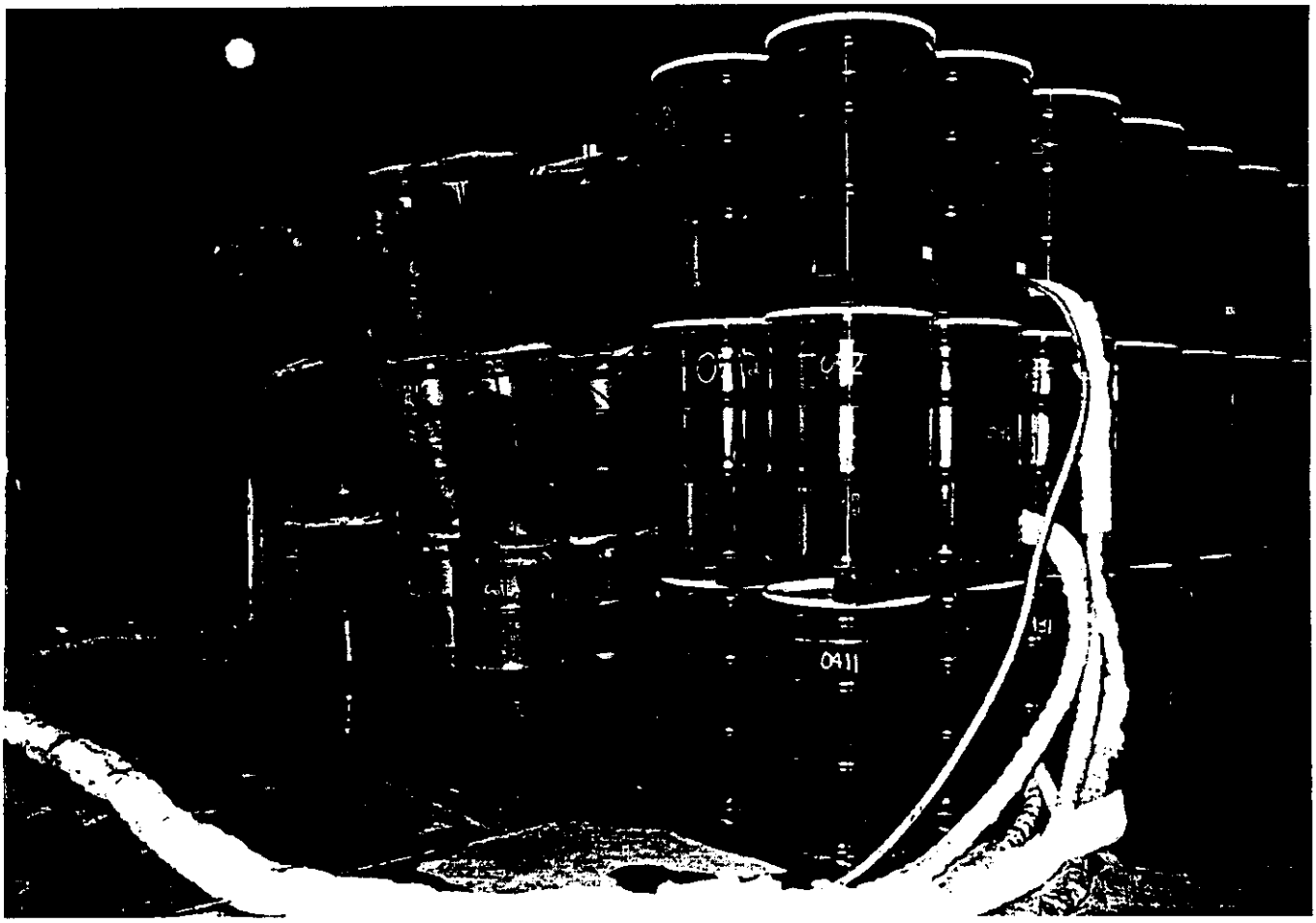


Figure 56. Photo of Post-test Pallet Array

Blank

8.0 ANALYSIS OF RESULTS

Based on the earlier HAI analytical and experimental results, the performance of solid waste drums during the current rack and pallet full-scale fire tests were predicted (see Section 3.0). The criteria used to characterize drum performance were developed from the earlier HAI individual drum fire tests. Pool fire heat transfer data was taken from the literature and analytical assessments were used to predict drum response and potential fire propagation.

It is believed that the models developed during earlier HAI work represent worst case conditions and serve as a conservative estimate of drum performance in an actual fire event. The purpose of the full-scale drum array fire tests is to demonstrate that the analytical and experimental methods developed in the earlier HAI work are indeed conservative. A comparison of the predictions presented in Section 3.0 and the actual full-scale rack and pallet test results will serve as validation of the drum response methodology developed in earlier HAI work.

8.1 GENERAL

In the earlier HAI individual drum fire tests, two failure modes were identified for the drums: (1) lid loss, and (2) lid seal failure. The most significant potential result of drum heating by an exposure fire is the loss of the lid. Lid loss results in the burning of drum contents and the distribution of hazardous materials which might be contained in the drum. Lid seal failure is a less severe drum failure mode. Lid seal failure results in loss of containment, but also results in drum pressure relief which can prevent lid loss. By preventing lid loss, lid seal failure prevents burning of the contents and thus markedly reduces material releases. During the earlier HAI individual drum testing, lid loss and lid seal failure were the only failure modes observed for the drums.

One of the primary concerns with a fire in a solid waste drum storage facility is the release and distribution of hazardous materials as airborne particulates due to burning drum contents. As such, the methods developed to predict lid loss are ultimately used to estimate the quantity of drum contents consumed in the fire. All of the previous HAI drum tests in which lid loss was not observed, lid seal failure occurred and resulted in minimal contents loss. For the current rack and pallet tests, a third failure mode was observed. In many cases, the drum lid was not completely blown from the drum but was partially held in place by the closure ring. Such an event is defined as a lid rupture failure and is different than lid loss and lid seal failure in several regards. Unlike lid loss failure, the contents are not significantly ejected from the drum. However, a lid rupture results in a partial separation of the lid and drum allowing sufficient air to support the burning of drum contents within the drum. This does not occur for drums experiencing lid seal failure. Although the burning rate of drum contents will differ for ruptured and lid loss drums, the quantity of hazardous material consumed is equivalent. As such, in evaluating the potential hazard of the full-scale fire tests, a drum rupture is treated as equivalent to drum lid loss. In the context of this report, both drum ruptures and lid loss failures are defined as lid failures.

Although the models developed during earlier HAI work were based on criteria established for lid loss failure, they are extended to include lid ruptures. Based on the similar heating conditions and locations of ruptured and lid loss drums during the current tests, it is

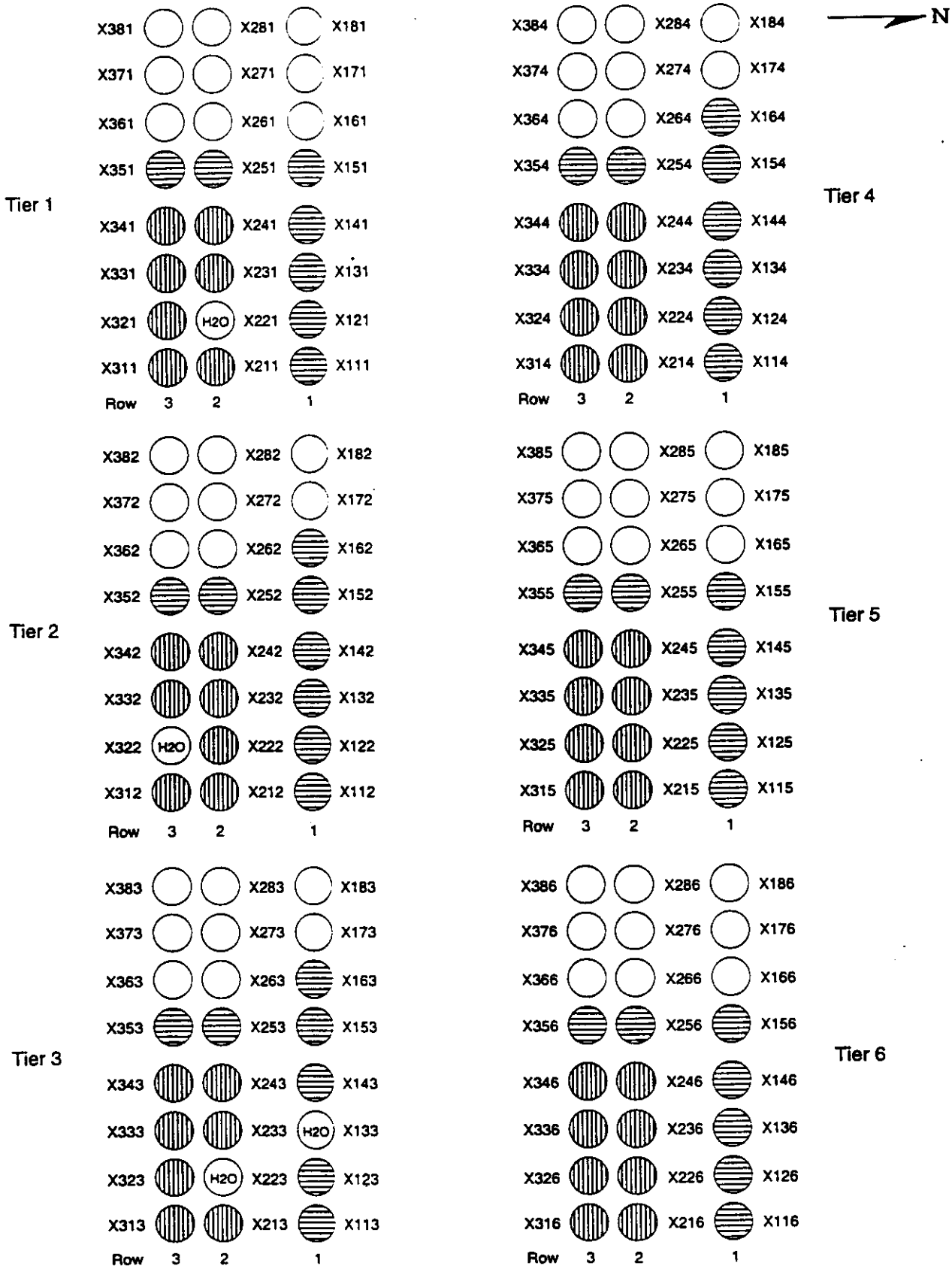
not possible to distinguish between the two events. The basic mechanics of lid rupture and lid loss are the same. The primary difference is the severity of the event. In lid rupture, the forces on the lid are simply not sufficient to fully dislodge the lid from the lid clamp. In cases where lid loss drums will have significantly different consequences than ruptured drums, the impact of such an assumption shall be discussed.

8.2 RACK STORAGE TEST

Figure 57 indicates the predicted drum performance for the rack storage test. The methodology and models used for the predictions are discussed in Section 3.0. In determining the location of drums which would experience lid failure, conservative assumptions were made regarding the shape and height of the flame, emissive power of the flame, and the critical heat flux required for lid loss failure. The purpose for such conservatism is to ensure that the predicted performance of the drums does not underestimate the actual performance and the extent of fire propagation during the test. The models developed during earlier HAI work are intended to represent worst case conditions and serve as a conservative estimate of drum performance in an actual fire event.

For the rack storage test, the drum response models indicated that 90 drums (discounting the water filled drums) would experience lid failure. Of the 90 drums, 45 are within the pool fire and 45 are outside the pool. These predictions treat the pool fire as a cylindrical radiator with an average flame emissive power of 80 kW/m^2 and a critical heat flux of 45 kW/m^2 required for lid failure. As discussed in Section 3.0, these represent conservative estimates and are intended to overpredict the number of lid failures. A more realistic estimate of lid failure is briefly discussed in Section 3.0 where the emissive power of the flame is taken as 53 kW/m^2 and a critical heat flux of 60 kW/m^2 is required for lid loss. With this, all drums within the flame are still predicted to experience lid failure; however, drums outside the flame are predicted to experience lid seal failure only. Depending on the degree of conservatism required, the predicted number of lid failure drums is 45 within the flame and anywhere from 0 to 45 outside the flame (see Figure 57).

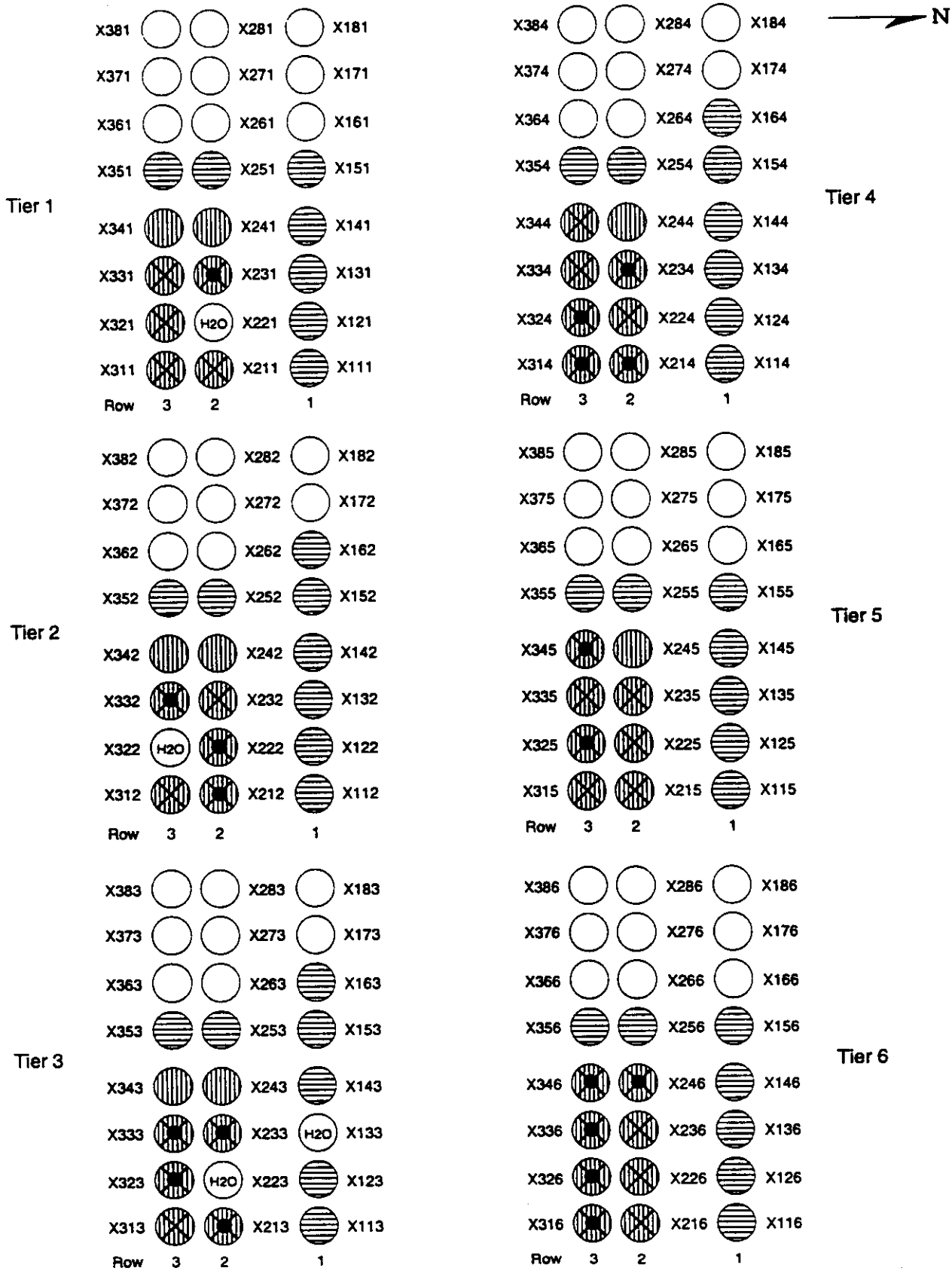
Figure 58 indicates the actual drum performance for the rack storage test compared to the predicted drum performance. The failure mode of the drums were determined from post-test analysis of the drums. It is seen that nearly all of the drums within the flame experience lid failure whereas no drums outside the flame experience lid failure. The total number of actual lid failure drums is 37. Of these, 18 drums ruptured as opposed to completely losing their lid (see Figure 58). There was no apparent pattern to the location of ruptured drums with respect to lid loss drums and they contributed equally to the severity of the fire. Again, in this analysis, both ruptured and lid loss drums are treated as lid failures.



Note: Drum number indicates Test-Row-Bay-Tier.

Predicted Lid Loss Failure Predicted Possible Lid Loss Failure

Figure 57. Predicted Drum Performance — Rack Storage Test



Note: Drum number indicates Test-Row-Bay-Tier.

Predicted Lid Loss Failure
Actual Lid Loss Failure
Predicted Possible Lid Loss Failure
Actual Lid Rupture Failure

Figure 58. Actual and Predicted Drum Performance — Rack Storage Test

Overall, the models used to predict drum performance were conservative for the rack storage test. It appears that the predictions based on a flame emissivity of 53 kW/m^2 and a critical heat flux of 60 kW/m^2 for lid failure better predict the actual drum performance. In order to better assess the validity of the models, it is necessary to investigate the experimental data for the drums and compare it to the criteria established during the earlier HAI individual drum testing. For the rack storage test, the time at which drums experienced lid failure was not easily determined by visual inspection. Rather, the specific time of lid failure could only be determined for those drums having pressure transducers due to the rapid decline in pressure at time of lid failure. Since it is necessary to know the drum wall temperature (and if possible the heat flux and pressure) at the time of lid failure, only those drums instrumented with pressure transducers are assessed in this analysis.

8.2.1 Drums Within The Flame

Table 6 provides a summary of the experimental data for the pressure instrumented rack storage drums within the flame. Data for other drums is provided in Table 4 and Appendix C.

Table 6. Summary of Experimental Data for Pressure Instrumented Rack Storage Drums Within the Flame

Drum No.	Lid Loss or Lid Rupture	Time of Lid Failure (s)	Drum Temp. at Lid Failure (°C)	Pressure at Lid Failure (psig)	Approx. Heat Flux at Lid Failure (kW/m^2)*
X321	LID RUPTURE	122	711	10.0	101 (cal 2)
X231	LID LOSS	162	693	8.7	165 (cal 3)
X211	LID RUPTURE	112	680	12.4	NM
X332	LID LOSS	249	400	8.4	66 (cal 6)
X312	LID RUPTURE	110	701	11.0	NM
X222	LID LOSS	98	760	16.5	142 (cal 7)
X233	LID LOSS	273	627	7.45	147 (cal 11)
X213	LID LOSS	119	427	11.0	NM
X224	LID RUPTURE	211	592	7.1	75 (cal 14)
X214	LID LOSS	163	483	11.0	NM
X225	LID RUPTURE	236	686	7.8	88 (cal 15)
X226	LID RUPTURE	275	699	6.7	109 (cal 16)
AVERAGE	--	**178**	**622**	**9.8**	**112**

* See Figures 26-31 for calorimeter locations
NM - not measured

All of the drums within the flame which were instrumented with pressure transducers experienced lid failure. The lid failure times ranged from 98 to 275 seconds with an average lid failure time of 178 seconds. This is longer than the average lid failure time of 90 seconds observed during the HAI individual drum testing but is similar to prior testing as reviewed in the earlier HAI report [Rhodes et al., 1995]. In addition, during the individual drum testing, lid failure did not occur after 145 seconds for any of the fire exposures. The longest lid failure time for the rack storage test is nearly double this time. During the earlier HAI individual drum tests, the exposures were well controlled fires which reached their maximum intensity very quickly. As such, the incident heat flux to the drums remained approximately steady during the duration of the test. This is not always the case for the rack storage test.

Figures 59 and 60 show the approximate heat flux and temperature of drum no. X226 during the test. The heat flux measurement was taken adjacent to the drum with the transducer facing the center of the flame. As such, it does not necessarily represent the average heat flux over the surface of the drum. In fact, the back side of the drum is likely exposed to a much lower incident heat flux since the flame is not optically thick in this area. It is seen in Figure 59 that the flame heat flux during the first 150 to 200 seconds of the test is approximately 20 kW/m^2. This is much lower than the minimum heat flux required for lid failure (i.e., 45-75 kW/m^2) and apparently is not high enough to cause lid seal failure in this case either. Once the flames begin impinging the drum, the flame heat flux rapidly increases to approximately 100 kW/m^2 which is well above the minimum heat flux required for lid failure. At this point, lid failure occurs within 100 seconds which is comparable to the individual drum test results. Figure 60 shows the same trend for the temperature where after 150 to 200 seconds into the test the temperature rapidly increases due to the increase in flame heat flux. Even on the lower tiers, this type of behavior is typical for the drums which have long lid loss times (i.e., X332, X233, X224, X225). As such, the lid failure times observed in the rack test are consistent with our understanding developed in earlier HAI work.

The maximum drum wall temperature is the primary criteria which was used to predict lid failure. Based on the earlier HAI individual drum testing, it is expected that drums which achieve temperatures in excess of 750°C will experience lid failure; drums in the range of 600 to 750°C will sometimes result in lid failure; and drum temperatures less than 600°C will result in lid seal failure only. In general, drum wall temperatures were in excess of 600°C at lid failure. In all cases, where the drum wall temperature exceeded 600°C, lid failure occurred. There were no seal failures at temperatures greater than 600°C. However, several of the drums (i.e., X332, X213, X214) had unusually low drum wall temperatures and still resulted in lid failure. A comparison of drum wall temperatures at lid and seal failure in the rack test and the prior individual drum tests is shown in Table 7. The most probable cause of the low measured temperatures at lid failure is the location of the thermocouple with respect to the edge of the flame. As seen in Figure 57, the drums which have low wall temperatures are at the edge of the fire. Due to the limited instrumentation, it is not possible to accurately determine the temperature distribution over the drum surface. Since the drum temperatures are much lower than observed in prior testing, it is expected that the surface temperature was higher at other locations on the drum. Such temperature variations were recorded for other drums having several thermocouple locations on the surface (i.e., X231, X222; see Appendix C for data). Without a better knowledge of the temperature distribution for these drums, further assessment of their performance is not possible, and no change in the predictive methods is indicated.

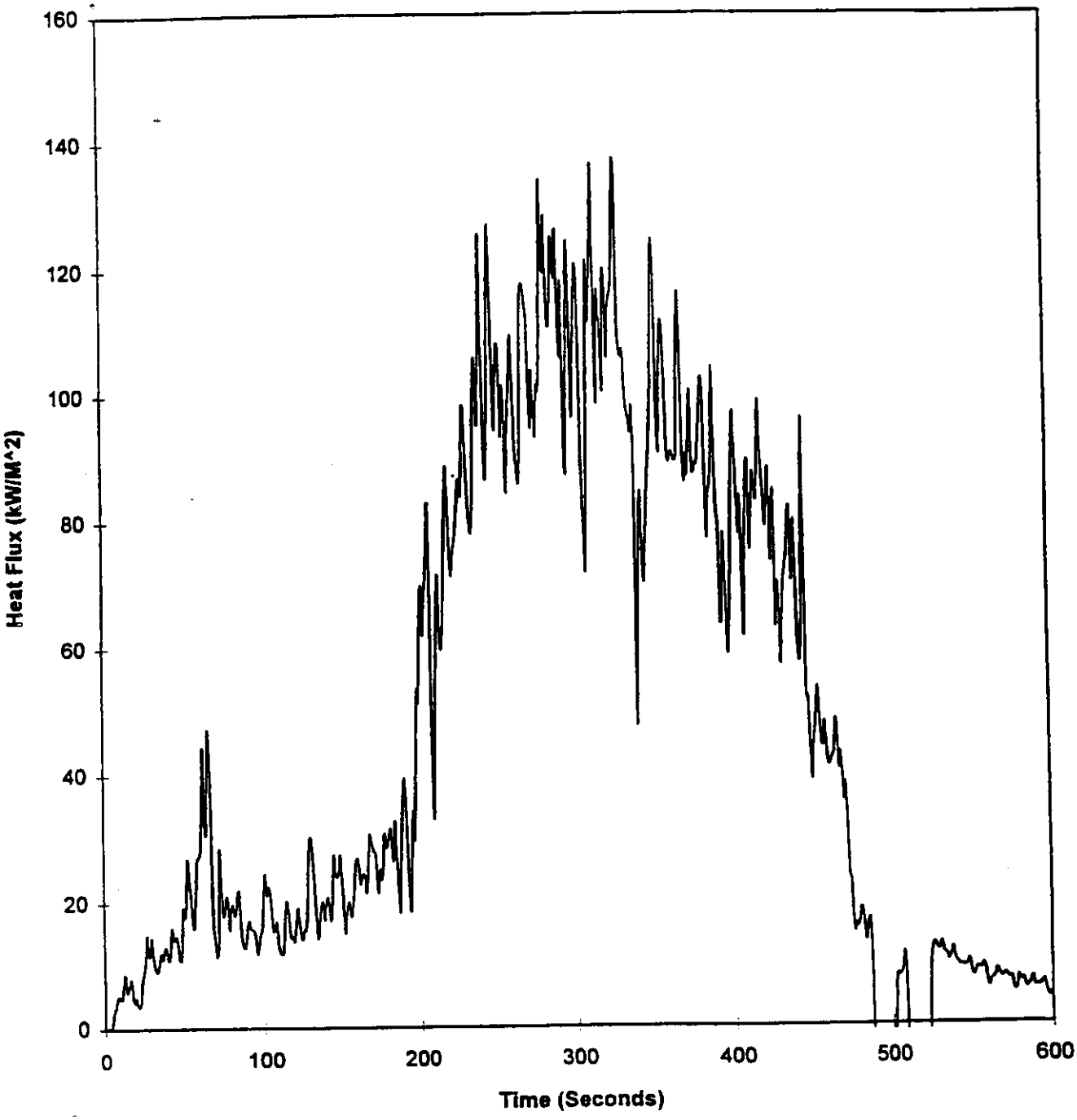


Figure 59. Approximate Heat Flux to Drum No. X226 (Cal#16)

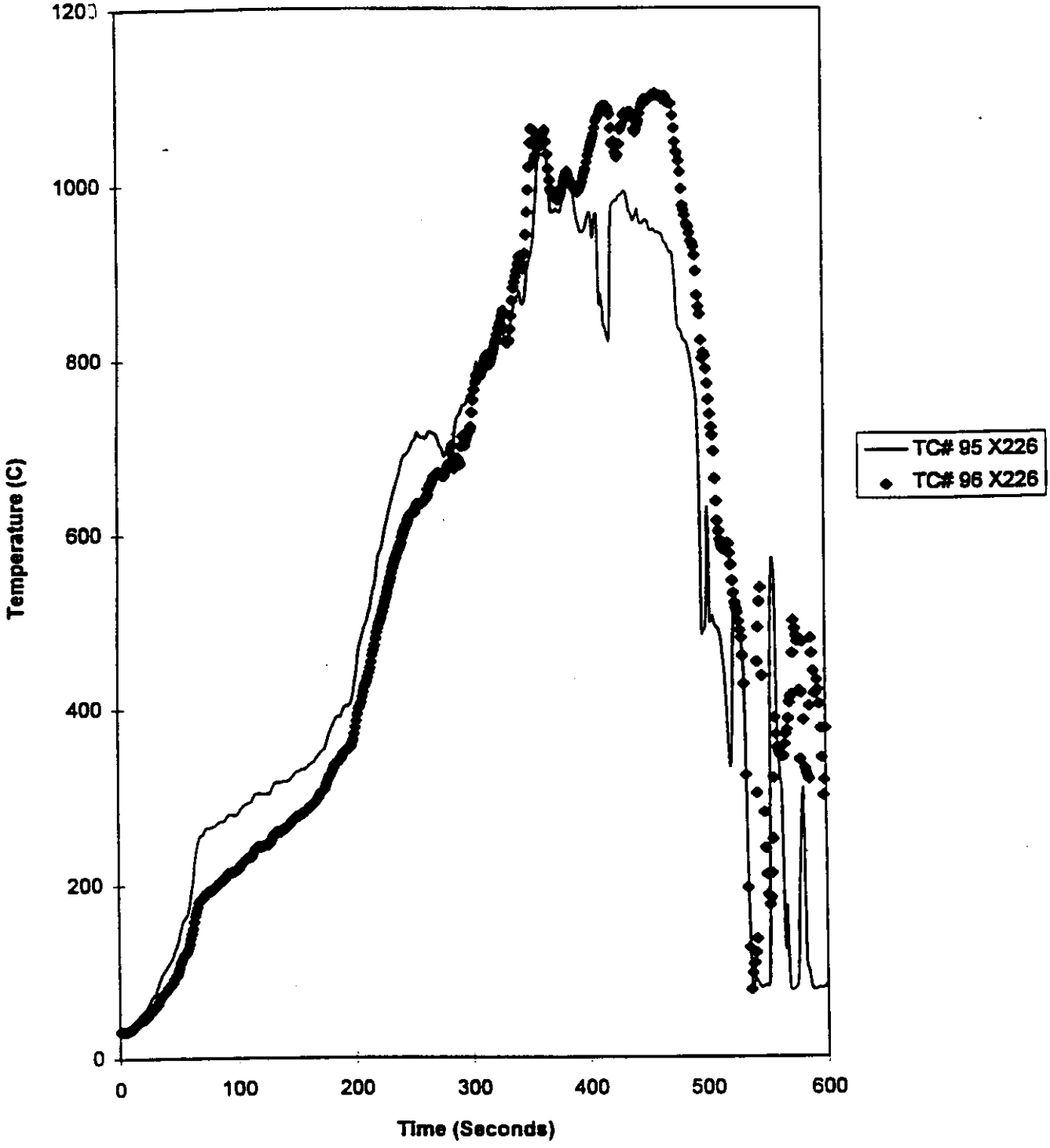


Figure 60. Drum Wall Temperature for Drum No. X226

Table 7. Comparison of Drum Wall Temperatures at Lid and Seal Failure for the Rack Test with Prior Individual Drum Tests

Temperature Range (°C)	Lid Failure		Seal Failure	
	Rack	Individual	Rack	Individual
≤400	1	0	1	0
401-450	1	0	0	1
451-500	1	0	0	5
501-550	0	0	2	1
551-600	1	0	2	1
601-650	1	0	0	7
651-700	4	2	0	6
>700	3	7	0	4
Total	12	9	5	25

The incident heat flux to the drum is another criteria used to predict lid failure. Based on the earlier HAI individual drum testing, it is expected that drums exposed to radiant exposures less than 45 kW/m^2 will not experience lid failure; exposures in the range of 45 to 75 kW/m^2 will sometimes result in lid failure; and exposures greater than 75 kW/m^2 will experience lid failure. Heat flux measurements were obtained during the rack test using total heat flux transducers mounted between the drums and using water filled drum calorimeters. Neither of these methods provide exact measurements of the actual incident heat flux to the drum surface. However, the heat flux transducers can be used to estimate the maximum flame heat flux seen by a drum and the water filled drum calorimeters provide an estimate of the average heat input to a drum.

As seen in Table 6, the heat flux measurements for the lid failure drums range from 66 to 165 kW/m^2, which are well within the range of heat fluxes expected to cause lid failure. Not all of the drums listed in Table 6 have heat flux data because the measurements are applicable only to drums adjacent to heat flux transducers. Since the transducers are located between drums and not on the drum surface, the actual incident heat flux to the drum surface will vary. The transducer measurements do, however, provide insight for the flame heat flux associated with different locations in the fire. As expected, points near or facing the center of the fire are typically exposed to higher heat fluxes than points near or facing the edge of the fire. As such, the measured heat flux for drum nos. X231, X222, and X233 are higher than for the other lid failure drums located further from the center of the pool.

From the rate of temperature rise for the water filled drums within the flame (i.e., X221, X322, X223), an average heating rate is determined for the drums. Temperature and heating rate data for the water filled drums is included in Appendix C. The temperature of the drums steadily increase during the test yielding an average heat flux to the surface of the water filled drums of 90 to 100 kW/m^2. This is an average value over the entire drum wall. This corresponds well with the range of heat flux transducer measurements. The average

heating rate of the water filled drums for the full-scale test is significantly higher than that measured during earlier HAI testing. During earlier HAI individual drum testing, the average heat flux for full flame engulfment tests was approximately 65 kW/m^2. This exposure resulted in lid failure for 7 of 8 drum tests. As such, it is not surprising that most drums within the flame for the full-scale test are also experienced lid failure.

During the earlier HAI testing, it was not possible to develop criteria for lid failure based on drum pressure data. It was found that lid failure pressures ranged from about 13 to 28 psig with an average value of approximately 20 psig. For the current rack storage test, 11 of the 12 drums which experienced lid failure and had pressure transducer measurements failed at a pressure less than 13 psig (drum no. X222 failed at 16.5 psig) with an average value of 9.8 psig (see Table 6). During earlier HAI individual drum tests, it was observed that standard load drums failed at a lower pressure than other drum loadings. However, the current rack test lid failure pressures are even lower than that observed previously. Part of the reason may be that the fire exposure for the rack test is much more severe than that in the earlier HAI individual drum tests (as seen by the water calorimeter heat flux results). The lower pressures may also be responsible for the lid ruptures observed for many of the drums during the rack test where it was not during the individual drum tests. In any case, similar to the earlier HAI tests, systematic pressure trends are not evident for the rack storage test.

Although all of the drums within the flame were predicted to experience lid failure, 8 of the 45 standard load drums within the flame resulted in lid seal failure only. All of the 8 drums were located in drum Bay 4 near the edge of the pool. As noted earlier, drums near the edge of the pool are subjected to a less severe exposure than drums near the center. Although several other drums near the edge experienced lid failure, the flame impingement and heating rate may not have been uniform in this area. Of the 8 drums experiencing lid seal failure within the pool area, 4 were equipped with thermocouples. During the first 300 seconds of the test (the time in which lid failure was observed), the maximum temperature for these drums was typically 300 to 400°C. This is well below the minimum temperature criteria established for lid failure (i.e., 600°C). The lower temperatures indicate that the drums were not heated to the same extent as other drums experiencing lid loss failure. This is consistent with visual inspection of these drums. Based on the temperature data, it is not surprising that these drums resulted in lid seal failure only.

It was initially predicted that all drums within the pool area will result in lid failure. The lid failure times, drum temperatures, and heat flux data for drums within the flame generally agree with the criteria established during the earlier HAI drum testing. Approximately, 82 percent of the drums within the flame experienced lid failure. Although not all of the drums within the flame experienced lid failure, there is no predictable basis to distinguish between these few drums and the remaining drums which did result in lid failure. As such, modifications to the methodology are not necessary. The criteria and models used provide a reasonable and conservative estimate for the performance of drums within the flame.

8.2.2 Drums Outside The Flame

No drums outside the pool fire experienced lid loss failure. Table 8 provides a summary of the experimental data for the pressure instrumented rack storage drums outside the flame. Data for other drums is provided in Table 4 and Appendix C.

Table 8. Summary of Experimental Data for Pressure Instrumented Rack Storage Drums Outside the Flame

Drum No.	Lid Seal Failure	Time of Lid Seal Failure (s)	Max. Drum Temperature (°C)	Max. Pressure (psig)	Approx. Heat Flux (kW/m^2)*
X131	YES	166	592	5.2	95 (cal 4)
X251	NO	--	254	1.4	23 (cal 1)
X361	NO	--	87	0.4	NM
X122	YES	207	574	3.0	68 (cal 8)
X352	NO	--	250	0.9	23 (cal 5)
X123	YES	296	528	2.7	64 (cal 12)
X253	NO	--	145	0.9	28 (cal 9)
X254	NO	--	169	1.3	37 (cal 13)
X125	YES	362	507	2.4	NM
X255	NO	--	215	2.6	NM
X256	YES	298	339	3.8	NM

NM - not measured

Drums outside the flame are subjected to a much less severe exposure than drums within the flame. Figure 61 shows Tier 1 heat flux measurements taken at the edge of the pool along the north edge. The heat flux along the north edge of the pool ranges from approximately 70 to 100 kW/m^2. This agrees well with the emissive power indicated by Mudan and Croce [1988] of 80 kW/m^2. In this region, the flame is optically thick and the heat flux transducer is located directly adjacent to the flame. Although this is higher than the critical heat flux criteria established for lid failure, no lid failure drums resulted. In the model used to predict lid failure, the critical average incident heat flux was determined based on flames impinging one-half the drum surface, which is a conservative estimate. For the rack test, drums along the edge of the pool were not exposed to direct flame contact. Air being entrained into the fire through the rack separated the flames from the drums. Since the drums are separated from the flame, view factors between the flame and the drums and the curvature of the drum surfaces will reduce the average heat flux to the drum surface. As such, the transducer measurements are higher than the average heat flux to the drum surface. Determining the average flame heat flux from the transducer data is not possible because small variations in the configuration of the drums and the separation from the flame significantly affect the radiation to the drums. In the drum response model, no credit is taken for a reduction in heat flux due to the configuration and geometry of the drums. This results in a conservative estimate of lid failure.

For the earlier HAI individual drum tests where the drums were exposed to direct flame contact over approximately one-fourth of the surface, transducer heat flux measurements were approximately 80 kW/m^2; whereas, the average heat flux to the surface was 45 kW/m^2 based

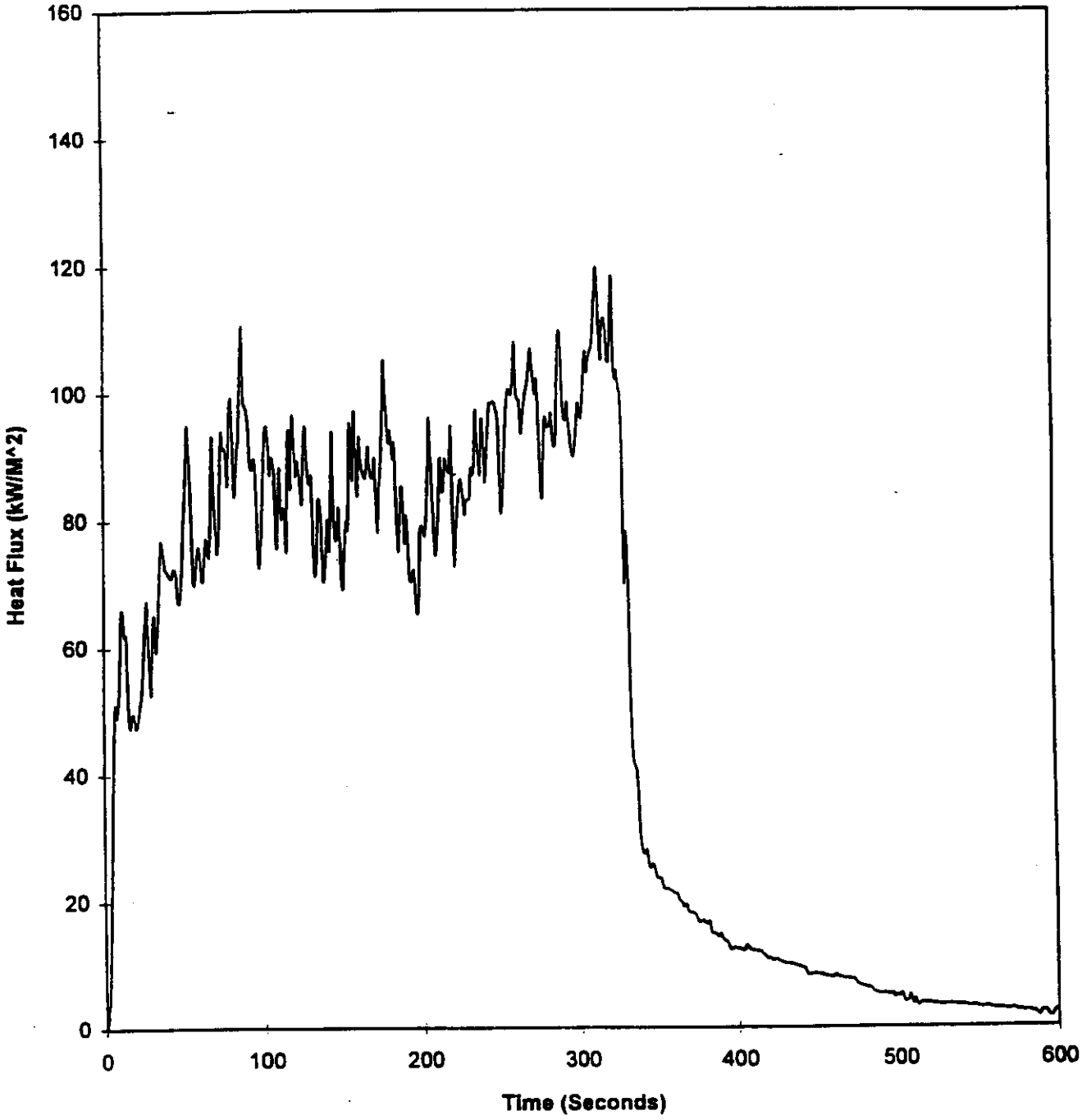


Figure 61. Rack Storage Test — Transducer Heat Flux Measurement along North Edge of Pool

on water calorimeter results. Although the fire in the rack storage test was larger than this exposure, since there is no direct flame contact with the drums outside the pool, the average heat flux is expected to be less than 45 kW/m^2. The water calorimeter located along the north edge of the pool (i.e., X133) yields an average heat flux of approximately 15 kW/m^2 over one-half the drum surface. Given the magnitude of the rack test pool fire, this value appears to be low. However, it illustrates that the heat input to a drum separated from the fire is much less than for drums in direct contact with the flame. As seen in Table 8, all of the pressure instrumented drums along the north edge of the pool experienced lid seal failure. The maximum wall temperature for these drums ranges from approximately 500 to 600°C, which is less than the established critical value of 600°C required for lid failure.

The heat flux to drums along the west edge of the pool is less than that along the north edge. Figure 62 shows Tier 1 heat flux measurements taken along the west edge of the pool. The heat flux is lower because the flame is not optically thick in this area as it is in the aisle between Rows 1 and 2. In addition, the transducer views the drums within the flame (i.e., X341, X241) which are initially cool. As these drums heat up, the re-radiation from the steel drum walls increase the measured heat flux. This is seen in Figure 62 where the heat flux steadily increases during the test. Again, the transducer measurement is higher than the average heat flux to the adjacent drum surfaces. Even so, the maximum heat flux is less than 25 kW/m^2 which is not sufficient to cause lid failure. The only drums to the west of the pool fire which experienced lid seal failure were on the sixth tier. Lid seal failure on the sixth tier is likely due to the hot gas layer descending and engulfing the drums. There was no significant damage to any other drums to the west of the pool. As seen in Table 8, the temperatures for all of the drums to the west of the pool were less than 350°C. This is less than the established critical value of 600°C required for lid failure.

Predictions of lid failure were based on critical drum wall temperatures as a result of heat exposures from the flame. The temperature of the drums outside the flame were estimated using conservative heat flux values based on literature data of pool fire emissive powers. Using an average value of 80 kW/m^2 for the emissive power of the flame, which is consistent with transducer measurements, overpredicts the number of lid failures. Using a flame emissive power of 53 kW/m^2, as suggested by Shokri and Beyler [1989], yields an accurate prediction of lid failure. The lower emissive power effectively accounts for the reduction in incident heat flux to the drums due to drum configuration and geometry. Whereas considerable calculations can be performed to estimate the heat flux to drums outside the pool, based on the individual drum tests and the rack storage test, it appears that if drums are not in direct contact with the flame, lid failure will not occur. For drums directly exposed to the flame, lid failure may not always occur but should be anticipated. This provides a simplified and representative estimate of drum performance during a fire event.

8.2.3 Thermal Response of Rack Structure

During the rack test, heat transfer to the steel columns and beams caused deformation of the rack structure. Temperature data for the rack is provided in Appendix C. As predicted, local rack temperatures exceeded 500 to 600°C within 100 seconds of the test. Although steel begins to lose structural integrity at these temperatures, the rack did not start to significantly deform until approximately 200 seconds into the test (see Section 7.1). This is likely due to the design of the rack in that steel members which were not heated to such temperatures continued to support the structure. Due to the seismic bars, no drums fell from

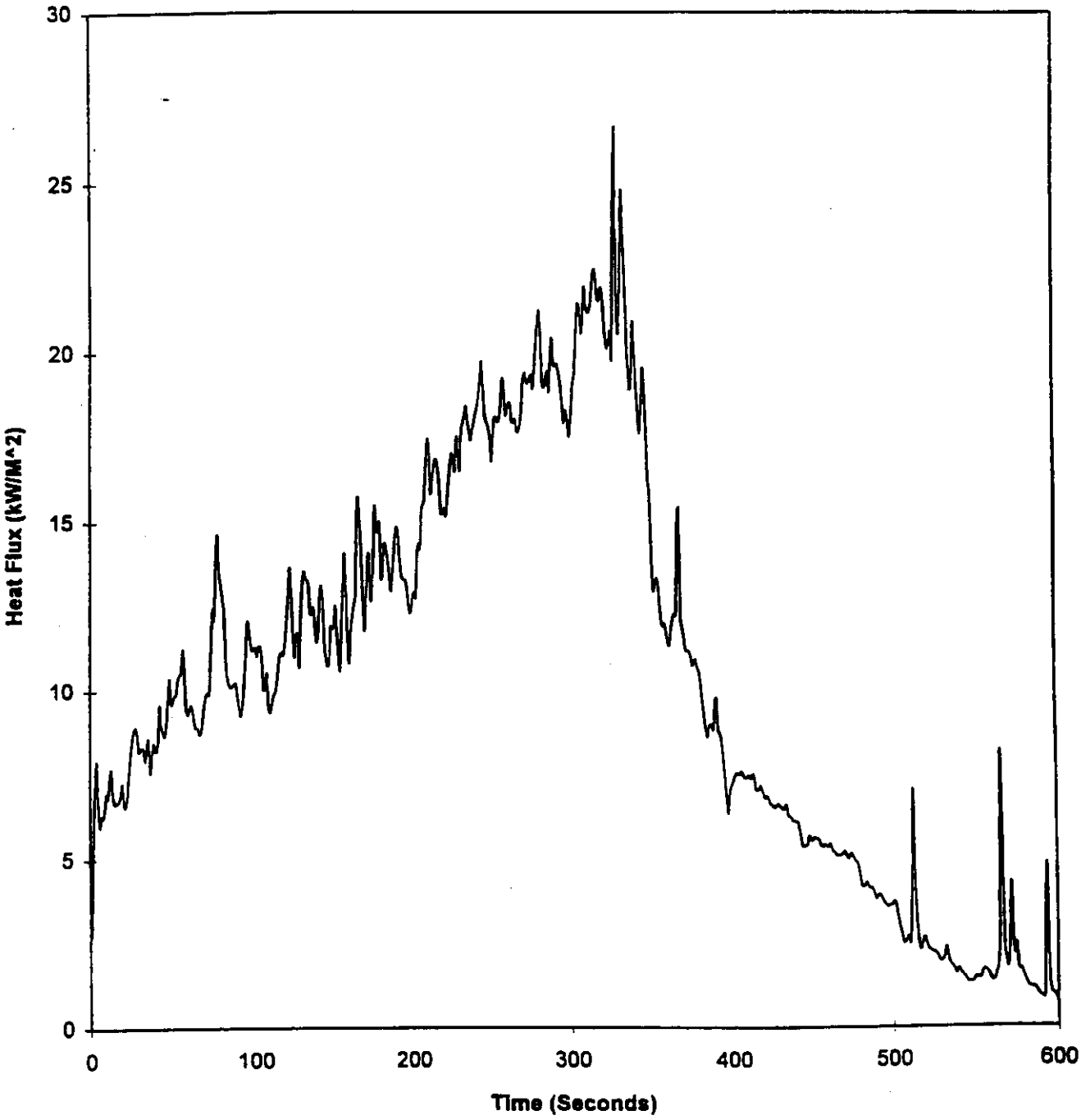


Figure 62. Rack Storage Test — Transducer Heat Flux Measurements along West Edge of Pool (Cal #1)

the rack during the test. If the fire had been allowed to continue, it is expected that the entire rack structure would have collapsed. This type of behavior can be expected for an unprotected rack within a pool fire for longer than several minutes.

8.3 PALLET STORAGE TEST

Figure 63 indicates the predicted drum performance for the pallet storage test. The methodology and models used for the predictions are discussed in Section 3.0. In determining the location of drums which would experience lid failure, conservative assumptions were made regarding the shape and height of the flame, emissive power of the flame, and the critical heat flux required for lid loss failure. The purpose for such conservatism is to ensure that the predicted performance of the drums does not underestimate the actual performance and the extent of fire propagation during the test. The models developed during earlier HAI testing are intended to represent worst case conditions and serve as a conservative estimate of drum performance in an actual fire event.

For the pallet storage test, the drum response models indicated that 94 drums would experience lid failure. Of the 94 drums, 68 are due to radiation from the pool fire and an additional 28 are due to drums falling to the floor. These predictions treat the pool fire as a cylindrical radiator with the visible flame height and an equivalent pool diameter with an average flame emissive power of 100 kW/m^2 and a critical heat flux of 45 kW/m^2 required for lid failure. It is further assumed that all drums experiencing lid loss due to radiation from the fire will cause the drums above to fall to the floor and experience lid failure. As discussed in Section 3.0, these represent conservative estimates and are intended to overpredict the number of lid failures.

Figure 64 indicates the actual drum performance for the pallet storage test compared to the predicted drum performance. The failure mode of the drums were determined from post-test analysis of the drums. It is seen that 11 of the 24 drums within the flame and 7 of the 30 drums adjacent to the pool experience lid failure. The total number of actual lid failure drums is 18. Of these, only 2 resulted in lid loss, whereas the remaining drums resulted in lid ruptures. For the pallet storage, there are potentially different consequences for lid loss and lid rupture drums. The stability model used to estimate the lid release pressure necessary to topple the pallet stacks above assumes that the lid is completely removed from the drum. It is not possible for a lid rupture to cause such an event. However, for the pallet test, there were no observed differences in the impact of lid loss and lid rupture drums on other drums in the array.

Overall, the models used to predict drum performance were conservative for the pallet storage test. In order to better assess the validity of the models, it is necessary to investigate the experimental data for the drums and compare it to the criteria established during the earlier HAI testing. For the pallet storage test, the time at which drums experienced lid failure was not easily determined by visual inspection. Rather, the specific time of lid failure could only be determined for those drums having pressure transducers due to the rapid decline in pressure at time of lid failure. Since it is necessary to know the drum wall temperature (and if possible the heat flux and pressure) at the time of lid failure, only those drums instrumented with pressure transducers are assessed in this analysis.

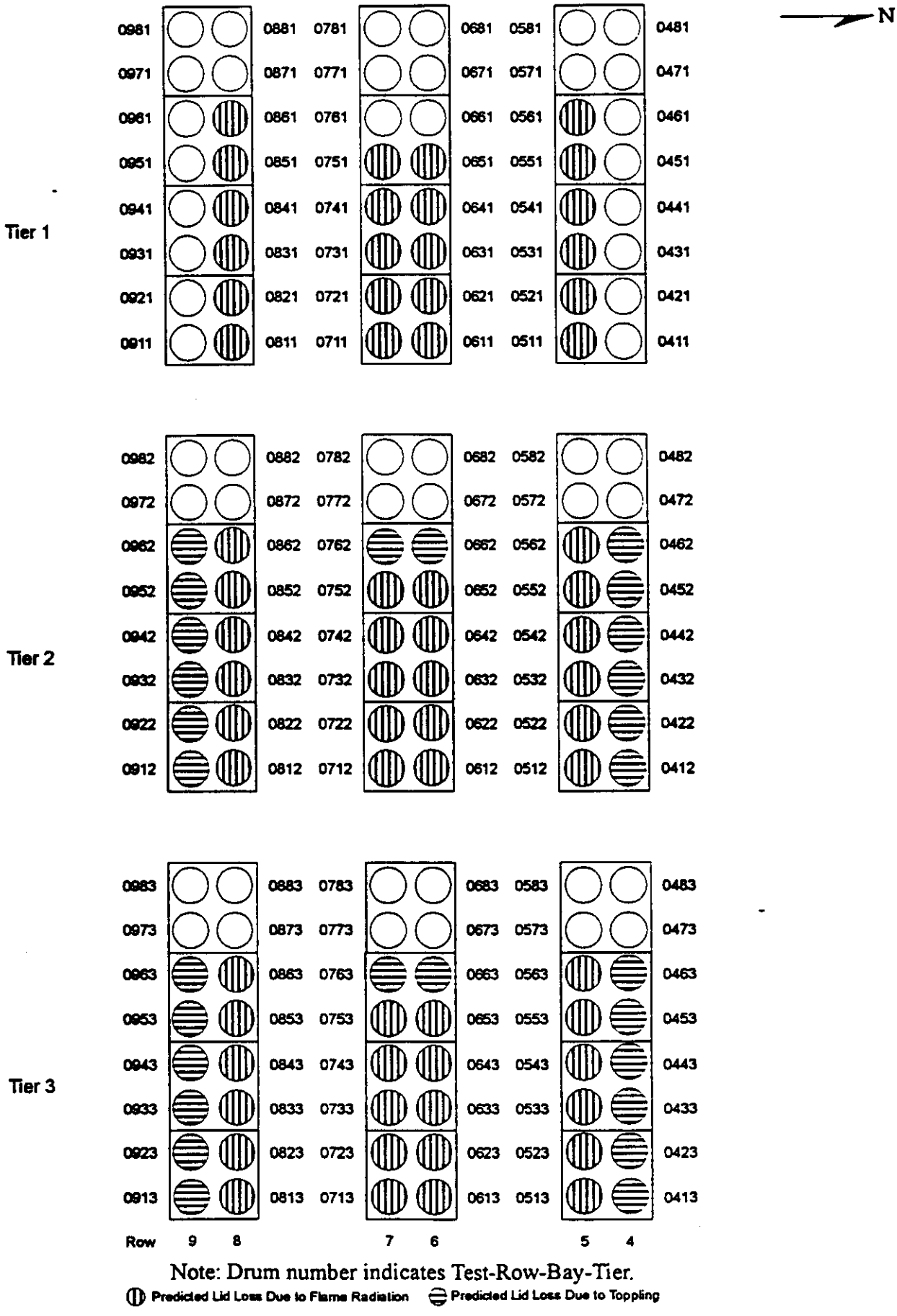


Figure 63. Predicted Drum Performance — Pallet Storage Test

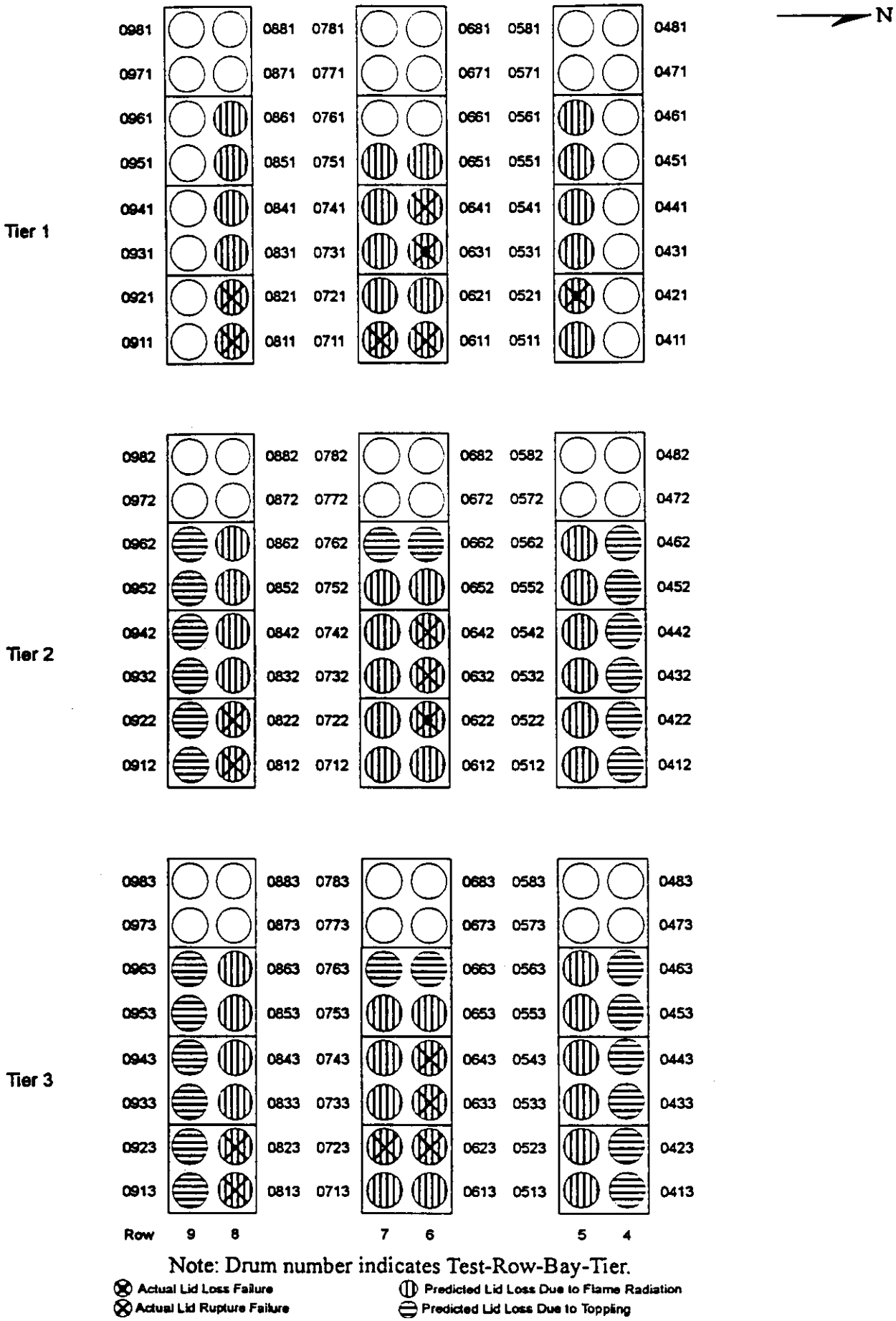


Figure 64. Predicted and Actual Drum Performance — Pallet Storage Test

8.3.1 Drums Within The Flame

Table 9 provides a summary of the experimental data for the pressure instrumented pallet storage drums within the flame. Data for other drums is provided in Table 5 and Appendix E.

Table 9. Summary of Experimental Data for Pressure Instrumented Pallet Storage Drums Within the Flame

Drum No.	Lid Loss, Lid Rupture, or Vent	Time of Failure (s)	Drum Temp. at Failure (°C)	Pressure at Failure (psig)	Approx. Heat Flux (kW/m^2)*
0711	LID RUPTURE	159	732	14.0	NM
0721	VENT	160	744	12.0	NM
0741	VENT	195	600	3.1	NM
0611	LID RUPTURE	165	731	14.5	NM
0631	LID LOSS	147	803	16.4	166 (cal 5)
0641	LID RUPTURE	197	699	8.9	77 (cal 4)
0722	VENT	169	932	16.4	NM
0742	VENT	518	778	8.6	NM
0612	VENT	172	937	9.5	NM
0632	LID RUPTURE	156	876	17.3	135 (cal 7)
0713	VENT	154	908	15.4	NM
0723	LID RUPTURE	185	759	11.6	NM
0743	VENT	763	526	6.4	NM
0633	LID RUPTURE	245	891	9.7	81 (cal 9)

* See Figures 40-42 for calorimeter locations
NM - not measured

Half of the drums within the flame which were instrumented with pressure transducers experienced lid failure whereas the other half vented due to lid seal degradation. The lid failure times ranged from 147 to 245 seconds with an average lid failure time of 179 seconds. This is longer than the average lid failure time of 90 seconds observed during the earlier HAI individual drum testing but is similar to the average lid failure time for the rack test ($t_{avg} = 178$ s, see Section 8.2.1) and to prior testing as reviewed in the earlier HAI report [Rhodes et al., 1995]. In general, the drums which vented due to lid seal degradation did so in the same time frame.

The maximum drum wall temperature is the primary criteria which was used to predict lid failure. Based on the earlier HAI drum testing, it is expected that drums which achieve

temperatures in excess of 750°C will experience lid failure; drums in the range of 600 to 750°C will sometimes result in lid failure; and drum temperatures less than 600°C will result in lid seal failure only. Drum wall temperatures within the flame are generally higher than those for the rack storage test. Temperatures exceed approximately 700°C at lid failure for all of the drums within the flame instrumented with pressure transducers. In general, even the drums which experienced lid seal failure only had temperatures indicative of lid failure drums. As seen in Table 9, several of the drums which vented due to lid seal degradation failed at temperatures greater than 900°C. It is not clear why these drums did not experience lid failure.

Table 10 shows a comparison of drum wall temperatures at lid and seal failure in the pallet test and the prior individual drum tests. The wall temperatures at lid failure in the pallet tests were generally higher than the previous individual drum tests. Again, it must be remembered that in the pallet tests only two thermocouples were used per drum so the average hot wall temperatures determined in the pallet tests must be regarded as crude estimates. No change in the predictive methods is indicated by these results.

Table 10. Comparison of Drum Wall Temperatures at Lid and Seal Failure for the Pallet Test with Prior Individual Drum Tests

Temperature Range (°C)	Lid Failure		Seal Failure	
	Pallet	Individual	Pallet	Individual
≤400	0	0	0	0
401-450	0	0	0	1
451-500	0	0	0	5
501-550	0	0	2	1
551-600	0	0	0	1
601-650	0	0	1	7
651-700	1	2	1	6
>700	10	7	7	4
Total	11	9	11	25

The incident heat flux to the drum is another criteria used to predict lid failure. Based on the earlier HAI testing, it is expected that drums exposed to radiant exposures less than 45 kW/m^2 will not experience lid failure; exposures in the range of 45 to 75 kW/m^2 will sometimes result in lid failure; and exposures greater than 75 kW/m^2 will experience lid failure. Heat flux measurements were obtained during the pallet test using total heat flux transducers mounted between the drums. Water filled drum calorimeters were not used during the pallet storage test. The heat flux transducers do not provide exact measurements of the actual incident heat flux to the drum surface. However, they can be used to estimate the maximum flame heat flux seen by a drum.

As seen in Table 9, the heat flux measurements for the lid failure drums range from 77 to 166 kW/m^2, which are comparable to the rack test results and well within the range of heat fluxes expected to cause lid failure. Not all of the drums listed in Table 8 have heat flux data because the measurements are applicable only to drums adjacent to heat flux transducers.

During the earlier HAI individual drum testing, it was not possible to develop criteria for lid failure based on drum pressure data. It was found that lid failure pressures ranged from about 13 to 28 psig with an average value of approximately 20 psig. For the current pallet storage test, lid failure pressures ranged from 8.9 to 17.3 psig with an average value of 13.2 psig. This is slightly higher than the failure pressure for the rack test. This is possibly due to the additional weight of the stacked drums and pallets on top of the drums. However, the failure pressures generally agree with the earlier HAI individual drum lid failure pressures for the standard load drums which were smaller than the lid failure pressures for lighter drum loadings. The failure pressures for drums which vented ranged from 3.1 to 16.4 psig. This is higher than venting drums for the rack test but is consistent with venting pressures observed for the earlier HAI individual drum tests.

Although all of the drums within the flame were predicted to experience lid failure, more than half resulted in only lid seal failure. Only 46 percent of the drums in the flame experienced lid failure. Based on the temperature, flame heat flux, and pressure data, it is not possible to predict that these drums will not result in lid failure. There does not appear to be any distinguishable differences between many of the lid failure and lid seal failure drums within the flame. It is not expected that the weight of the stacked drums had any significant effect on lid failure. The load pressure of a standard drum (weight of drum per unit area of drum base) is a mere fraction of a psi, and as such is insignificant relative to the drum release pressures observed. Many of the lid seal failure drums had temperatures and exposures exceeding the criteria for lid failure. Since the drums, contents, and loading procedures were the same for both the earlier HAI individual drum tests the current rack and pallet tests, this is a surprising result. It is believed that modifications to the methodology are not necessary. If less conservatism is desired, it is possible to use a probabilistic approach to predict drum performance. As noted earlier, only about half of the drums within the flame experienced lid failure. Such response could be taken as indicative of the pallet storage configuration. However, caution should be taken in basing the probabilistic drum performance on a single test. The criteria and models currently used provide a reasonable and conservative estimate for the performance of drums within the flame.

8.3.2 Drums Outside The Flame

Unlike for the rack test, several drums outside the pool area experienced lid failure. Table 11 provides a summary of the experimental data for the pressure instrumented pallet storage drums outside the flame. Data for other drums is provided in Table 5 and Appendix E.

The heat flux to drums outside the pool is very different for the pallet test than the rack test. Figure 65 and 66 show transducer heat flux measurements along the west and north edge of the pool respectively. As seen in Figure 65, the flame emissive power along the west

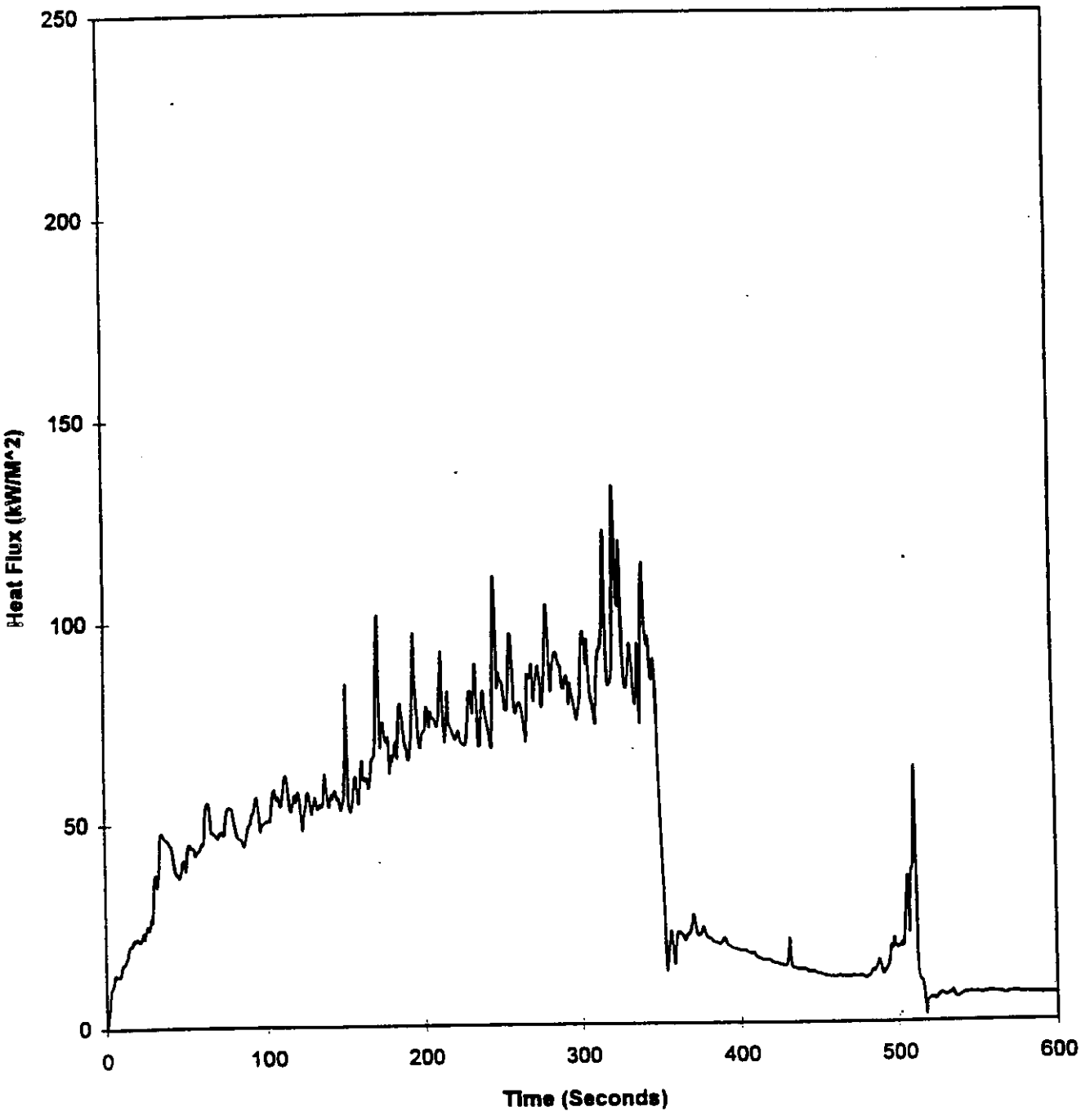


Figure 65. Pallet Storage Test — Transducer Heat Flux Measurement along West Edge of Pool (Cal #4)

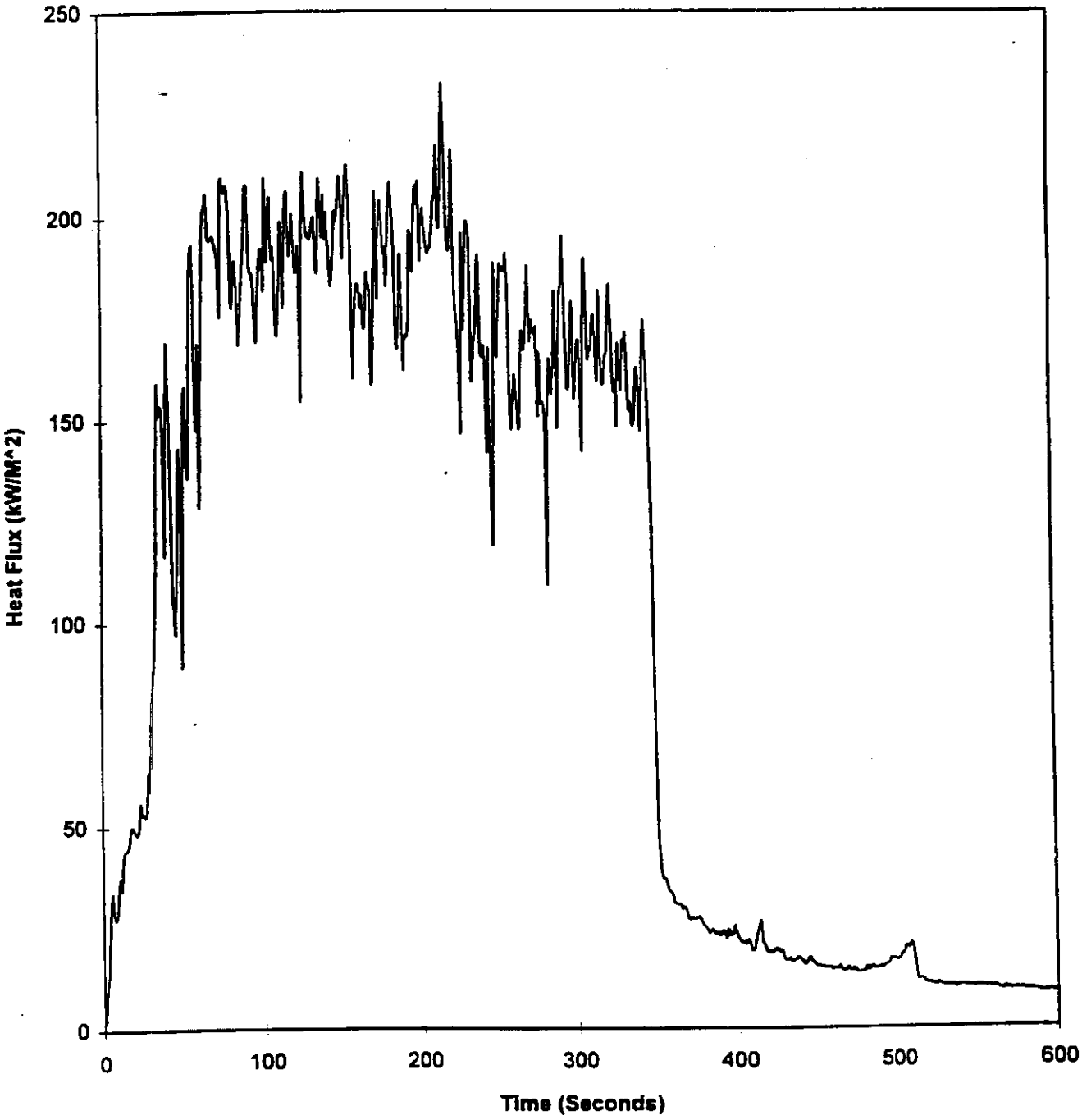


Figure 66. Pallet Storage Test — Transducer Heat Flux Measurement along North Edge of Pool (Cal #10)

edge becomes steady at approximately 80 to 90 kW/m^2. This is consistent with literature values and comparable to the rack test pool fire emissive power. However, as seen in Figure 66, the flame heat flux along the north edge ranges from 150 to 200 kW/m^2. The difference in heat fluxes along the edge is due to the air entrainment into the fire. Along the west edge, air is free to enter the fire in the aisle. However, along the north edge, air can not be entrained through the drum stacks and therefore, the flame leans outward and impinges the drums. As such, unlike for the rack test, the drums along the north and south edge of the pool are subjected to direct flame exposure. As noted earlier, if the flame does not contact the drum, lid failure is not expected. In this case, the flame impinges the drums and causes lid failure for several of the drums.

Table 11. Summary of Experimental Data for Pressure Instrumented Pallet Storage Drums Outside the Flame

Drum No.	Lid Loss, Lid Rupture, or Vent	Time of Failure (s)	Drum Temp. at Failure (°C)	Pressure at Failure (psig)	Approx. Heat Flux (kW/m^2)*
0811	LID RUPTURE	156	857	11.3	NM
0831	VENT	363	538	5.8	85 (cal 1)
0521	LID LOSS	203	811	12.8	200 (cal 10)
0541	VENT	292	698	6.9	NM
0812	LID RUPTURE	152	851	17.4	NM
0532	VENT	212	918	11.4	176 (cal 11)
0813	LID RUPTURE	175	951	14.6	NM
0533	VENT	254	920	11.6	124 (cal 12)

* See Figures 40-42 for calorimeter locations
NM - not measured

Similar to drums within the flame, many of the drums adjacent to the pool which experienced lid seal failure had temperatures exceeding the criteria established for lid failure. Again, it is unclear why these drums did not result in lid failure. As seen in Figure 64, all of the drums adjacent to the flame are predicted to experience lid failure. Only 29 percent of these drums results in lid failure. As noted earlier for drums within the flame, a probabilistic approach could be used to predict drum performance. However, assuming that only one-third (i.e., approximately 29 percent) of the drums along the aisle experience lid failure based solely on a single test may not be appropriate. Given that some of these drums did experience lid failure and since many of them had temperature, heat flux, and pressure data consistent with lid failure drums, it is not analytically possible to discount the drums along the edge of the pool from experiencing lid failure.

Drums in Bay 6 in Rows 5 and 8 were predicted to experience lid failure due to the radiant heat exposure from the flame. This was based on conservative estimates of incident heat fluxes and did not account for drum geometry and storage configuration (i.e., blockage from other drums). As suggested by the rack and pallet test results, since these drums are not in direct contact with the flame, they should not be expected to experience lid failure.

8.3.3 Impact of Wood Pallets

Following extinguishment of the pool fire, the wood pallets continued to burn and slowly propagate the fire along the rows. The flame took approximately one hour to spread to the end of the center row of pallets and caused additional lid seal failures along the way. Although this did not result in any additional lid failure drums, flame propagation from pallet to pallet was not expected. Prior testing of steel drum storage on wooden pallets [Snook, 1992] indicated that wooden pallets did not significantly ignite during the test and basically self extinguished once the ignition source was consumed. However, this test involved only non-combustible drum contents. For the current pallet test, drums experiencing lid seal failure often resulted in flaming jets which impinged upon the pallets. As the fire propagated from pallet to pallet, additional drums vented with jets which sustained the flame front on the pallet. This process continued until the fire reached the end of the pallet row.

Given the slow nature of the fire spread and minimal impact on the exposed drums, the wood pallets did not significantly affect the severity of this event. However, fire propagation should be expected if wood pallets are used. This will result in additional lid seal failure drums and may spread the fire to other areas not initially involved in the fire. Corrective actions such as providing barriers between wood pallets or using steel pallets would eliminate this problem.

8.3.4 Assessment of Drum Stack Stability Model

Based on the drum array stability model developed during earlier HAI testing, it was predicted that drums on lower tiers which experience lid failure would tip over the pallet stacks above. As a result, it was assumed that drums falling to the floor would experience lid failure. The model is based on the geometry and weight of the drums and pallets. Conservative assumptions are made regarding the force associated with lid loss and rotation of pallet stacks. It was estimated that the lid release pressure of a drum on the bottom tier required to topple the two pallet load above is approximately 17 to 20 psig. For a drum experiencing lid loss on the second tier, a lid release pressure of approximately 13 to 16 psig is required to topple the top tier. The model is based on the lid being completely removed from the drum. As such, lid ruptures can not topple the drums above.

There were two lid loss drums on the first tier for the pallet test (drum nos. 0631 and 0531). The lid release pressure for 0631 was 16.4 psig and for 0531 was 12.8 psig. Neither of the lid loss drums tipped the pallet stacks above. Although the lid release pressures are less than the 17 to 20 psig required, there was no rotation or significant displacement of the pallets above the lid loss drums observed. Since the ruptured drums can not topple the pallet stacks, they could not be used to assess the stability model.

On the second tier, only a single drum experienced lid loss (drum no. 0622). This drum was not instrumented with a pressure transducer so pressure data is not available. Again, no rotation or significant displacement of the pallet above the lid loss drum was observed.

It is believed that the drum array stability model is overly conservative in estimating the release pressure required to topple stacked drums. There was no evidence that lid failures significantly affected the stability of drums on pallets above. Even though the drums were banded, the drums would not have fallen to the floor due to lid failures below. However, the banding did prevent several drums from falling due to wood pallets burning and losing their strength.

8.4 REASSESSMENT OF THE MODEL PERFORMANCE

The predictions of the results of the tests reported in Section 3 of this report were made prior to the conduct of the tests and were based on the modeling and individual drum tests reported in an earlier report [Rhodes et al., 1995]. The performance of the models in predicting the rack and pallets tests was reviewed in the previous sections (Sections 8.2 and 8.3, respectively). In the light of these comparisons with data, is appropriate to reassess the model with the view of enhancing the ability to predict drum array performance in the future.

Before addressing specific elements of the model, it is important to note that the performance of the model in predicting the results of these tests is both a function of the model and the model users. Inasmuch as the model users here are the model developers, one would assume that the results did not suffer from uninformed or inappropriate use of the model. Nonetheless, the model users here were motivated to provide conservative results. When an uncertainty arose, the more conservative choice was made. While this is an appropriate strategy for model use, it does not generally lead to the most realistic results possible. In the following discussion, changes in the use of the model which can reasonably used to improve the realism of the predicted results are discussed.

The primary cause for conservatism in the model use was the selection of the emissive power of the pool fire. This was not a subject investigated in the prior individual drum work [Rhodes et al., 1995], because such information is readily available in the literature. Unfortunately, the available sources of emissive power correlations are not in full agreement, and the differences can result in very different results in this application. Further, there are relatively little heat flux data to target very near pool fires. Most data are at least one pool radius away from the pool edge. As such, the reliability of the correlations in lowest in the area of most importance in this application. Coupled with the emissive power uncertainties is the range of drum wall temperatures found at lid failure in the individual drum tests. The results ranged from about 625°C to near 800°C. Coupling the use of a conservative emissive power with a conservative drum wall temperature at lid failure resulted in much over predicted lid failures outside the pool area.

Using the Shokri/Beyler correlation and an average rather than conservative drum wall temperature in the rack predictions results in the correct prediction that no lid failures are expected. It is significant that in the rack tests the pool fire flame did not directly contact the drums. The air entrained between the drums in the rack caused the flame to neck as it normally does in an open pool fire such that a model for exposures to targets outside the flame is appropriate. Conversely, the flames in the pallet test did directly contact the drums adjacent

to the pool fire. This results from the very tightly packed nature of the pallet array which did not allow significant air entrainment to the flame through the array. As a result, the flame did not "neck-in" (narrow) as it normally does in a free pool fire, and as a result, the flame contacted the drums adjacent to the pool. This results in a qualitatively different thermal exposure which did cause some lid failures. This condition is much more similar to a target within a pool fire than it is similar to a target outside the pool fire. Treating the drum as a target within this pool fire results in heat fluxes significantly above those required for lid loss. Thus, for this situation, the use of a correlation for targets outside the flame like the Shokri/Beyler or the Mudan/Croce correlations is not appropriate. The simple view that arises out of the testing and modeling is that for large scale pool fires, lid failures are to be expected where flame contact occurs and are not expected when there is no flame contact. We know that in open rack arrangements, drums outside the pool area will not experience direct pool flame contact whereas in the tight palletized storage configuration pool flame contact is expected. This simple approach is consistent with the use of the Shokri/Beyler emissive power correlation in conjunction with an average drum wall temperature criterion of 700°C.

Table 12 shows a comparison of the original predictions of lid failure, predictions based on the revised predictive methods, and the results of the rack and pallet experiments. Clearly, based on the revisions to the predictive method discussed above, no change in the pretest predictions within the pool area have been made. In the rack test, the revised predictions provide a very good prediction of the actual results. Discrepancies result from eight drums within the pool fire area which experienced lid seal failure. These drums were the least severely exposed drums within the pool area as the flame leaned inward toward the pool center significantly during the test. Without the use of computation fluid mechanics models of pool fires, there is no hope of predicting these detailed features of the flame. While this is an active area of research, no reliable methods of analysis are currently available. The

Table 12. Comparison of Heat-induced Lid Failures in the Pretest Predictions, the Revised Predictive Method, and the Drum Array Test

Rack Test			
	Within Pool*	Outside Pool	Total
Pretest Predictions	45	46	91
Revised Predictive Method	45	0	45
Rack Test Results	37	0	37
Pallet Test			
	Within Pool	Outside Pool	Total
Pretest Predictions	24	42	66
Revised Predictive Method	24	24	48
Pallet Test Results	12	7	19

* excludes three water-filled drums.

computer models which currently exist are strictly research tools at this time and are not yet available or appropriate for use. In the pallet test, the revised predictions overestimate the total number of lid failures by a factor of 2-3 both within the pool area and outside the pool area. Within the pool only half the drums experienced lid failure and only 30 percent of the drums outside the pool exposed to flame contact experienced lid failure. There were clear asymmetries in the flame geometry and resulting heat fluxes. Such asymmetries cannot be predicted, and this leads to conservative predictions. Even without such considerations, most of the drums with direct flame contact would have been expected to experience lid loss based on drum wall temperatures. It is unclear why many of the drums experienced lid seal failure rather than lid failure.

The other area of major conservatism in the pretest predictions is in the area of array stability. The original predictions were based on a release pressure of 20 psig, which represented the full individual drum test series results. However, the drums with normal loading in the individual drum tests had release pressures systematically less than the overall average (13-16 psig). Thus, a lower release pressure was indicated by the individual drum test results for normally loaded drums. In the pallet tests, the release pressures ranged from 9-17 psig. The failure mode of the drum lids in the pallet test were typified by lid rupture. This, of course, violates one of the assumptions in the stability model, i.e. that the drum lid release is via simple rotation and lid deformation does not occur. Clearly, the lid deformation reduces the likelihood of loss of array stability. This limitation was recognized at the outset, but no practical means of including lid deformation was apparent at the time, and no solution is apparent even now. As such, we recognize the stability model to be very conservative, but the extent of conservatism is not known since no loss of stability was ever observed. Based on the evidence available at this time, normally loaded drums in pallet arrays with metal banding are not expected to topple. Further, the assumption that the drums would experience lid failure due to falling is also a conservative assumption which was made due to a lack of information to the contrary.

Other areas where the model was challenged was the flame propagation via vent jets and wooden pallets. The model simply did not include this phenomenon. Based on prior testing with noncombustible drum contents such behavior was not anticipated. The pallet test clearly showed this is a viable method for flame propagation, but that lid failures do not result. No modeling approach currently exists for this problem, and it is not at all clear that such a model is needed given the range of solutions available for the problem. The test further verifies that drum to drum fire propagation with lid failure does not occur as was predicted. This, in the end, is the single most important result and prediction.

For future applications, it would be most appropriate to make use of the revised methodology which makes use of the insights provided by the drum array testing.

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9.0 CONCLUSIONS AND RECOMMENDATIONS

The two full-scale fire tests were successfully performed, and the results of the tests have been analyzed in detail. The two tests conducted were representative of a three tier, palletized storage configuration and a six tier, high rack storage configuration.

The high rack storage test resulted in extensive drum and rack damage within the confines of the pool fire. The rack suffered serious structural damage as expected and all drums within the pool fire vented. Lid failures were experienced on all tiers of the rack within the pool area. No lid failures were observed outside the pool fire area. No propagation to any drum outside the pool area was observed.

The palletized storage test resulted in extensive drum damage within the confines of the pool fire. Drums in the pallet stacks directly adjacent to the pool also experienced lid failures and some had jet flames from the vent. There was no loss of stability of the pallet arrays in the test. The major surprise of the test was the ability of fire to propagate along the pallet rows by a combination of pallet burning and vent flames. While the propagation was extremely slow, it did reach the end of the storage array, indicating that it could have continued indefinitely. Prior results from the literature indicated that the palletized storage of drums containing noncombustibles could not support this type of propagation. As such, it appears that a combination of pallet and vent flames from the drums is required for this propagation. No such propagation was observed for the metal pallet row.

The predictions of the behavior of the drum arrays was generally conservative relative to the actual test results. For drums within the flame, lid failure is expected to occur. Although this was not the case for all of the drums, there are no apparent criteria to distinguish between lid failure and seal failure drums. For the rack and pallet tests, there were significant differences for drums along the edge of the pool. For the rack test, spaces between drums and tiers allowed sufficient air to be entrained through the rack to the fire. This resulted in necking of the flame such that there was no significant flame impingement on the drums along the pool edge. For the pallet test, the closely spaced drums and stacked pallets inhibited the air entrainment to the fire. This resulted in the flame attaching itself to the drums along the edge of the pool. Whereas there were no lid failures for drums along the edge of the pool in the rack test, several lid failures occurred for the pallet test. It appears that if the flames do not impinge upon the drum, lid failure will not occur.

For drums outside the immediate flame region, two radiation models from the literature were used to predict drum performance. The less severe radiation model (i.e., Shokri and Beyler [1989]) provided better predictive results than the more severe Mudan and Croce [1988] model. The Shokri and Beyler model yielded no lid failures outside of the flame which is consistent with the experimental results.

The predictions for the palletized storage differed from the experiments in two important ways. First, the experiments had no loss of stability of the pallet arrays. The model indicated that some loss of stability was expected. Two factors are thought to contribute to the differences in expected and observed stability. The pressures measured at lid loss in these full scale tests were significantly less than that observed in the prior individual drum tests. No rationale for this difference has yet been identified though prior work did indicate a definite trend of failure pressure with drum contents. Further, the stability model as developed was

known to be conservative in its assumptions. The second phenomenon which was not correctly predicted by the model was the propagation of the fire via the pallet/vented drum mechanism. This phenomenon had never before been observed and was not anticipated by the model. There are many ways of preventing this type of propagation, including the use of metal pallets.

Overall, the experiments validated the predictions of the model and indicated that propagation outside the area of the initiating fire are not expected under the conditions studied except by the wood pallet propagation mechanism. The propagation of the fire in the pallet rows via the pallet/vented drum mechanism is the primary weakness of the model which was uncovered by the full scale testing.

The experimental work has shown that the rack storage array as tested has serious structural stability problems. The steel uprights due to their design will not resist a worst case fire. The use of the tested wire mesh to support the drums is questionable due to its response under loaded fire conditions. For the rack storage array, it is recommended that future designs account for the structural stability problems as seen in the test. This may include but not be limited to other shapes or sizes for vertical uprights and support mesh, use of fireproofing materials, or other design fire protection features.

The palletized system, as was tested, showed that fire propagation through the length of the rows could be obtained when wood pallets are used. The steel pallets did not exhibit this propagation. It should be noted, however, that even though the propagation did occur, it was not rapid but rather a slow process. Manual intervention could have stopped the progression fairly easily. The use of noncombustible (i.e., steel) pallets is one alternative. Other less costly alternatives would be to cause a fire break either by using a single noncombustible tier of pallets at specific intervals such as every third pallet, or by placing a noncombustible material such a single layer of 5/8-in. thick, Type X gypsum wallboard between some interval of pallets such as every third pallet. The gypsum wallboard should be 1.2 m (4 ft) wide (same width as pallets) and extend ~0.3 m (~1 ft) above the top of the highest drum.

Based on these tests, trash expulsion is negligible during a fire. Fire propagation via this mechanism was not observed and is not expected.

The behavior of the drum lids was significantly different than that noted in the earlier test work by HAI. In the earlier work, drum lids either remained on the drum or were violently expelled from the drum. In both of the array tests, no violent expulsion of the lids was noted. In the array tests, the lids showed the rupture failure mechanism which was not experienced in our earlier work.

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Document #: SD-WM-TRP-246

Title/Desc:
SOLID WASTE DRUM ARRAY FIRE PERFORMANCE [SEC 2 OF 7]

Pages: 151

THIS DOCUMENT WAS TOO LARGE TO SCAN AS A SINGLE DOCUMENT. IT REQUIRED BREAKING INTO SMALLER SECTIONS.

DOCUMENT NUMBER: SD-WM-TRP-246

SECTION: 2 OF 7

TITLE: Solid Waste Drum Array Fire Performance

AUTHOR: Louie PL

RECIPIENT:

DATE: 11/07/95

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10.0 REFERENCES

Babrauskas, V. (1988), "Burning Rates," Section 2/Chapter 1, *The SFPE Handbook of Fire Protection Engineering*, National Fire Protection Association, P. DiNenno, Editor-in-Chief, Society of Fire Protection Engineers, Boston, MA.

Boothe, G.F. (1994), "Radiological and Chemical Source Terms for Solid Waste Operations, Complex," WHC-SD-W306-TI-001 REV 1, 1994.

Carver, M.R. (1993), "Drums, DOT UN1A2, Solid Material, 114/208/322 Liter Salvage, Galvanized, Steel," HS-V-P0010, Impact Level 3-SQ, Westinghouse Hanford Company, January 20, 1993.

Heskestad, G., (1988), "Fire Plumes," Section 1/Chapter 6, *The SFPE Handbook of Fire Protection Engineering*, National Fire Protection Association, P. DiNenno, Editor-in-Chief, Society of Fire Protection Engineers, Boston, MA.

Kanury, A.M.(1975), *Introduction to Combustion Phenomena*, Gordon and Breach Science Publishers, New York..

Mudan, K.S., and P.A. Croce, (1988) "Fire Hazard Calculations for Large Open Hydrocarbon Fires," *The SFPE Handbook of Fire Protection Engineering*, National Fire Protection Association, P. DiNenno, Editor-in-Chief, Society of Fire Protection Engineers, Boston, MA.

Parker, A.J. (1995), "Rack and Palletized Storage Array Tests of Solid Waste Drums," Final Report, Volume I - Test Report, SwRI Project No. 01-7106-001, prepared for Los Alamos Technical Associates, Southwest Research Institute, San Antonio, TX, June 1995.

Rhodes, B.T., Beitel, J.J., Gottuk, D.T., Beyler, C.L., and Rosenbaum, E.R. (1995), "Analytical and Experimental Evaluation of Solid Waste Drum Fire Performance," Hughes Associates Inc., prepared for Westinghouse Hanford Company, April 27, 1995.

Shokri, M., and C.L. Beyler, (1989) "Radiation from Large Pool Fires," *Journal of Fire Protection Engineering*, Vol. 1, No. 4.

Snook, B. (1992), "Pallet Fire Test for Steel Drum Storage on Wooden Pallets," Martin Marietta, Portsmouth Gaseous Diffusion Plant, 1992.

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Appendix A

Rack Storage and Palletized Storage Pre-test Checklist

Rack Storage Pre-test Checklist

Racks:

_____ 3 rows of 6 tiers installed per test plan
_____ Bottom rack units anchored to floor
_____ Single rack secured to ceiling
_____ Back-to-back rows fastened together
_____ All hardware secure
_____ Containment pans and mesh installed
_____ Structures plumb and level
_____ Seismic event bars installed
_____ Verify dimensions of rack storage system

Drums:

_____ 144 drums labeled per Drum Location Diagram (DDS)
_____ All drums identified correctly on DDS (initialize description)
_____ All (except H_2O filled drums) loaded with standard load and steel
_____ Drums sealed, torqued, and documented on DDS
_____ Leak test drums with pressure measurements and document of DDS
_____ All drums weighed and recorded on DDS
_____ Thermocouples installed on appropriate drums
_____ Photograph typical setup of each drum type
_____ Videotape typical setup of each drum type
_____ Drums positioned per Drum Location Diagram
_____ Verify correct spacing between drums as installed in racks

Instrumentation:

_____ Check each pressure transducer calibration
_____ Catalog all heat flux transducer, certified calibration sheets
_____ Verify correct calibrations for instruments in data acquisition
_____ Ambient pressure measurements verified
_____ Verify operation and location of thermocouples through computer (apply heat)
_____ Verify operation and location of heat flux transducers through computer
_____ Verify operation of H_2O calorimeter pumps

Fuel:

_____ 14.7 m^2 (162 ft^2) pool area fabricated per test plan
_____ Pool area filled with ~2.5 cm (1 in.) of water and inspected for leaks
_____ 208 L (55 gal) of diesel fuel staged
_____ 8 L (2 gal) of gasoline staged
_____ Foam extinguishing system in place and tested

Rack Storage Pre-test Checklist (Continued)

Data Acquisition:

_____ Data acquisition system ready
_____ Pre-test video and still photographs complete
_____ Video cameras positioned per test plan and operable
    _____ Camera 1 tape set
    _____ Camera 2 tape set
_____ Photographer positioned and ready
_____ Remote video monitors setup
_____ Remote monitors setup for data acquisition if required
_____ Observation structure in place under overhead door
_____ Tape recorders loaded and ready

Pallet Storage Pre-test Checklist

Pallets:

_____ Banded together
_____ Properly oriented per test plan

Drums:

_____ 144 drums labeled per Drum Location Diagram (DDS)
_____ All drums identified correctly on DDS (QA: initialize description)
_____ Drums sealed, torqued, and documented on DDS
_____ Leak test drums with pressure measurements and document of DDS
_____ All drums weighed and recorded on DDS
_____ Thermocouples installed on appropriate drums
_____ Photograph typical setup of each drum type
_____ Videotape typical setup of each drum type
_____ Drums positioned per Drum Location Diagram

Instrumentation:

_____ Check each pressure transducer calibration
_____ Catalog all heat flux transducer, certified calibration sheets
_____ Verify correct calibrations for instruments in data acquisition
_____ Heat flux transducers positioned per test plan
_____ Thermocouples positions per test plan
_____ Ambient pressure measurements verified
_____ Verify operation and location of thermocouples through computer (apply heat)
_____ Verify operation and location of heat flux transducers through computer

Fuel:

_____ 9.3 m^2 (100 ft^2) pool area fabricated per test plan
_____ Pool area filled with ~2.5 cm (1 in.) of water and inspected for leaks
_____ 135 L (35 gal) of diesel fuel staged
_____ 8 L (2 gal) of gasoline staged
_____ Foam extinguishing system in place and tested

Pallet Storage Pre-test Checklist (Continued)

Data Acquisition:

_____ Data acquisition system ready
_____ Pre-test video and still photographs complete
_____ Video cameras positioned per test plan and operable
    _____ Camera 1 tape set
    _____ Camera 2 tape set
_____ Still photography camera positioned and ready
_____ Remote video monitors setup if required
_____ Remote monitors setup for data acquisition if required
_____ Observation structure in place under overhead door
_____ Tape recorders loaded and ready

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Appendix B

Rack Storage and Palletized Storage Test Procedure Checklist

Rack Storage and Pallet Storage
Test Procedure Checklist

_____ Pre-test checklist complete

_____ Verify all vents in building open

_____ All observers in designated locations

_____ Firefighters suited and standing by

_____ Foam extinguishing system charged

_____ Start tape recorders

_____ Start video tapes

_____ Start data acquisition and synchronize with video

_____ Pour diesel fuel

_____ Pour gasoline

_____ Ignite fuel (data acquisition time recorded)

_____ Test termination criteria

_____

_____

_____

Solid Waste Drum Array Fire Performance

Volume II
Appendix C. Rack Storage Test Data
Appendix D. Rack Storage Drum Data Sheets

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September 28, 1995

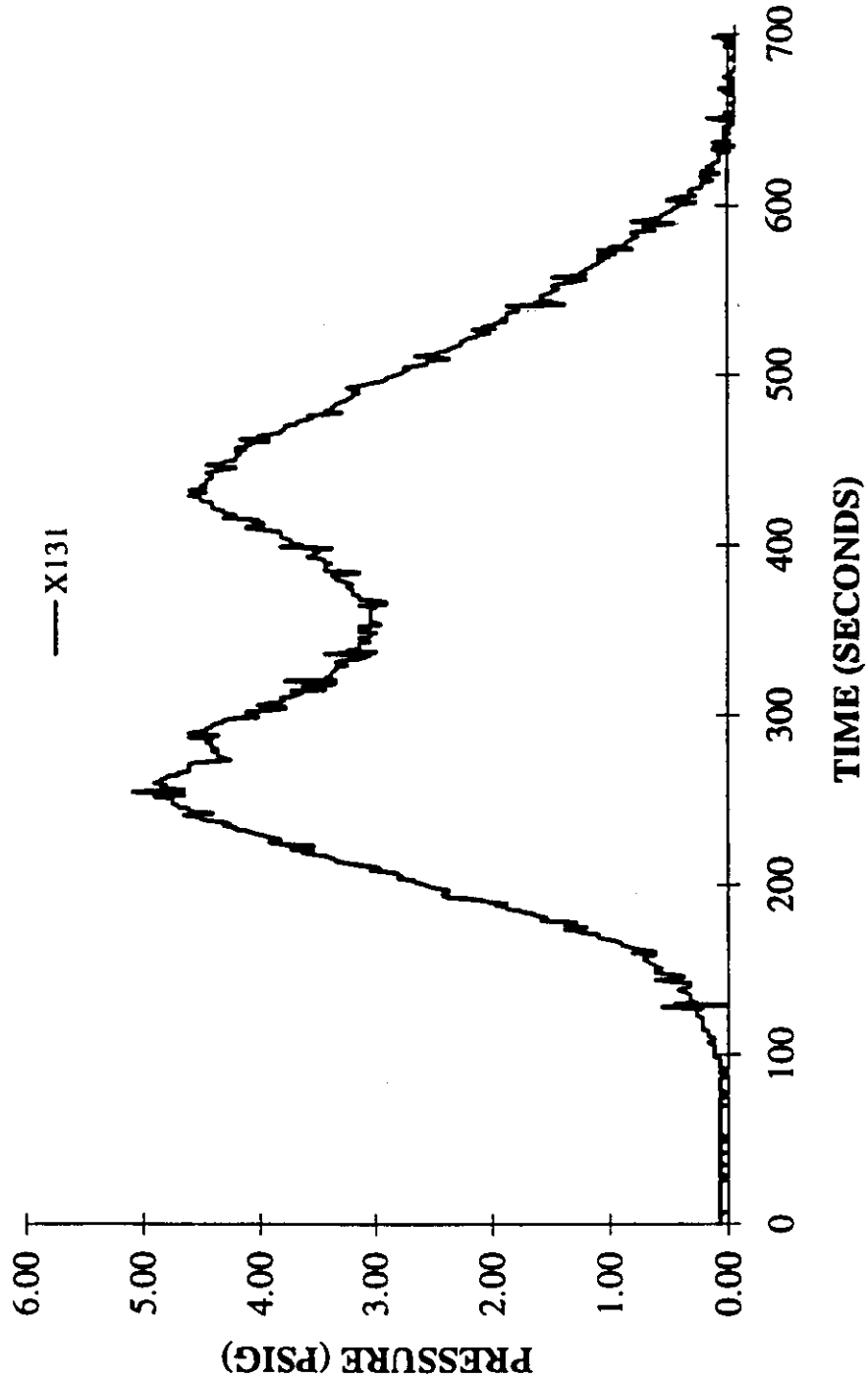
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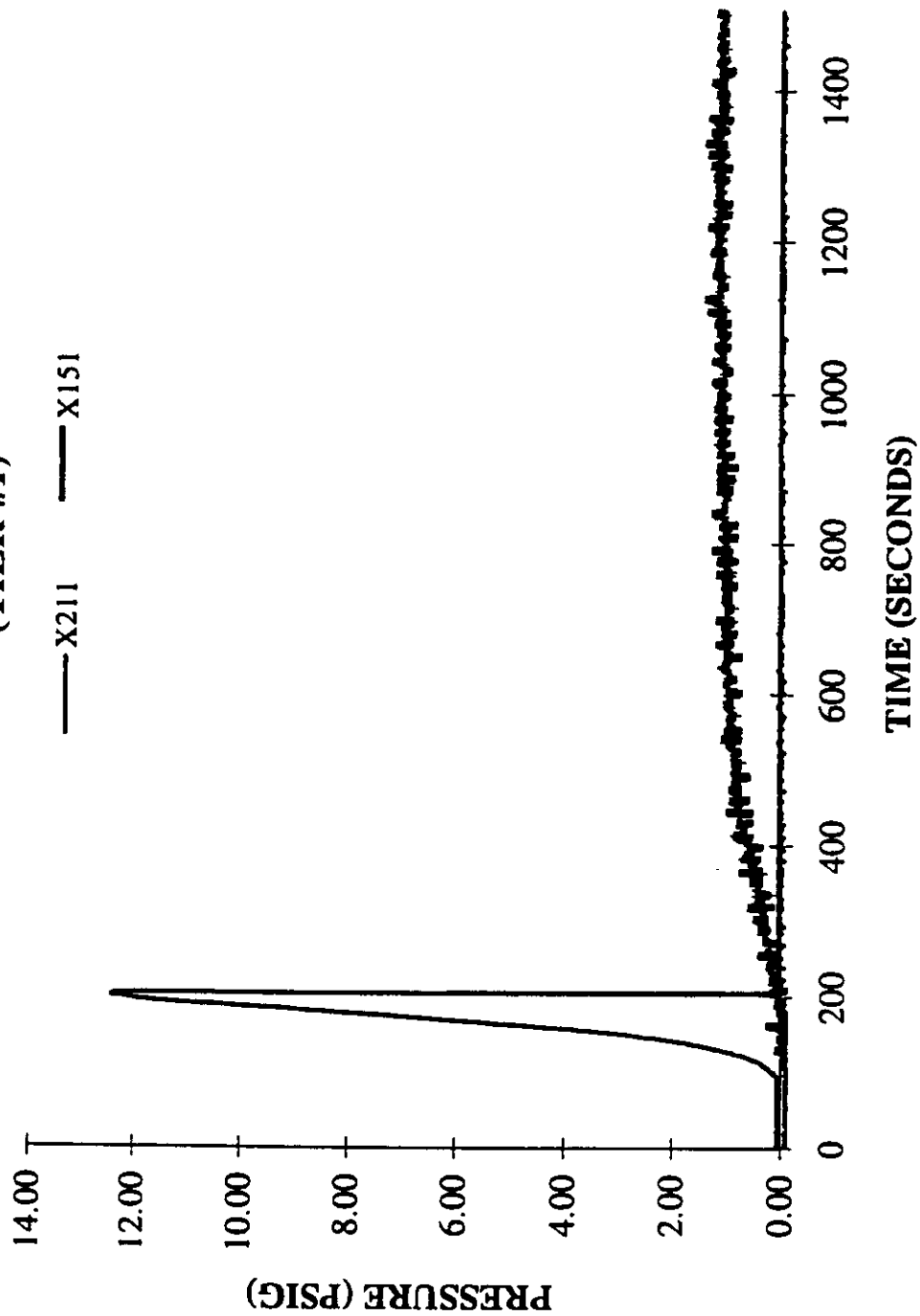
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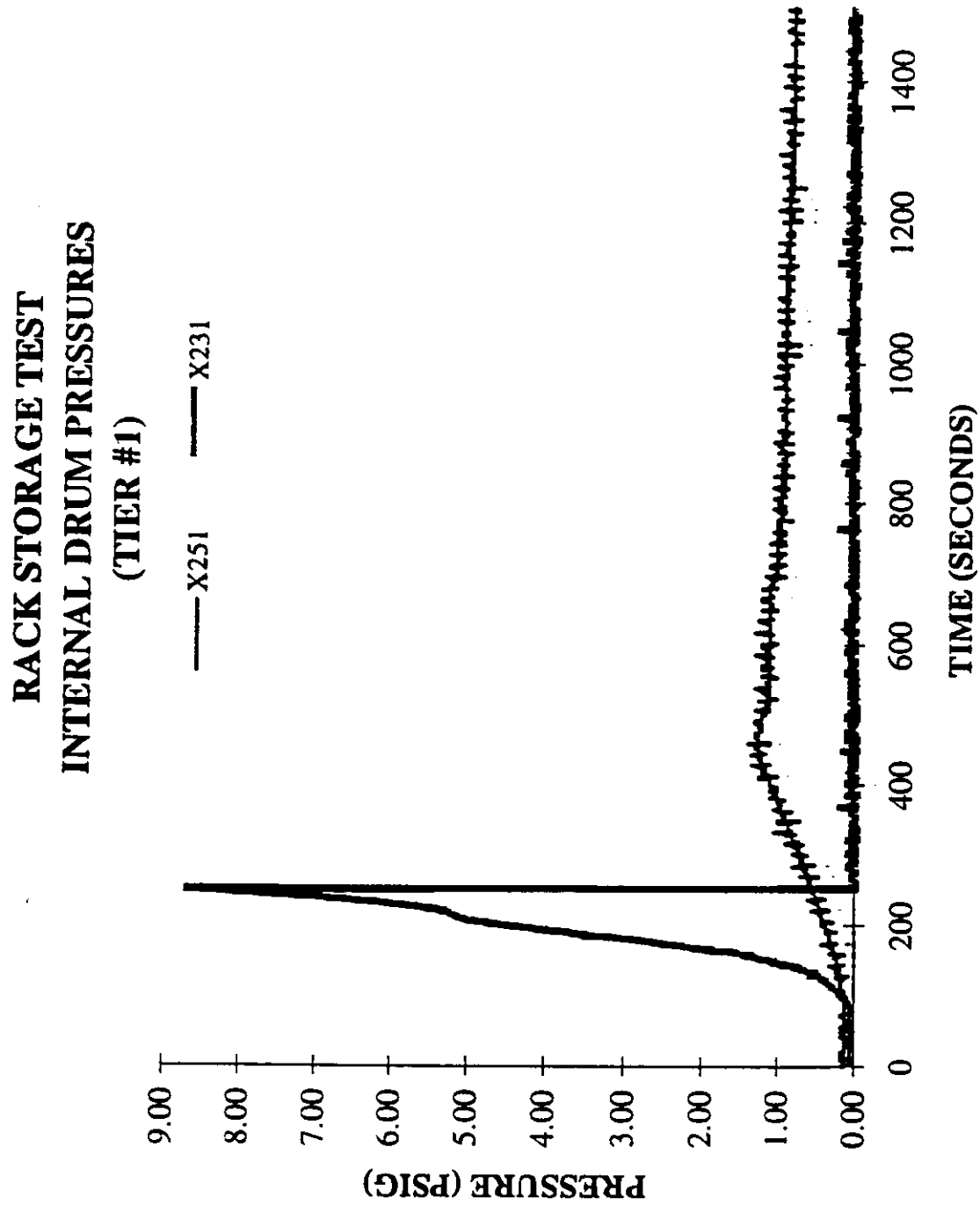
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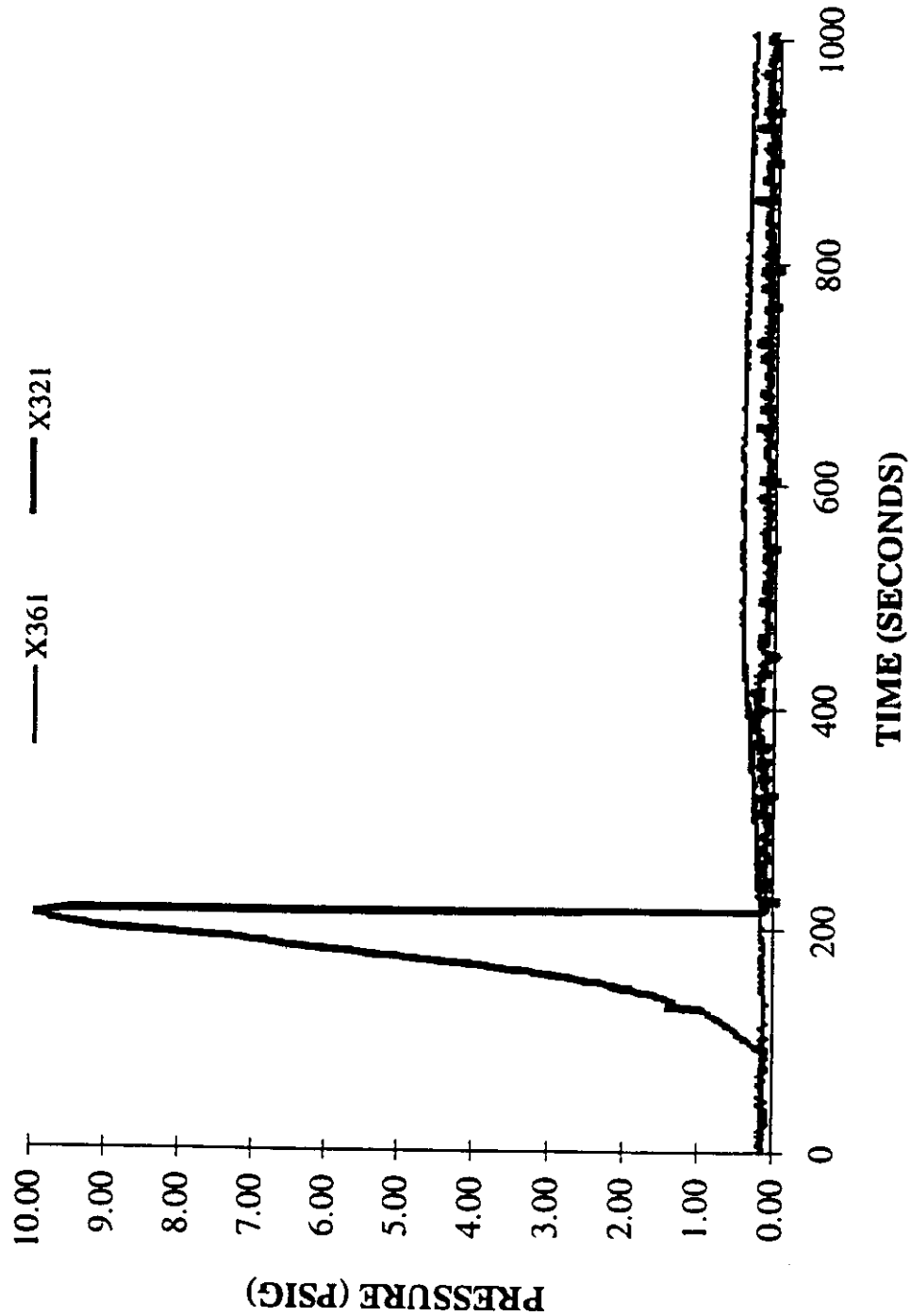
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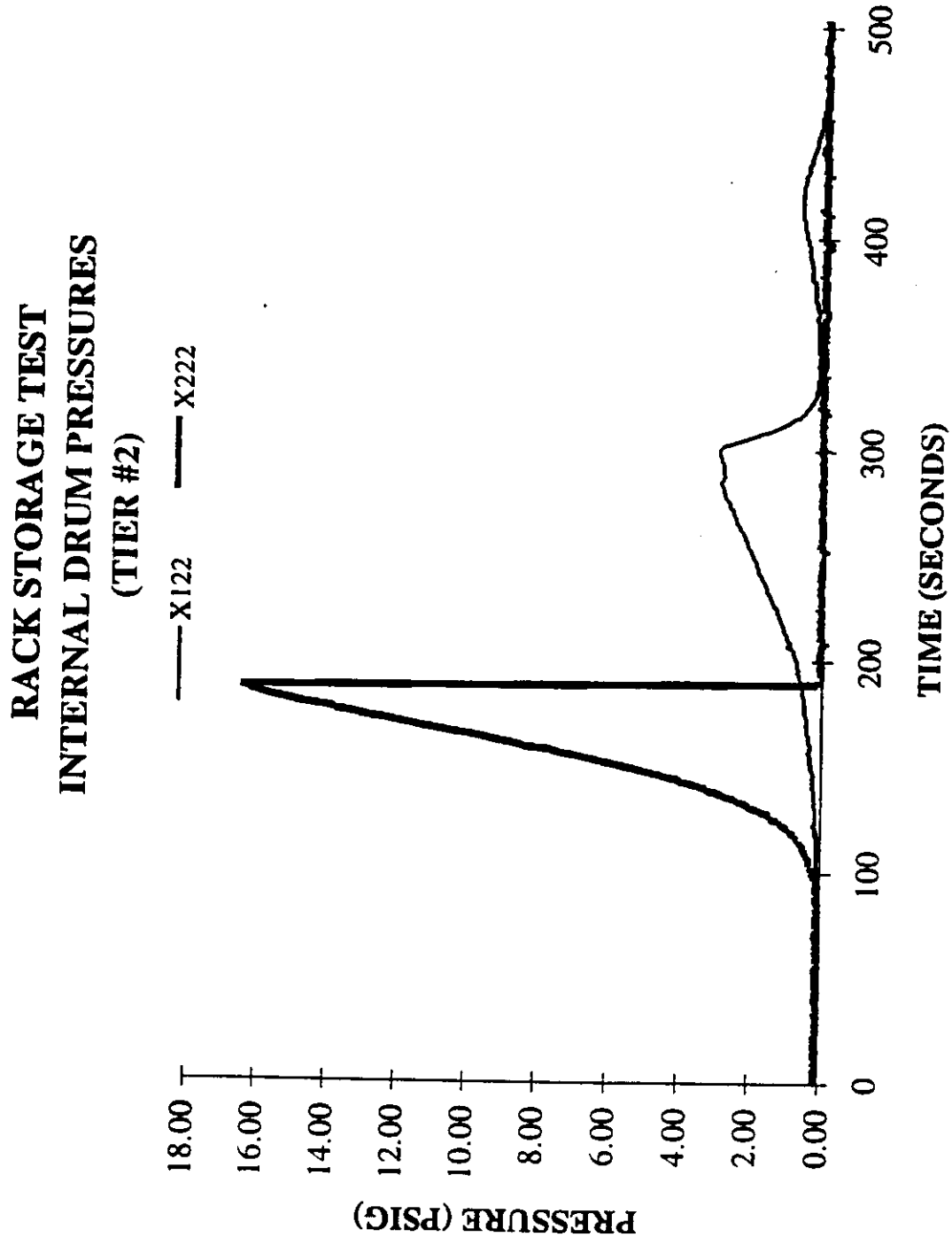
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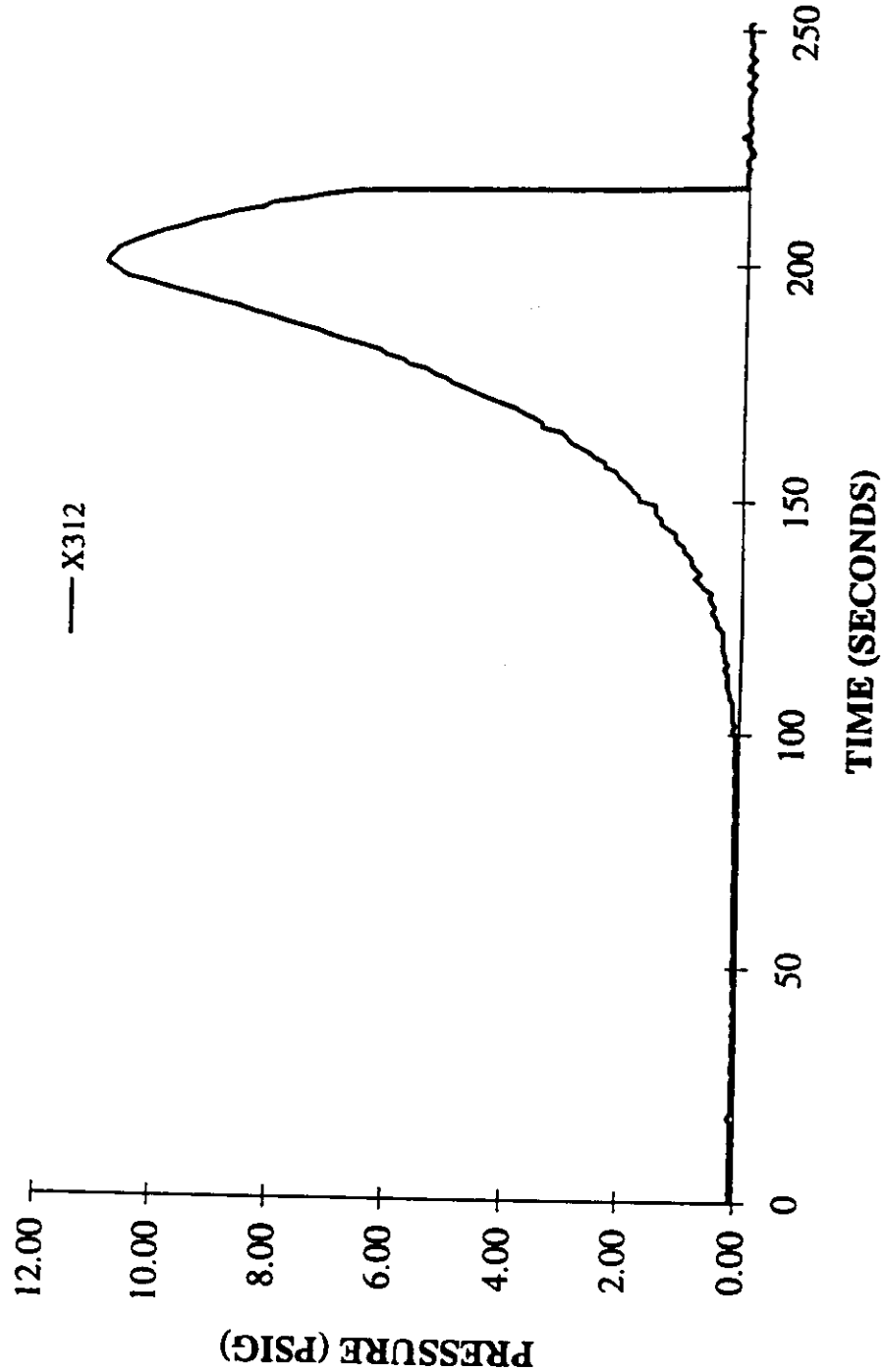
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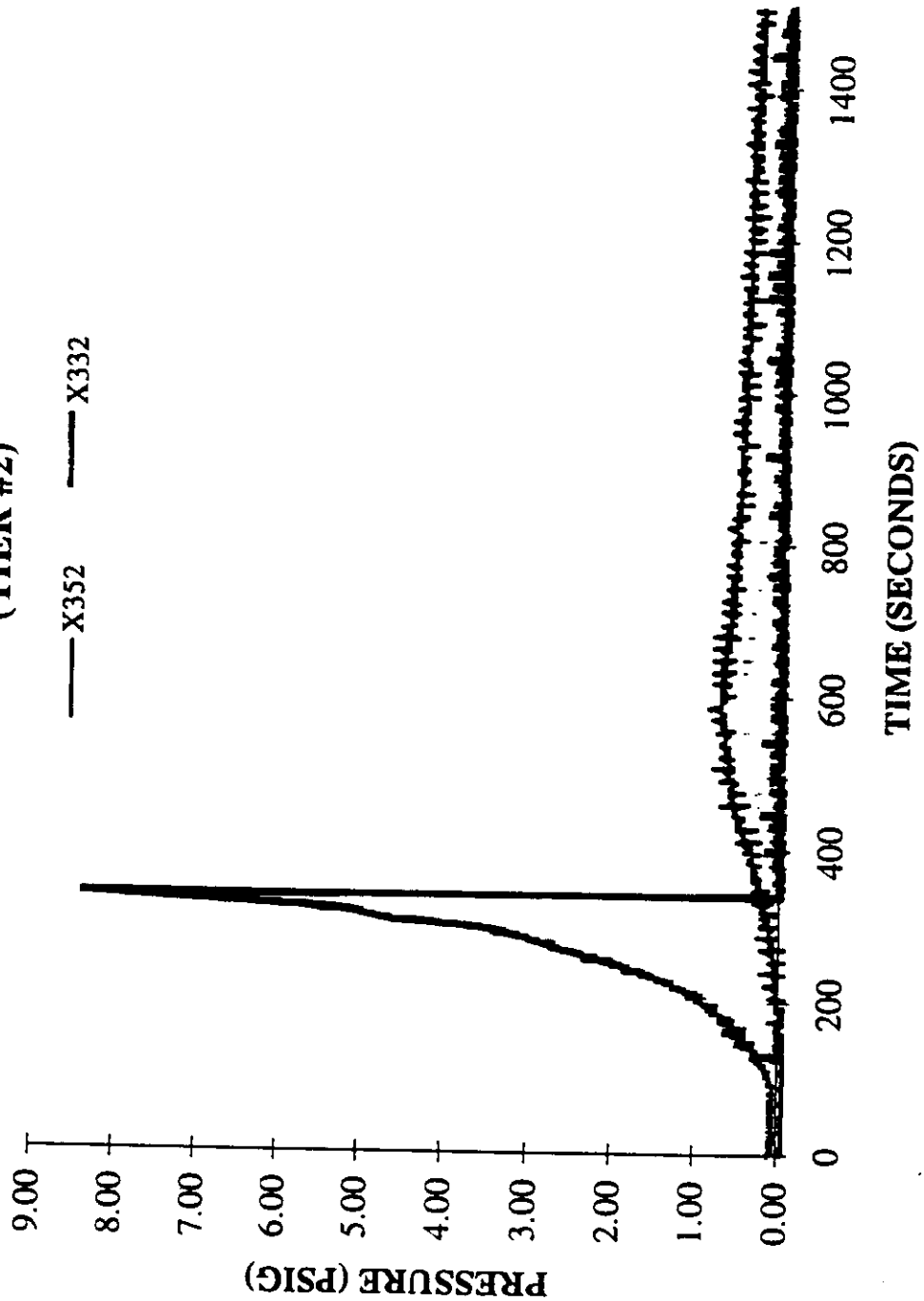
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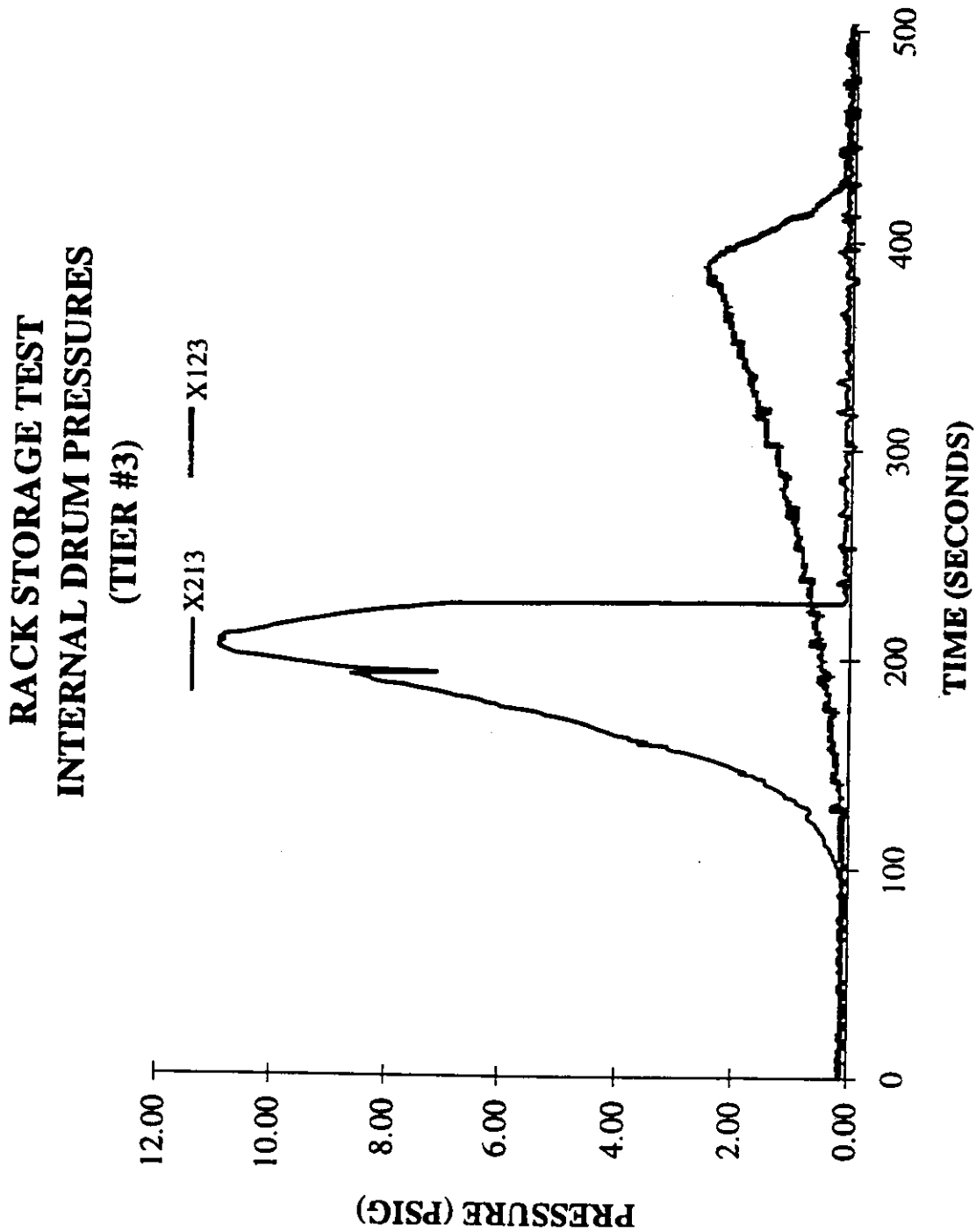
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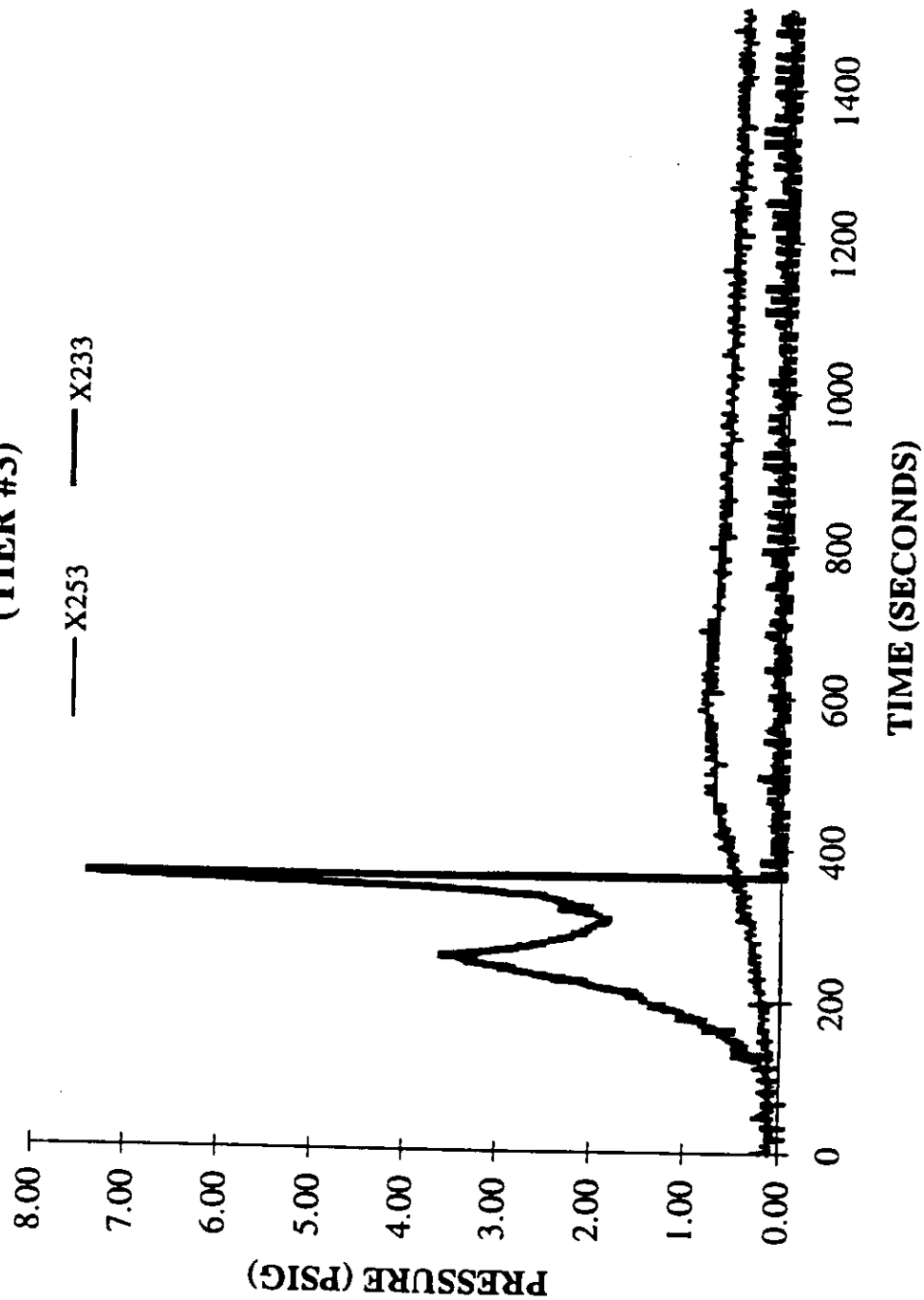
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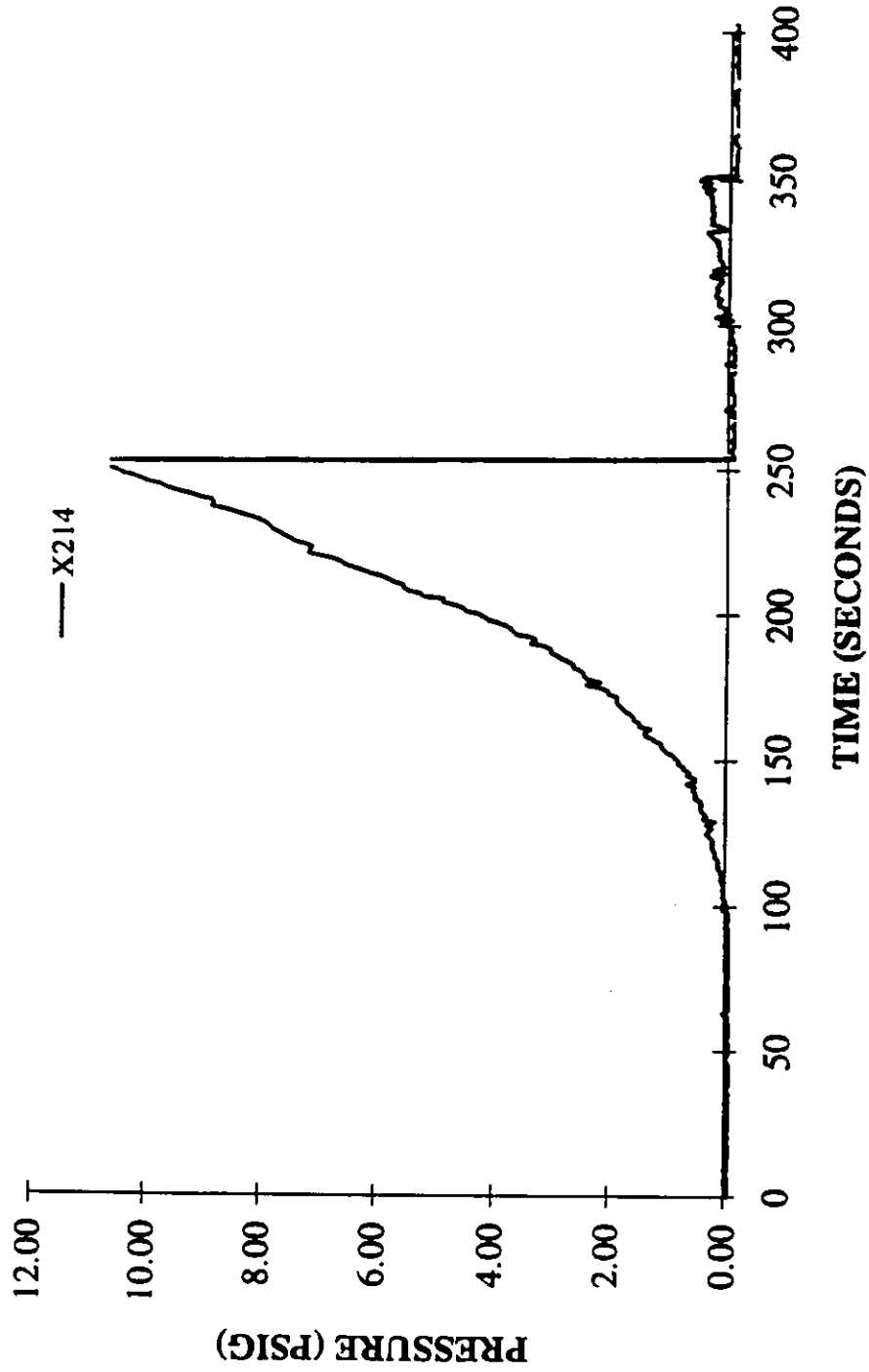
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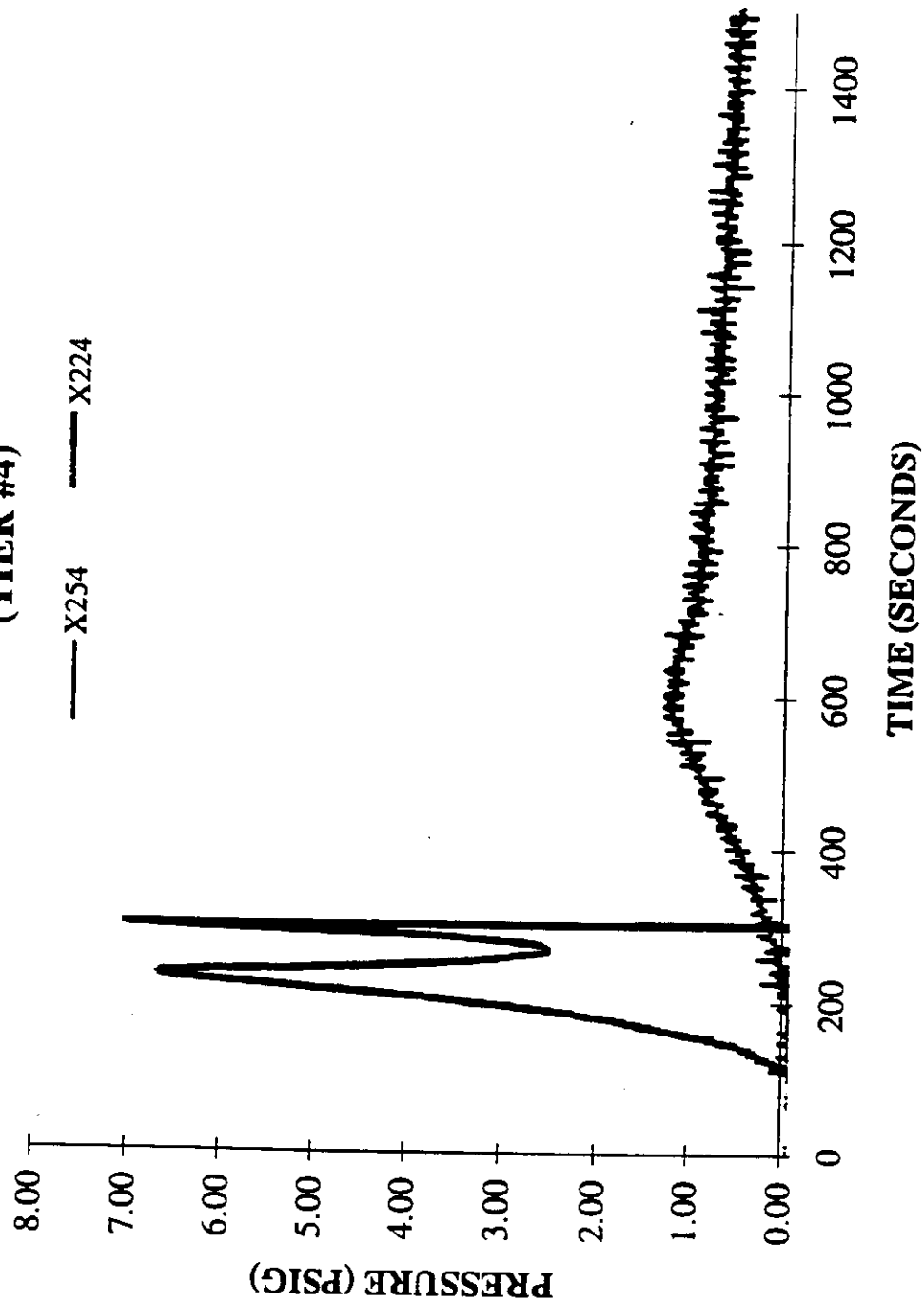
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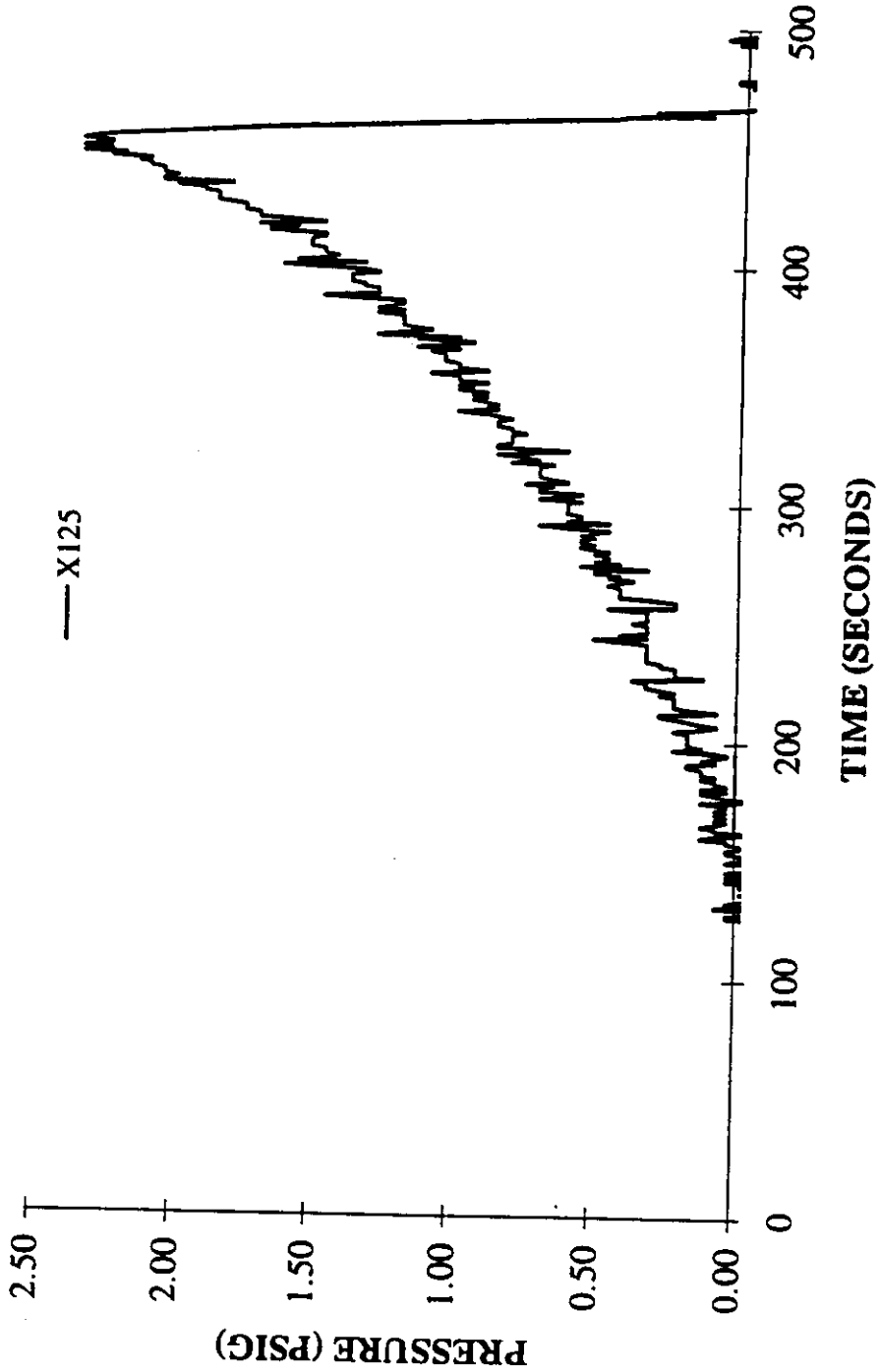
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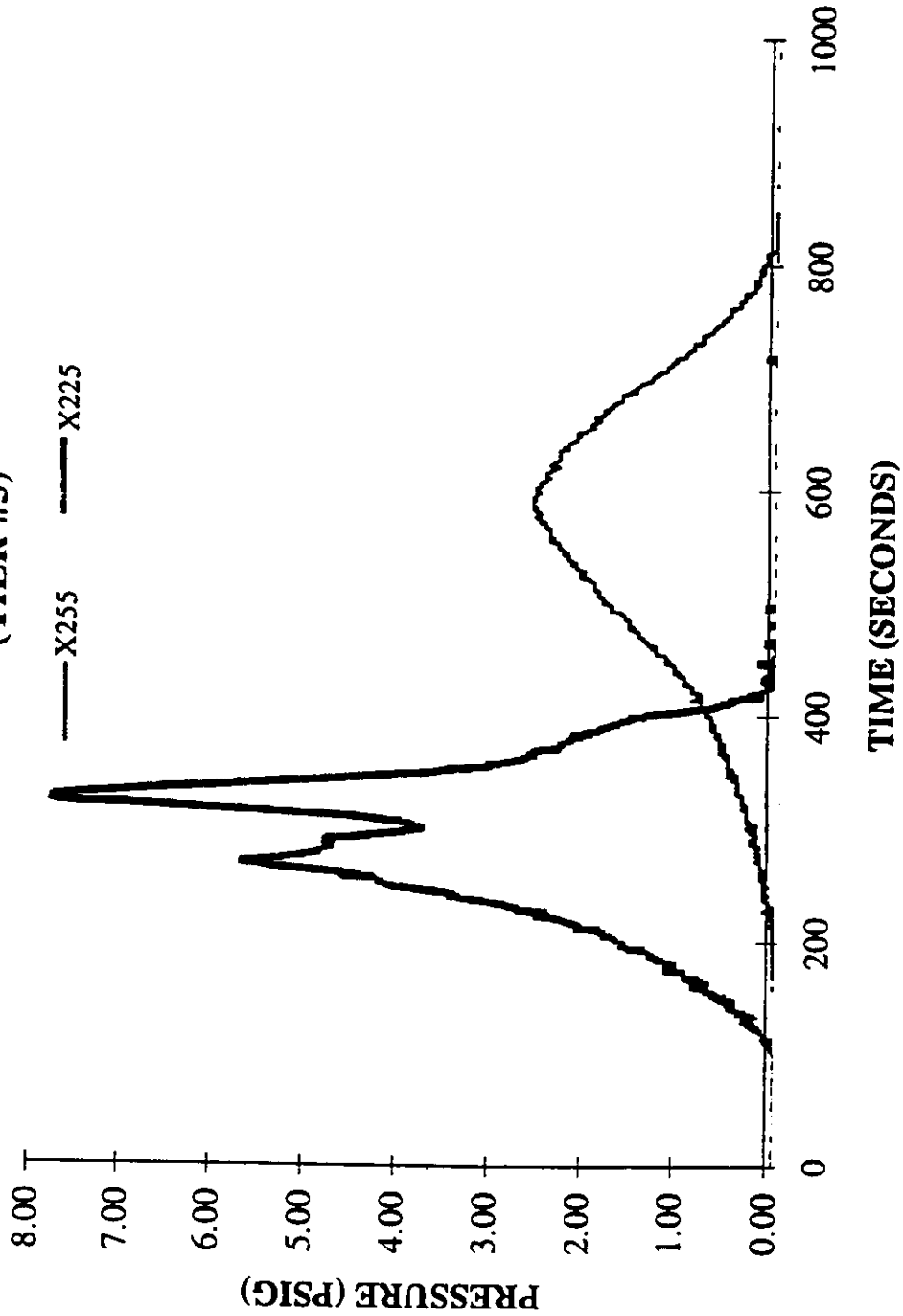
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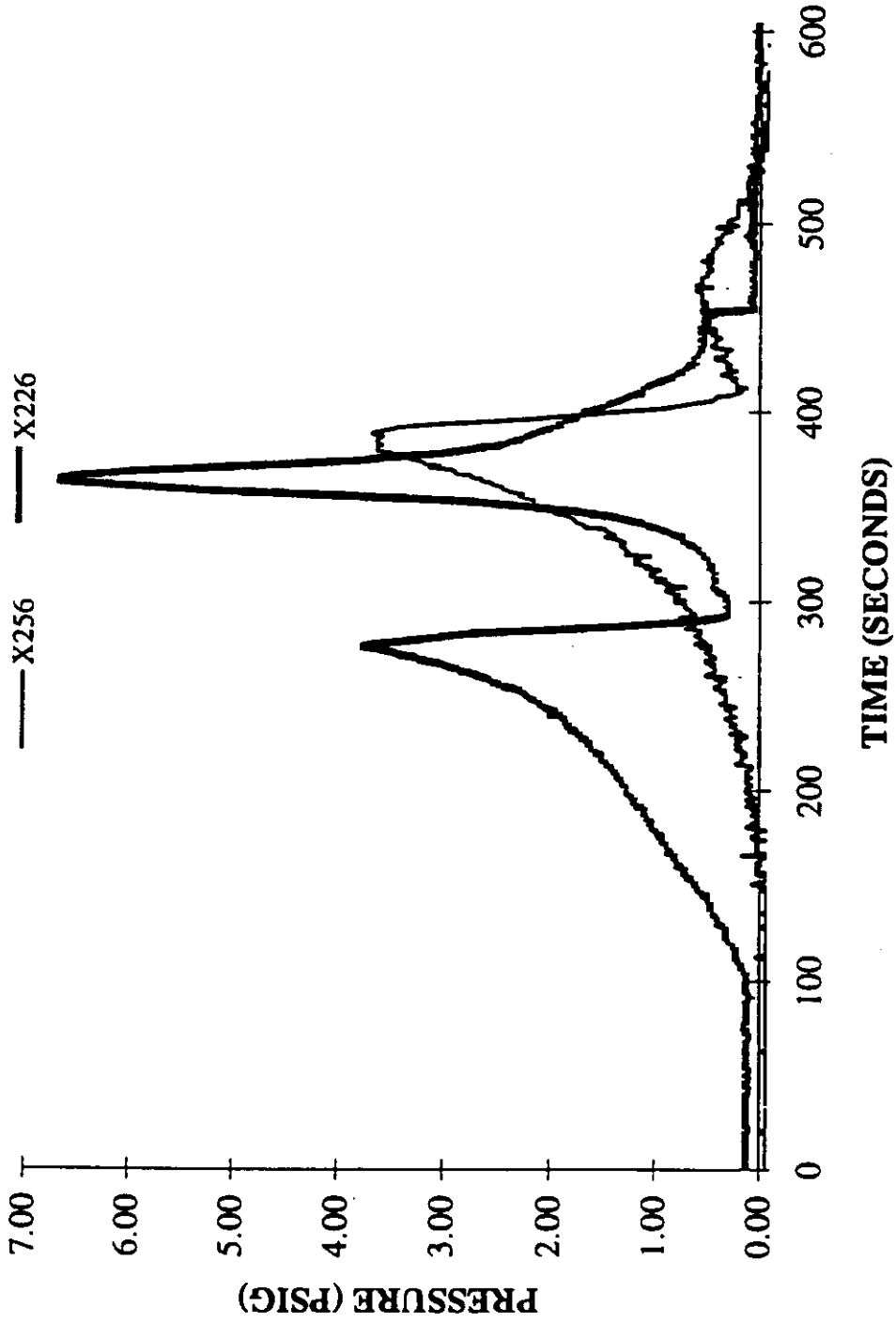
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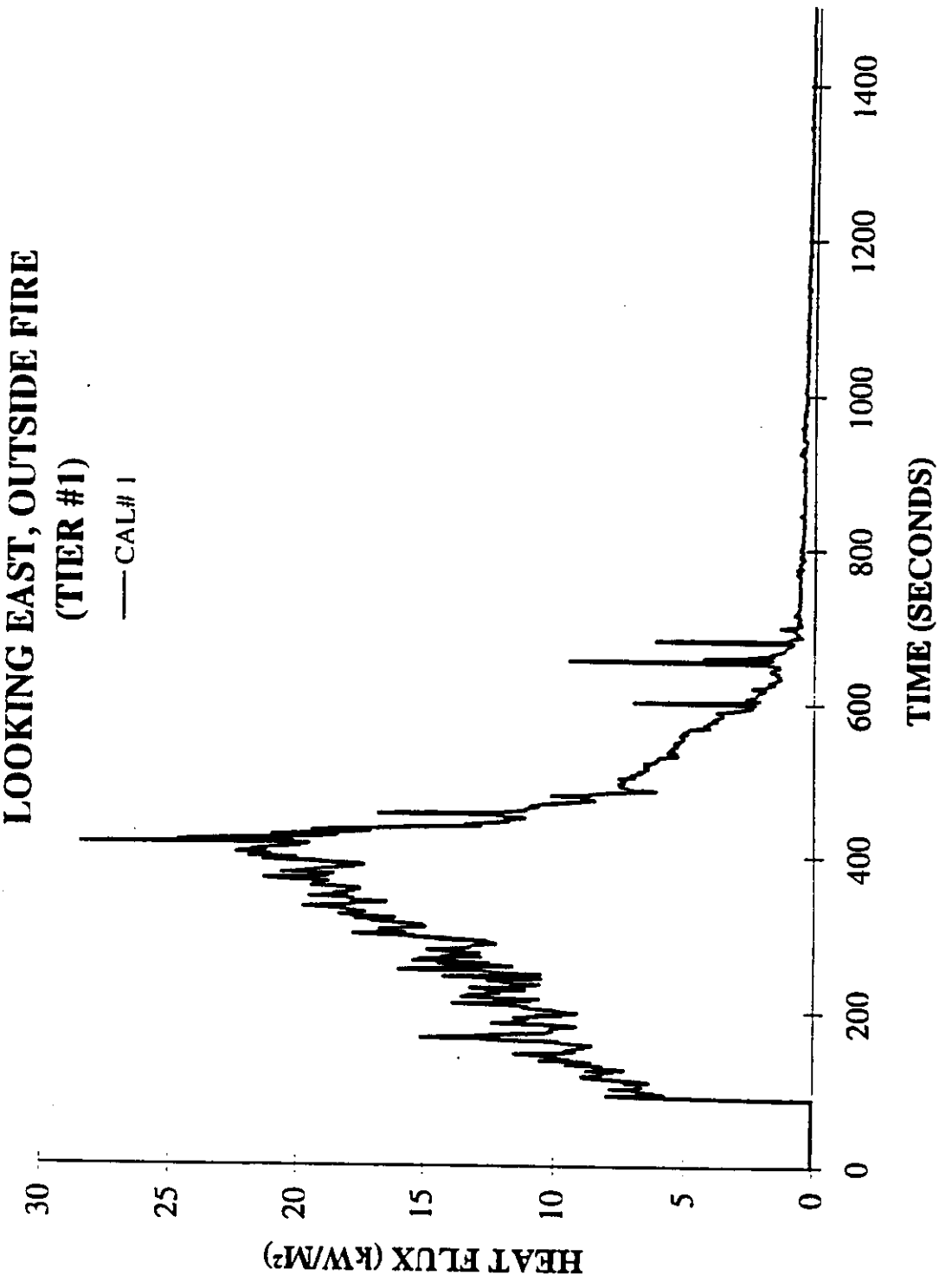
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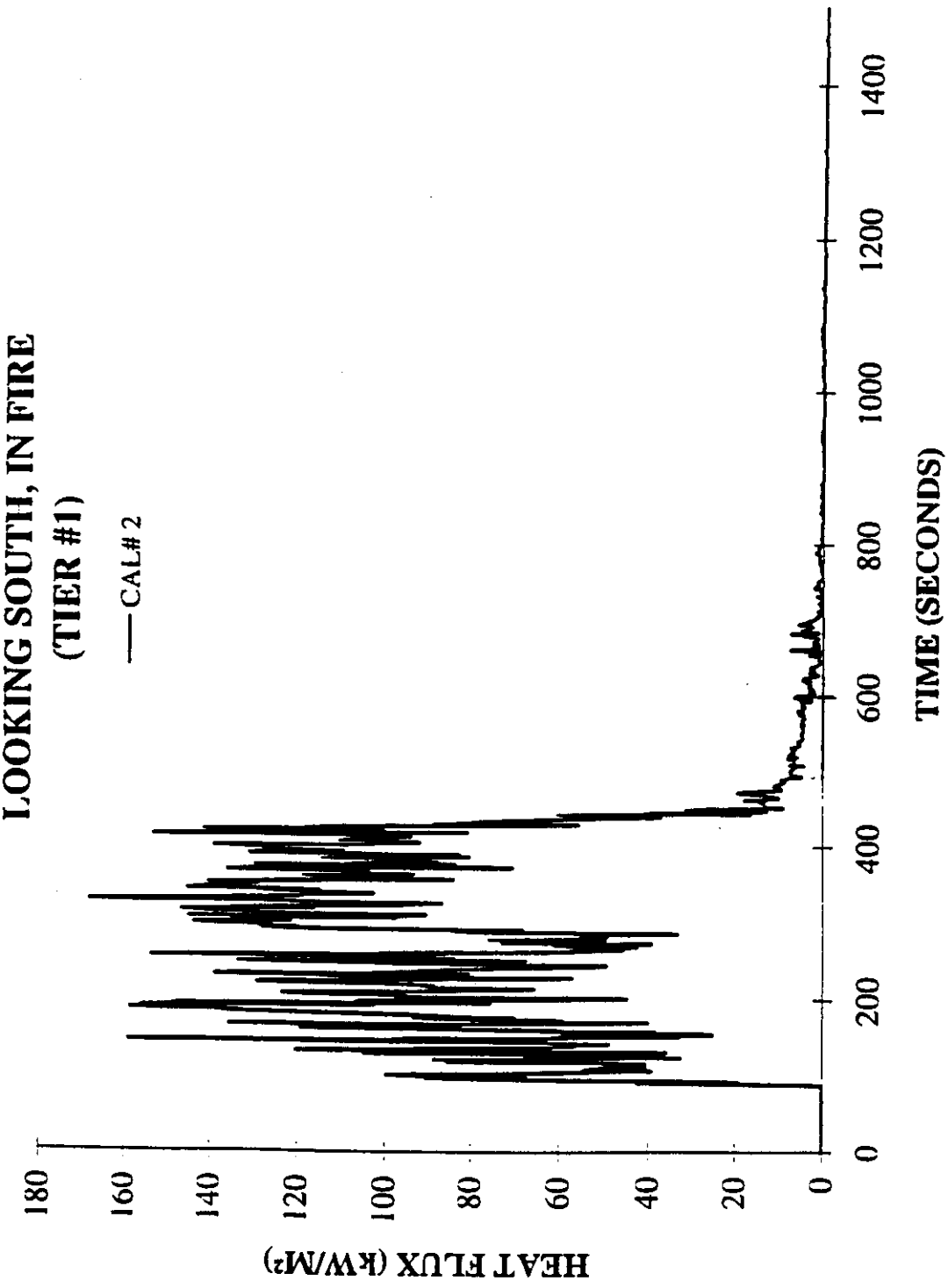
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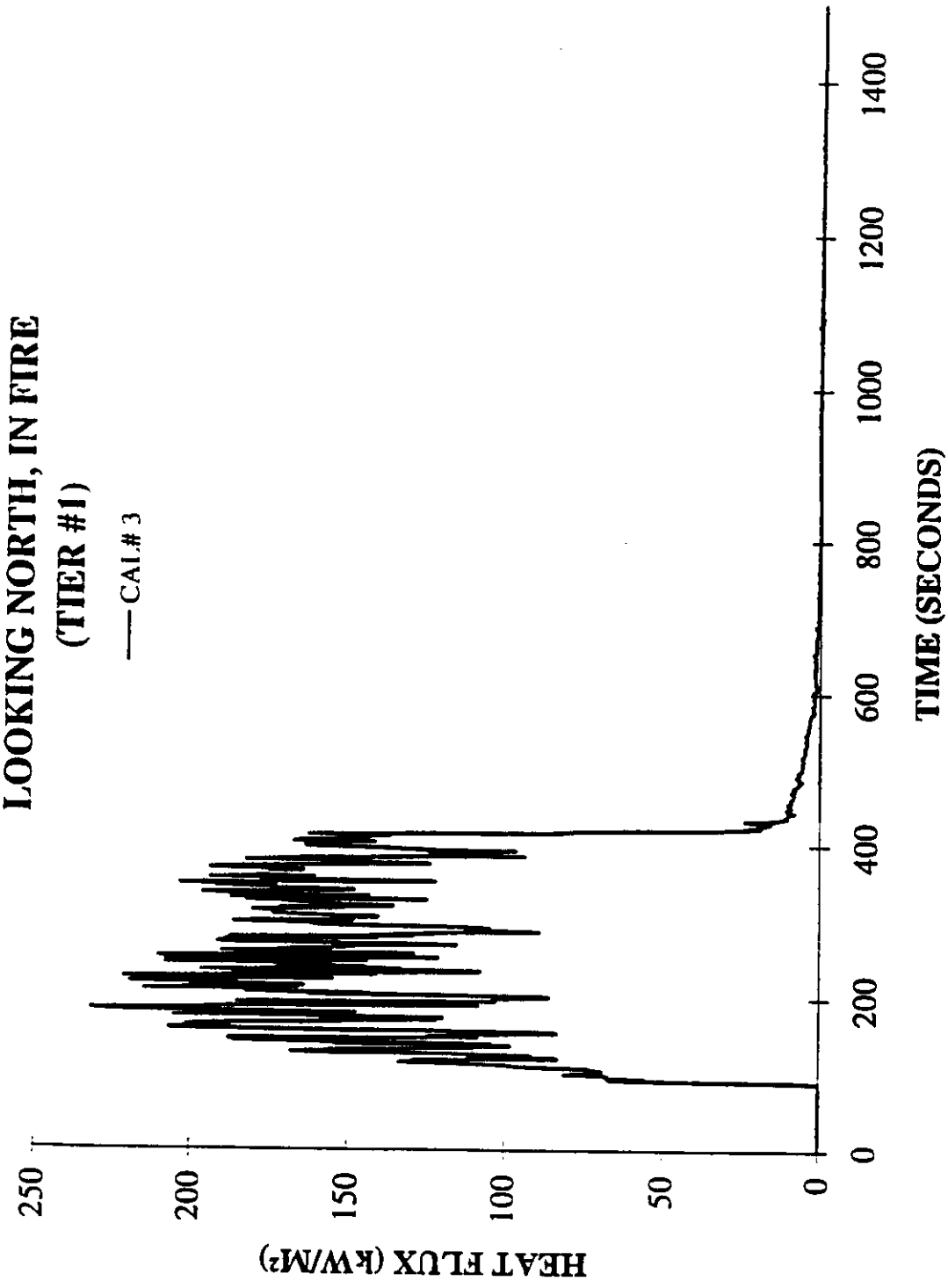
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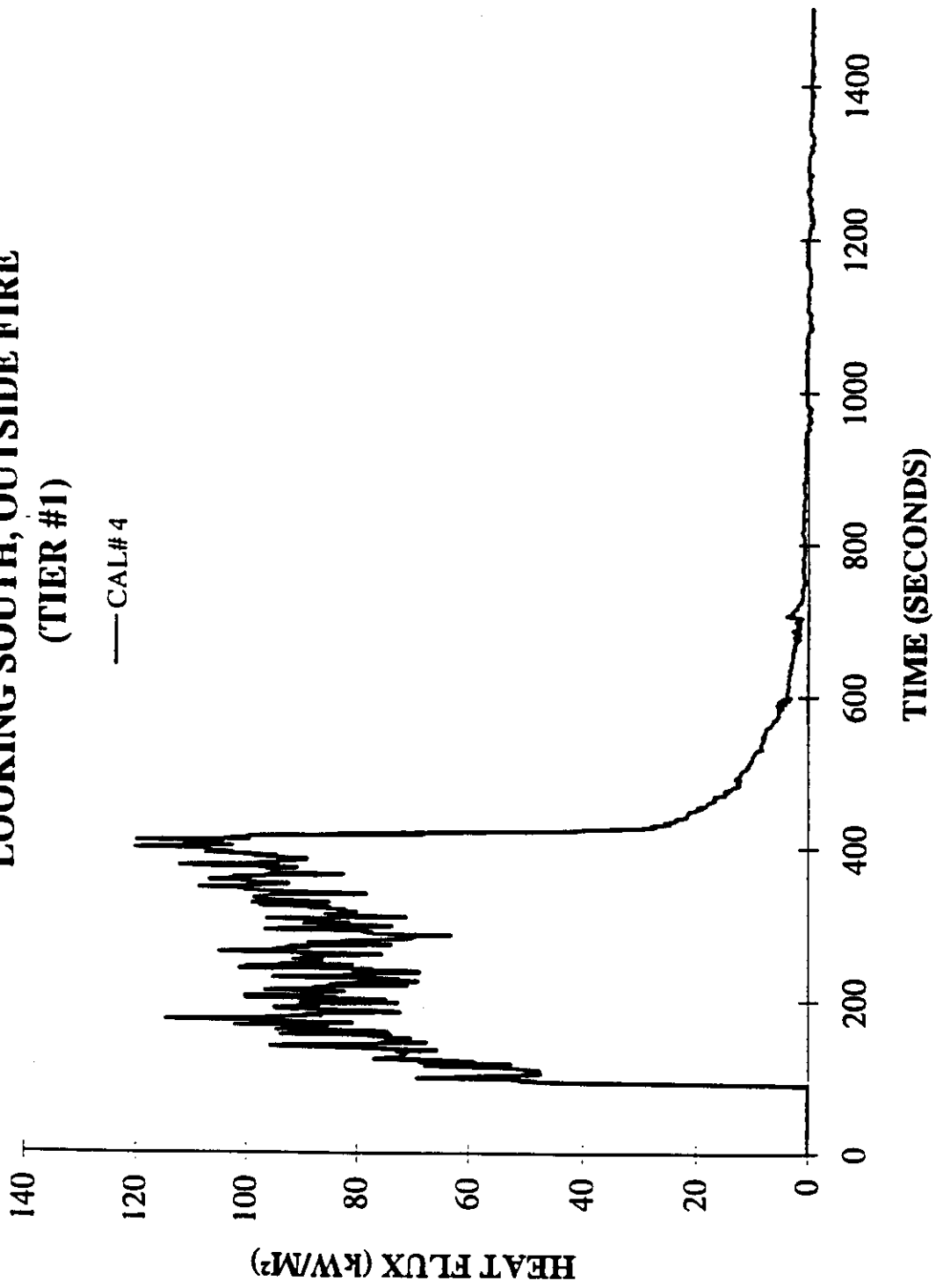
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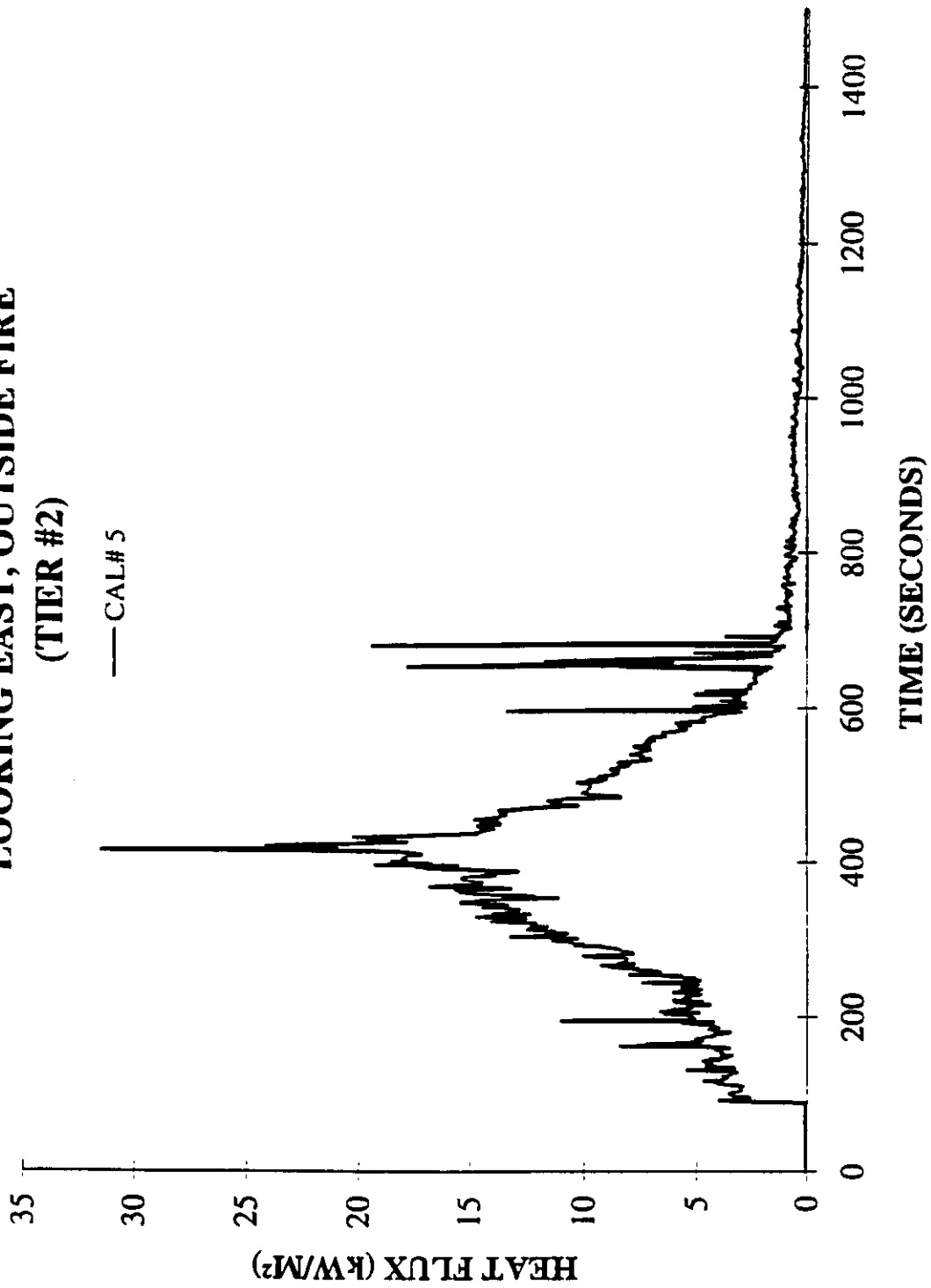
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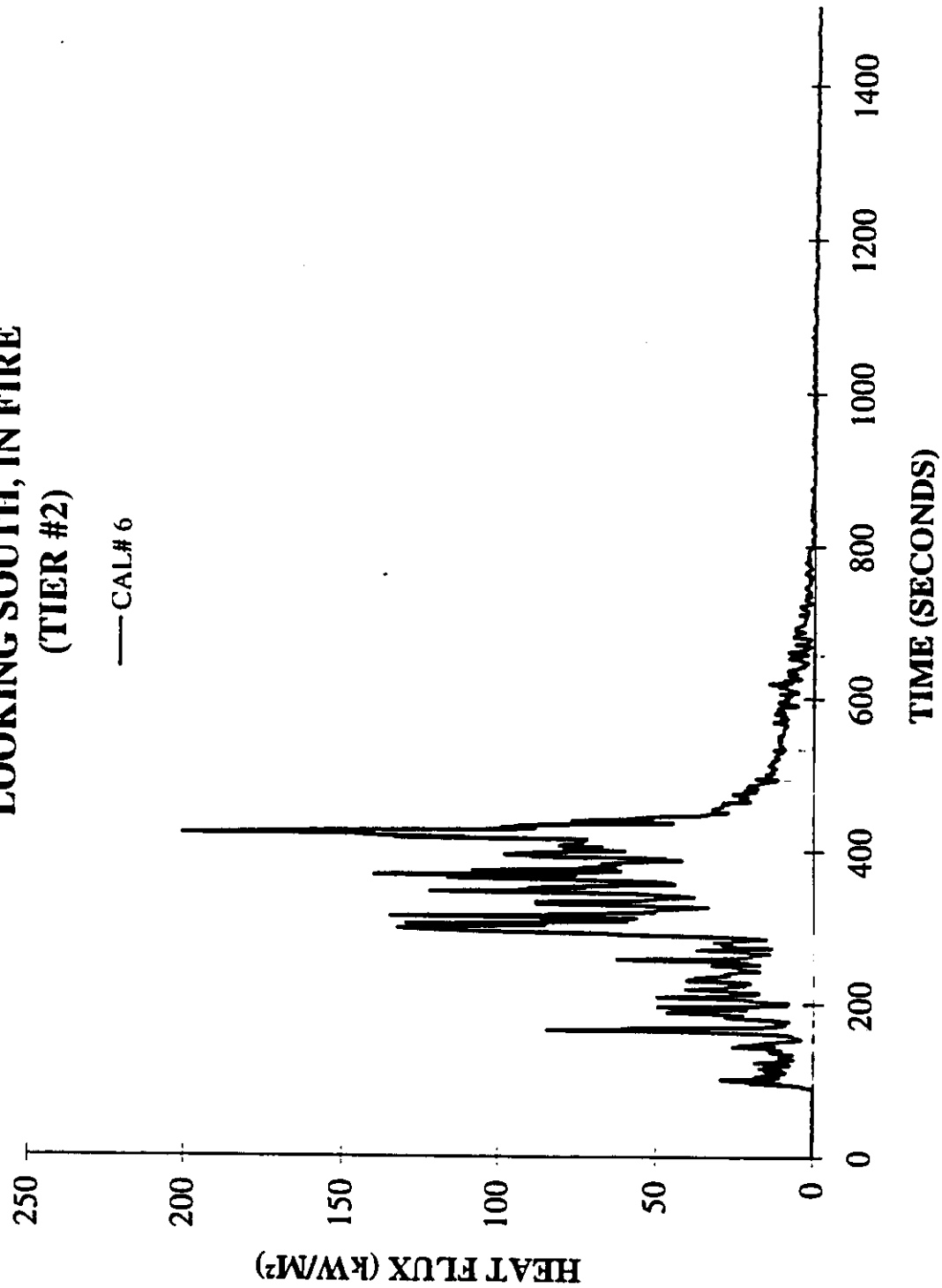
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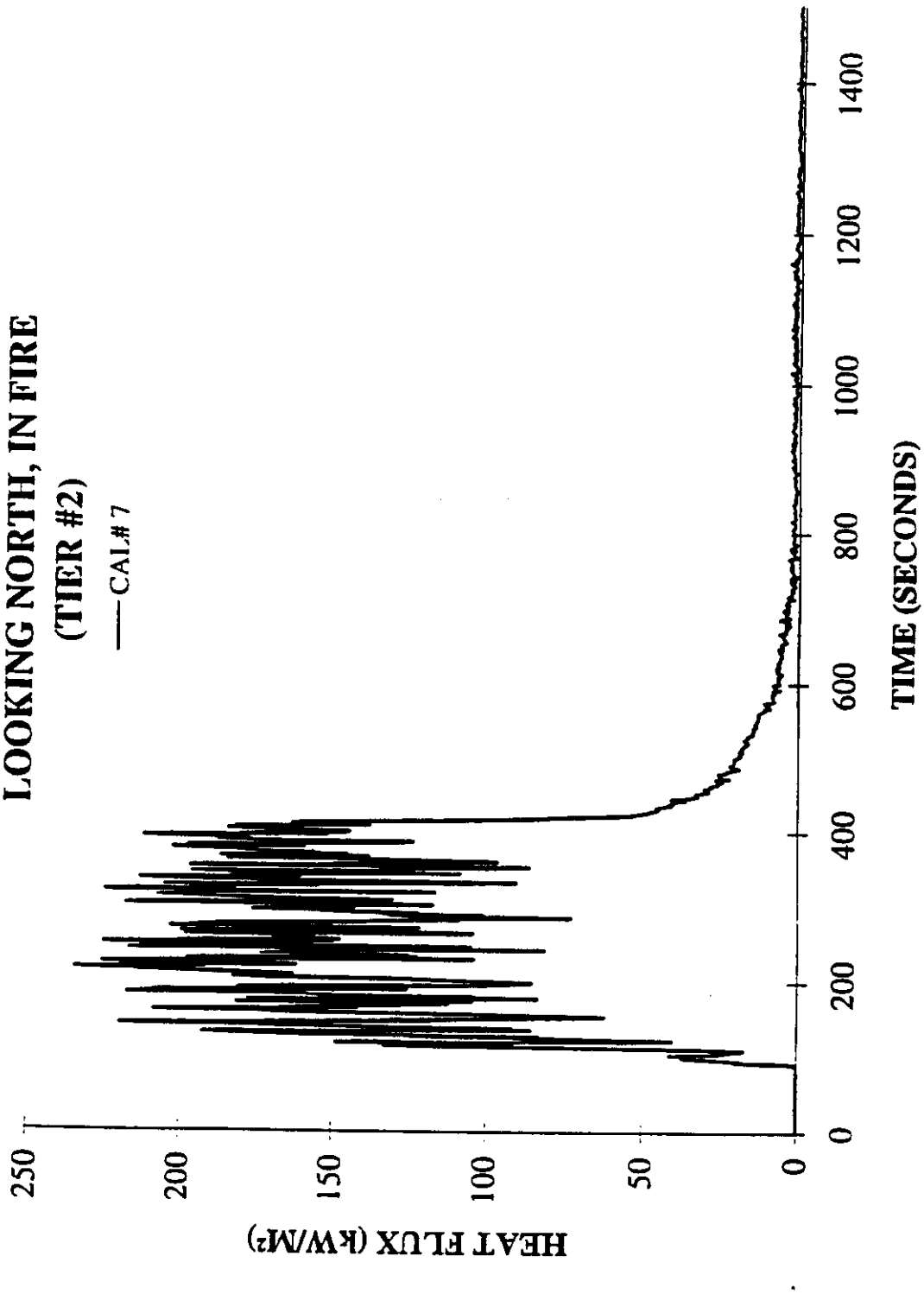
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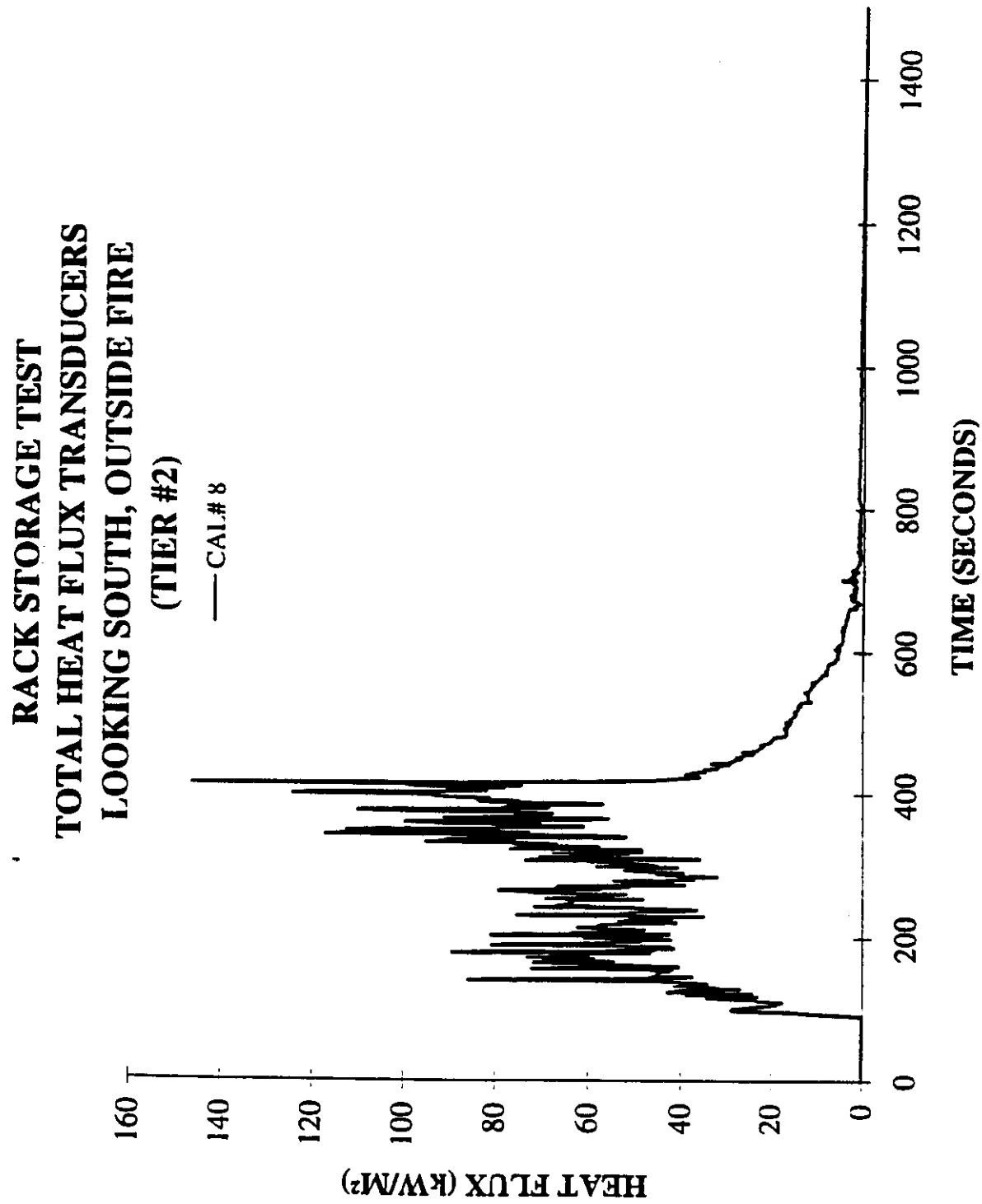
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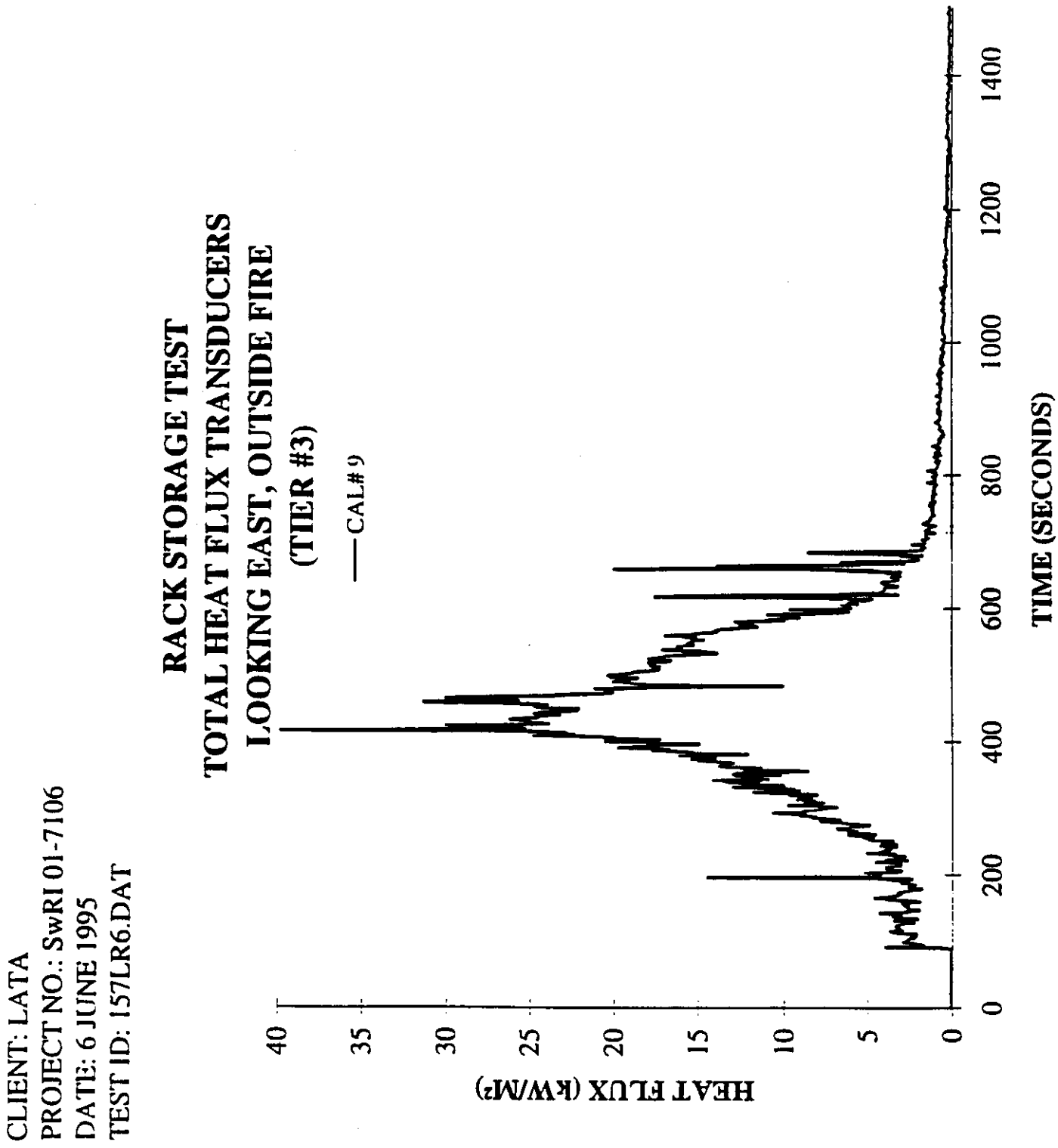


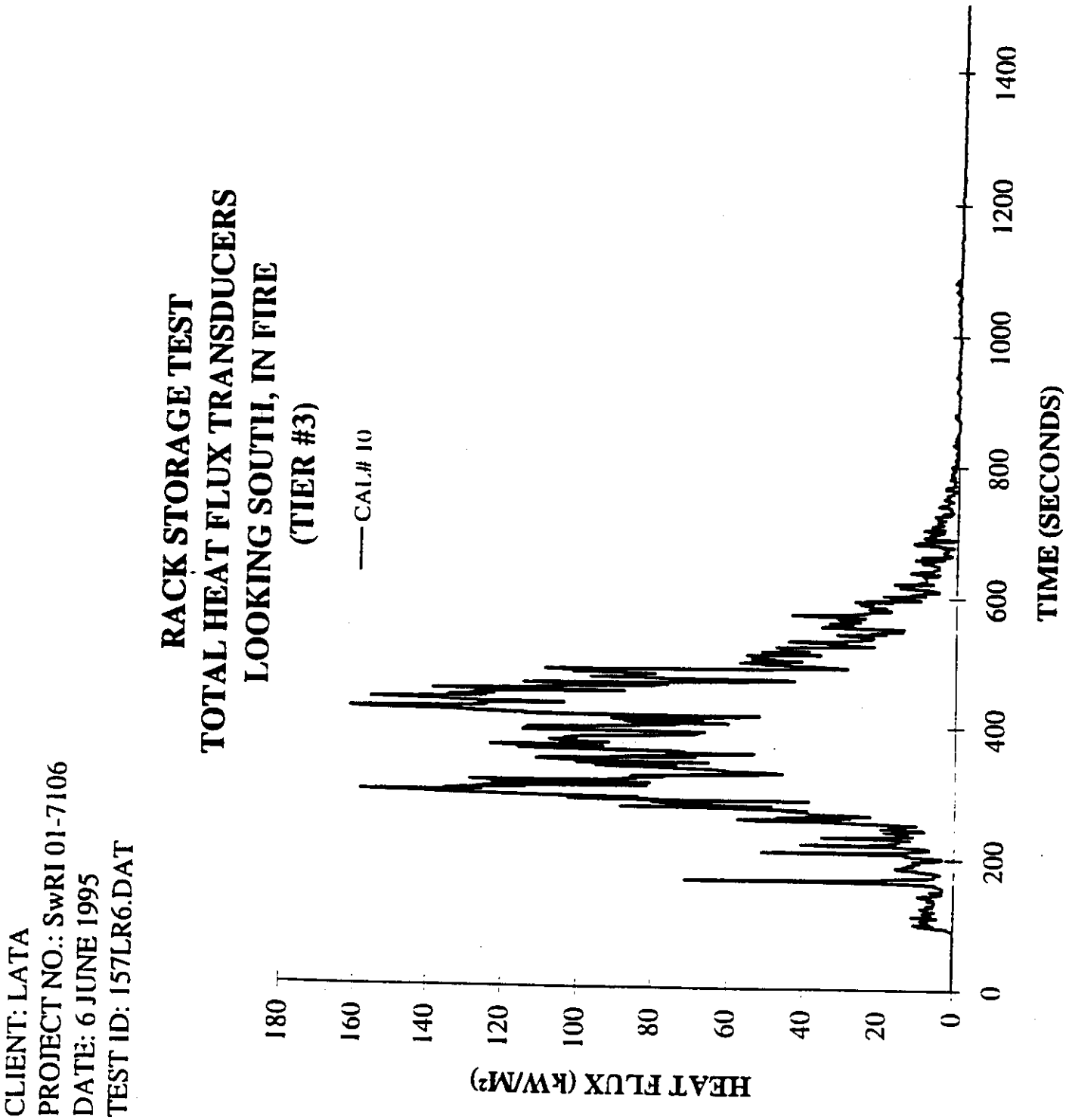
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR6.DAT



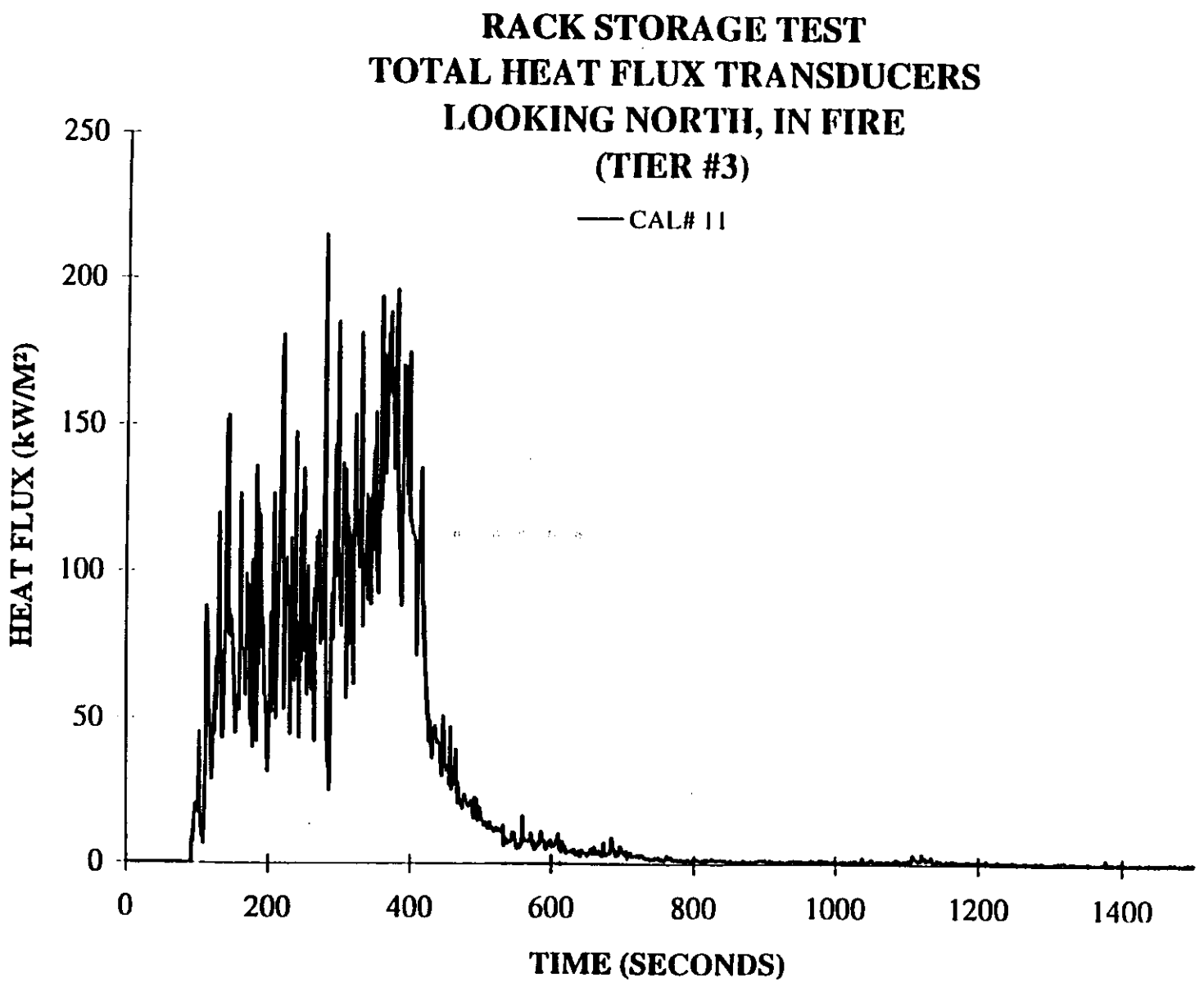
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR6.DAT



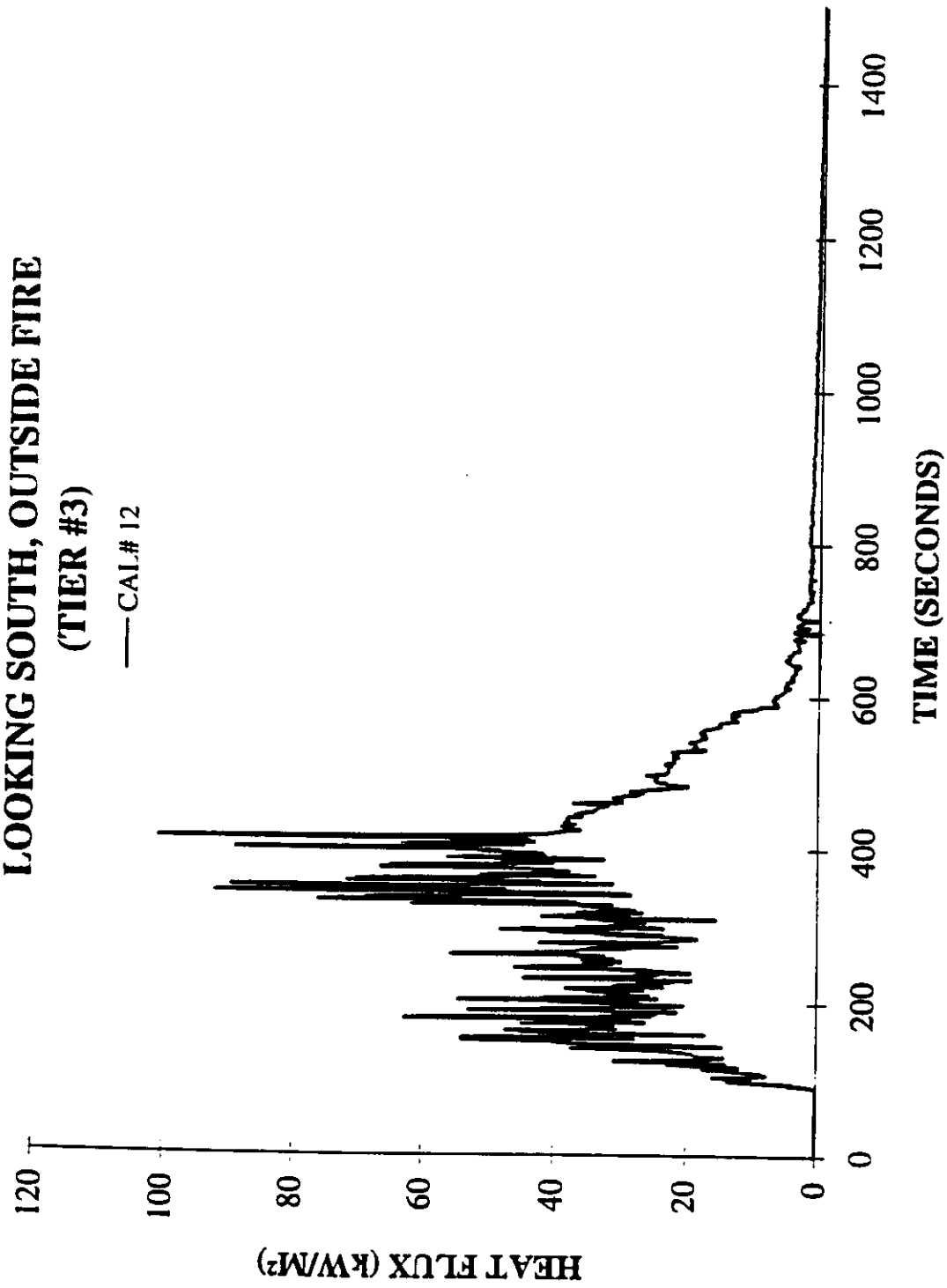

RACK STORAGE TEST
TOTAL HEAT FLUX TRANSDUCERS
LOOKING EAST, OUTSIDE FIRE
(TIER #3)
CAL# 9
HEAT FLUX (kW/M²)
TIME (SECONDS)
0
5
10
15
20
25
30
35
40
0
200
400
600
800
1000
1200
1400
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR6.DAT


CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR6.DAT
RACK STORAGE TEST
TOTAL HEAT FLUX TRANSDUCERS
LOOKING SOUTH, IN FIRE
(TIER #3)
CAL# 10
HEAT FLUX (kW/M²)
0
20
40
60
80
100
120
140
160
180
0
200
400
600
800
1000
1200
1400
TIME (SECONDS)

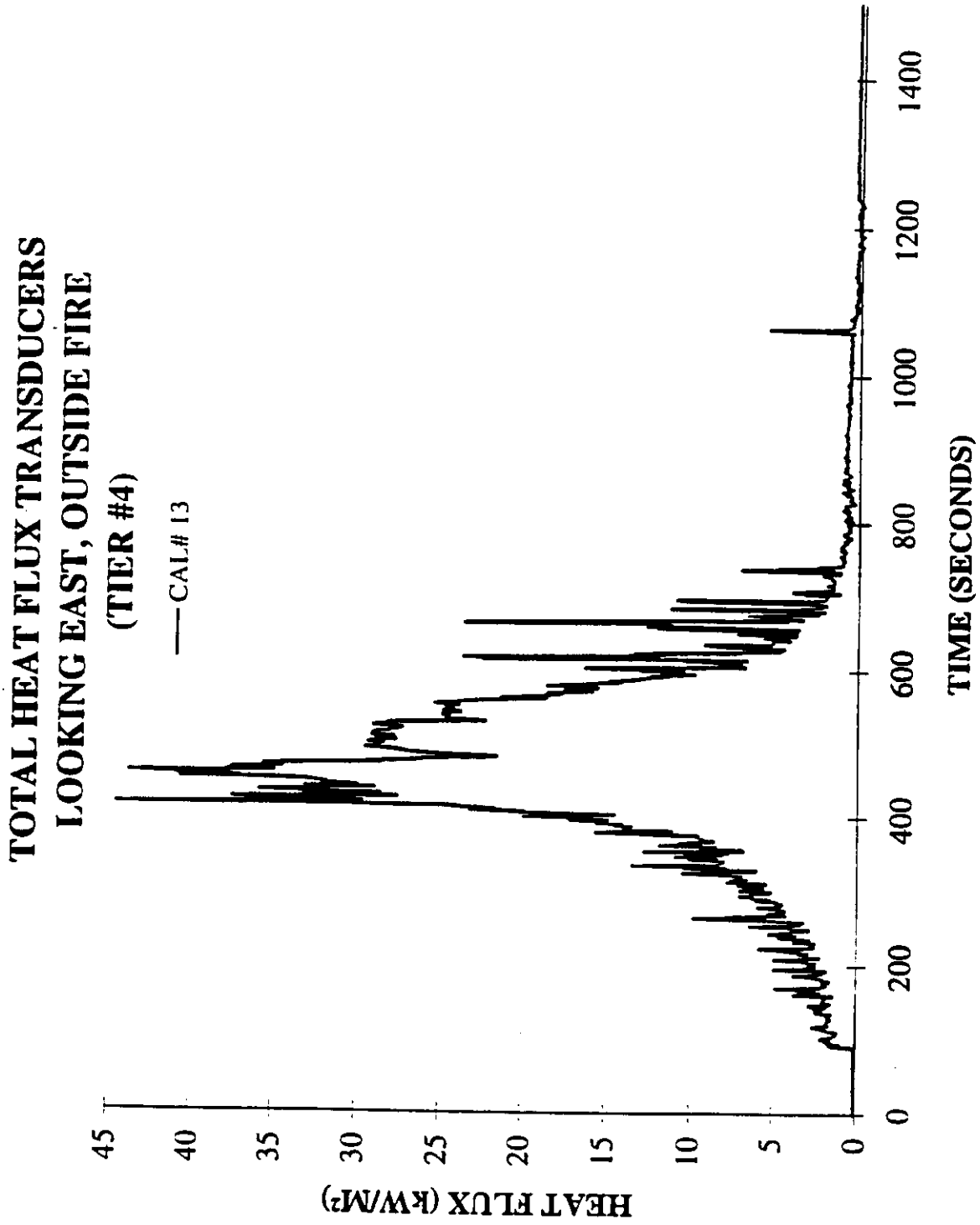
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR6.DAT



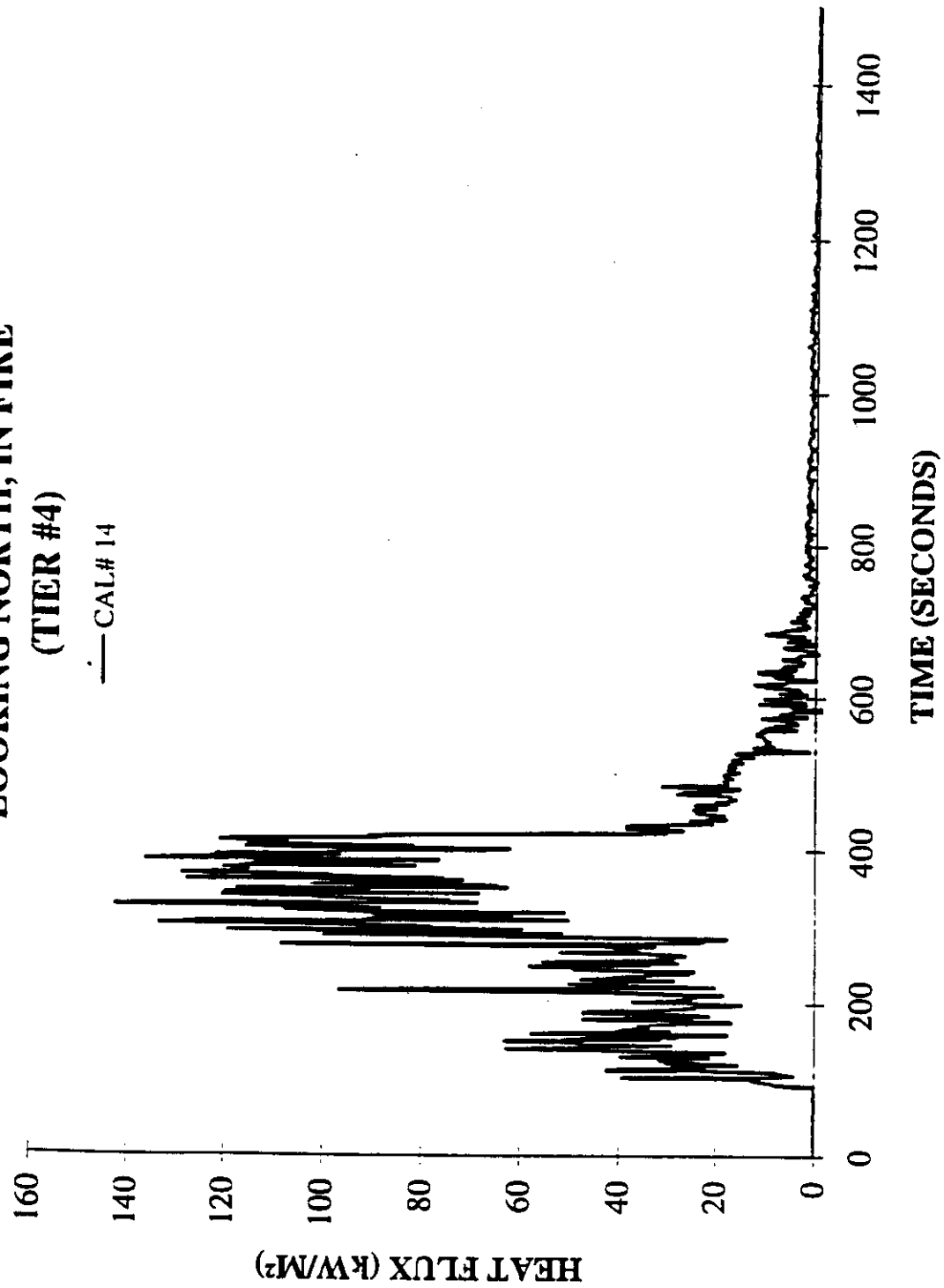
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR6.DAT



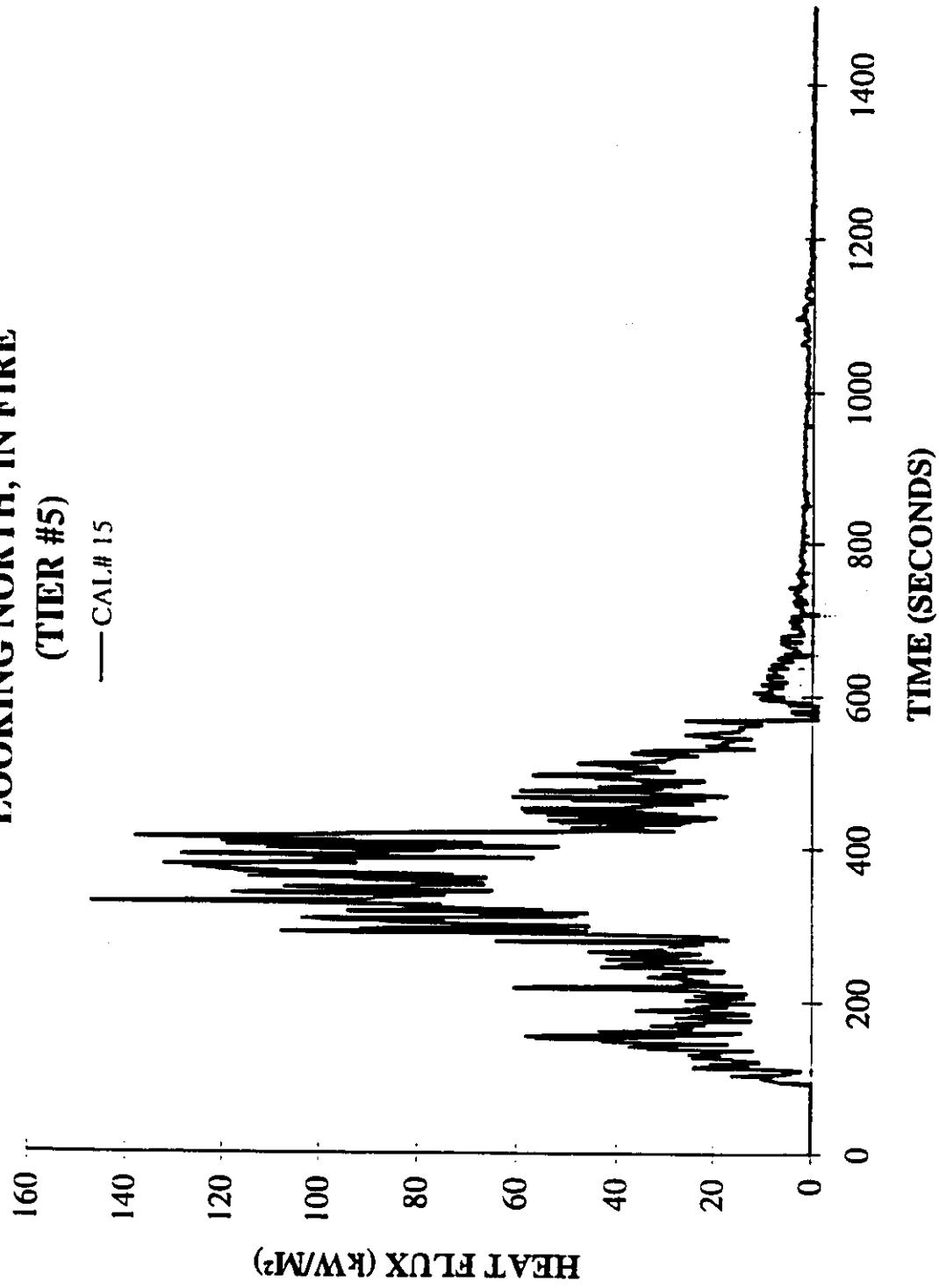
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR6.DAT



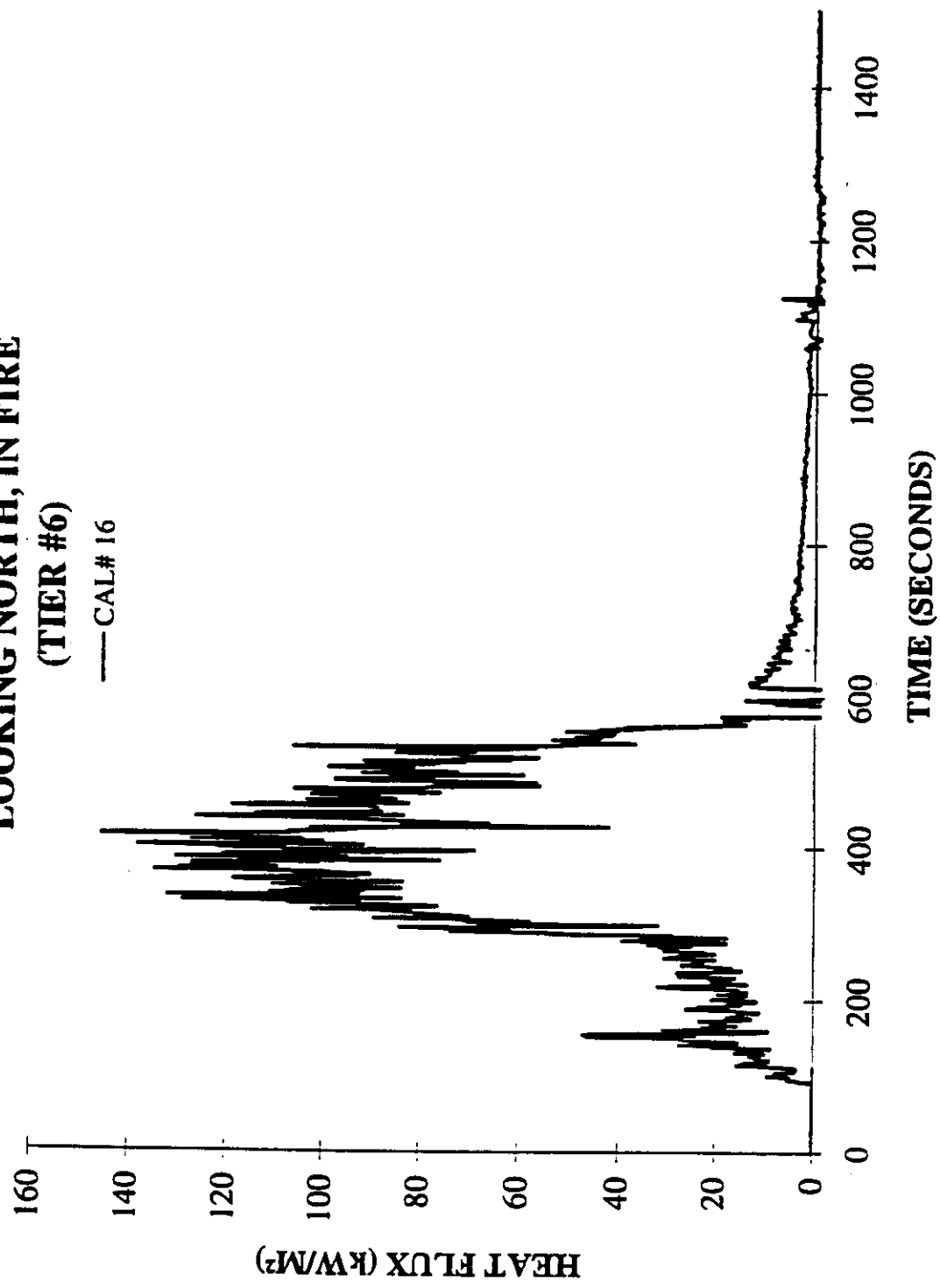
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR6.DAT



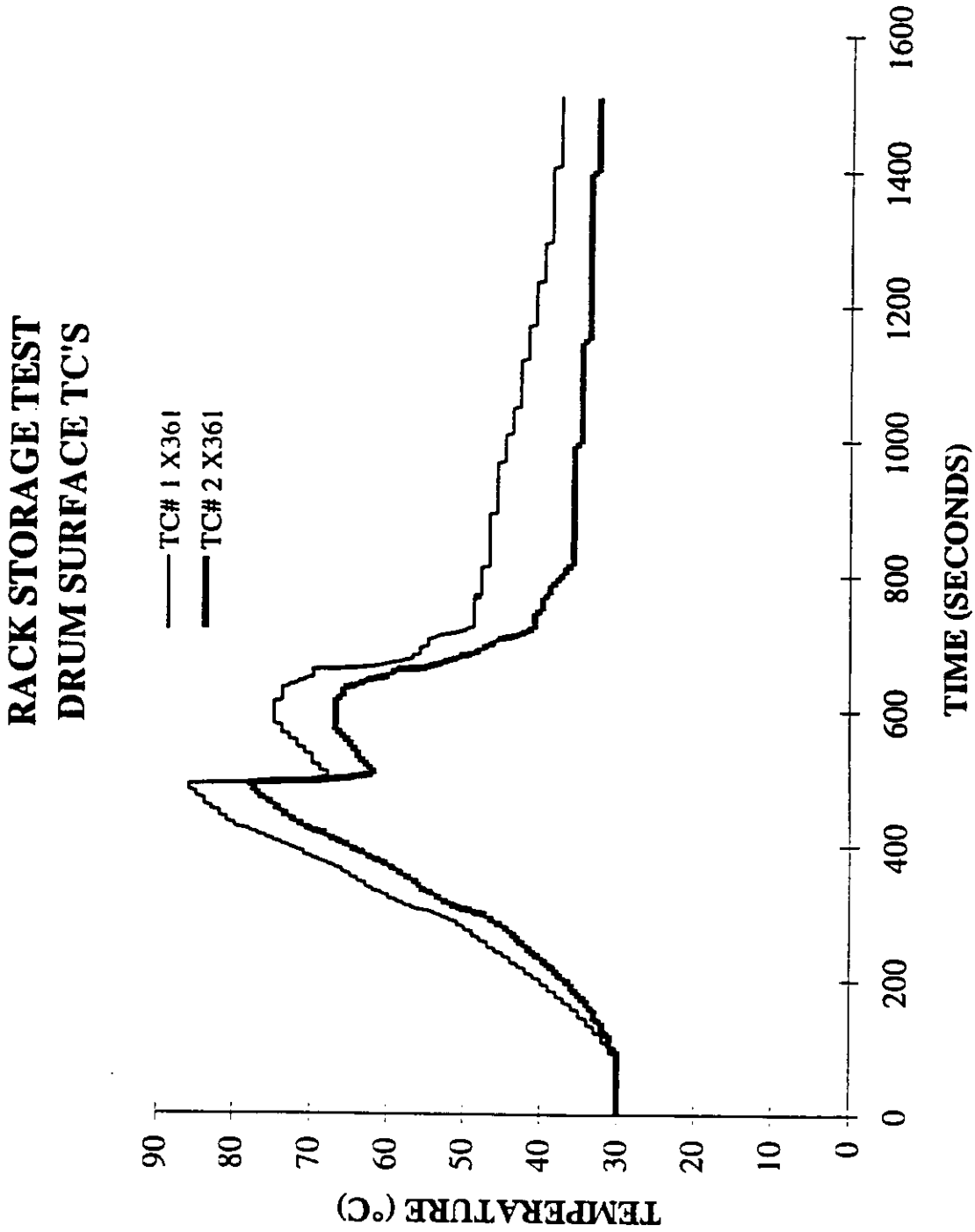
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DATE: 6 JUNE 1995
TEST ID: 157LR6.DAT



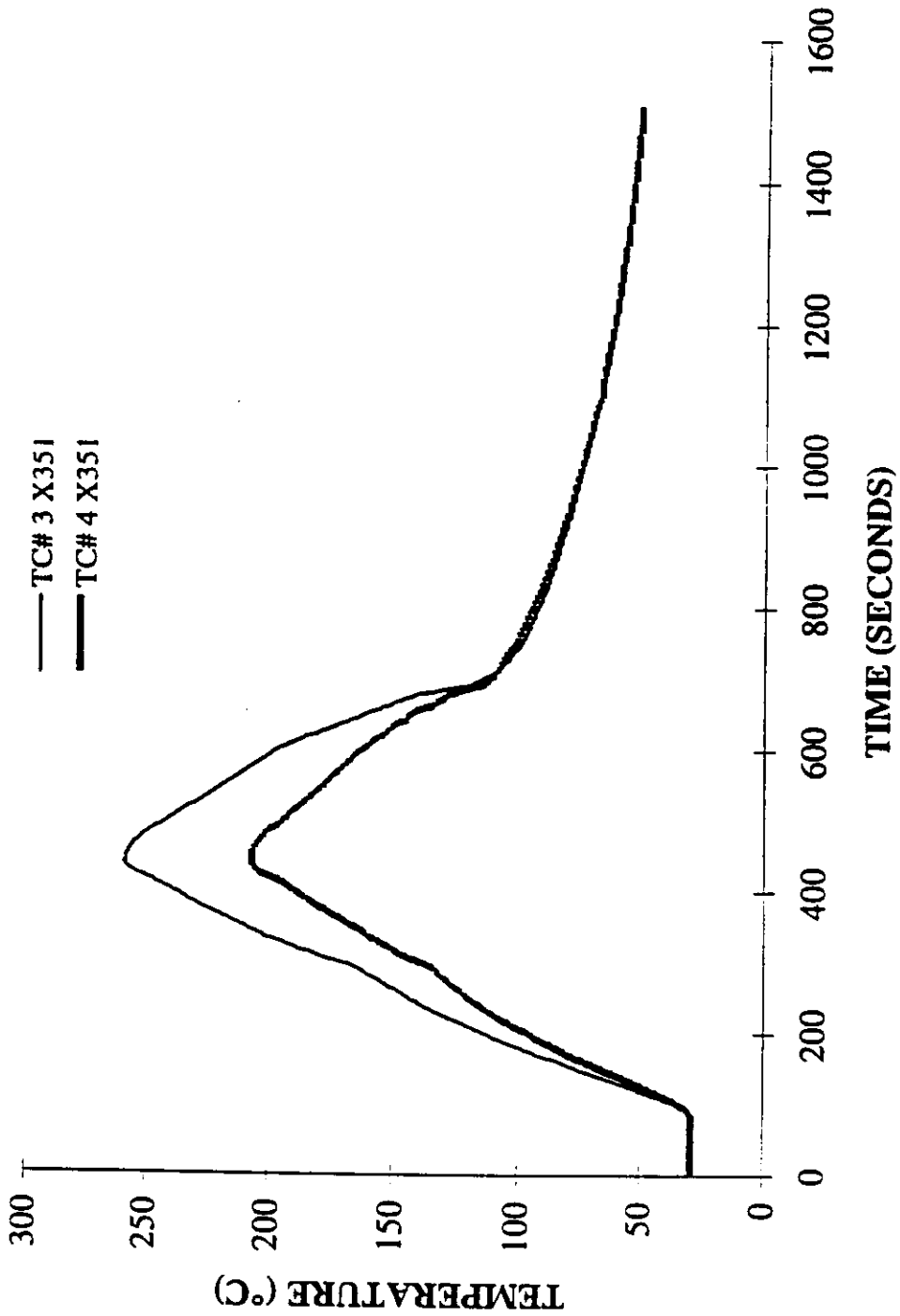
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DATE: 6 JUNE 1995
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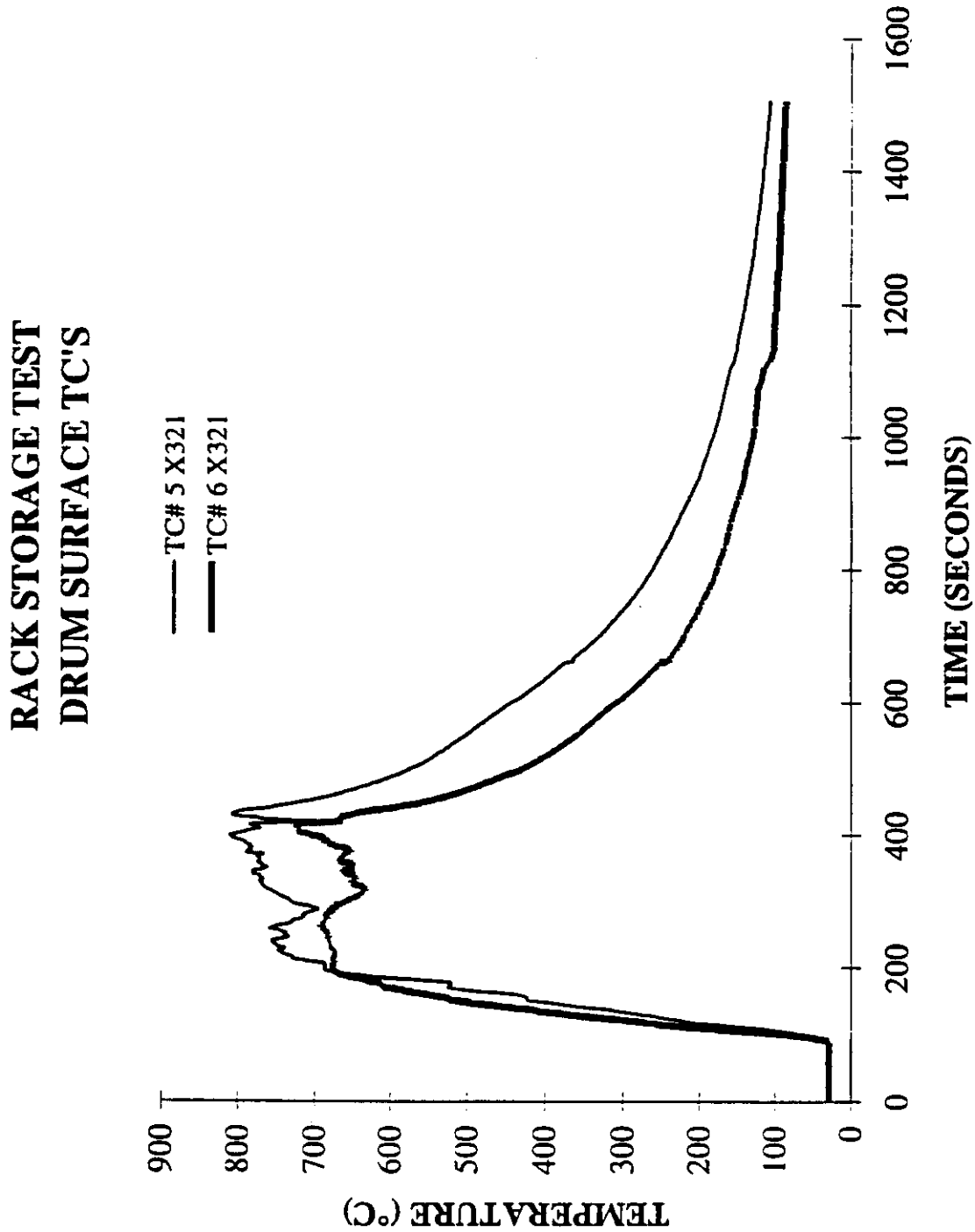
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR3.DAT



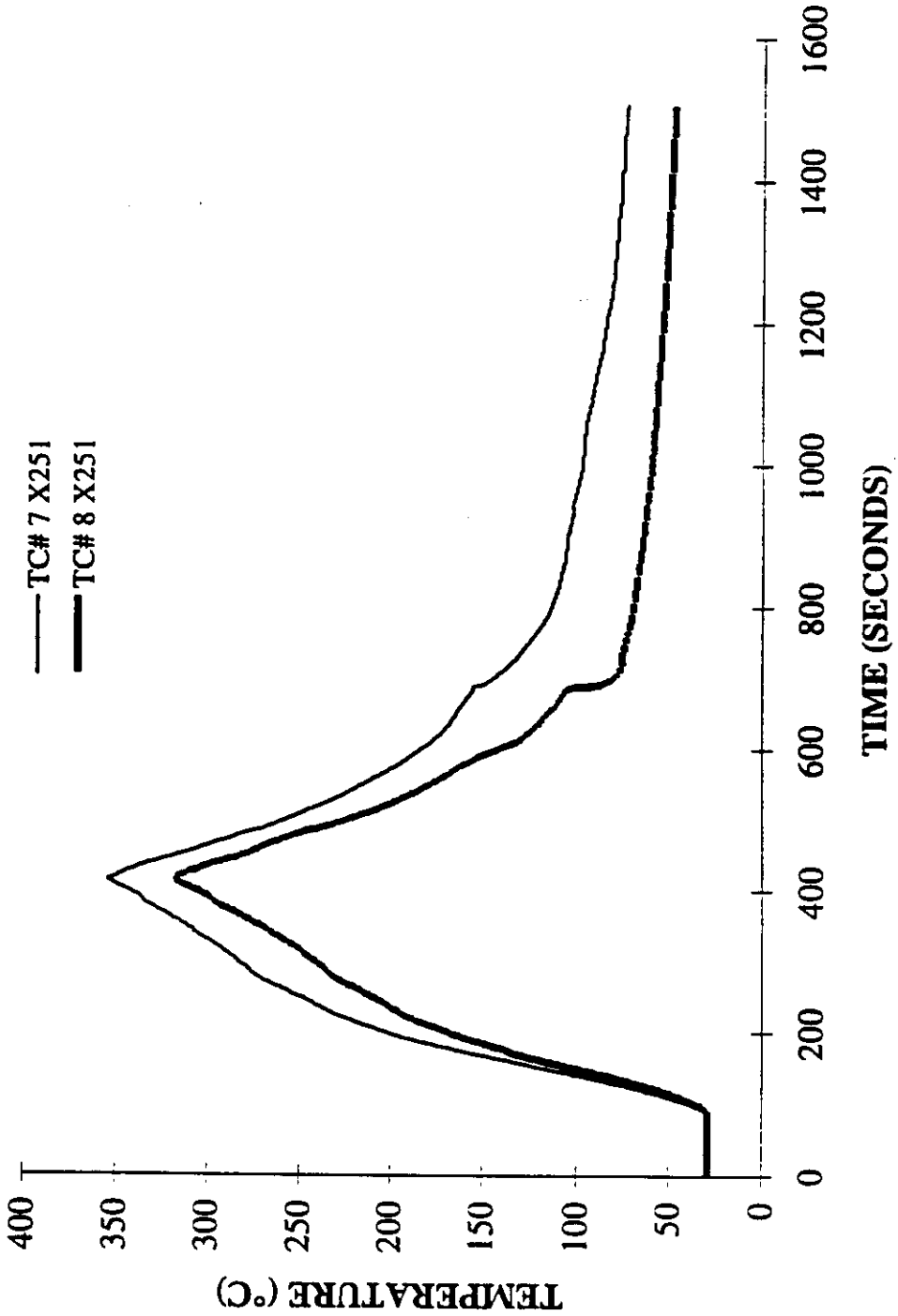
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DATE: 6 JUNE 1995
TEST ID: 157LR3.DAT



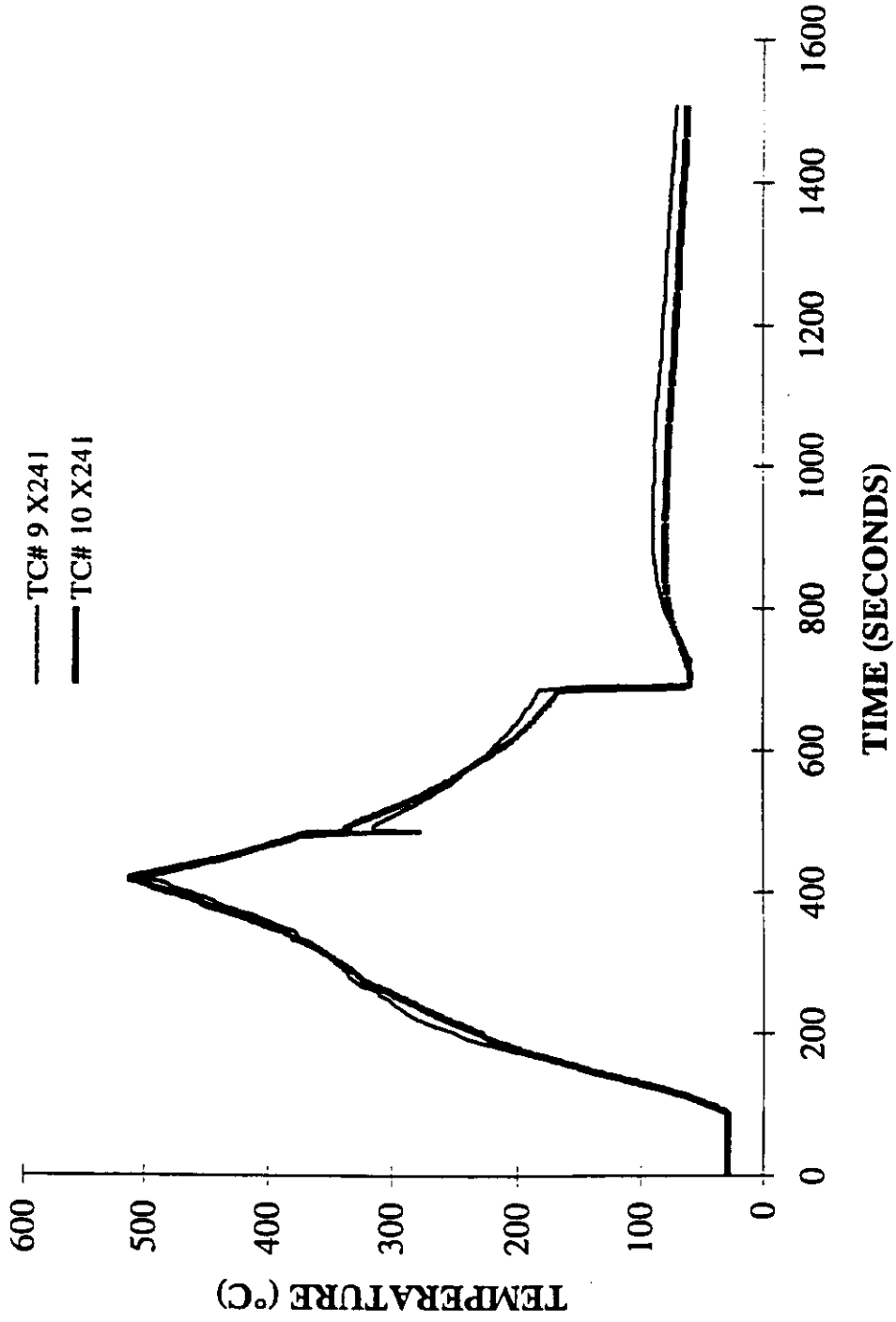
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR1.DAT



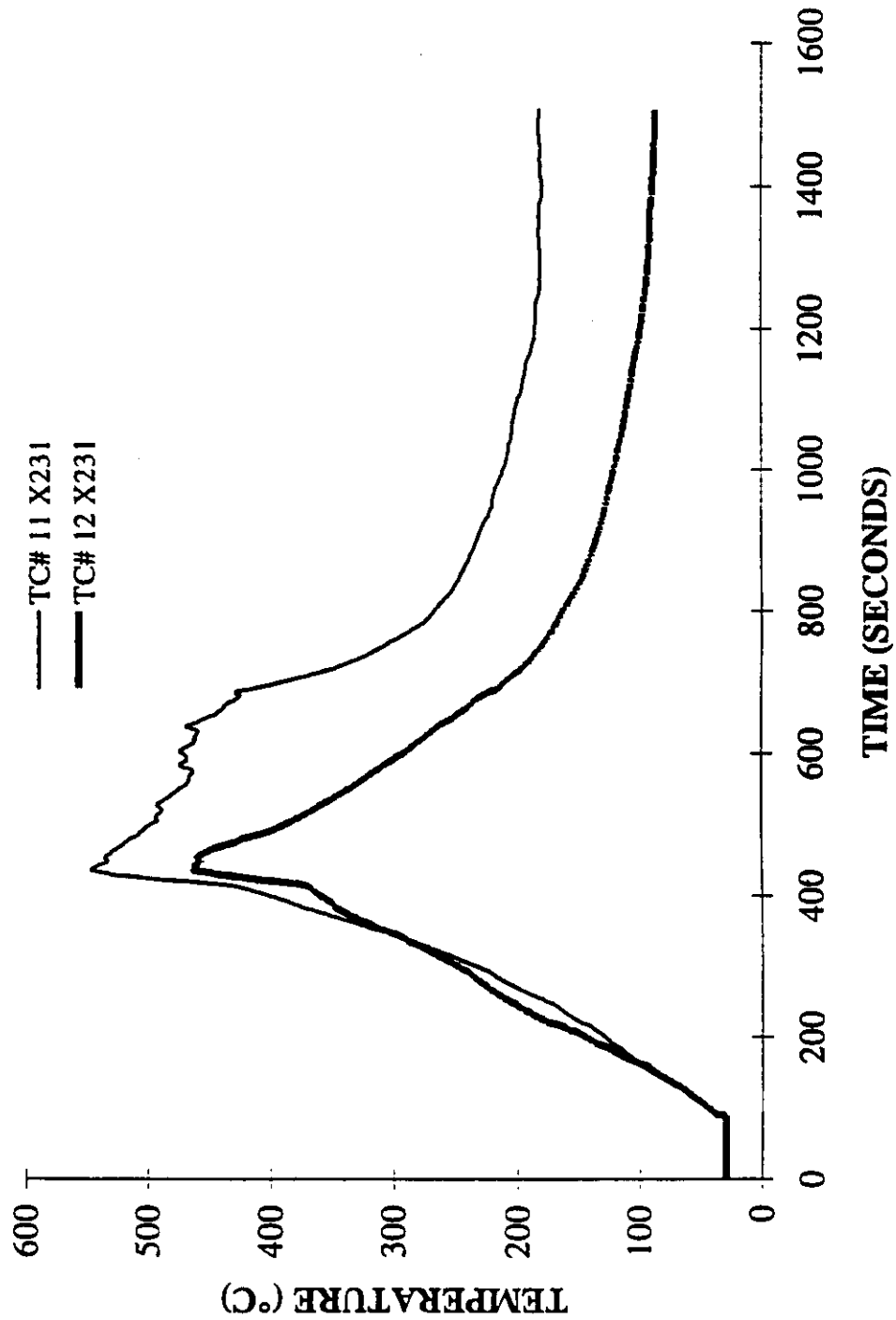
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR1.DAT



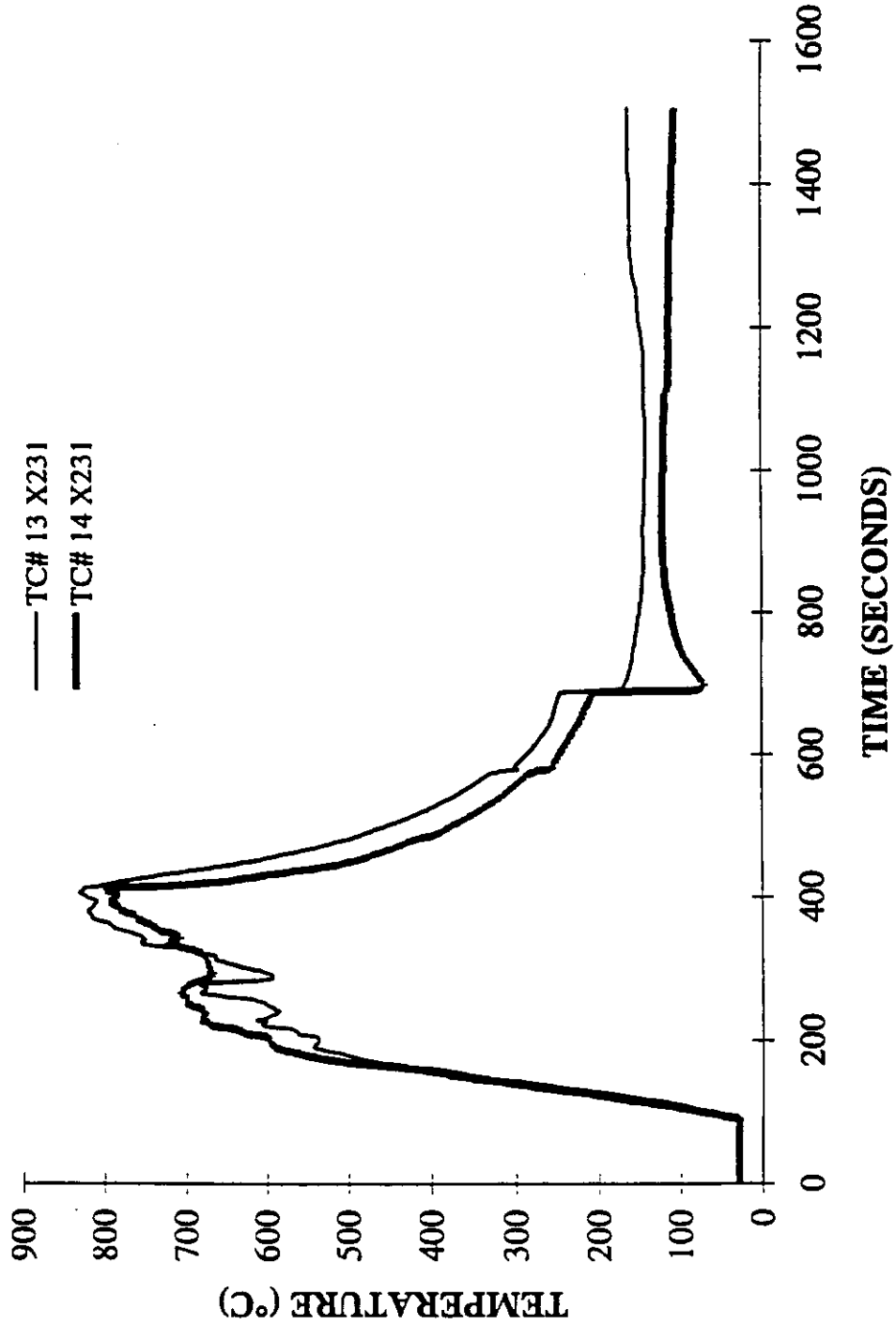
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DATE: 6 JUNE 1995
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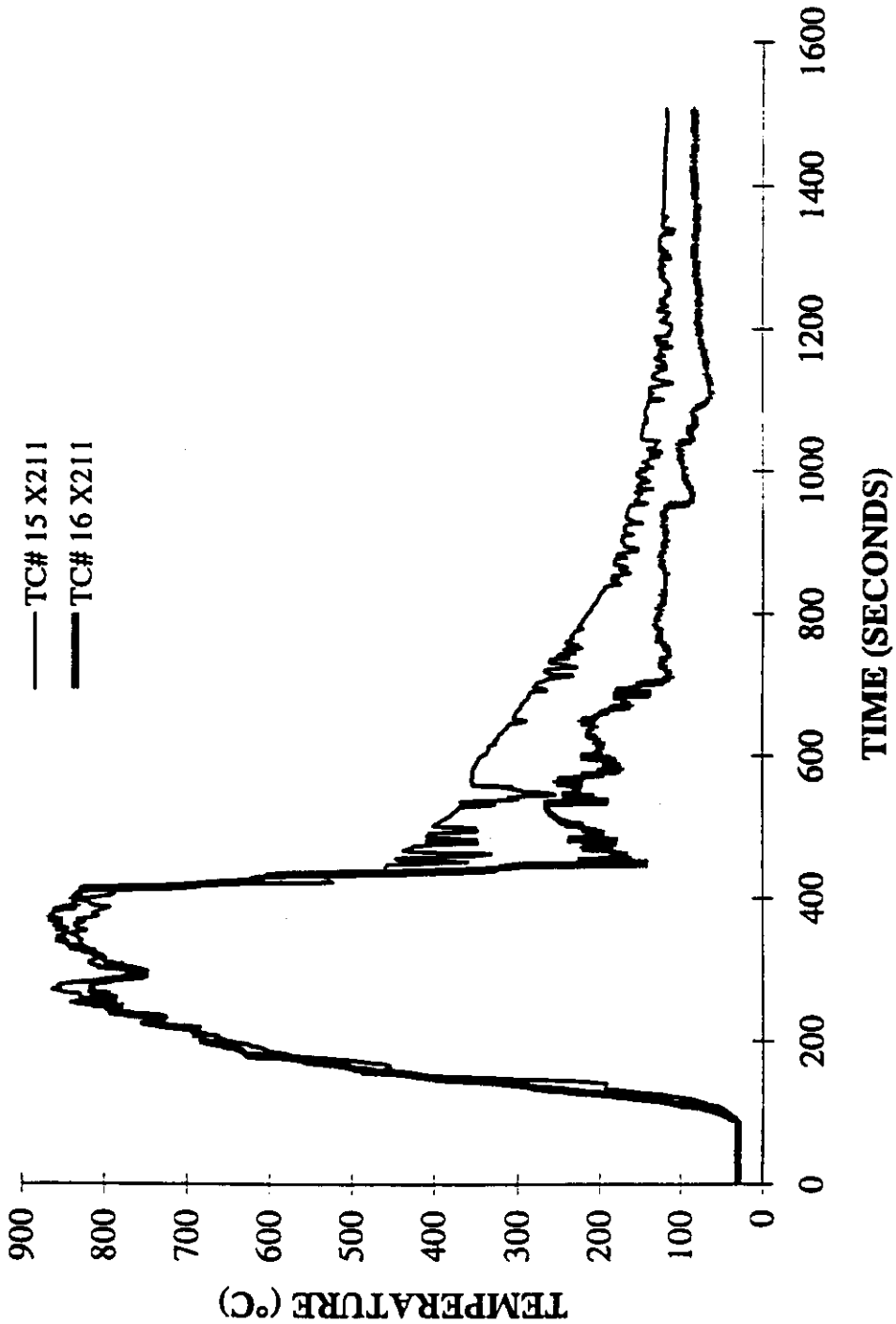
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR3.DAT



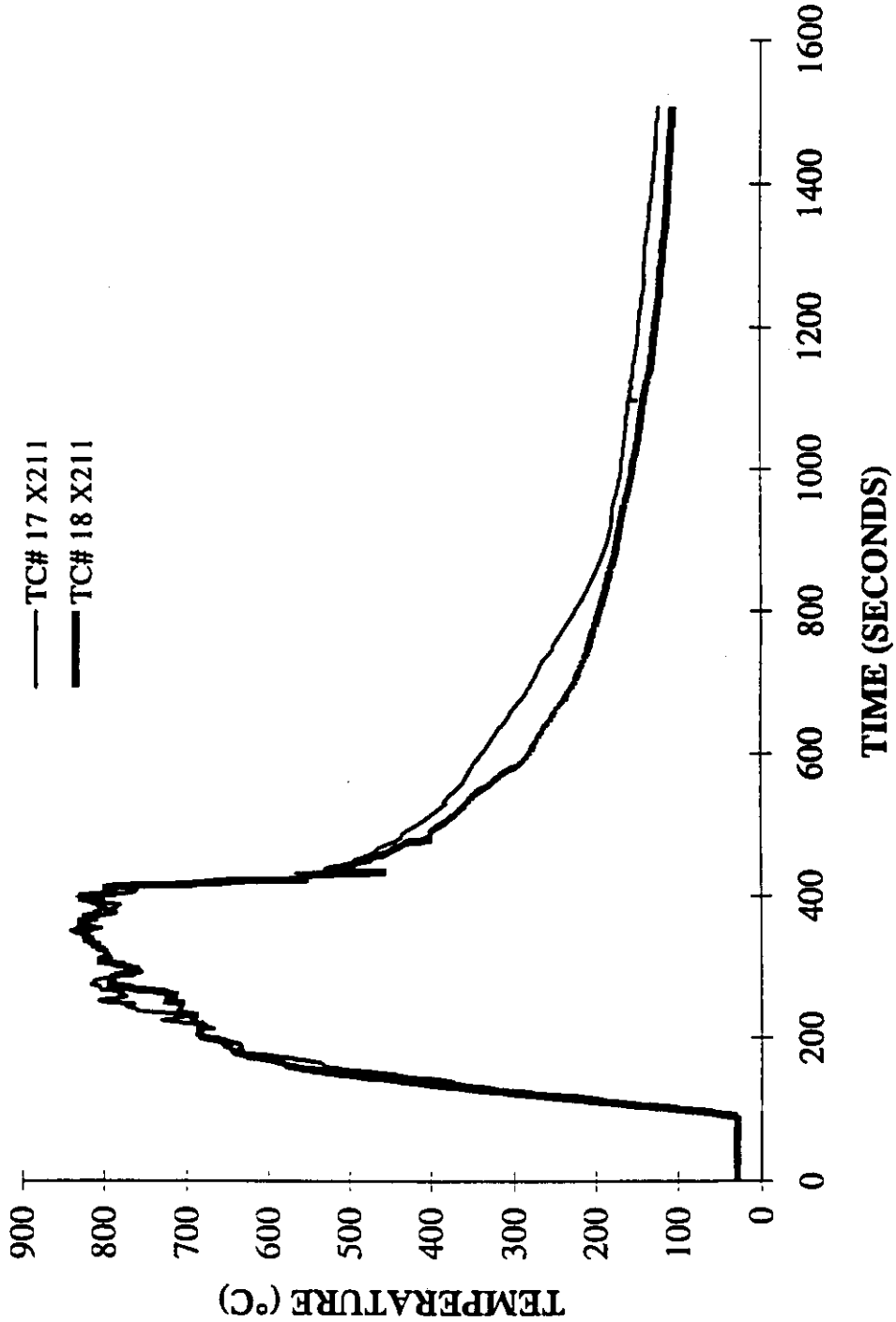
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DATE: 6 JUNE 1995
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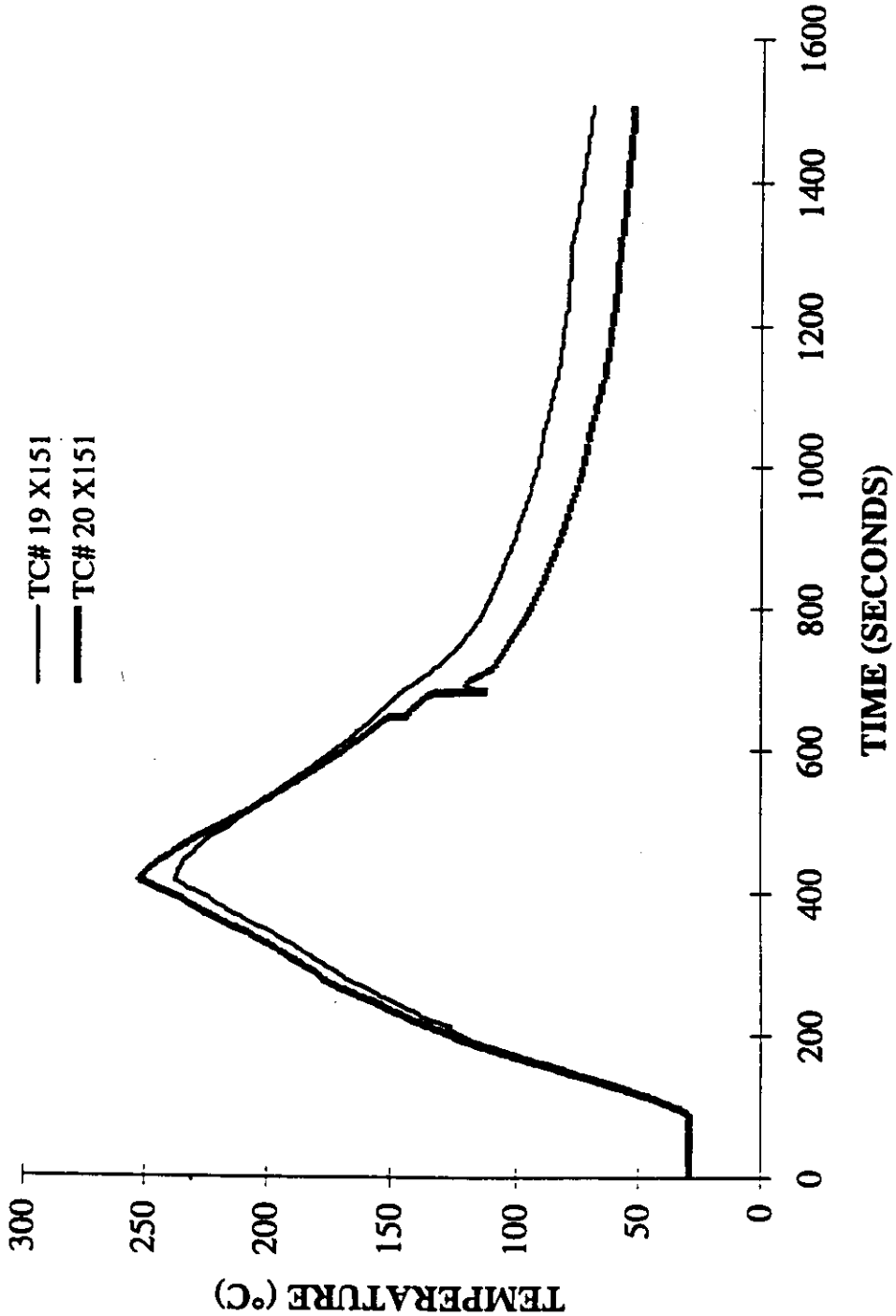
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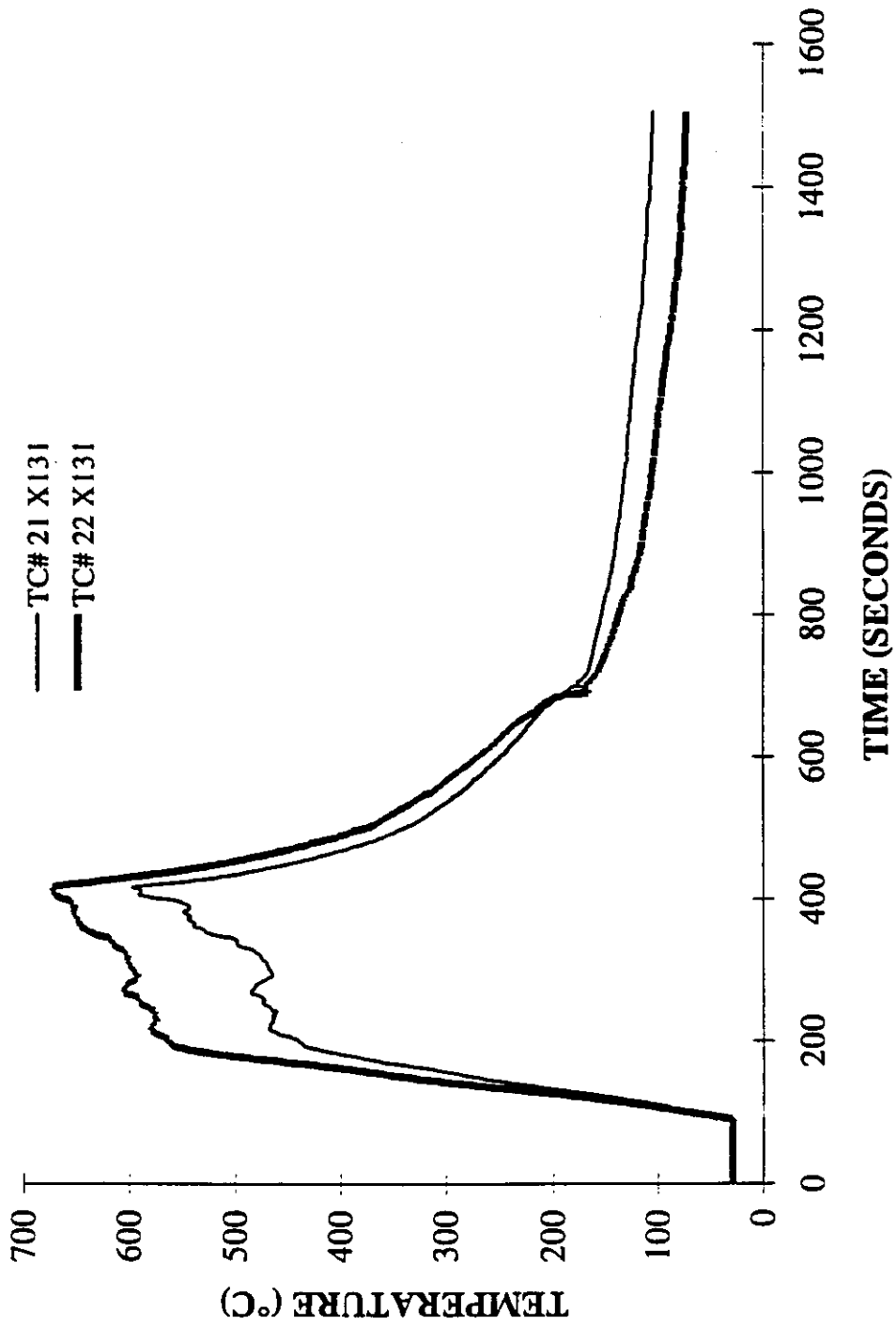
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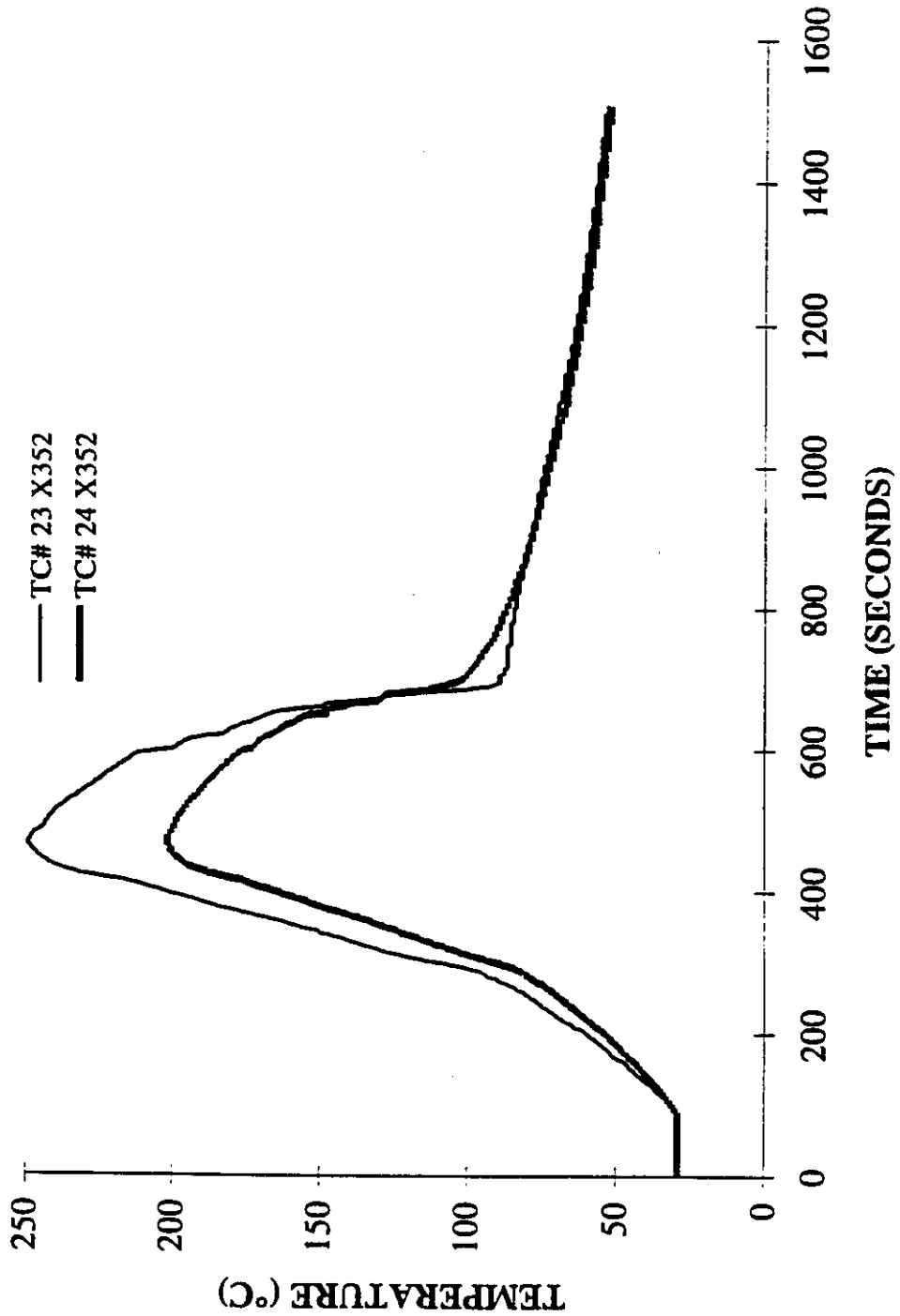
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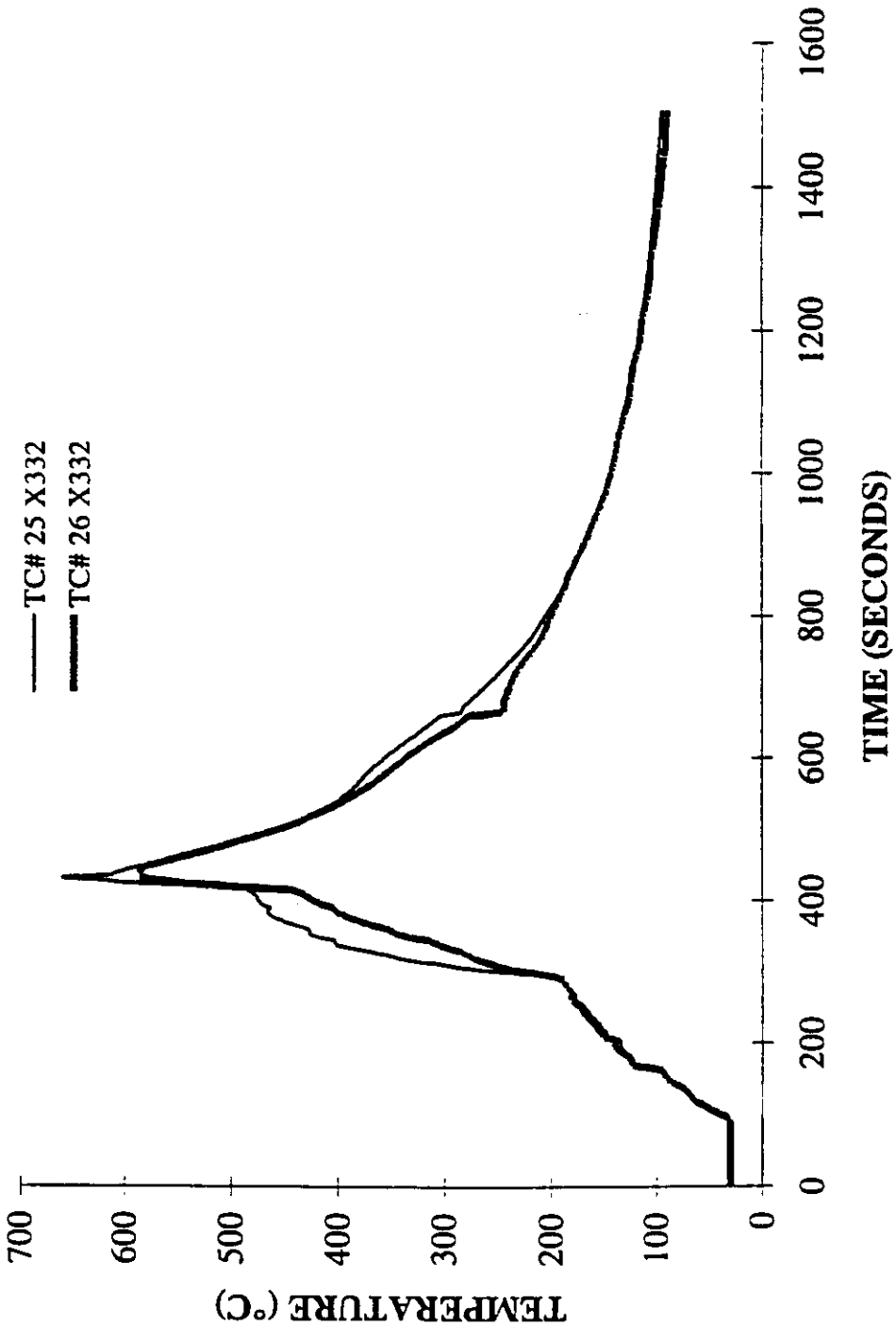
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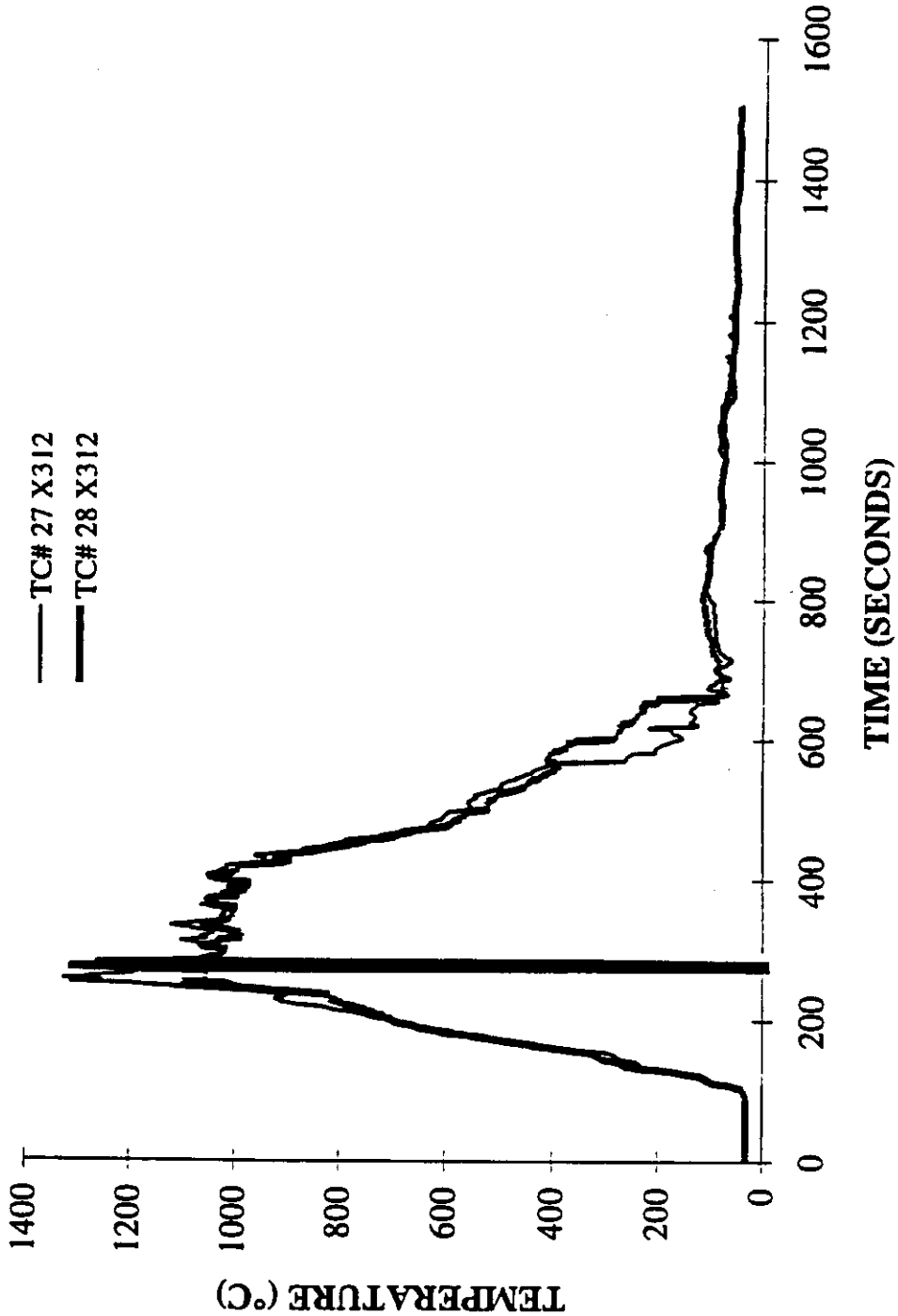
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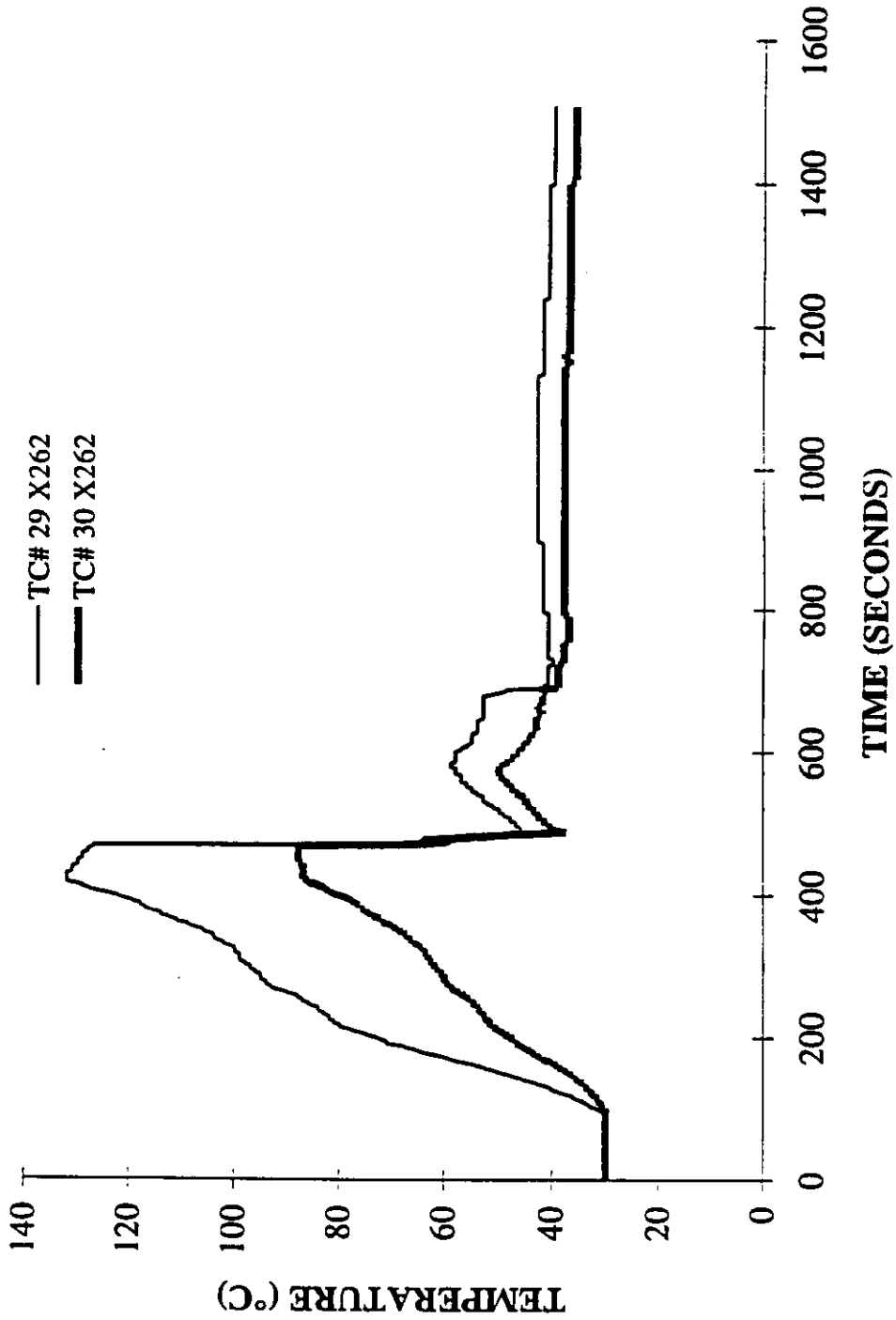
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DATE: 6 JUNE 1995
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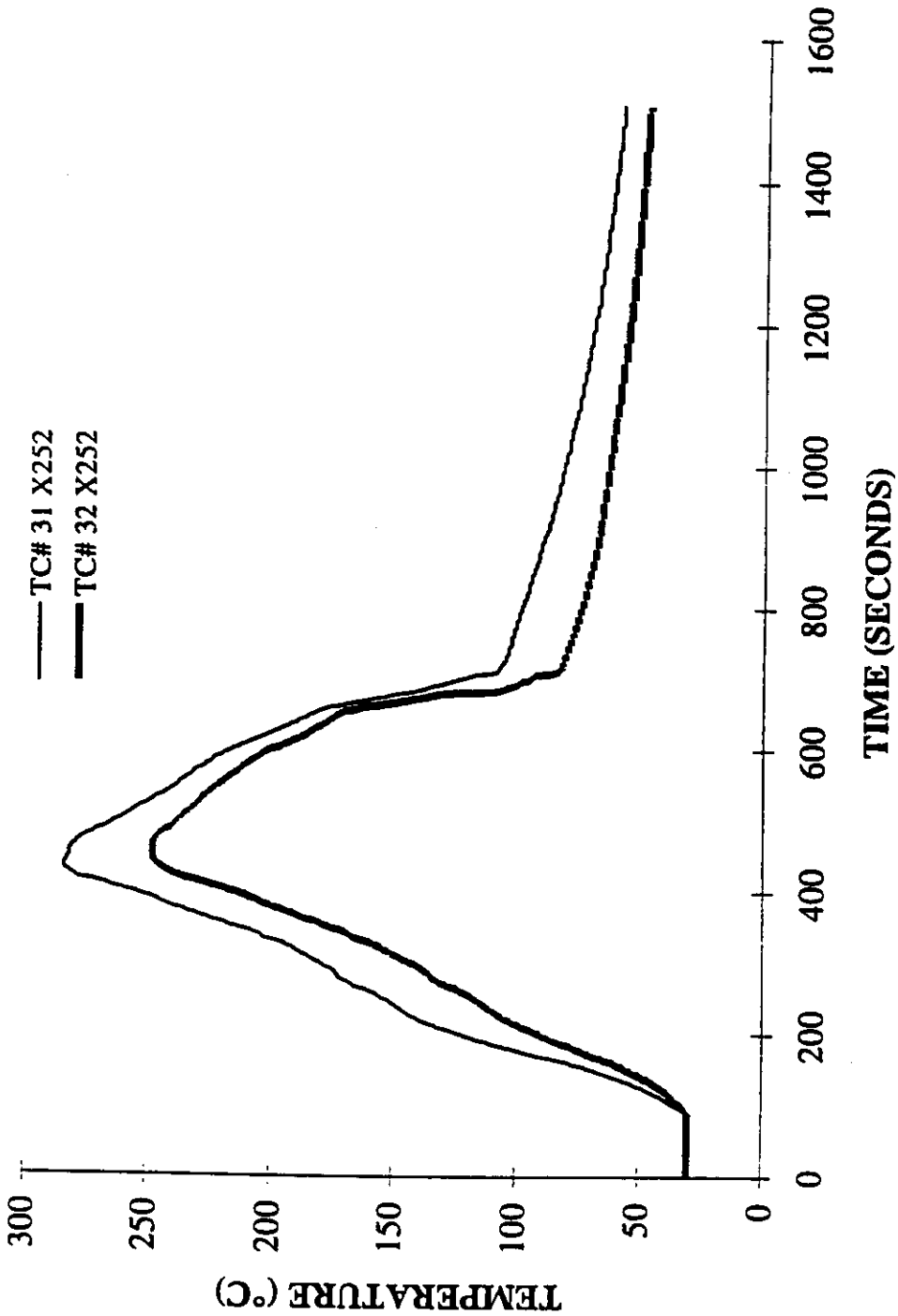
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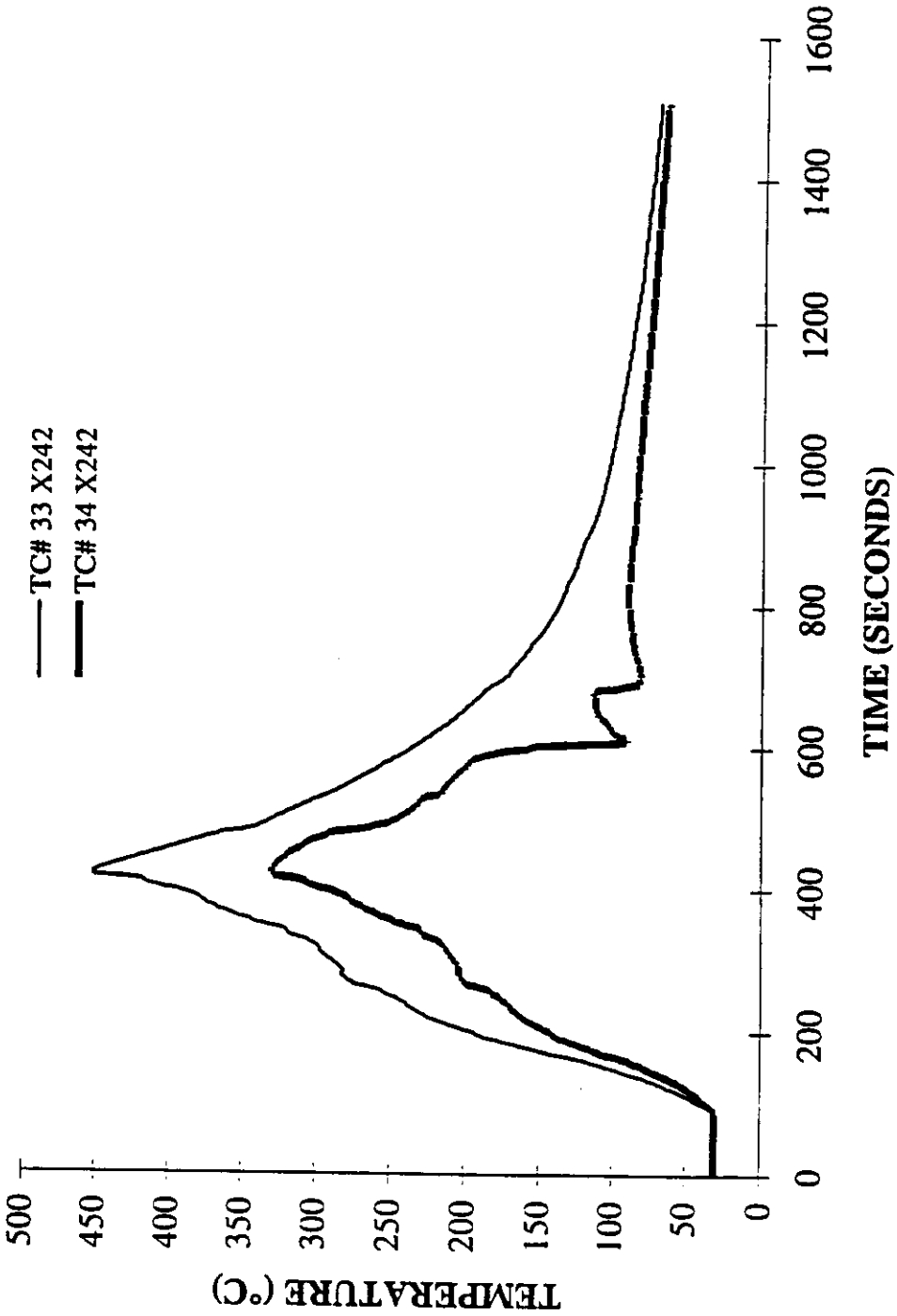
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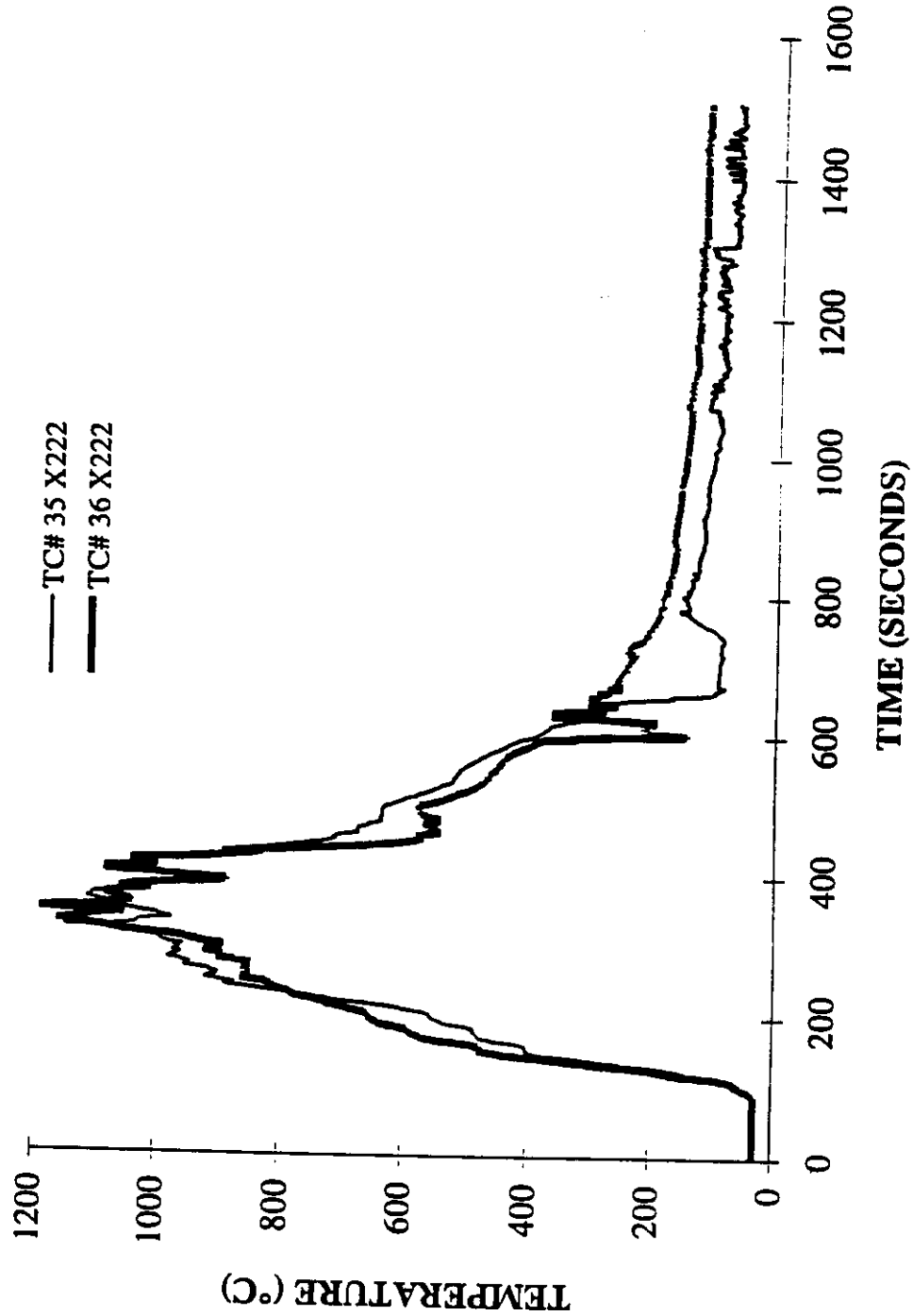
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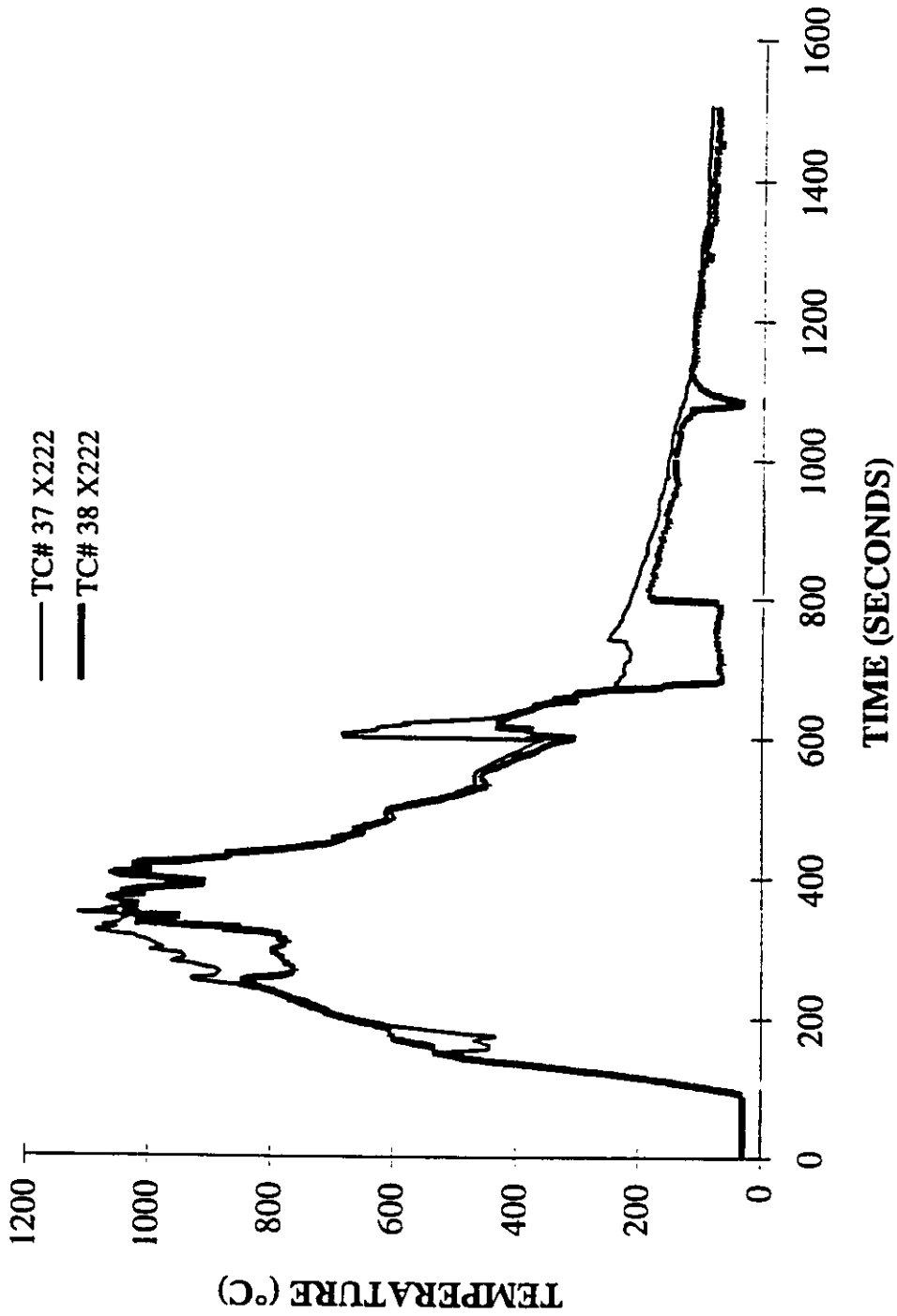
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
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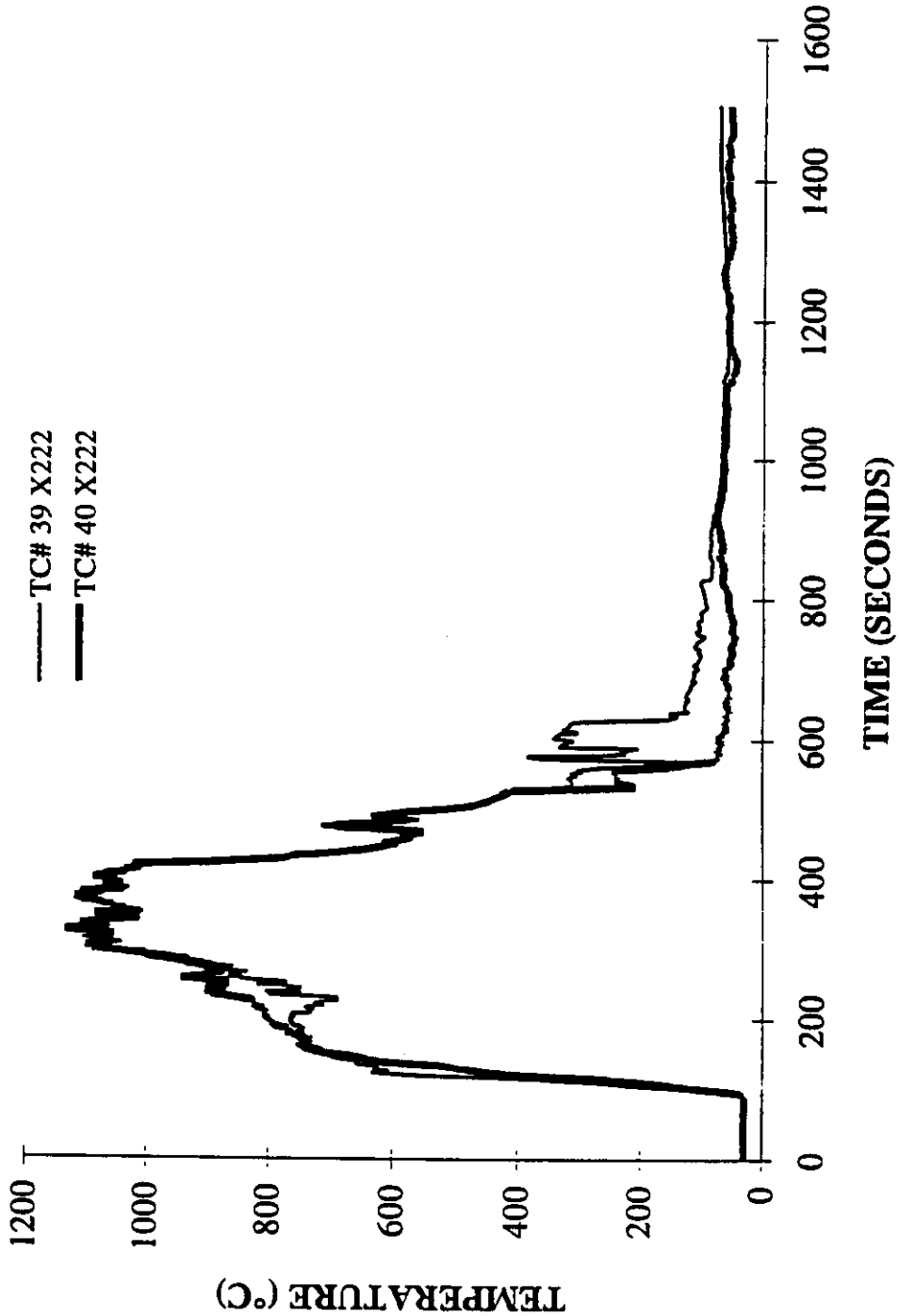
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
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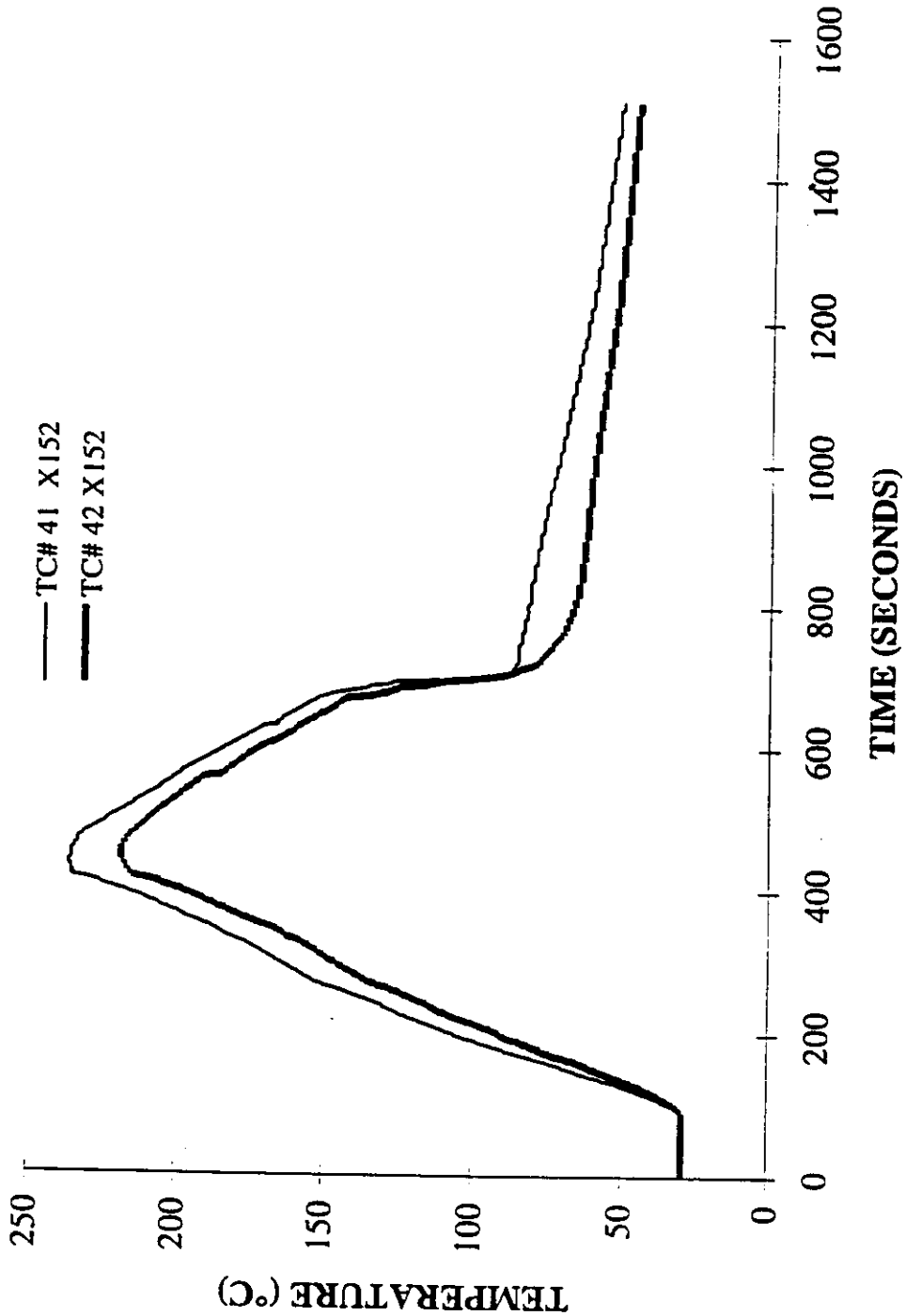
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DATE: 6 JUNE 1995
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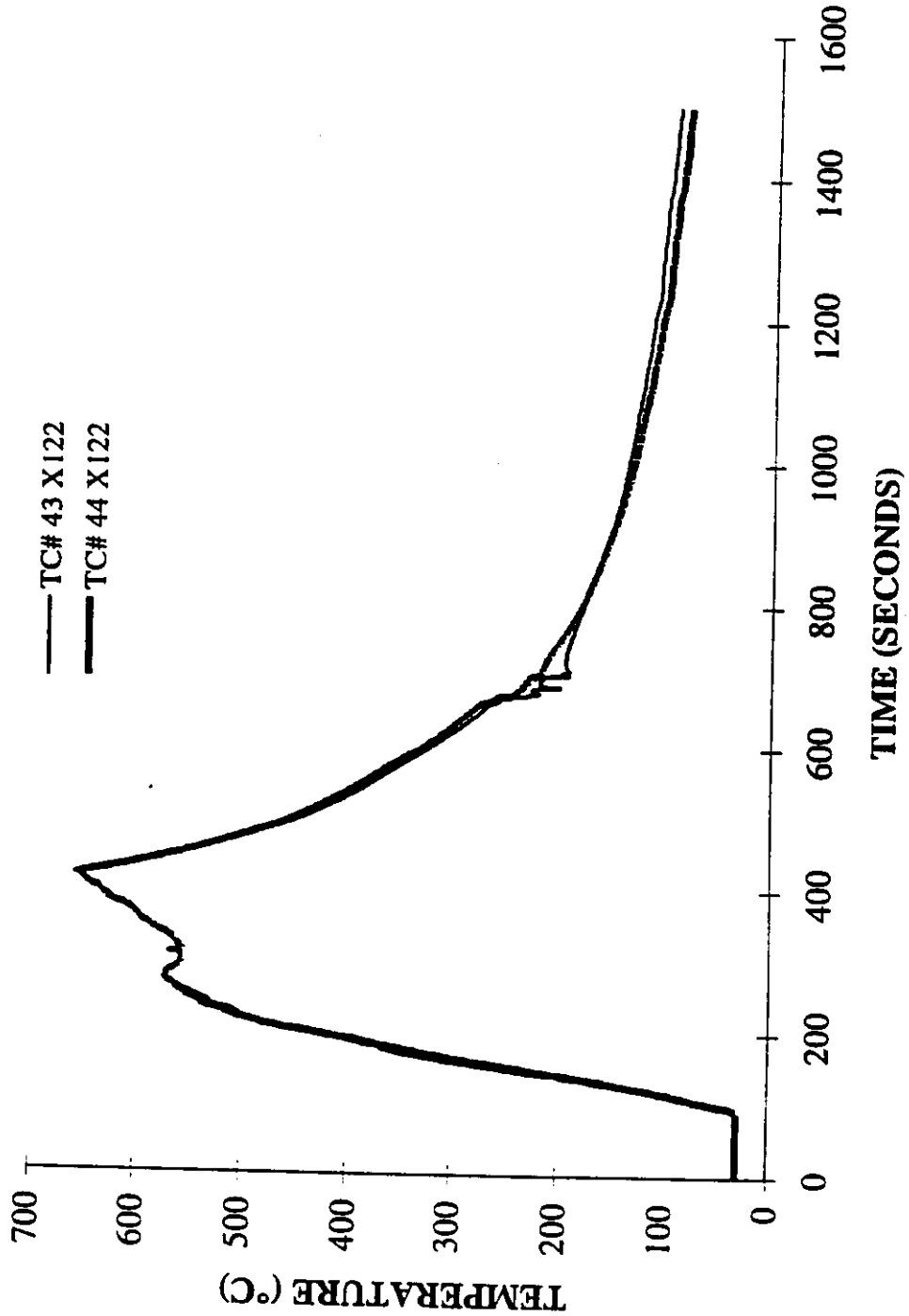
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DATE: 6 JUNE 1995
TEST ID: 157LR1.DAT



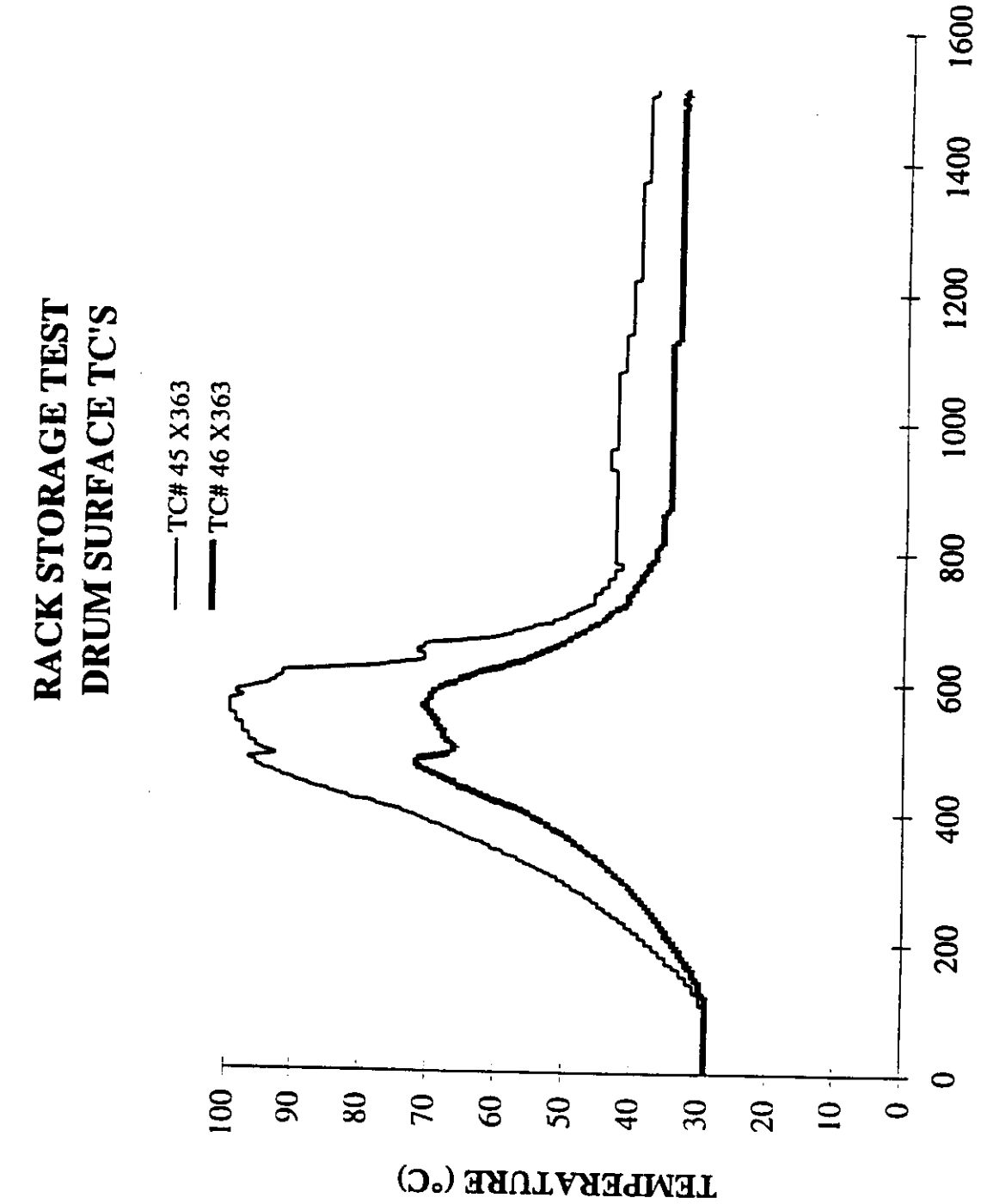
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DATE: 6 JUNE 1995
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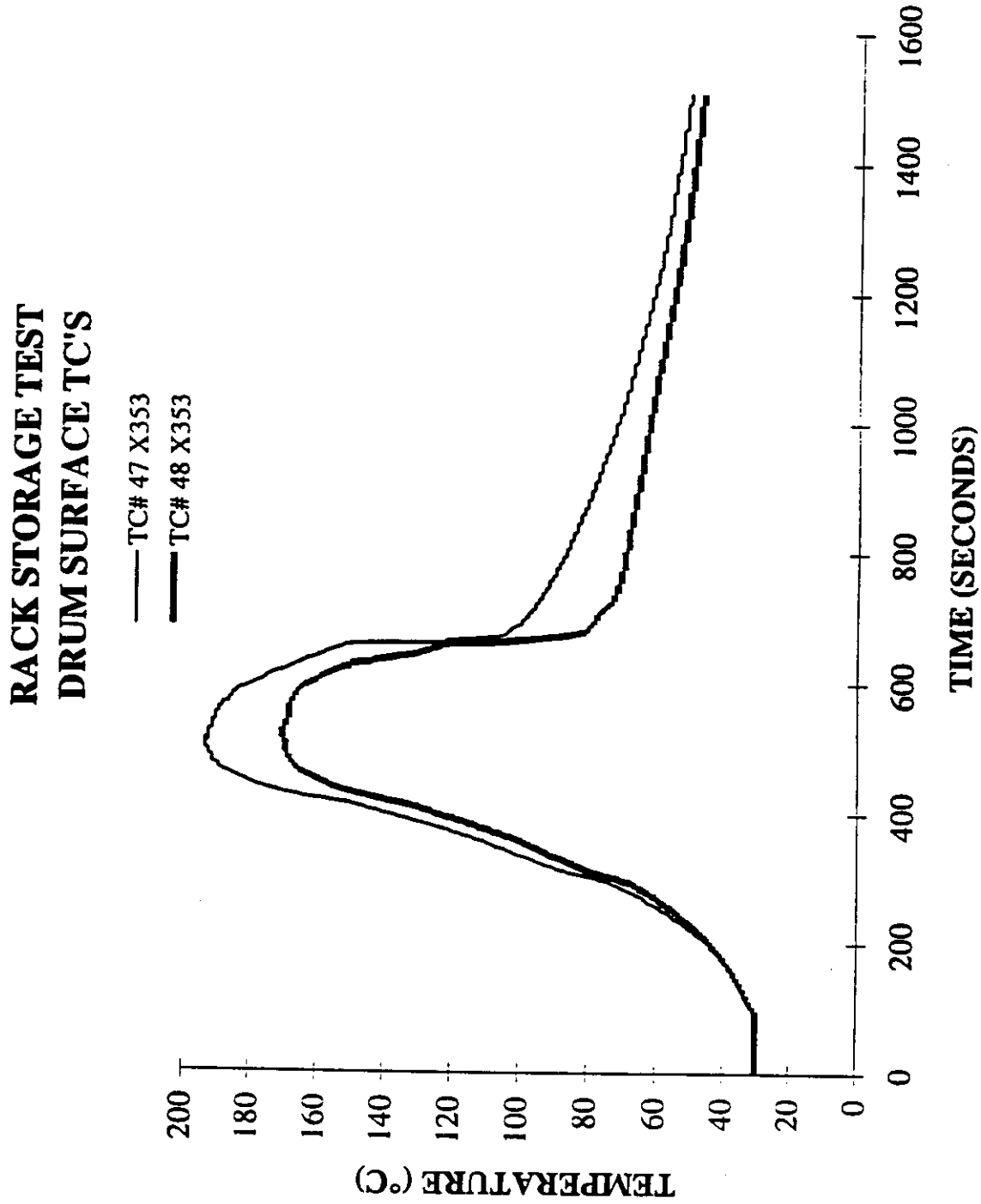
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR2.DAT



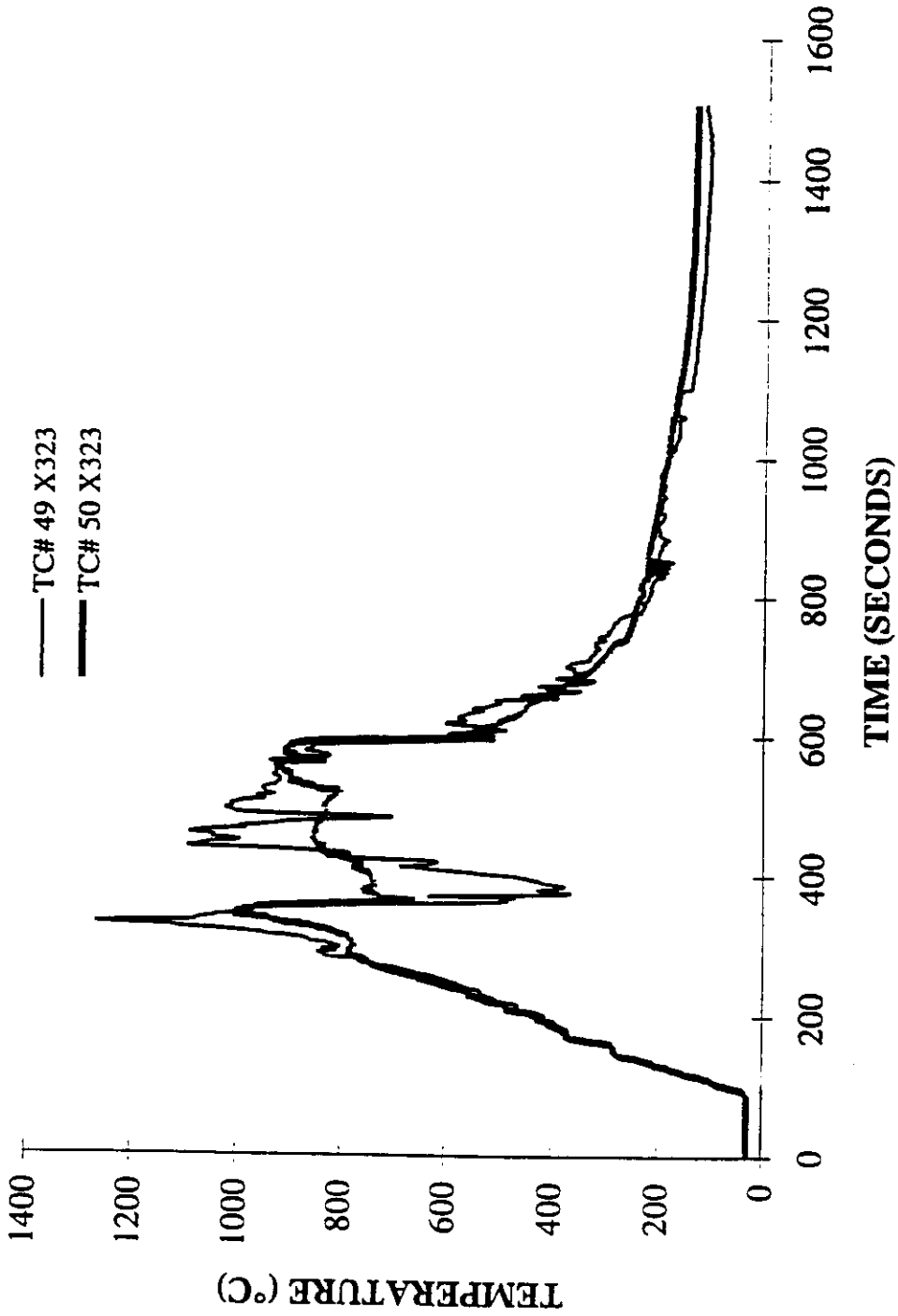
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DATE: 6 JUNE 1995
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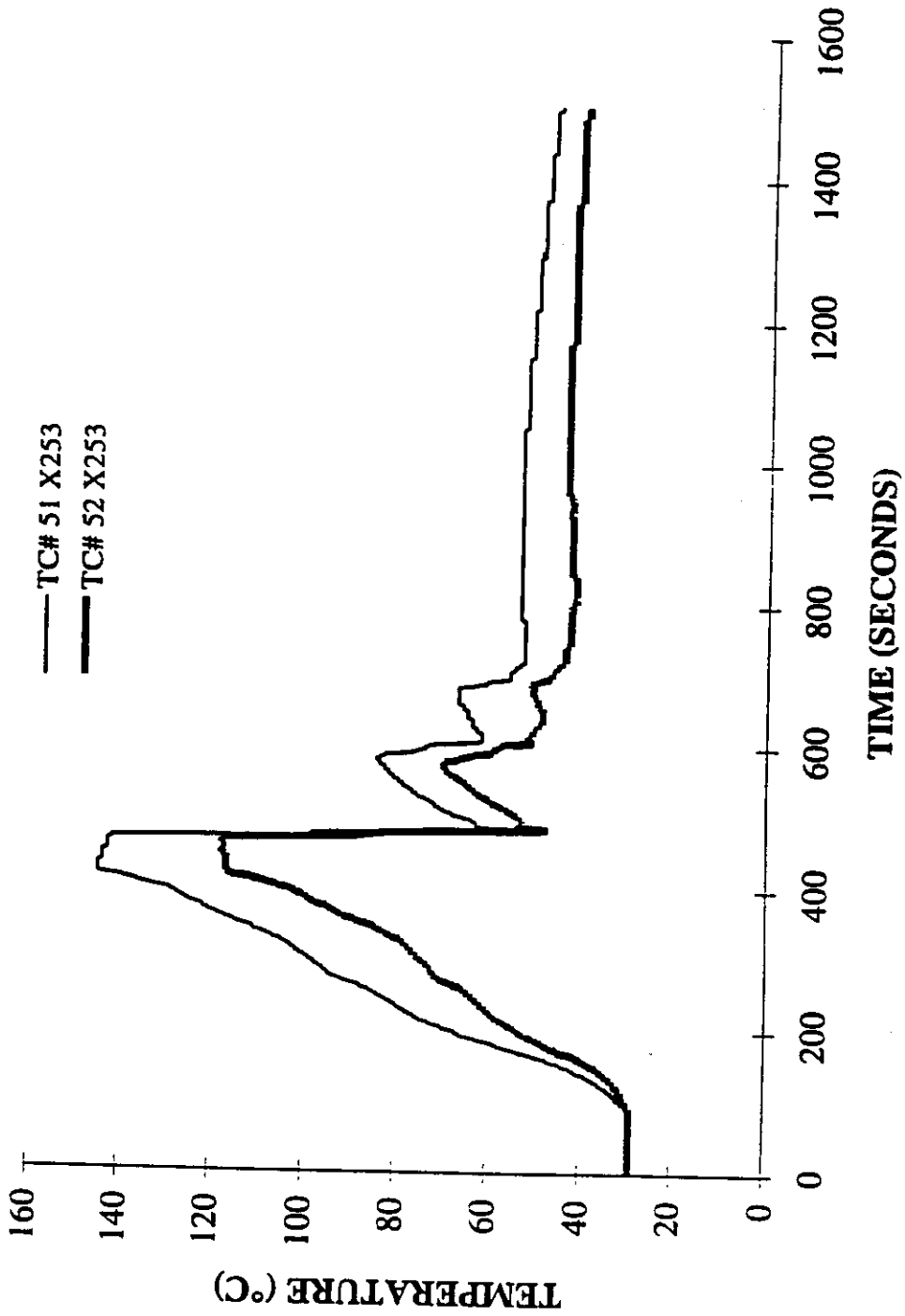
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
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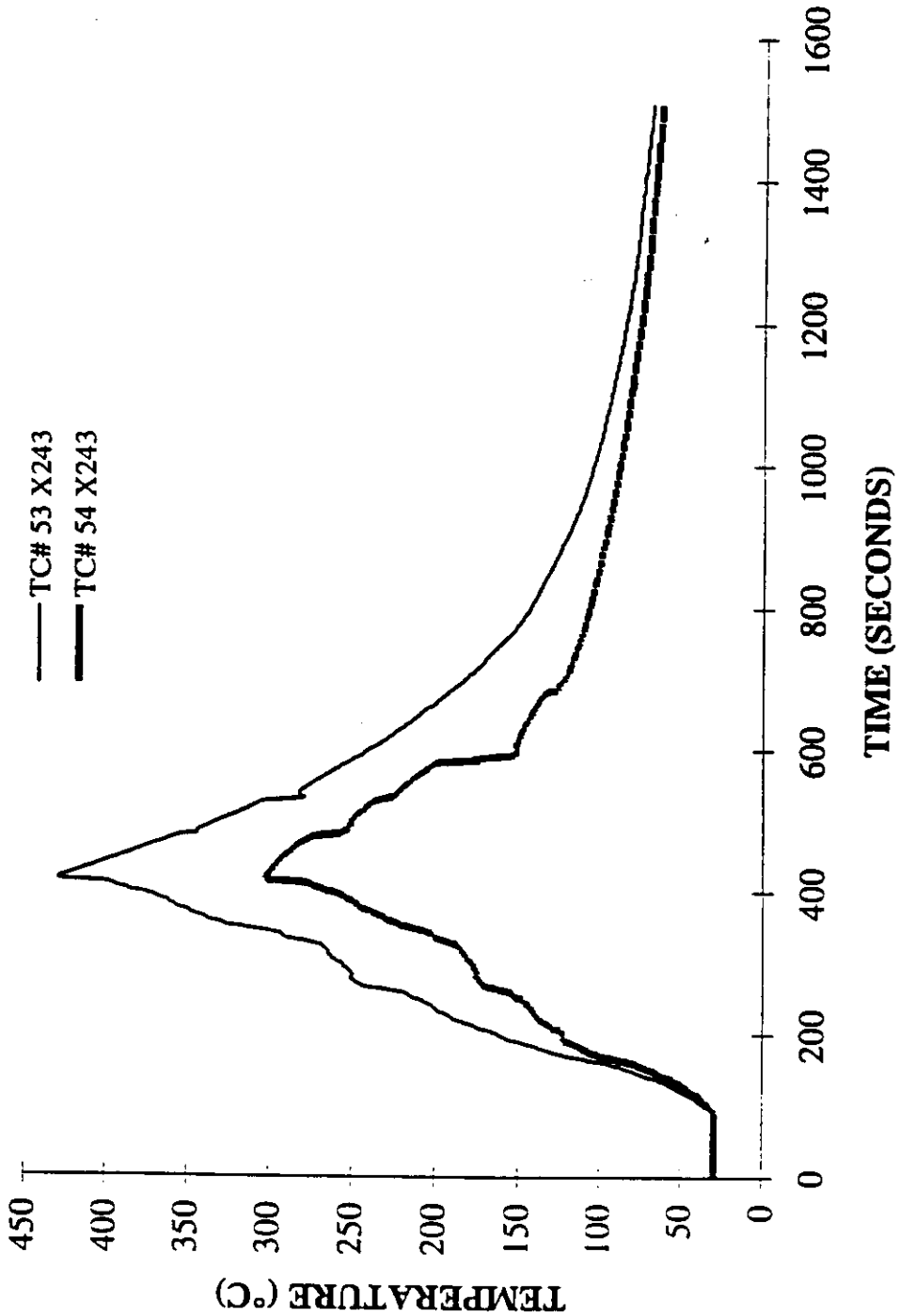
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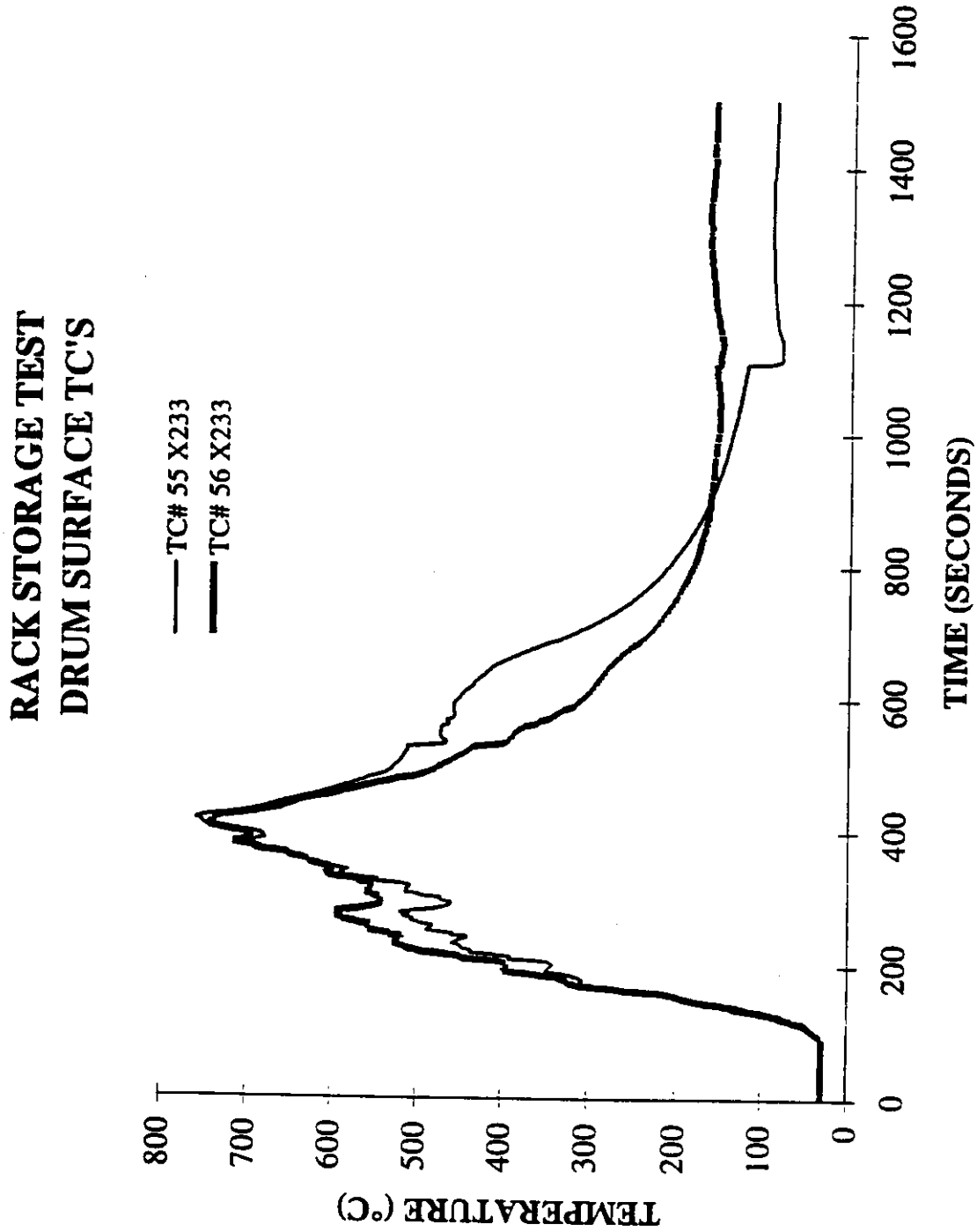
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR2.DAT



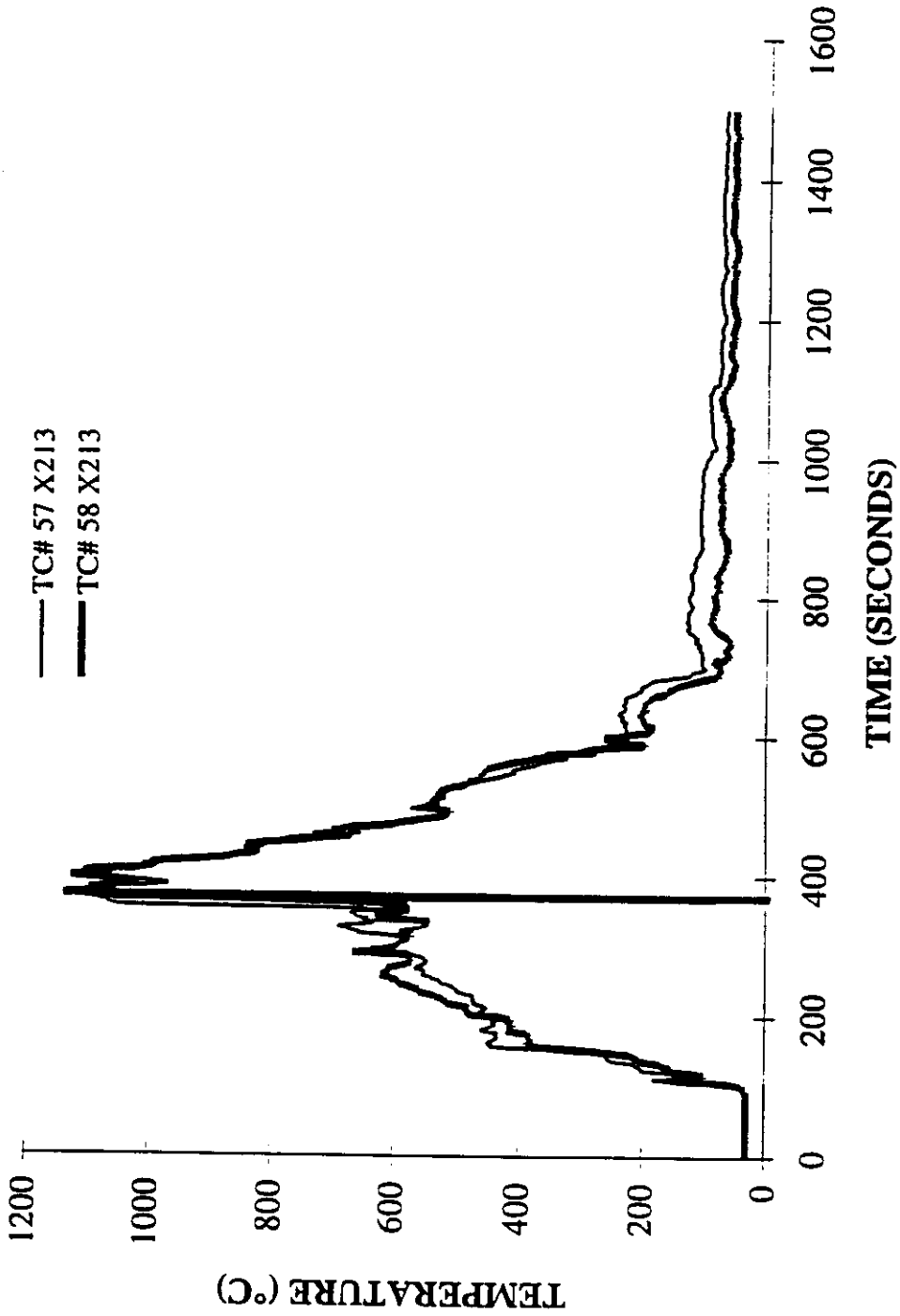
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
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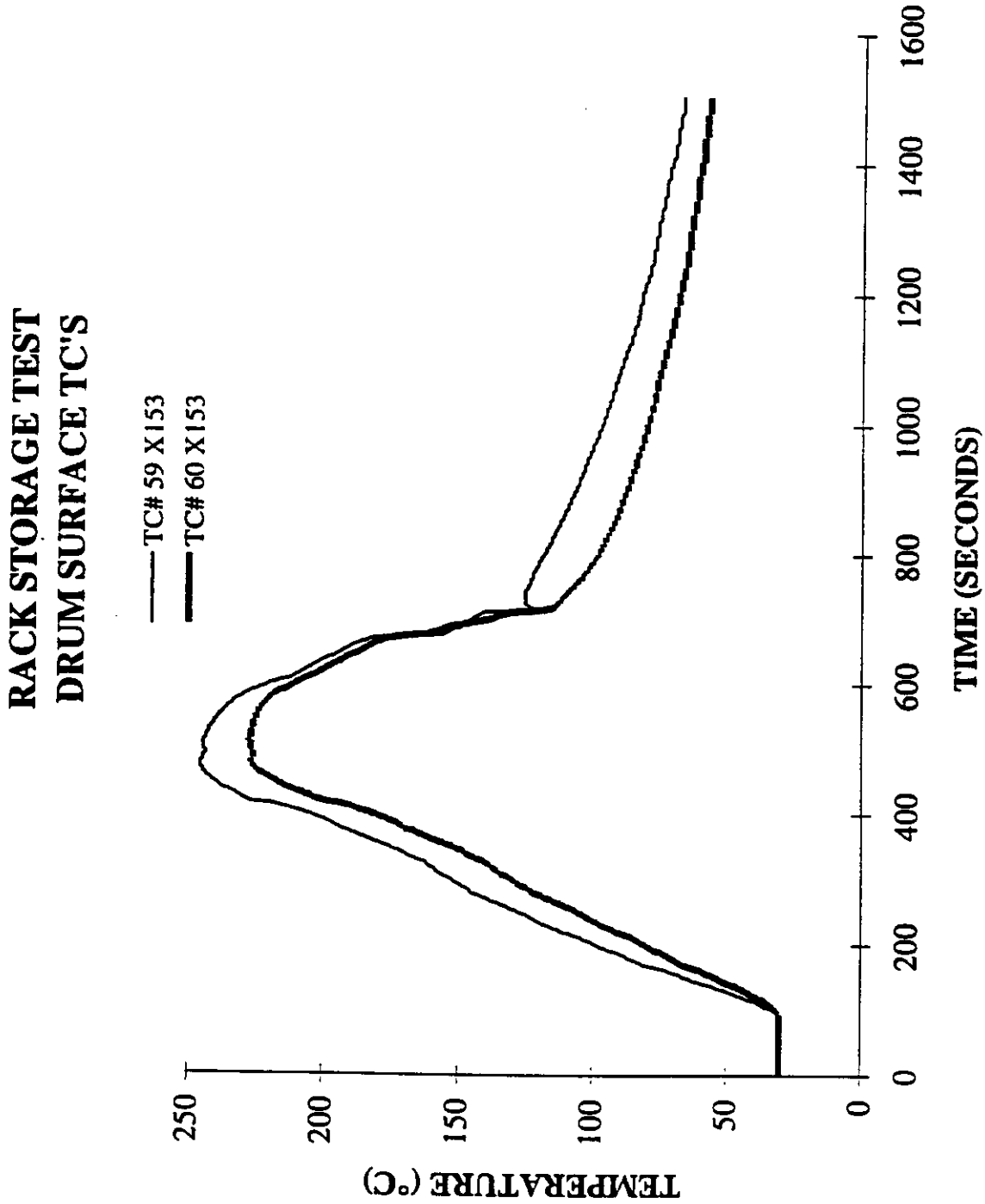
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR2.DAT



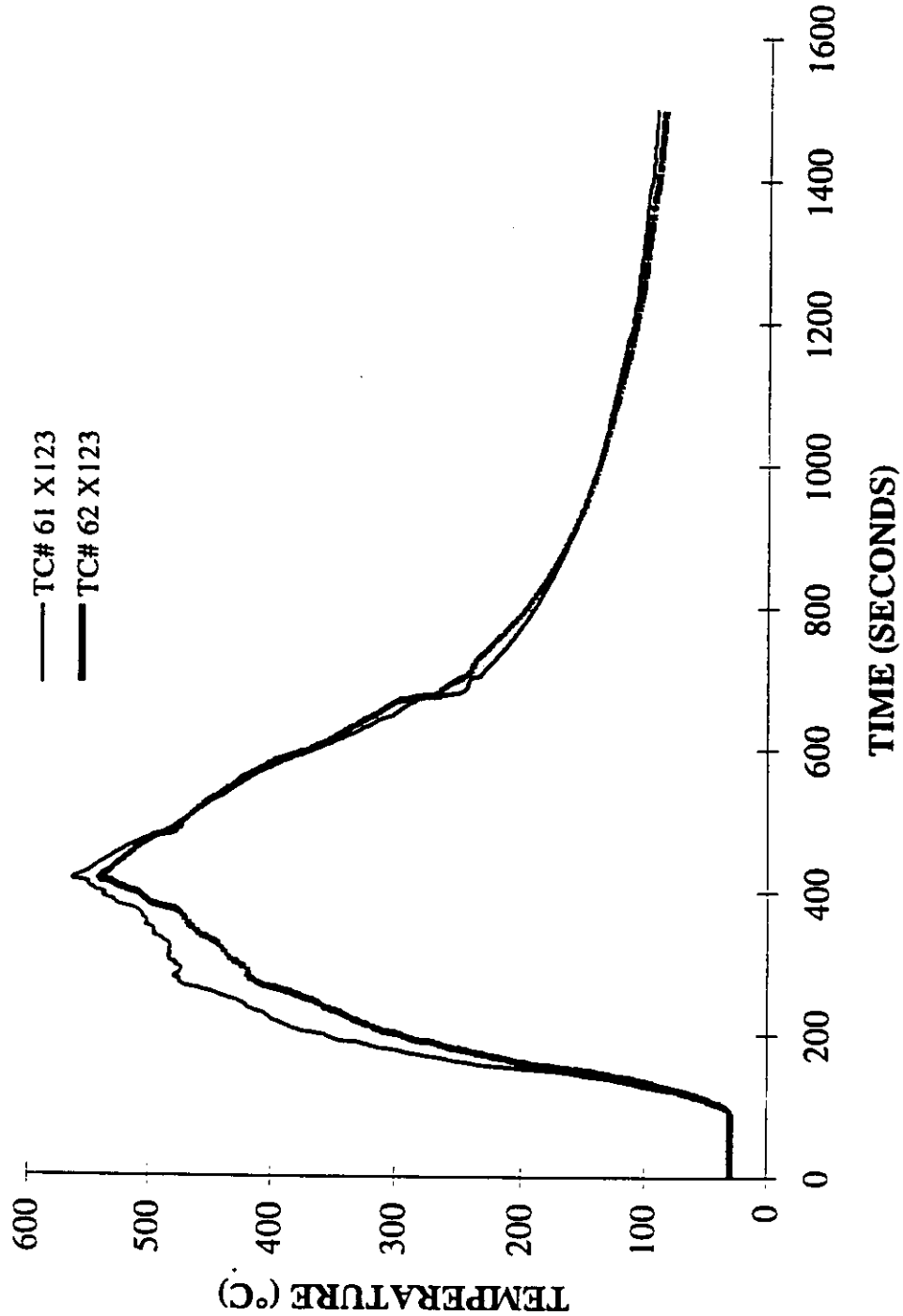
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DATE: 6 JUNE 1995
TEST ID: 157LR2.DAT



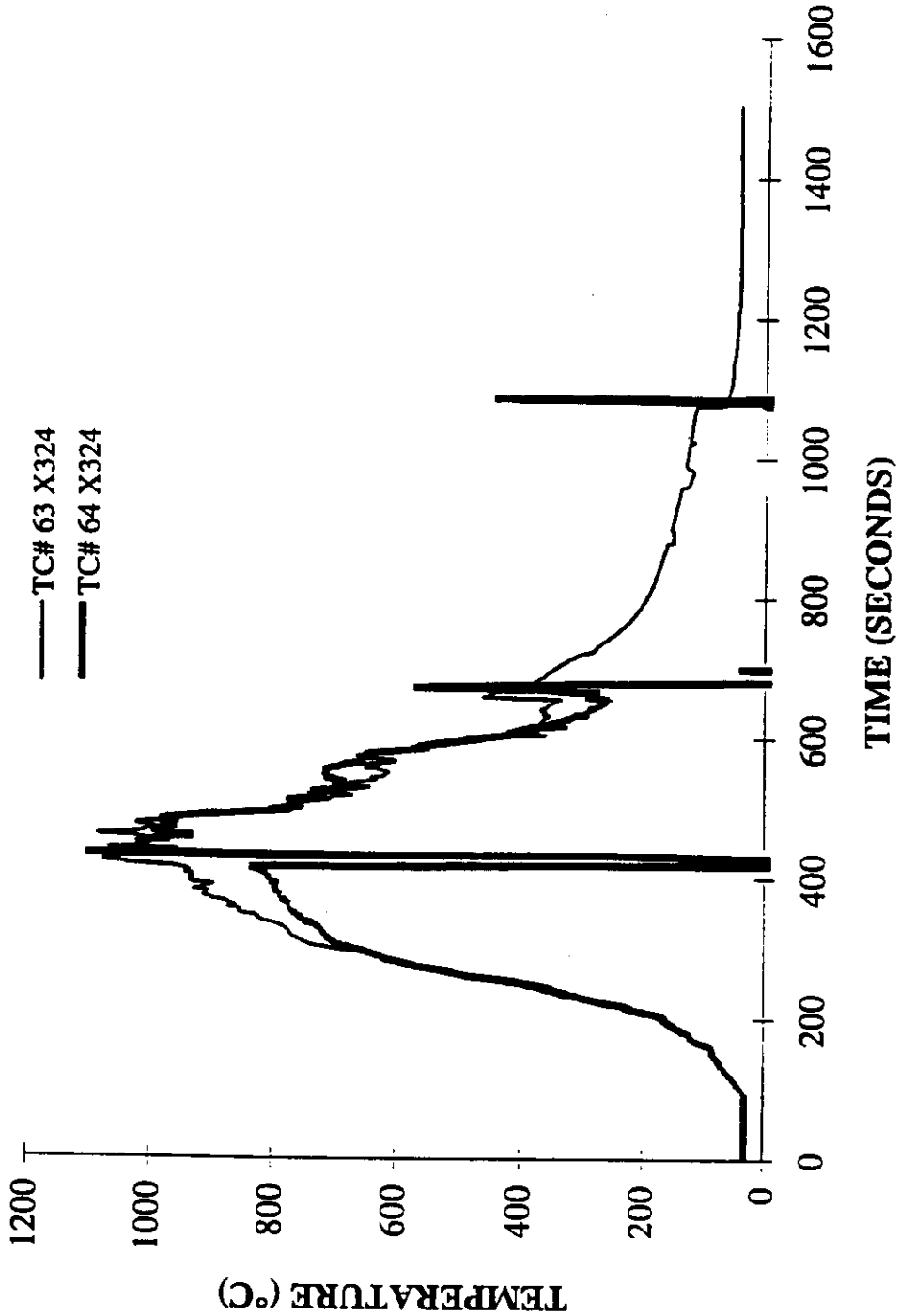
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR1.DAT



CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR2.DAT

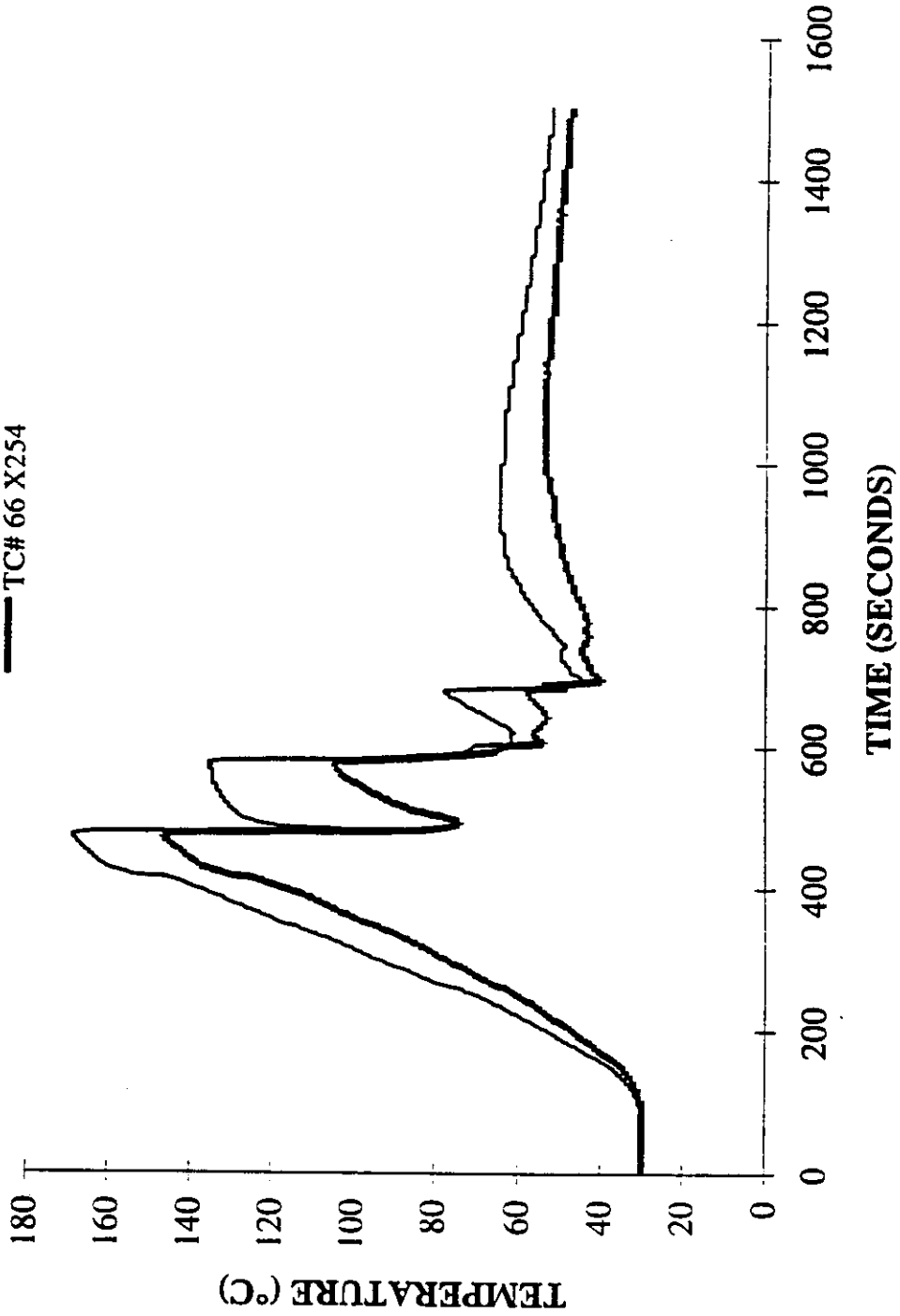


CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR4.DAT

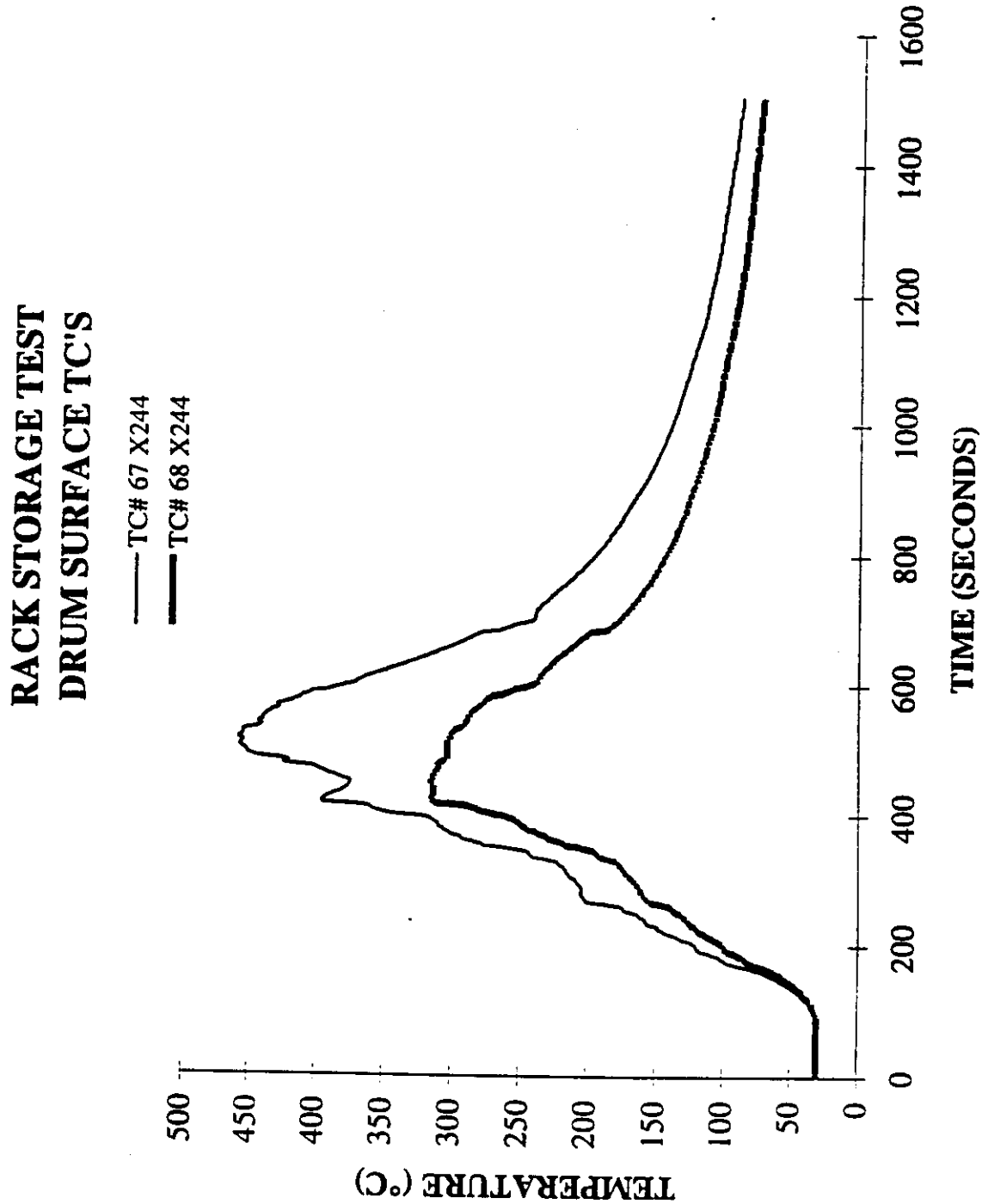


CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR2.DAT

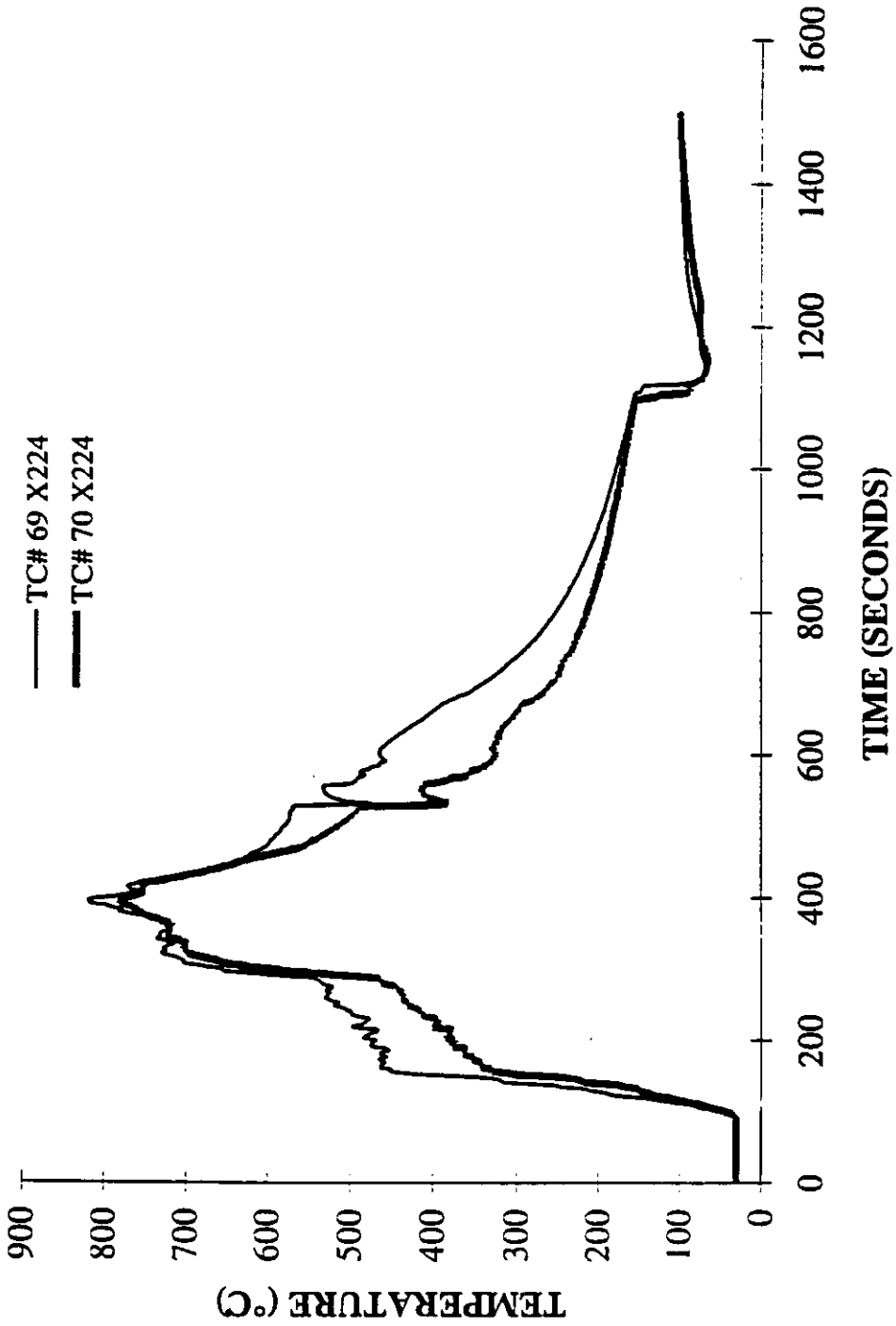
RACK STORAGE TEST
DRUM SURFACE TC'S



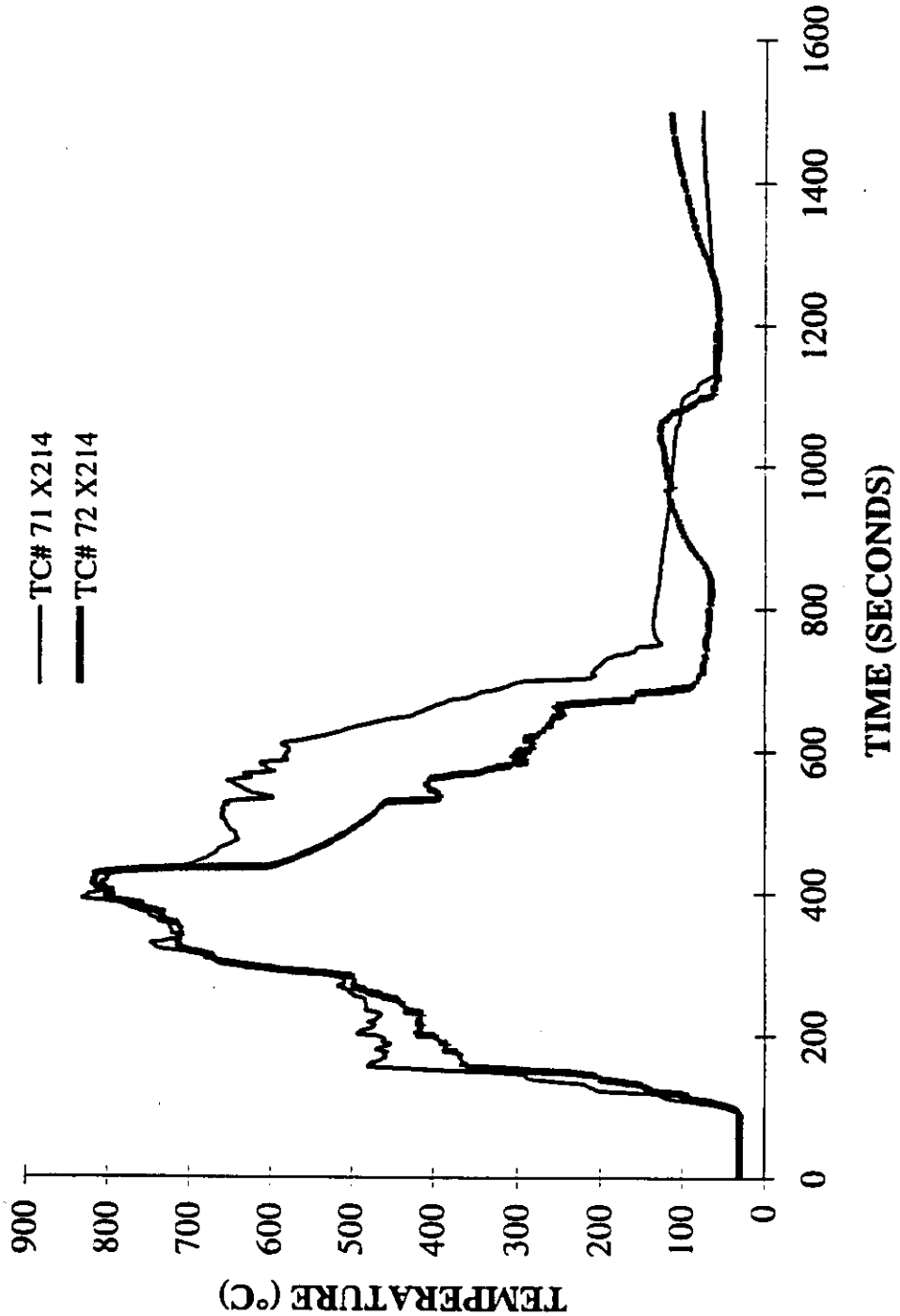
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR4.DAT



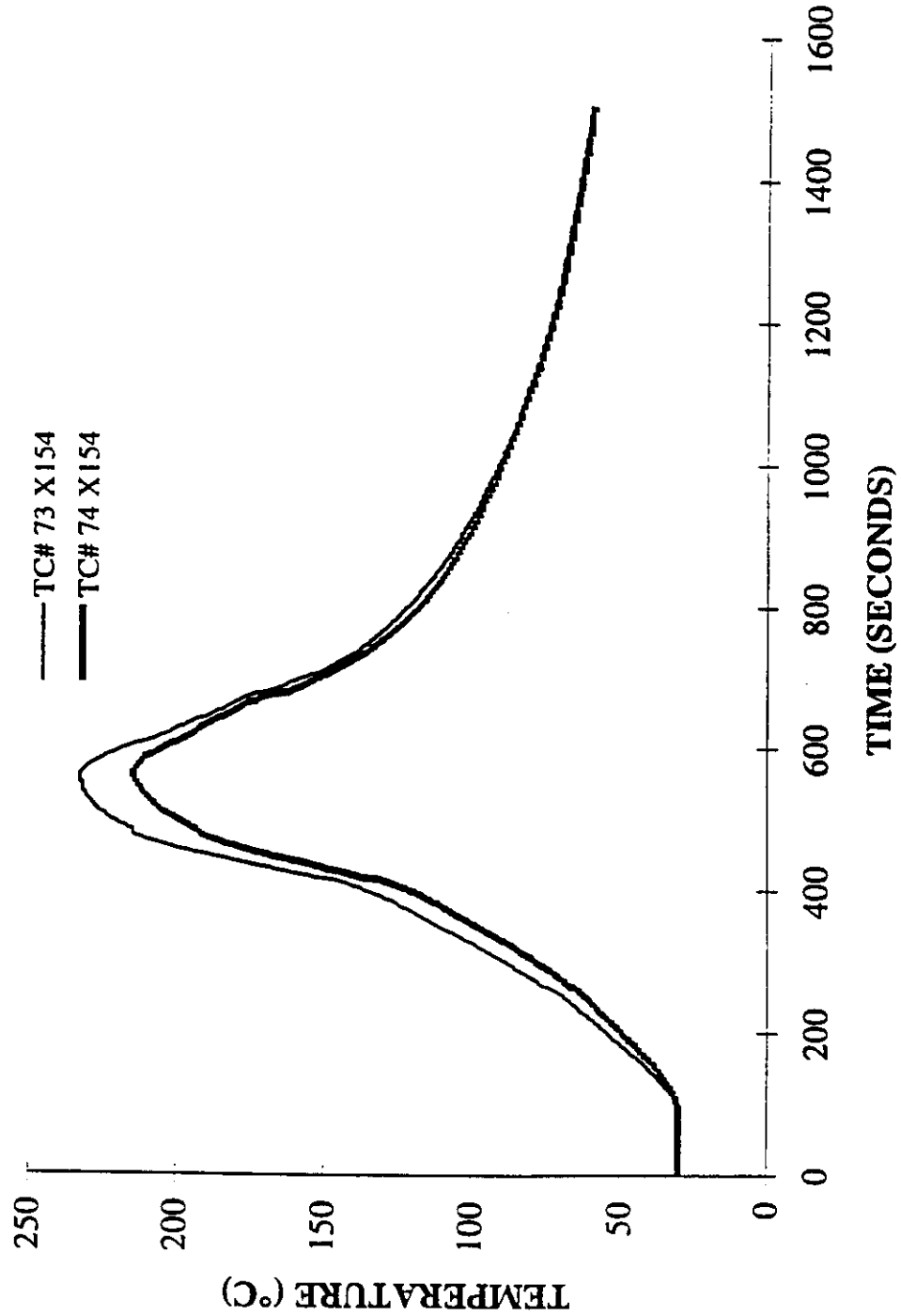
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR2.DAT



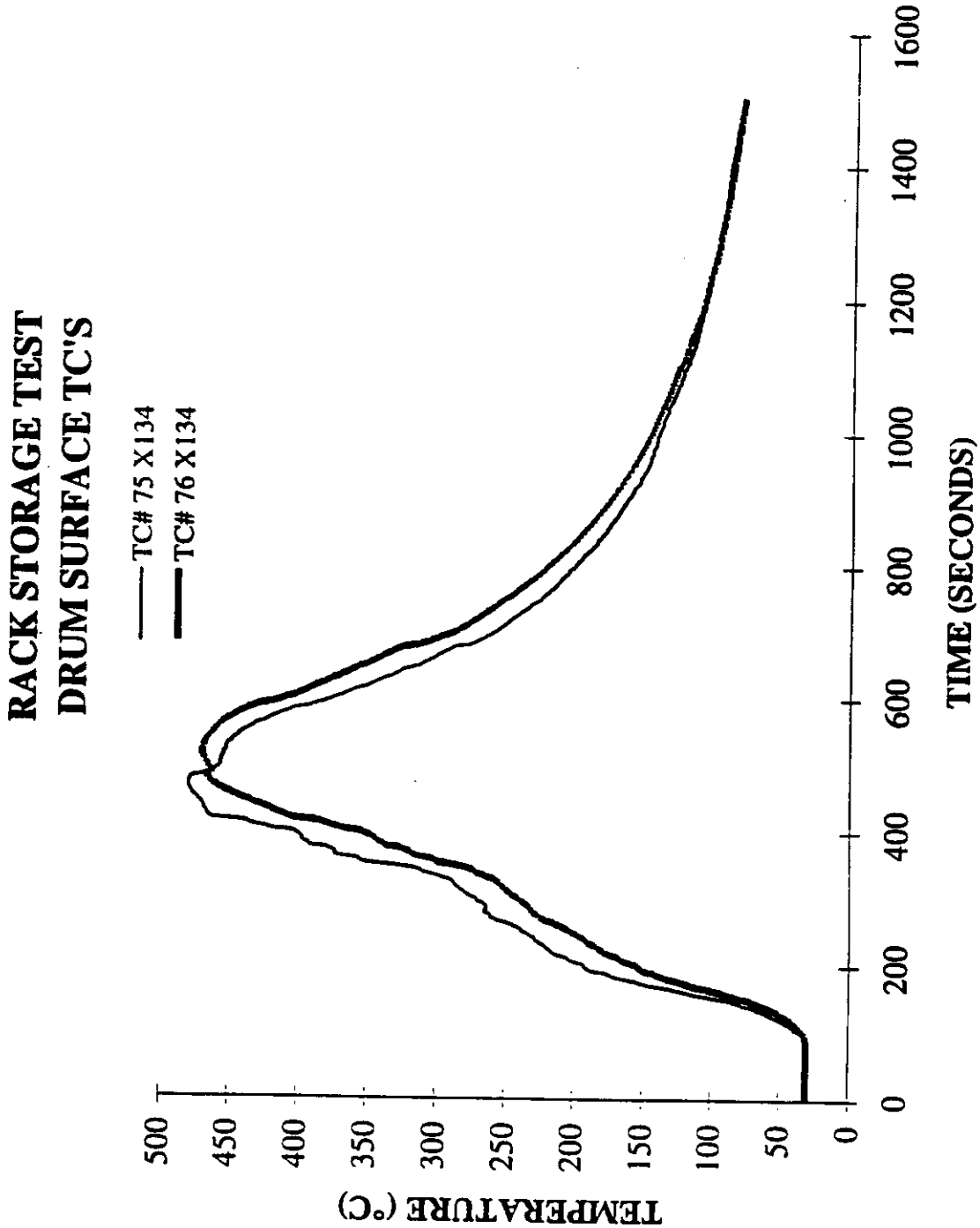
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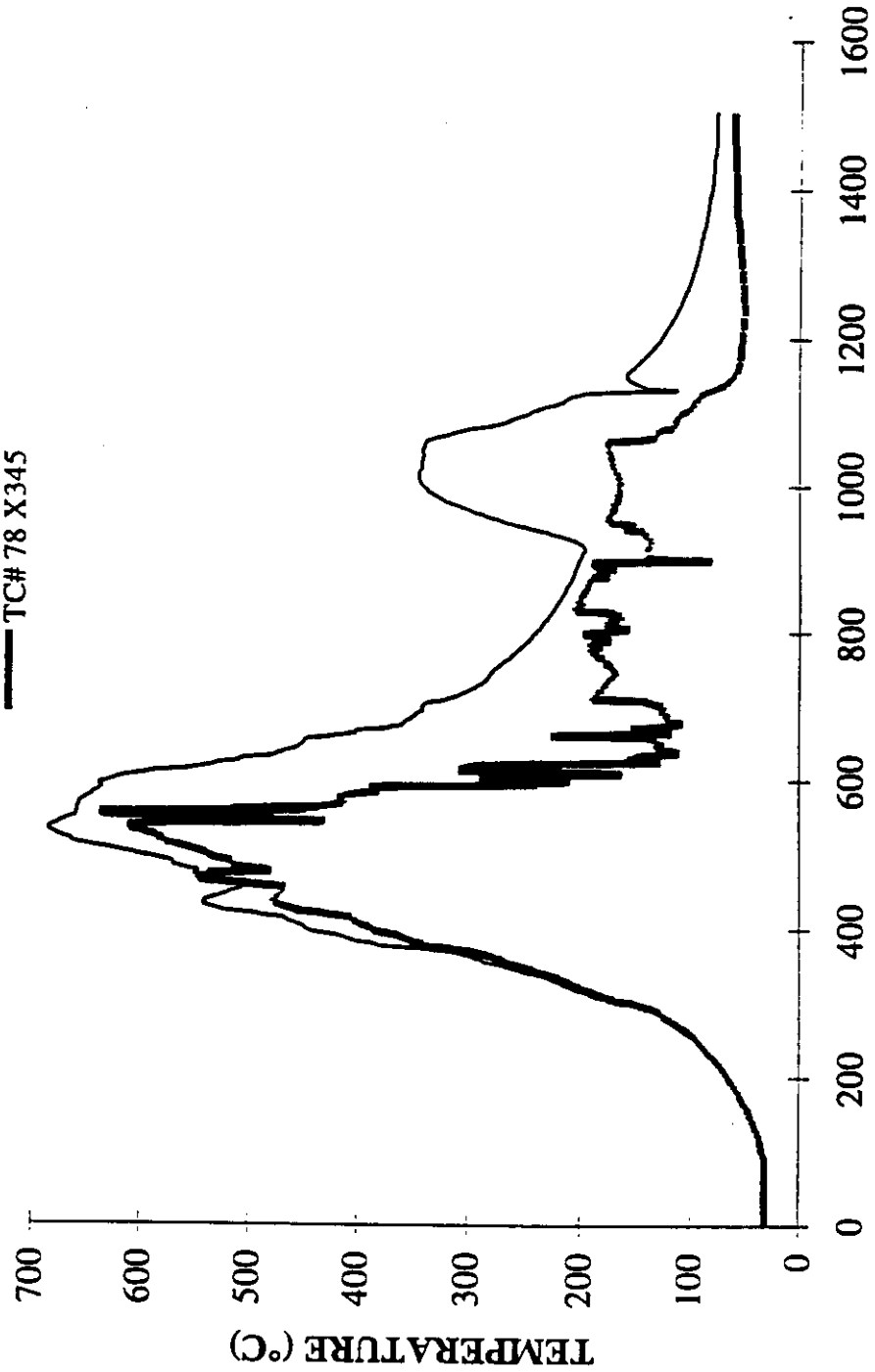
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DATE: 6 JUNE 1995
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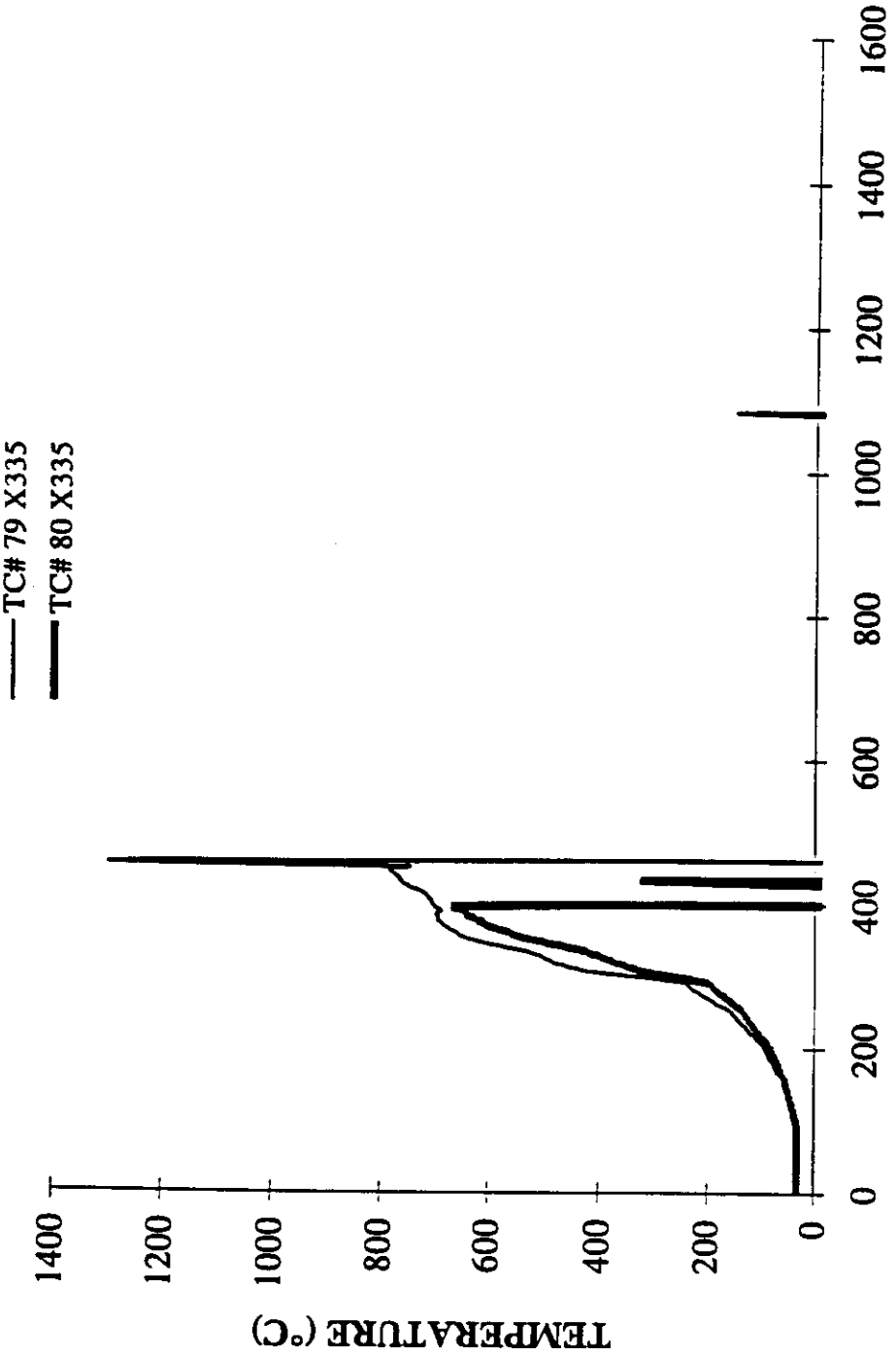
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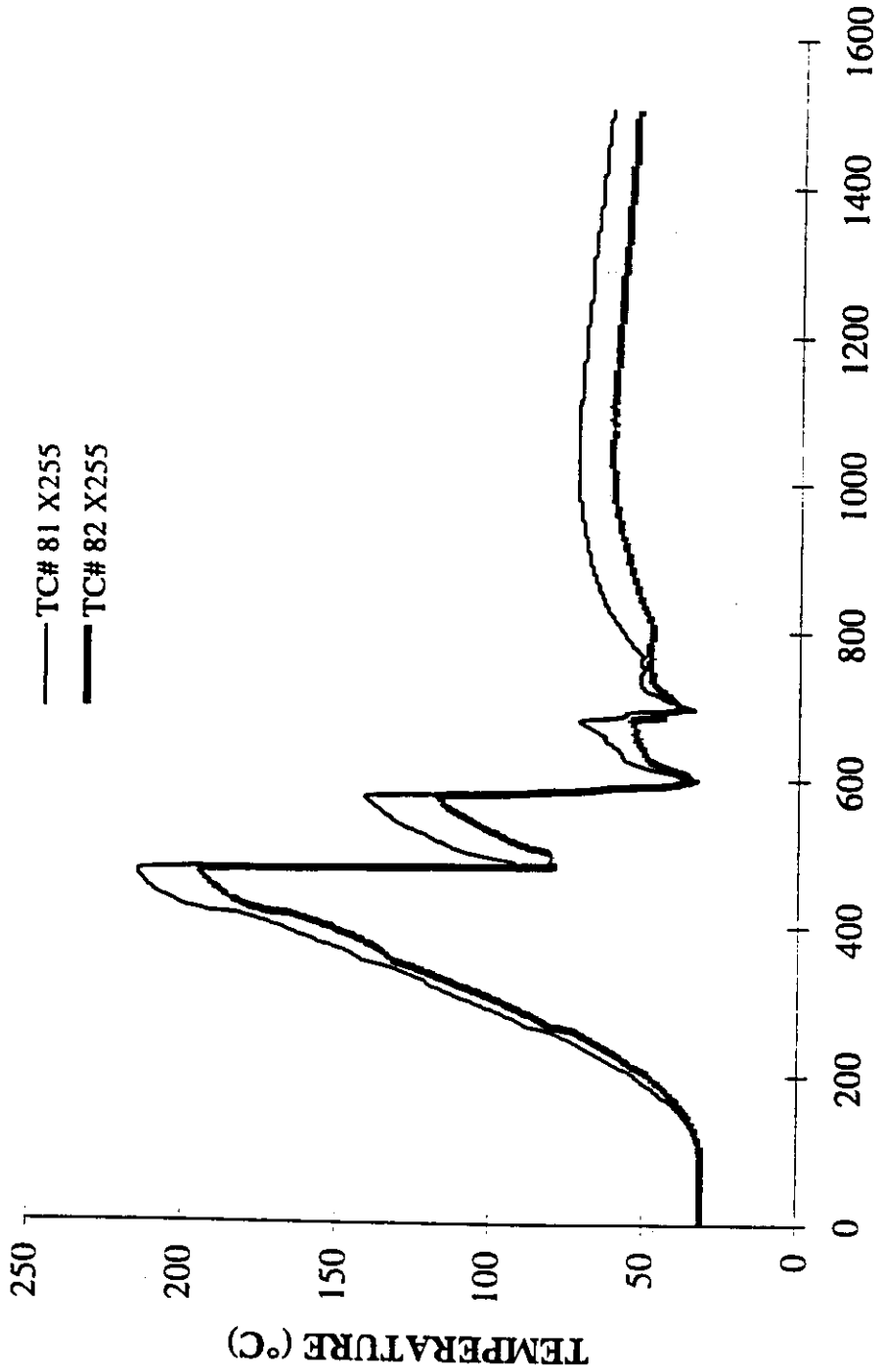
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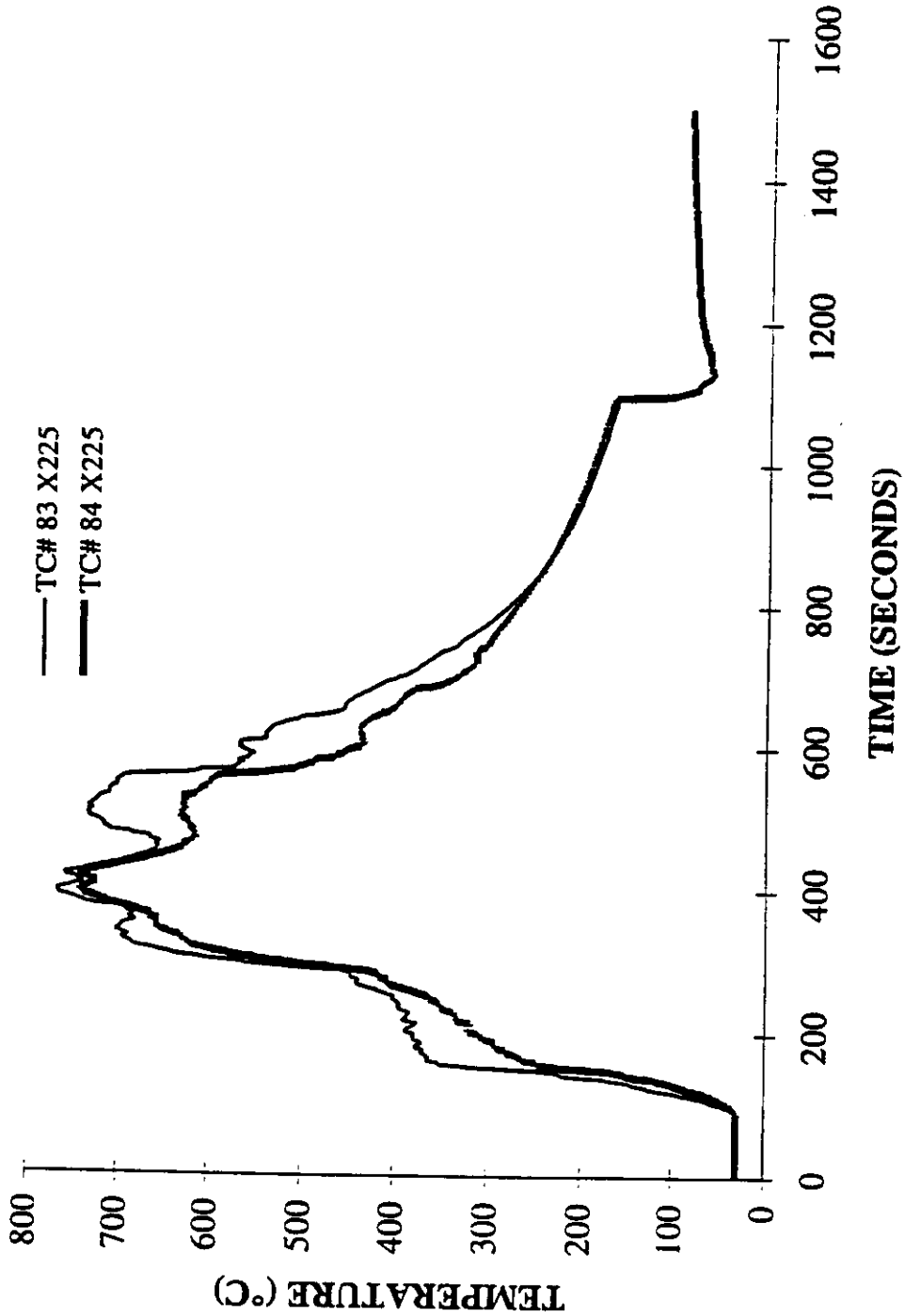
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DATE: 6 JUNE 1995
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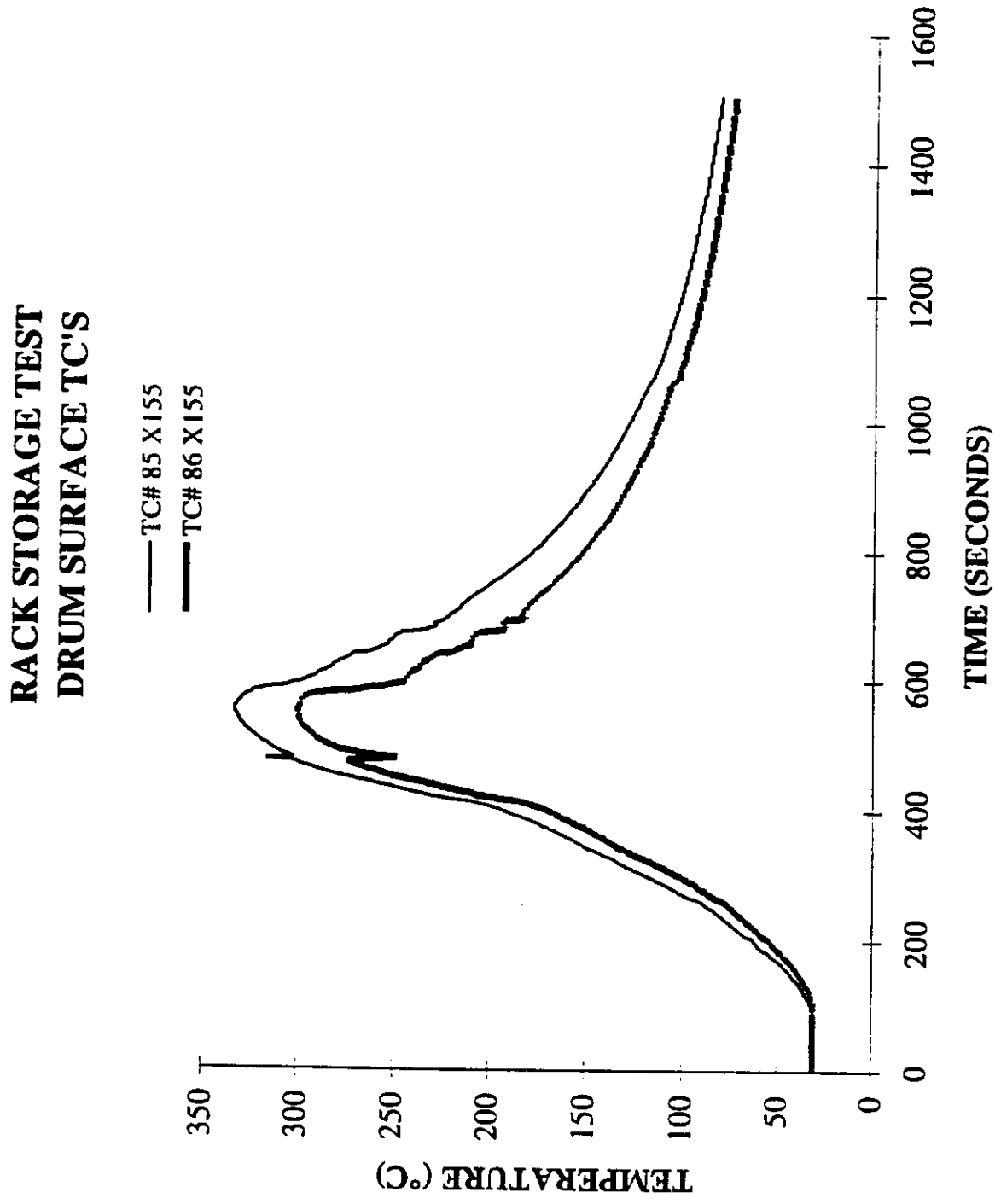
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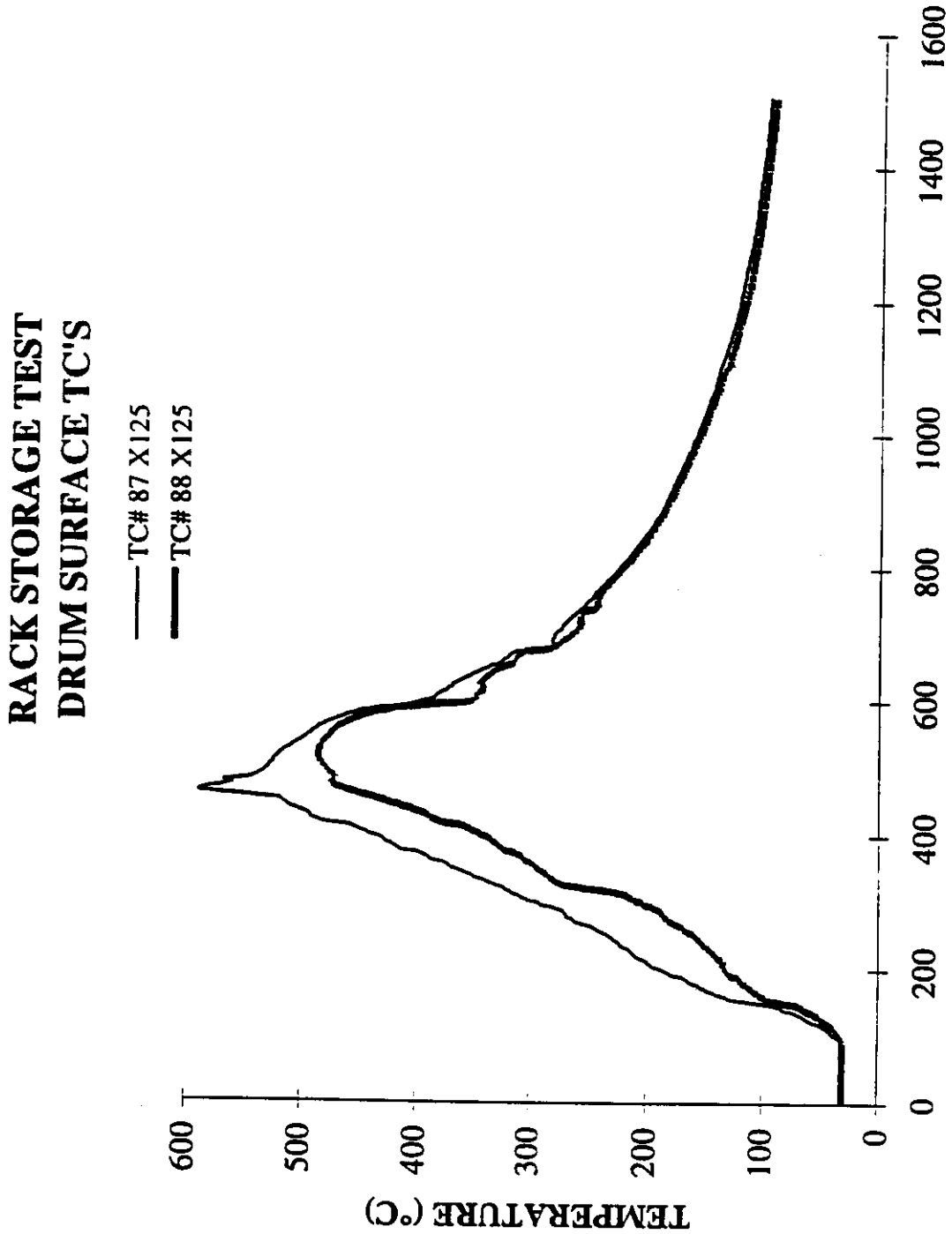
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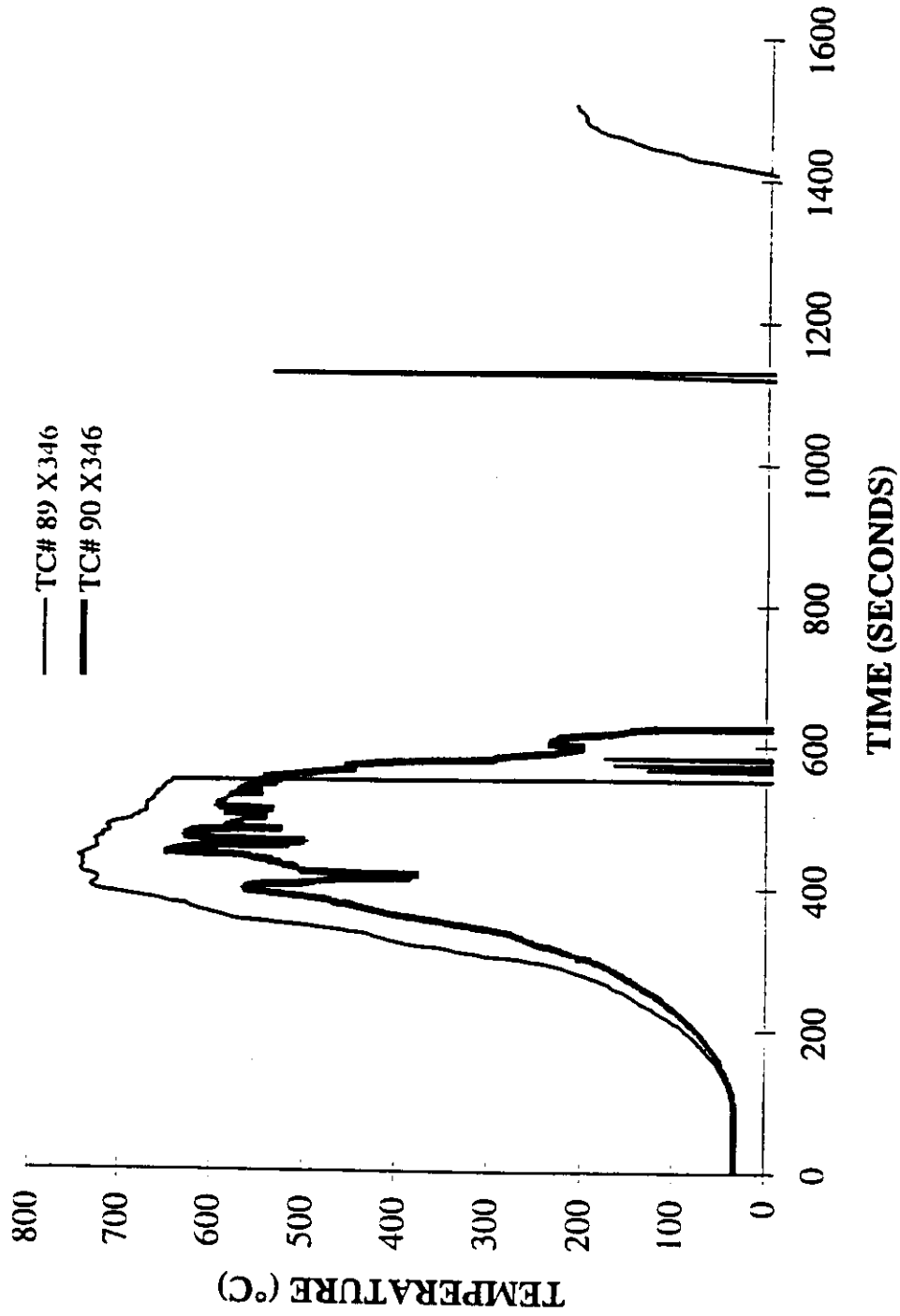
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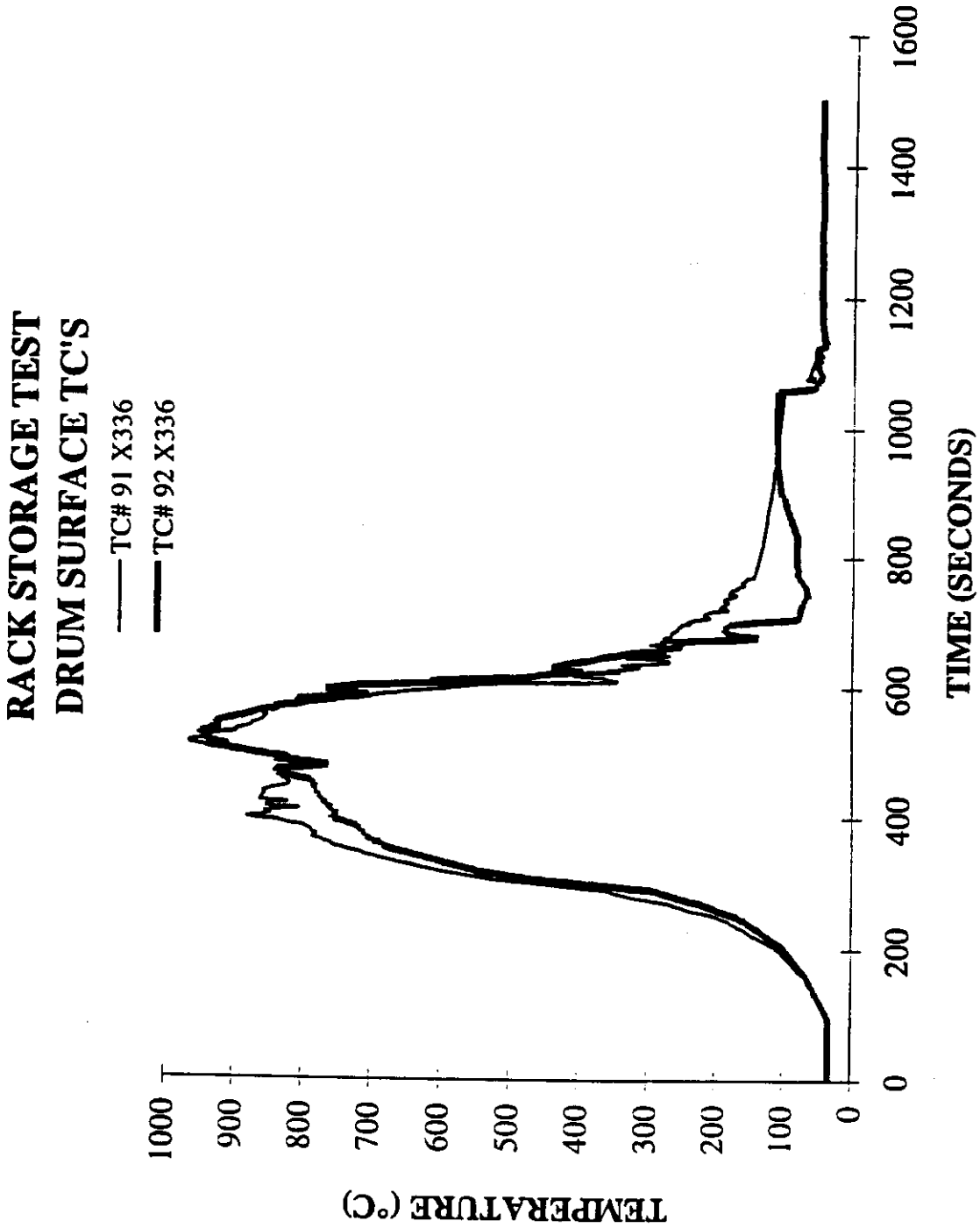
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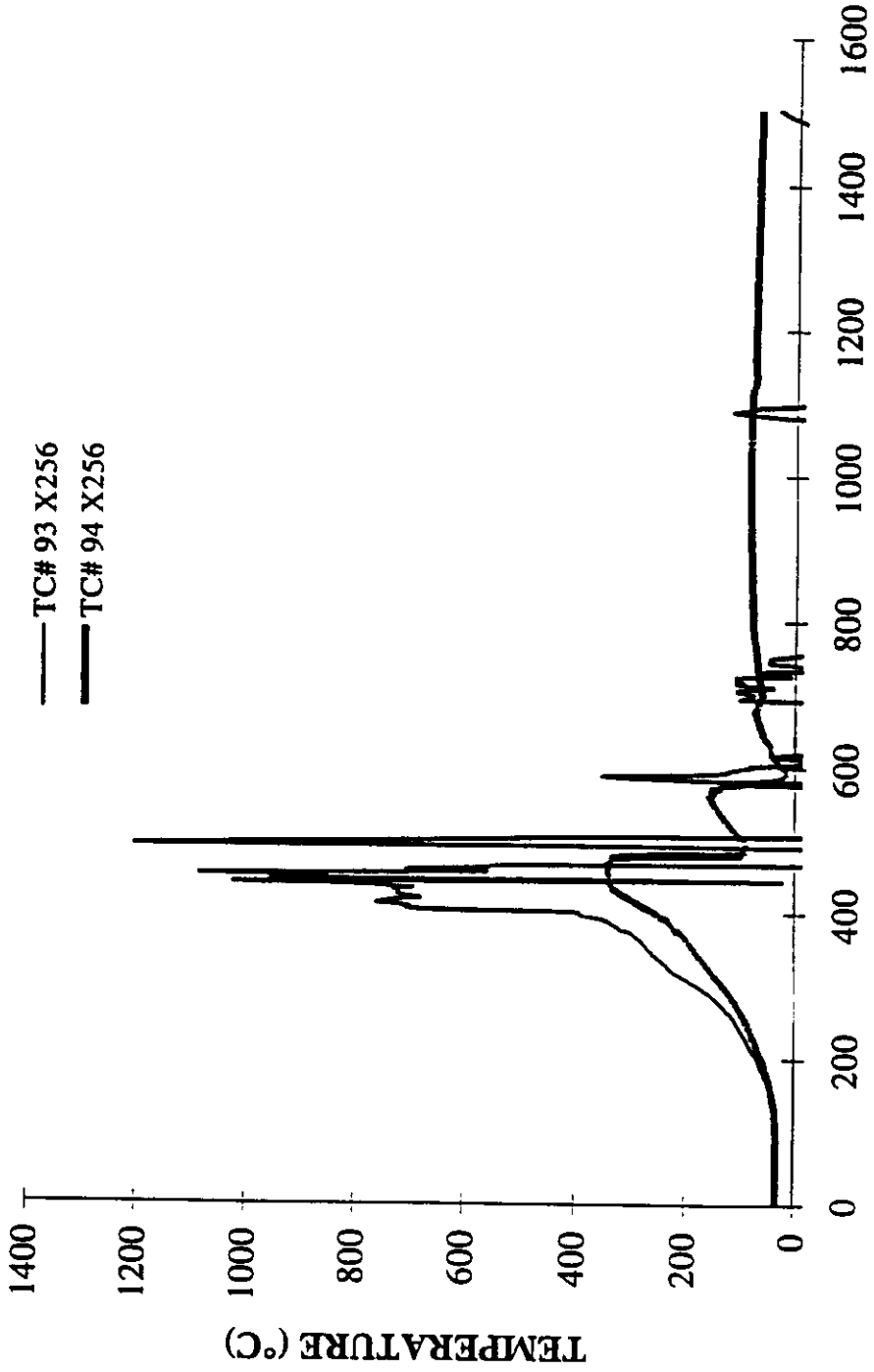
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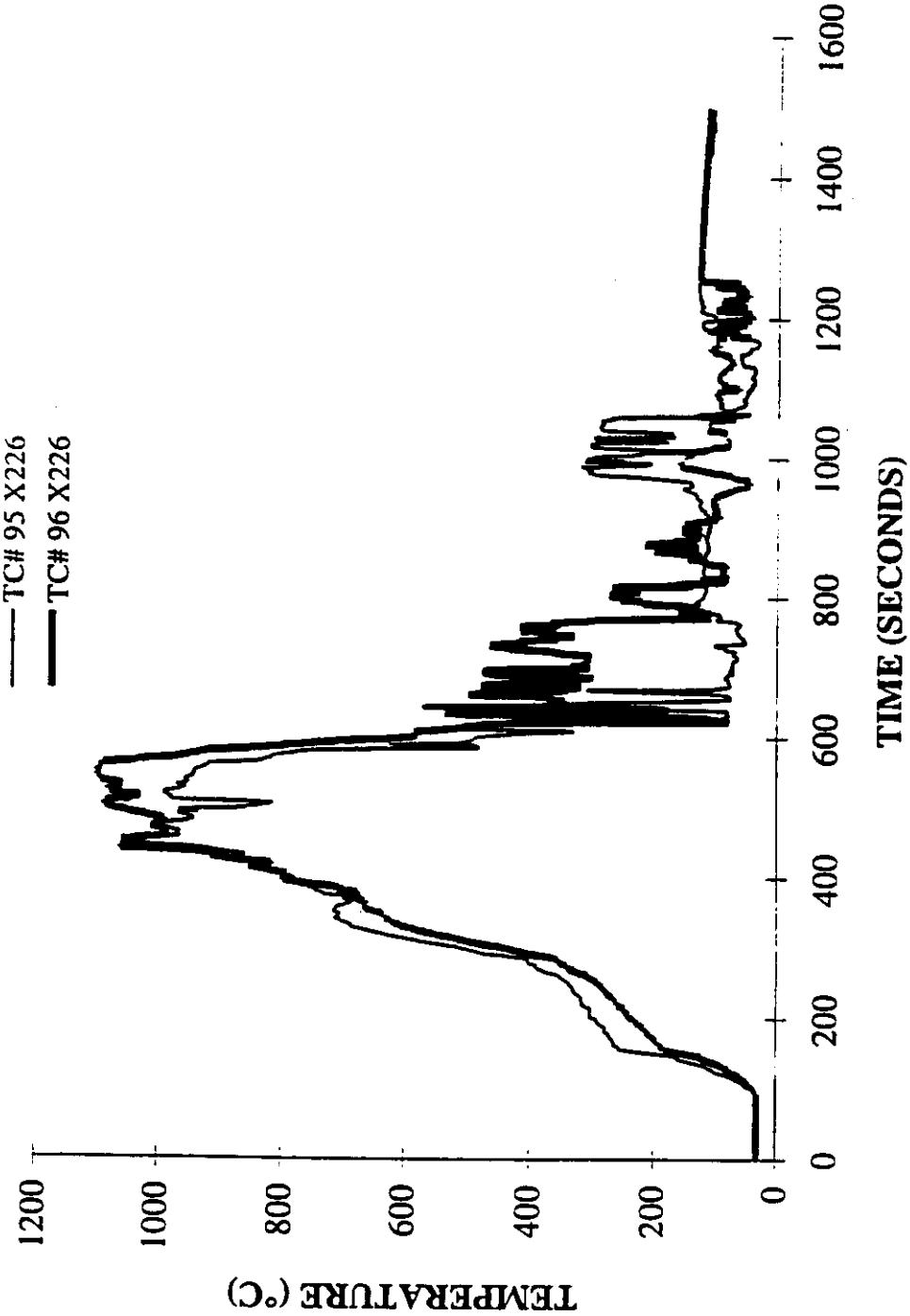


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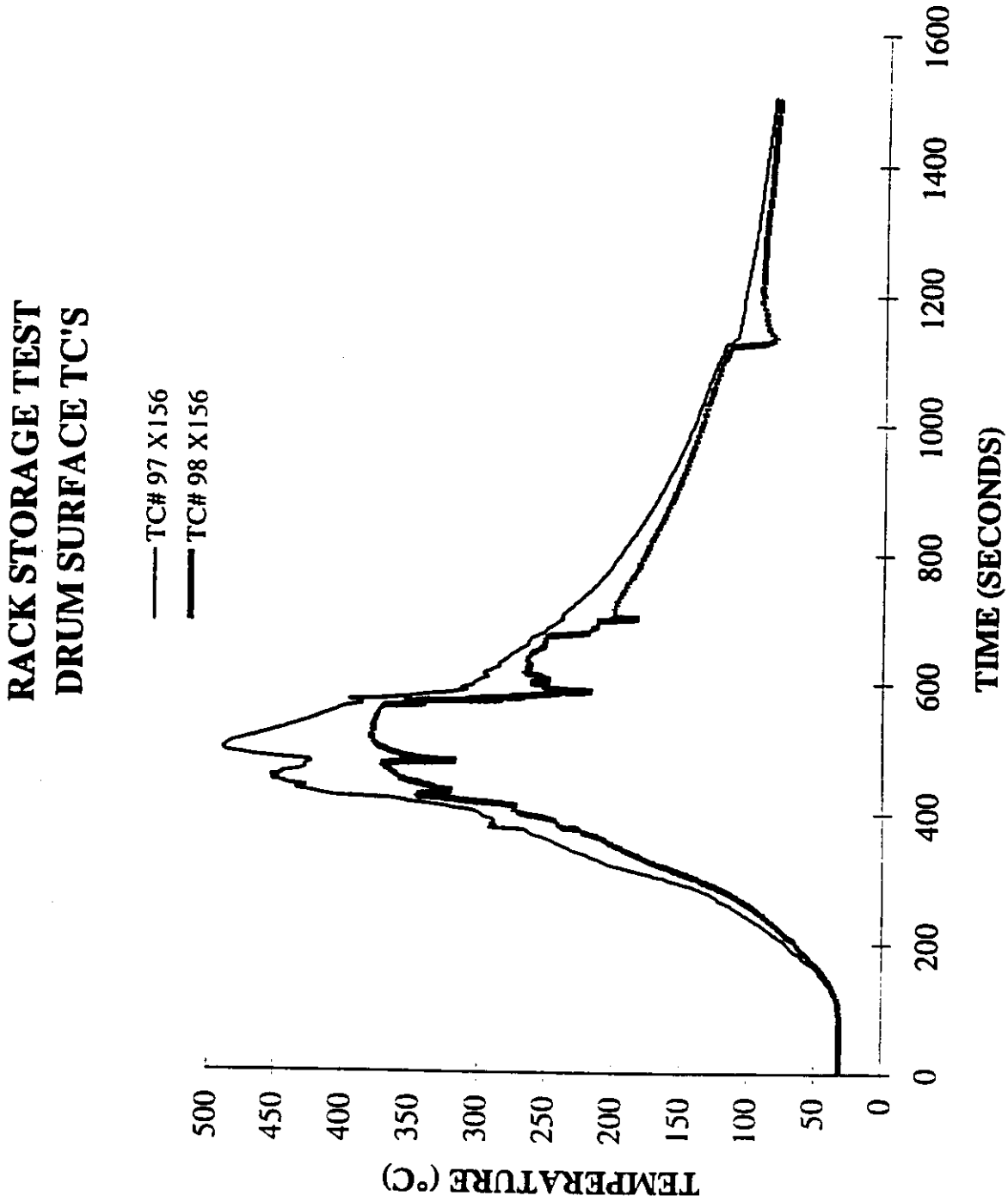


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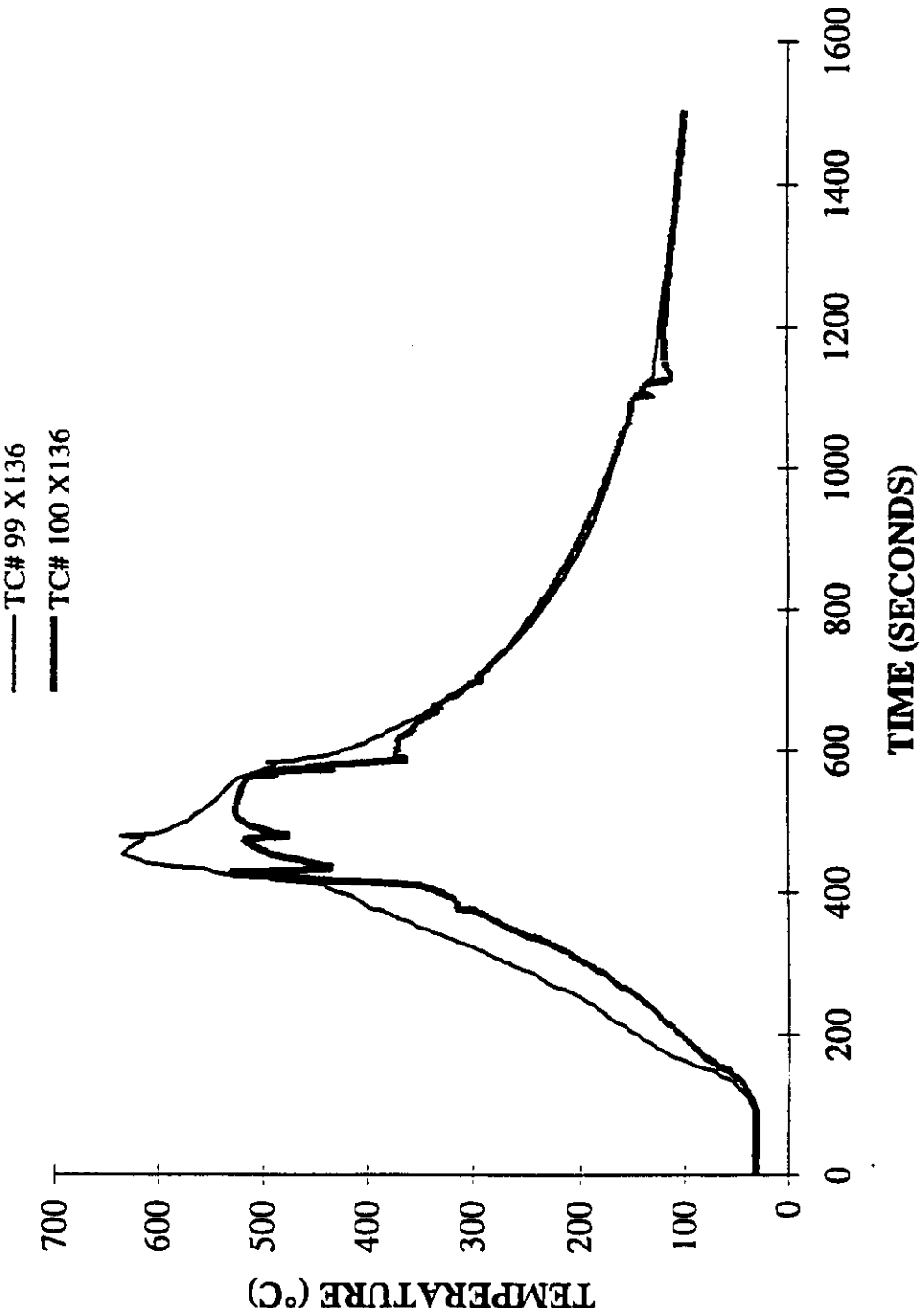
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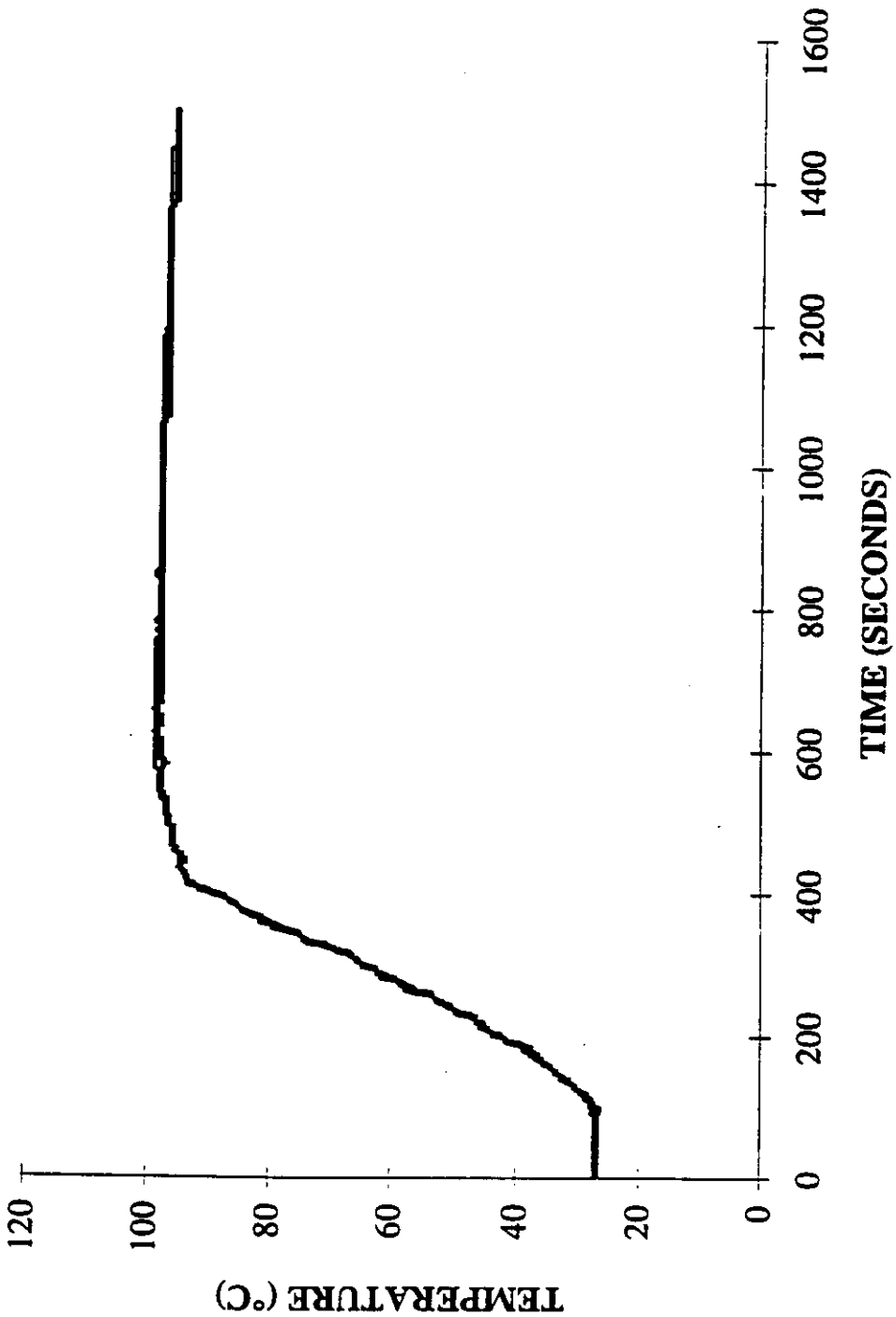
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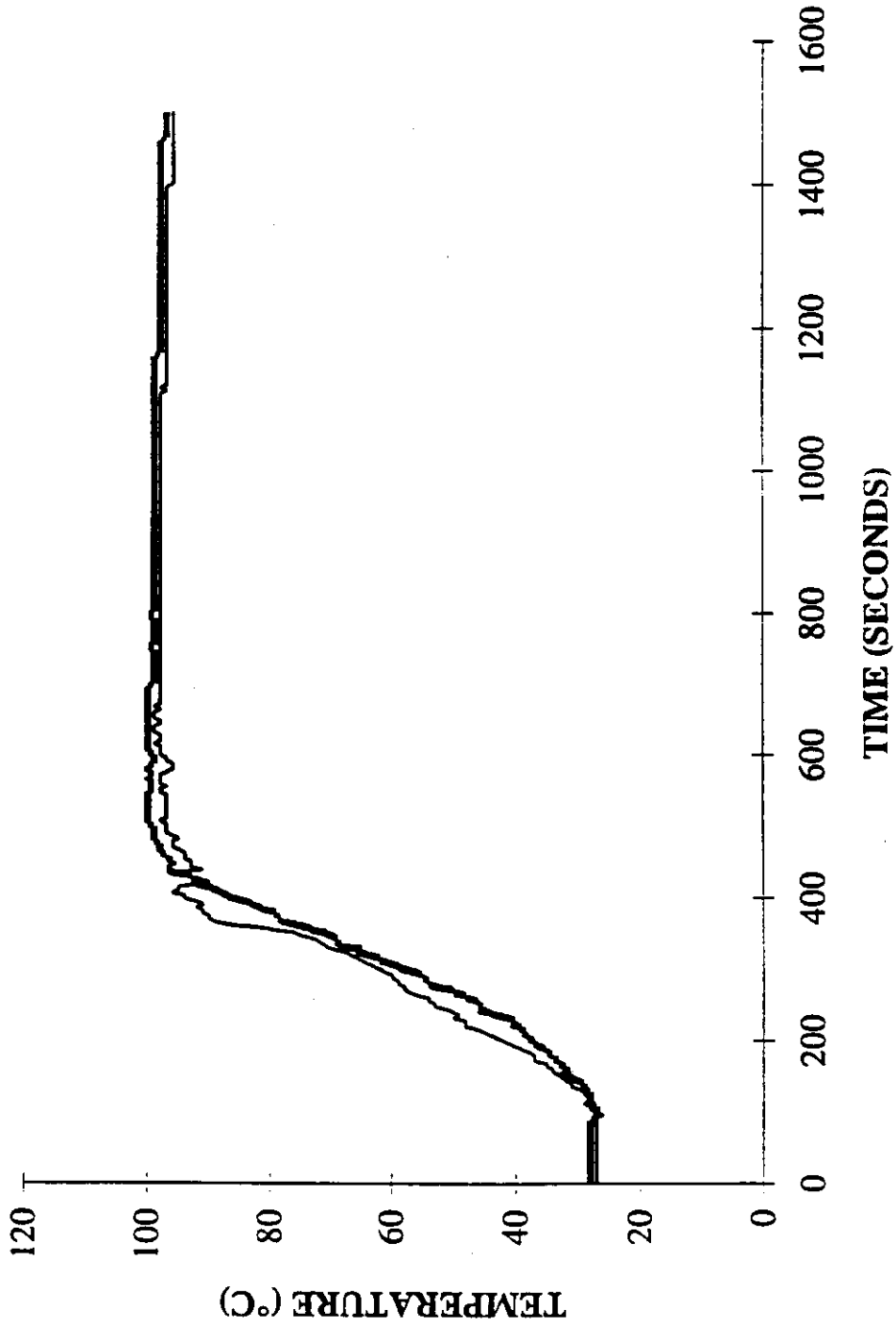
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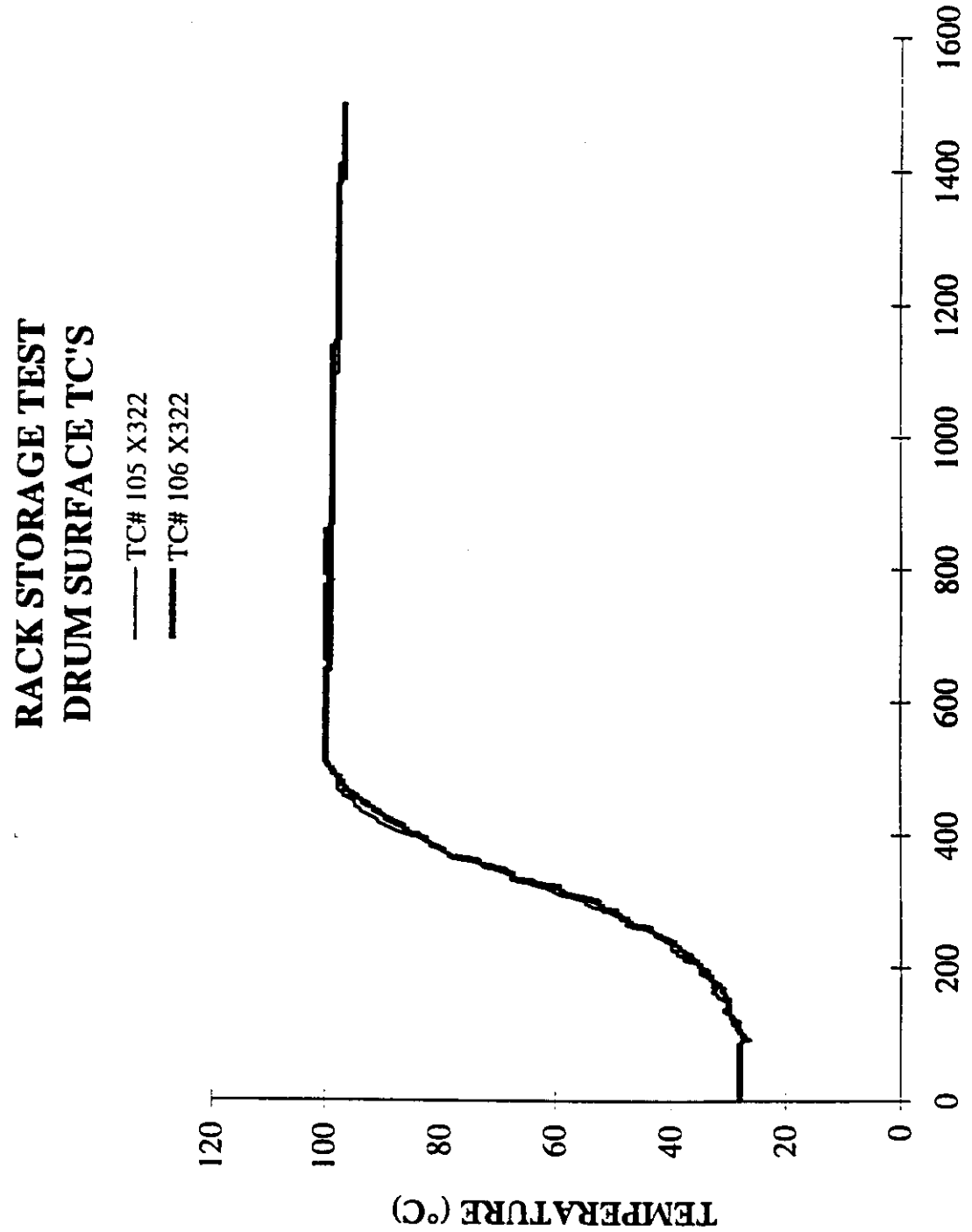
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DATE: 6 JUNE 1995
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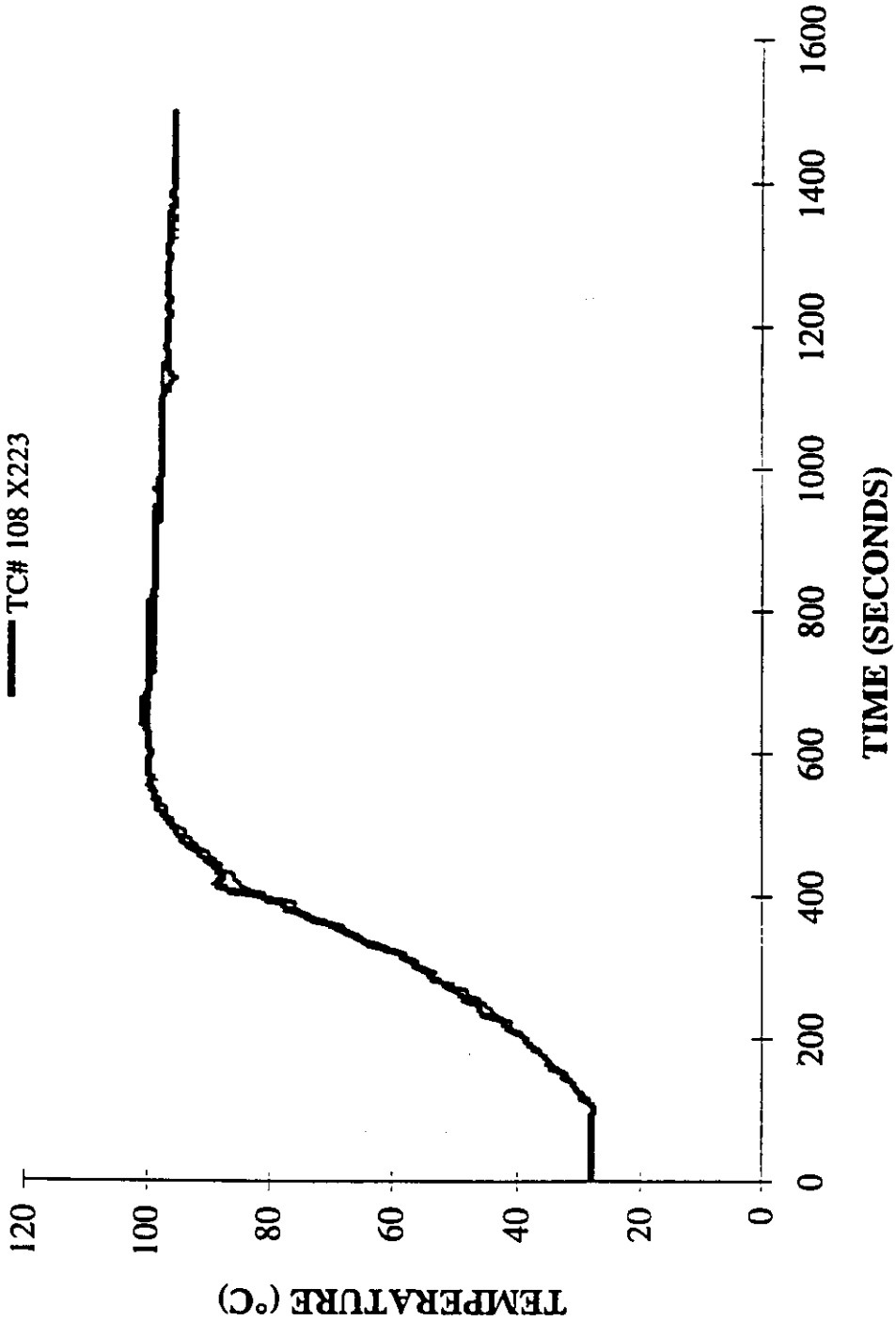
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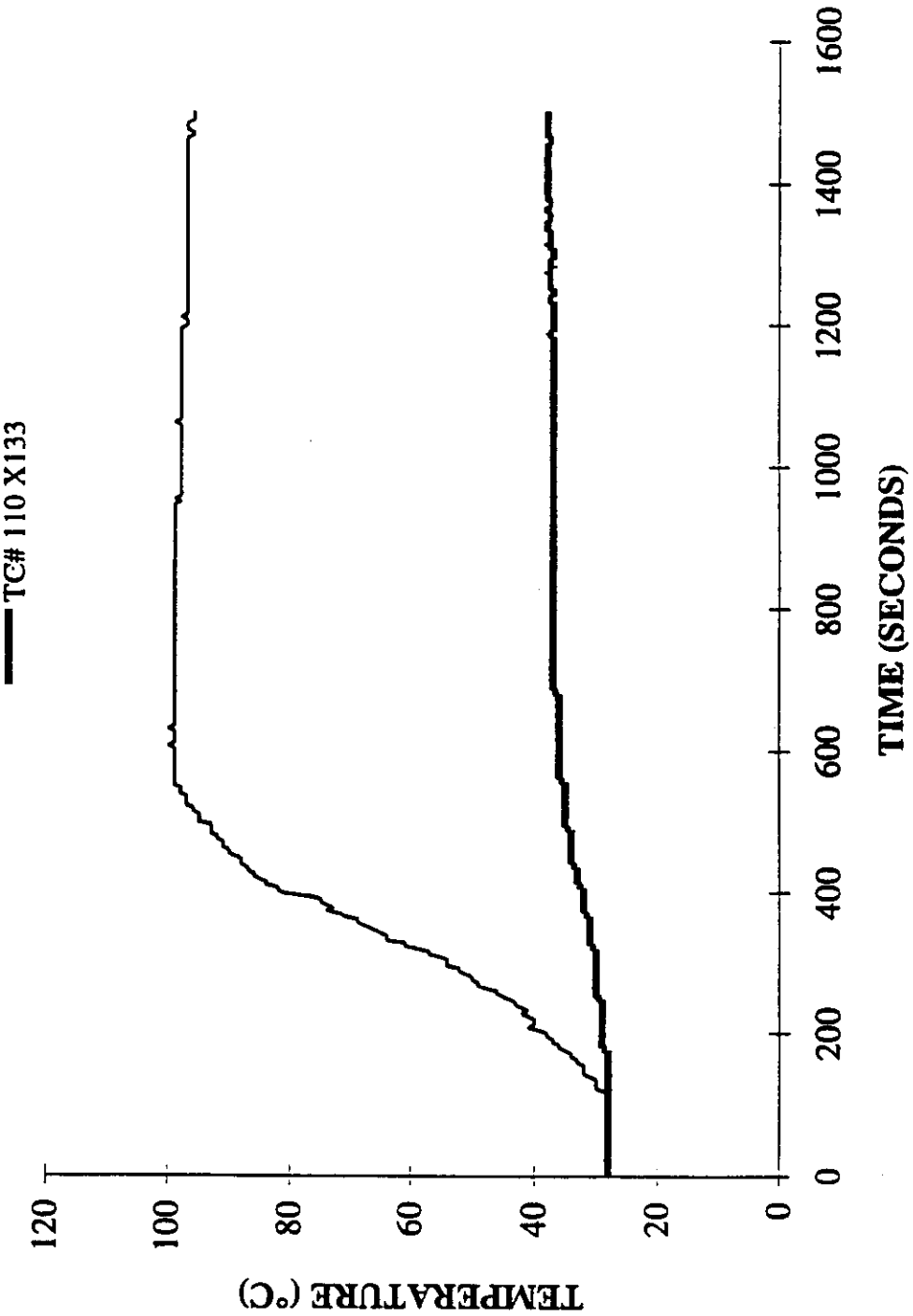
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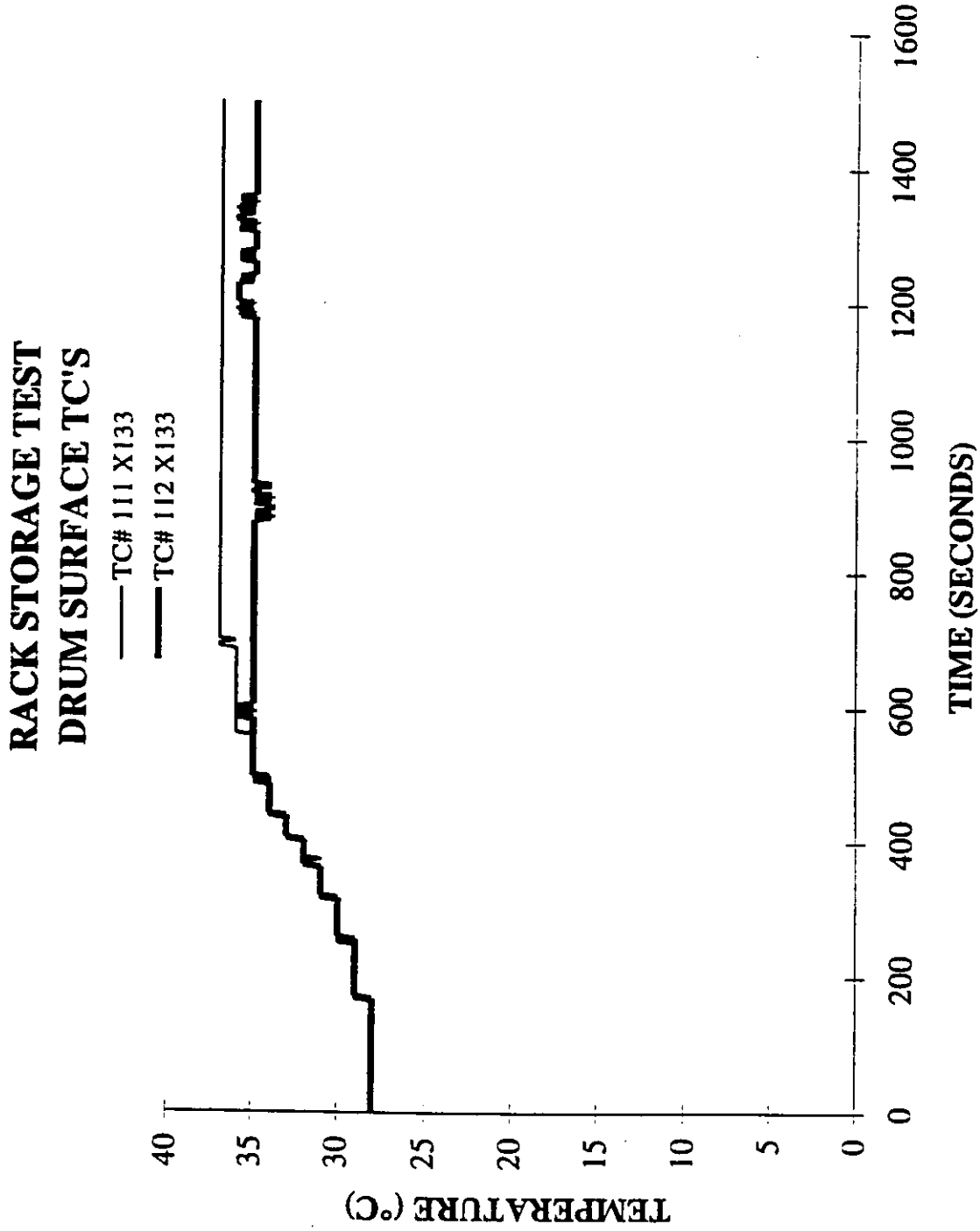
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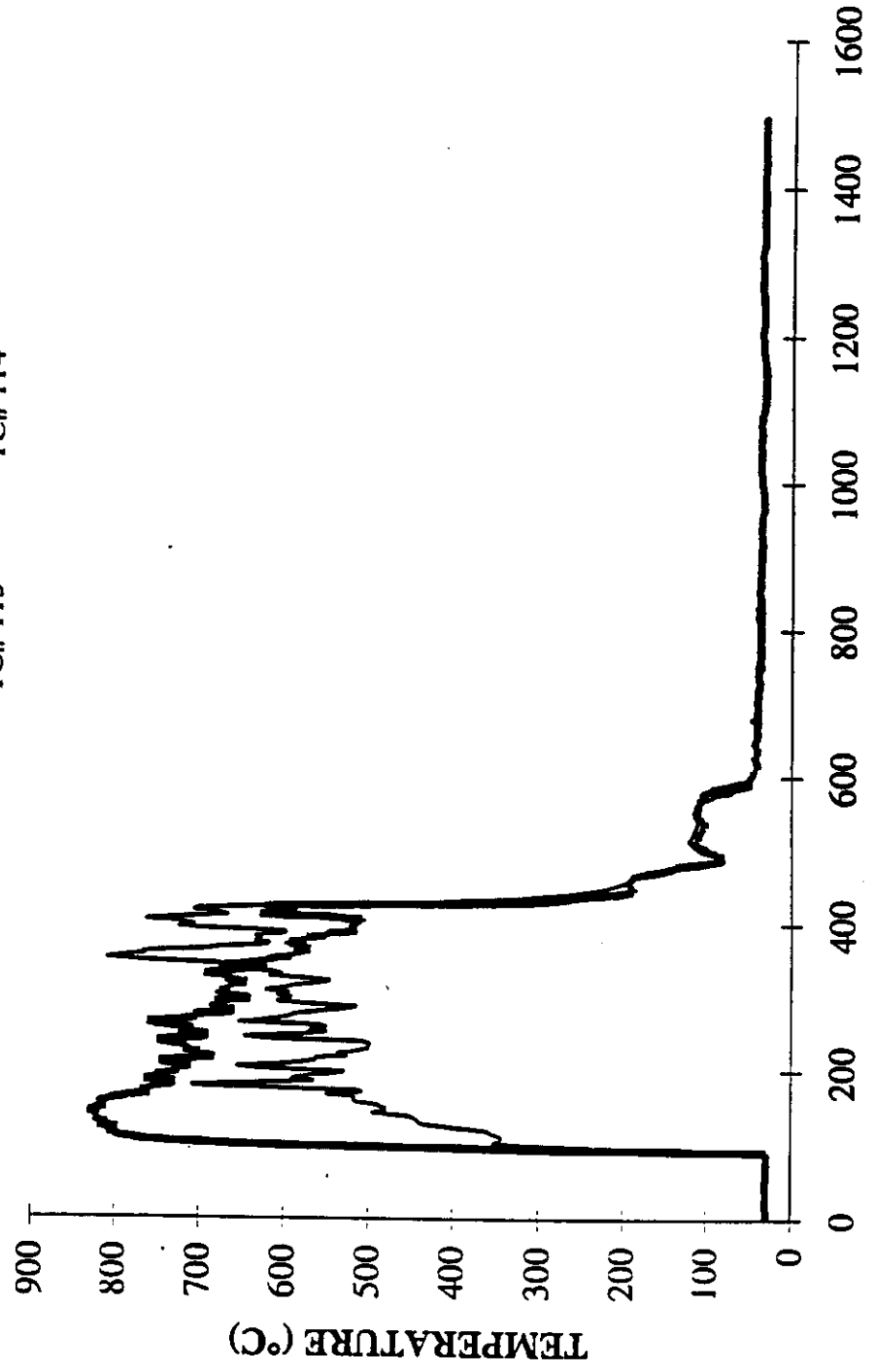
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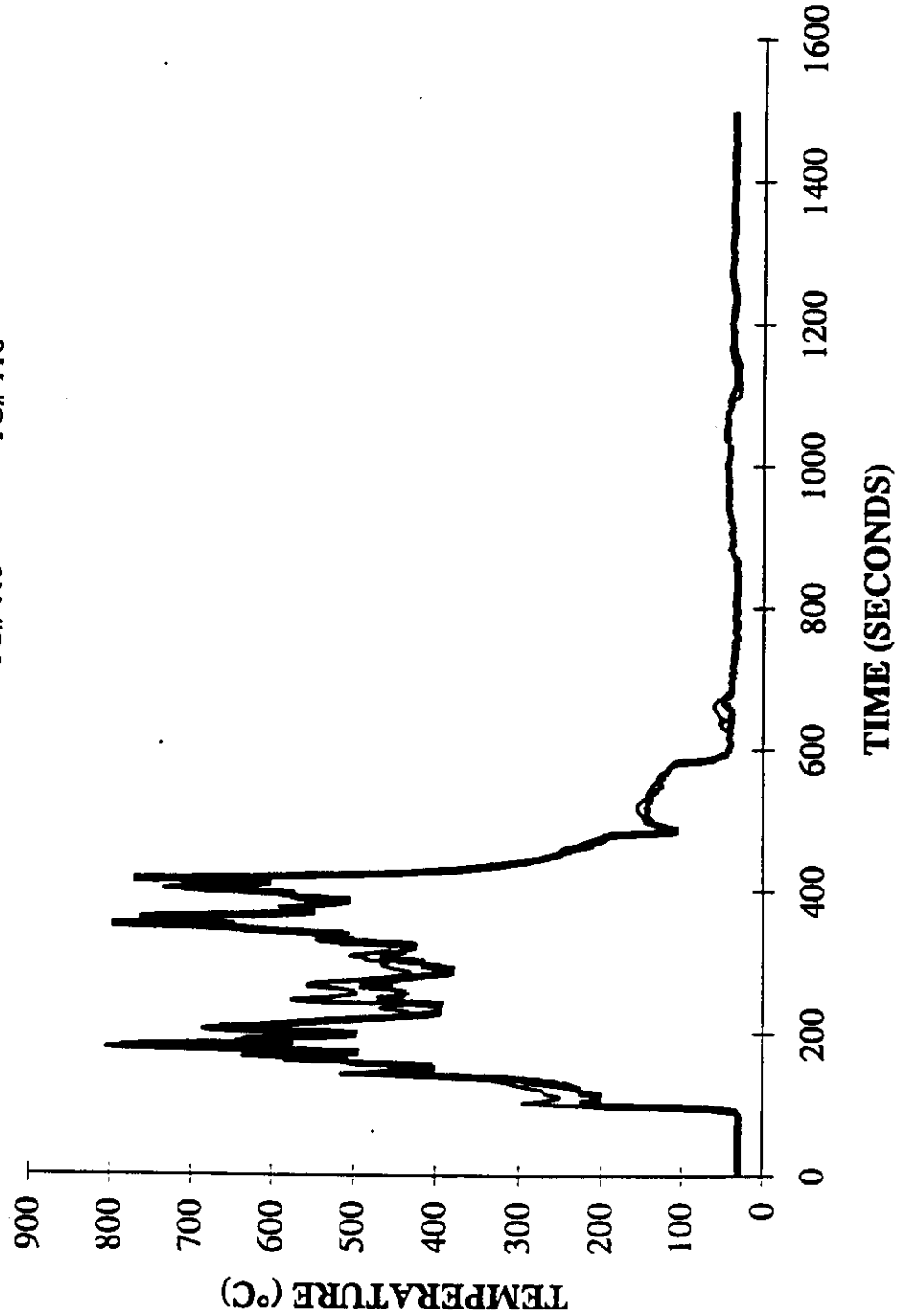
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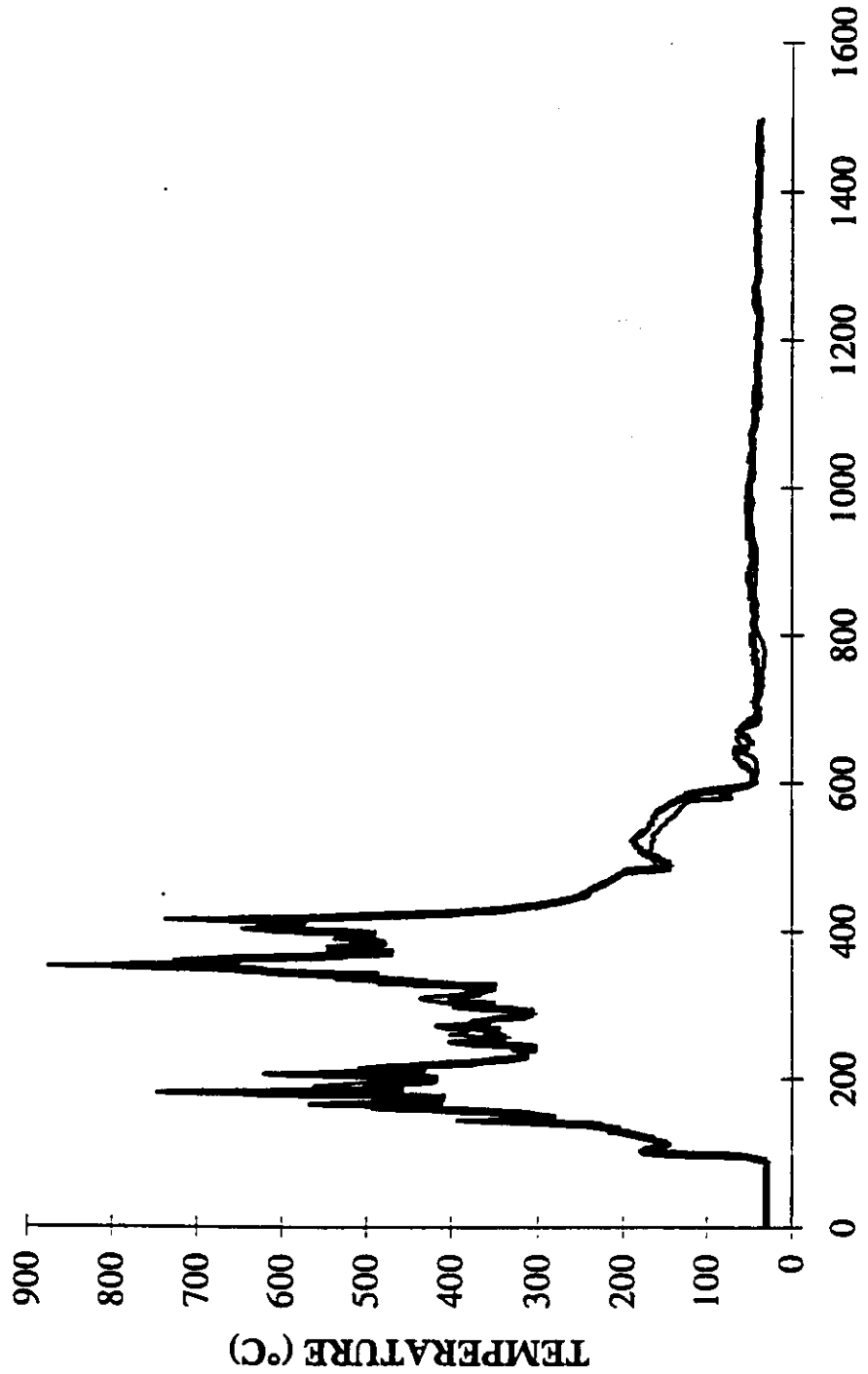
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DATE: 6 JUNE 1995
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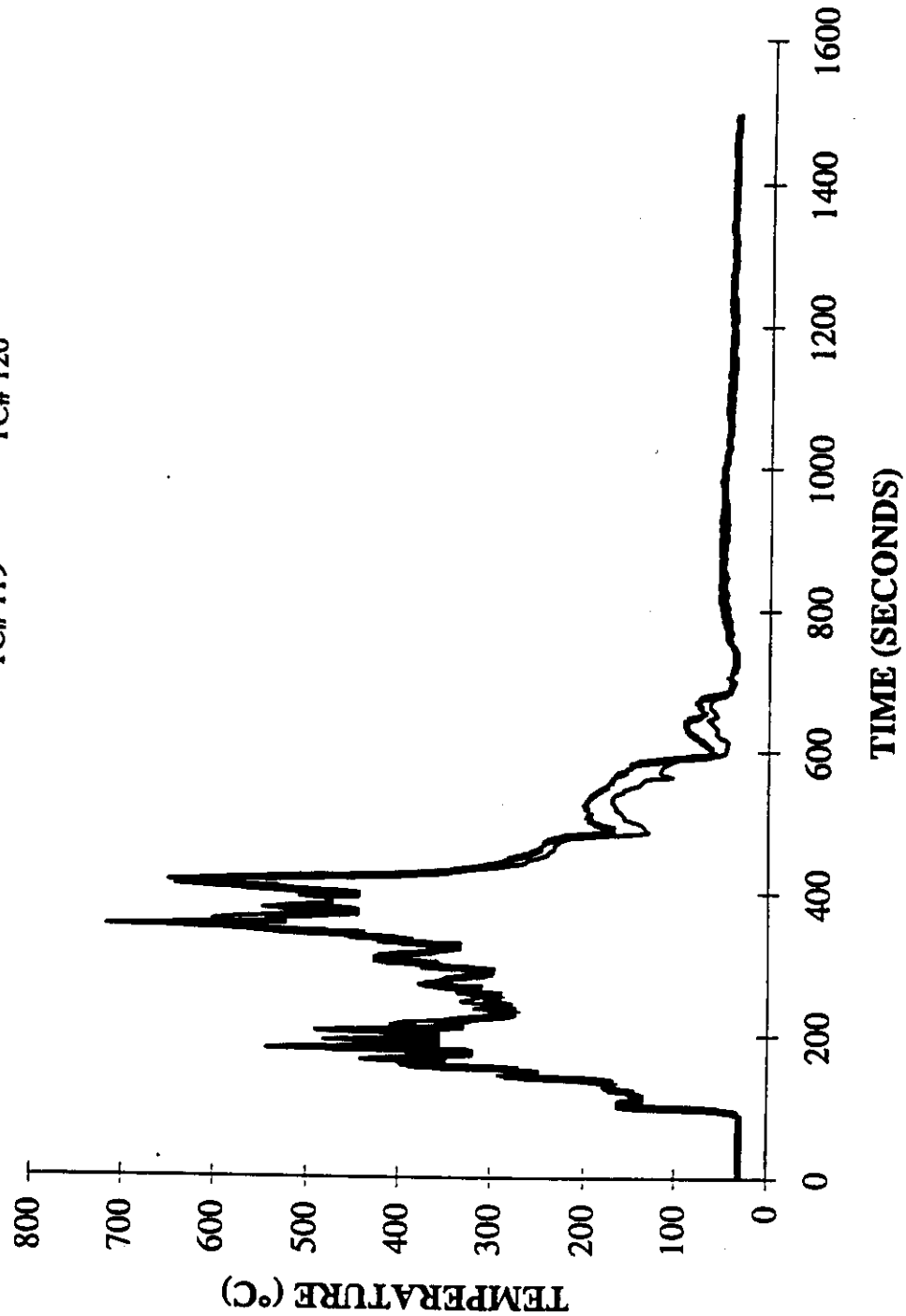
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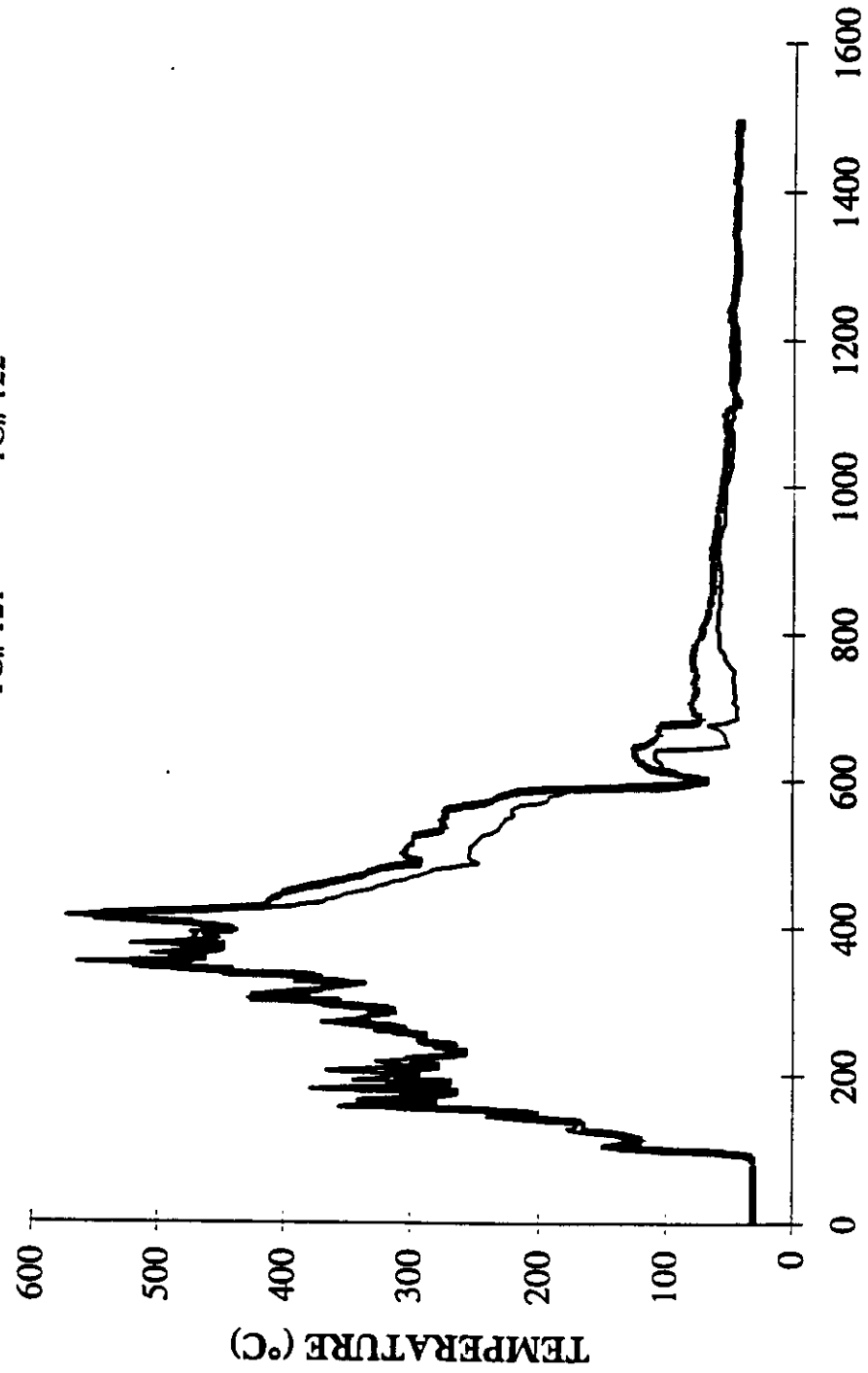
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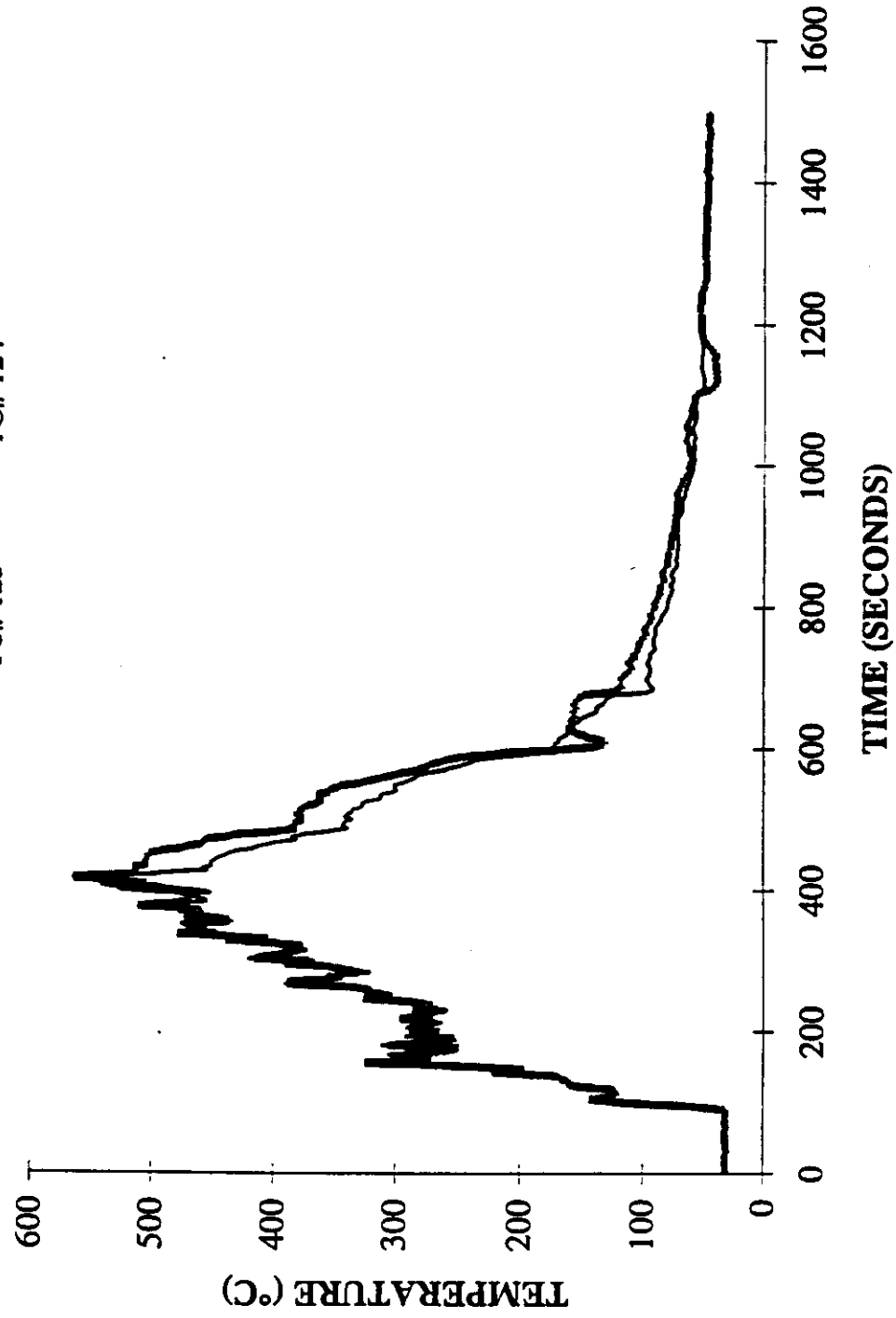
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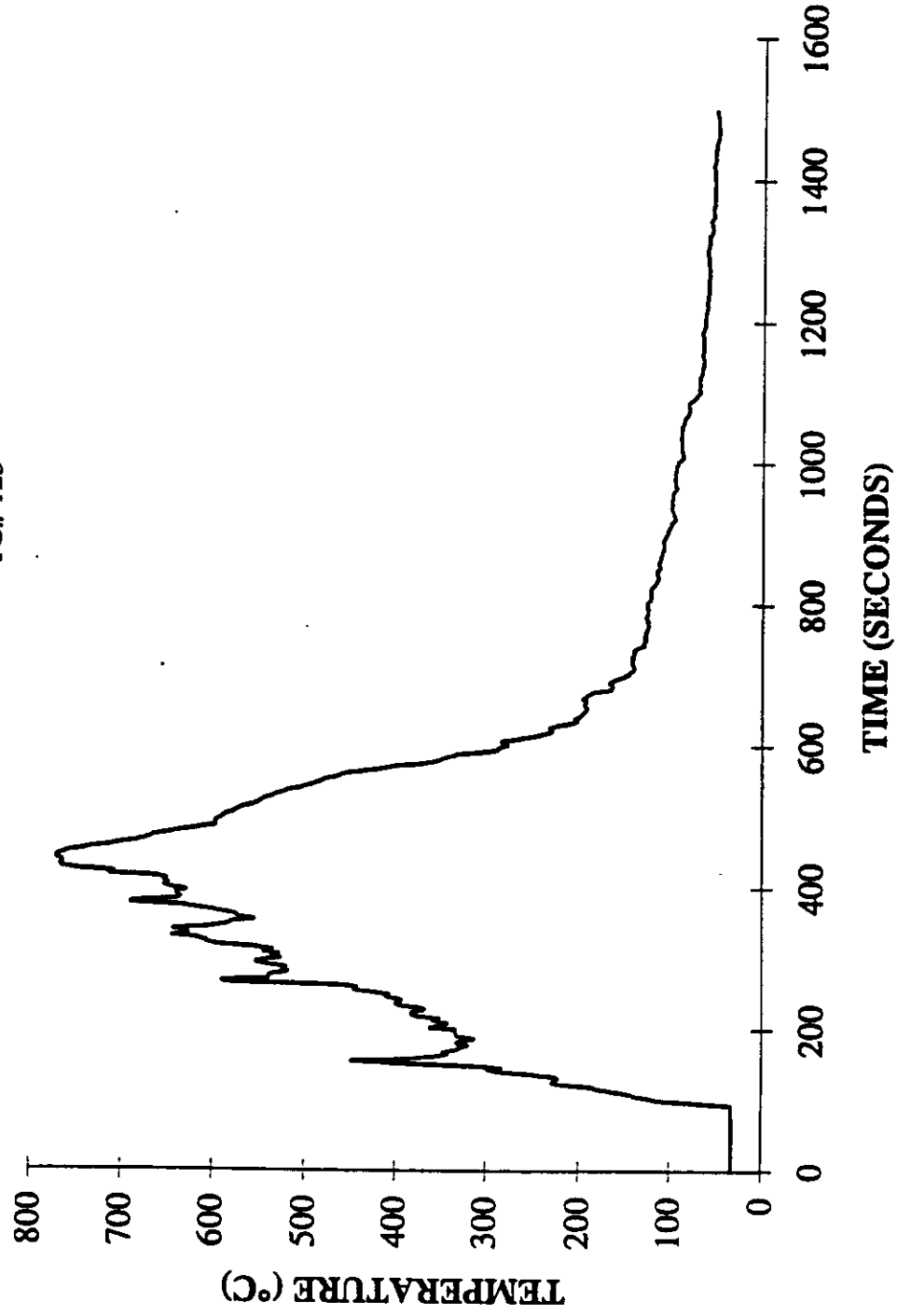
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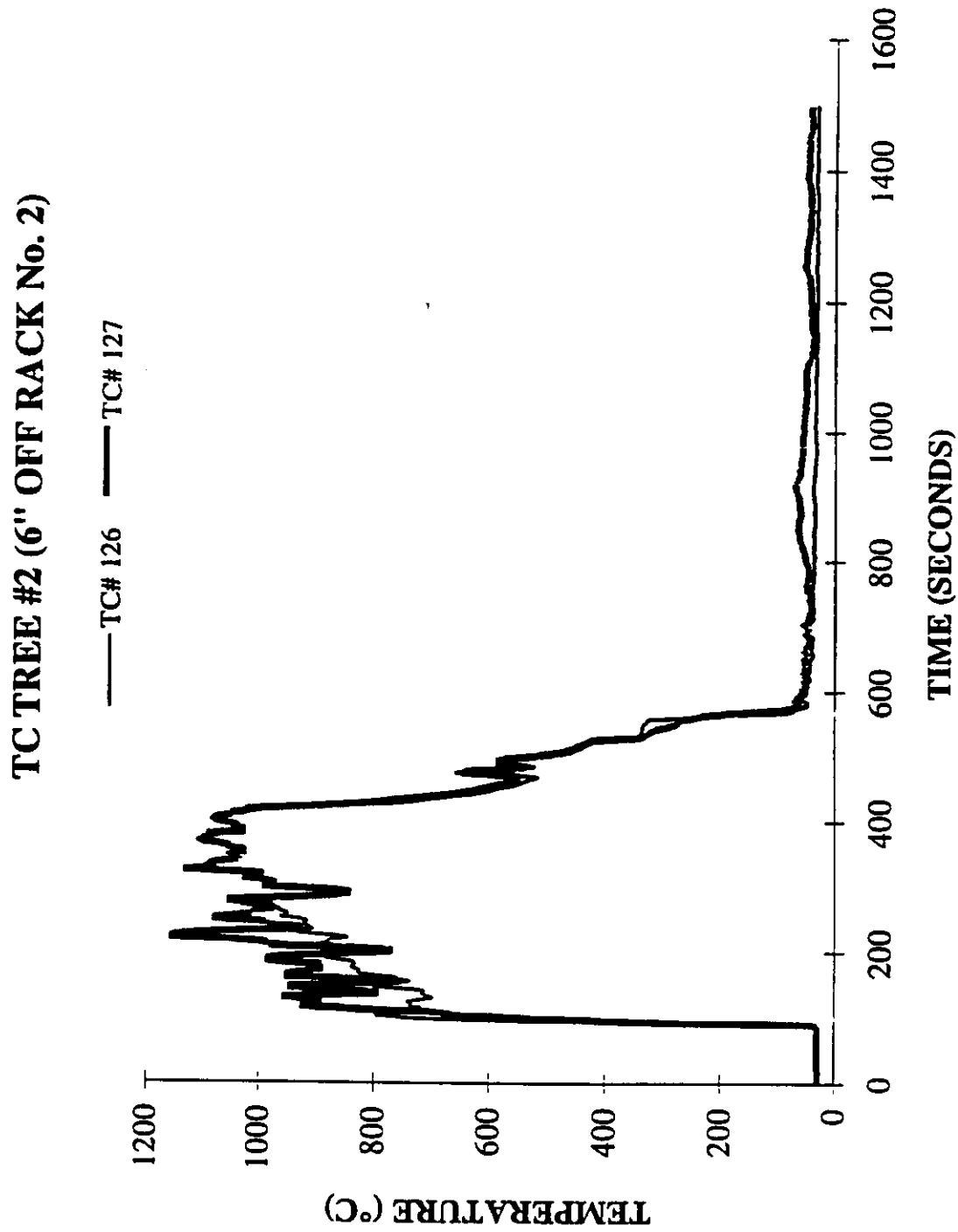
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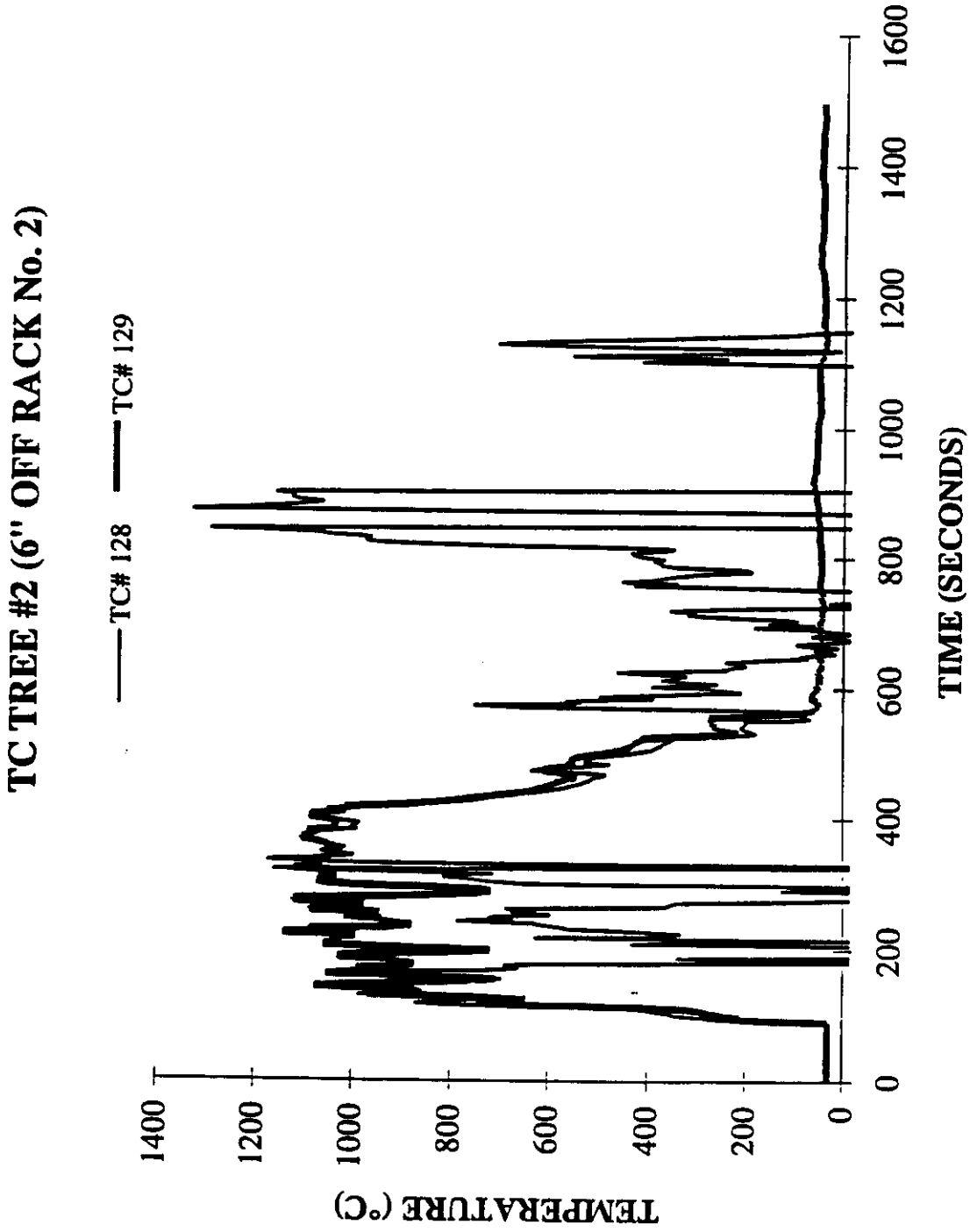
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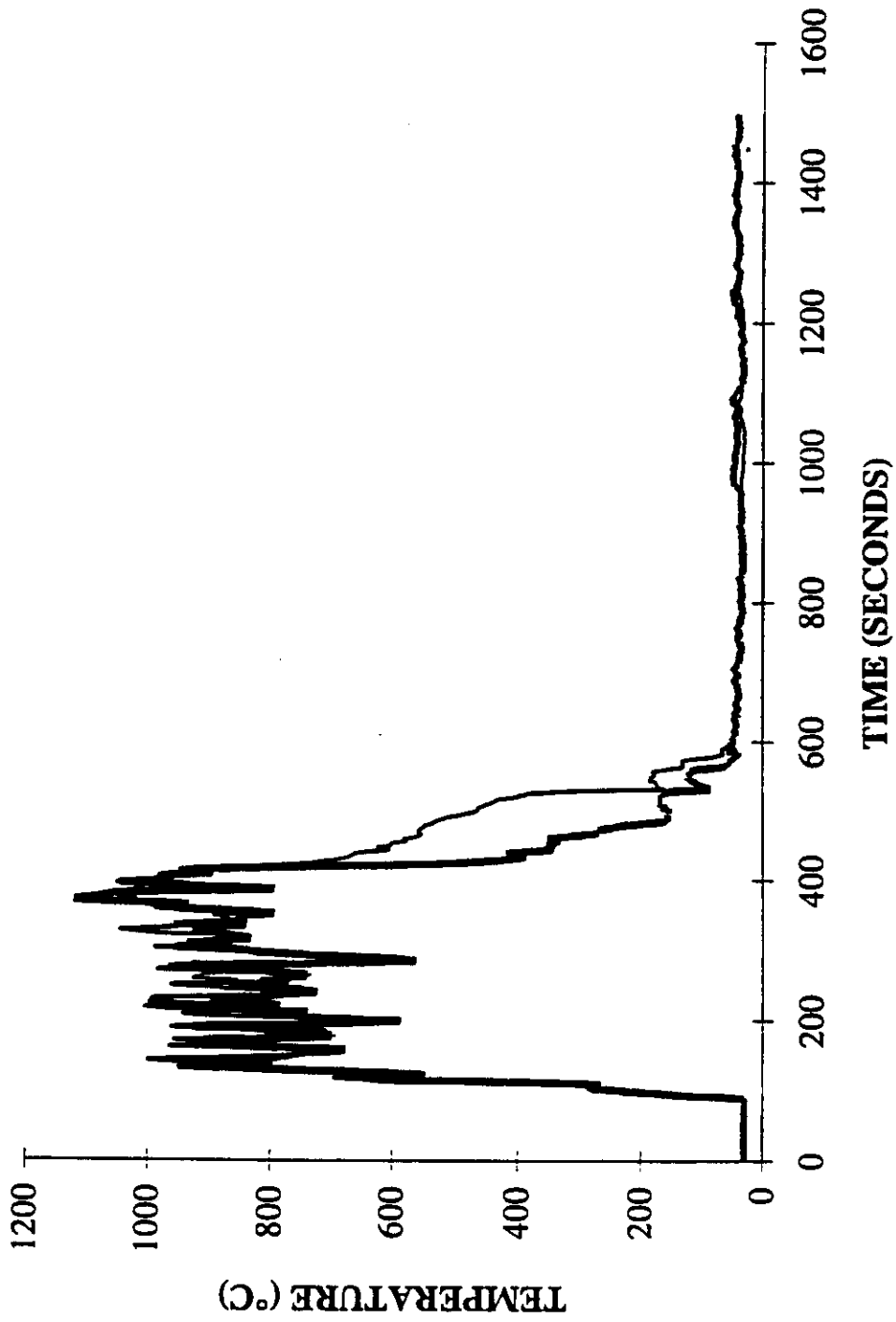


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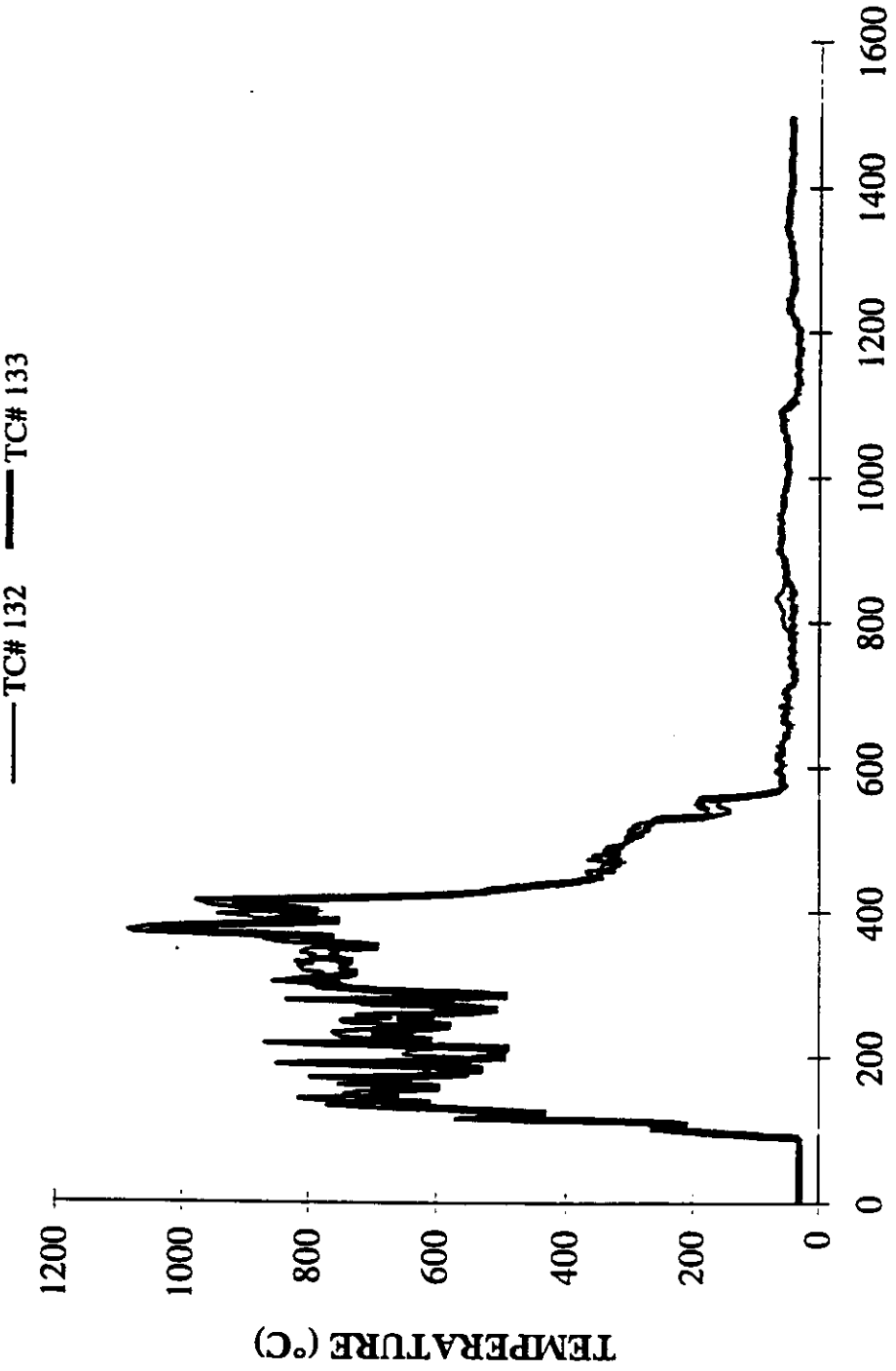


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DATE: 6 JUNE 1995
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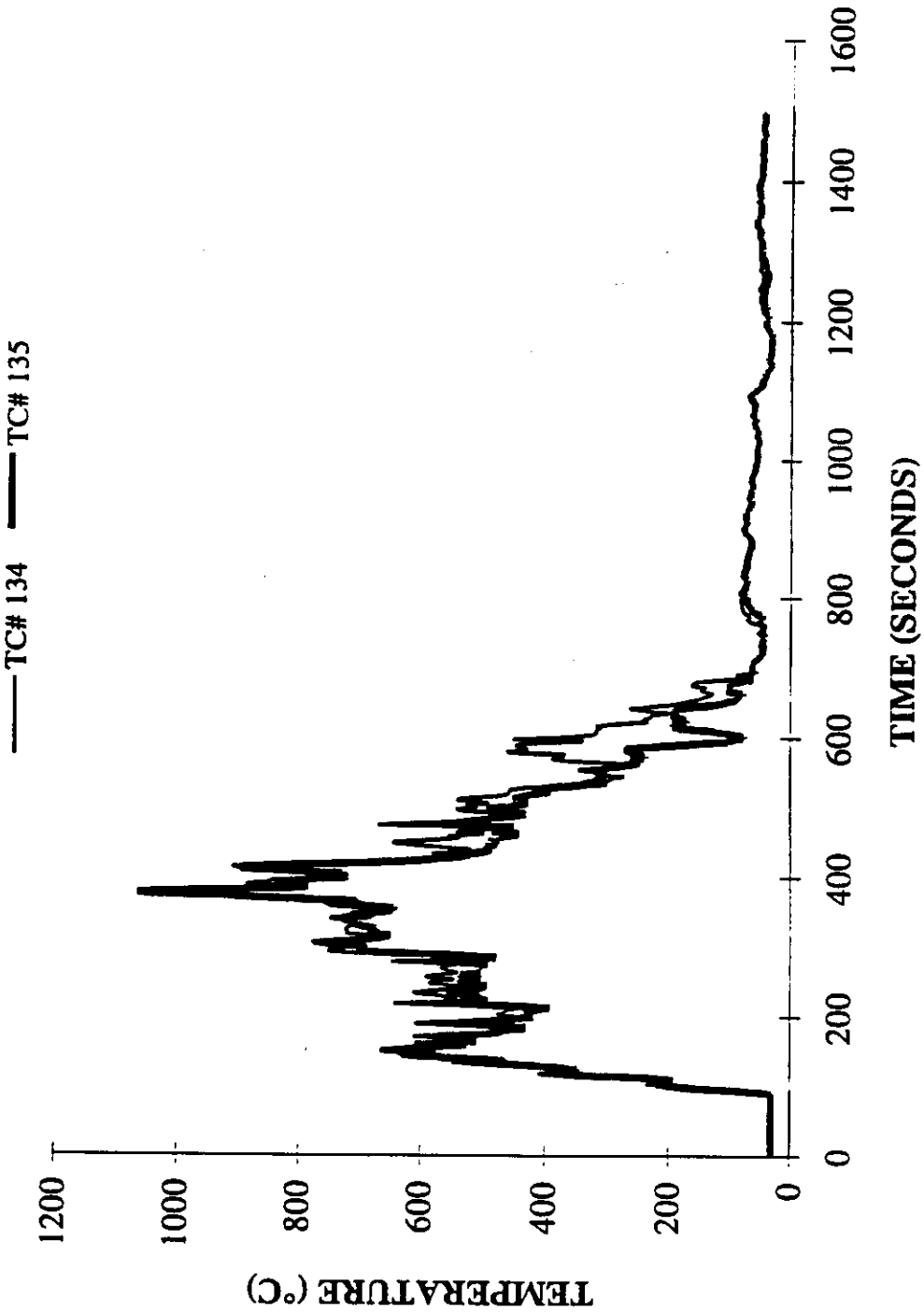
RACK STORAGE TEST
TC TREE #2 (6" OFF RACK No. 2)



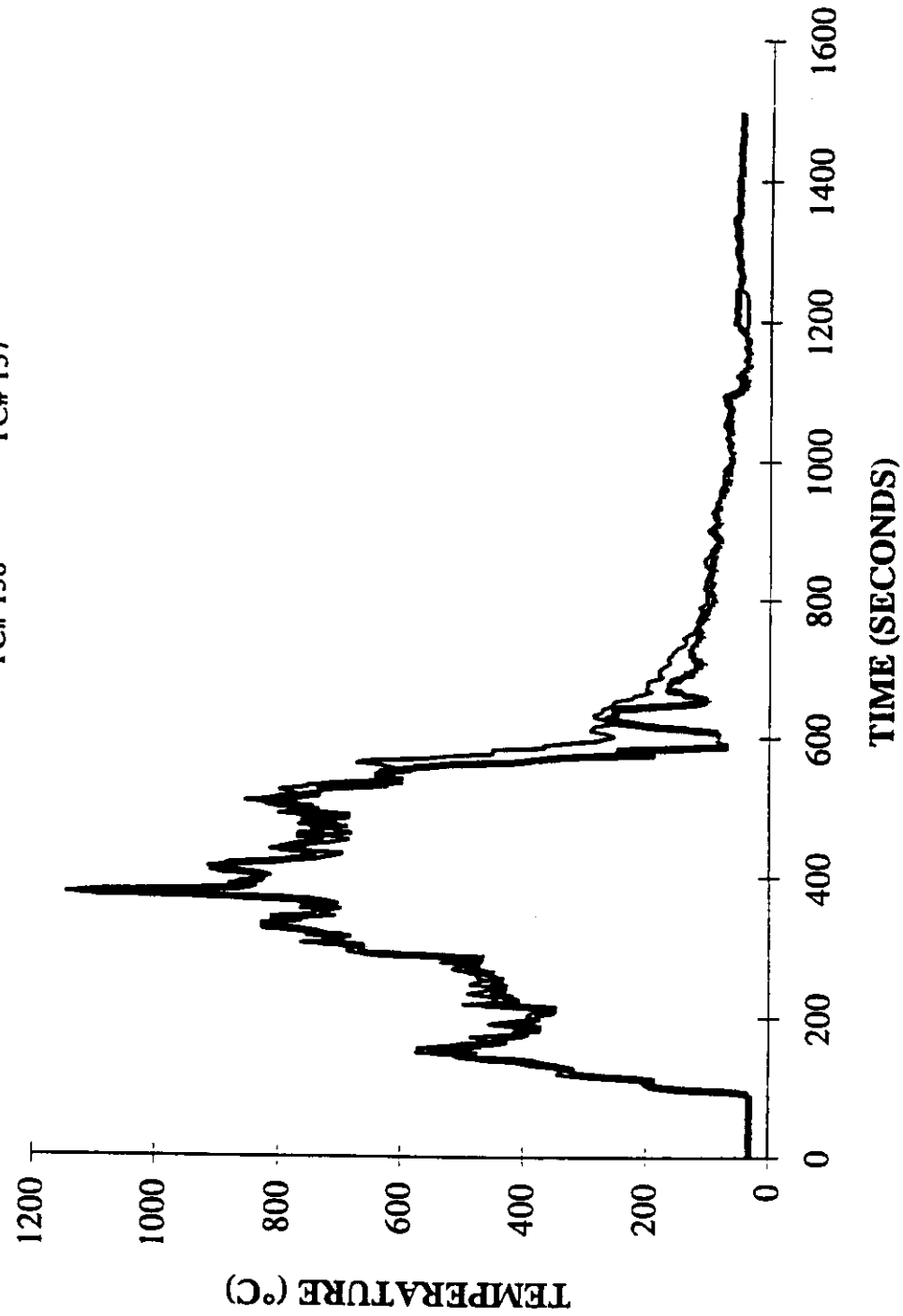
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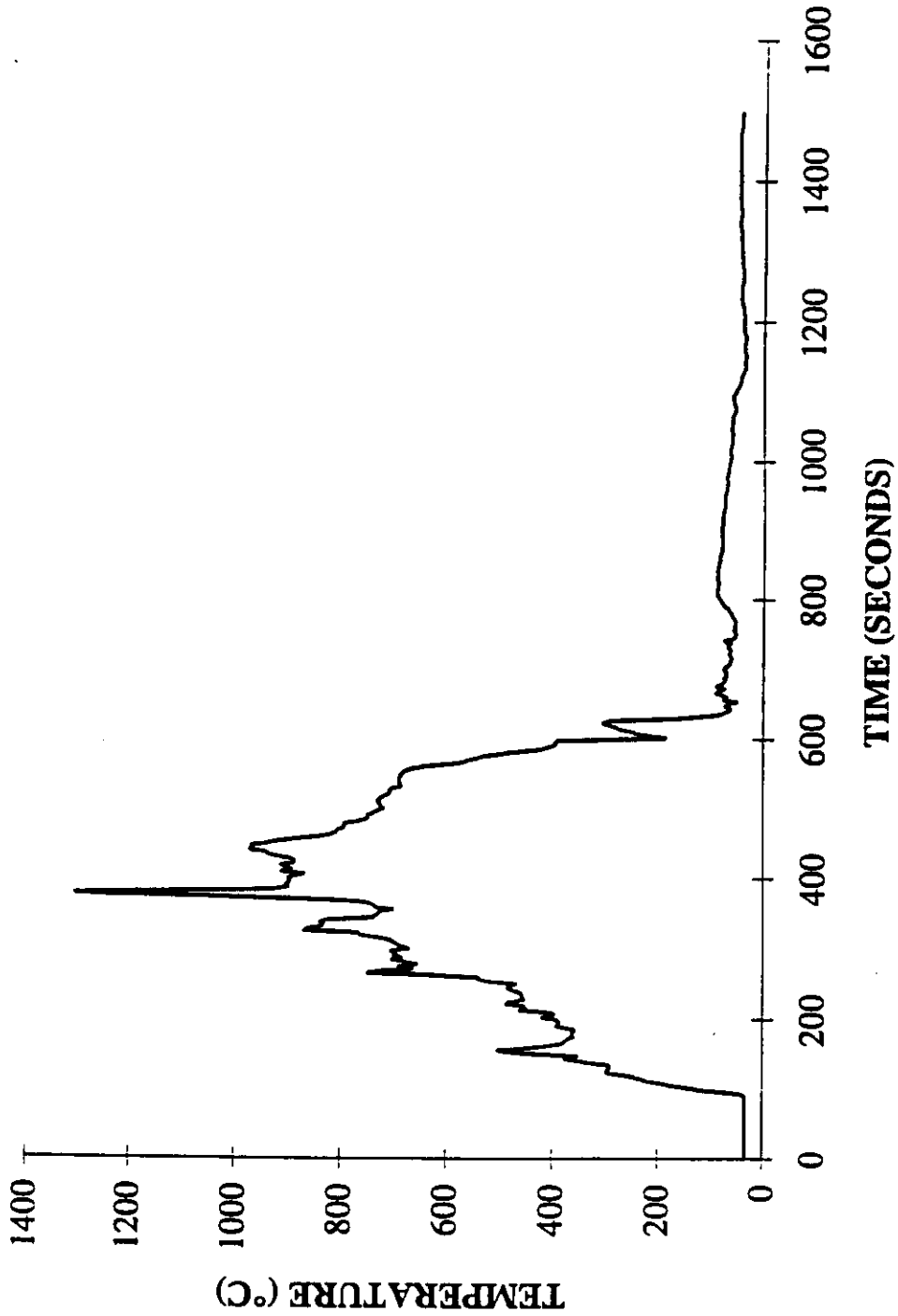
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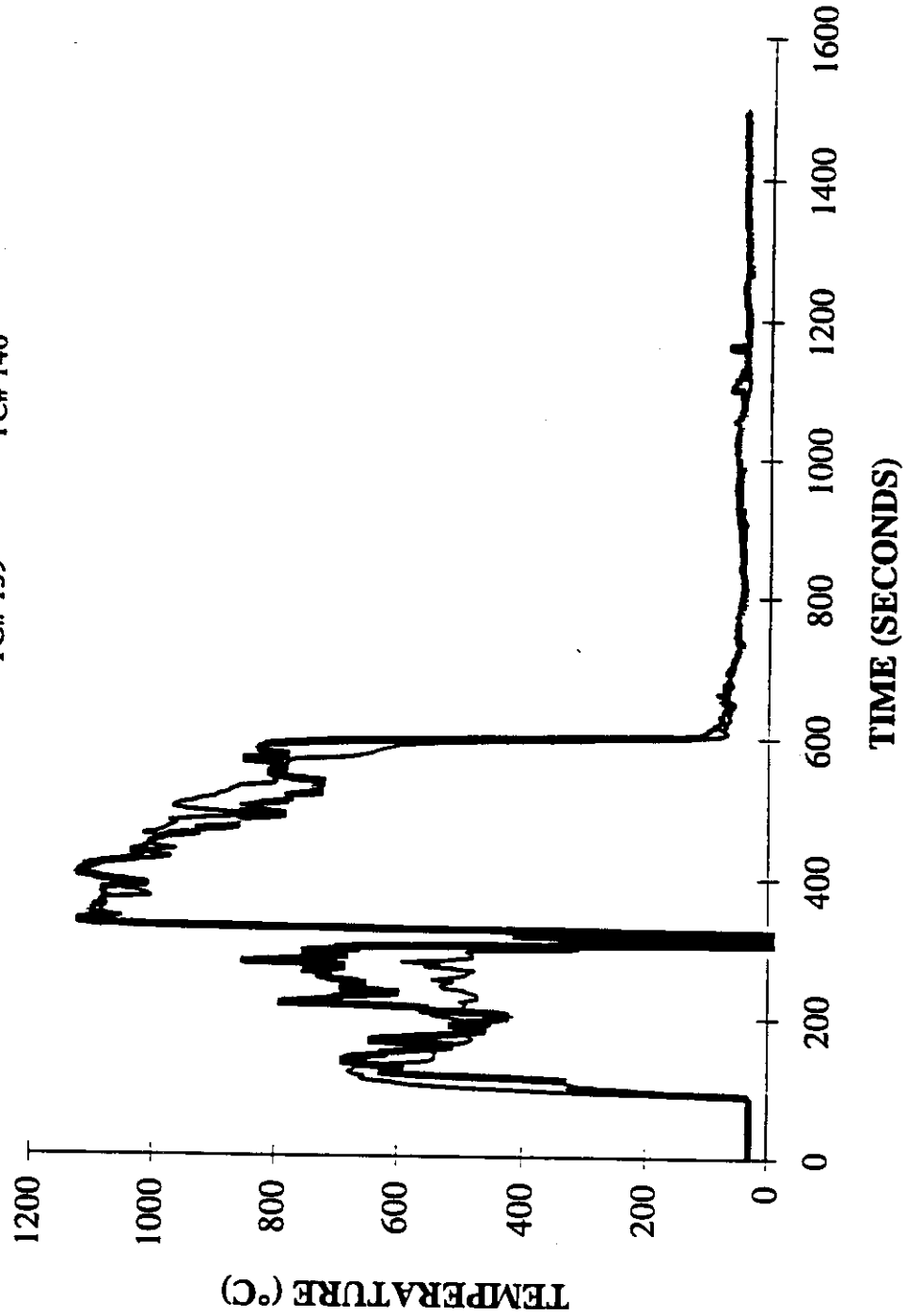
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DATE: 6 JUNE 1995
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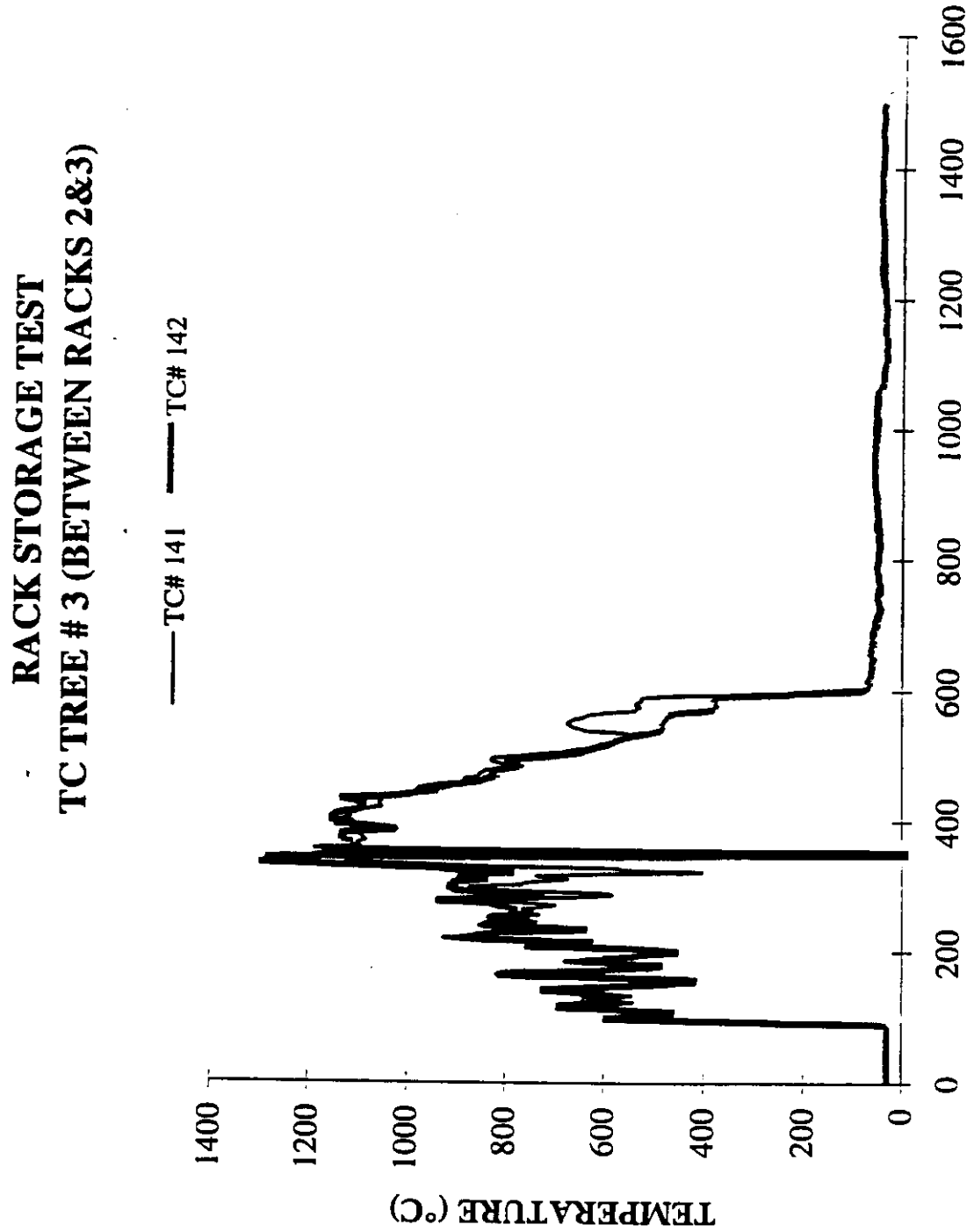
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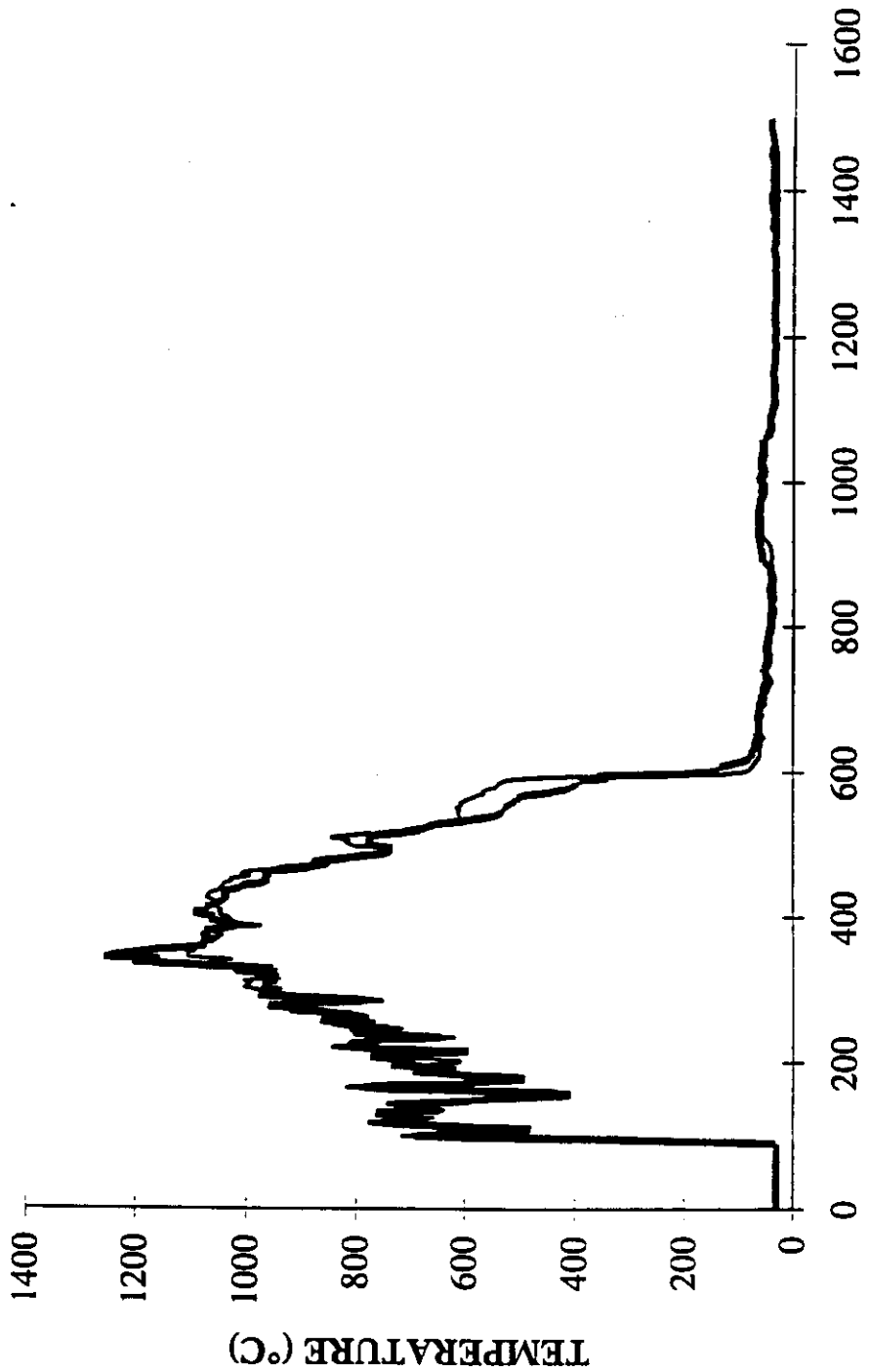
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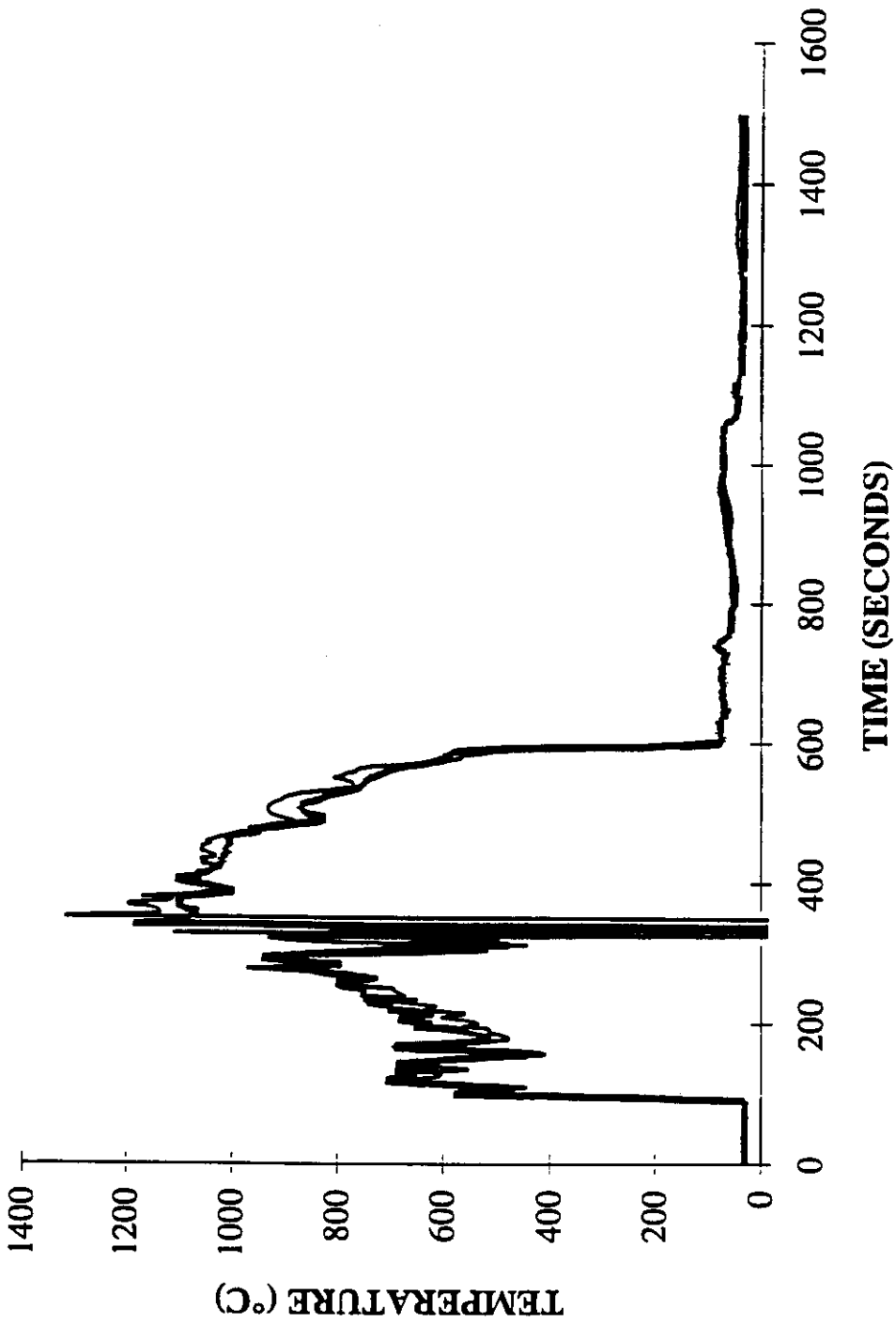
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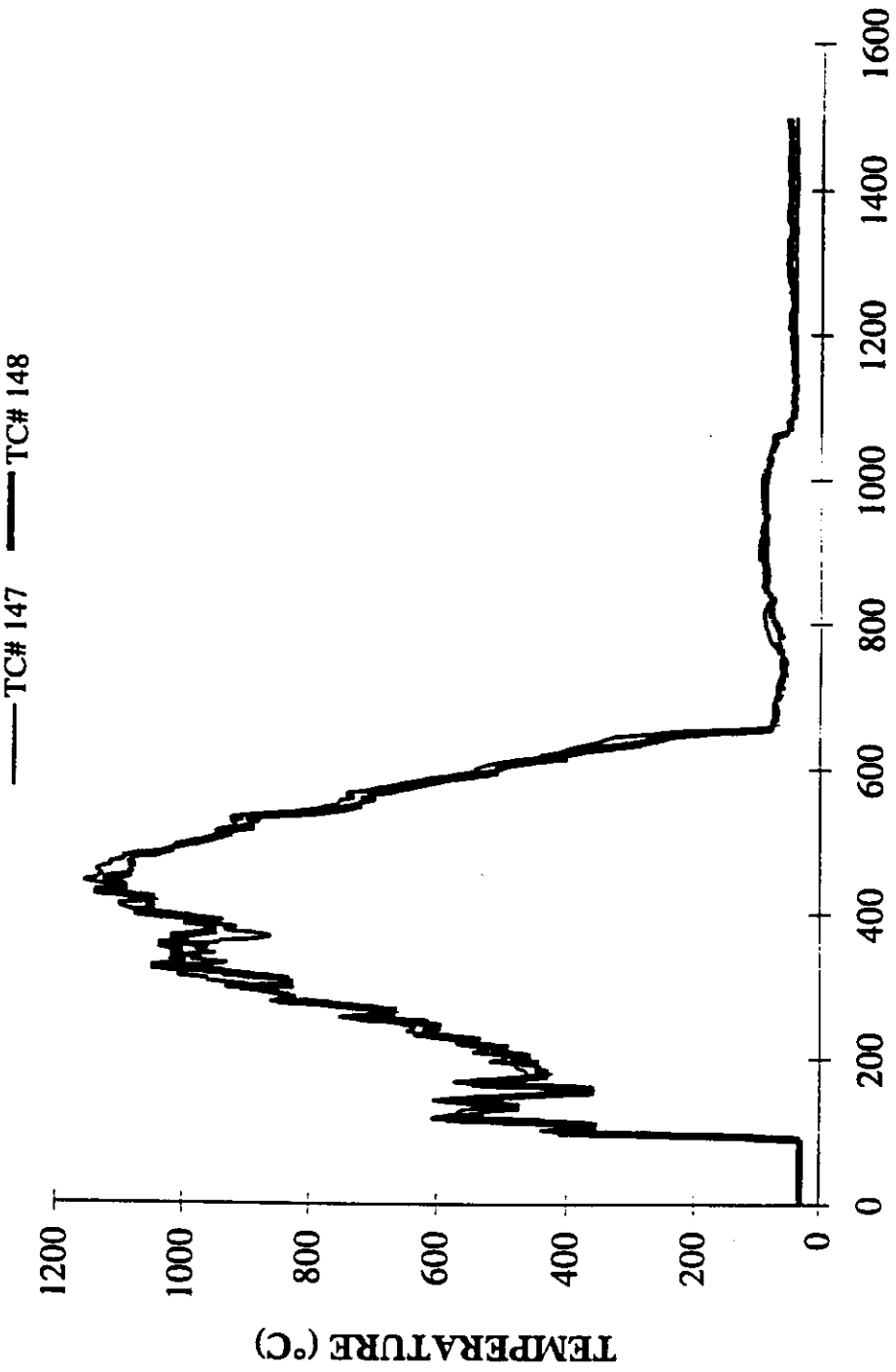
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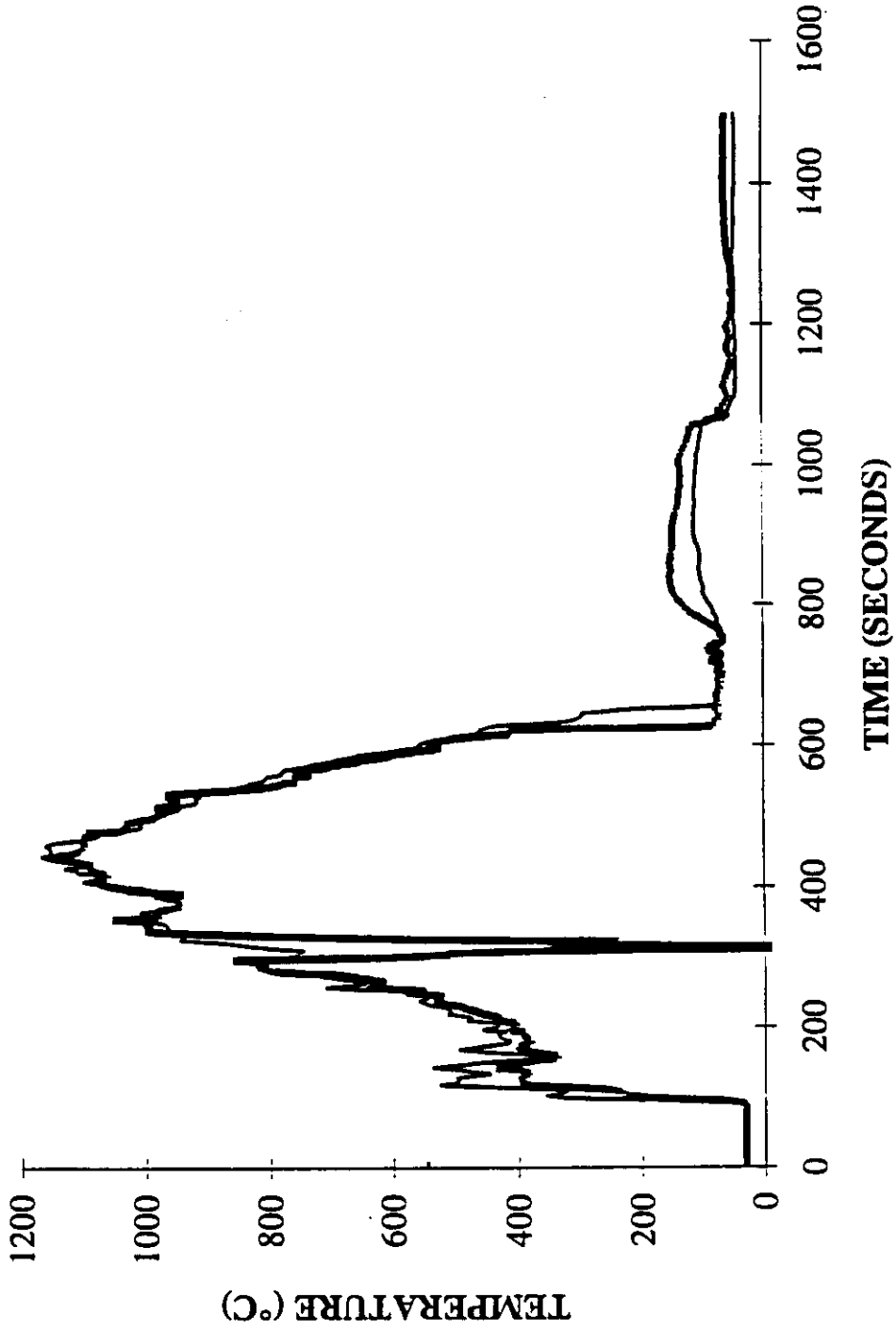
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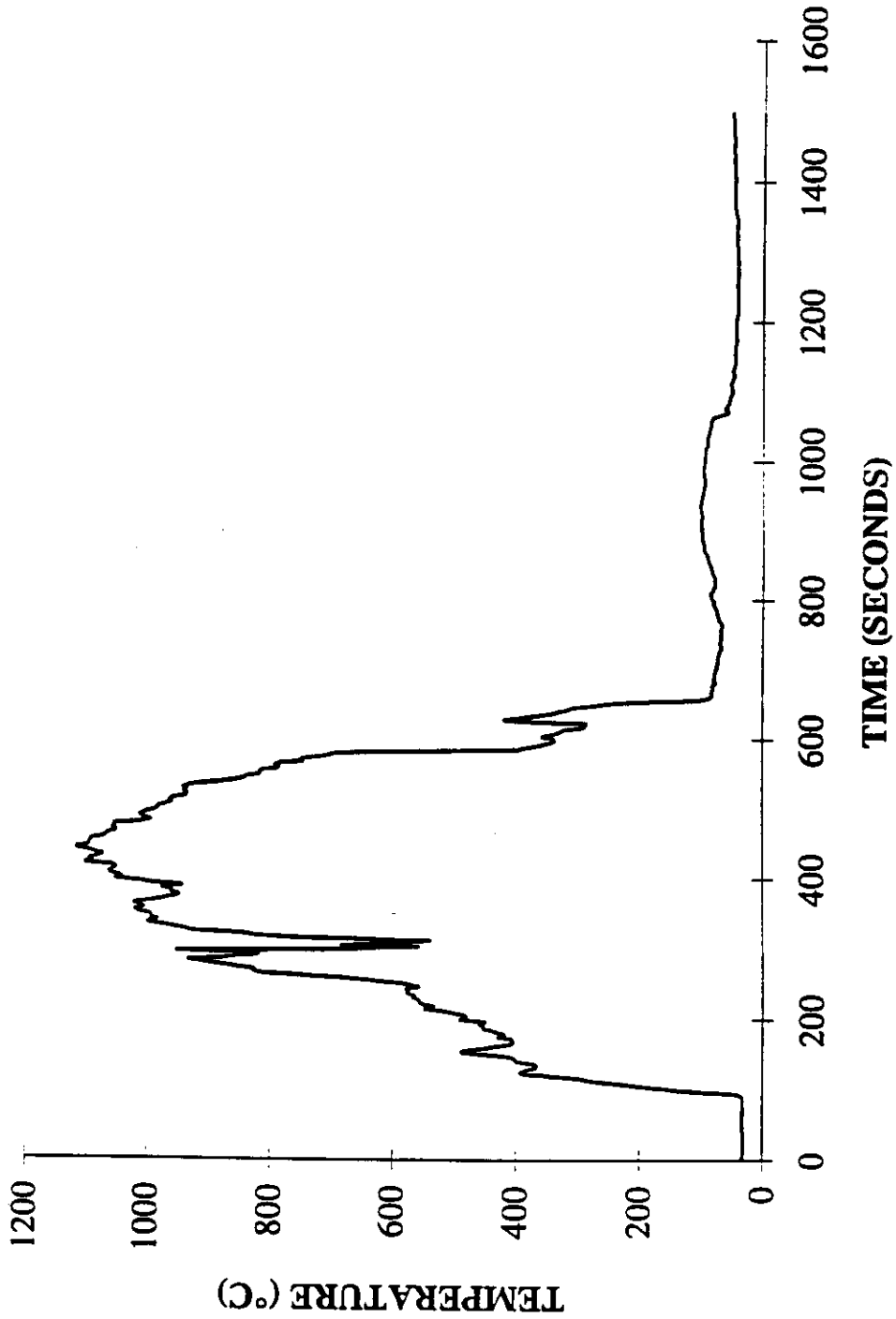
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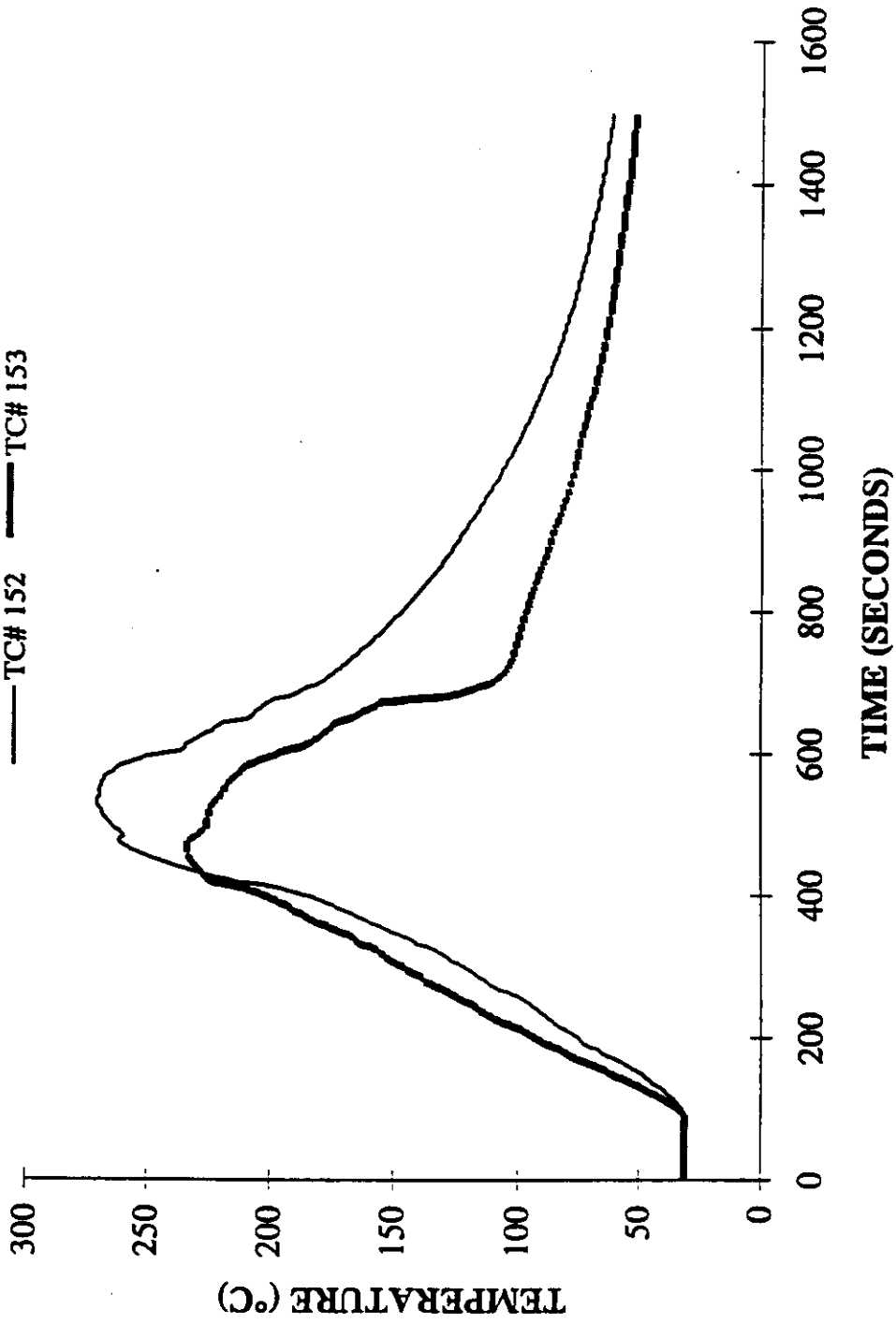
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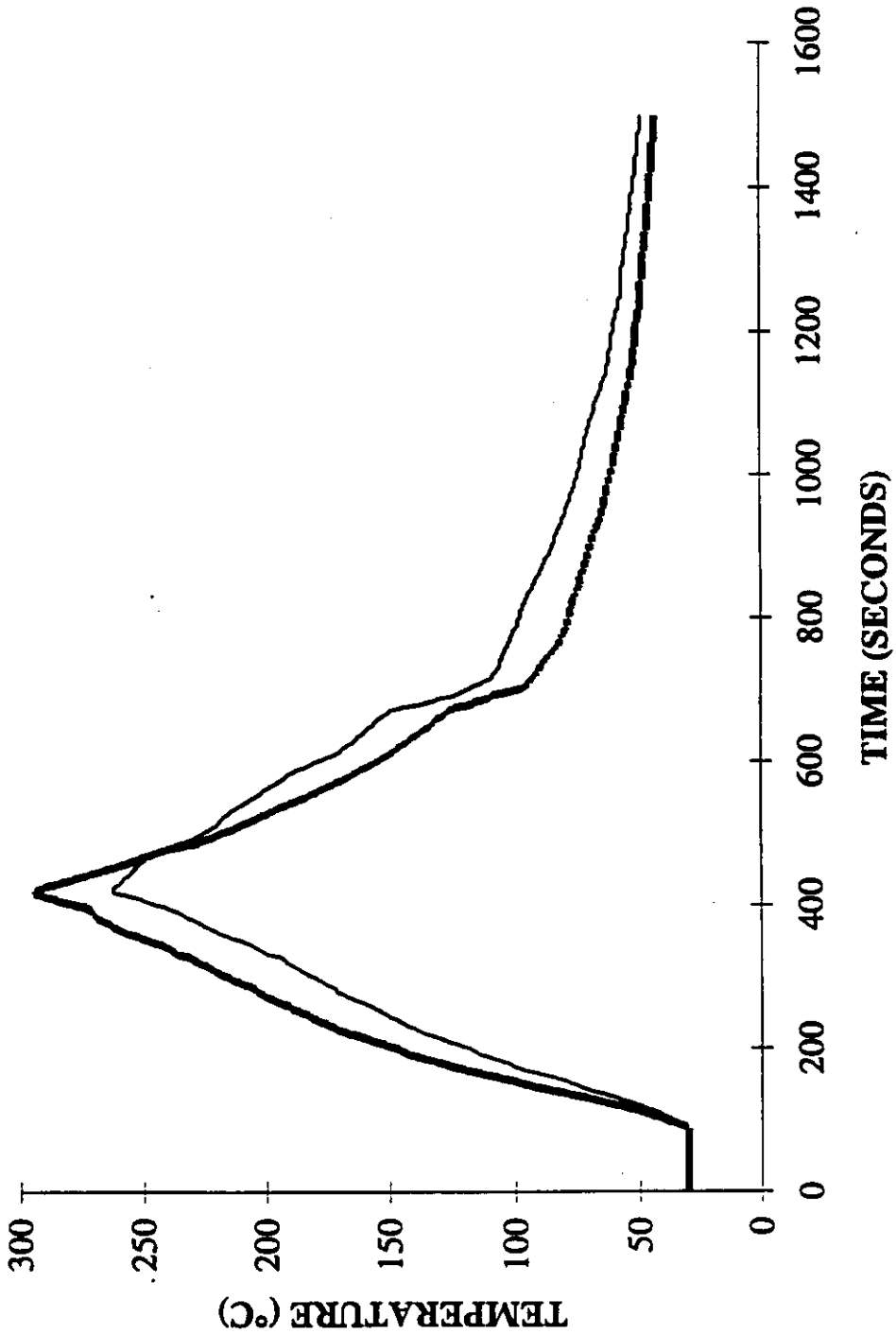
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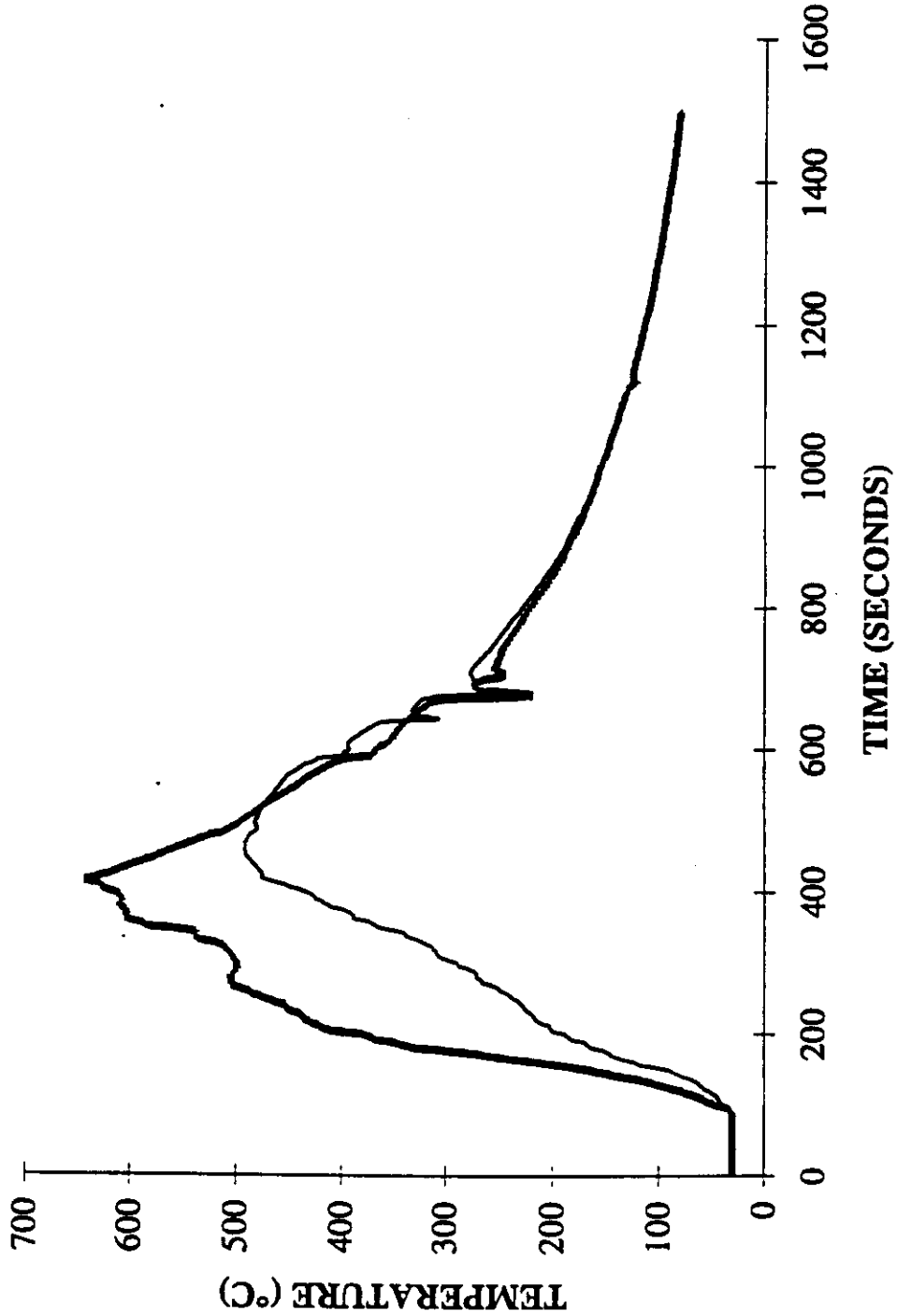
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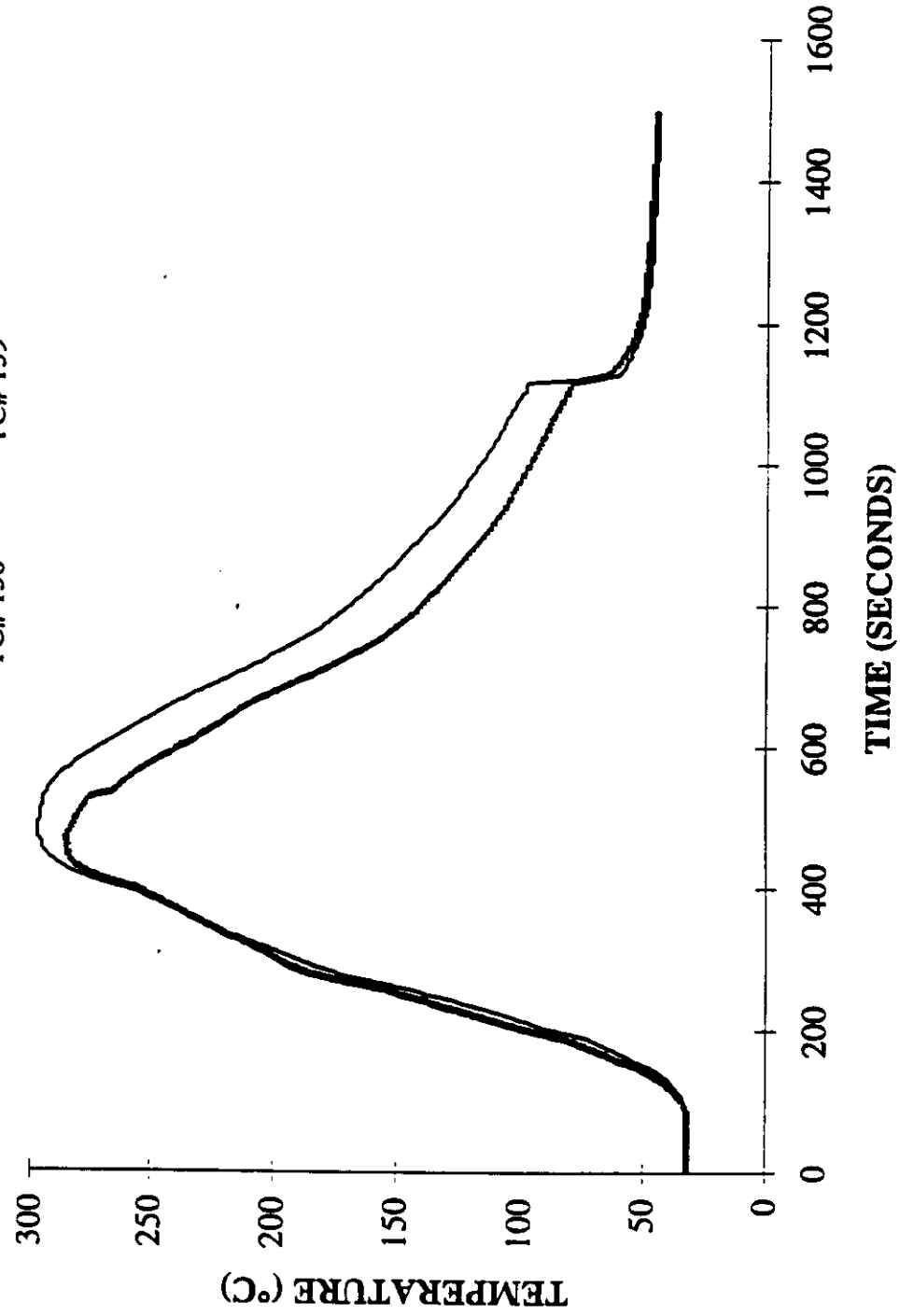
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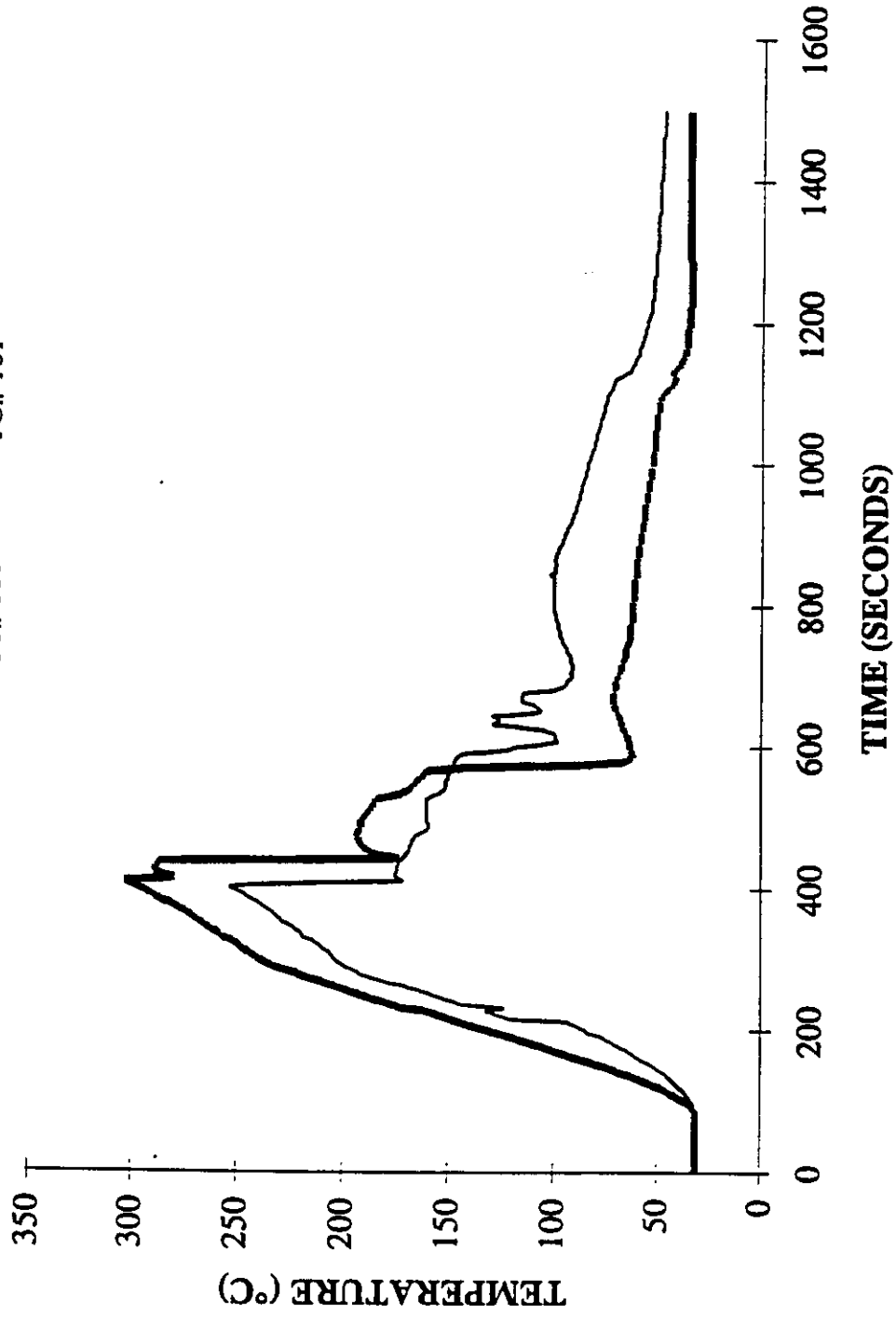
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DATE: 6 JUNE 1995
TEST ID: 157LR5.DAT



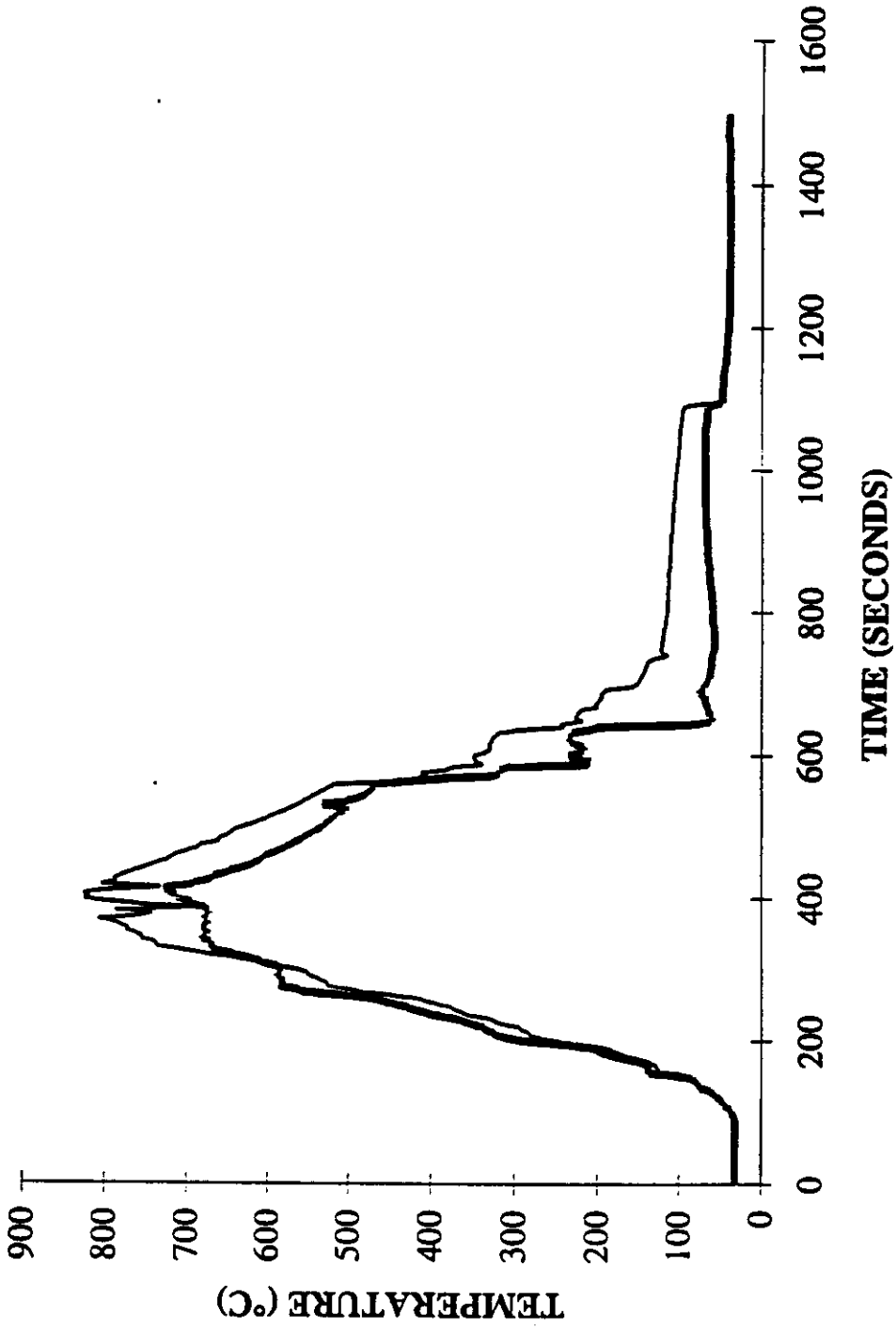
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DATE: 6 JUNE 1995
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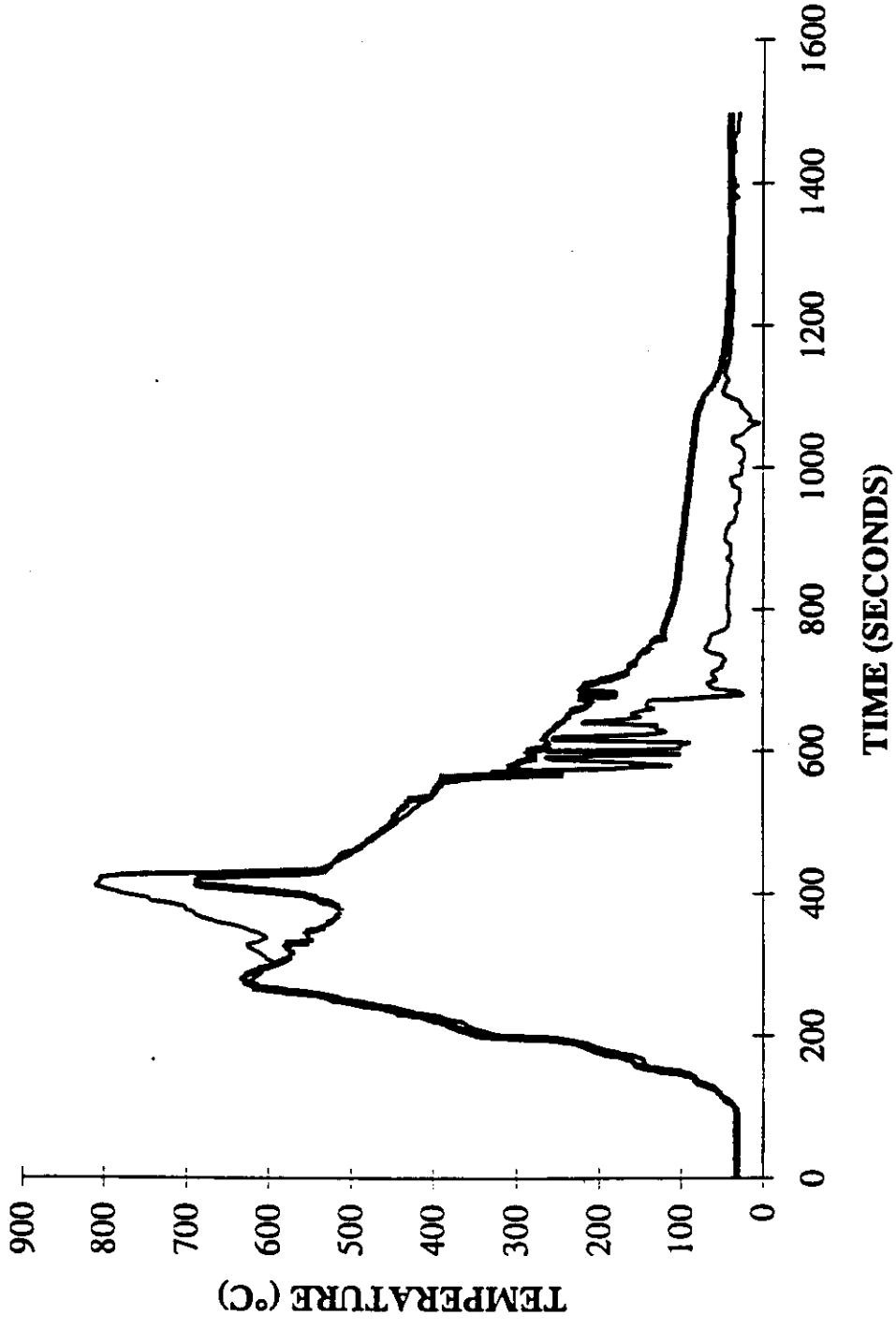
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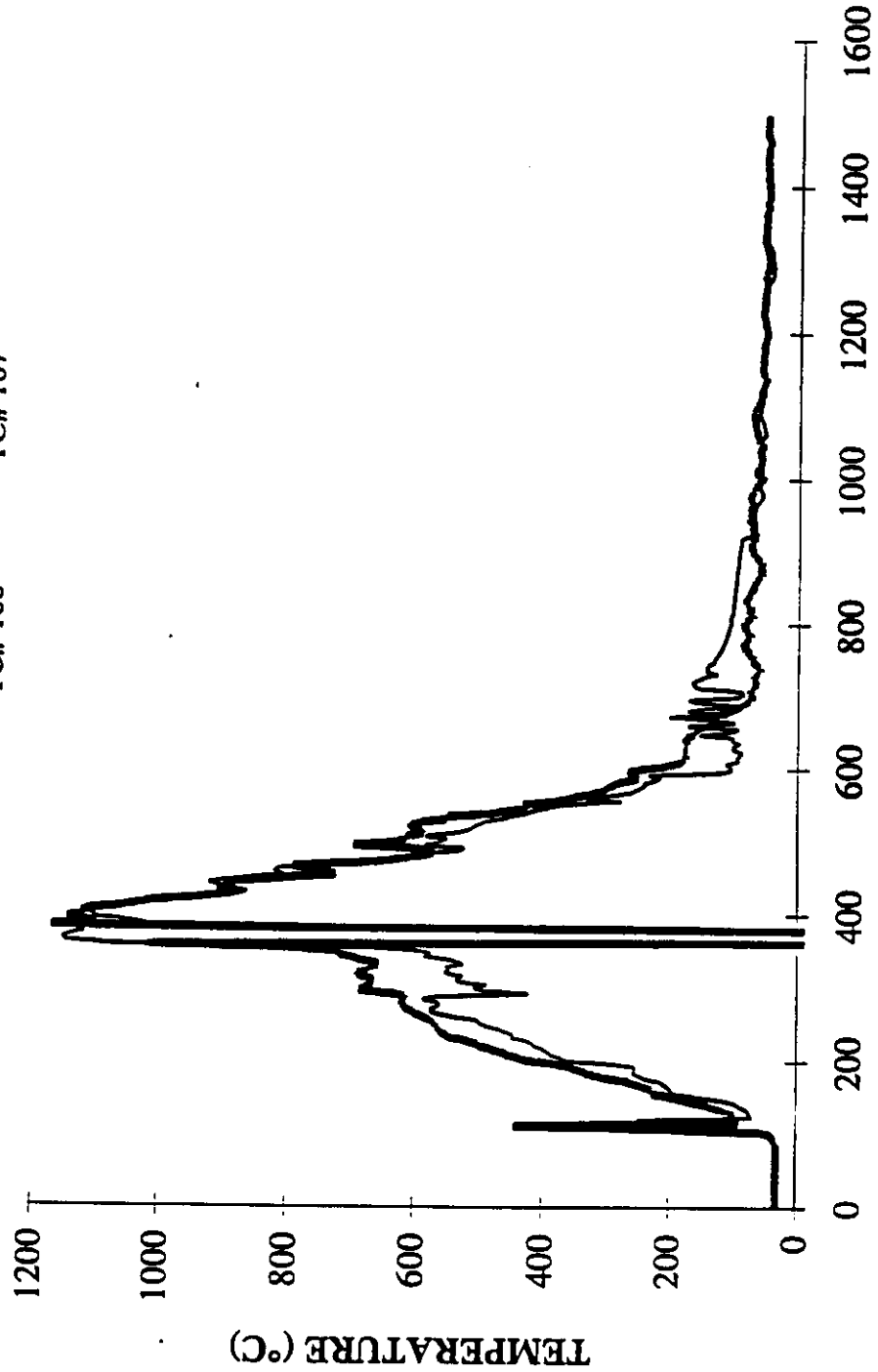
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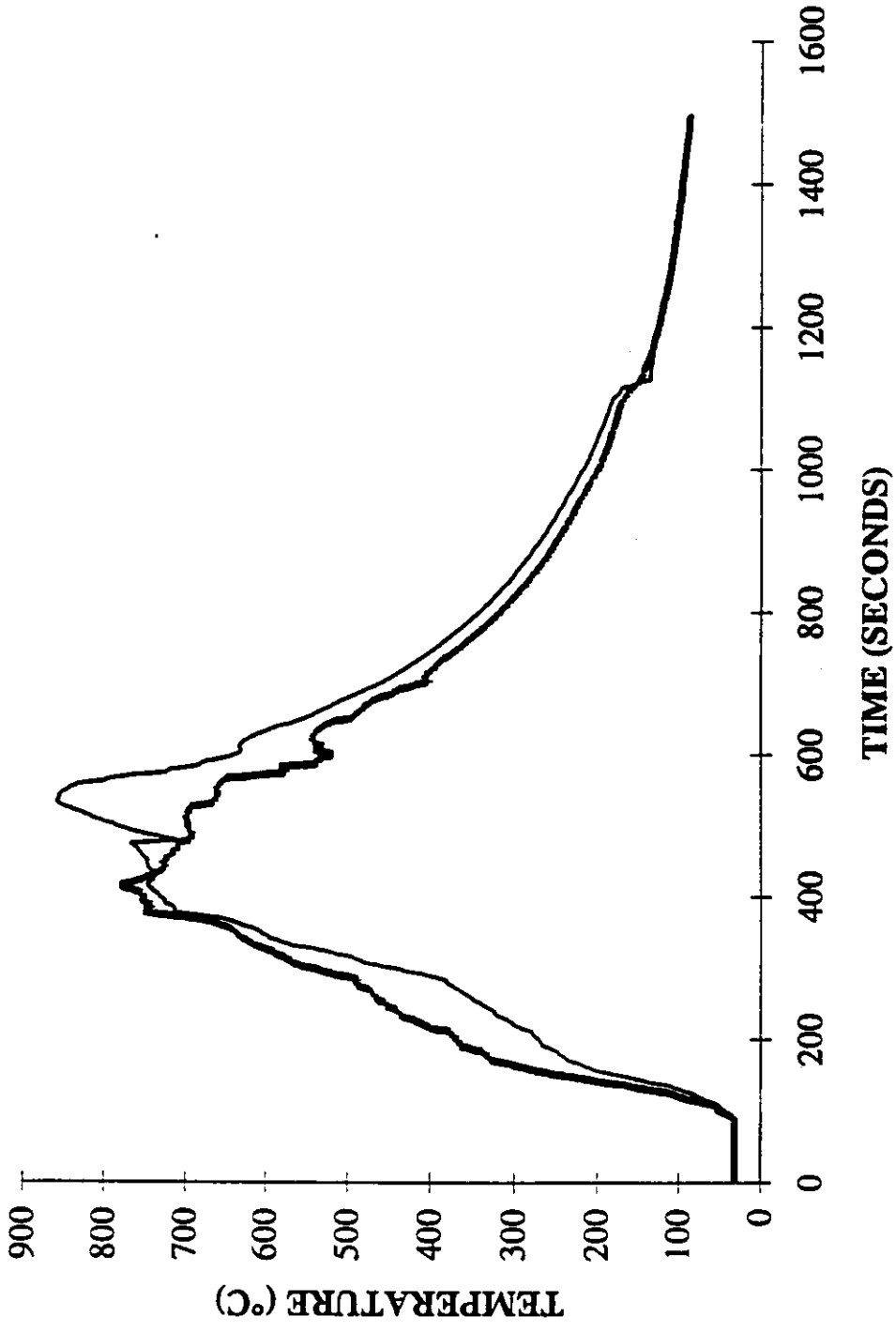
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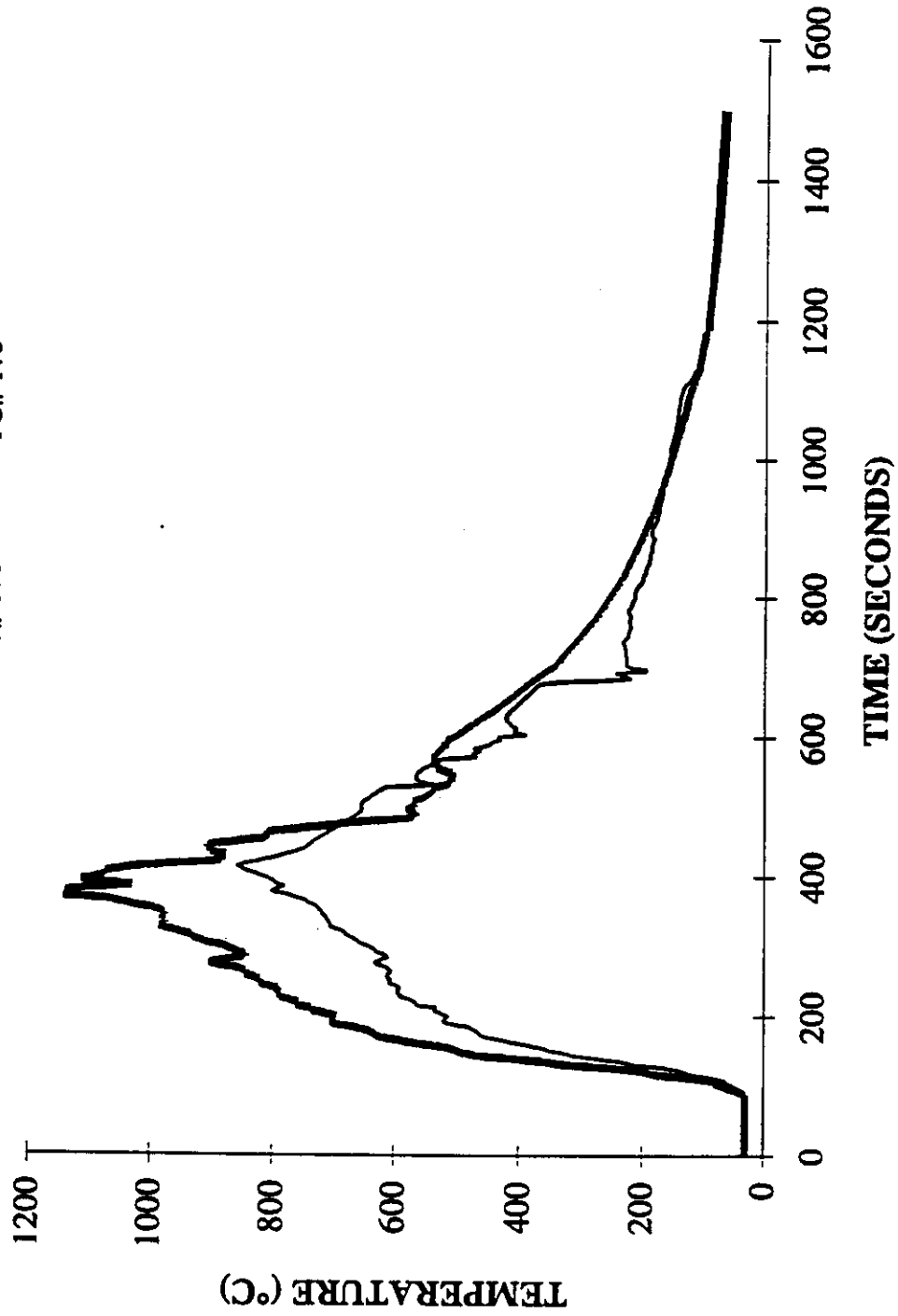
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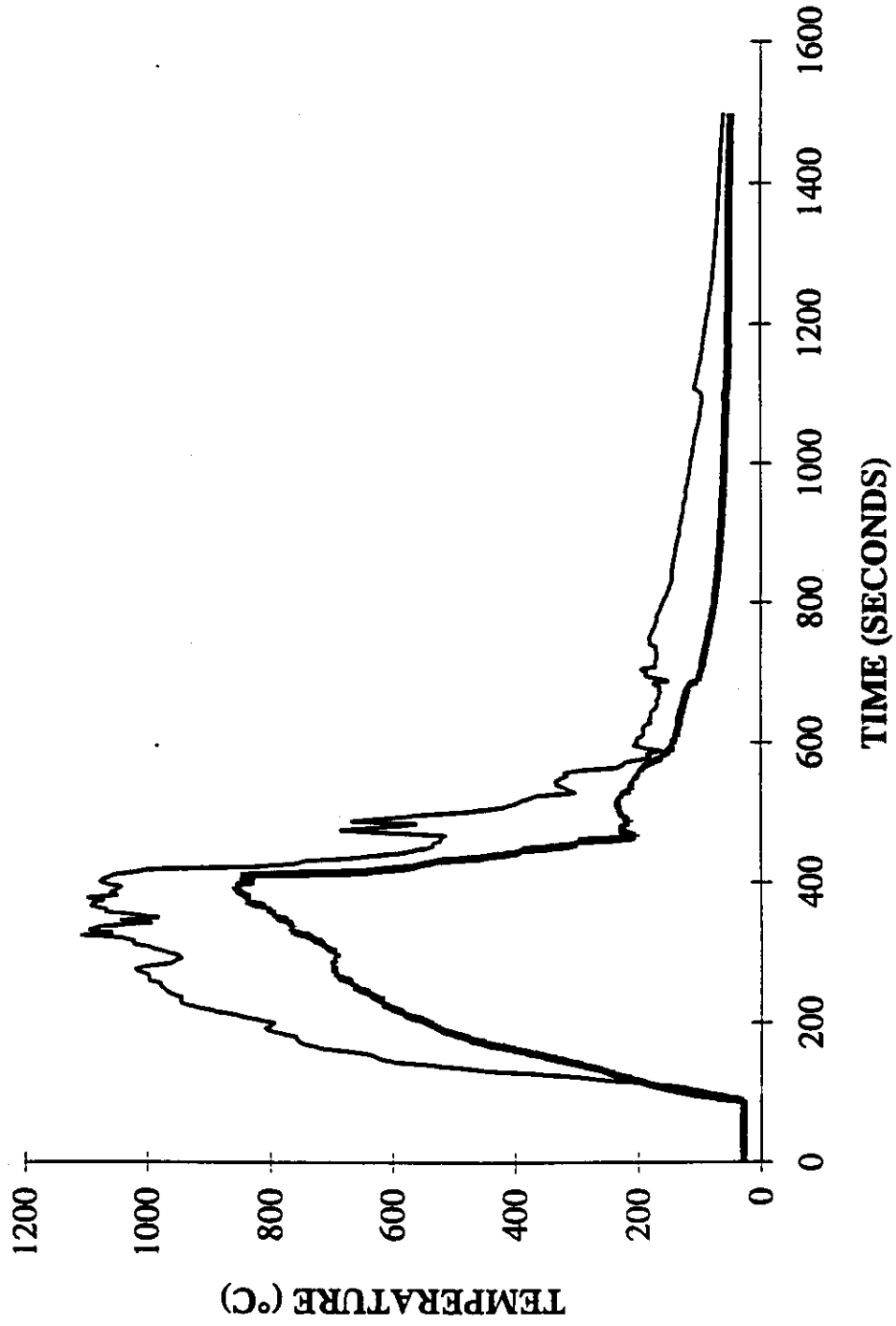
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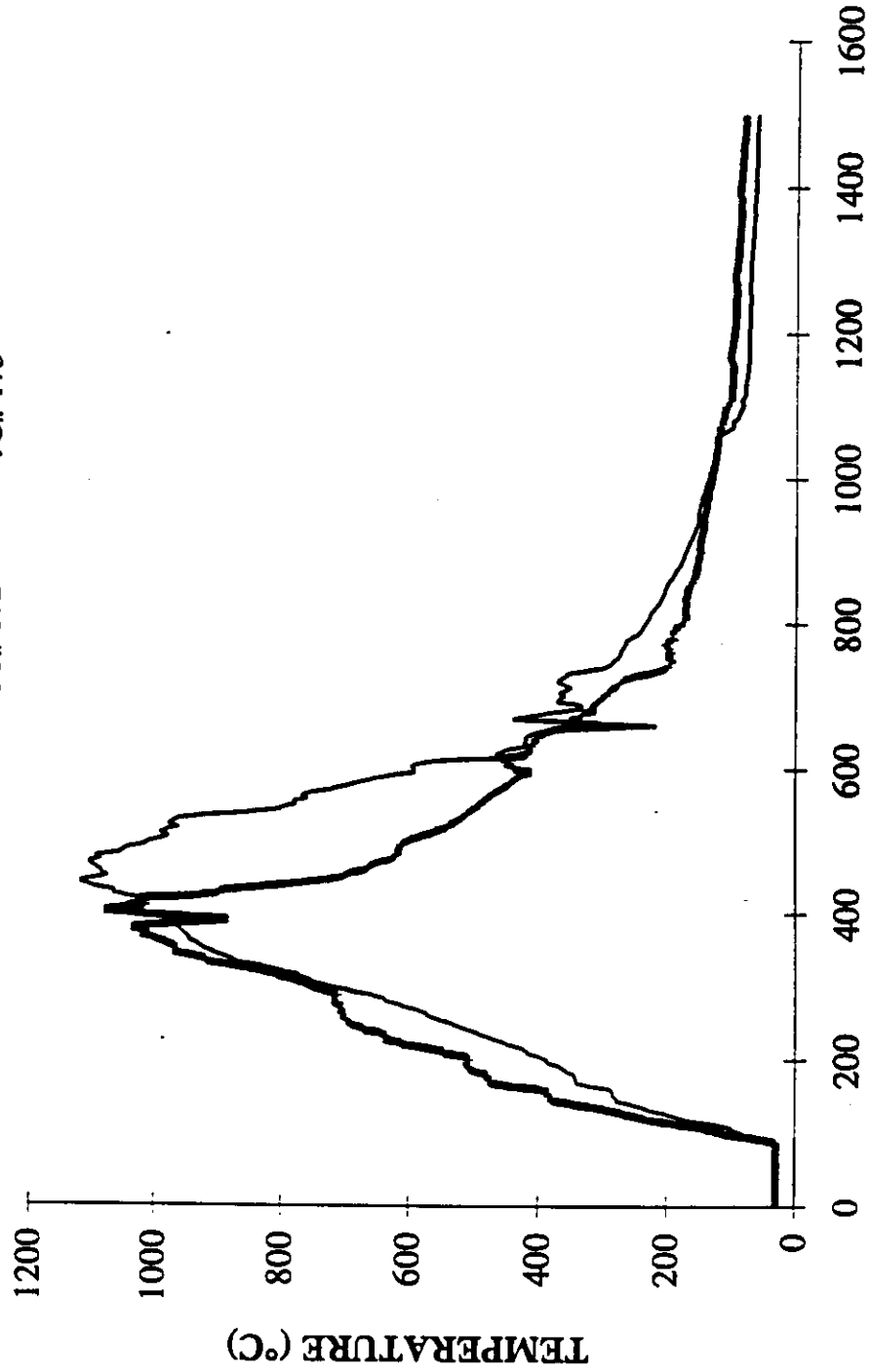
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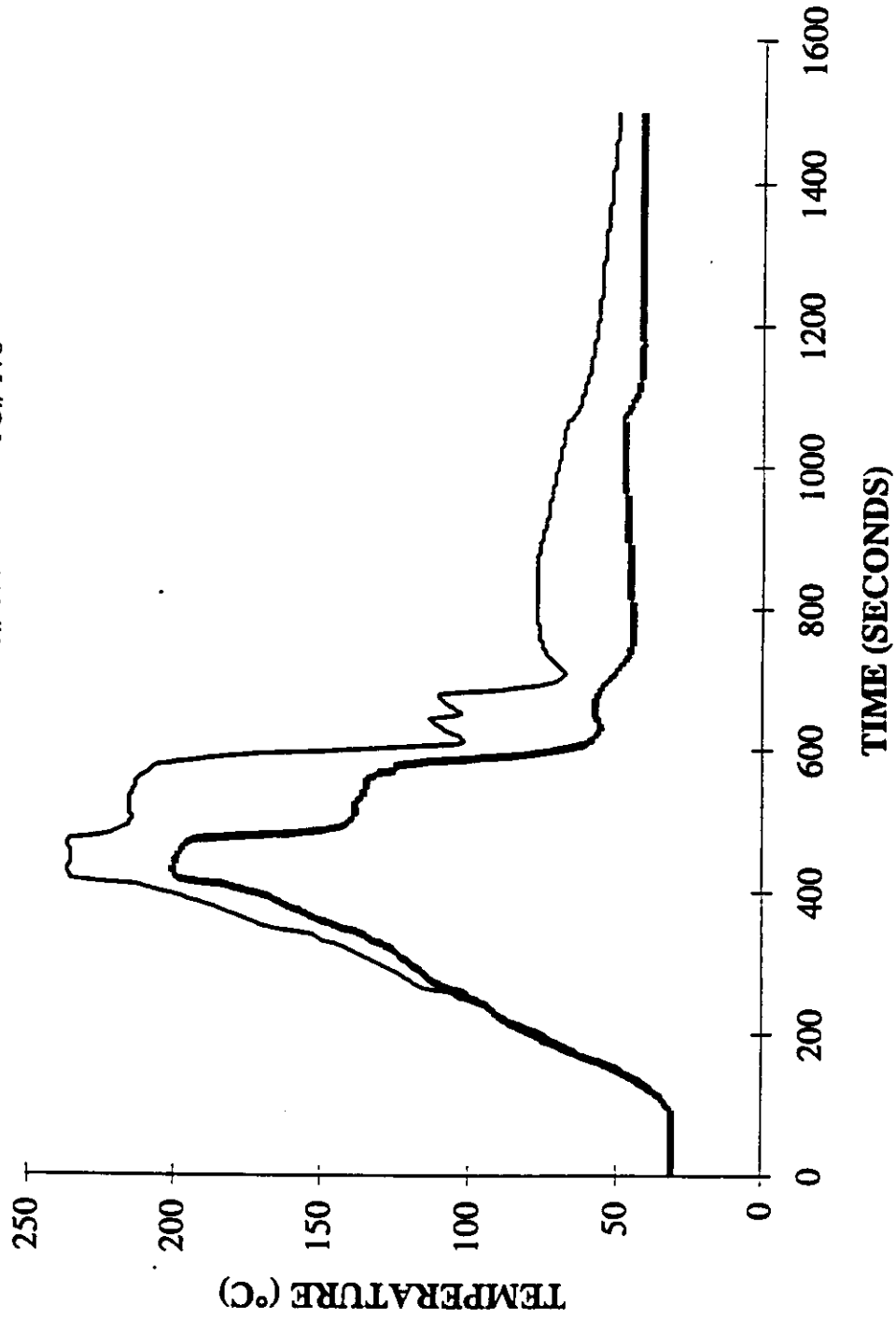
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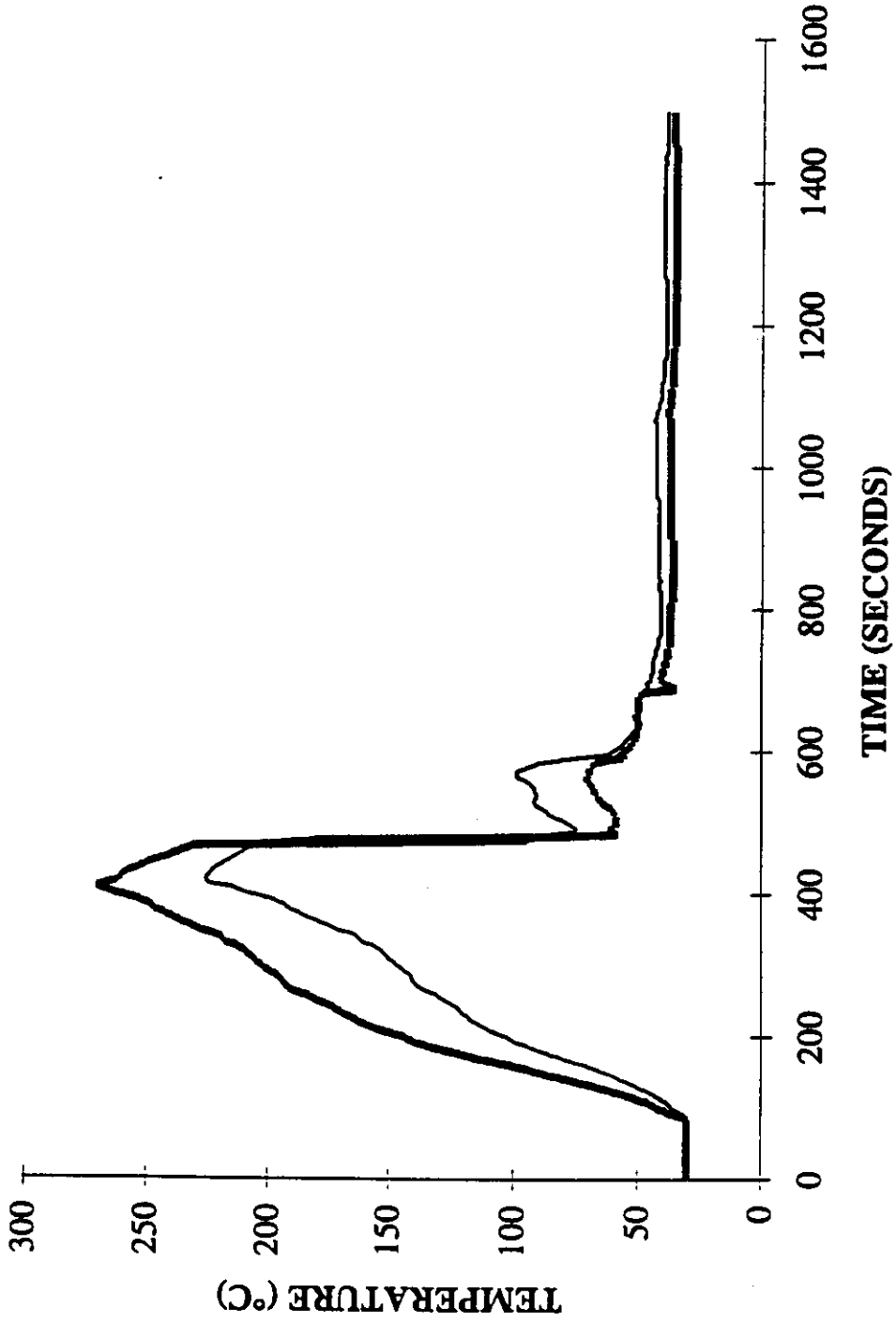
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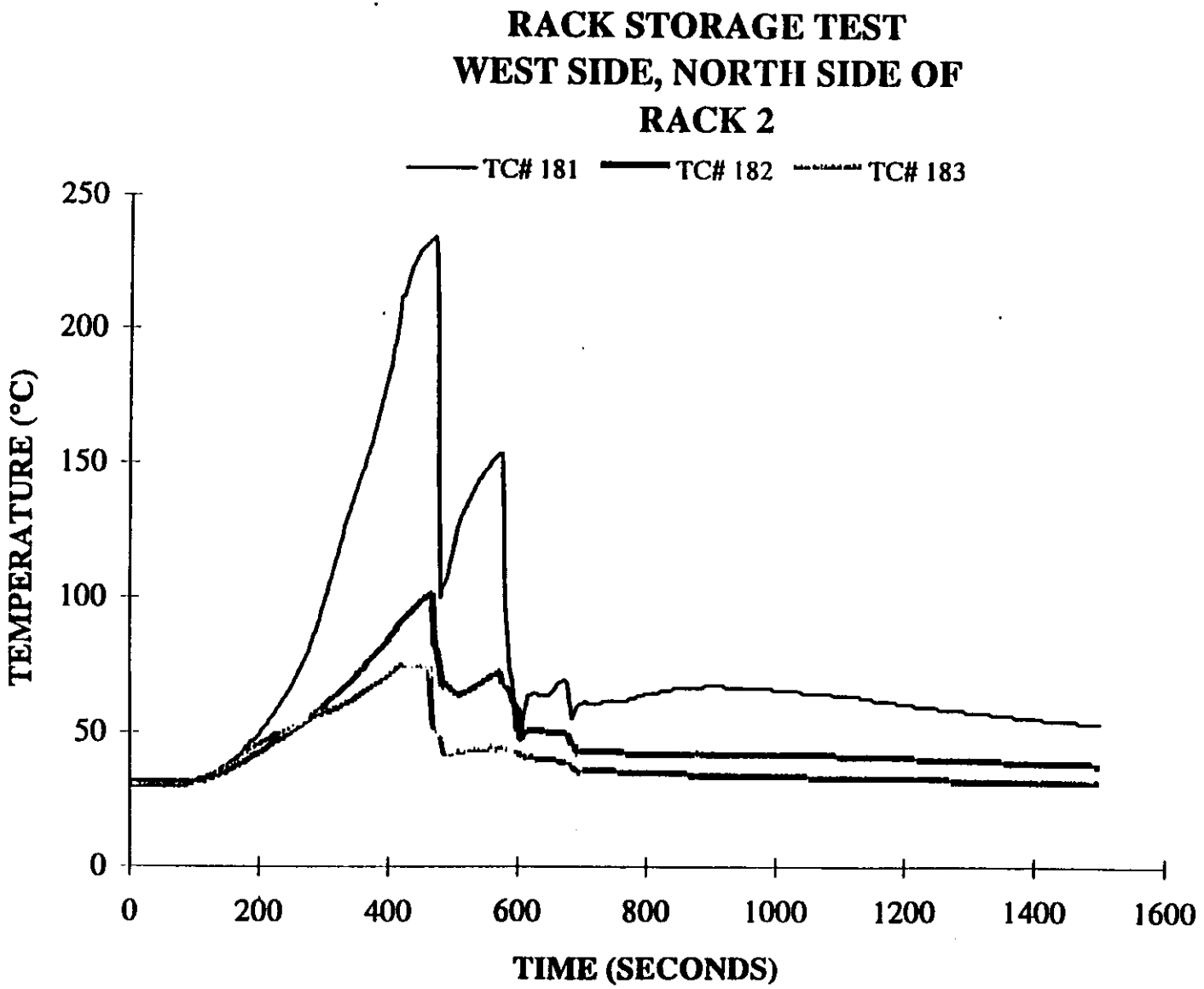
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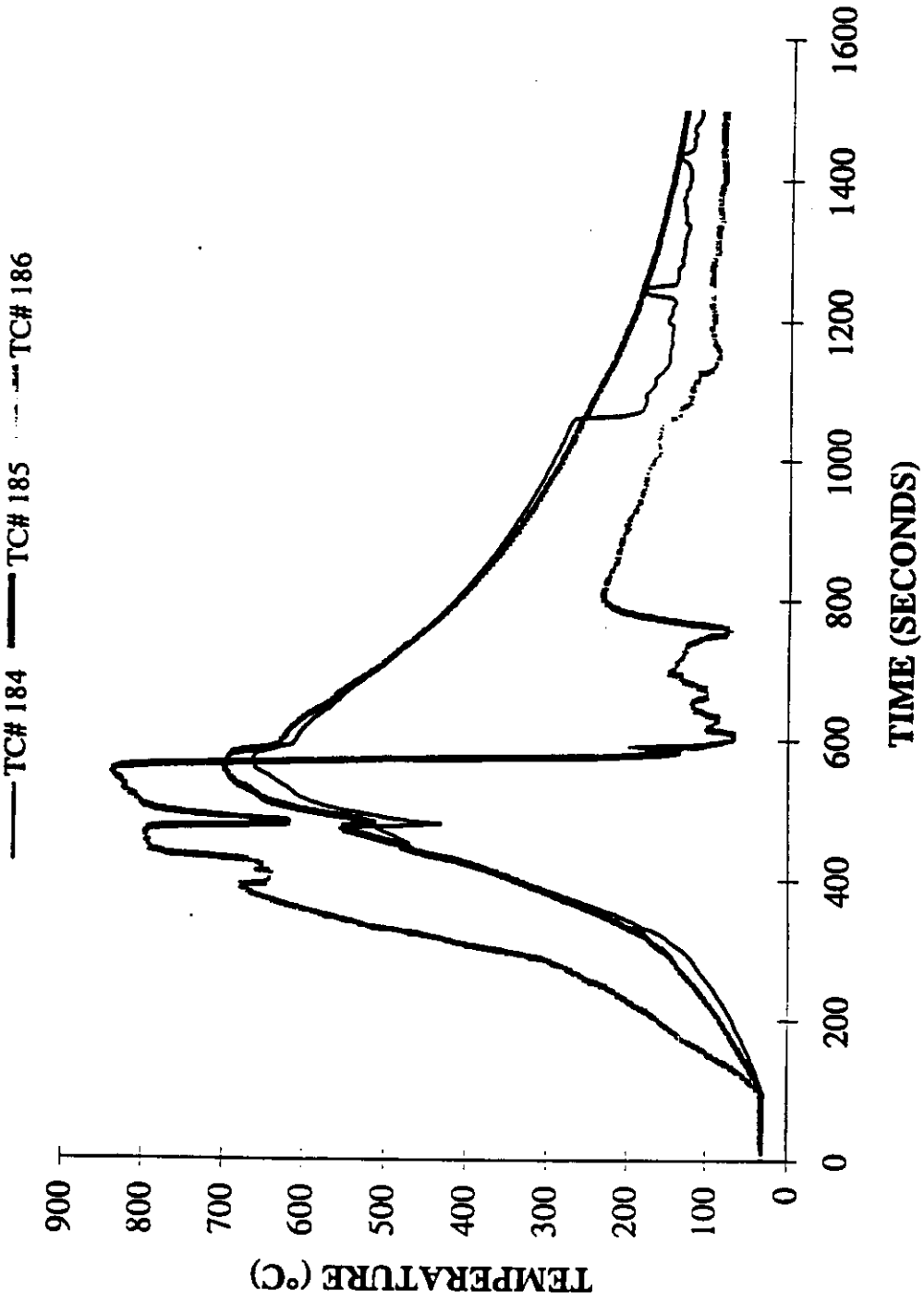
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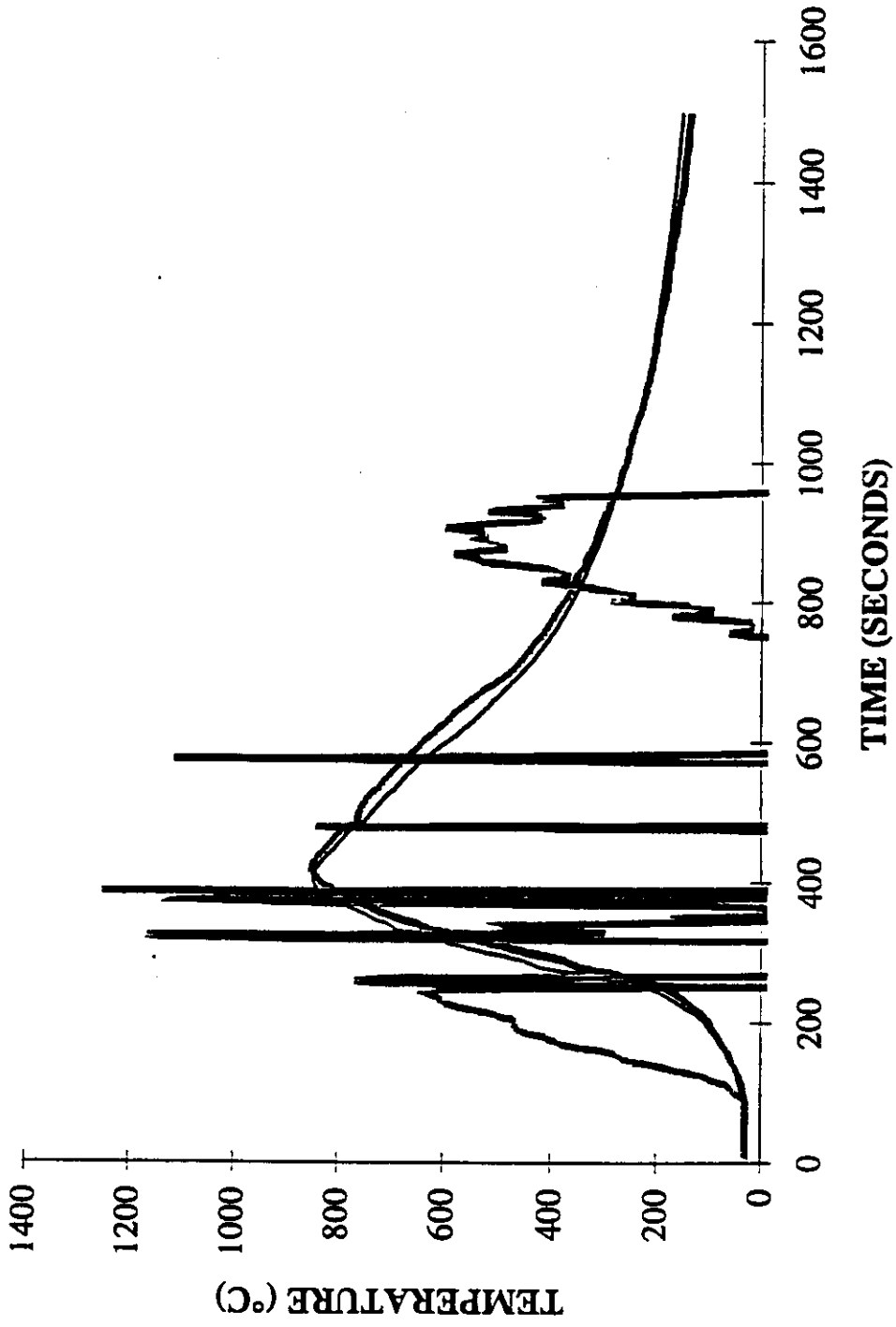
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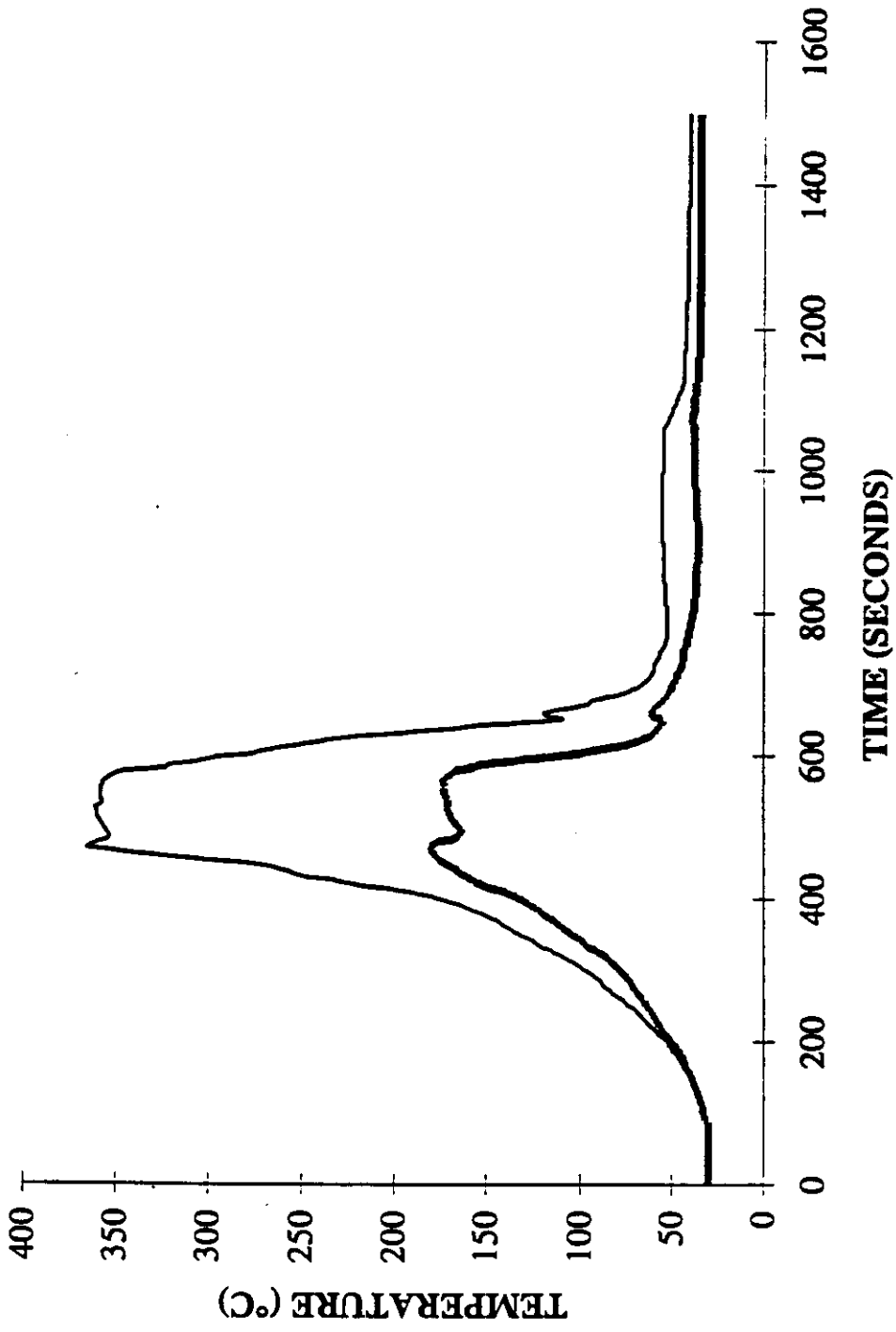
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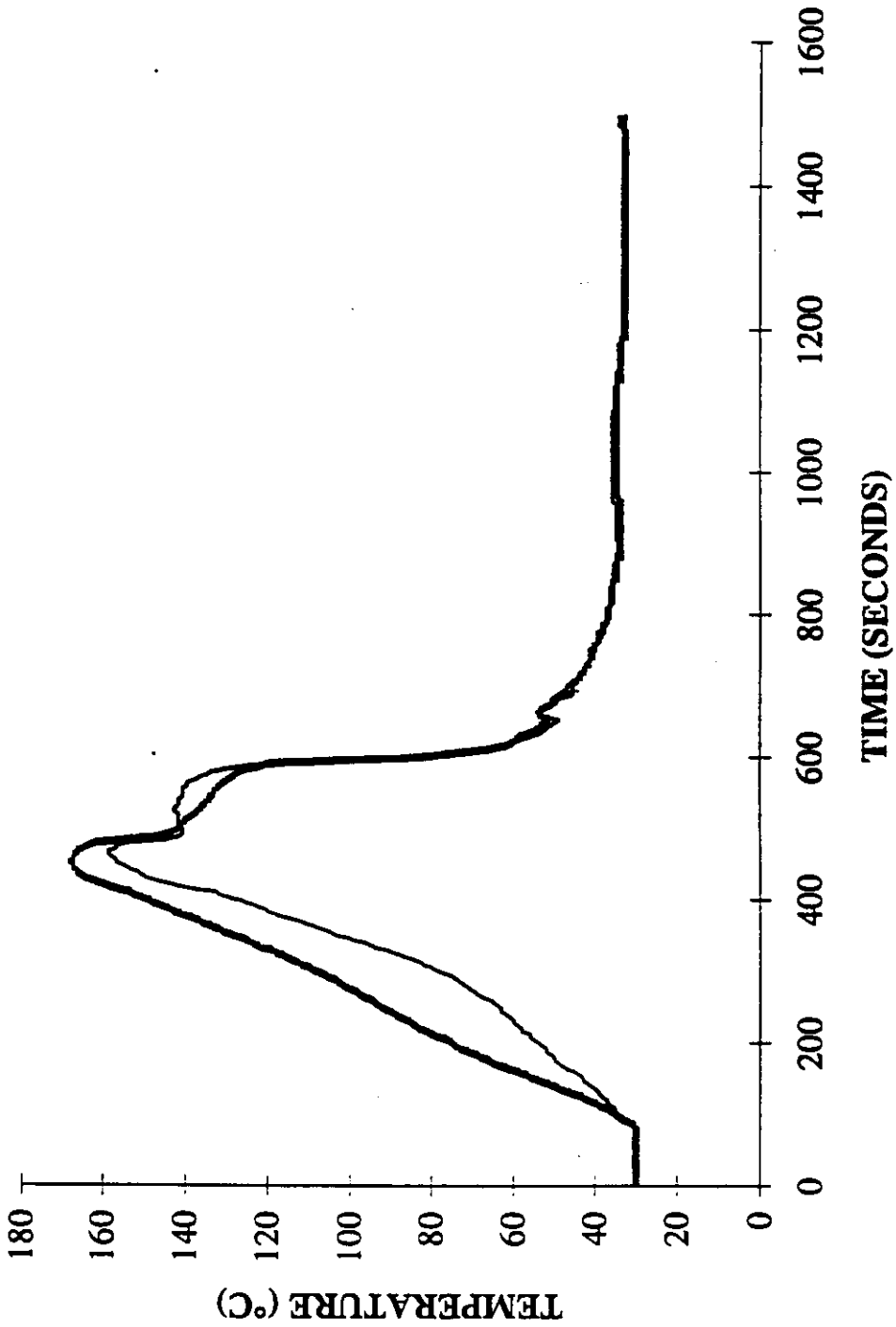
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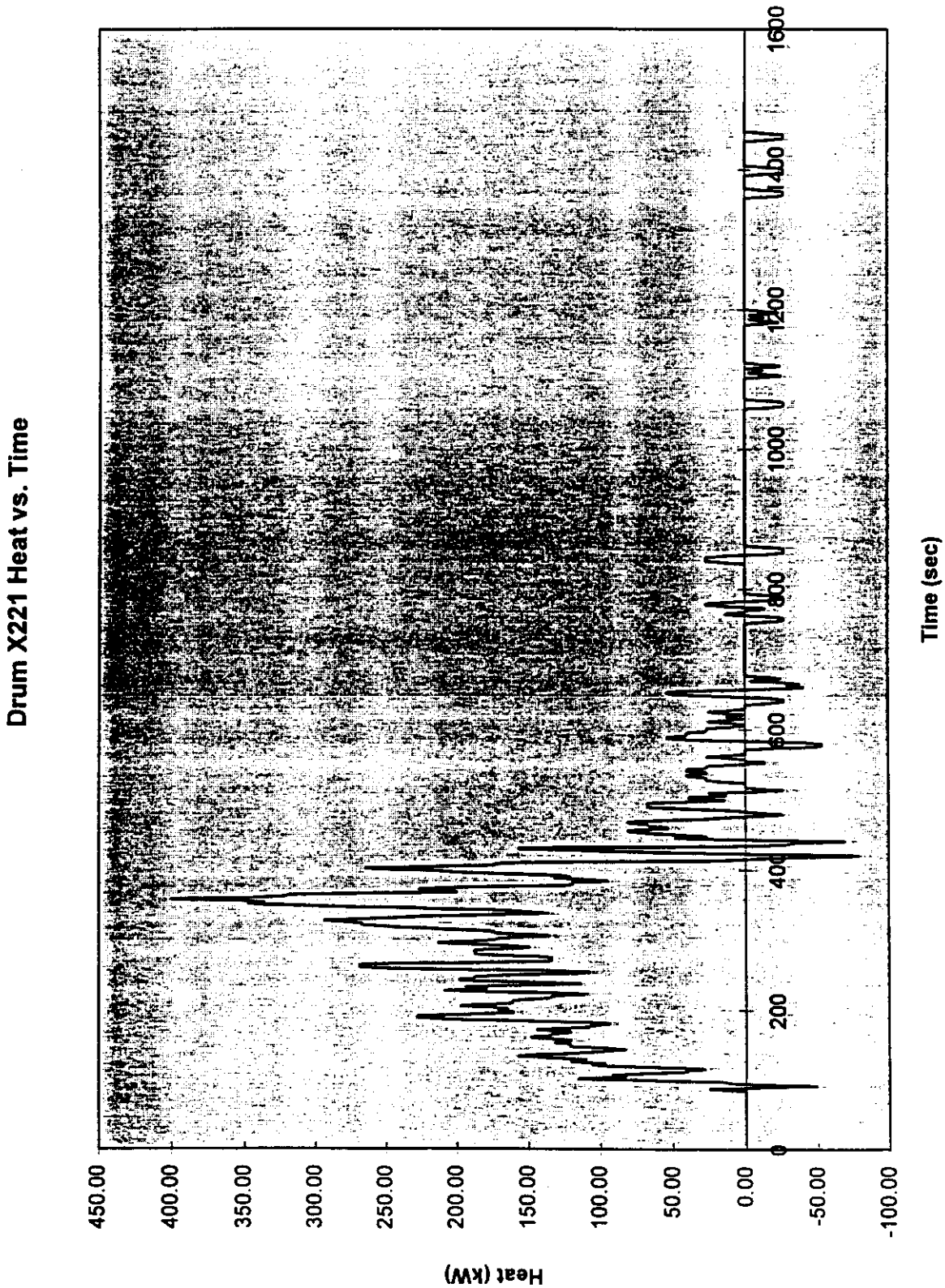
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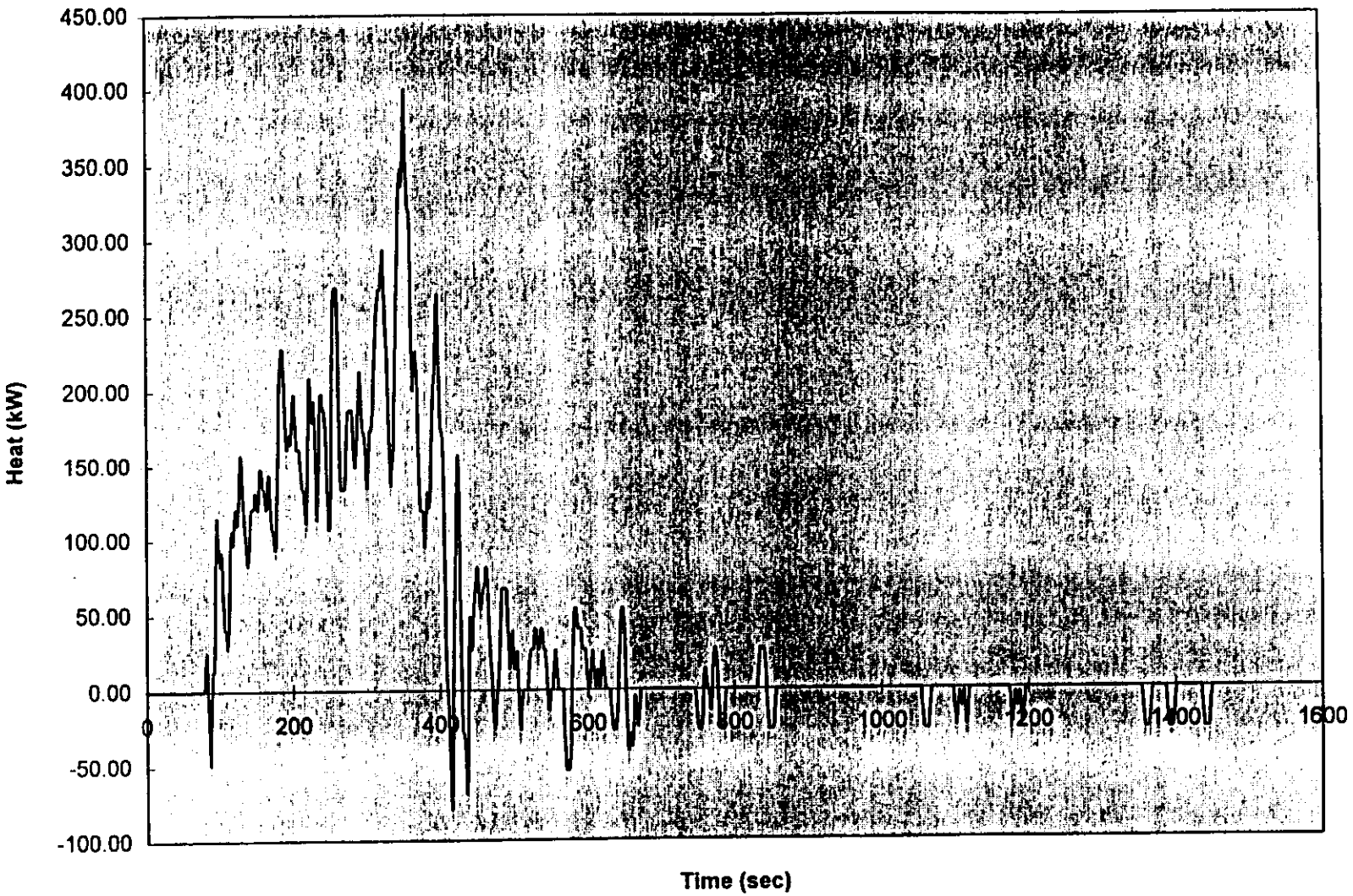
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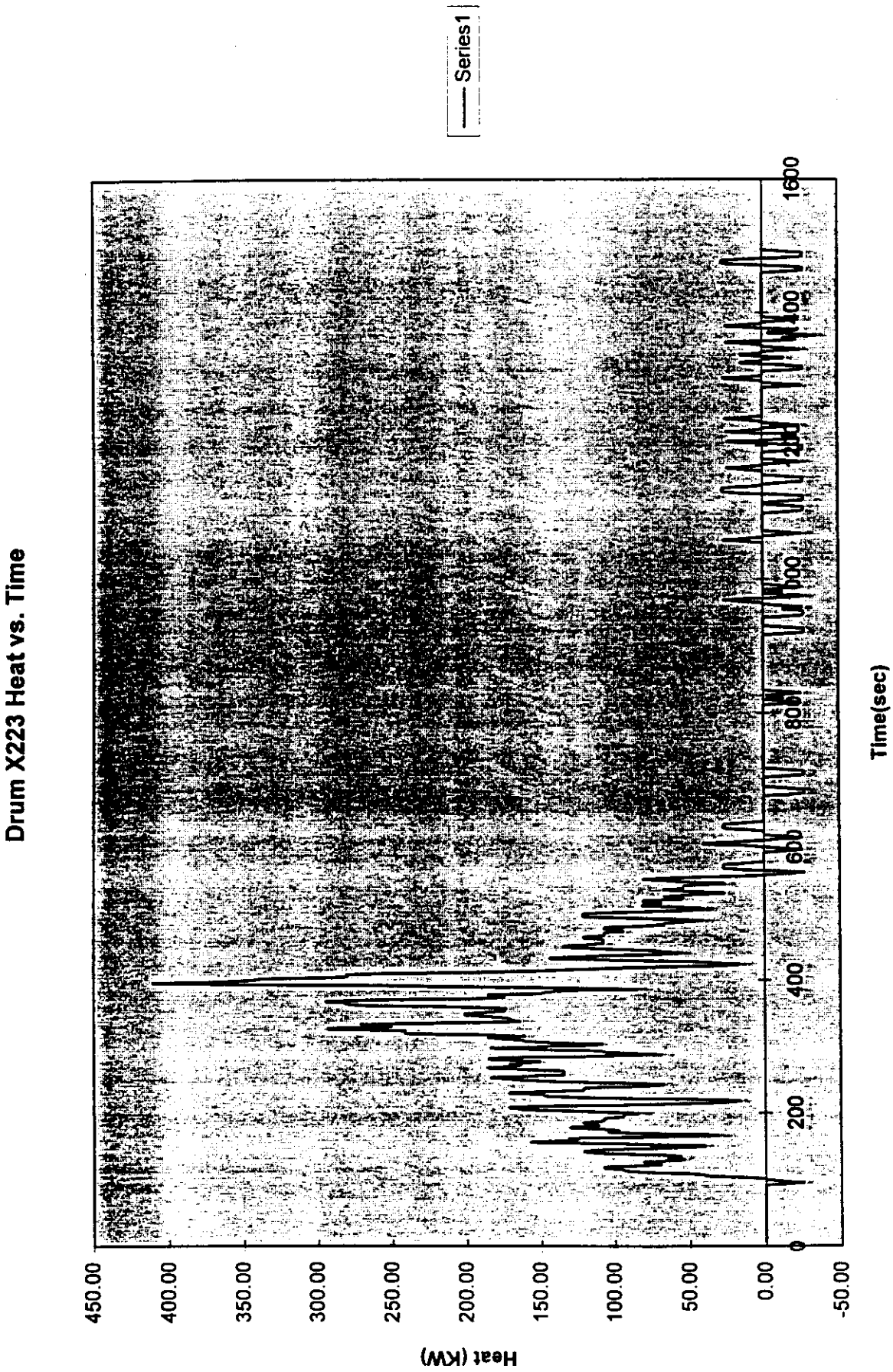
Plot Drum 221



Drum X322 Heat vs. Time



Plot Drum 223



Appendix D

Rack Storage Drum Data Sheets

Rack Storage Drum Data Sheet

Drum No. X111

Description (check):

- ✓ Standard load
- ____ Instrumented for pressure
- ____ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Lid sealed and torqued: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (kg) 175.3
Post-test weight (kg) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X111 wt= 175.0 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 35"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
24" at mid ht.



Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
2-3" char on fire side – plastic melted on far side
but little to no char

Video 93
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X121

Description (check):

✓	Standard load
	Instrumented for pressure
	Instrumented for temperature
	H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Lid sealed and torqued: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.6
Post-test weight (kg) _____
Loss = _____

*** RMIS View/Print Document Cover Sheet ***

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Accession #: D195061638

Document #: SD-WM-TRP-246

Title/Desc:
SOLID WASTE DRUM ARRAY FIRE PERFORMANCE [SEC 3 OF 7]

Pages: 151

THIS DOCUMENT WAS TOO LARGE TO SCAN AS A SINGLE DOCUMENT. IT REQUIRED BREAKING INTO SMALLER SECTIONS.

DOCUMENT NUMBER: SD-WM-TRP-246

SECTION: 3 OF 7

TITLE: Solid Waste Drum Array Fire Performance

AUTHOR: Louie PL

RECIPIENT:

DATE: 11/07/95

KEYWORDS:

REFERENCES: EDT-612232

Blank

Rack Storage Drum Data Sheet

Drum No. X121 wt. 175.1 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 37" on burn area

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
26" at mid ht. centered on seam

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
2" char on burn area, barely discolored on opposite side

Photo taken: X Yes _____ No
Video 35

Comments:

Rack Storage Drum Data Sheet

Drum No. X131(P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	
1/3 of the rubber	✓	✓	
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.2
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X131 (P) wt. 174.9 lb

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____29"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
24"

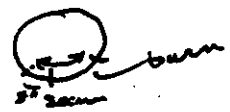


Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
2" at burn area other side uncharred.

V1000 639
~~Photo~~ taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. 141

Description (check):

- ✓ Standard load
- ____ Instrumented for pressure
- ____ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Lid sealed and torqued: Date 5-1-95 Initial AP

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.2
Post-test weight (kg) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X141 175 5 lb.

Post-test Assessment

Position: ____ original: ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) ____ 22" at burn area – rest of gasket like new

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:



17"

Photo taken: ____ Yes X No

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
~1" char only for burn area – virtually no char around the remaining perimeter – some plastic melted.

VIDEO 53
Photo taken: X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X151(P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.6 Target weight - 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X151 (P) 176.615.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed + held for 28"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
1" char 13" span to right of seam

Photo taken: VIDEO 60 X Yes _____ No

Comments:
~~Liner new~~

Rack Storage Drum Data Sheet

Drum No. X 1621

Description (check):

- ✓ Standard load
- ____ Instrumented for pressure
- ____ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Lid sealed and torqued: Date 5-1-95 Initial AP

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (kg) 175.3
Post-test weight (kg) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X161 ~ 175.716.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
like new

~~Photo~~ video 59 taken: X Yes _____ No

Comments:
very clean

Rack Storage Drum Data Sheet

Drum No. X171

Description (check):

✓	Standard load
	Instrumented for pressure
	Instrumented for temperature
	H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Lid sealed and torqued: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (~~kg~~ lb) 775.7
Post-test weight (kg) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X171 wt = 176.4 lb

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 gasket like new

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes ____ No

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
NO char

Photo taken: X Yes ____ No
VIDEO 58

Comments:
very clean

Rack Storage Drum Data Sheet

Drum No. X181

Description (check):

✓	Standard load
	Instrumented for pressure
	Instrumented for temperature
	H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	—
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Lid sealed and torqued: Date 5-1-95 Initial AP

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (~~kg~~ lb) 175.6
Post-test weight (kg) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X151 wt. = 175.6

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 feels like new

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes XO No

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
fully intact - no charring

Photo taken: X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X211 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X211(P) 163.8 lb. was wet

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No gap was not measured

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
All around

Photo taken: _____ Yes C No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
12" of charred contents

Photo taken: X Yes _____ No
12:Dec 91

Comments:

Rack Storage Drum Data Sheet

Drum No. X231(P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X231 156.0

Post-test Assessment

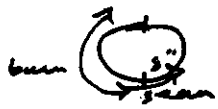
Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible



Burn pattern:
46" at mid ht.

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
26" from top to top of contents (churned)

Photo taken: X Yes _____ No
V.DEO 130

Comments:

Rack Storage Drum Data Sheet

Drum No. X241

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial GK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial GK

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial G.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.5 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X241 175.6 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No bulge 14" left of seam

Gasket missing (cm) 39"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
17" at mid lt. seam to left

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred up to 7" burn side
~4-5 opp. side

Photo taken: X Yes _____ No
VIDEO 129

Comments:

Rack Storage Drum Data Sheet

Drum No. X251 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.7
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X251(P) at. 177.2 lb

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 62" compressed + hard, gasket is brown

Contents expelled: ____ Yes X No

Seal failure: ____ Yes ____ Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
~3/4" seam to left melted plastic + ~1/2" of char

Photo taken: X Yes ____ No
VIDEC 35

Comments:
burn marks on lid.

Rack Storage Drum Data Sheet

Drum No. X261

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.4 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X261 wt. = 176.5 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
19" seam to left melting of plastic, some to wall
no char

Photo taken: X Yes _____ No
VIDEO 12

Comments:

Rack Storage Drum Data Sheet

Drum No. X 271

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X271 176.4 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
very slight melting in one spot ~7" to left of circ seam

video 116
Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X 281

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.1 Target weight – 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X281 wt. 176.4 lb.

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 like new

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none

Photo taken: ____ Yes no No

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
No melting
No char!

Photo taken: X Yes ____ No
video #7

Comments:

Rack Storage Drum Data Sheet

Drum No. X311

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial [illegible]

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial [illegible]

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial [illegible]

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X311 169.1 16

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No 1/8" x 26" Gap around bolt (lid shifted on drum)

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern: all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 13" from top to top of charred contents

Photo taken: VIDEO 133 Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X321 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X321 (P) 170.4 lb

Post-test Assessment

Position: _____ original: _____ tipped; _____ toppled

Lid on drum: X Yes _____ No 1/8" - 48" gap (lid shifted on drum)

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
14" top of drum to top of charred contents

Video 134
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X331

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X331 166.4 lb.

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No 1 3/4" by 15" gap



Gasket missing (cm) All

Contents expelled: ____ Yes ____ No

Seal failure: X Yes ____ Not visible



Burn pattern: 45° at mid lit

Photo taken: ____ Yes ✓ No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
~~Pressure (psig)~~ ____ Time (min) 5
Date ____ Initial ____

Interior assessment: 12" top of drum to top of burned contents

Video 178
~~Photo~~ taken: X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X341

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.2
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X341 175.2 lb.

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____31"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
~7" wide bottom to top ~7" to left of bolt

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
4-5" char all around

Photo taken: VIDEO 37 X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X351

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial RJK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial RJK

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RJK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X351 wt. 176.2 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed + hard 25"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
34" from seam to right melting plastic, ~12" melted to wall
no char centered w/in 34" span

video106
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X3601 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X 361(P) 176.4 16

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
barely melted plastic from seam to ft. F26"1
only in spots

Photo taken: X Yes _____ No
dec 90

Comments:

Rack Storage Drum Data Sheet

Drum No. X371

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X371 176.2 lb.

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 like new

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
NO melting
NO char

video ok
Photo taken: X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X381

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X351 wt. = 176.3 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 somewhat compressed, like new

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: NA or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
NO melting
NO char

Photo taken: X Yes _____ No
1,DEC109

Comments:
like new

Rack Storage Drum Data Sheet

Drum No. X112

Description (check):

✓	Standard load
	Instrumented for pressure
	Instrumented for temperature
	H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	✓	✓
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Lid sealed and torqued: Date 5-1-95 Initial AP

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (~~kg~~ lb) 175.3
Post-test weight (kg) _____
Loss = _____

RIDGE BOLT OPPOSITE BARREL SEAM & DOWN.

Rack Storage Drum Data Sheet

Drum No. X112 wt = 174.9 lbs.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: ✓ Yes _____ No

Gasket missing (cm) _____ 29.5"

Contents expelled: _____ Yes ✓ No

Seal failure: _____ Yes ✓ Not visible

Burn pattern:

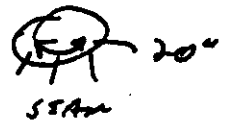


Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
5-6" BURN AREA - OTHER SIDE UNCHANGED

v.Dec 90
~~Photo~~ taken: ✓ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X122 (9)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.3 Target weight - 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X122 wt. 175.1 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 33" other side is compressed and stiff

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
21" centered on seam

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~3" at burn area - other side not charred

v:Dec 41
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X132

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.4 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X132 175.216

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 30" centered on burn area

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
17"



Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
3" char at burn area - nothing on back part.

Photo taken: video 34 X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X142

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.1 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. Y142 wt. 175.6 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 15" on burn area – other gasket is compressed and rather hard.

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible no bulging of lid

Burn pattern:
~10" burn
seam

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~2" char at burn area

video [redacted] 38
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X152

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 176.1
Post-test weight (lb) ____
Loss = ____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X152 WT. = ~~178.7~~ 176.1

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 ~13" compressed and hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
some plastic melted to right of seam
NO char

~~Photo~~ VIDEO 61 taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X162

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.2 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X162 175.2 lb.

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none

Photo taken: ____ Yes X No

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
some plastic melted to wall w/in 19" from seam to right side.
no char

video 62
Photo taken: X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X172

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.4 Target weight - 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X172 wt. = 175.9 lb.

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
barely melted ~4" span of plastic ~9" to right of seam

V1000 63
Photo taken: X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X182

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.6
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. K182 wt. = 175.8

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) ⌀

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes ⊗ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:

Photo taken: VIDEO 64 X Yes _____ No

Comments:
like new

Rack Storage Drum Data Sheet

Drum No. X212

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.0 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X212 wt. = 171.7 lb.

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: ____ Yes X No

Gasket missing (cm) all

Contents expelled: ____ Yes ____ No

Seal failure: X Yes ____ Not visible

Burn pattern:
all around

Photo taken: ____ Yes ____ No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
~24" from top of drum to top of remaining charred contents

~~Photo~~ V.Doc 16 taken: X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X222 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	—	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X222 wt. = 185.6 lb no lid

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: ____ Yes X No missing lid & ring

Gasket missing (cm) ____

Contents expelled: ____ Yes ____ No

Seal failure: X Yes ____ Not visible

Burn pattern:
not measurable - all around

Photo taken: ____ Yes ____ No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
14" of remaining contents charred on outside but intact
~1" below char

Video 11
Photo taken: X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. K232

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X232 wt 169.5 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No ¼" x 4" gap 13" to left of seam

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern: primarily left half around seam

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: ~19" top of drum to top of charred contents
less than 1" of char to original contents
~~¼" min. thickness of charred material on top surface, outside edge~~

Photo taken: X Yes _____ No VIDEO 17

Comments:

Rack Storage Drum Data Sheet

Drum No. X242

Description (Check):

✓	Standard load
	Instrumented for Pressure
✓	Instrumented for temperature
	H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X242 wt = 174.9 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 42.5" on burned side

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
23" above mid lit of drum burn → Room

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
Lid is intact w/ ~ 1" char on burned side top to bottom
~1" wide band of charred material on top surface outside edge

Photo taken: X Yes _____ No
video is

Comments:

Rack Storage Drum Data Sheet

Drum No. X252

Description (Check):

✓	Standard load
	Instrumented for Pressure
✓	Instrumented for temperature
	H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X 252 176.2 16.

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 compressed + hard ~28"

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
29" of melting and surface browning of paper to left of seam



VIDEO 52
Photo taken: X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X 262

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.1
Post-test weight (lb) ____
Loss = ____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X262 wt. = 175.7

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 semi-hard for ~6"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
some melting of plastic for ~10" left of seam



Photo taken: X Yes _____ No
VIDEO 5!

Comments:

Rack Storage Drum Data Sheet

Drum No. X 272

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.0 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X272 wt. = 175.7 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 almost like new

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
barely melted plastic 10" to left of seam

Video #3
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X-282

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X252 wt = 176.1 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
NO char - no melting

Video 12
Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X312(P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.5
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X 312 163.9

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No Gap was not measured

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
All around.

Photo taken: X Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
17" of charred contents remaining
very center of material is like new

VIDEO 89
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X 332 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X332 150.3 lb. was wet

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
24" at mid lt. seam to right

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
2-3" of charred contents
still smoldering on them.

VIDEO 124
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X 342

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X342 176.3 16.

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____43"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
16" at mid lit starts 16" right of seam

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
2-3" char all around
top charred

Photo taken: VIDEO 127 X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X4[redacted]352 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. K352(P) 176.6 lb

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 compressed - fairly hard all the way around.

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern: NONE

Photo taken: ____ Yes X No

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
29" plastic melted - no char at seam

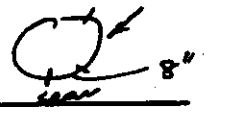


Photo taken: X Yes ____ No
video ✓

Comments:

Rack Storage Drum Data Sheet

Drum No. X362

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.0 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X362 176.2 lb

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 like new, somewhat compressed ~ 18"

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
20" seam to right slight melting

Photo taken: X Yes ____ No
VIDEO 167

Comments:

Rack Storage Drum Data Sheet

Drum No. X 372

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.0 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X372 wt. = 176.0

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 like new, slightly compressed

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
NO char
NO burning

Photo taken: video III X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X382

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.3
Post-test weight (lb) _____
Loss = _____

Target weight – 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X382 176.6 lb

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 like new

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
no melting
no char

Photo taken: X Yes ____ No
X-ray 1-2

Comments:

Rack Storage Drum Data Sheet

Drum No. X113

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X113 wt. = 175.2

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____25"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
~12" centered on seam only top 2/3 of drum

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
1-2" of char on burned half

video 42
~~Photo~~ taken: ✓ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X123(P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.6 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X123(P) wt. 176.1

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 21"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
14" at mid ht. top 2/3 of drum centered on seam

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
1" at burn area

Video 44
Photo taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X143

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.5 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X143 175.4 16

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 ~12" is dark brown

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
~2" plastic melted (~12" span) at seam
virtually no charring

Photo taken: X Yes ____ No
video 45

Comments:

Rack Storage Drum Data Sheet

Drum No. X153

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X153 176.1 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 ~11" compressed and hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
plastic melted to side ~22" span about seam (mostly to the right)
no char

Photo taken: X Yes _____ No
Video 65

Comments:

Rack Storage Drum Data Sheet

Drum No. X163

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.6
Post-test weight (lb) [redacted]
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X163 wt. = 175.7 lb

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 hard + compressed ~11" span

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
plastic melted to wall ~15" seam and to the right
no char

VIDEO6C
Photo taken: ✓ Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X173

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 178.6
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X173 wt. = 175.5 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
plastic barely melted at seam

Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X183

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date _____ Initial _____

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X183 wt. = 175.6 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
plastic barely melted at seam

Photo taken: X Yes _____ No
video 69

Comments:

Rack Storage Drum Data Sheet

Drum No. X213 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. x213 (P) 147.5 w/o lid wet

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) _____

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern: all around

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: ~3" charred contents

Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X233 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X233(P) wt = 147.4 still smoldering

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
~28" mid ht.

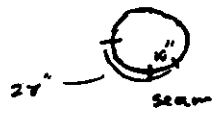


Photo taken: _____ Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~3" of material

Video
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. Y243

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.5 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X243 wt = 179.316

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 52.5"



Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern: ~21" at mid ht.

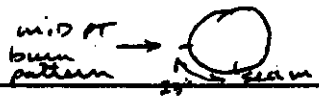


Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:

Video 21
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X253 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.0 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X253 (P) 175.4 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed & hard for 15"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure (psig)~~ _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
31" plastic melted very slight browning of top layer of cloth 31 → seam

Photo taken: X Yes _____ No
VIDEO 34

Comments:

Rack Storage Drum Data Sheet

Drum No. X26.3

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial AS.

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.6 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X263 wt = 176.1 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new, somewhat compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
barely melted plastic from seam to 12" to left

V:DEC'13
Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X273

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial HP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.3 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X273 wt. = 175.8 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
barely small spot of plastic 10° left of seam

Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X283

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.3 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X283 wt. = 175.7 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new, somewhat compressed.

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
NO char, NO melting

video 15
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X313

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5.1.95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight - 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X313 wt. 148.8

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: ✓ Yes _____ No ~21" under ring. ~1/4" gap around as lid is shifted w.r.t. drum.

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern: All around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 14" of charred contents

Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X323

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.5 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X323 wt = 1470

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:



39"

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Interior assessment:

.9" charred contents

video #5

Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X333

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X333 wt. = 1[illegible].8 lb has H_2O

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern: burned 38" ↙ 33" clean ↗ tape

Photo taken: _____ Yes X No

Leak tested: ~~N/A or~~ Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~3" charred contents

Photo taken: X Yes _____ No
↳ pcc 24

Comments:

Rack Storage Drum Data Sheet

Drum No. X343

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X343 wt. 175.3 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all but ~5", 1/16" thick gasp opposite burn pattern

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

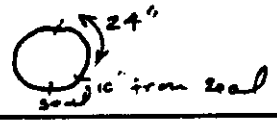
Burn pattern: 

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~1" depth char on burned side none on other side

Dec 23
Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X 353

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.5 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X353 wt. = 176.2 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 15" had + compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
27" seam to right melting of plastic - some to wall
no charring

Photo taken: X Yes _____ No
video #3

Comments:

Rack Storage Drum Data Sheet

Drum No. X363

Description (Check):

- ✓ Standard load
- ___ Instrumented for Pressure
- ✓ Instrumented for temperature
- ___ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial ___

Leak tested:
N/A or Pressure (psig) ___ Time (min) 0
Pressure (psig) ___ Time (min) 5
Date ___ Initial ___

Pre-test weight (lb) 175.3 Target weight ~ 175.6 lb
Post-test weight (lb) ___
Loss = ___

Rack Storage Drum Data Sheet

Drum No. X363 175.9 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 2 like new

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ~~X~~ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
13" seam to right slight melting
no char

Photo taken: X Yes _____ No
Video ICS

Comments:

Rack Storage Drum Data Sheet

Drum No. X 373

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.0 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X373 wt. = 176.3 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new, slightly compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE - sooty

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
NO melting
NO char

Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X383

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-1-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-1-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-1-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.5 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X353 wt. = 175.7 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 fairly hard ~12"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - slightly sooty

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
no melting
no char

Photo taken: 120 Yes _____ No
video 120

Comments:
like new except for soot

Rack Storage Drum Data Sheet

Drum No. X114

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X114 175.715

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 28

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
9" top 2/3 of drum at seam

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
2-3" of char + melted plastic seam half of drum
back half has melted plastic but little char

Video 49
Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X124

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5.2.95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X124 wt. = 176.5 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 26" at seam

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - some discoloration to right of seam

Photo taken: _____ Yes X No

Leak tested: (NA) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~3" char at seam ~ 26" span

Video 47
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X134

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X139 WT. 176.5 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 20" at seam

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE. - discoloration ~12" at seam top 2/3 of drum

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
3" melt of plastic ~ 1-½ of char at seam, other side is like new

Photo taken: 010049 X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X144

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X134 wt. = 176.1

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 6" to right of seam

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none sooty on front half

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~3" melt of plastic color to right of seam, ~6" span

Photo taken: X Yes _____ No
L0096

Comments:

Rack Storage Drum Data Sheet

Drum No. X154

Description (Check):

✓	Standard load
	Instrumented for Pressure
✓	Instrumented for temperature
	H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.4 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X154 wt: 176.4 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed and hard ~20°

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE - sooty on seam half

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
plastic melted to side ~20° about seam

VIDEO 71
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X1624

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.5 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X164 wt. = 176.3 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 2 ~12" somewhat hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - sooty around drum

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
plastic melted to side ~12" from seam to right

Video 73
Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X174

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.8 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X174 wt. 176.7 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - sooty

Photo taken: _____ Yes ~~X~~ No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
some plastic melted at seam (not to drum)
no char

~~Photo~~ video taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X184

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

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Accession #: D195061639

Document #: SD-WM-TRP-246

Title/Desc:
SOLID WASTE DRUM ARRAY FIRE PERFORMANCE [SEC 4 OF 7]

Pages: 151

THIS DOCUMENT WAS TOO LARGE TO SCAN AS A SINGLE DOCUMENT. IT REQUIRED BREAKING INTO SMALLER SECTIONS.

DOCUMENT NUMBER: SD-WM-TRP-246

SECTION: 4 OF 7

TITLE: Solid Waste Drum Array Fire Performance

AUTHOR: Louie PL

RECIPIENT:

DATE: 11/07/95

KEYWORDS:

REFERENCES: EDT-612232

Blank

Rack Storage Drum Data Sheet

Drum No. X154 175.8 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 ~11" hard & compressed.

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE - sooty seam to ft. side

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
some plastic barely melted

Photo taken: X Yes _____ No
VIDEO 72

Comments:

Rack Storage Drum Data Sheet

Drum No. X214 (P)

Description (Check):

✓	Standard load
✓	Instrumented for Pressure
✓	Instrumented for temperature
	H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.6 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X214(P) wt. = 145.3 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: _____ Yes _____ Not visible

Burn pattern:
all the way around

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
26" from Top to ~~bad~~ Top of remaining contents

video 4
~~Photo~~ taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X224 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X224 (P) wt: 164.6

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No 1" gap 13" long

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
All around

Photo taken: _____ Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
17½" from top to remaining contents

V.Deo 3
~~Pho~~to taken: ✓ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X234

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X234 wt = 153.4 lb

Post-test Assessment

Position: _____ original: _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern: 42" burned, 29" clean, seam

Photo taken: _____ Yes _____ No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~4" of charred contents on bottom

Photo taken: X Yes _____ No
Video 19

Comments:

Rack Storage Drum Data Sheet

Drum No. X244

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial AP

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.8
Post-test weight (lb) ____
Loss = ____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X 244 wt. = 174.1 lbs.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible ? slight bulge in lid but no vent area

Burn pattern: ~ ½ to left of seam

Photo taken: _____ Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~ 1" char on unburned side upto 2" on burned side

Video 20
~~Photo~~ taken: X Yes _____ No

Comments:
some discoloring around top near lid probably vented.

Rack Storage Drum Data Sheet

Drum No. X254 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 1764 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X254(P) 176.916.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 47" compressed & hard (partially browned)

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE - soot all around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
35" melted plastic left of seam
24" to left of seam is ~ 8" span of 1" charred contents

VIDEO 86
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X264

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5.2.95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.4 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X264 wt. = 175.7 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed + hard all around.

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - sooty all around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
37" melted around not to side



V. Dec 13
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X274

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.4 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X274 wt. = 176.5 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 10 ~34" fairly hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE - sooty all around

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~~sooty~~ melted all the way around but not to side
NO char

Photo taken: X Yes _____ No
VIDEO 75

Comments:

Rack Storage Drum Data Sheet

Drum No. X284

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X254 176.1 lb.

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new, compressed slightly in areas.

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
slight melting of plastic all the way around not to drum

~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X314

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X314 wt. = 144.0

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
All around

Photo taken: _____ Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
6" of charred contents

Photo taken: ~~Photo~~ Video 3 X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X324

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial AP

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X 324 wt. = 125.0 lb. no lid

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: _____ Yes X No missing bolt intact

Gasket missing (cm) _____

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~2" charred material on bottom

~~Photo~~ video 15 taken: X Yes _____ No

Comments:
Drum elongated 0 ± 26"

Rack Storage Drum Data Sheet

Drum No. X334

Description (Check):

✓	Standard load
	Instrumented for Pressure
	Instrumented for temperature
	H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X334 wt. = 163.2 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No 1" x 11" gap 28" to right of seam 1 end at bolt

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
All around

Photo taken: _____ Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
16" top of drum to top of contents ~1" char layer

Photo taken: X Yes _____ No
12 DEC 14

Comments:

Rack Storage Drum Data Sheet

Drum No. X344

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial GK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial GK

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial GK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

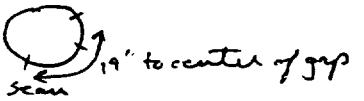
Rack Storage Drum Data Sheet

Drum No. X344 wt. 172.0 lb

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: X Yes _____ No 1" x 11" gap



Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern: 45° at mid ht.

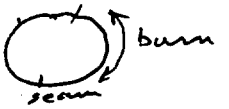


Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 9" from top to top of charred material

Video 25
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X354

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial RJK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial RJK

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RJK

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.6 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X354 wt. = 176.216

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 2" x 10" brown + burned, most compressed & hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - sooty

Photo taken: _____ Yes ~~X~~ No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
½ - 2" char at 20" right of seam - melt all around
char only - seam to 40"

Photo taken: video ok X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X364

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial RJK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial RJK

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RJK

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X364 wt: =176.3 lb.

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 14" hard & compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern: none - sooty

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: very slight melting all around

V:DRO115
Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X374

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial RJK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial RJK

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RJK

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X374 176.2 16.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 46" hard & compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - sooty

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
barely melted right half of drum (from seam)
no char

Photo taken: video 121 Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X384

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial RJK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial RJK

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RJK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X384 wt. = 176.3 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed + band all but 12"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE - sooty all around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
barely melted all around not to wall
NO char

VIDEO
~~Photo~~ taken: 119 Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X115

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X115 wt. = 176.1 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 37"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
~12" to left of seam

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
1-2" char seam half, ~½-1" on back half

Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X125(P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X125 (P) wt. = 176.0

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 35"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
~6" at seam top 1/3 of drum

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
2-3" char seam side, ~1" on far side

Photo taken: X Yes _____ No
VIDEO 51

Comments:

Rack Storage Drum Data Sheet

Drum No. X135

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X135 WT= 176.6 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 29"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
~4" top 1/3 of drum at seam

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
3-4" char depth seam side, 1-2" melted plastic back half.

V.pe052
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X145

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X145 wt. = 175.9 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 16"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
9" to right of seam top 3/3 of drum

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~1" char ~16" span around seam other perimeter clean

video 53
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X155

Description (Check):

- ✓ Standard load
- ___ Instrumented for Pressure
- ✓ Instrumented for temperature
- ___ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	—
1/3 of the towels	✓	✓	—
1/3 of the bags	✓	—	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	—	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ___ Time (min) 0
Pressure (psig) ___ Time (min) 5
Date ___ Initial ___

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb
Post-test weight (lb) ___
Loss = ___

Rack Storage Drum Data Sheet

Drum No. X155 wt. 176.3 lb

Post-test Assessment

Position: _____ original: _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 ~10" brown

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NOT visible - very sooty on seam half

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
plastic melted ½ drum about seam
+ surface charring of paper at seam ~6" span

V.DRO 69
Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X1605

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X165 wt. = 1754 lb.

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 had all the way around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - soot all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
plastic melted all the way around
browning of paper & fabric at seam

Video 76
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X175

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial RK

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X175 176.2

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 most compressed and hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
plastic melted all the way around perimeter - to wall about the seam
no char

VIDEO 74
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X185

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	—
1/3 of the towels	✓	✓	—
1/3 of the bags	✓	—	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	—	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.0 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X155 175.9

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 hard all the way around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE - soot around entire drum

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
melted all the way around, to wall at seam
NO char

Photo taken: VIDEO 75 X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X215

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X215 wt. 174.7 lb

Post-test Assessment

Position: _____ original: _____ tipped; _____ toppled

Lid on drum: X Yes _____ No 6" x 30" gap at bolt

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
appears to be burned more on bolt half of drum

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~29" from top of drum to top of charred contents

VIDEO 29
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X225 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.4 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X225 (P) 168.0

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No 3/4" x 9" at bolt

Gasket missing (cm) All

Contents expelled: ~~X~~ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
Difficult to measure
12" are clean

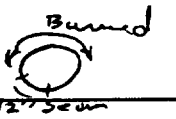


Photo taken: _____ Yes X No

Leak tested: (N/A or) Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
16" from top to top of charred contents

Video 22
Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X235

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

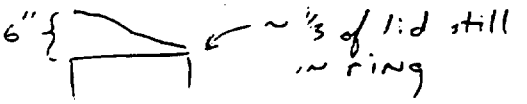
Rack Storage Drum Data Sheet

Drum No. X235 wt. = 157.8 lb wet inside

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

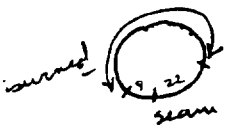
Lid on drum: ½ Yes _____ No



Gasket missing (cm) all

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible



Burn pattern: 40" mid ht

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
combustible contents gone except ~ 6" ht

Photo taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X245

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.5 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X245 wt. 173.9 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: ~~X~~ Yes X Not visible slight bulge at bolt

Burn pattern: possible flame pattern below bolt

difficult to measure all around



Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Interior assessment:

~1-3" charred in two walls, there was a ~1" gap b/w material & wall around part of the perimeter

Video 30

~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X255 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X255 176.7 lb

Post-test Assessment

Position: ____ original; ____ tipped; ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 12" is burned + only a slight covering (< 1/16")

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
~~None~~ - 14" at mid lt centered 26° left of seam

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
28" from seam to left ~2" char . plastic all around

VIDEO ST
~~Photo~~ taken: X Yes ____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. K265

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X-265 wt= 176.3 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 hard & compressed 50" around.

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
None - sooty

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
melted all around to drum in spots - no char visible

V:DEC 100
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X275

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5.2.95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X275 wt. = 176.1 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed + hard all around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - sooty

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
melted all around - to drum only slightly in a few places
NO char

~~Photo~~ Video 102 taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X285

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	—
1/3 of the 10-mil plastic	✓	✓	—
1/3 of the bond paper	✓	✓	—
1/3 of the towels	✓	✓	—
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	—
1/3 of the fabric	✓	✓	—
1/3 of the rubber	✓	✓	—
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X285 wt: 176.1 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 19" compressed & hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes ~~X~~ No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
melting of plastic all around - not to drum

Video ~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X315

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.0 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X315 wt. = 148.1 lb

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: X Yes _____ No 2½" x 17" gap ~12" Rt of seam

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
All around

Photo taken: _____ Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~6" of charred contents remaining

Video 10
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X325

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X325 wt= 138.8 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
39" burned around lit centered on both

Photo taken: _____ Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~7" depth of charred material

VIDEO
~~Photo~~ taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X335

Description (Check):

- ✓ Standard load
- ___ Instrumented for Pressure
- ✓ Instrumented for temperature
- ___ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ___ Time (min) 0
Pressure (psig) ___ Time (min) 5
Date ___ Initial ___

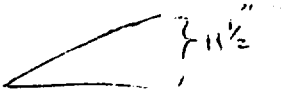
Pre-test weight (lb) 176.4 Target weight ~ 175.6 lb
Post-test weight (lb) ___
Loss = ___

Rack Storage Drum Data Sheet

Drum No. X335 wt. = 138.0

Post-test Assessment

Position: _____ original: _____tipped; _____ toppled

Lid on drum: X Yes _____ No  ~19" lid in ring

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
Difficult to measure - all around

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~3" of contents remaining (charred)

VIDEO S
~~Photo~~ taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X345

Description (Check):

✓	Standard load
	Instrumented for Pressure
✓	Instrumented for temperature
	H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.4
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X345 wt = 135.1

Post-test Assessment

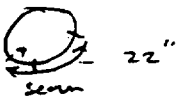
Position: _____ original; _____tipped; _____ toppled

Lid on drum: _____ Yes X No ~~Lid Bent~~

Gasket missing (cm) all

Contents expelled: _____ Yes _____ No

Seal failure: _____ Yes _____ Not visible



Burn pattern:
22" at mid ht. 9" left of seam

Photo taken: _____ Yes _____ No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~3" of contents

~~Photo~~ video taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X355

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X355 wt. = 176.6 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 29", rest is hard compressed.

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern: ~~none~~ sooty 16" mid ht - centered 24" to right of seam

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 2-3" char centered on burn area, none on opposite side

Video 125
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X365

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.4 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X365 wt. = 176.7 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed + hard all around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - sooty

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
melting all around some to wall
no char

Photo taken: video 126 Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X375

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X375 wt. = 176.3 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed very hard all around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - sooty

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
melting all around - a few spots to the wall
no char

Video ~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X385

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X385 wt. = 176.6 lb.

Post-test Assessment

Position: _____ original: _____tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed & hard all around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - sooty

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
melted all around smeta wall
no char

Photo taken: X Yes _____ No
video 128

Comments:

Rack Storage Drum Data Sheet

Drum No. X116

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X116 wt = 175.2 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No lid & ring easily spin on drum

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes _____ Not visible

Burn pattern:
4" top half of drum at seam



Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
char contents 7" below top
1" char seam side and around - Top is all charred.
(NOTE other drums w/ char on side, top is not).

Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X126

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X126 wt. 175.6 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No ring + lid rotate freely

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
6 x 9" at seam top of drum

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
Top is charred
~1" char all around

Video & Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X136

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 176.0 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X136 wt= 175.5 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
~6×6" at seam top of drum

Photo taken: X Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred
1" char all around

DEC 96
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X146

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X146 wt. = 175.3 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
~3×6" at seam top of drum + around lid seam side

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top is charred + ~1" around perimeter

Photo taken: X Yes _____ No
video 57

Comments:

Rack Storage Drum Data Sheet

Drum No. X154

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 176.0 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X156 175.7 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) ALL

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE - hard to tell soot all the way around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred 1-2" char at seam
more on opposite side ~3" plastic melted
+ char

VIDEO 75
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X1666

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X166 wt. 1755 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes ____ No lid & ring turn freely

Gasket missing (cm) All

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
hard to tell - mainly sooty - possible burnt top near lid

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date _____ Initial ____

Interior assessment:
Top charred
~ 2-3" char all around rim near seam

Photo taken: X Yes ____ No
DEC 77

Comments:

Rack Storage Drum Data Sheet

Drum No. X176

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.3
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X176 175.5 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE soot all around - gasket leaking at seam

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
Top ½ charred around perimeter, middle not ~2-3" char all around

Photo taken: X Yes _____ No
Video 79

Comments:

Rack Storage Drum Data Sheet

Drum No. X186

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176 8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X156 176.6 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - soot all around
gasket leaking at seam

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top notched except at edge
~1" char all around only - top 1/3 of drum

Photo taken: V Yes _____ No (video SO)

Comments:

Rack Storage Drum Data Sheet

Drum No. X216

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X 216 wt. = 163.3 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ~½ off – 13" high gap ~18" of lid in ring

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern: all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: ~6" charred contents

Video 37
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X226 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X226 (P) wt. = 166.6

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No 1/4" x 6" Gap at bolt

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ op Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~16" from top of drum to top of charred contents

Photo taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X236

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X236 wt = 185.0

Post-test Assessment

Position: _____ original: _____tipped: _____ toppled

Lid on drum: X Yes _____ No 1½" x 22" gap

Gasket missing (cm) _____

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
Difficult to Assess

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
20" from top to remaining contents - all charred

Video 1
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X246

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	—	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X246 wt. = 142.216.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern: ~32" at mid ht.

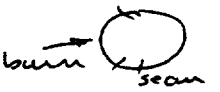


Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 3" of charred

video 32
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X256 (P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-2-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-2-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-2-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.8
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X 256 176.316

Post-test Assessment

Position: _____ original: _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
.39" at mid ht.

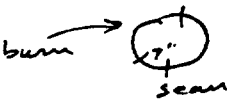


Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred, 4-5" char all around

Video 99
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X2UU

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X266 wt. = 175.2 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
top 2/3 ~26" wide centered on bolt

Photo taken: X Yes _____ No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred
3-6" all around charred

Video log
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X376

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X276 175.4 lb

Post-test Assessment

Position: _____ original: _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
top half ~16" wide below bolt

Photo taken: X Yes ~~_____~~ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
~~Pressure (psig)~~ _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred 4-5" of char all around

~~Photo~~ Video 101 taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X386

Description (Check):

- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X236 175.0 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No bolt & lid rotate freely

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
only below rim - small 4"x4" spot below bolt

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
Top charred
2-4" of char all around.

Photo taken: Video 103 Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X316

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 176.3
Post-test weight (lb) ____
Loss = ____

Target weight ~ 175.6 lb

Rack Storage Drum Data Sheet

Drum No. X ~~136~~ 316 wt. = 134.2

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~5" charred contents

Photo taken: video 36 _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X326

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X326 wt. = 135.3 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: _____ Yes X No not with drum

Gasket missing (cm) _____

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
43" at mid ht. centered on seam

Photo taken: _____ Yes _____ No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~5% of contents

~~Photo~~ taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X336

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X336 wt. 133.1 lb. no lid

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: _____ Yes X No missing

Gasket missing (cm) _____

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
not measureable - all around

Photo taken: _____ Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
- 3" of charred contents

Video 12
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X346

Description (Check):

- ✓ Standard load
- ____ Instrumented for Pressure
- ✓ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X346 143.9

Post-test Assessment

Position: _____ original: _____ tipped; _____ toppled

Lid on drum: _____ Yes X No

Gasket missing (cm) All

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
difficult to measure

Photo taken: _____ Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
4" of remaining contents

Photo taken: X Yes _____ No
VIDEO 5

Comments:

Rack Storage Drum Data Sheet

Drum No. X356(P)

Description (Check):

- ✓ Standard load
- ✓ Instrumented for Pressure
- ✓ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X356 wt.= 175.1 lb.

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: X Yes _____ No lid & ring rotate freely.

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
all around - mainly on bottom half

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred - upto ~8" in of char all around

U.Dec 95
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X366

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.4 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Rack Storage Drum Data Sheet

Drum No. X366 175.4 lb.

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No ring & lid rotate freely

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern: around rim, top 2/3 ~15", below bolt

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: charred on top
2-5" char around drum

~~Photo~~ Video 132 taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X3-76

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for temperature
- _____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

Rack Storage Drum Data Sheet

Drum No. X376 175.1 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern: around rim & top 2/3 ~14" wide below bolt.

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: top charred
up to ~5" char all around – showed on video

Photo taken: X Yes _____ No
VIDEO 131

Comments:

Rack Storage Drum Data Sheet

Drum No. X386

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for temperature
- ____ H_2O filled drum

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb
Post-test weight (lb) ____
Loss = ____

Rack Storage Drum Data Sheet

Drum No. X 386 wt. = 175.8 lb

Post-test Assessment

Position: _____ original; _____ tipped; _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
hard to tell but definitely ~12"×12" spot below bolt area

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred
5-6" char all around

VTEC 136
~~Photo~~ taken: X Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X133 (H_2O)

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: _____ Yes _____ No

Gasket missing (cm) _____

Contents expelled: _____ Yes _____ No

Seal failure: _____ Yes _____ Not visible

Burn pattern:
none - sooty on seam half

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:

Photo taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X221 (H_2O)

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: _____ Yes _____ No

Gasket missing (cm) _____

Contents expelled: _____ Yes _____ No

Seal failure: _____ Yes _____ Not visible

Burn pattern:

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:

Photo taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X223 (H_2O)

Post-test Assessment

Position: _____ original; _____tipped; _____ toppled

Lid on drum: _____ Yes _____ No

Gasket missing (cm) _____

Contents expelled: _____ Yes _____ No

Seal failure: _____ Yes _____ Not visible

Burn pattern:

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:

Photo taken: _____ Yes _____ No

Comments:

Rack Storage Drum Data Sheet

Drum No. X322 (H_2O)

Post-test Assessment

Position: _____ original: _____tipped: _____ toppled

Lid on drum: _____ Yes _____ No

Gasket missing (cm) _____

Contents expelled: _____ Yes _____ No

Seal failure: _____ Yes _____ Not visible

Burn pattern:
All around, very sooty

Photo taken: _____ Yes _____ No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:

Photo taken: _____ Yes _____ No

Comments:

Blank)

Solid Waste Drum Array Fire Performance

Volume III
Appendix E. Palletized Storage Test Data
Appendix F. Palletized Storage Drum Data Sheets

Prepared for

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Richland, WA 99352

Prepared by

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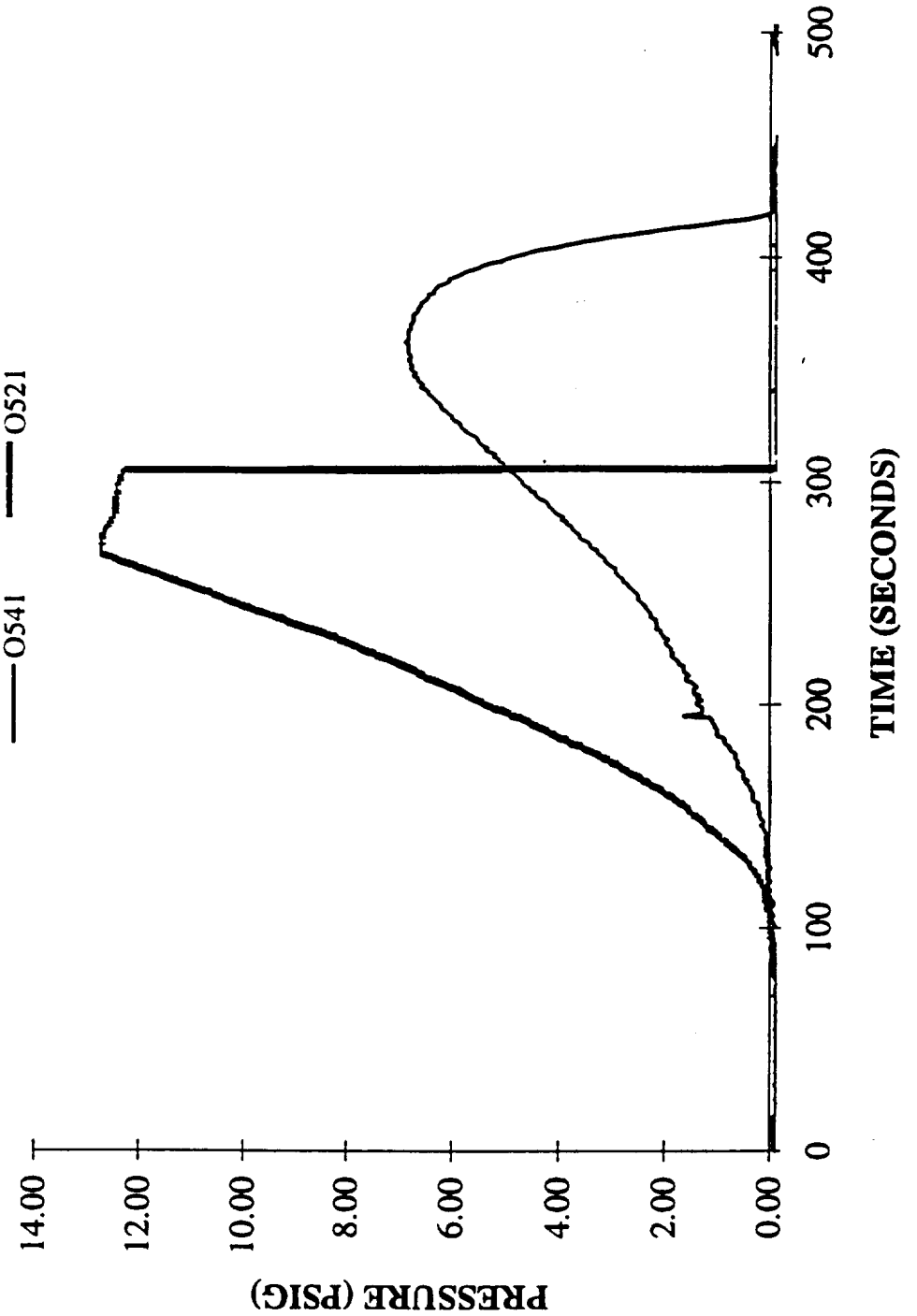
September 28, 1995

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Appendix E

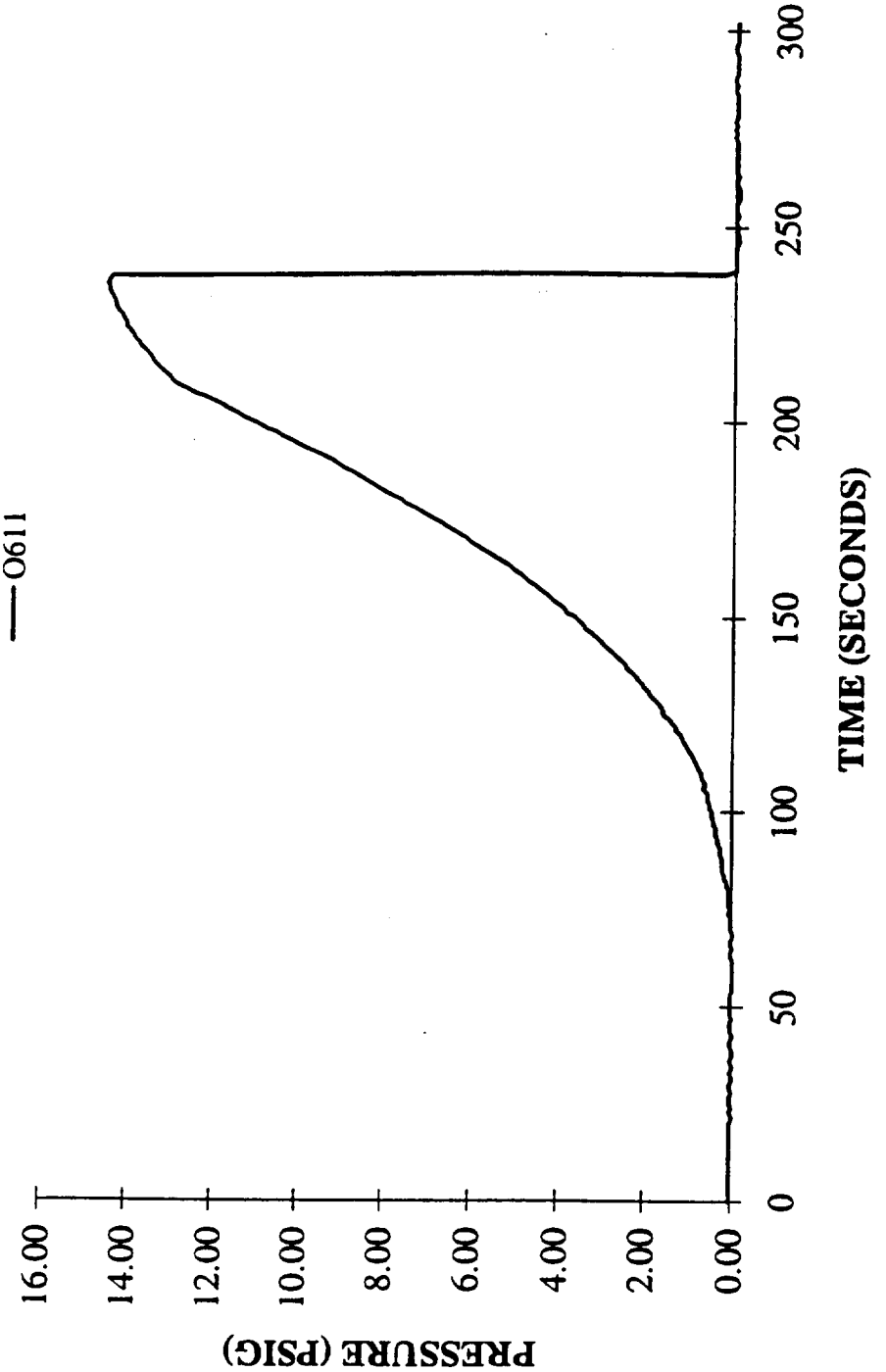
Palletized Storage Test Data

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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: P22.PRN

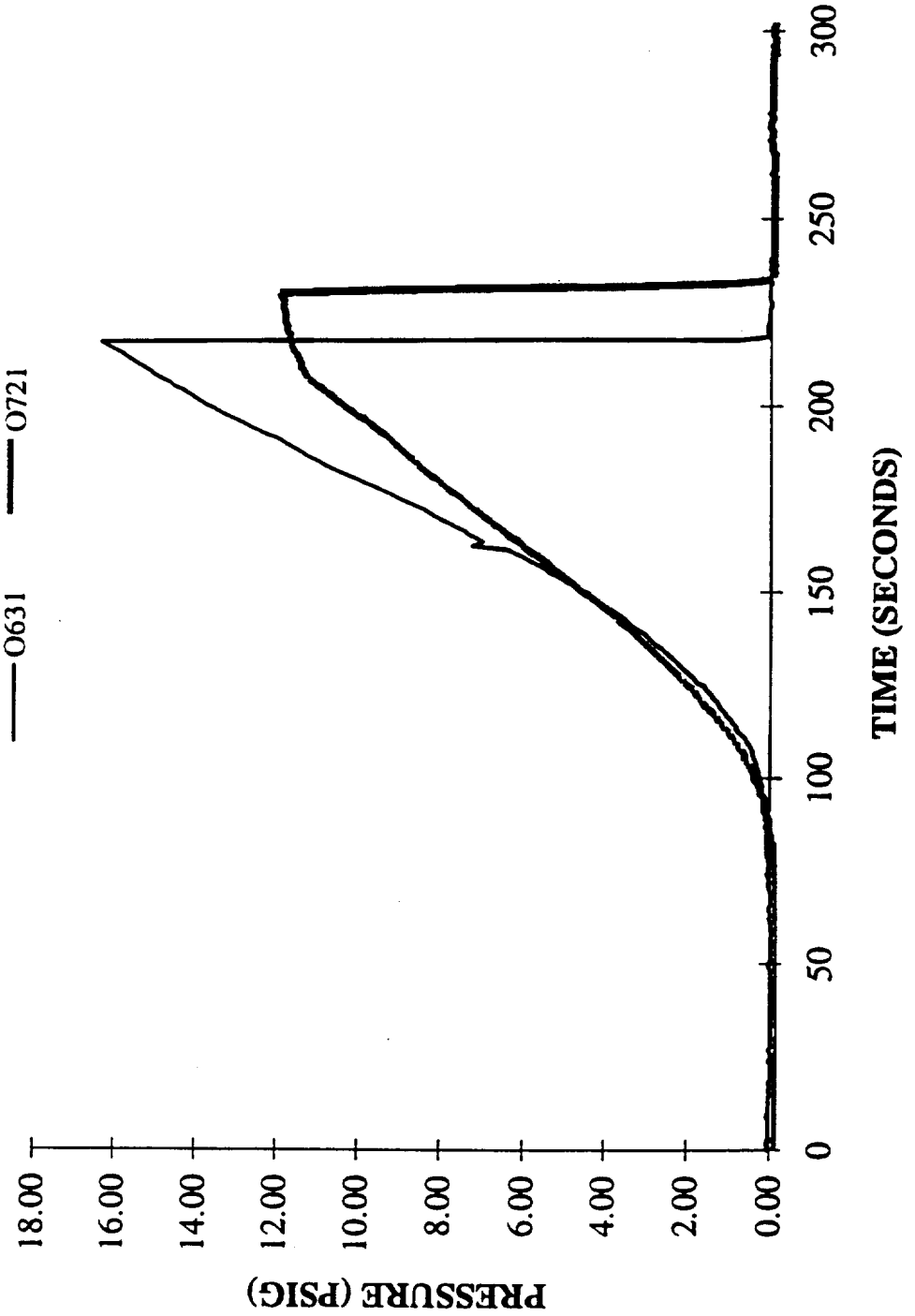


CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: P22.PRN

PALLET STORAGE TEST
INTERNAL DRUM PRESSURES
(TIER #1)

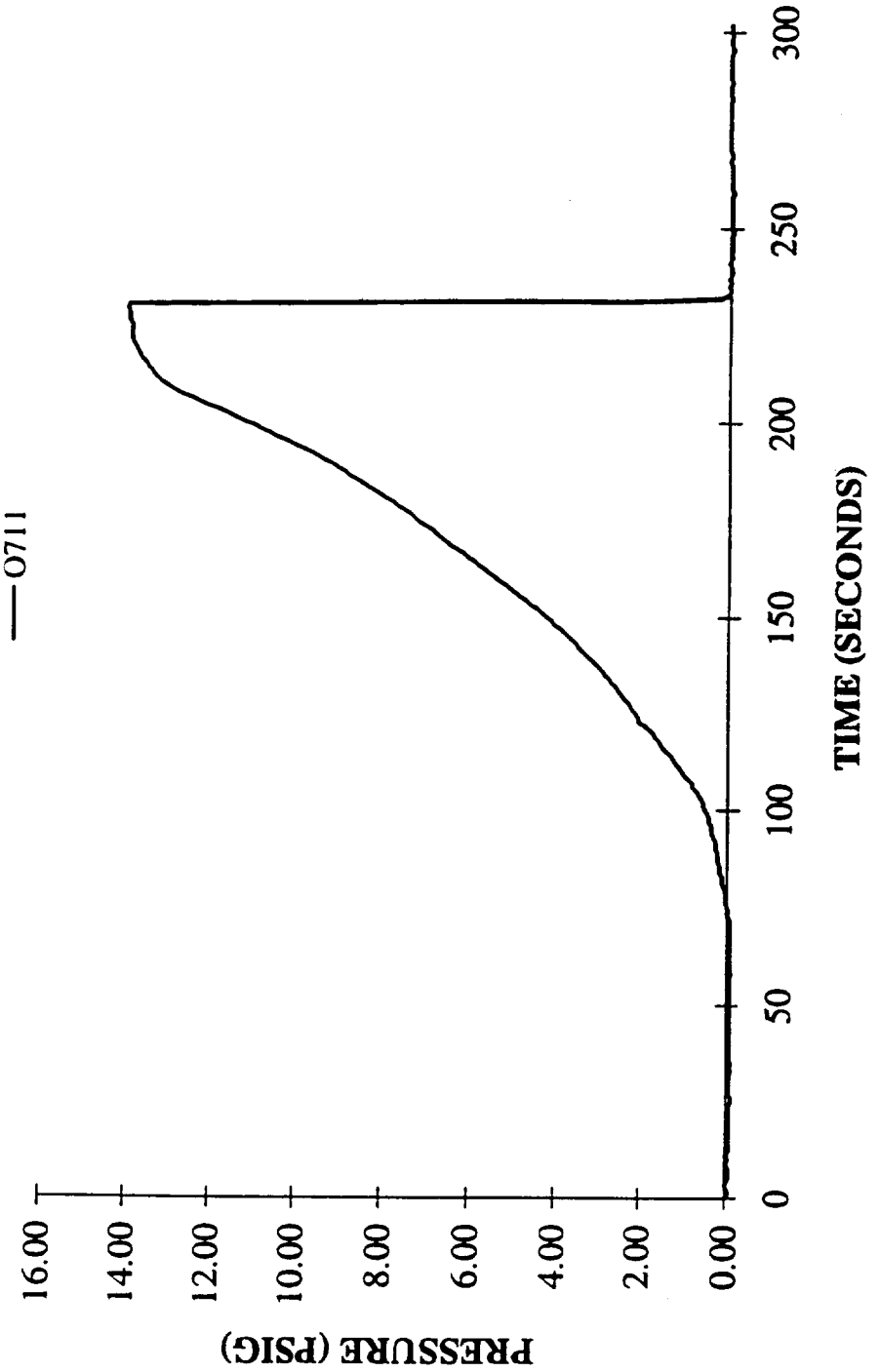


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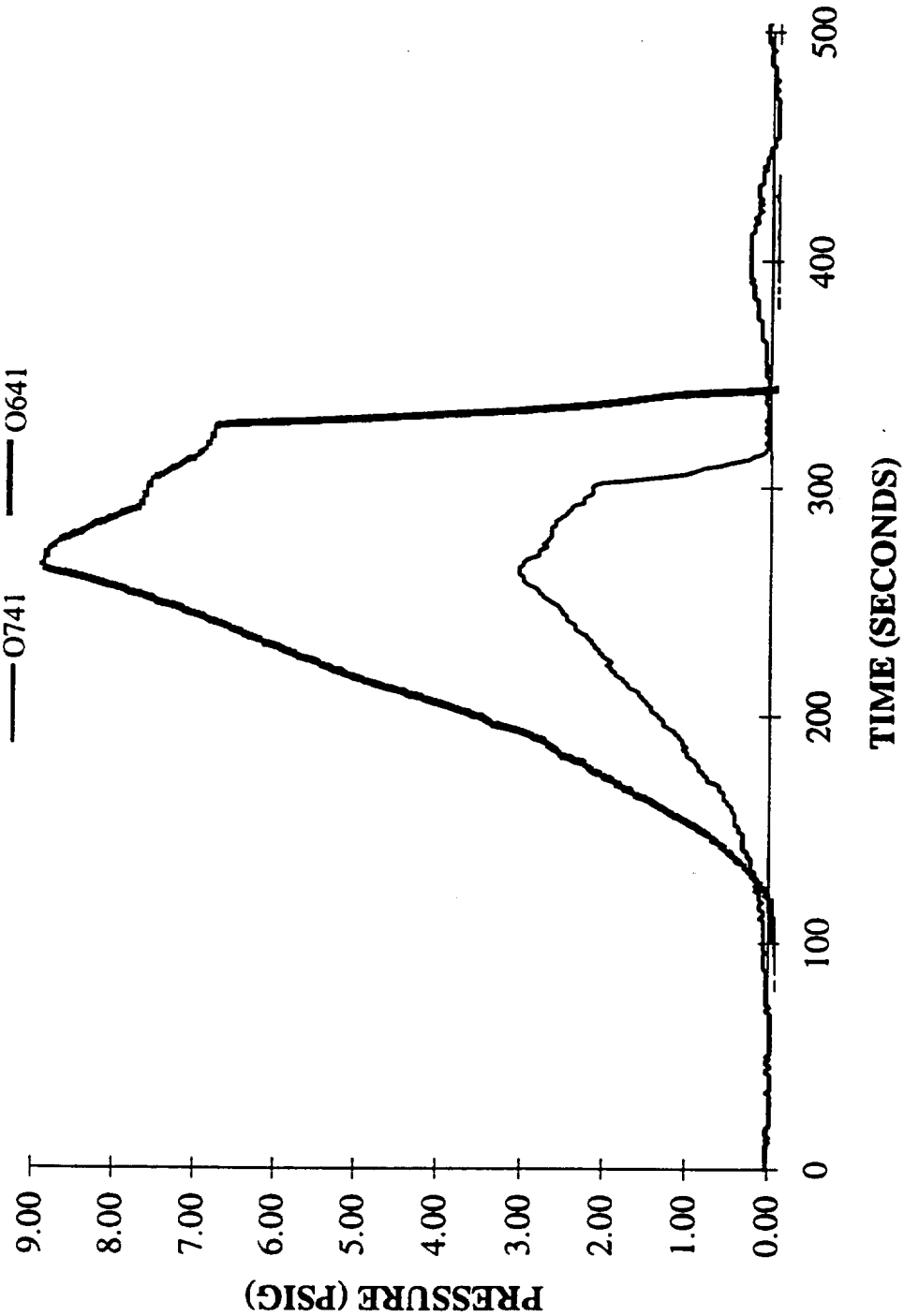


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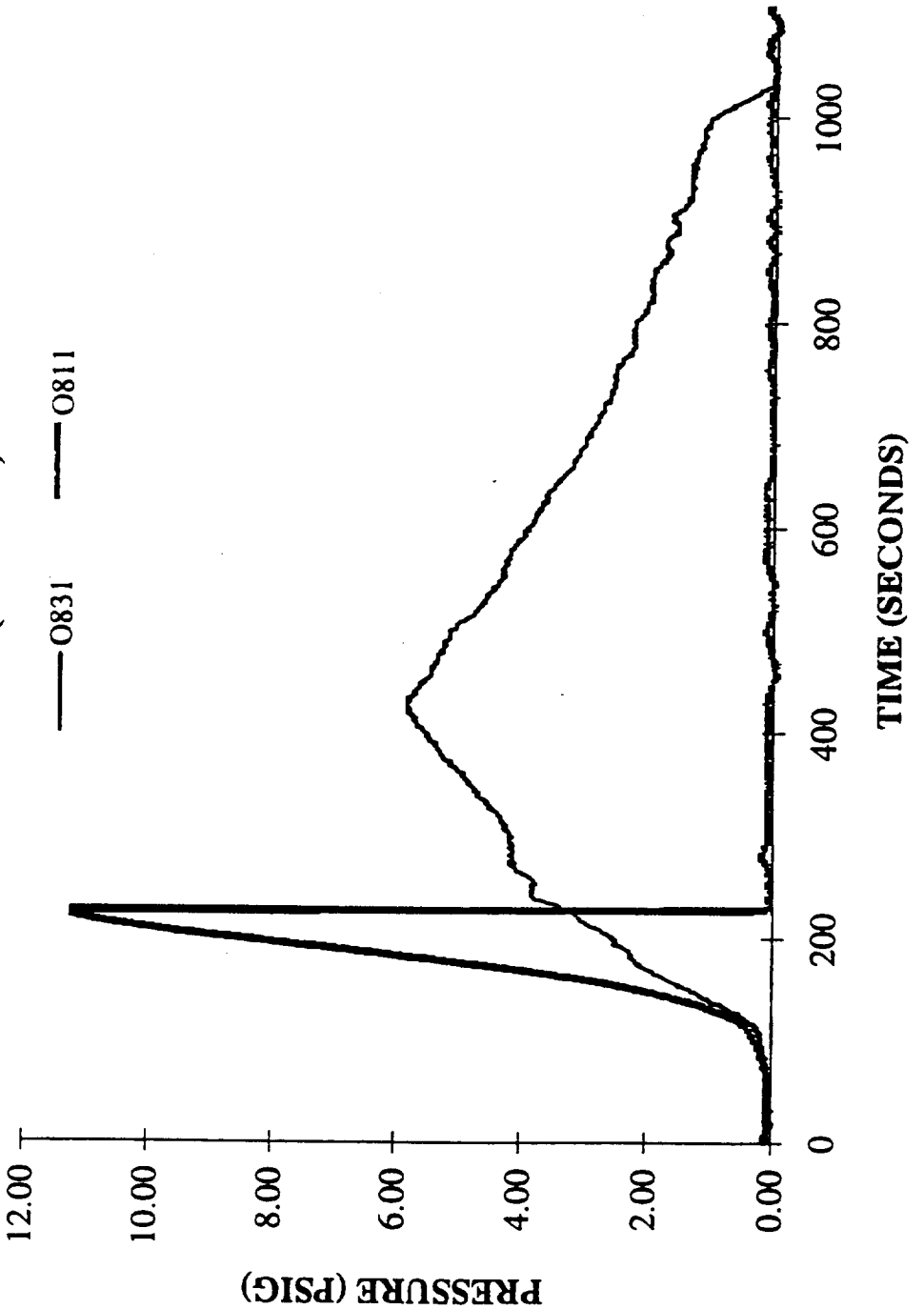
PALLET STORAGE TEST
INTERNAL DRUM PRESSURES
(TIER #1)



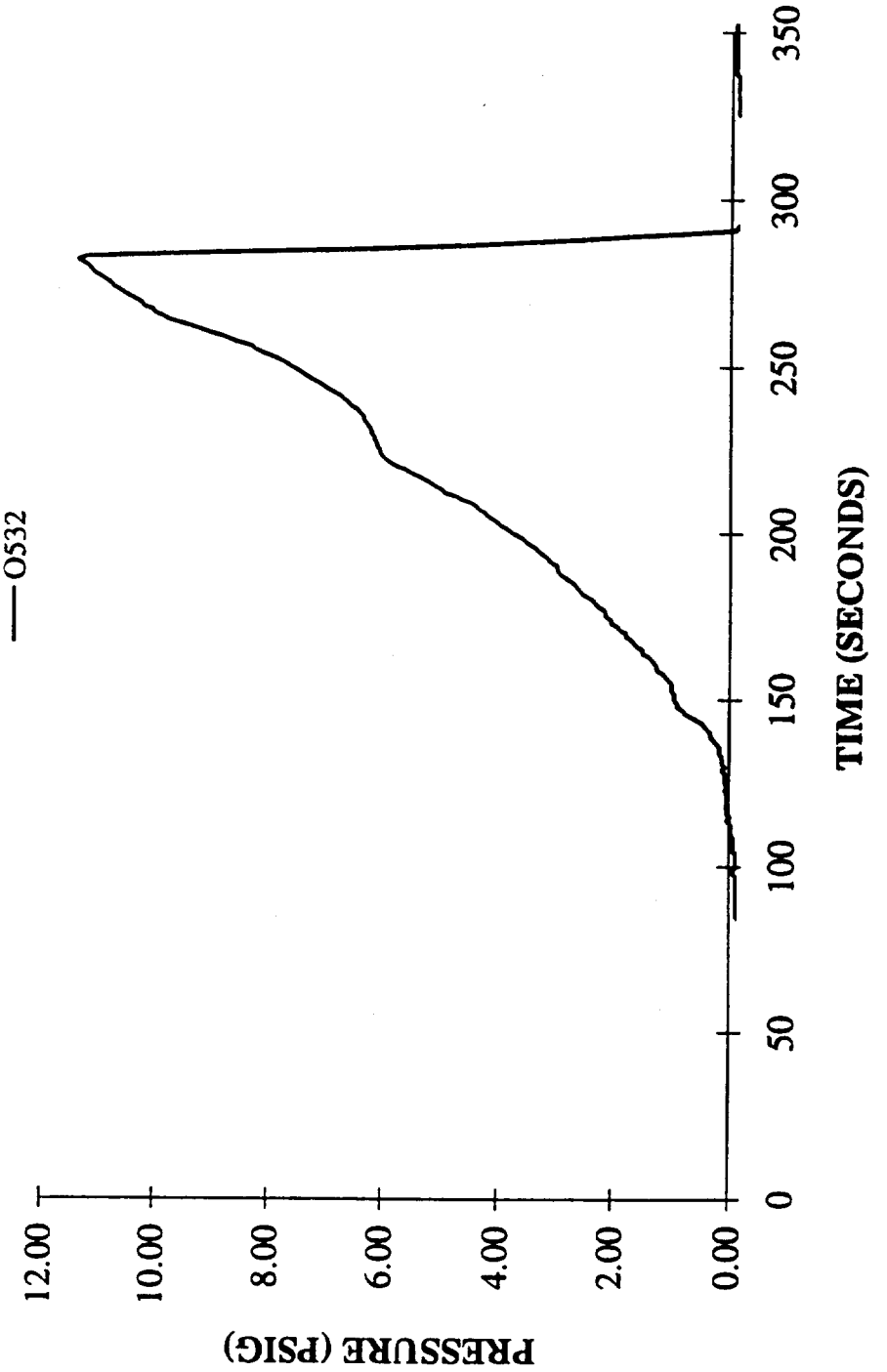
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DATE: 6 JUNE 1995
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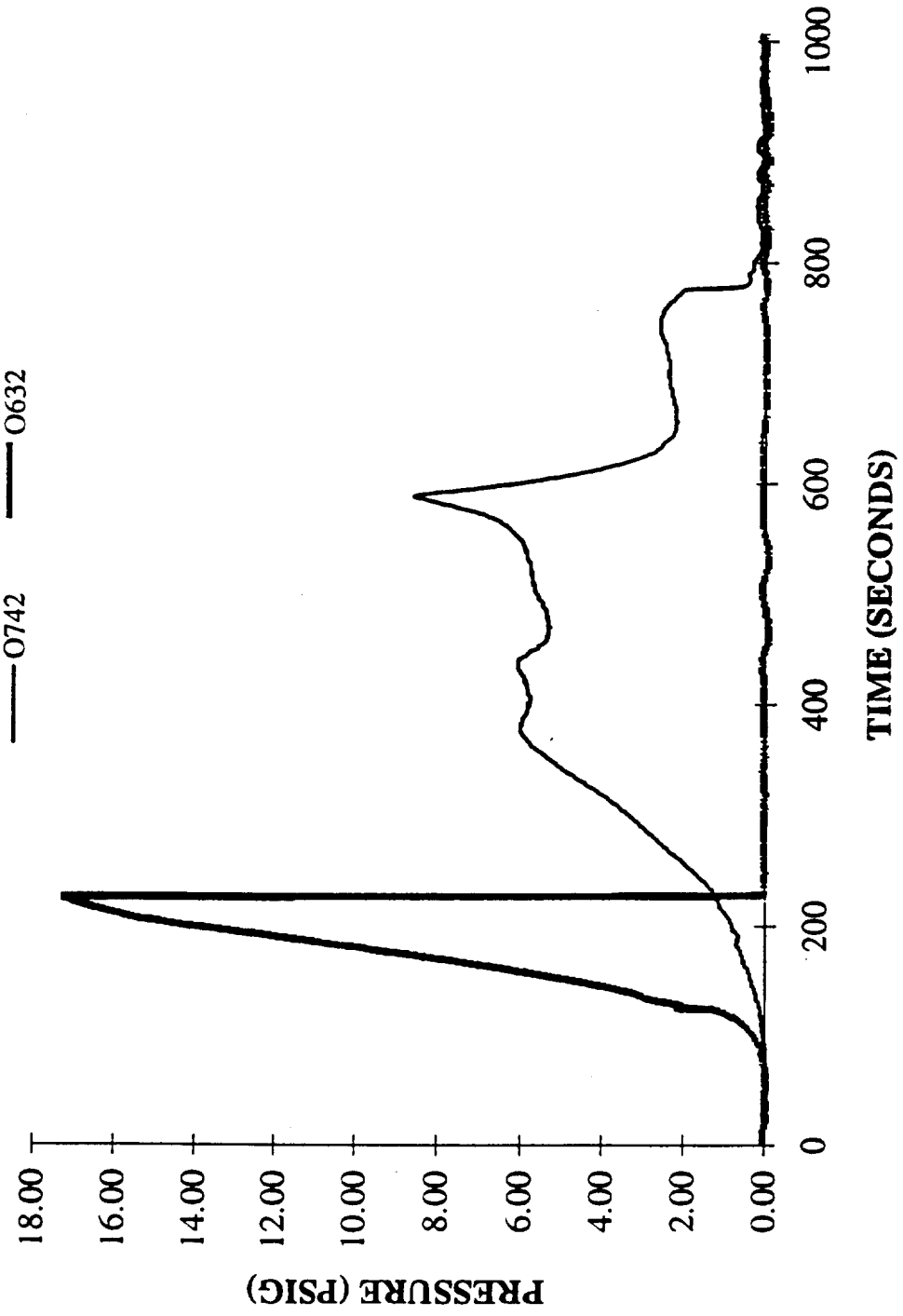
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
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TEST ID: P22.PRN

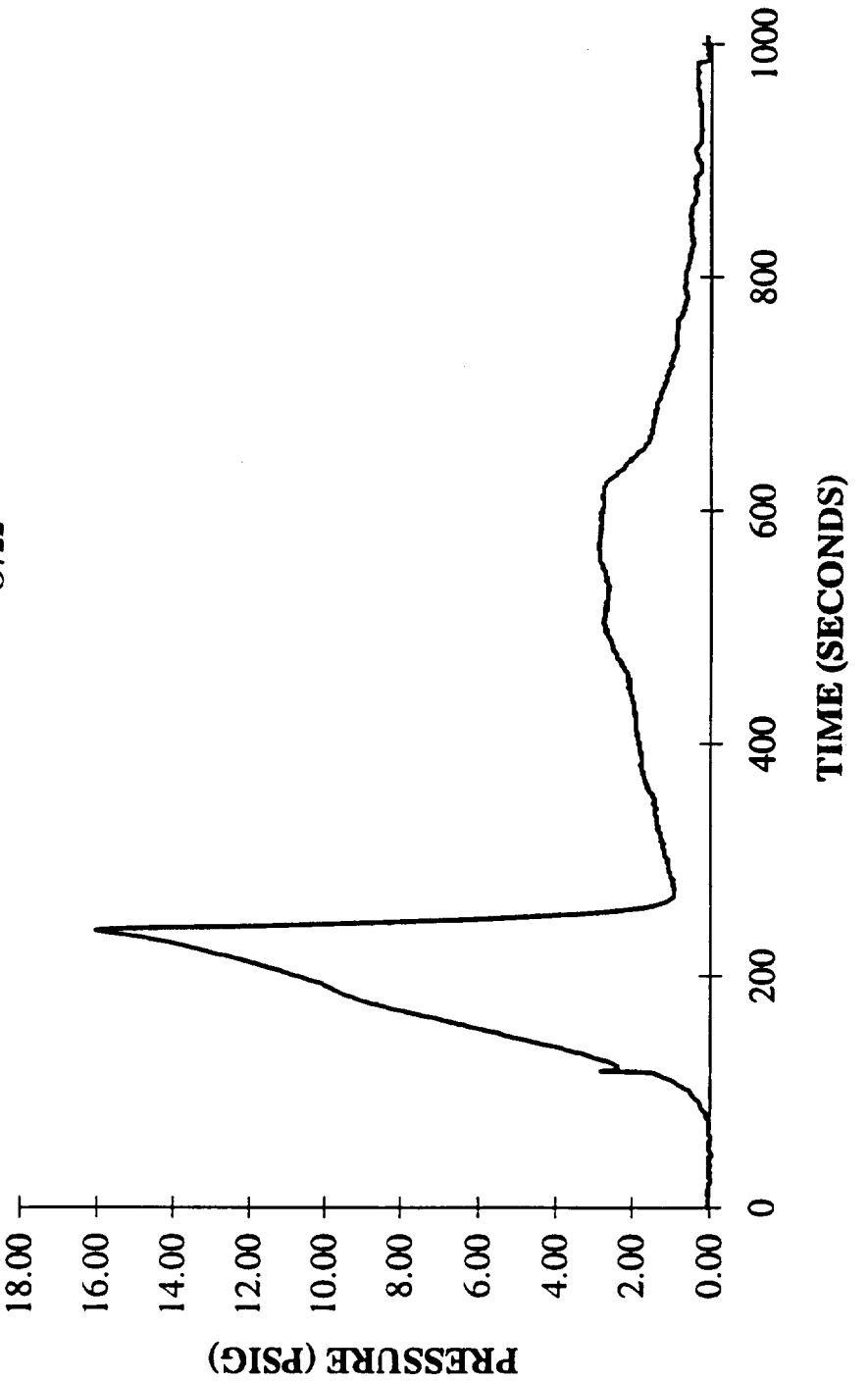


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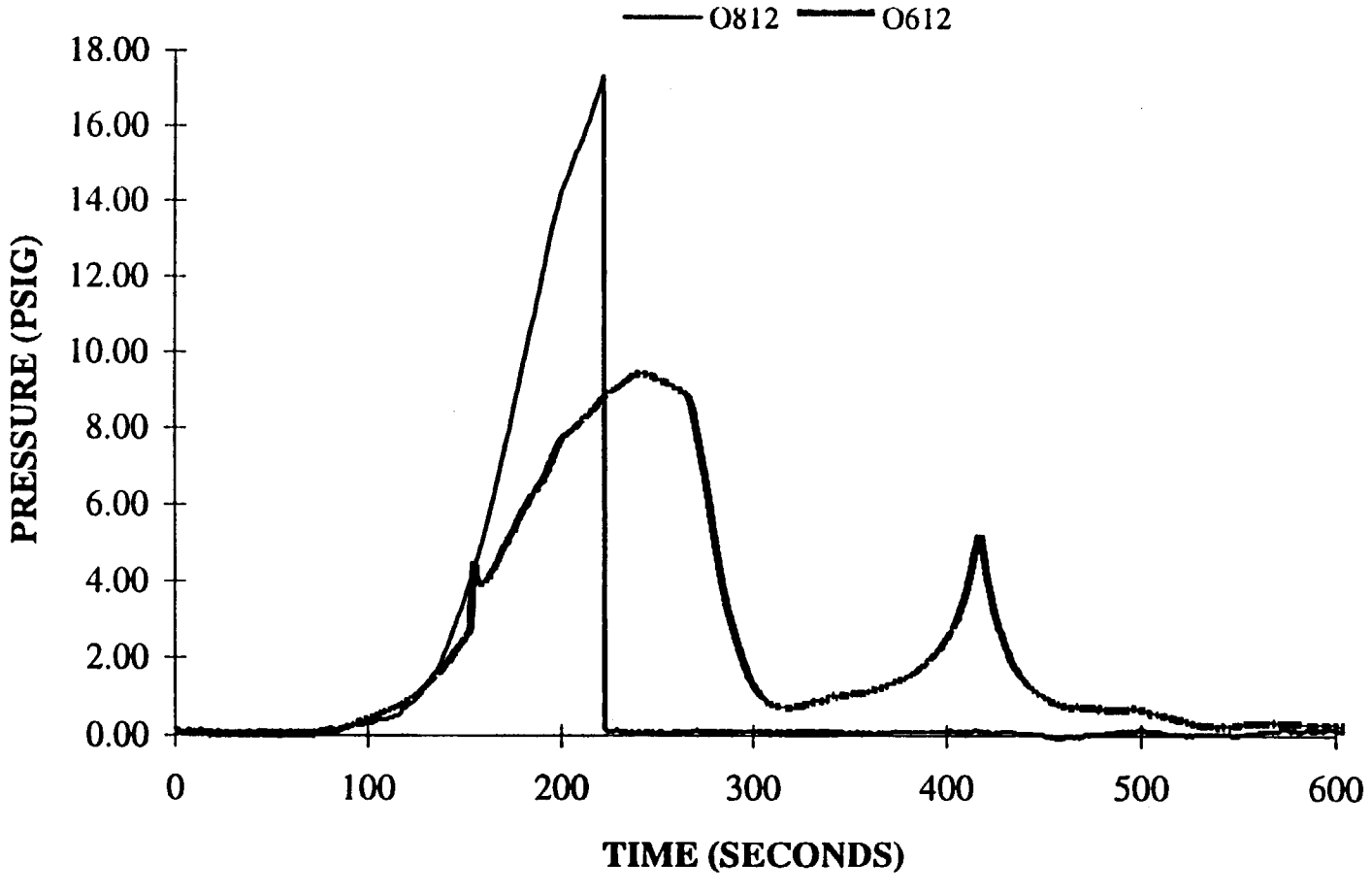
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DATE: 6 JUNE 1995
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PALLET STORAGE TEST
INTERNAL DRUM PRESSURES
(TIER #2)



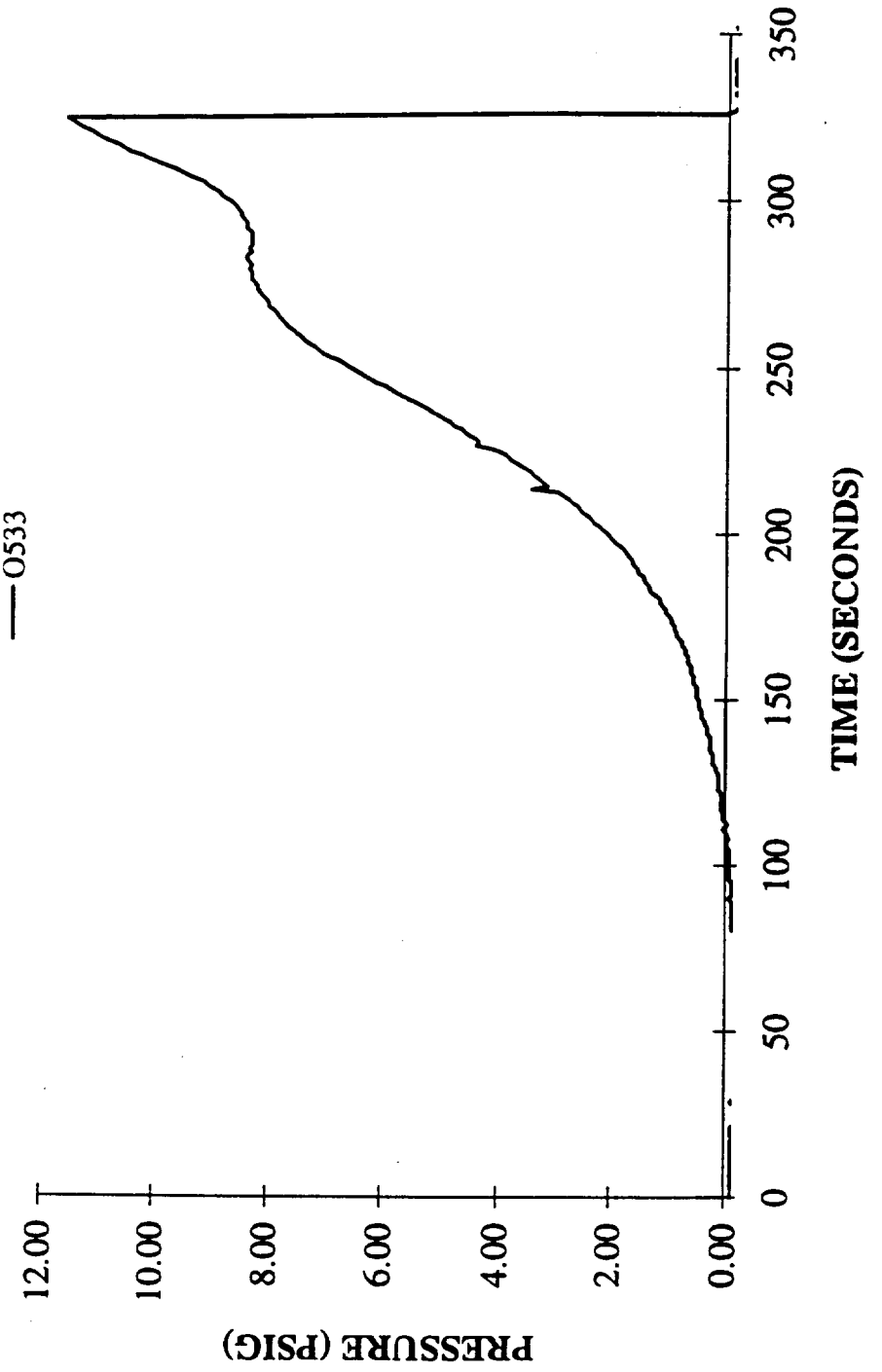
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DATE: 6 JUNE 1995
TEST ID: P22.PRN

PALLET STORAGE TEST
INTERNAL DRUM PRESSURES
(TIER #2)



CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: P22.PRN

PALLET STORAGE TEST
INTERNAL DRUM PRESSURES
(TIER #3)



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Accession #: D195061640

Document #: SD-WM-TRP-246

Title/Desc:
SOLID WASTE DRUM ARRAY FIRE PERFORMANCE [SEC 5 OF 7]

Pages: 151

THIS DOCUMENT WAS TOO LARGE TO SCAN AS A SINGLE DOCUMENT. IT REQUIRED BREAKING INTO SMALLER SECTIONS.

DOCUMENT NUMBER: SD-WM-TRP-246

SECTION: 5 OF 7

TITLE: Solid Waste Drum Array Fire Performance

AUTHOR: Louie PL

RECIPIENT:

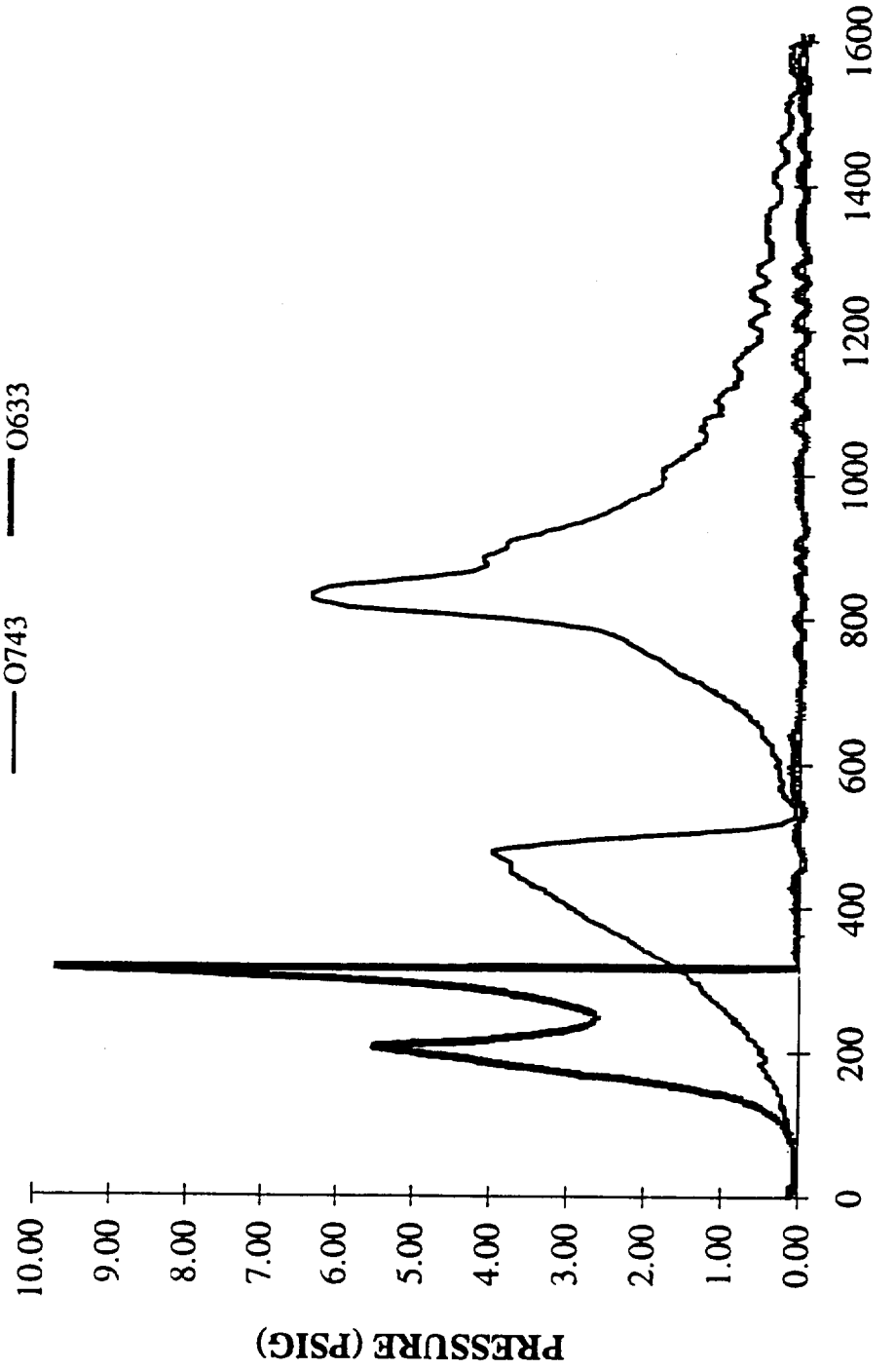
DATE: 11/07/95

KEYWORDS:

REFERENCES: EDT-612232

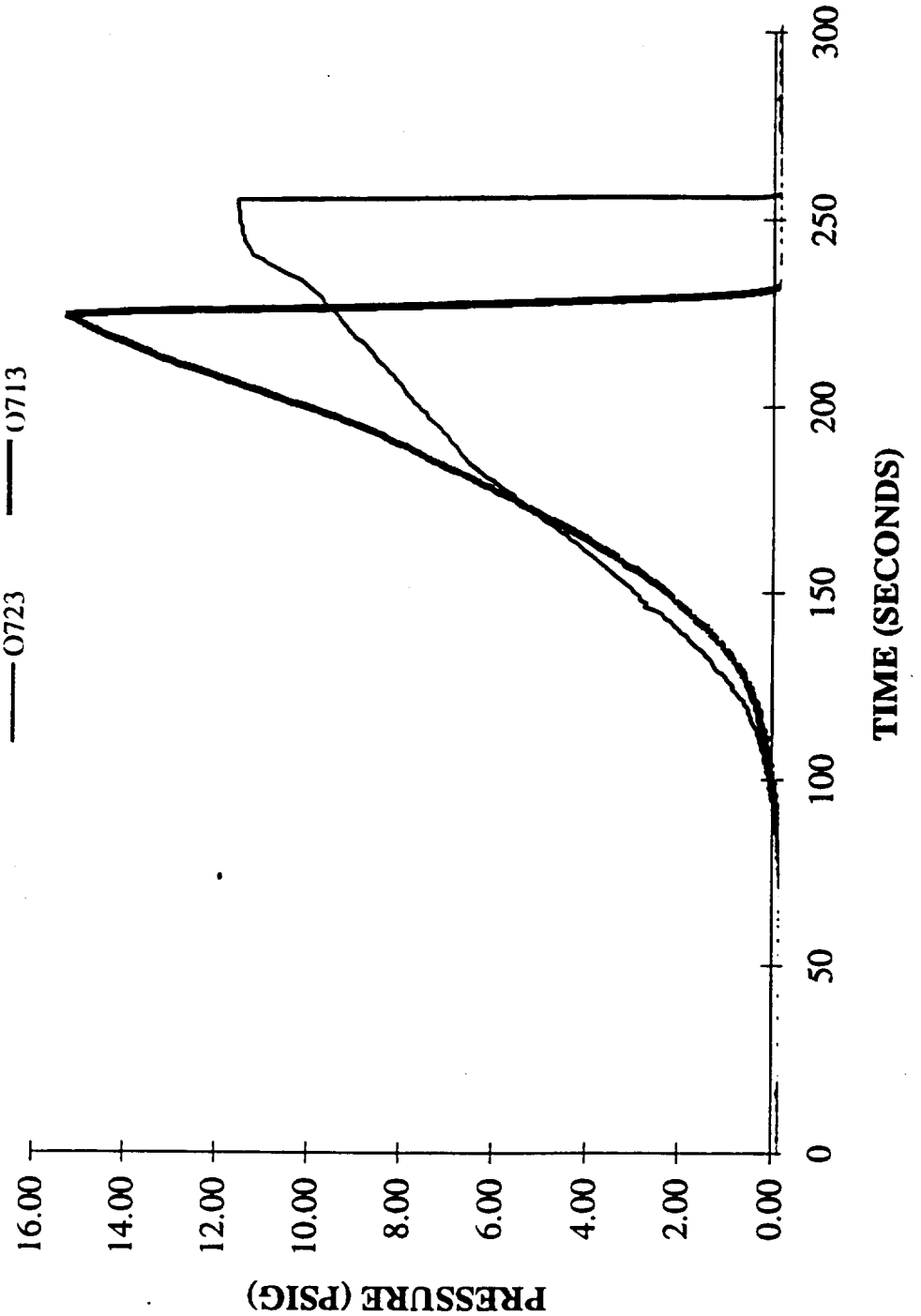
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DATE: 6 JUNE 1995
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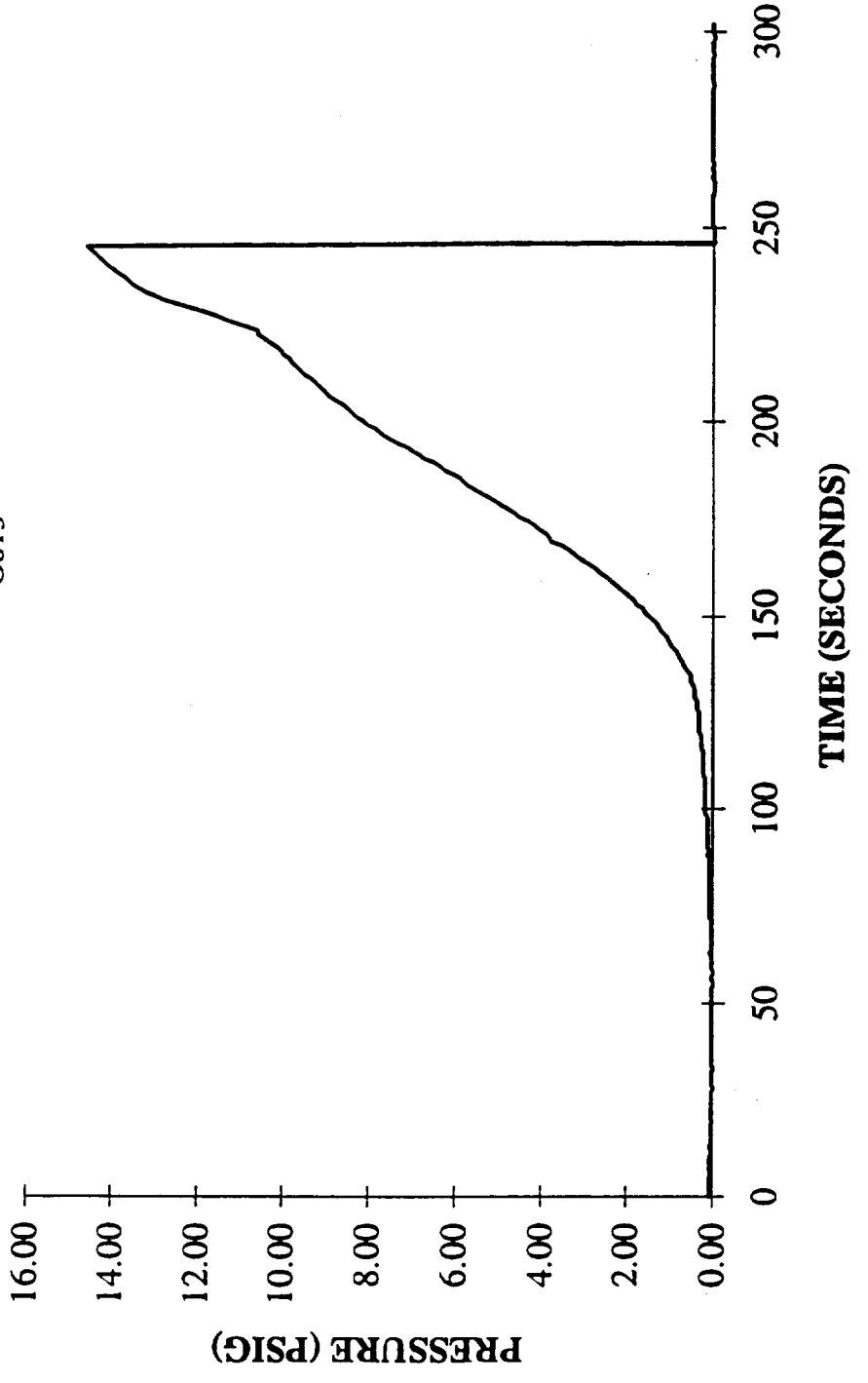
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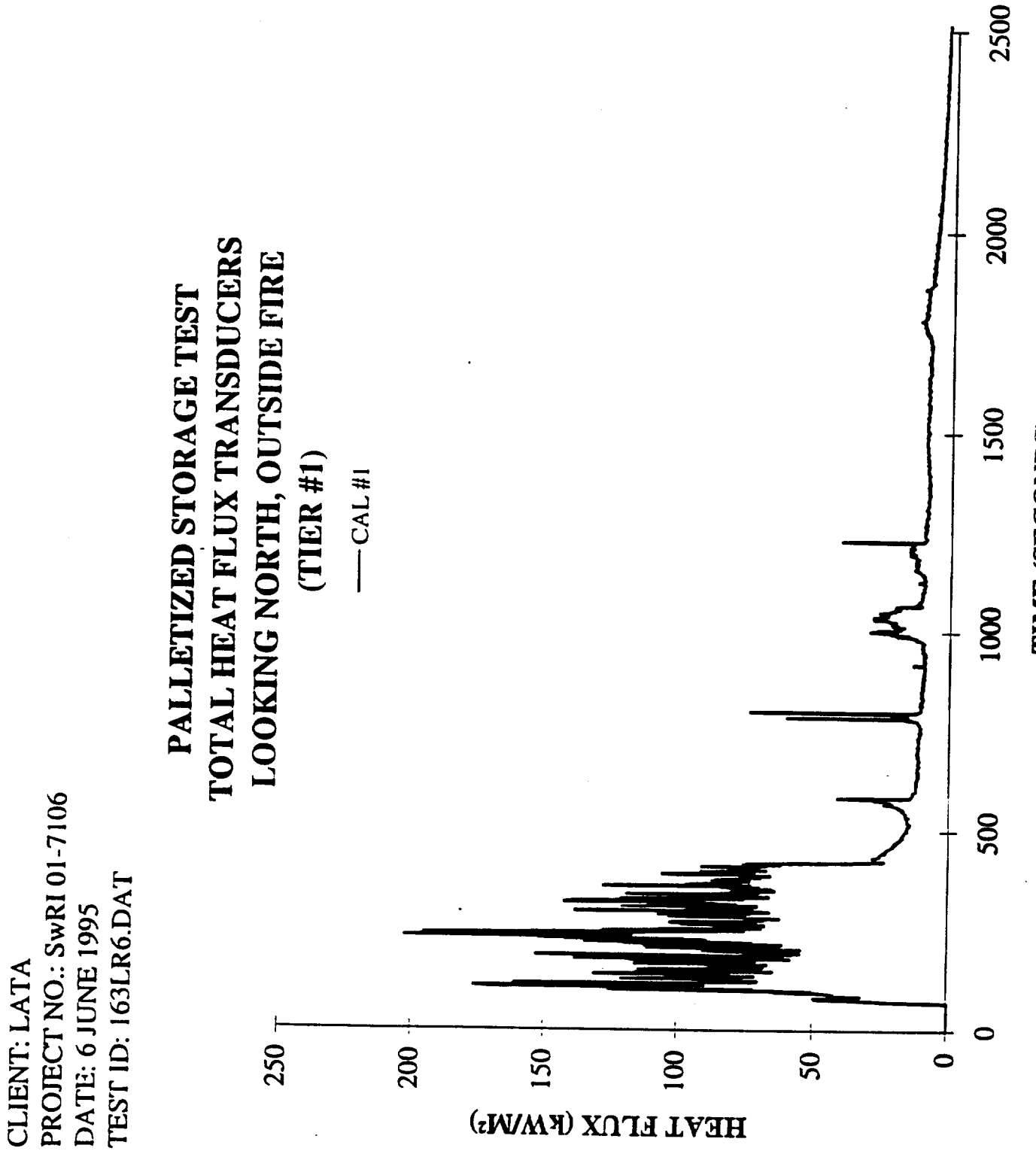
PALLET STORAGE TEST
INTERNAL DRUM PRESSURES
(TIER #3)

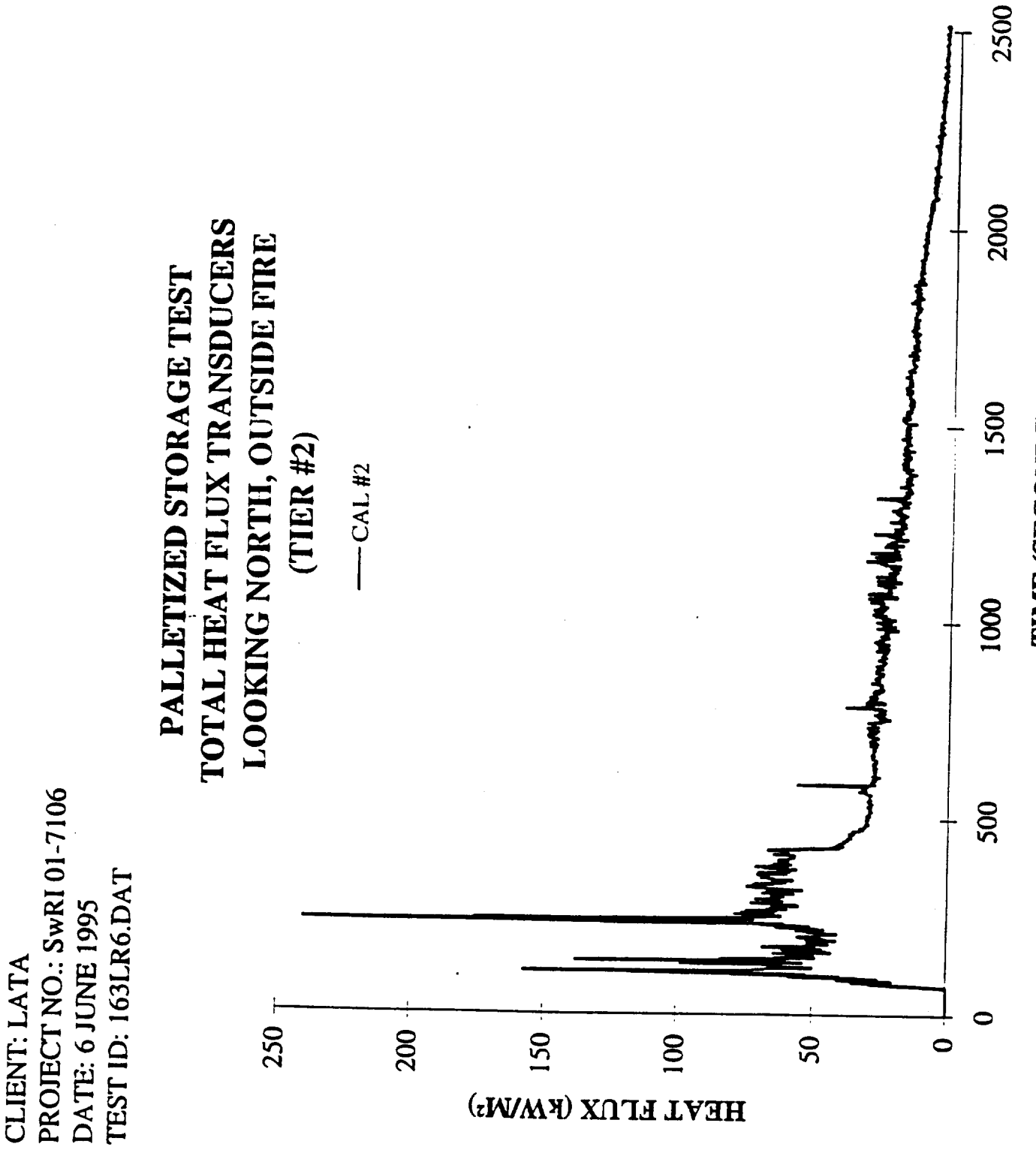


CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: P22.PRN

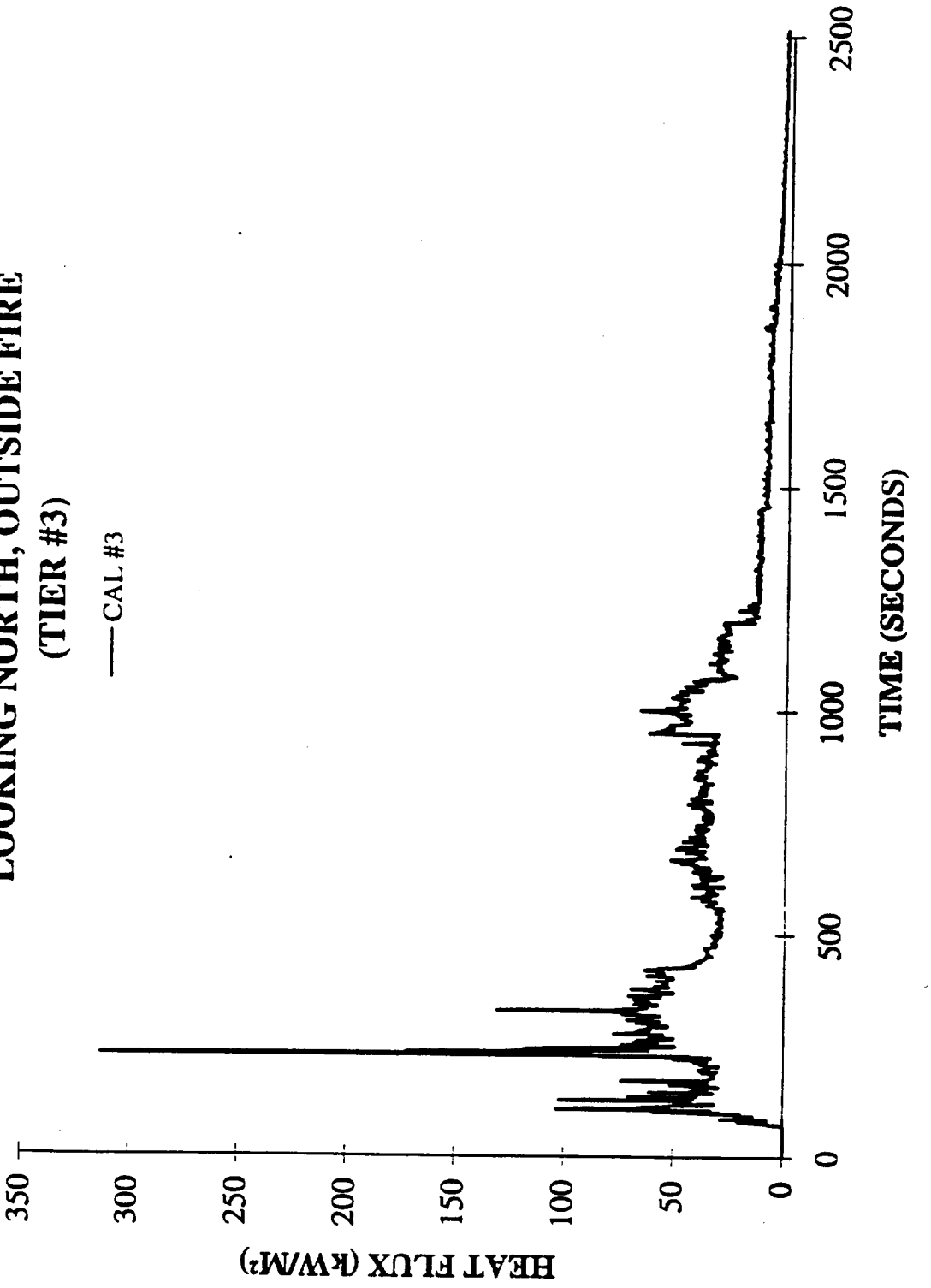
PALLET STORAGE TEST
INTERNAL DRUM PRESSURES
(TIER #3)



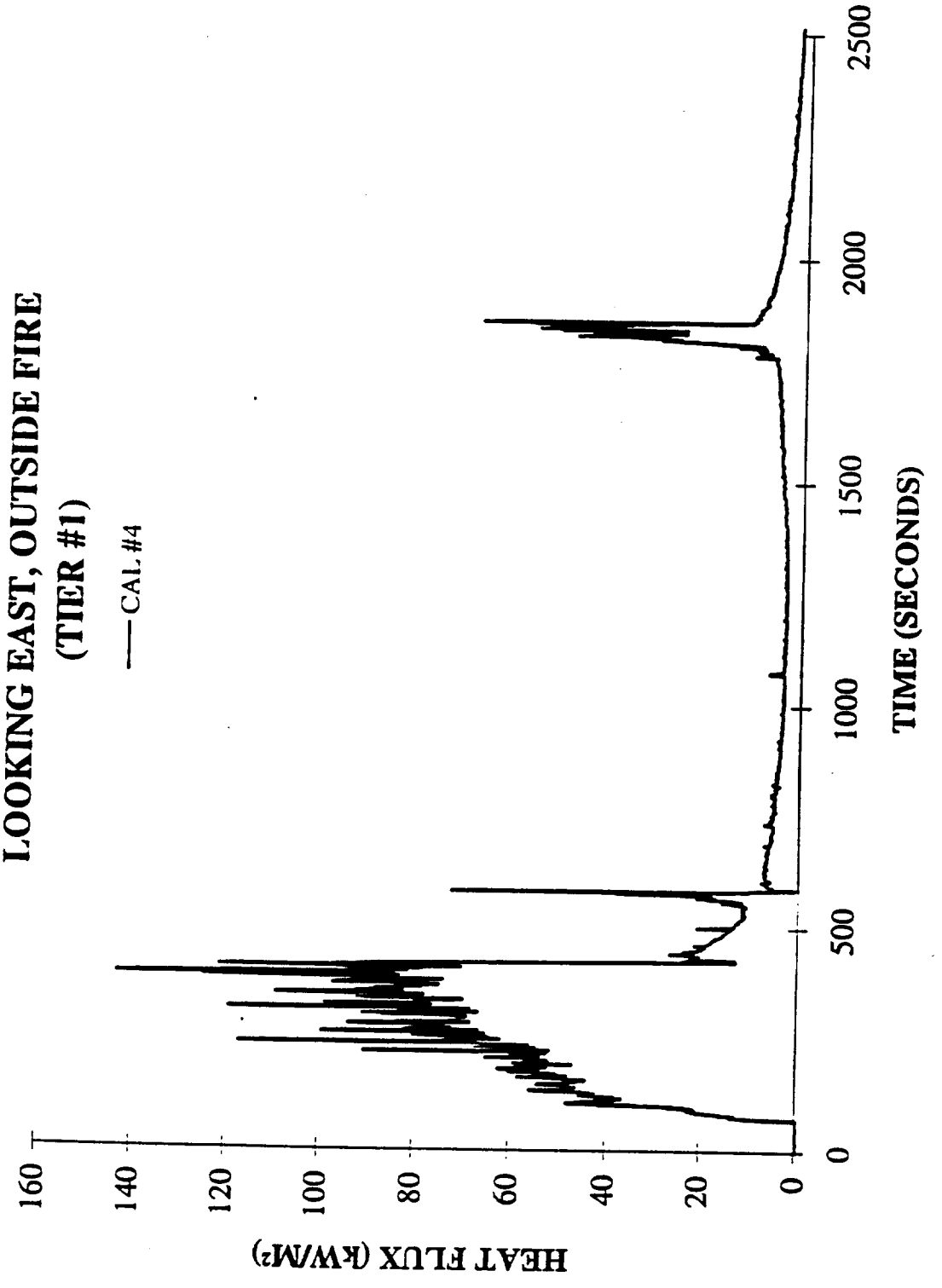

CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT
PALLETIZED STORAGE TEST
TOTAL HEAT FLUX TRANSDUCERS
LOOKING NORTH, OUTSIDE FIRE
(TIER #1)
CAL #1
HEAT FLUX (kW/M²)
250
200
150
100
50
0
0
500
1000
1500
2000
2500
TIME (SECONDS)


CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT
PALLETIZED STORAGE TEST
TOTAL HEAT FLUX TRANSDUCERS
LOOKING NORTH, OUTSIDE FIRE
(TIER #2)
CAL #2
HEAT FLUX (kW/M²)
250
200
150
100
50
0
0
500
1000
1500
2000
2500
TIME (SECONDS)

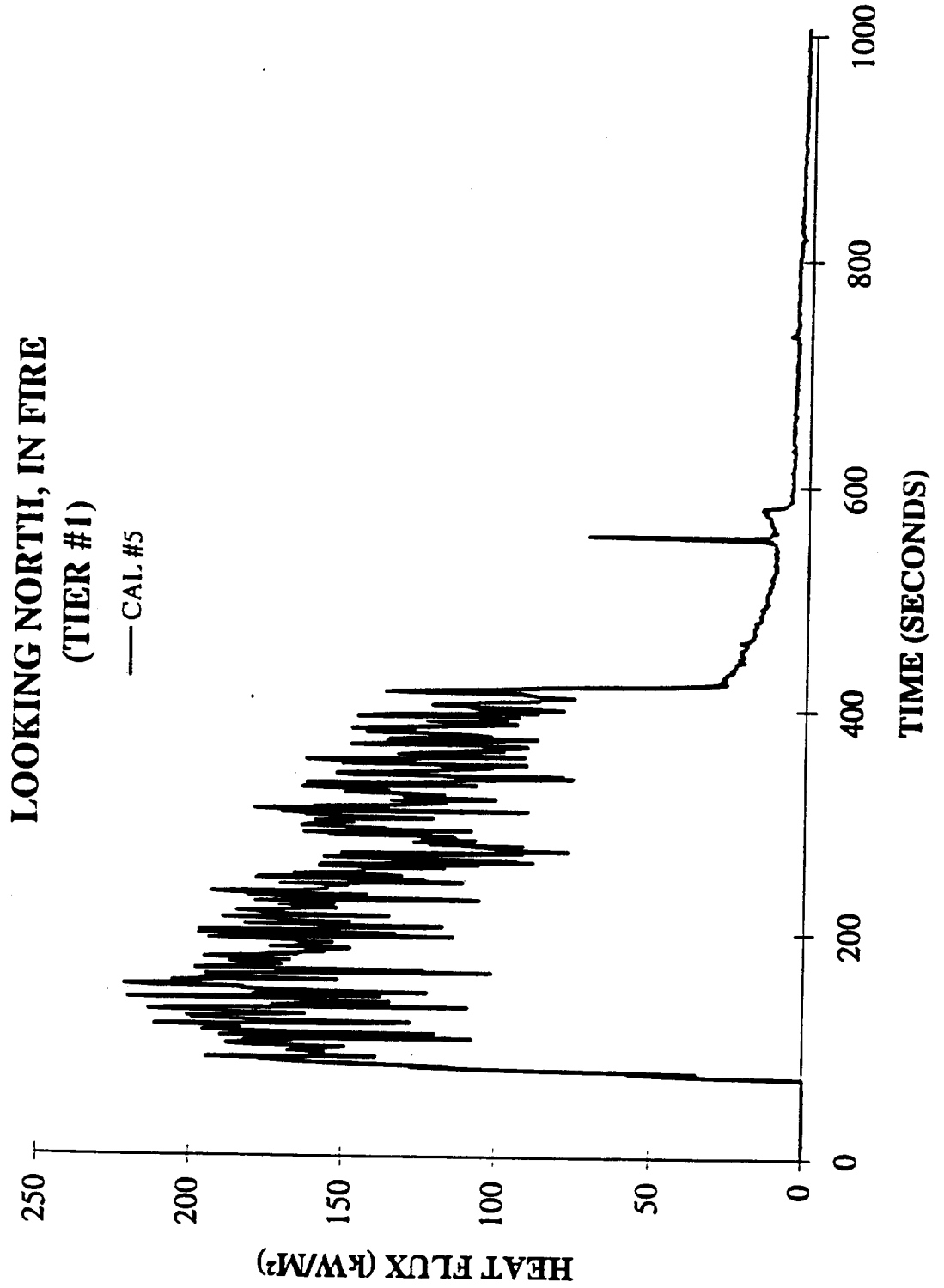
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT



CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT

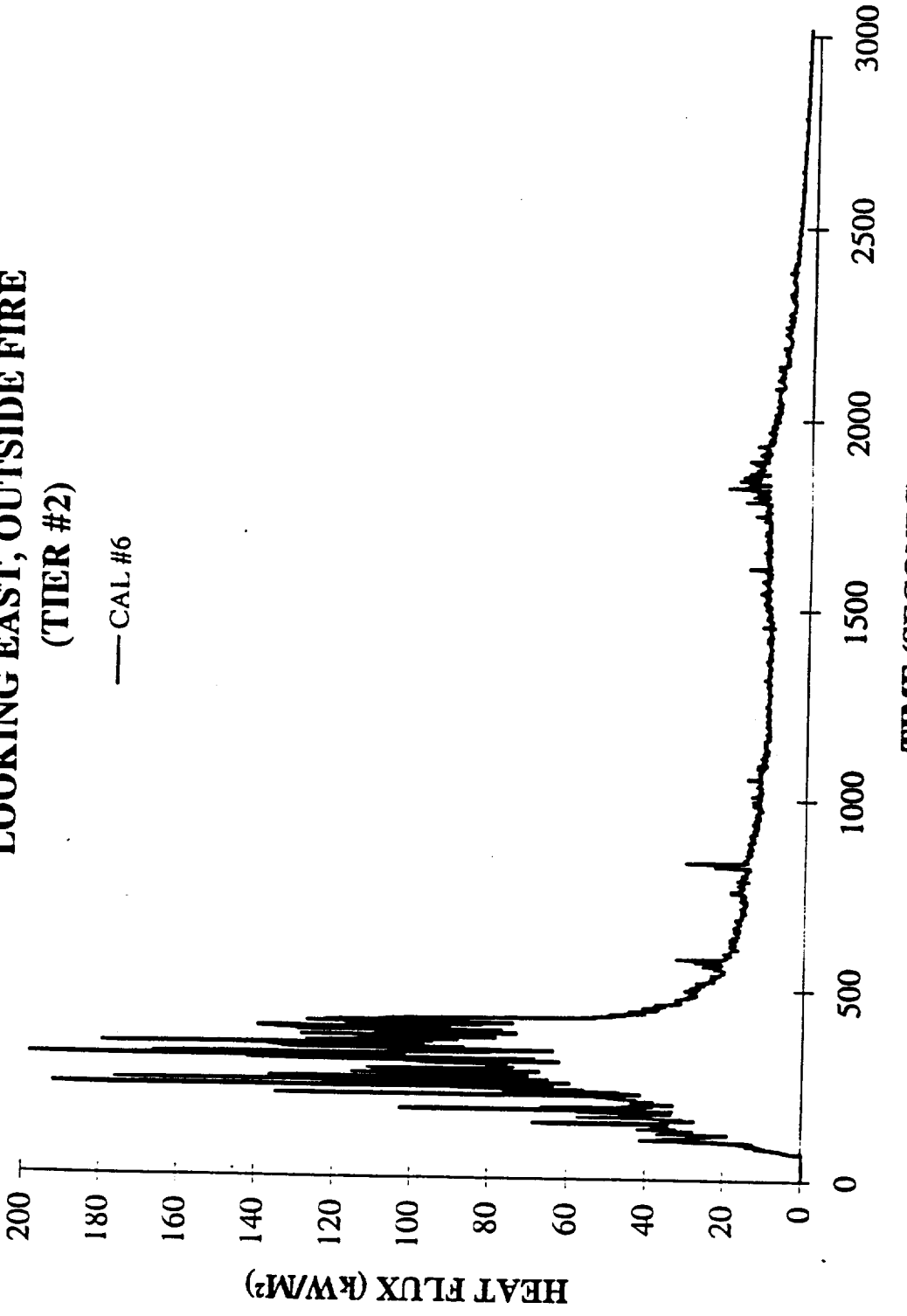


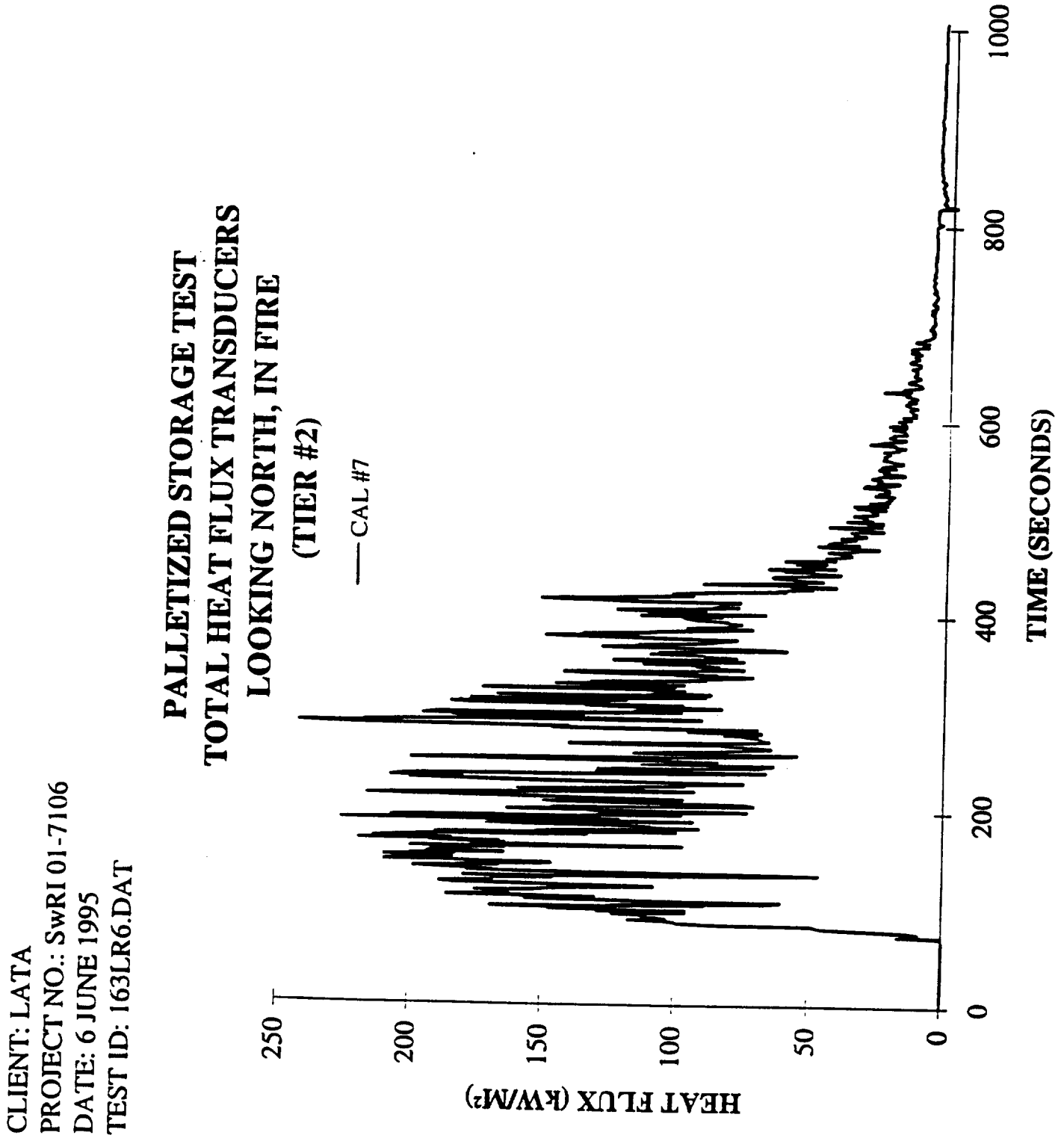
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT



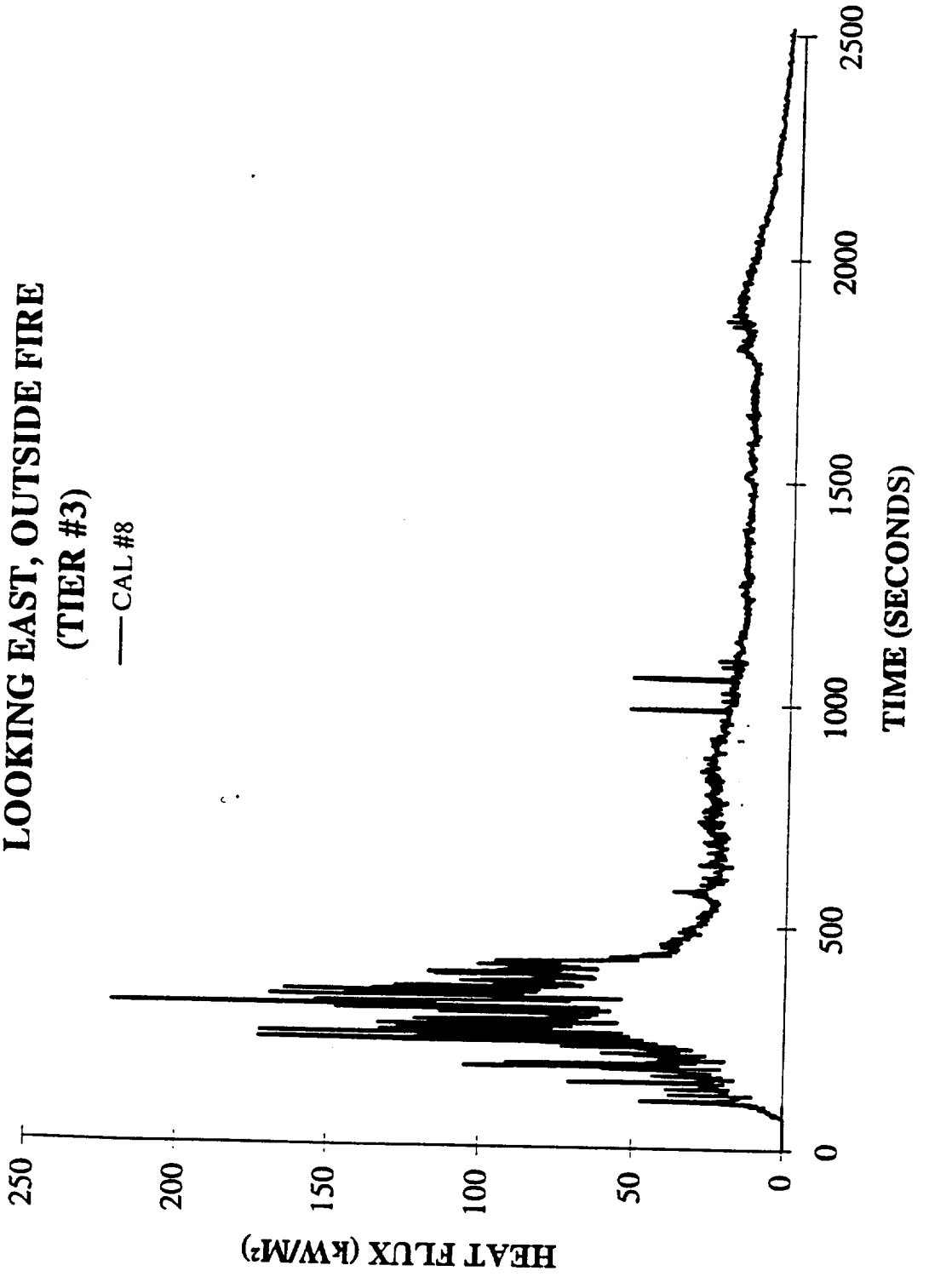
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT

PALLETIZED STORAGE TEST
TOTAL HEAT FLUX TRANSDUCERS
LOOKING EAST, OUTSIDE FIRE
(TIER #2)

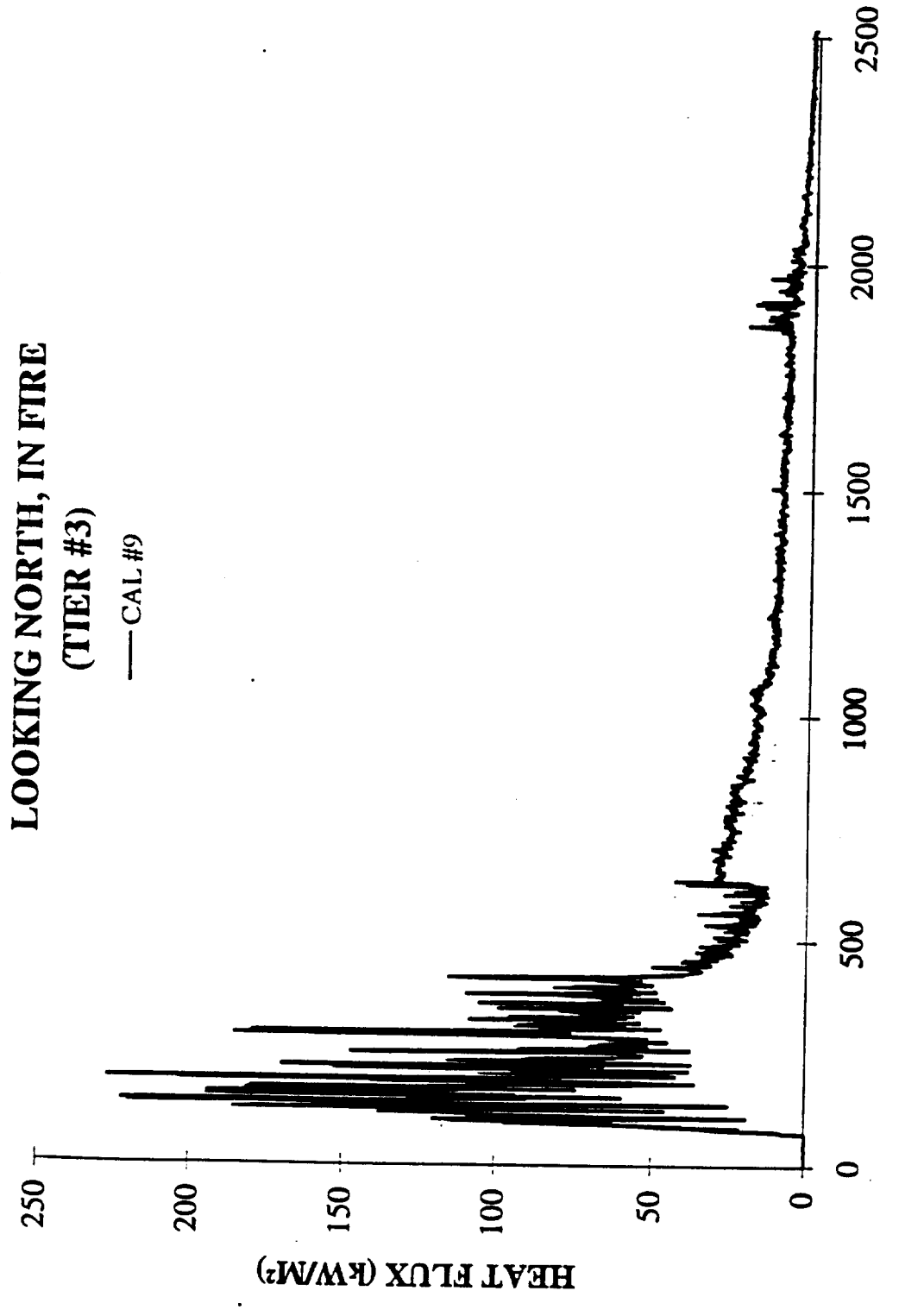



CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT
PALLETIZED STORAGE TEST
TOTAL HEAT FLUX TRANSDUCERS
LOOKING NORTH, IN FIRE
(TIER #2)
CAL #7
HEAT FLUX (kW/M²)
250
200
150
100
50
0
0
200
400
600
800
1000
TIME (SECONDS)

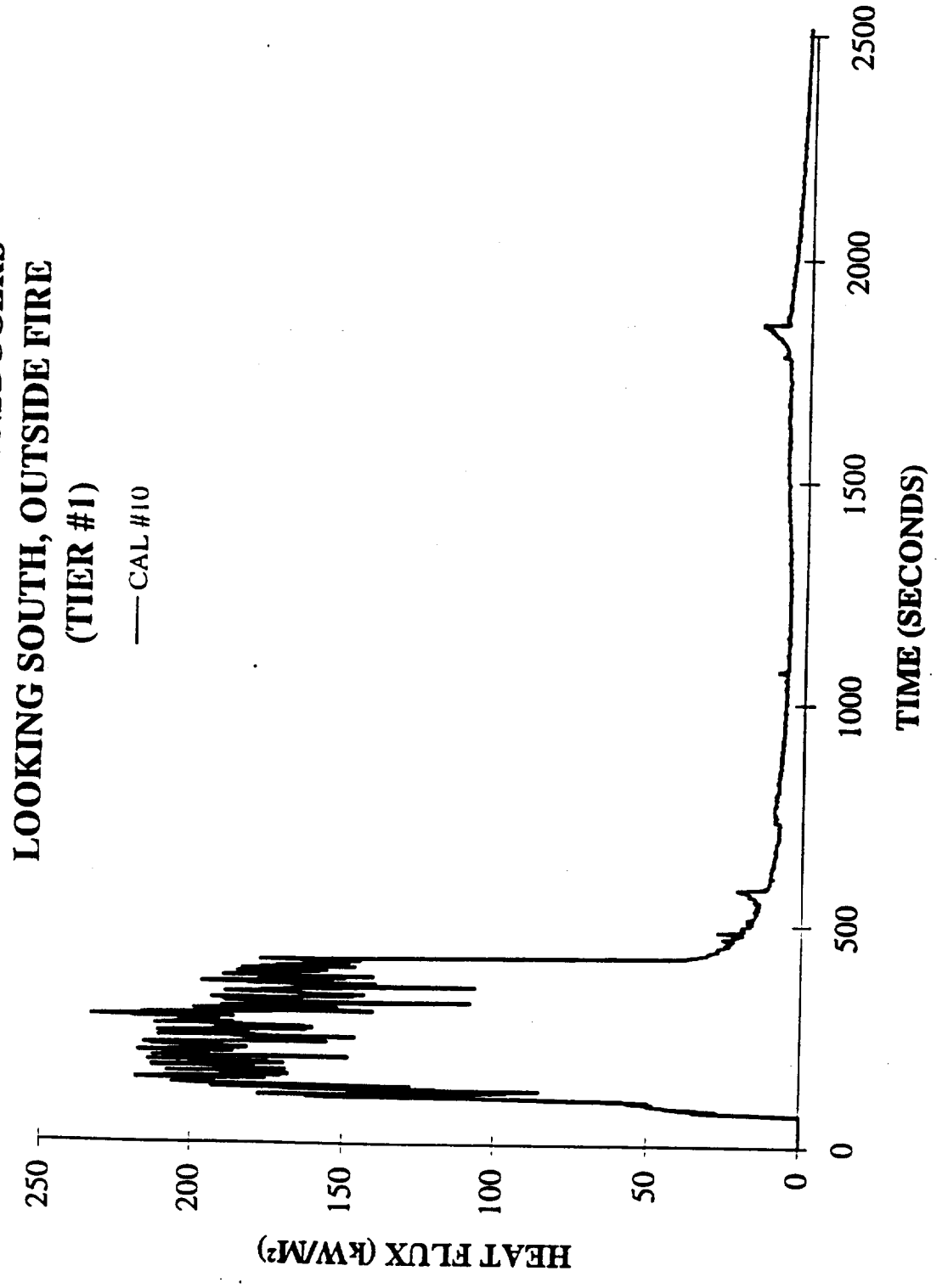
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT

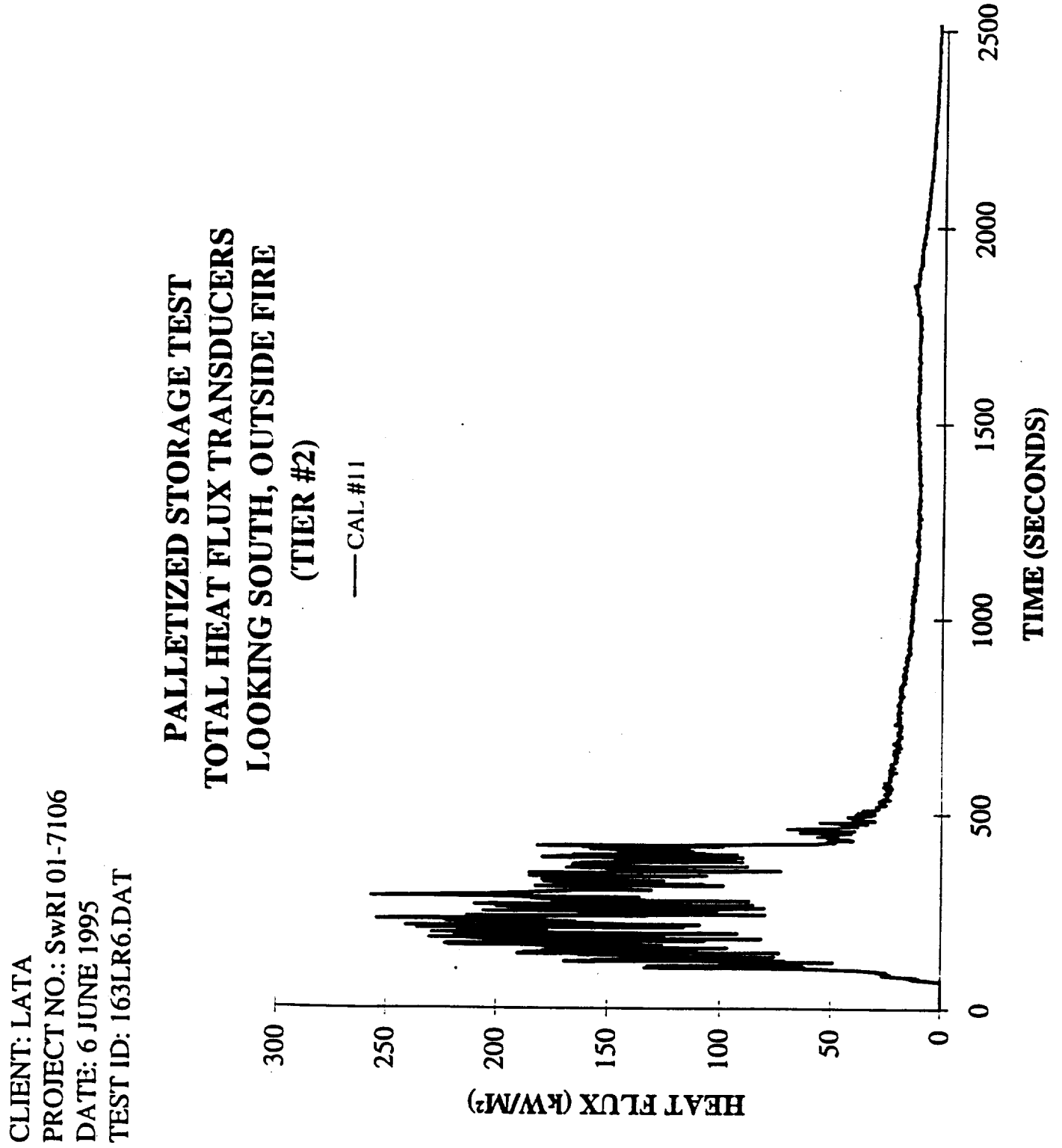


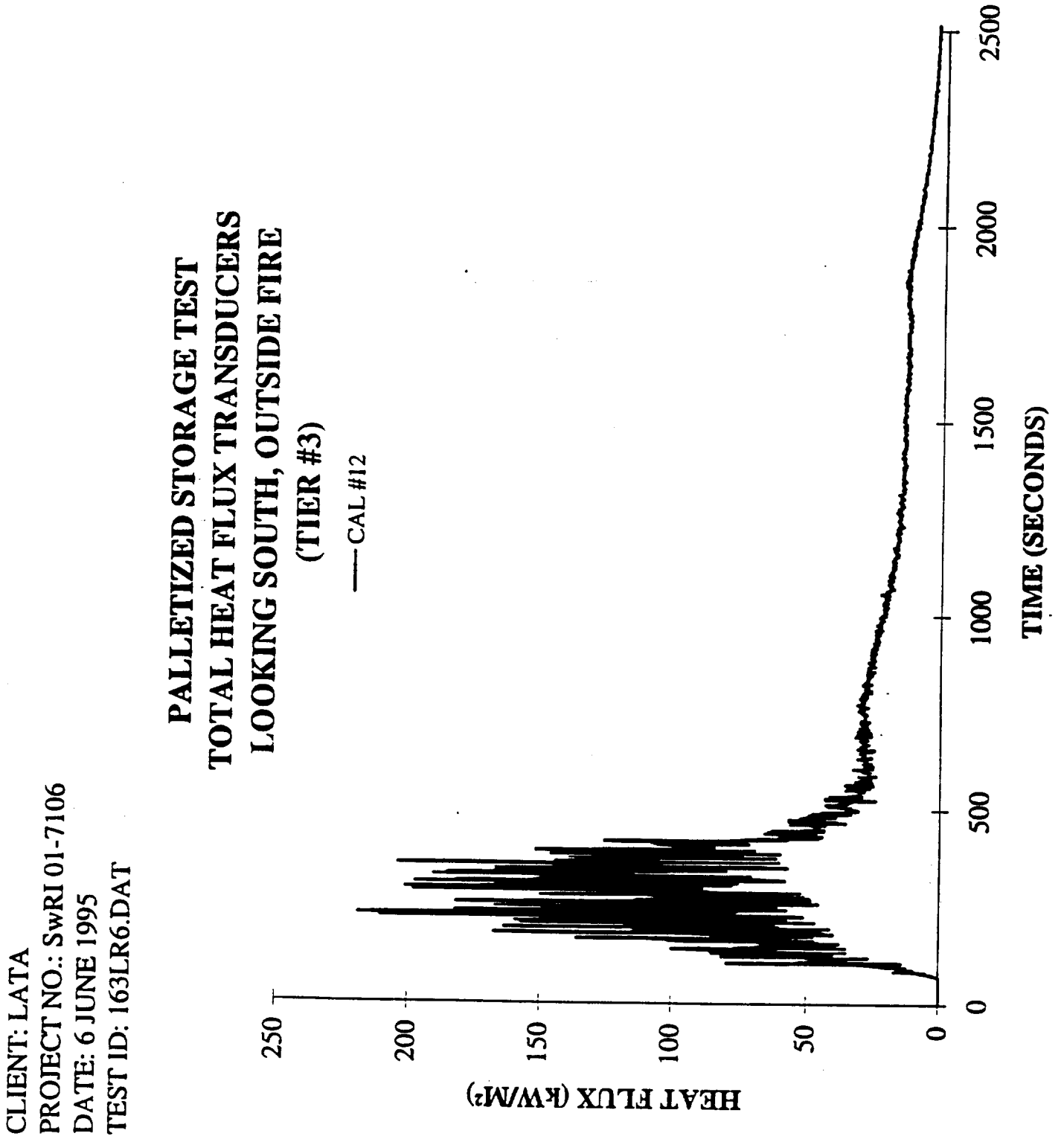
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT



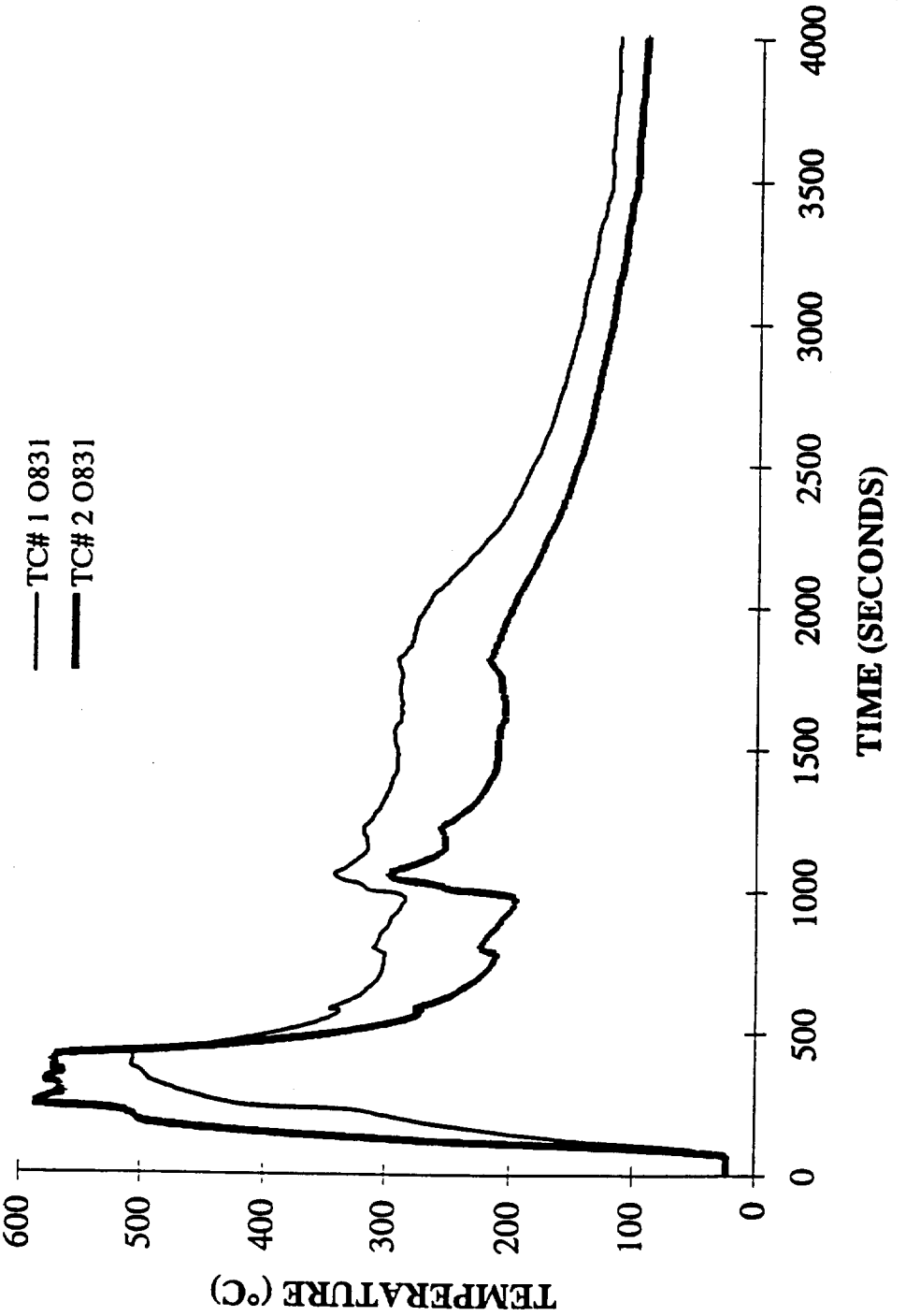
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT



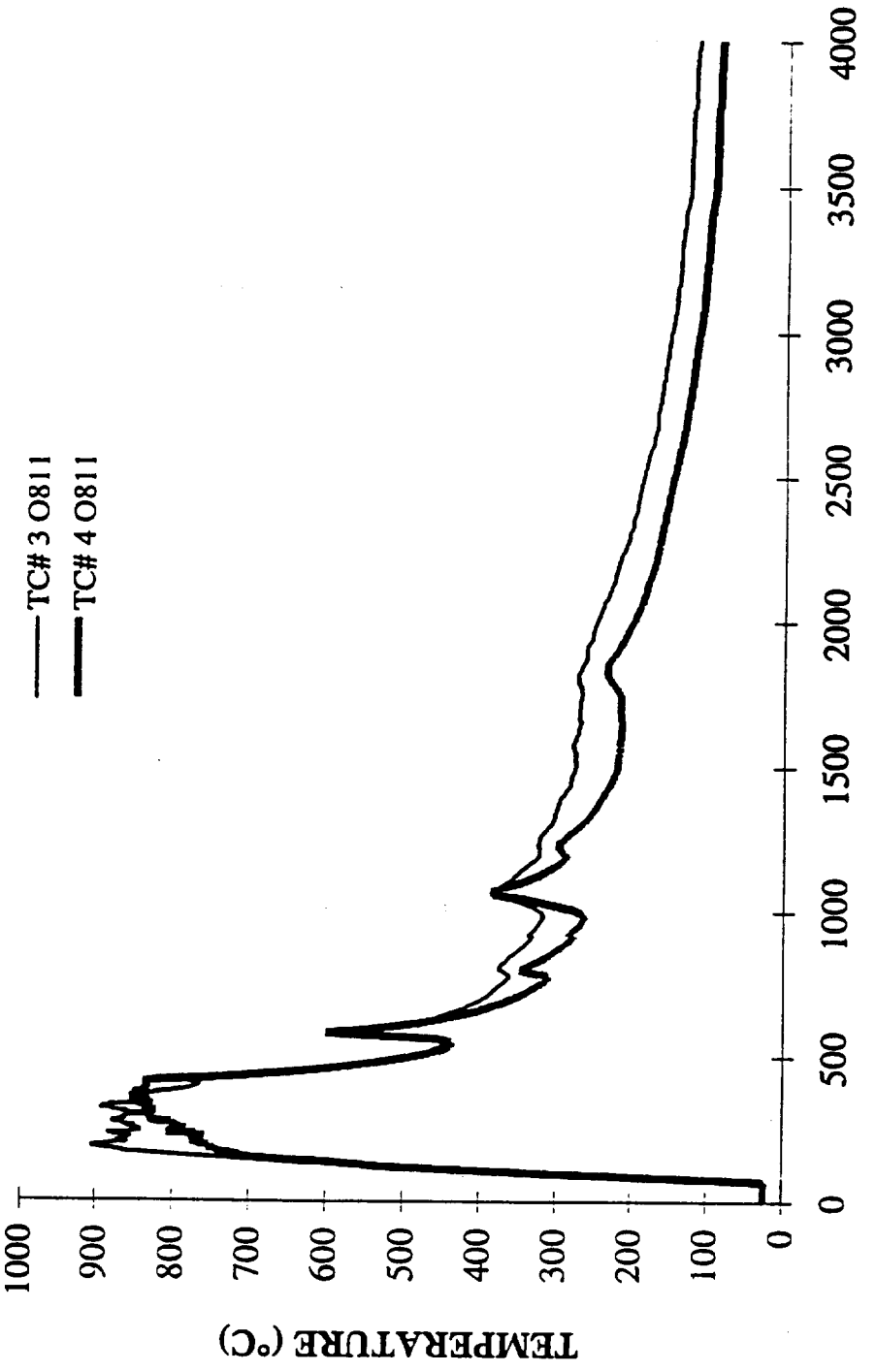

CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT
PALLETIZED STORAGE TEST
TOTAL HEAT FLUX TRANSDUCERS
LOOKING SOUTH, OUTSIDE FIRE
(TIER #2)
CAL #11
HEAT FLUX (kW/M²)
300
250
200
150
100
50
0
0
500
1000
1500
2000
2500
TIME (SECONDS)


CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LR6.DAT
PALLETIZED STORAGE TEST
TOTAL HEAT FLUX TRANSDUCERS
LOOKING SOUTH, OUTSIDE FIRE
(TIER #3)
CAL #12
HEAT FLUX (kW/M²)
250
200
150
100
50
0
0
500
1000
1500
2000
2500
TIME (SECONDS)

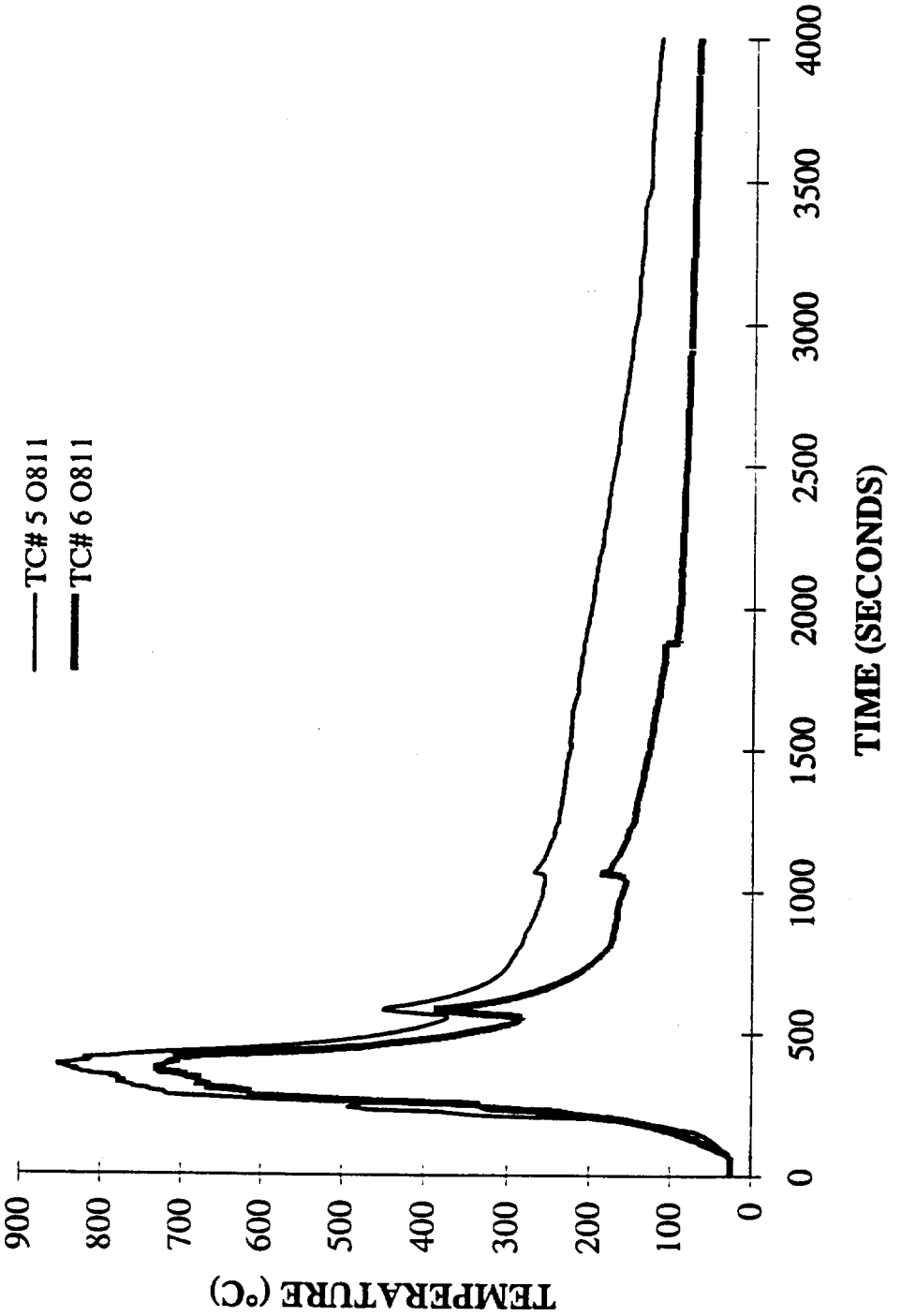
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP1.DAT



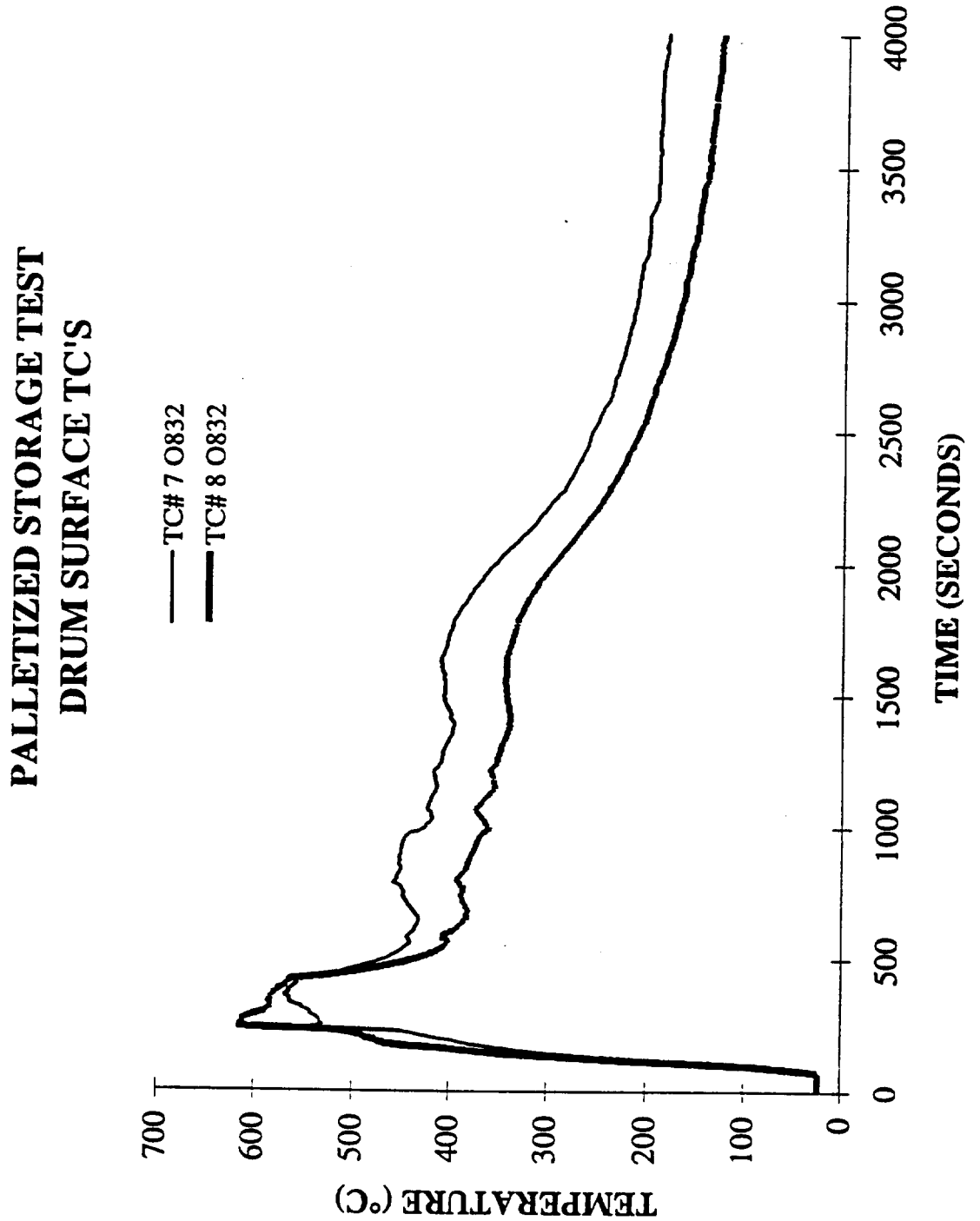
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP1.DAT



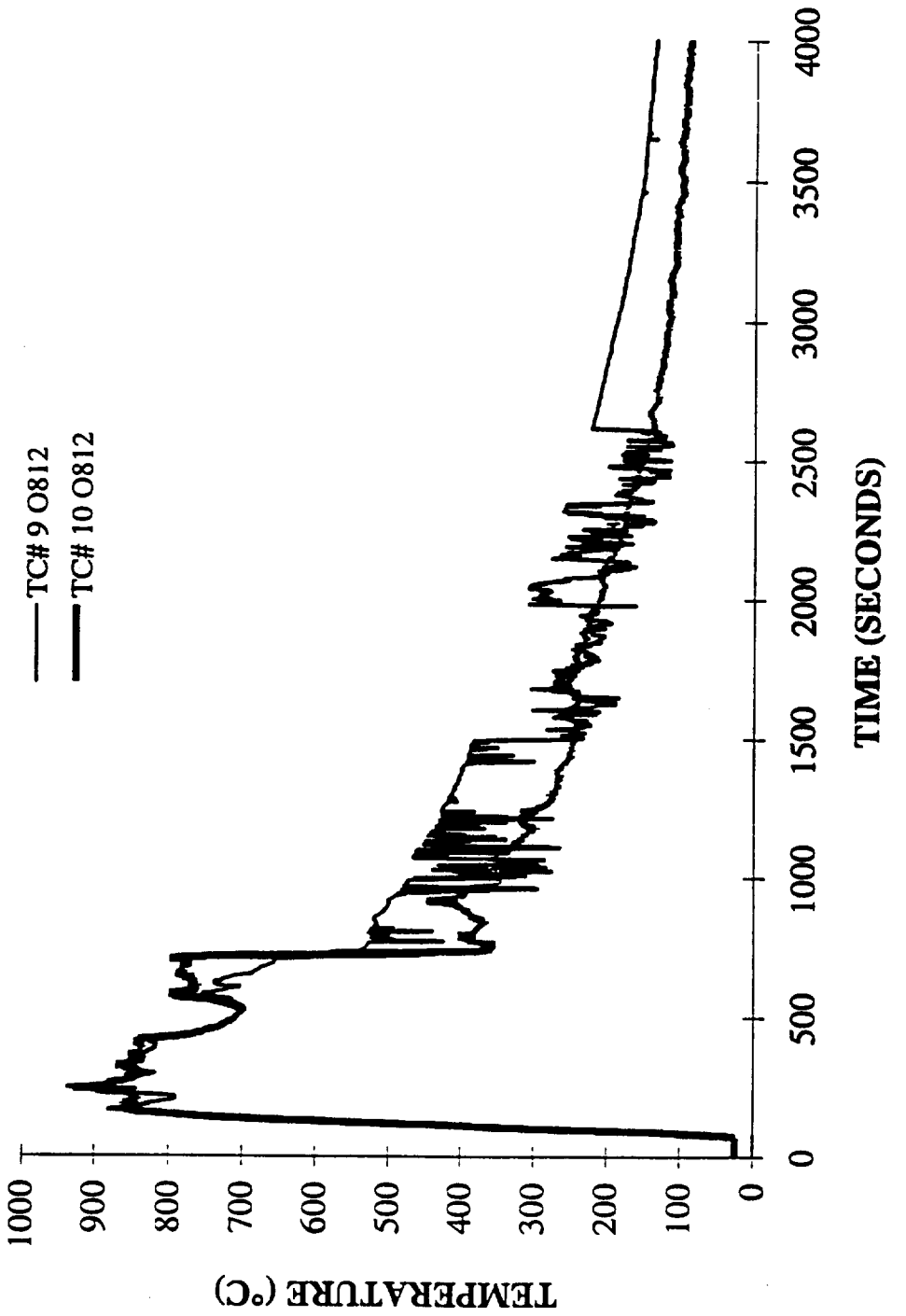
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP1.DAT



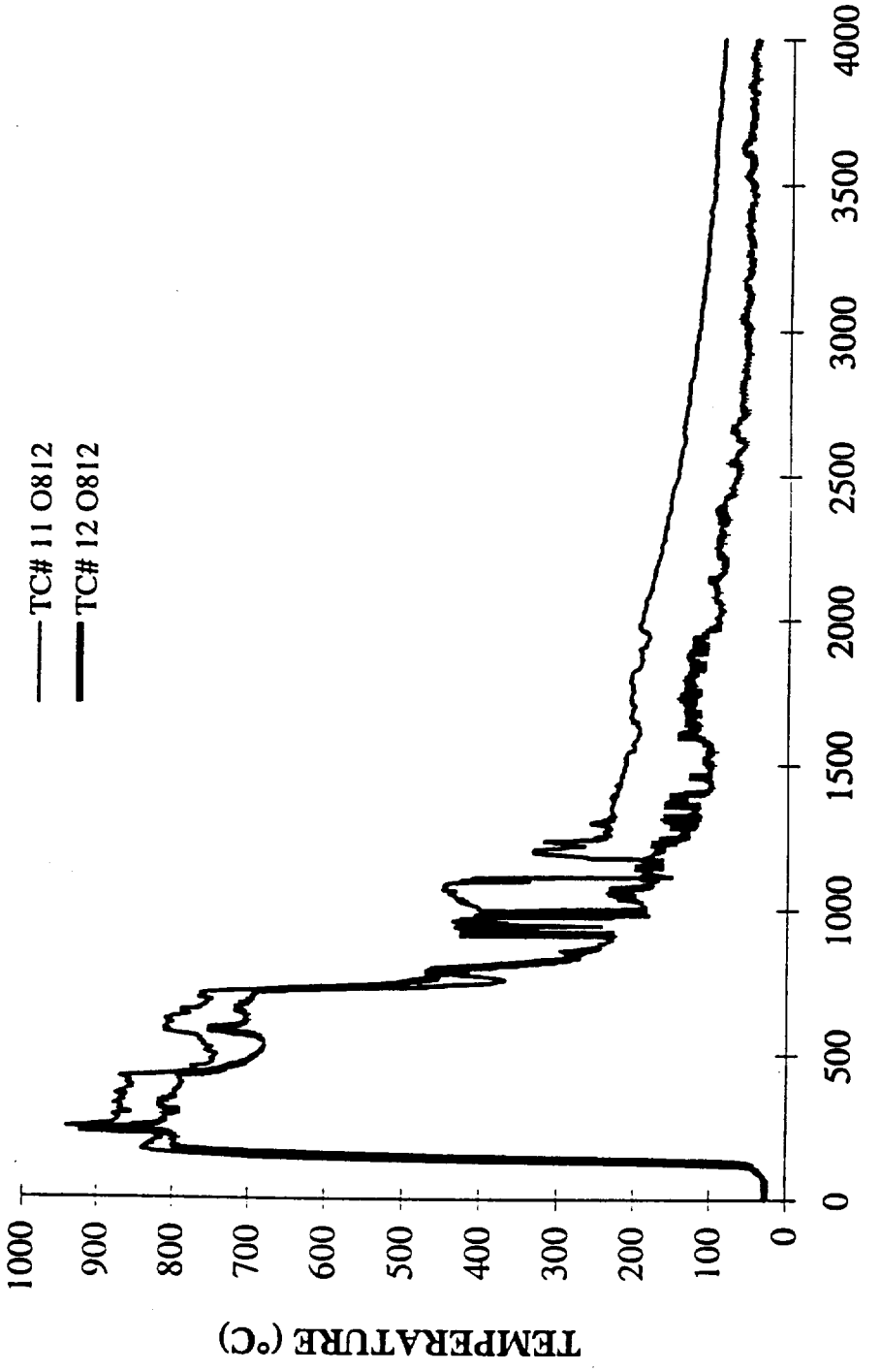
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP1.DAT



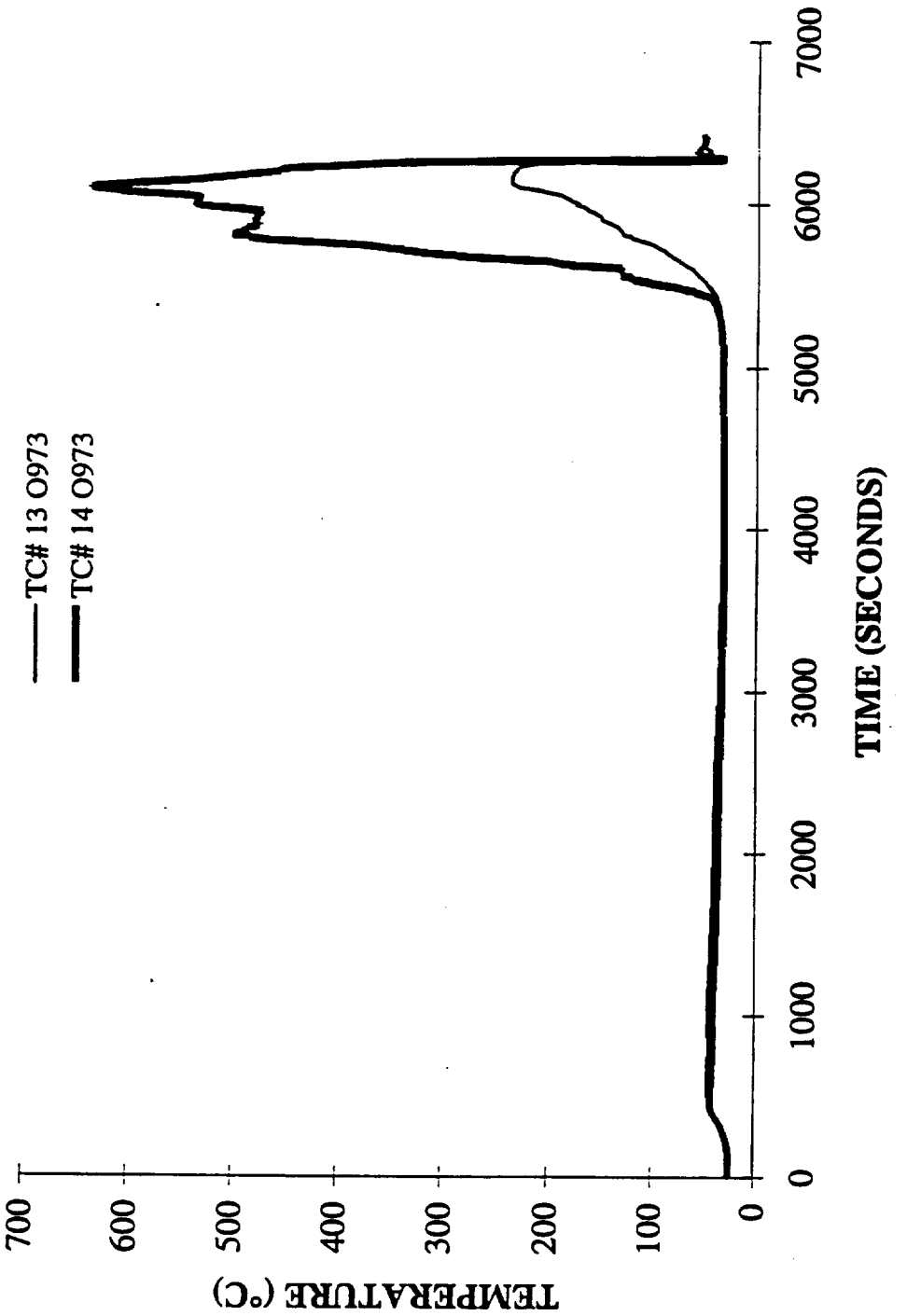
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
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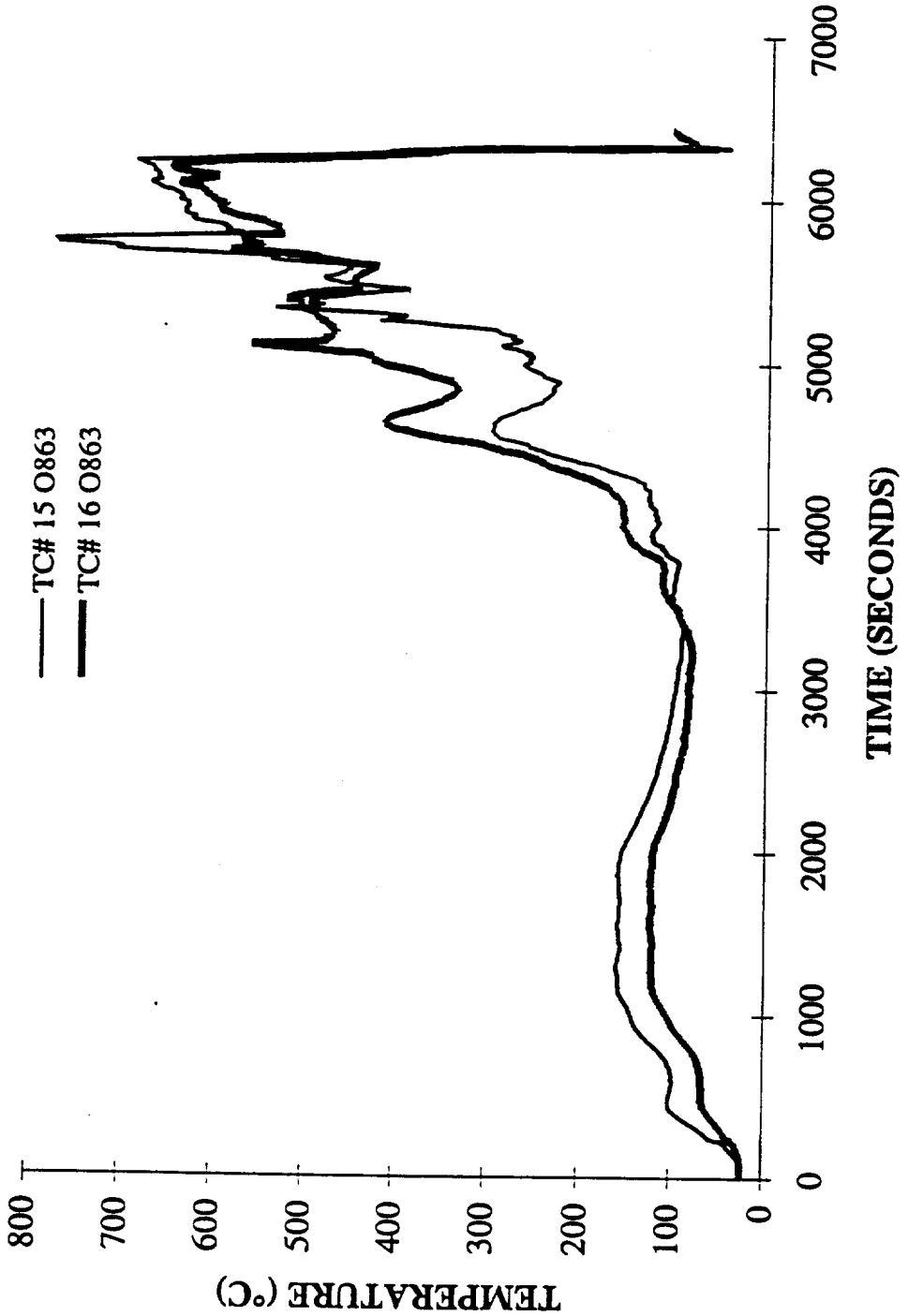
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP1.DAT



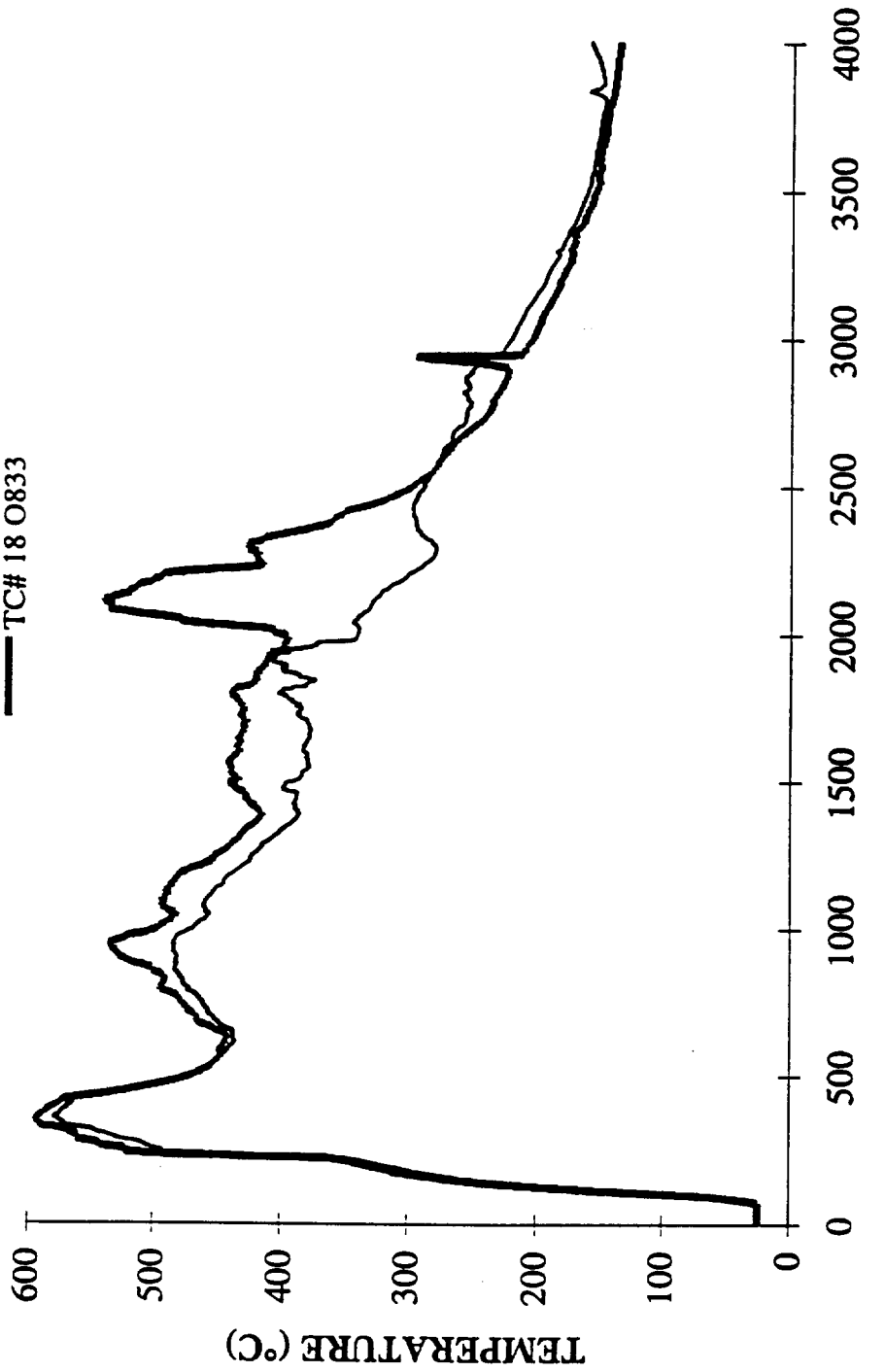
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP1.DAT



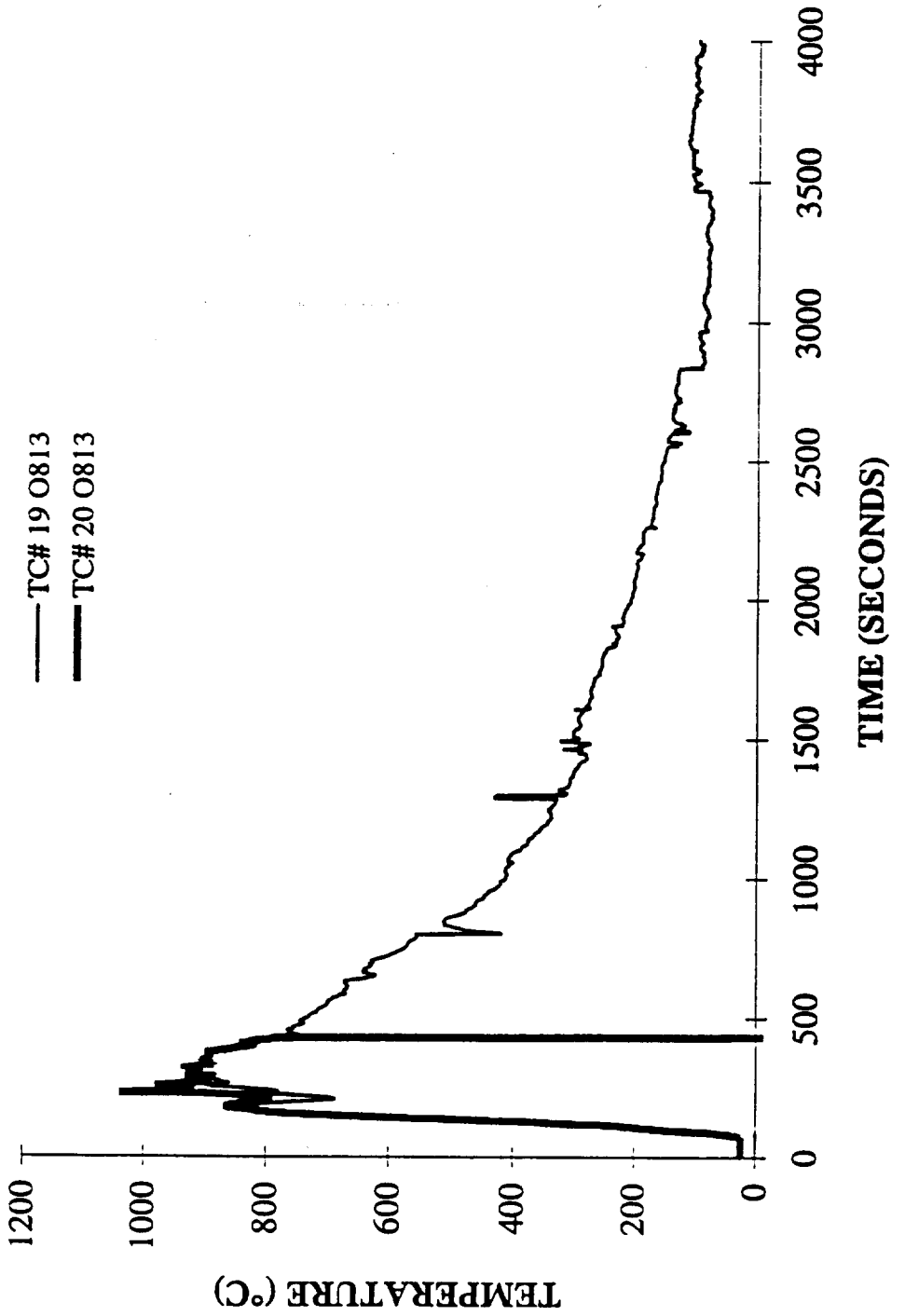
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DATE: 6 JUNE 1995
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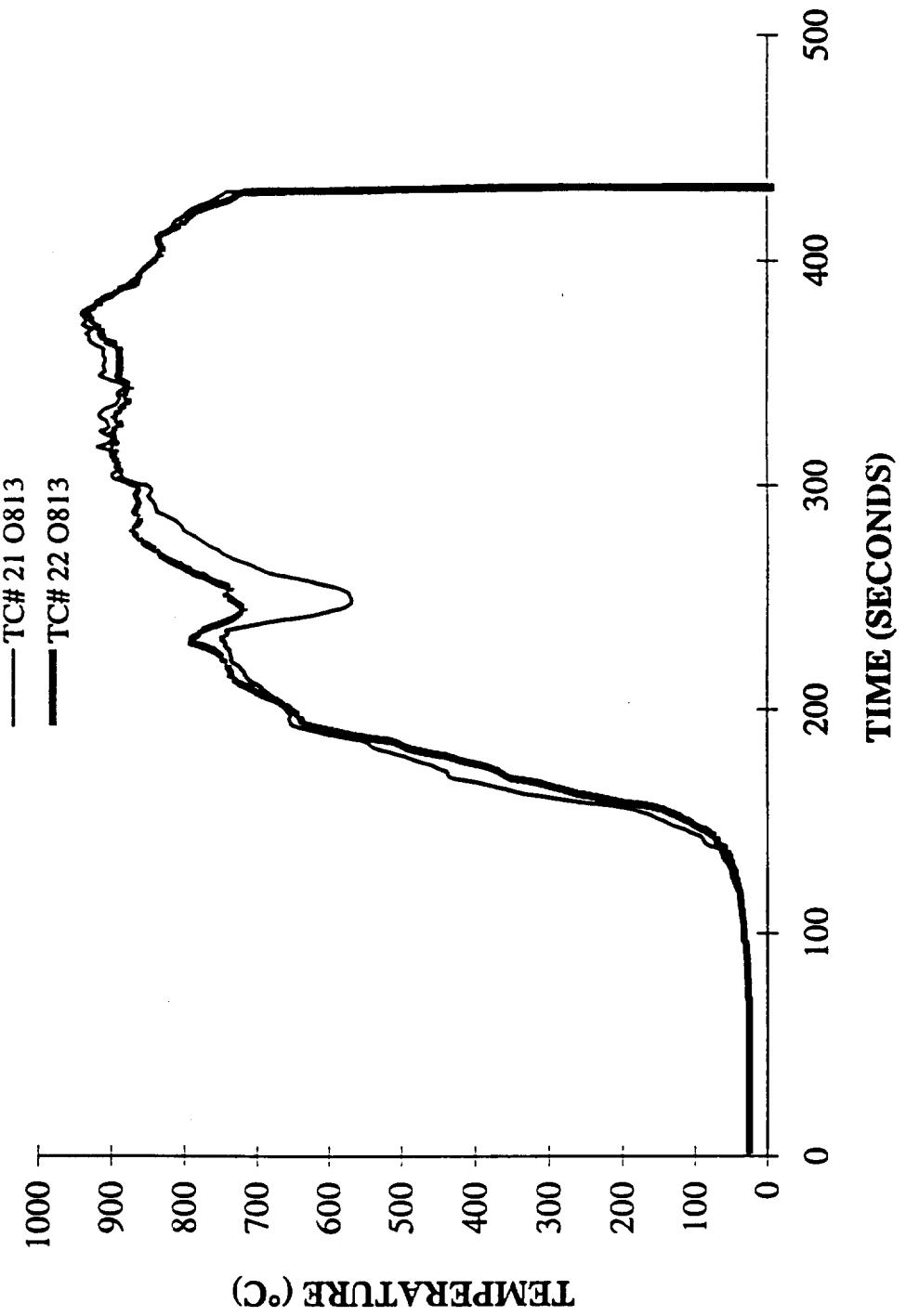
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP1.DAT



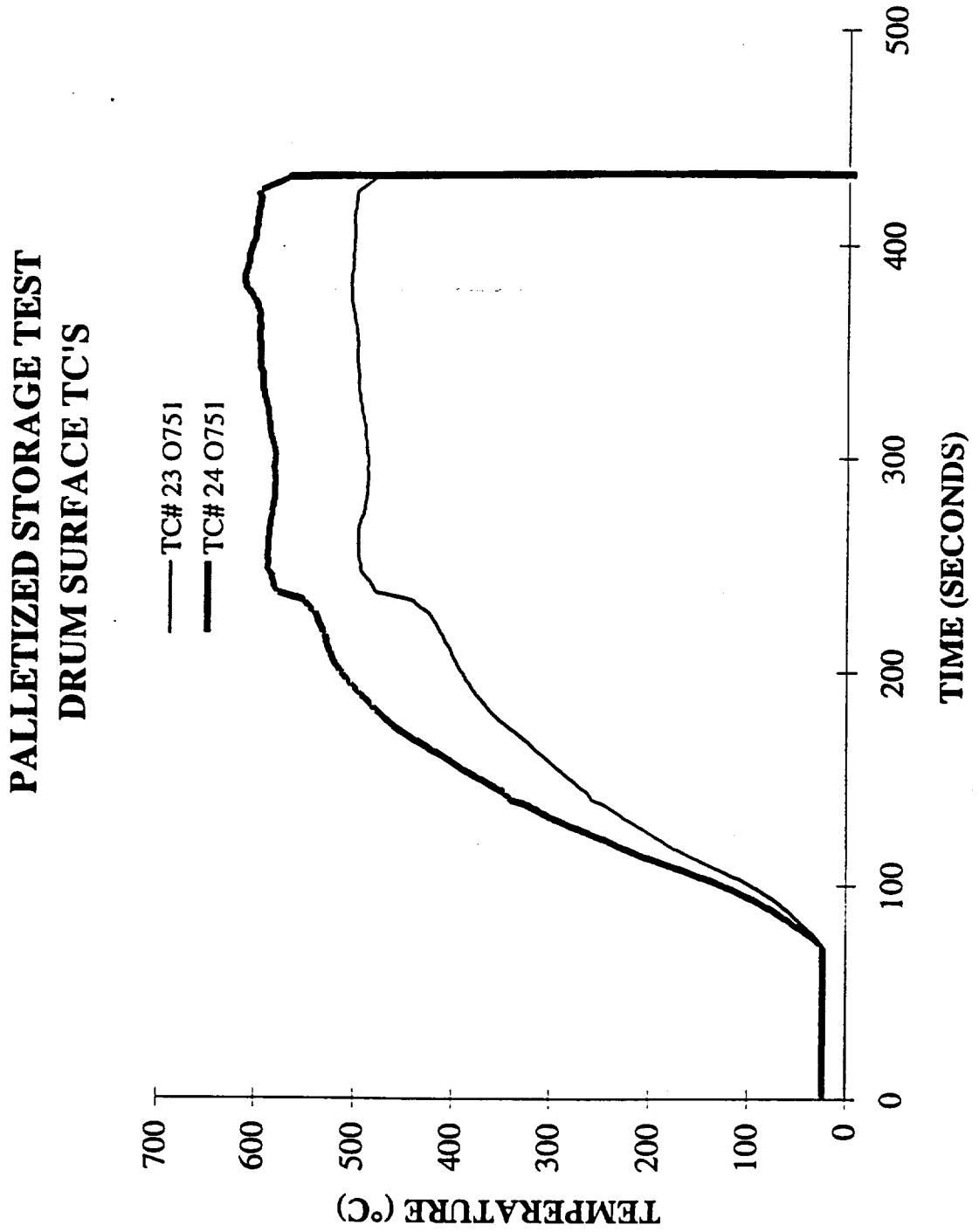
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP2.DAT



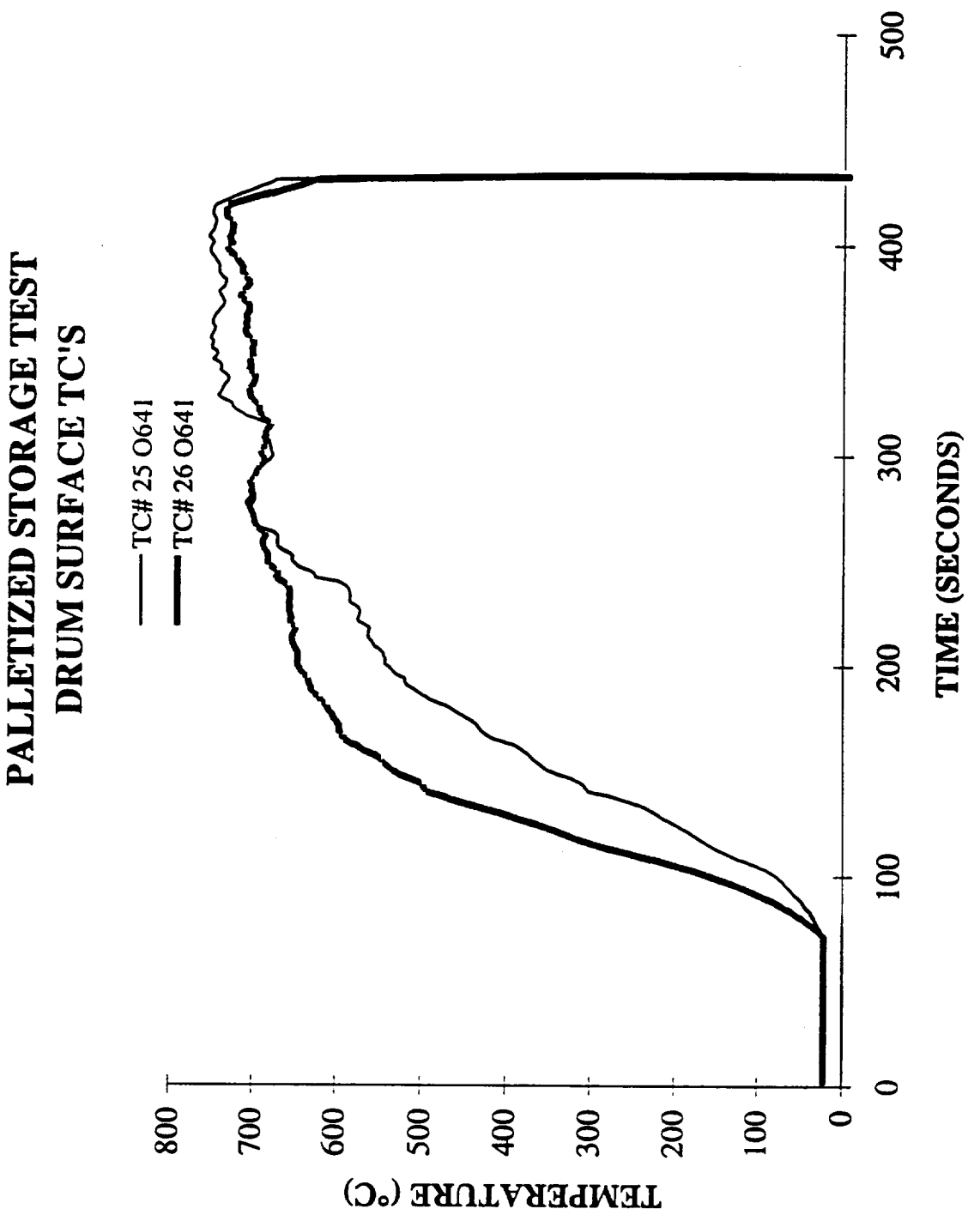
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP2.DAT



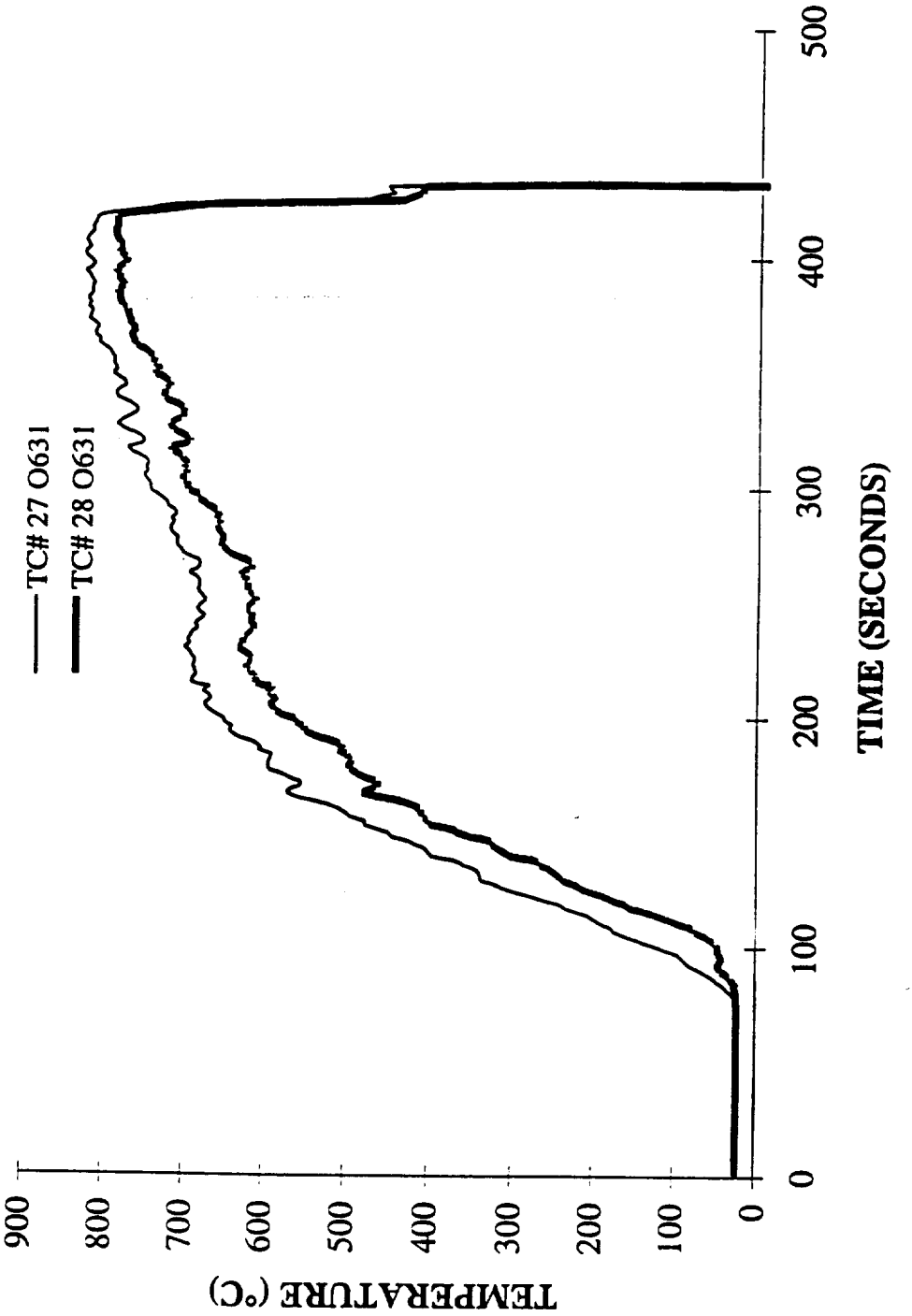
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP2.DAT



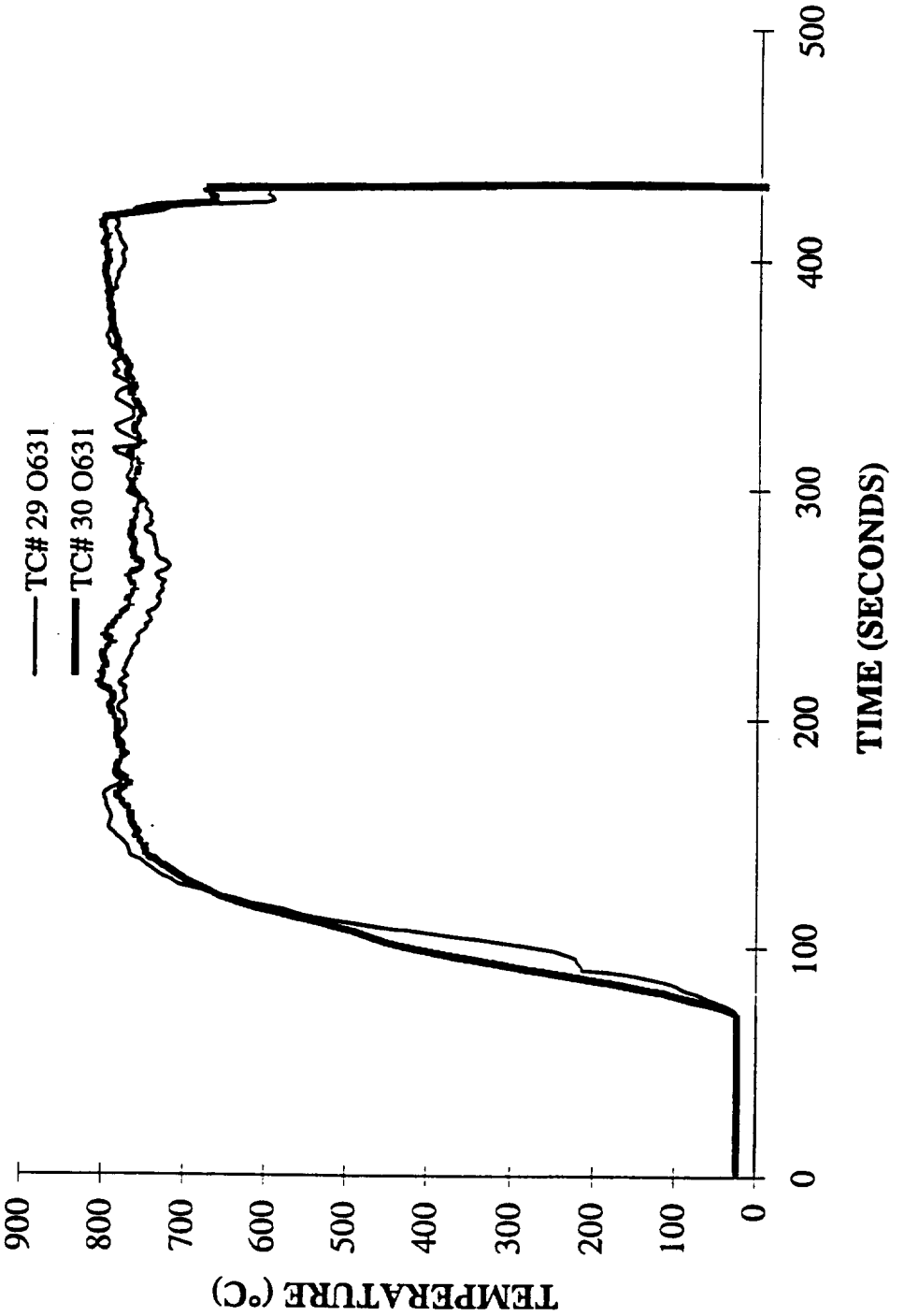
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP2.DAT



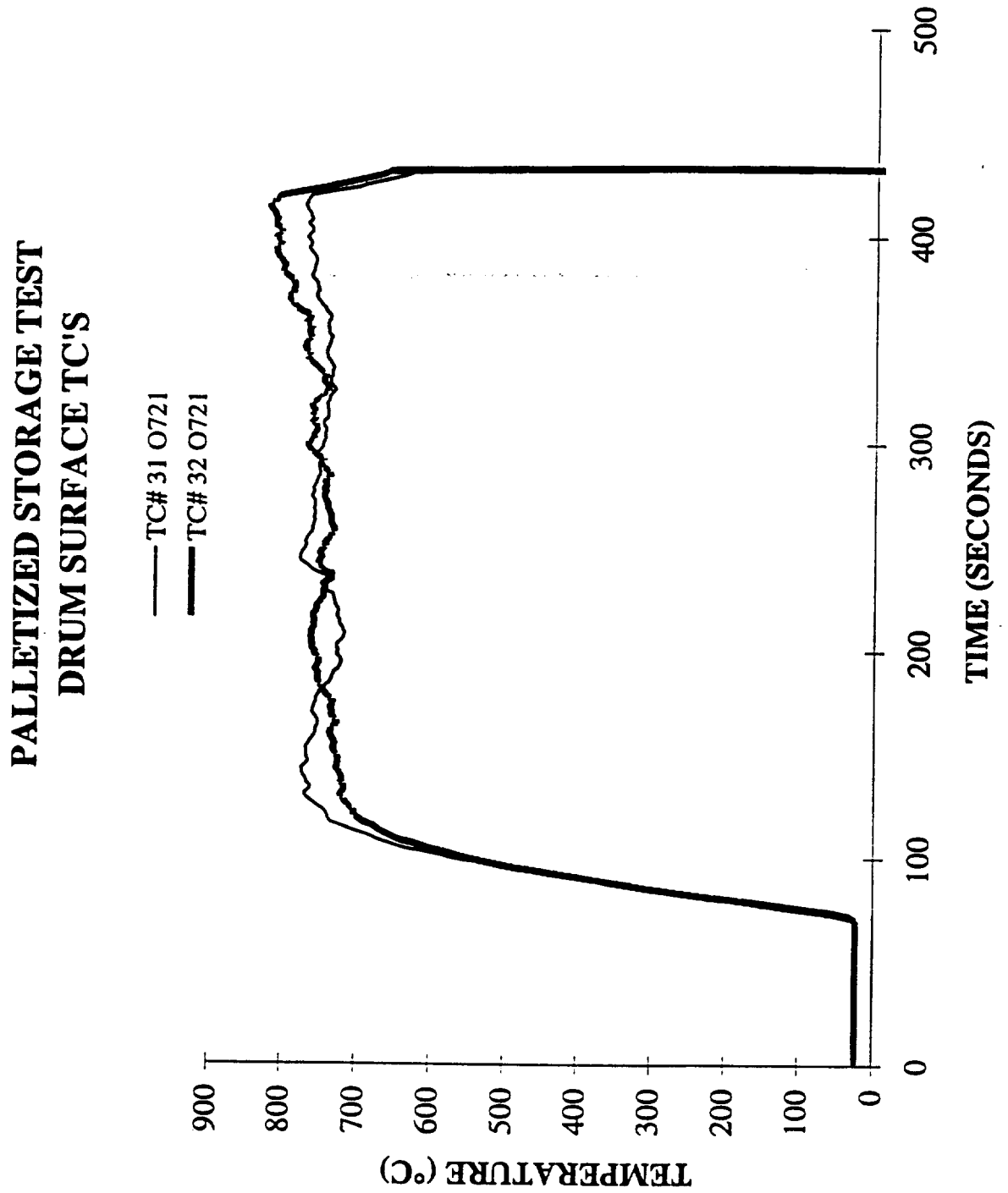
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DATE: 6 JUNE 1995
TEST ID: 163LP2.DAT



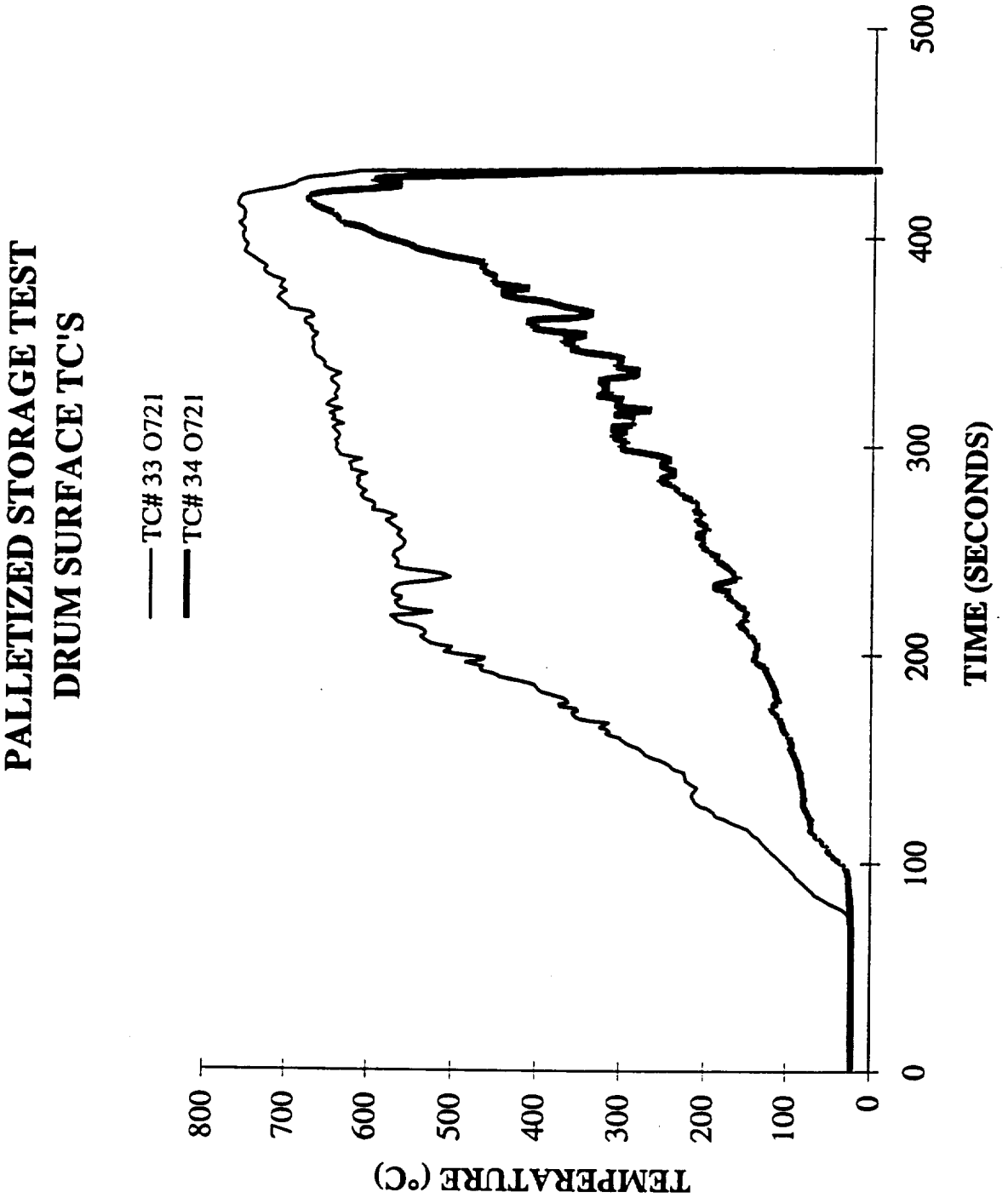
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP2.DAT



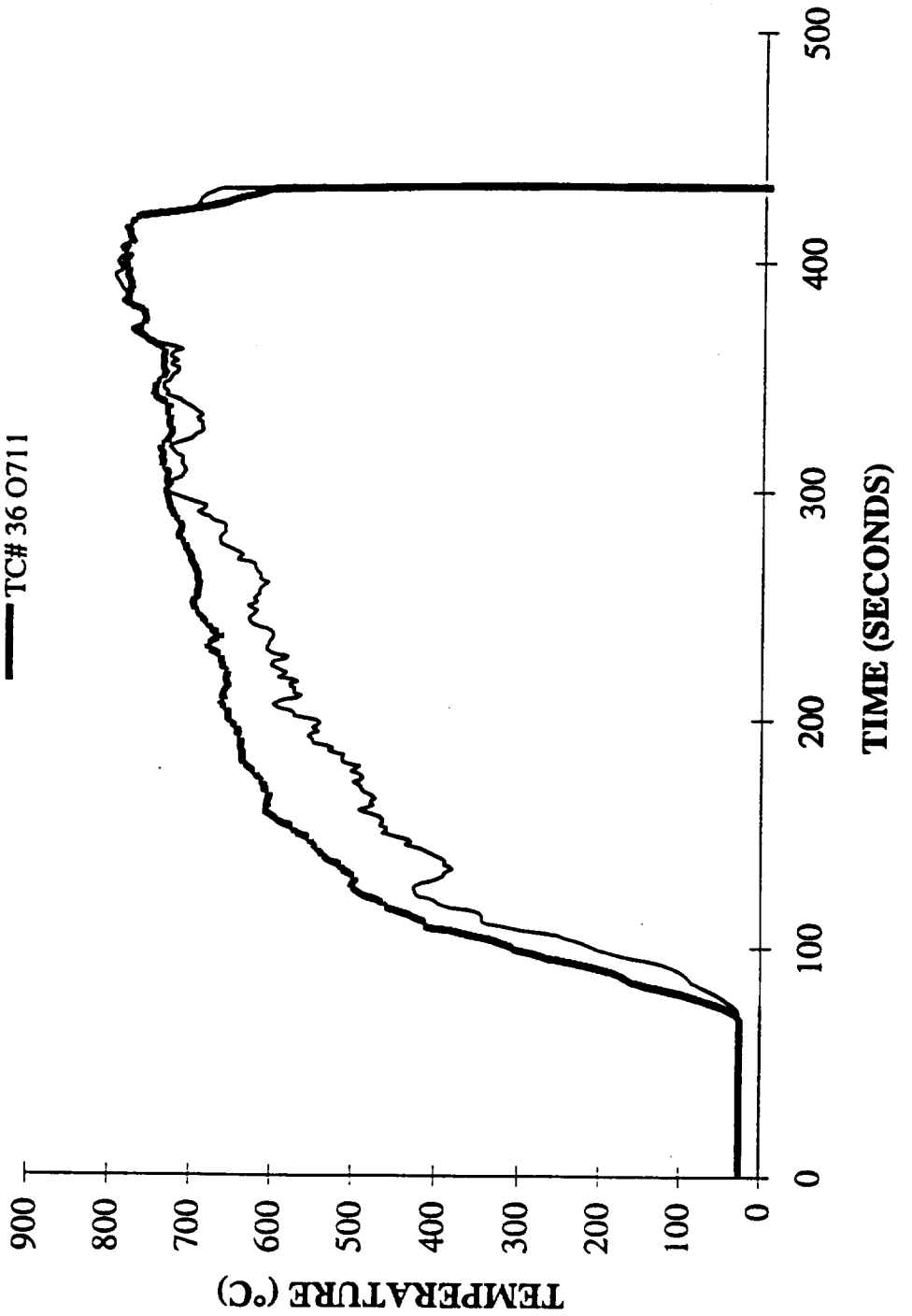
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP2.DAT



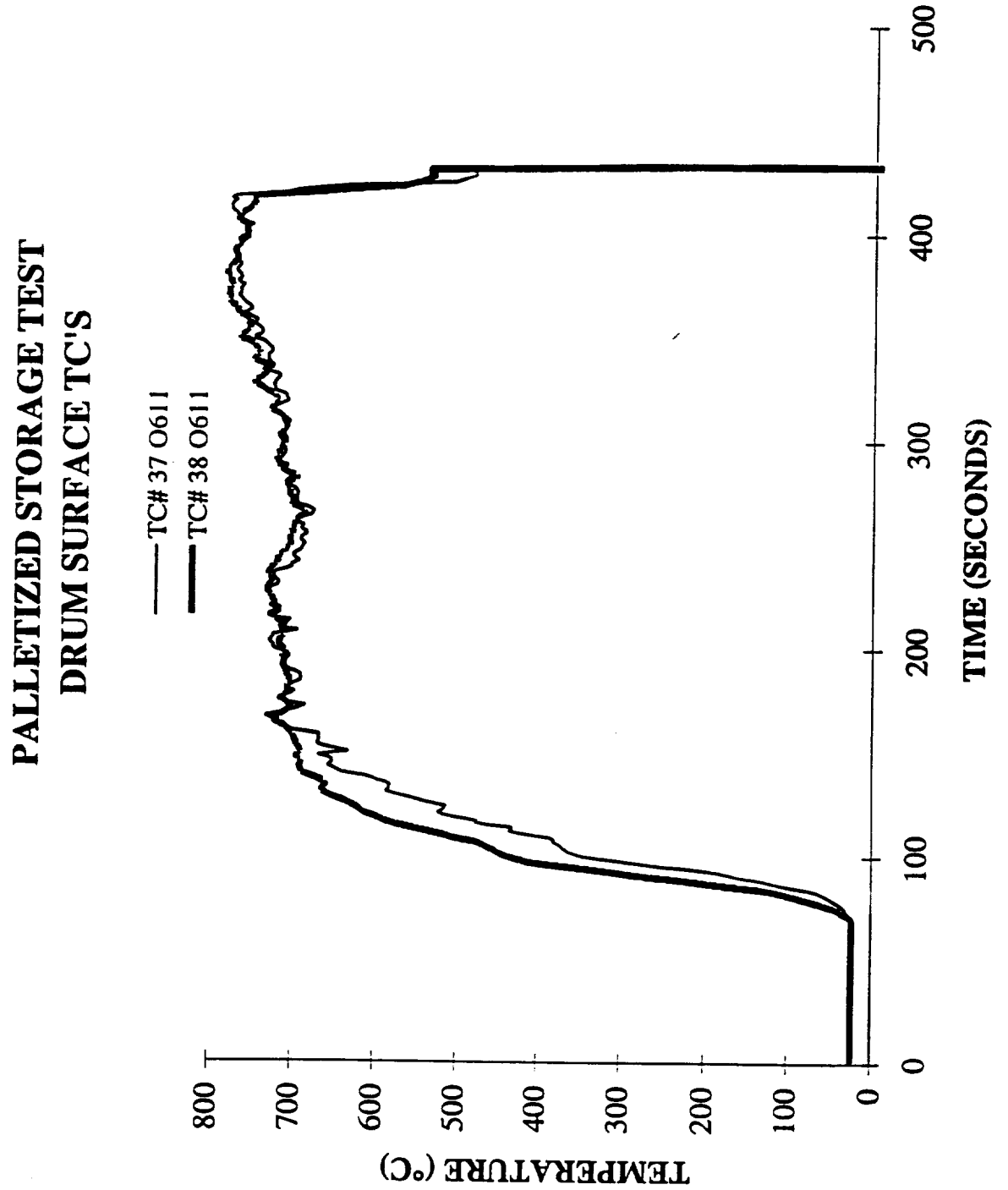
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DATE: 6 JUNE 1995
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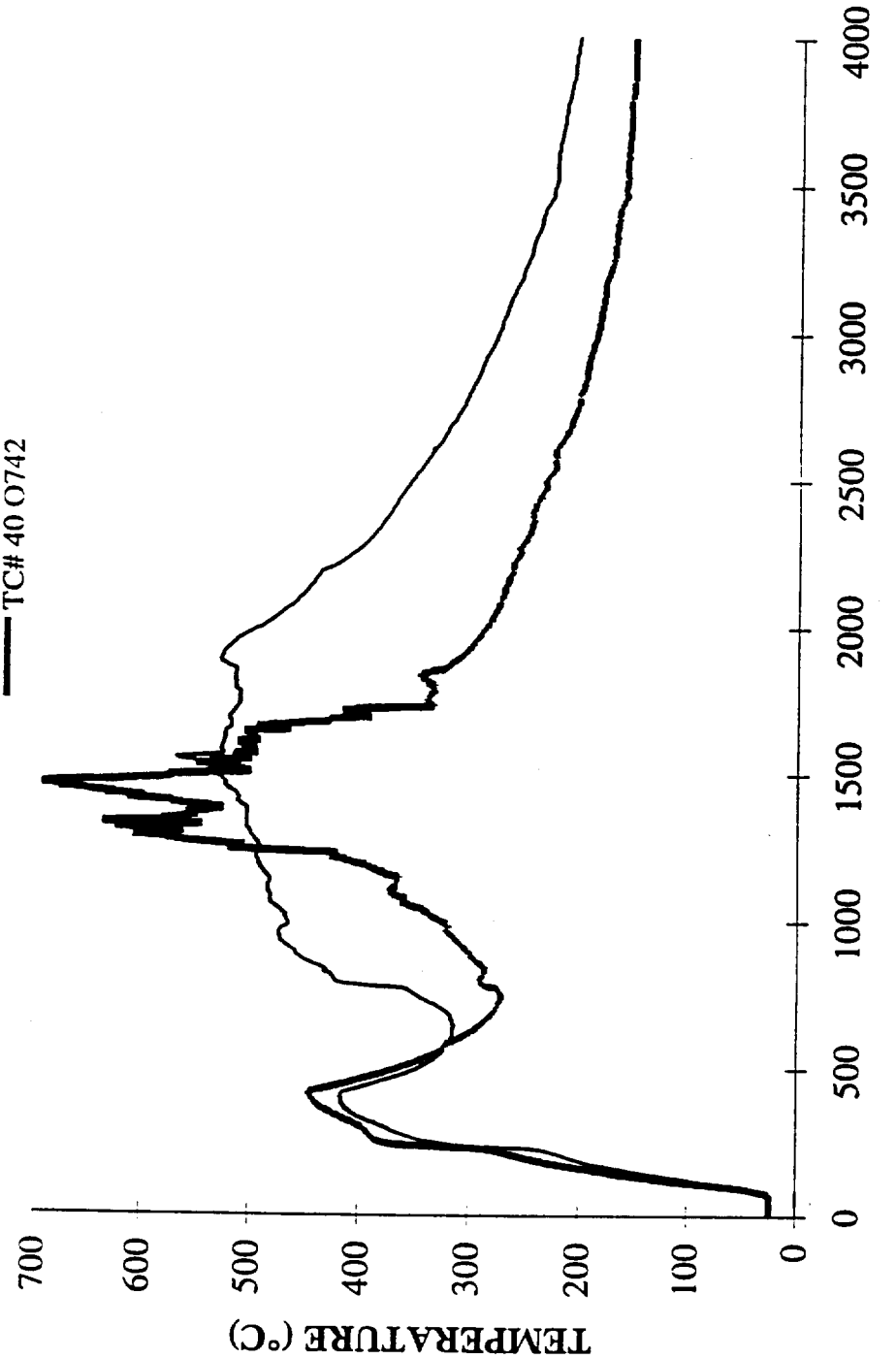
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
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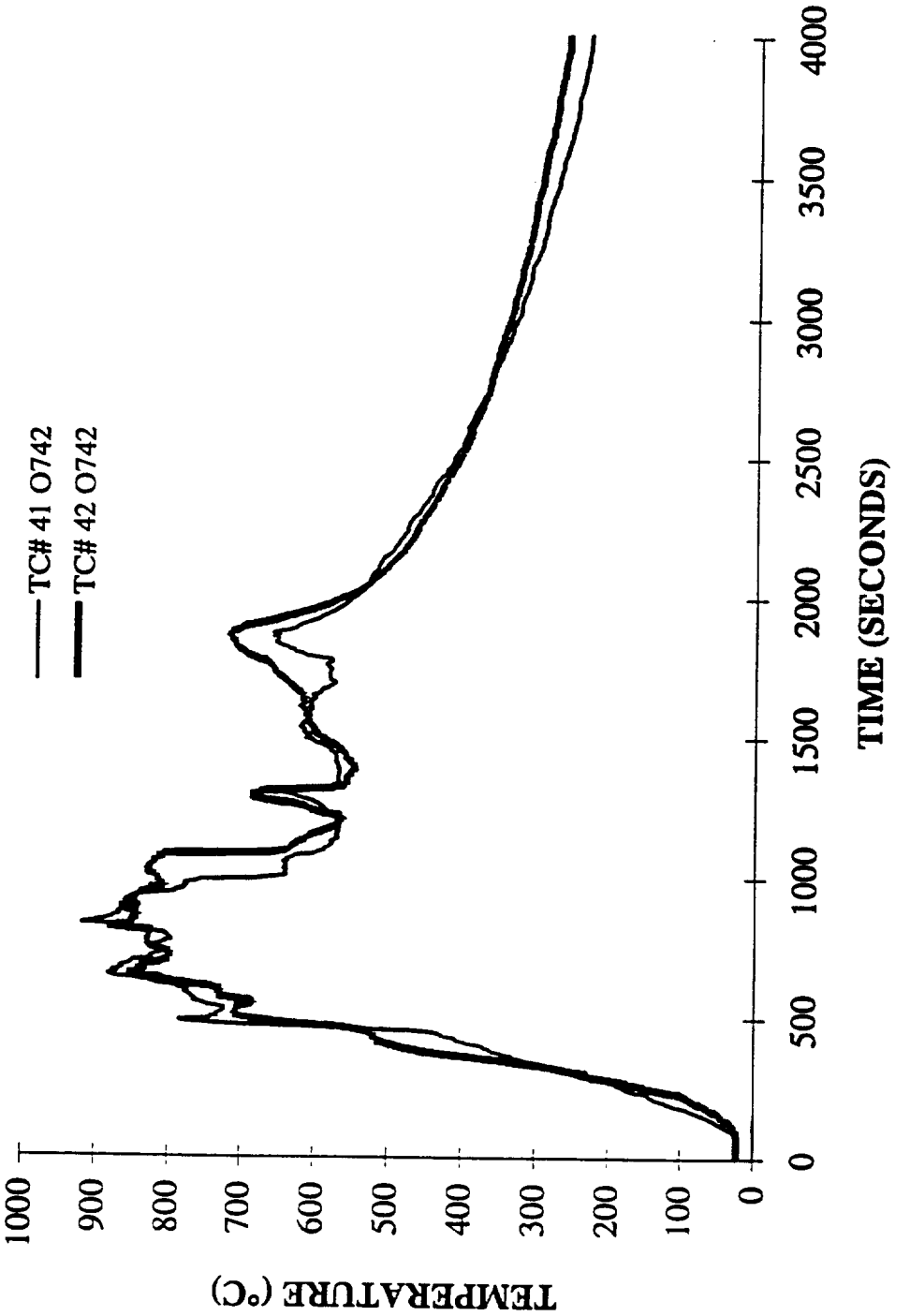
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP2.DAT



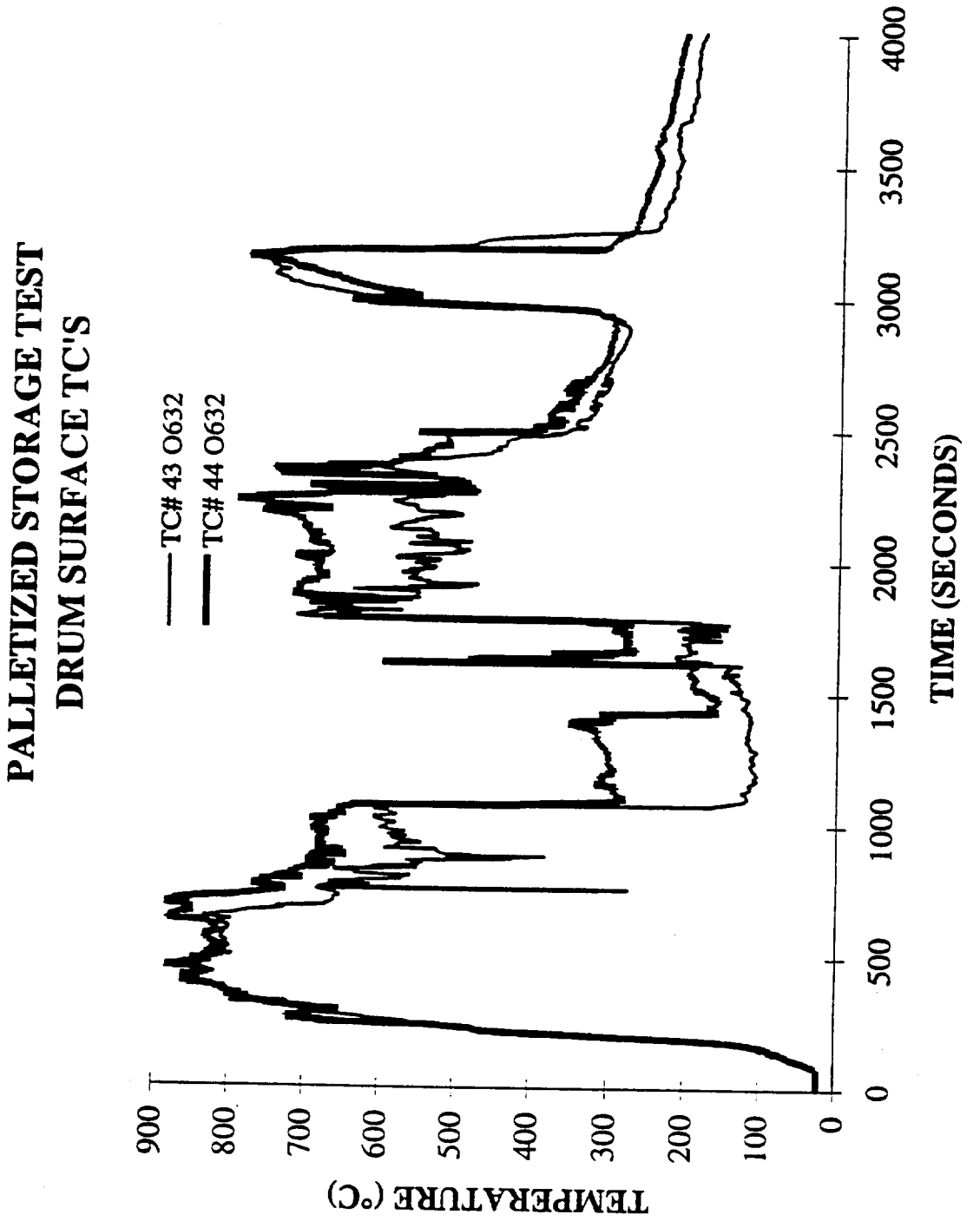
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DATE: 6 JUNE 1995
TEST ID: 163LP1.DAT



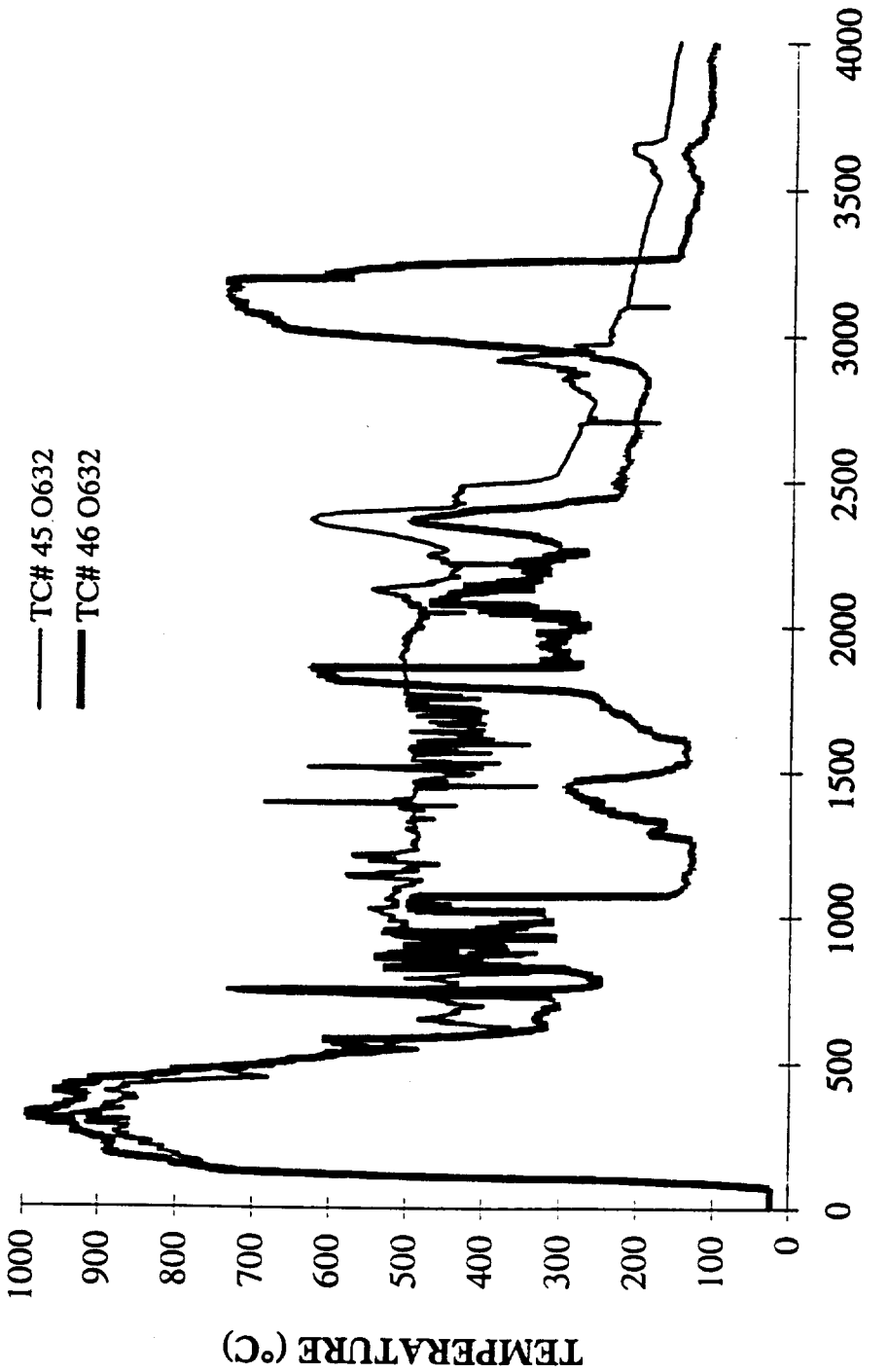
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DATE: 6 JUNE 1995
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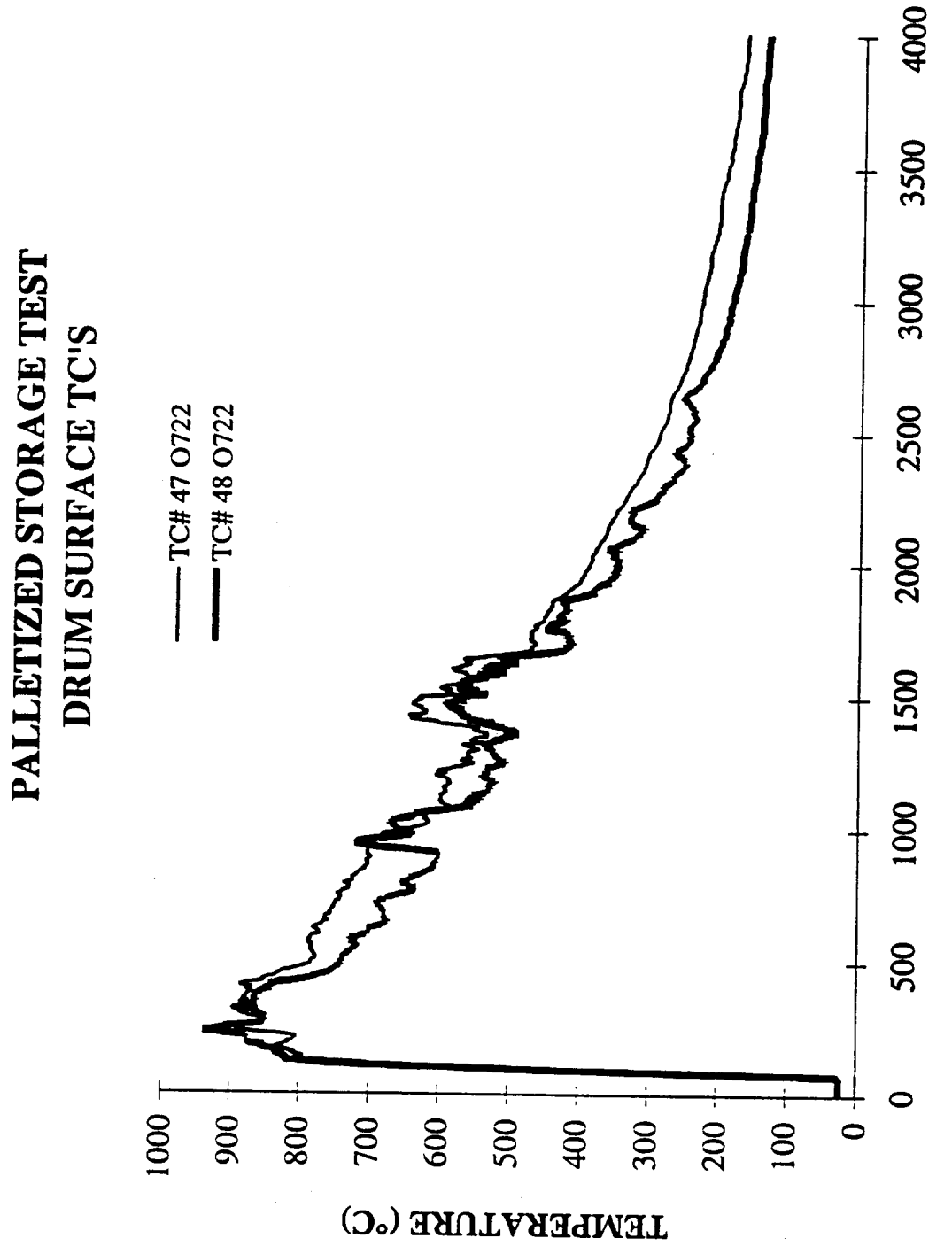
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP3.DAT



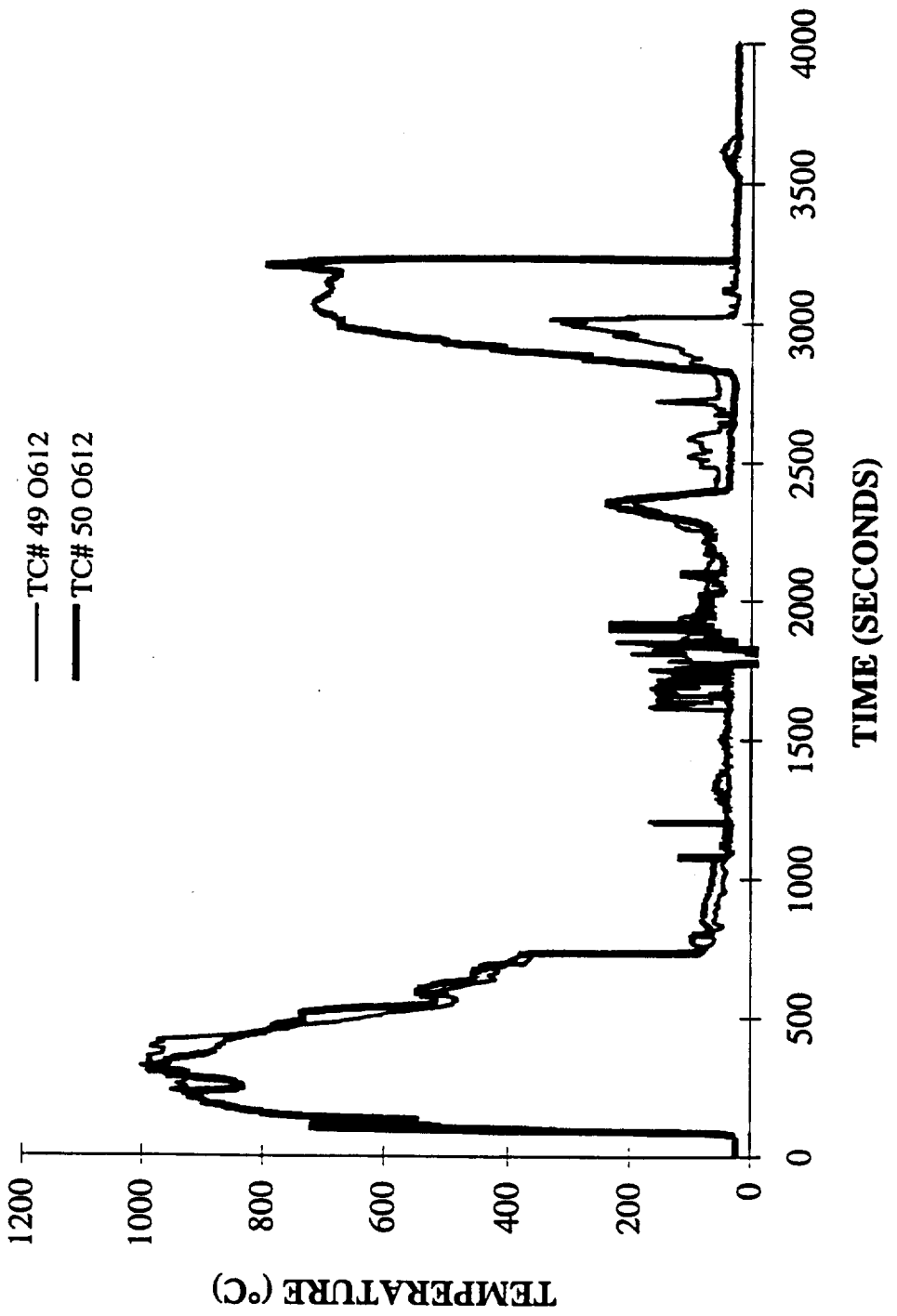
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DATE: 6 JUNE 1995
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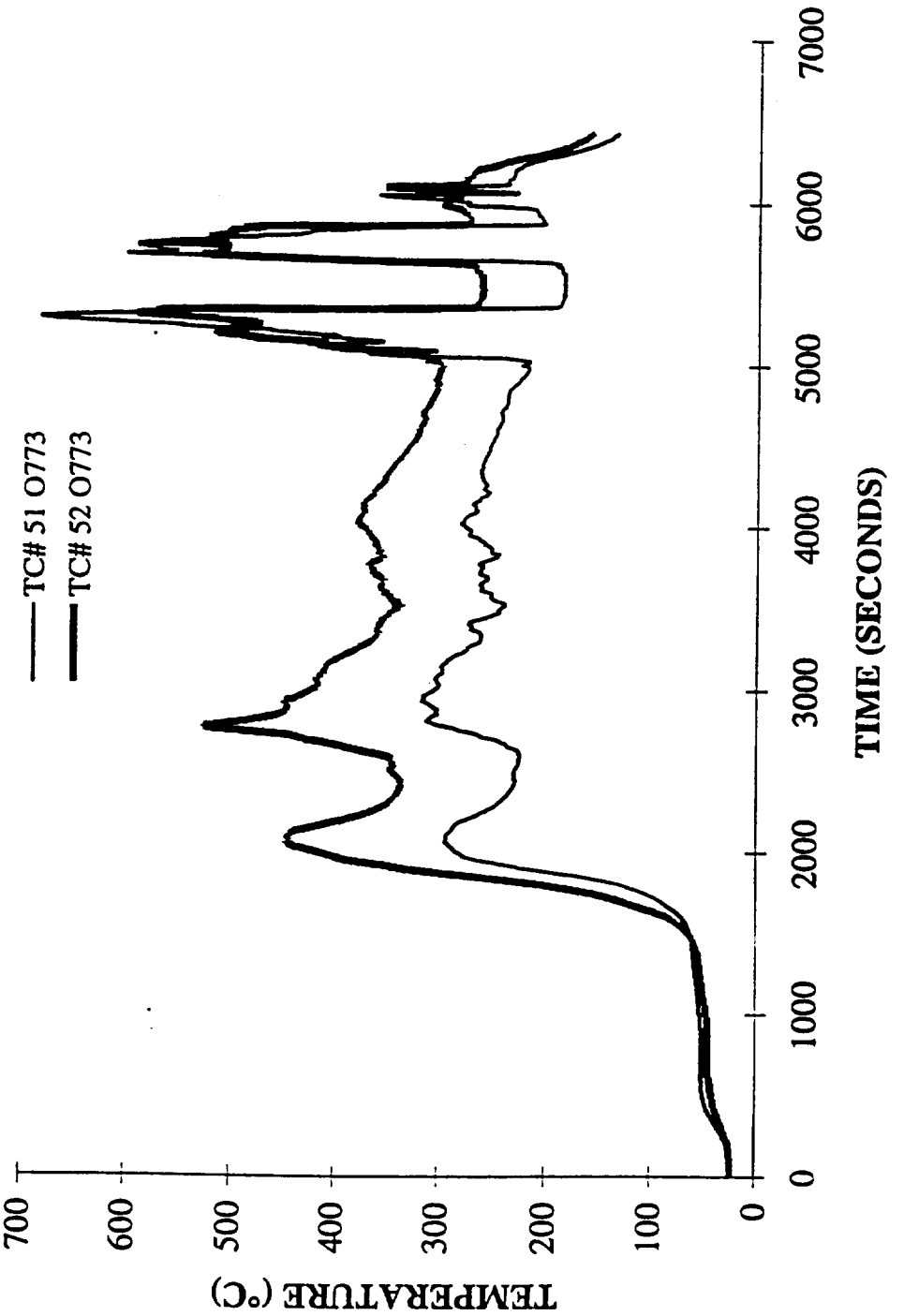
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP3.DAT



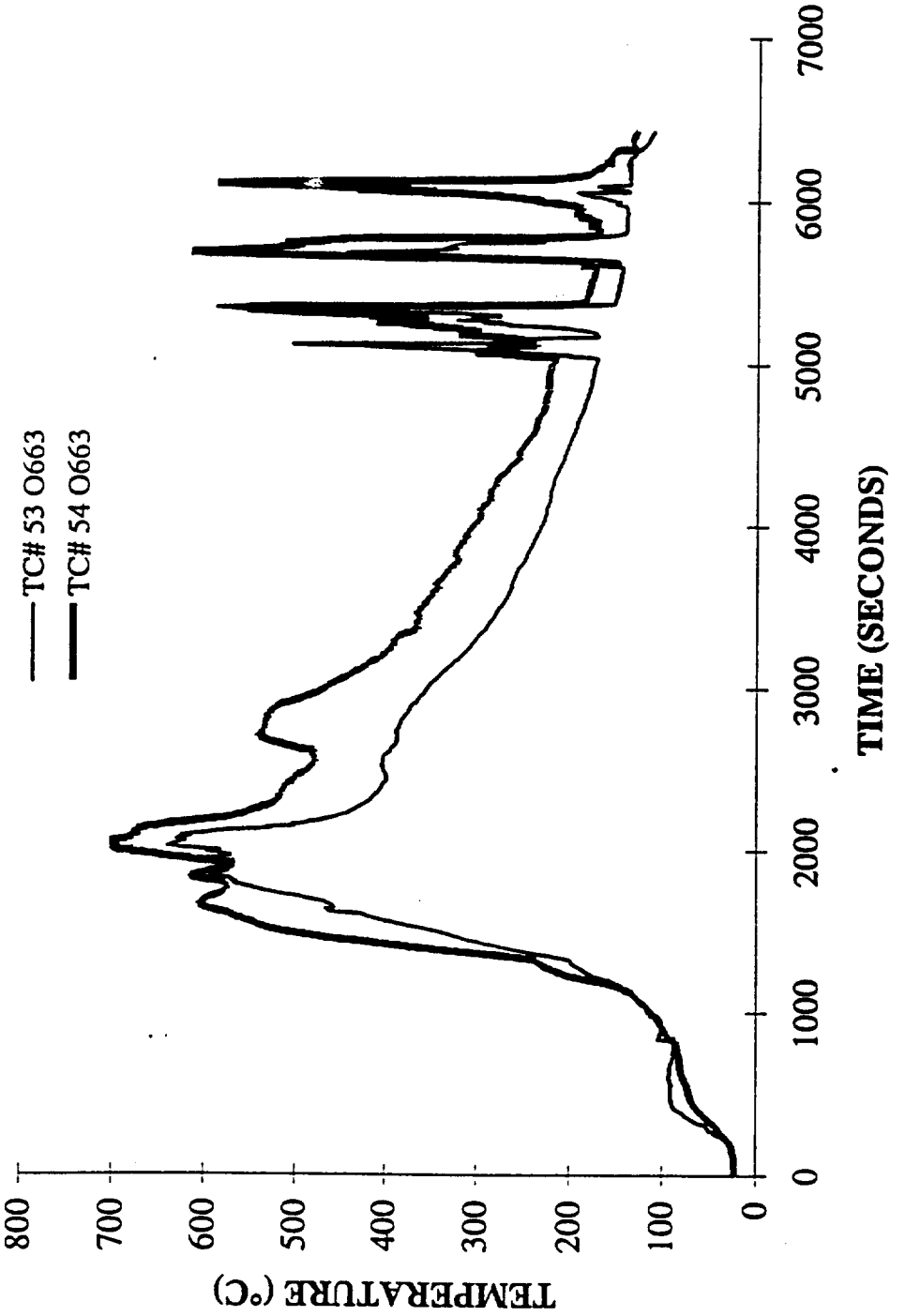
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP3.DAT



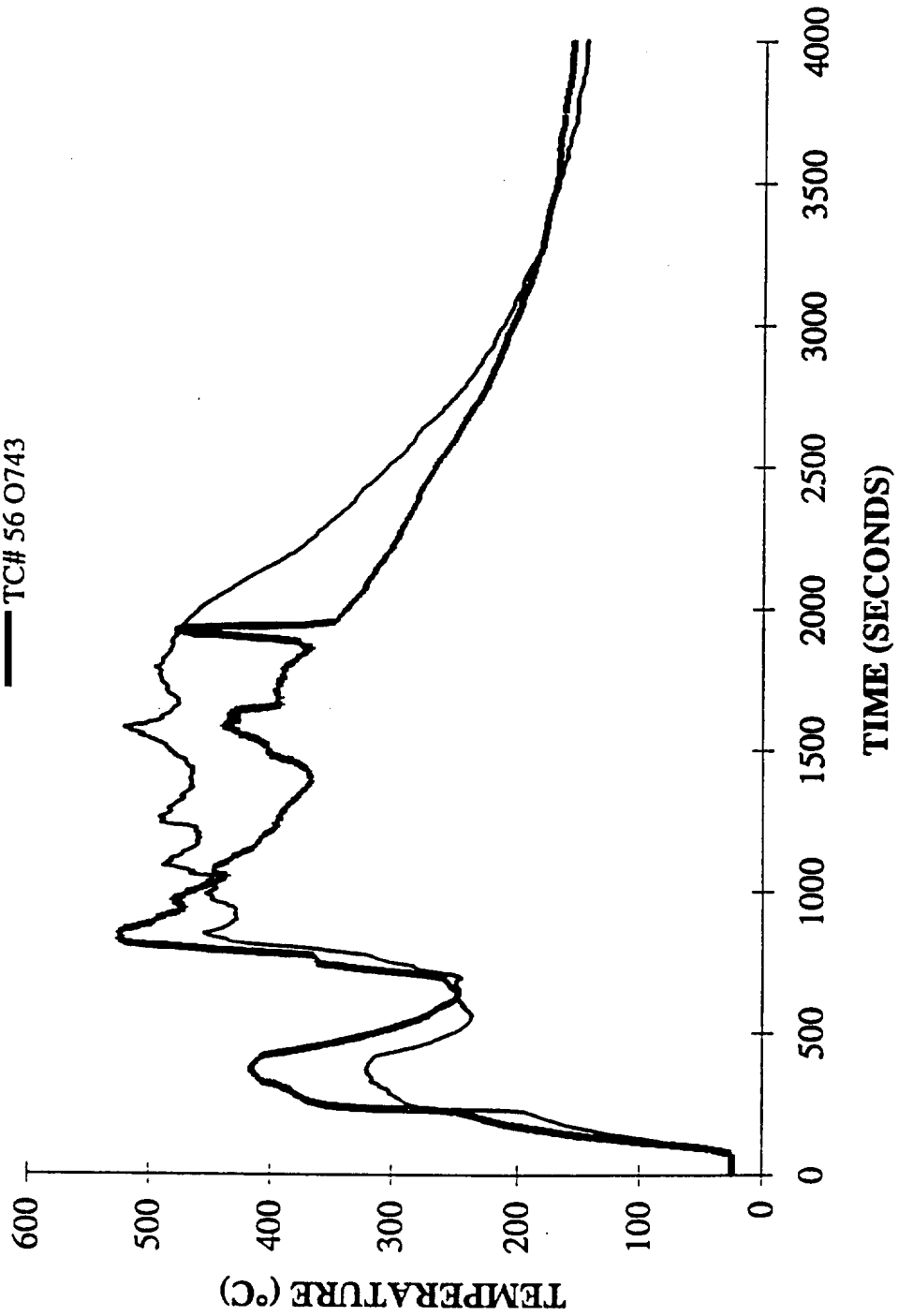
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP3.DAT



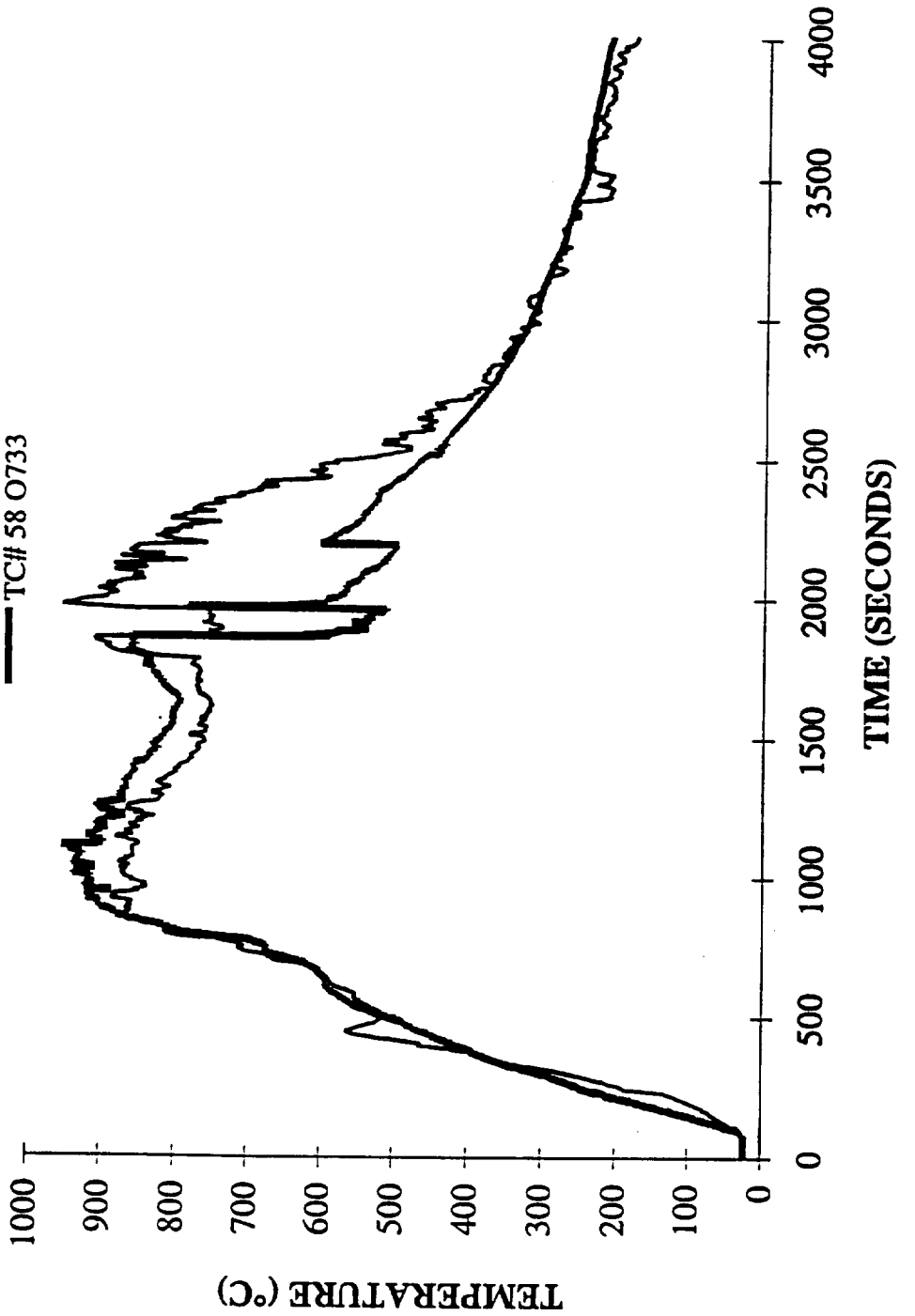
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP3.DAT



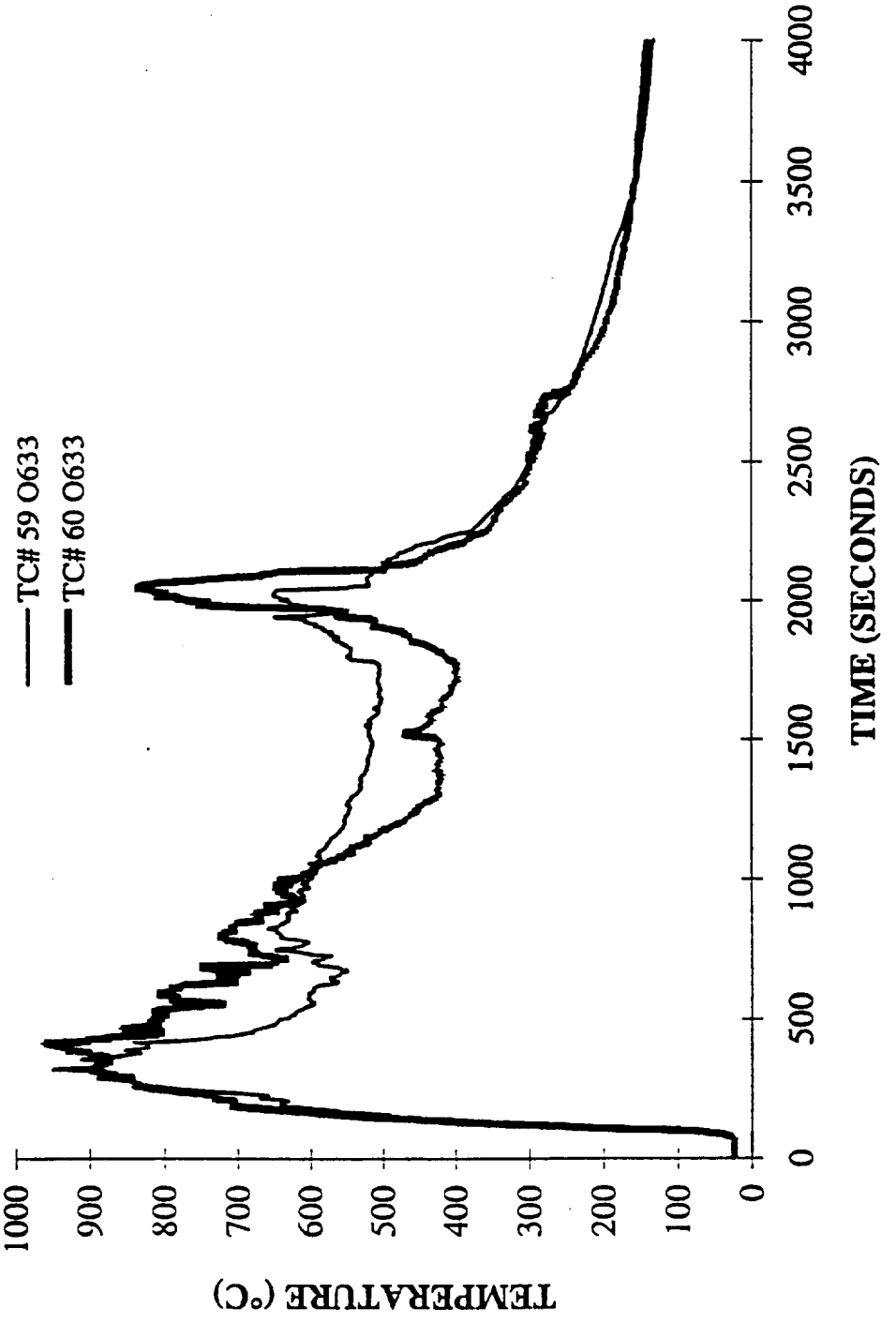
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP3.DAT



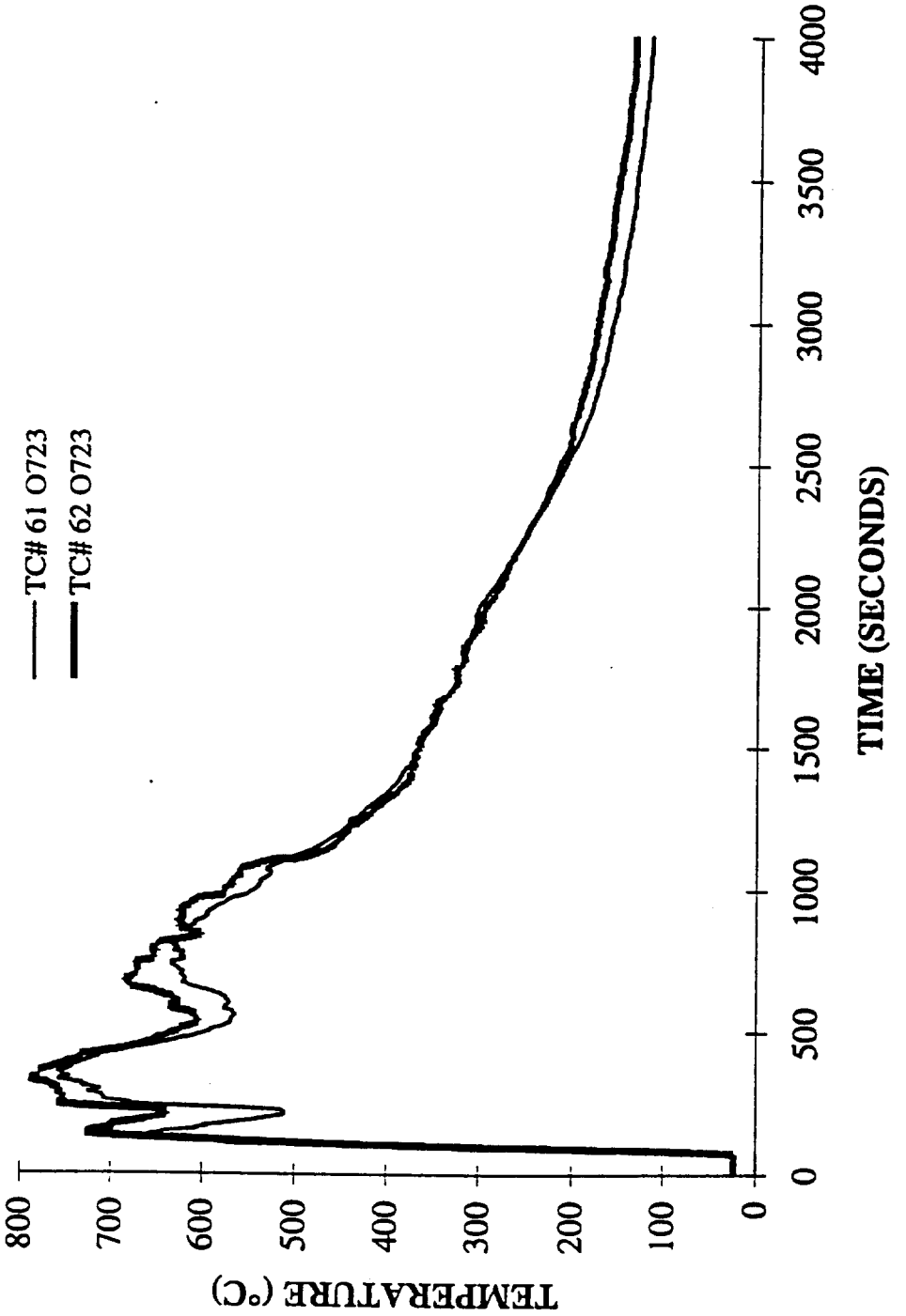
CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP3.DAT



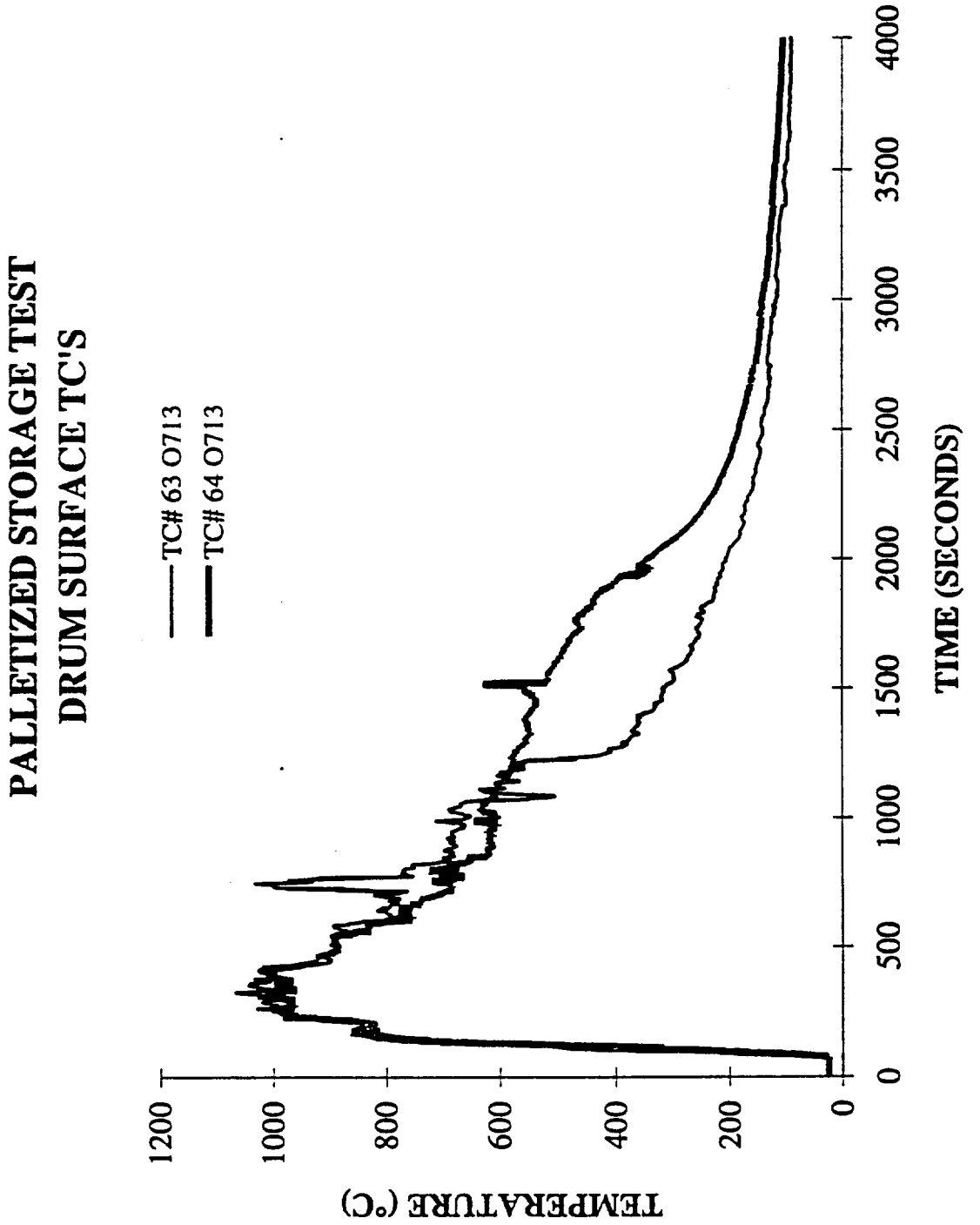
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP4.DAT



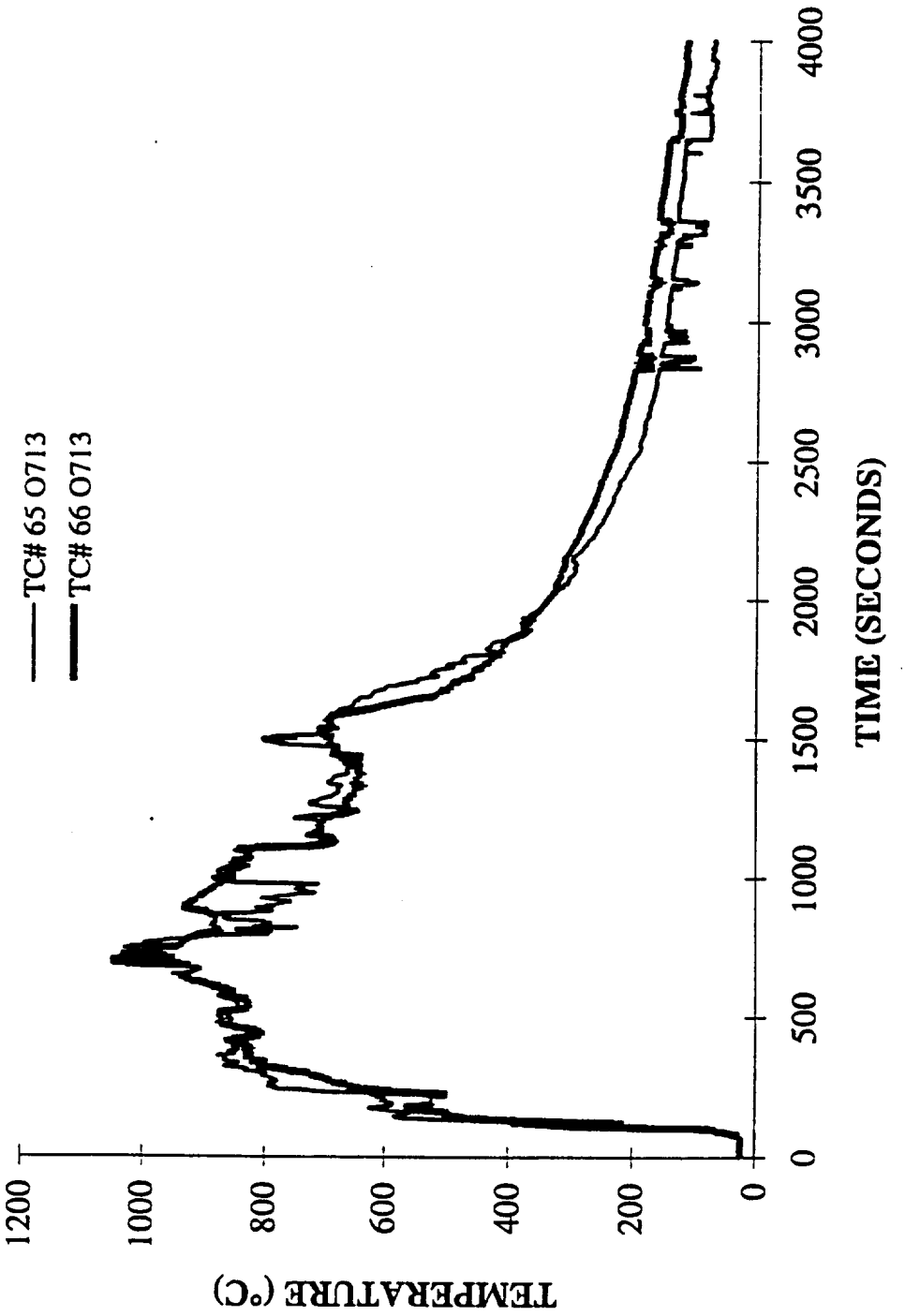
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DATE: 6 JUNE 1995
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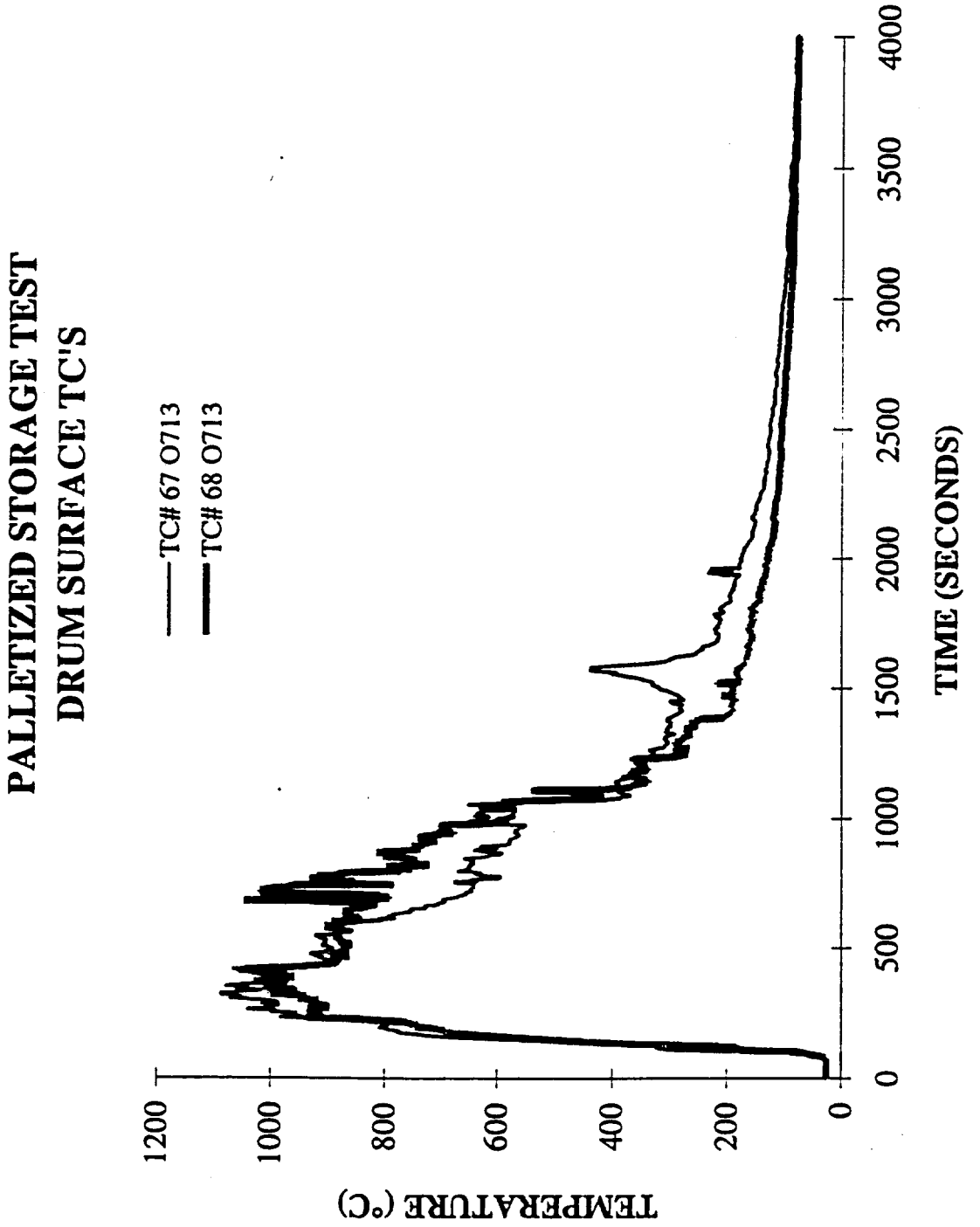
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DATE: 6 JUNE 1995
TEST ID: 163LP4.DAT



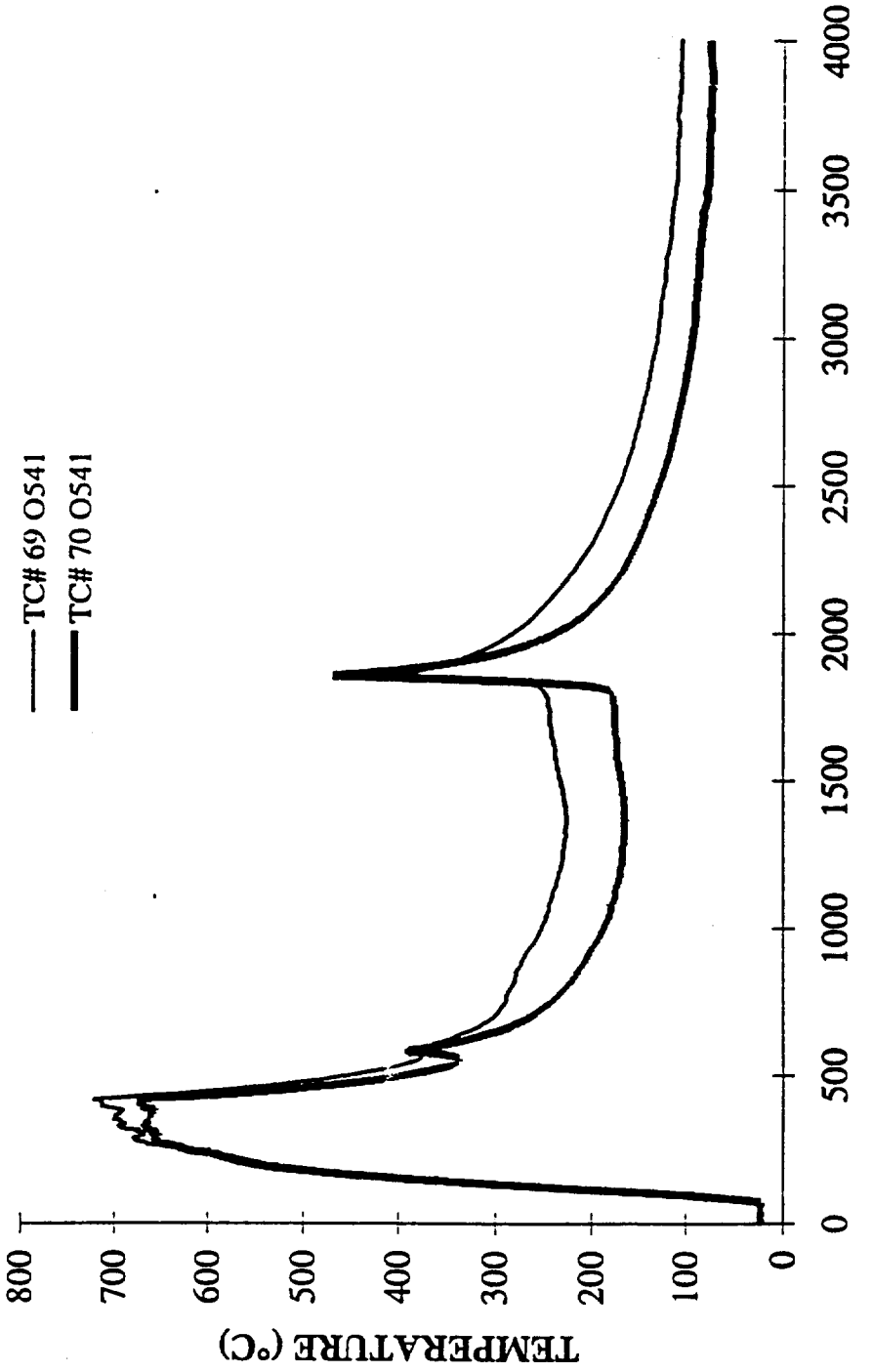
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DATE: 6 JUNE 1995
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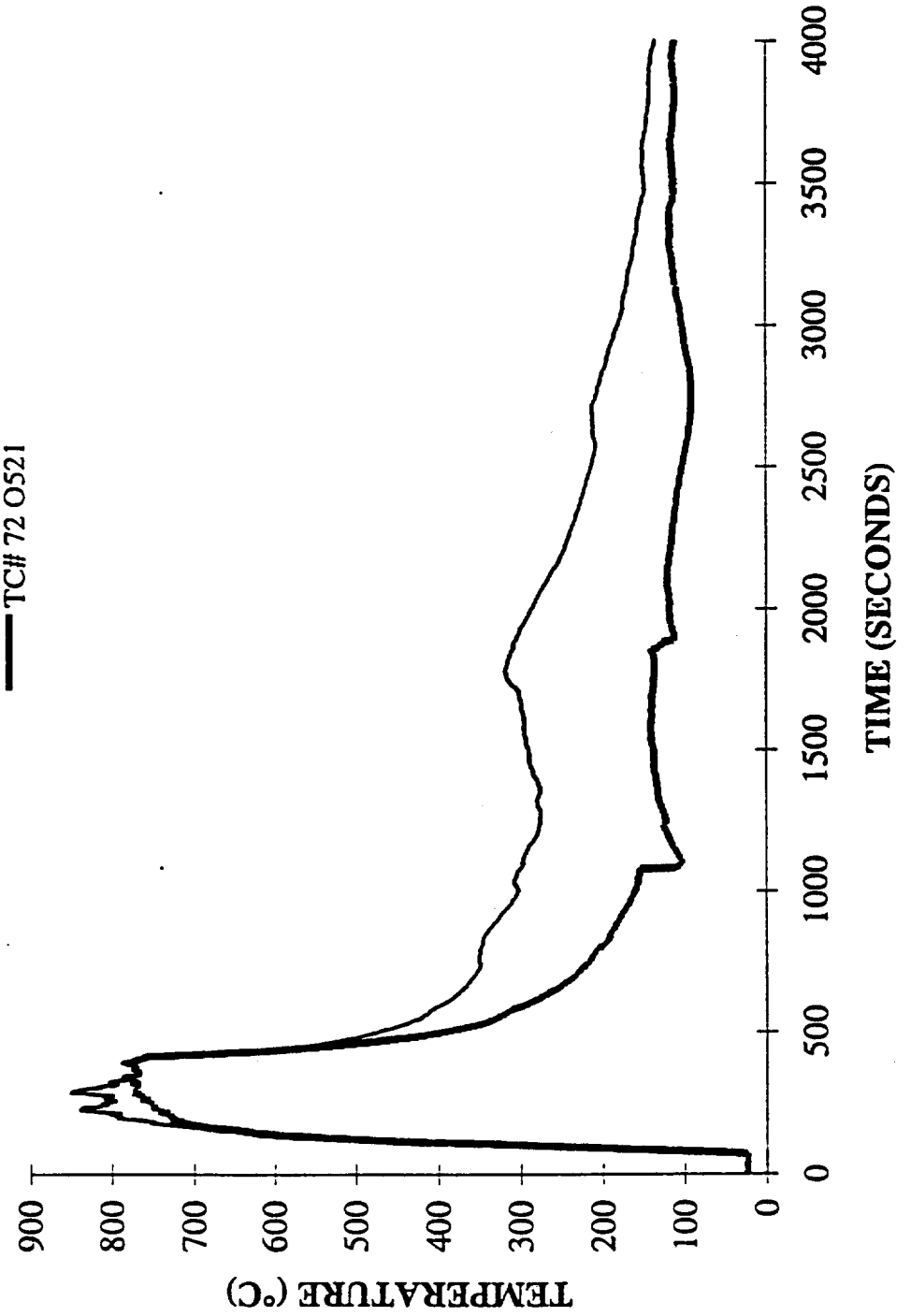
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP4.DAT



CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 163LP4.DAT

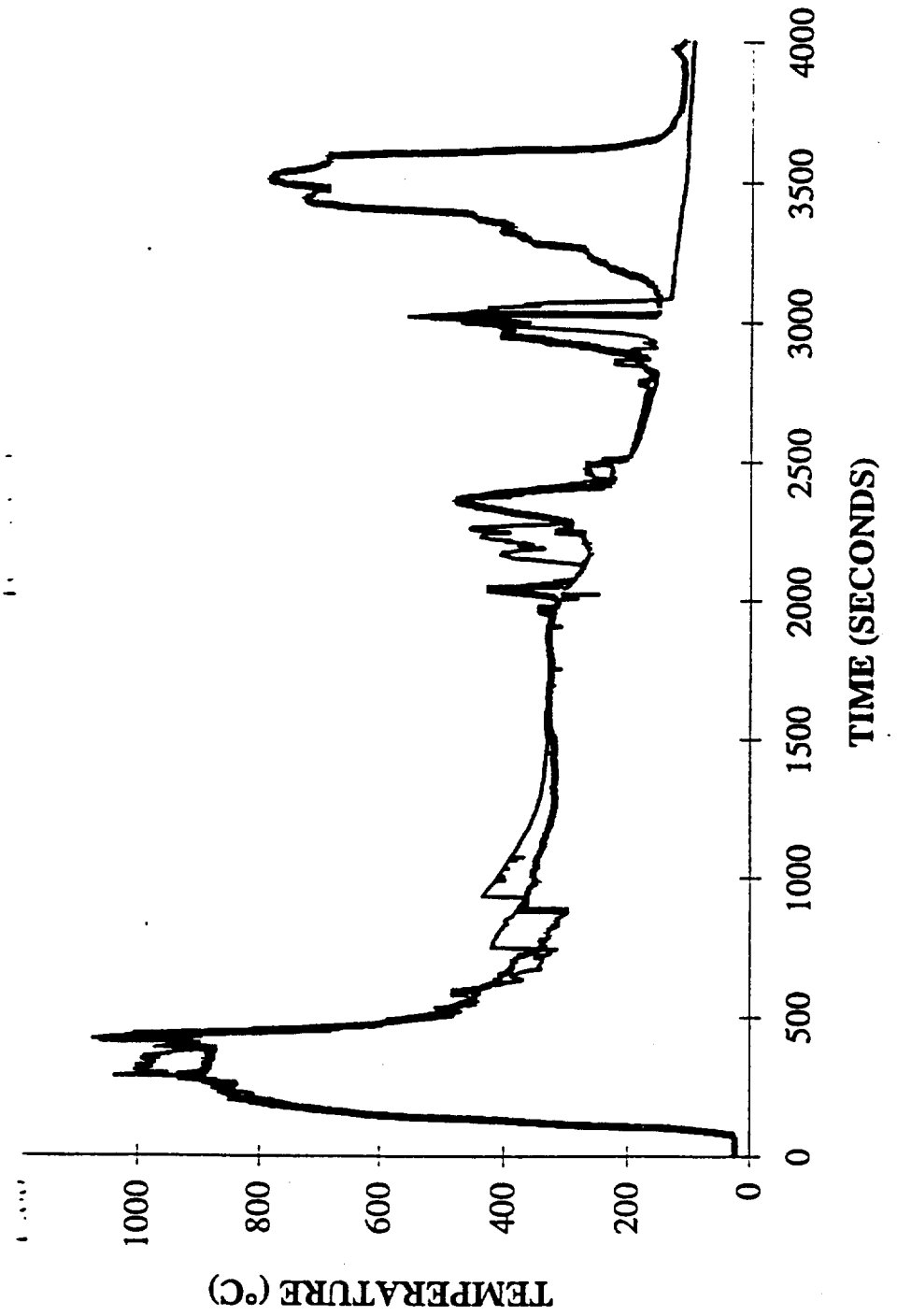


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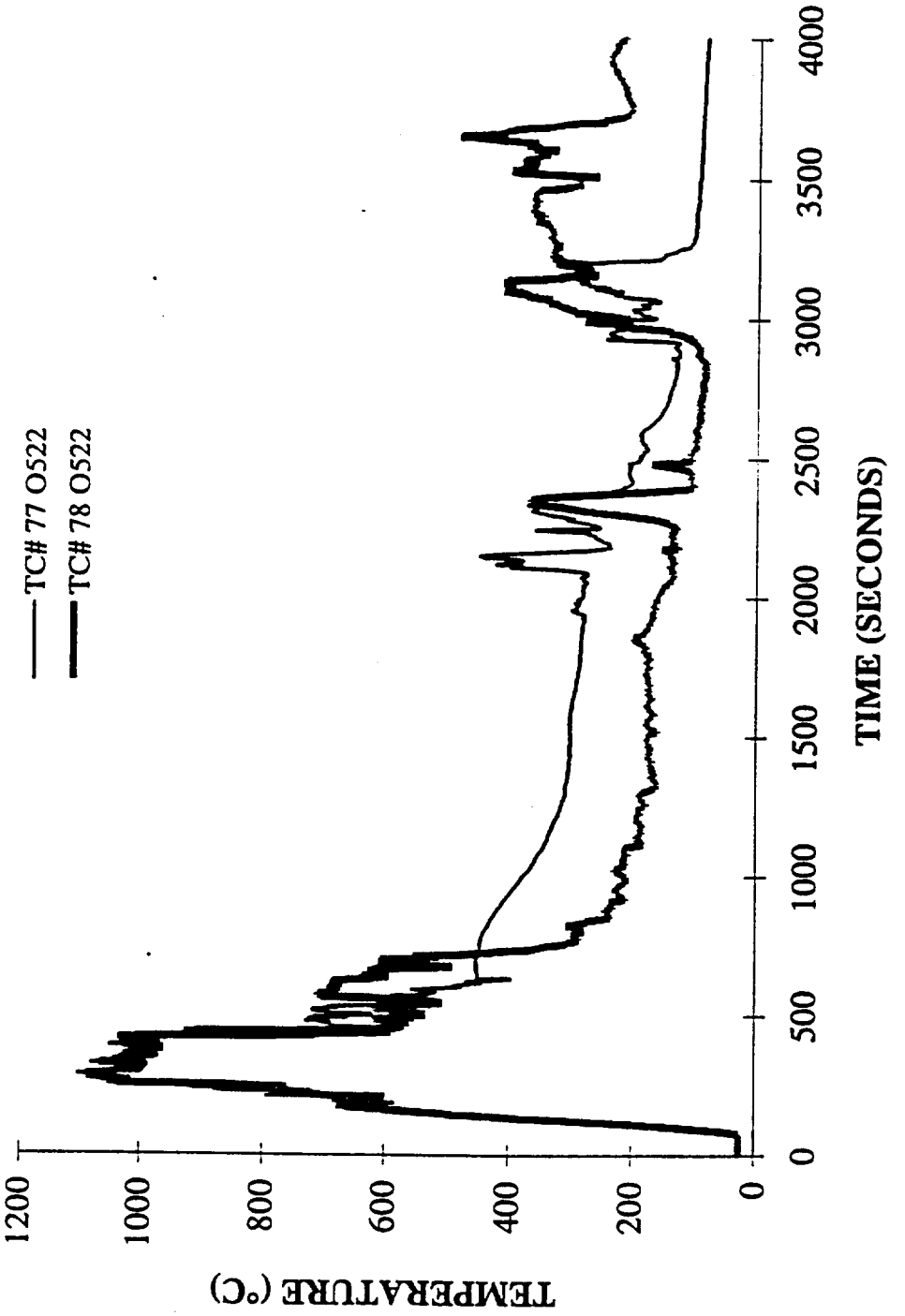


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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995

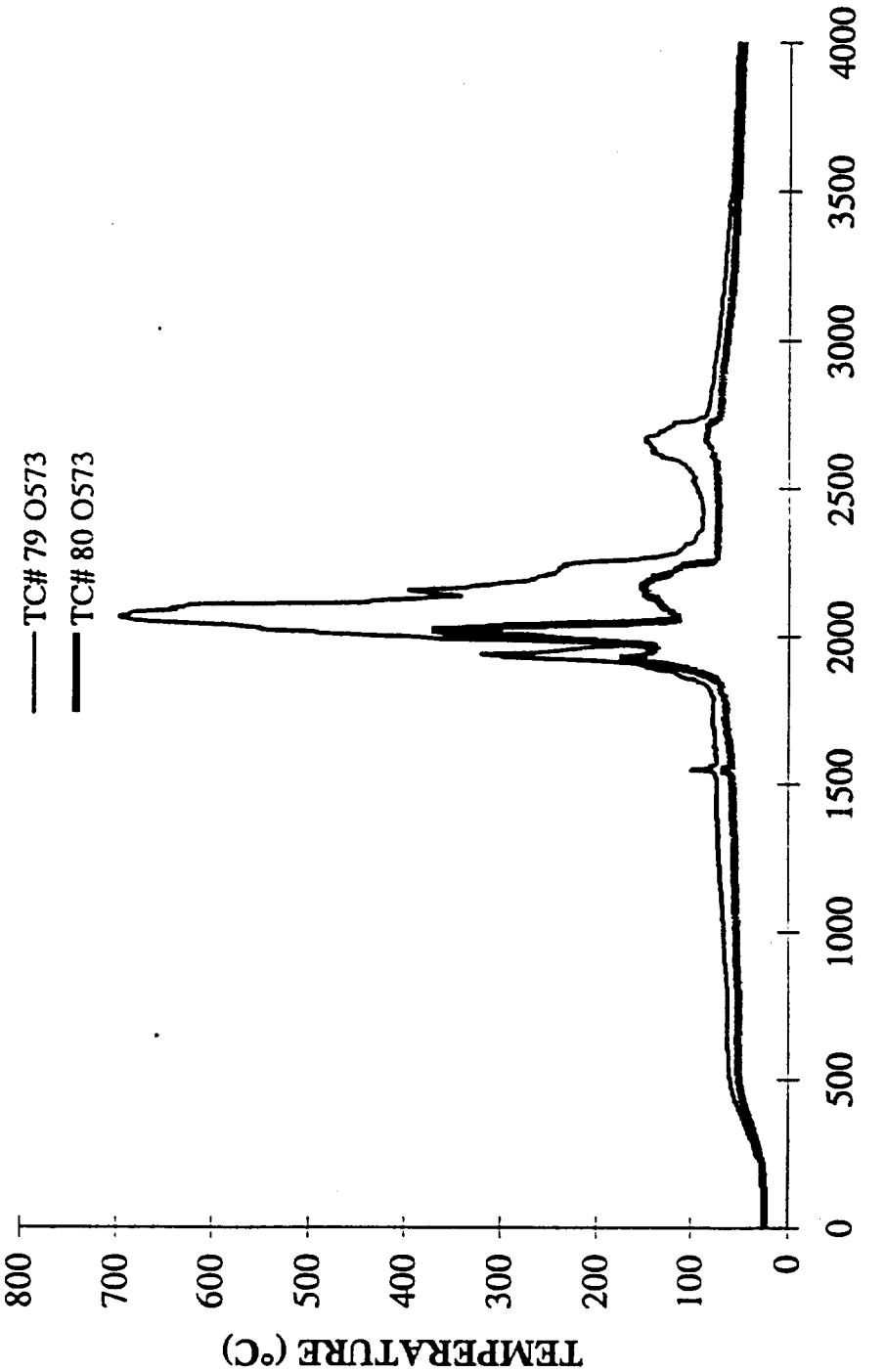



TEMPERATURE (°C)
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800
600
400
200
0
0
500
1000
1500
2000
2500
3000
3500
4000
TIME (SECONDS)

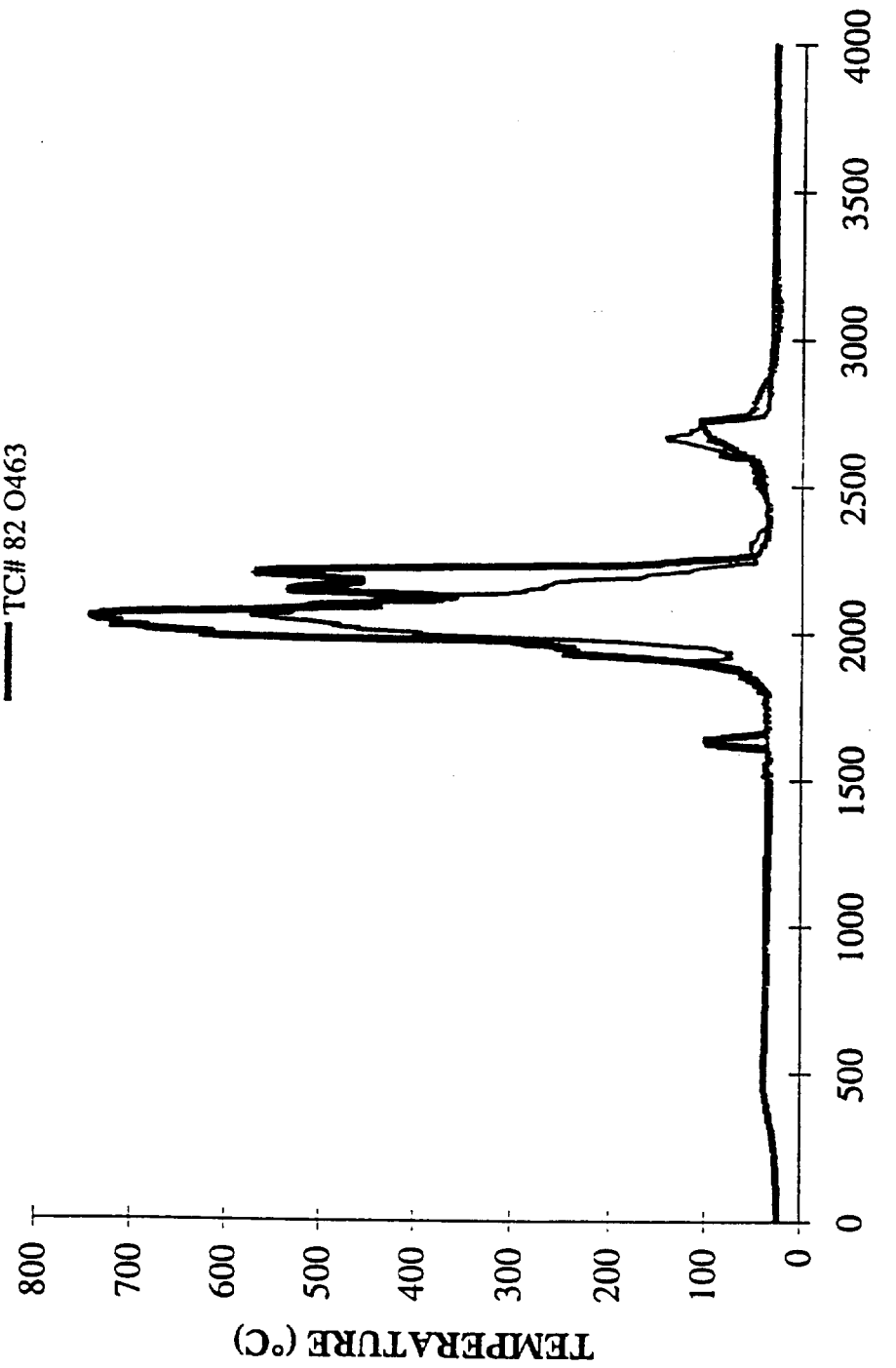
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DATE: 6 JUNE 1995
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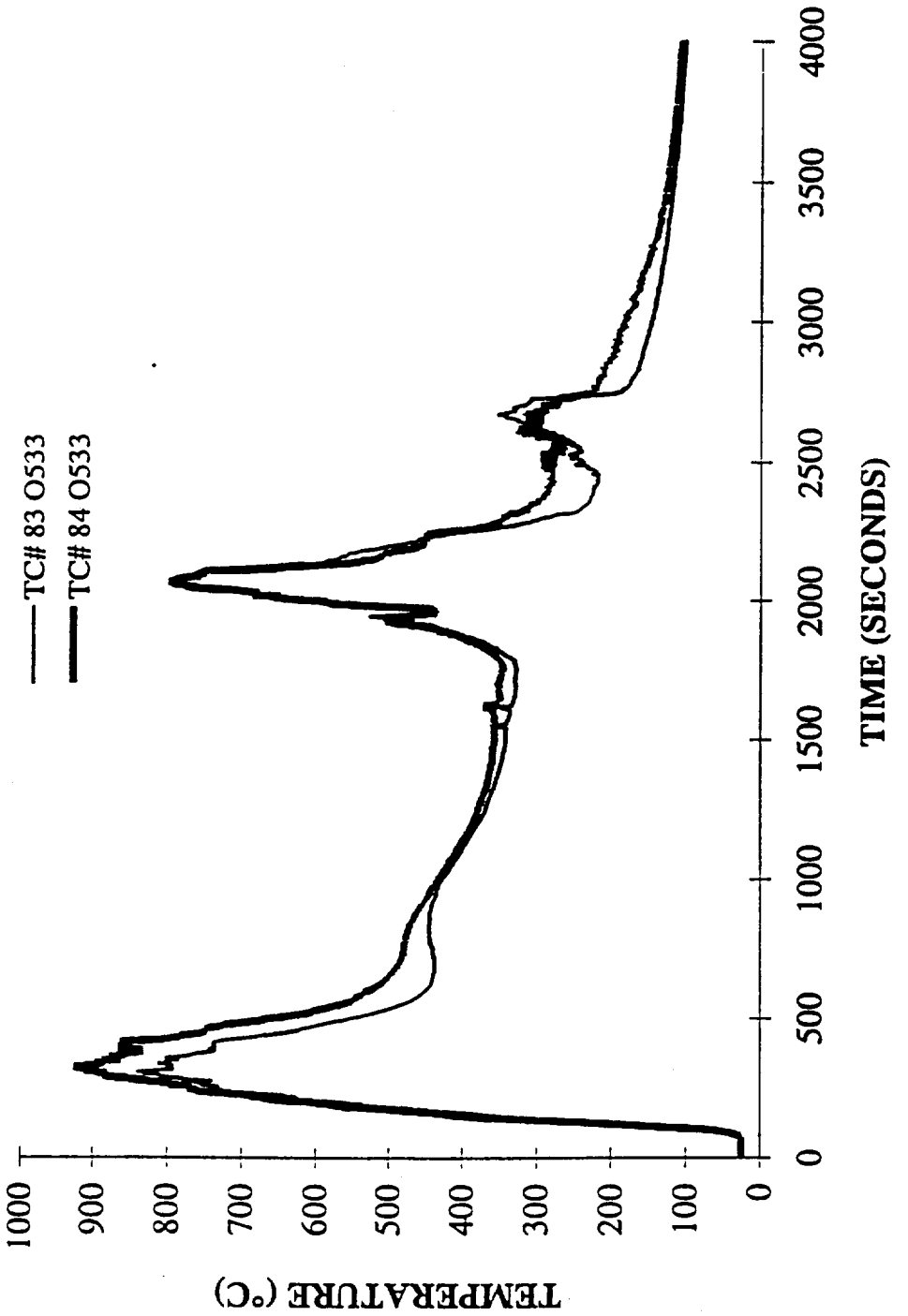
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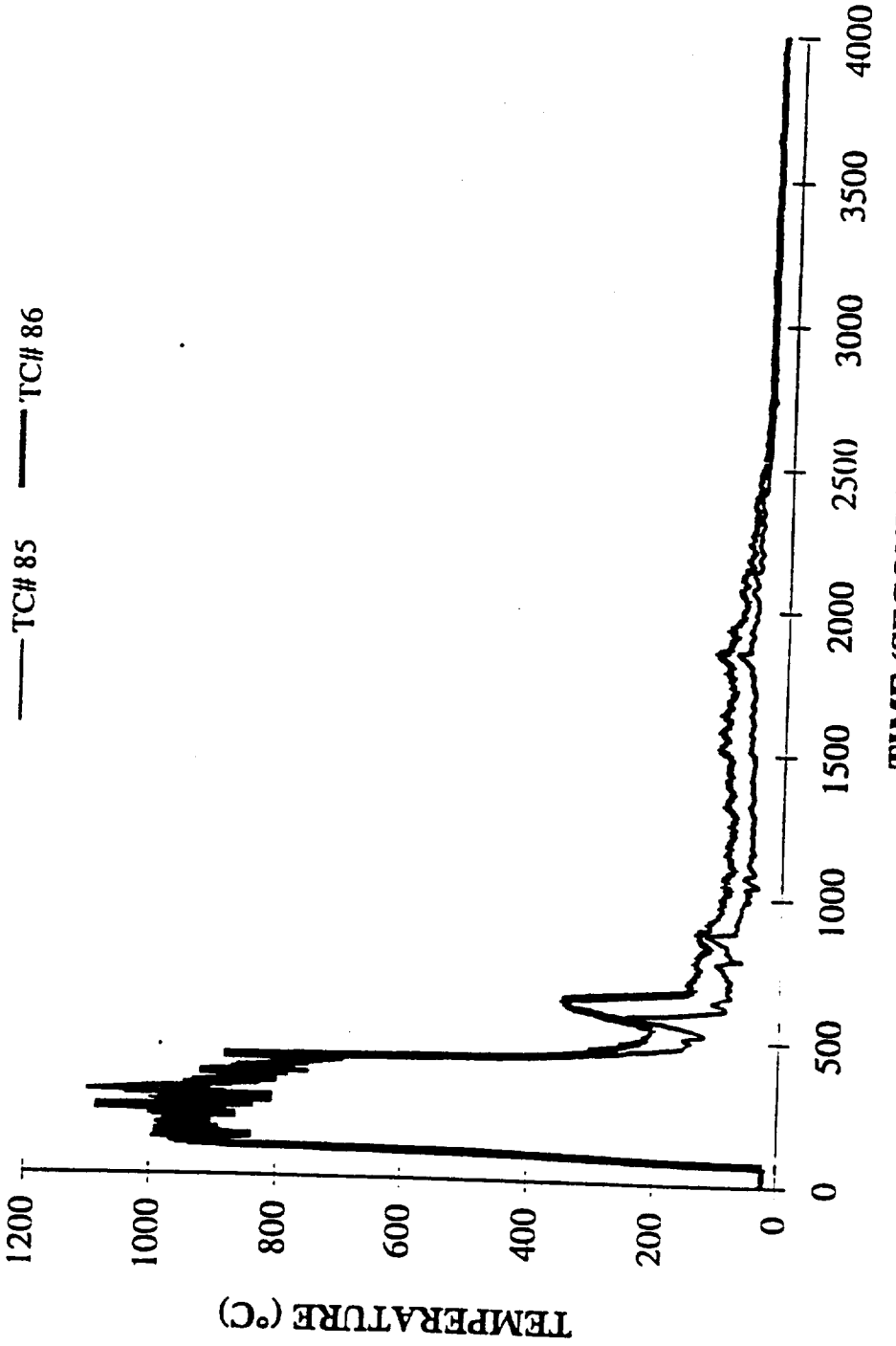
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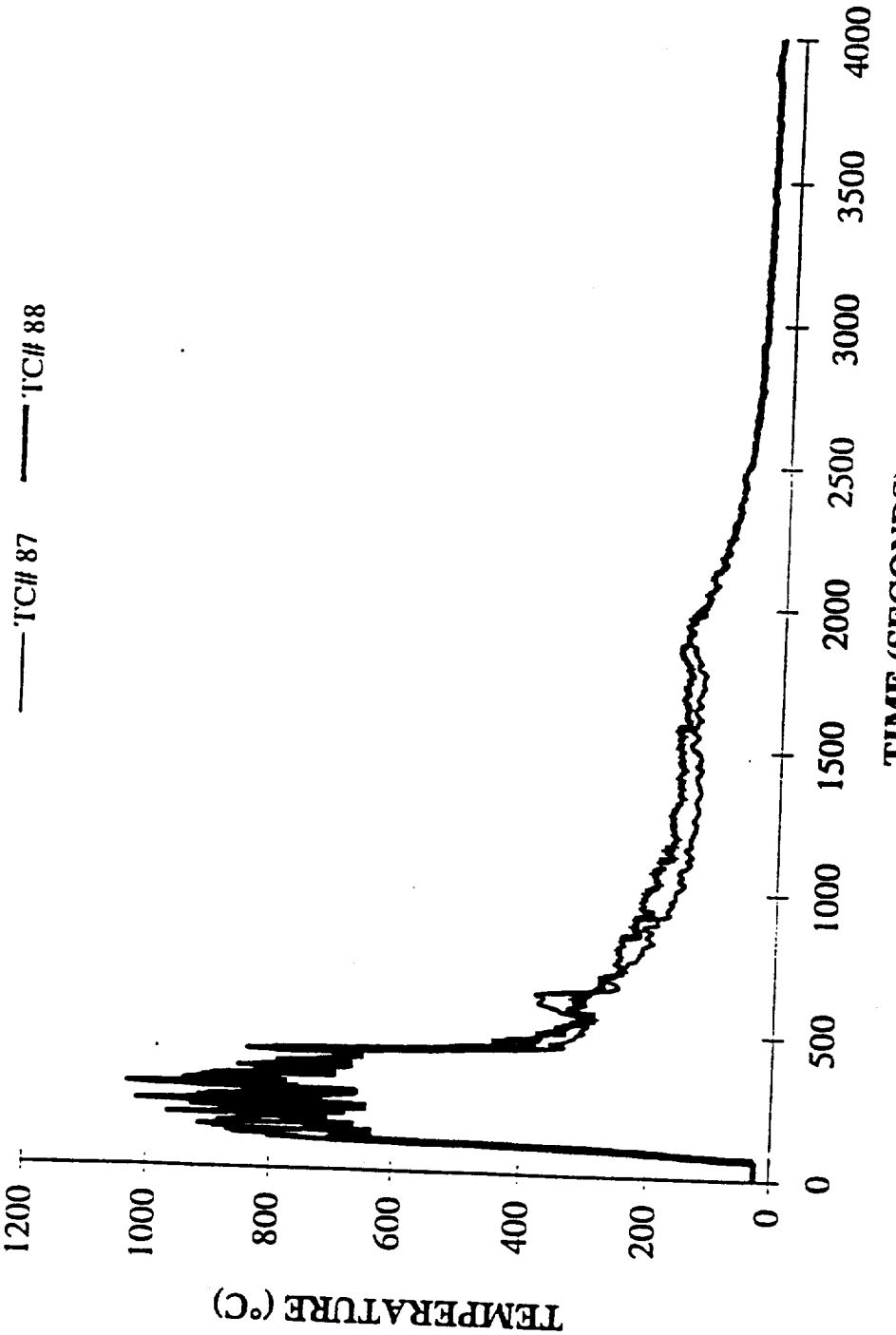
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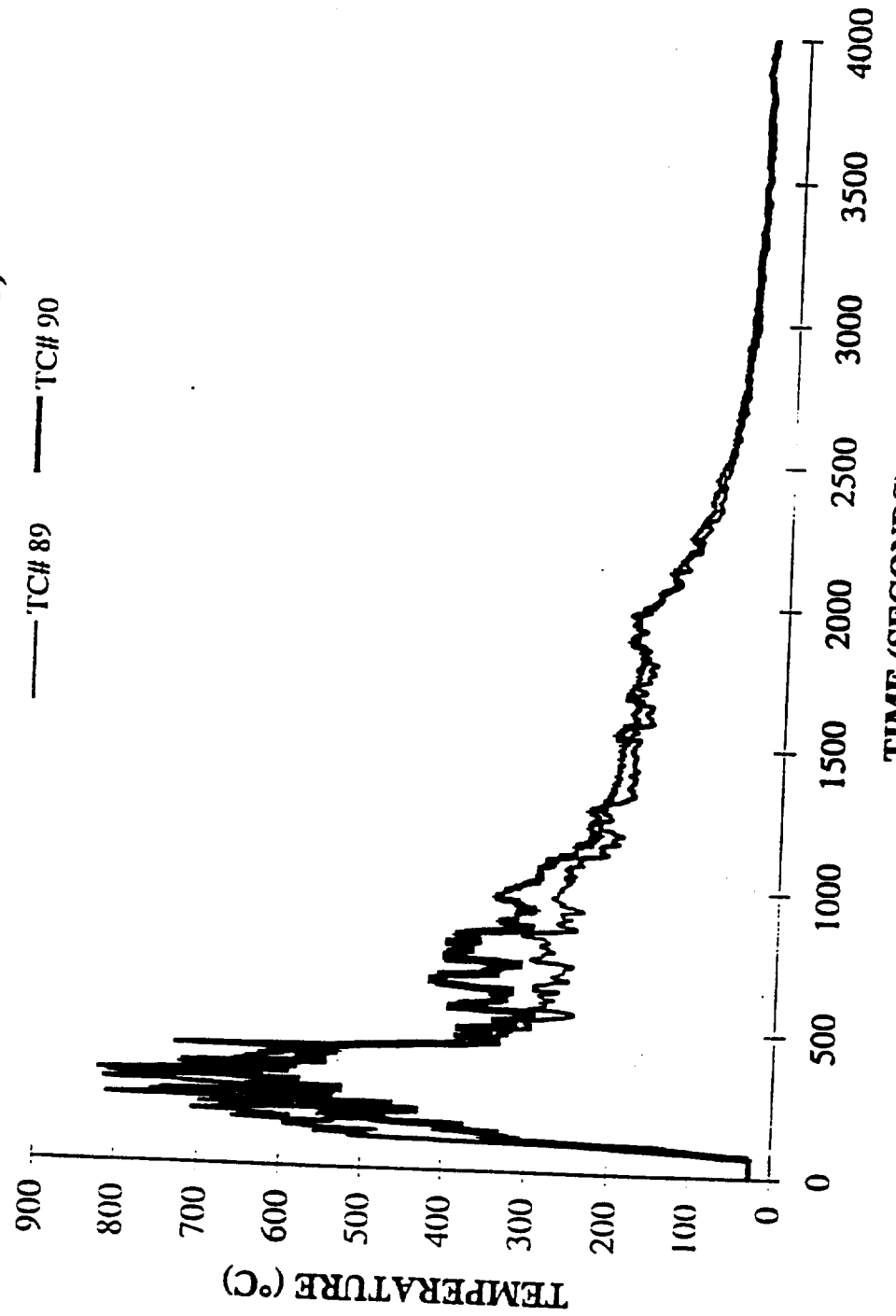
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PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR7.DAT



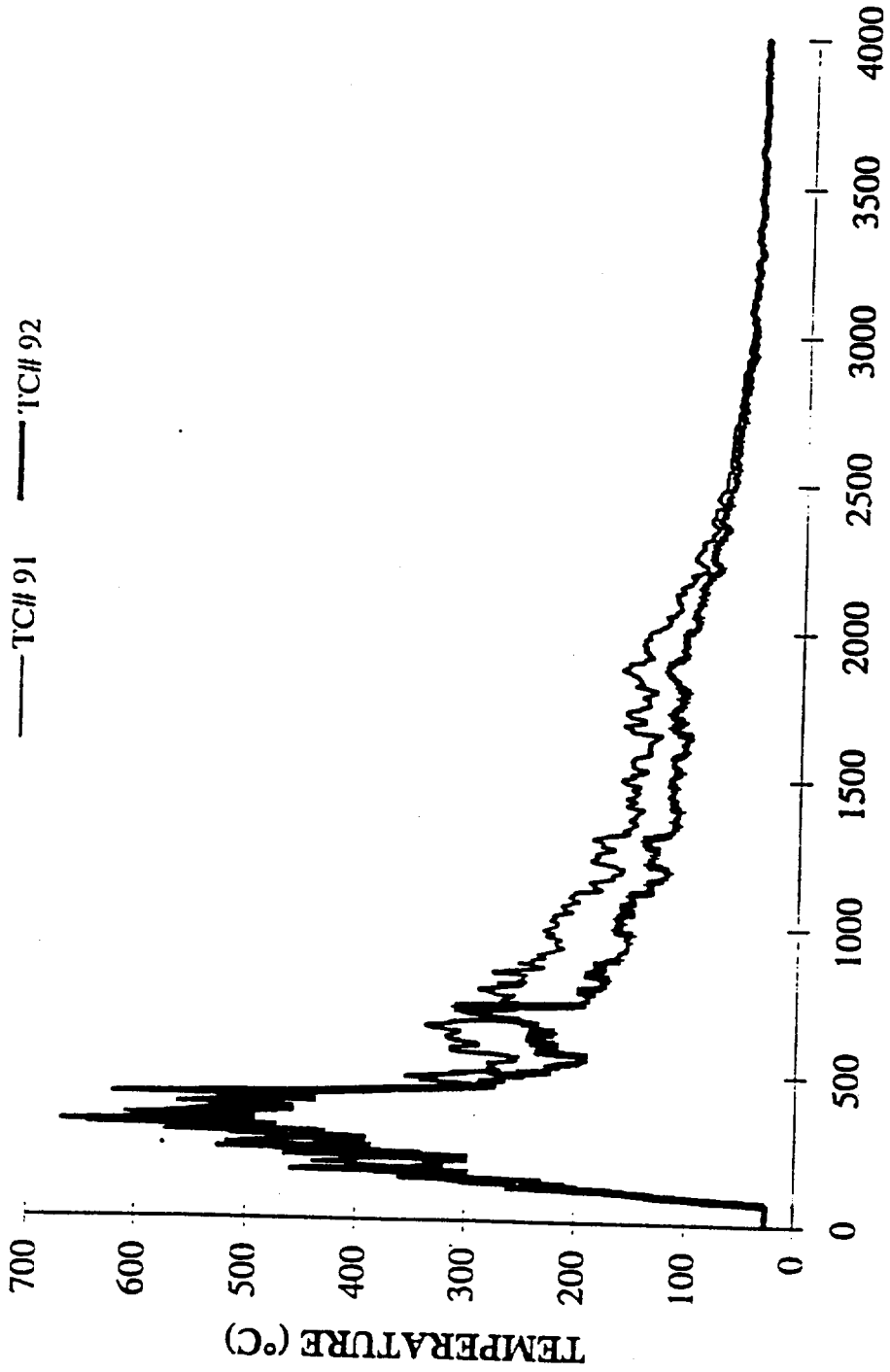
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DATE: 6 JUNE 1995
TEST ID: 157LR7.DAT



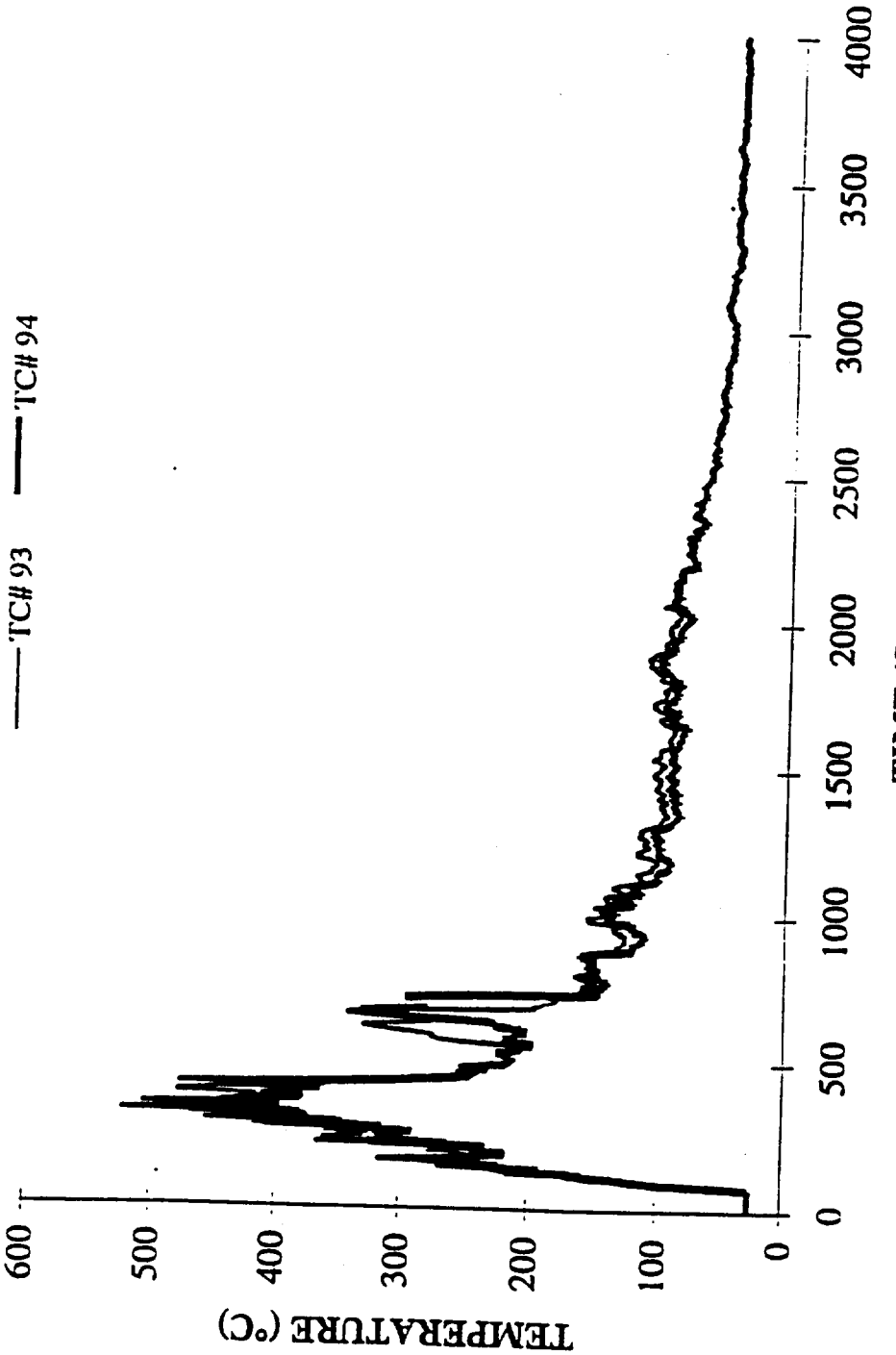
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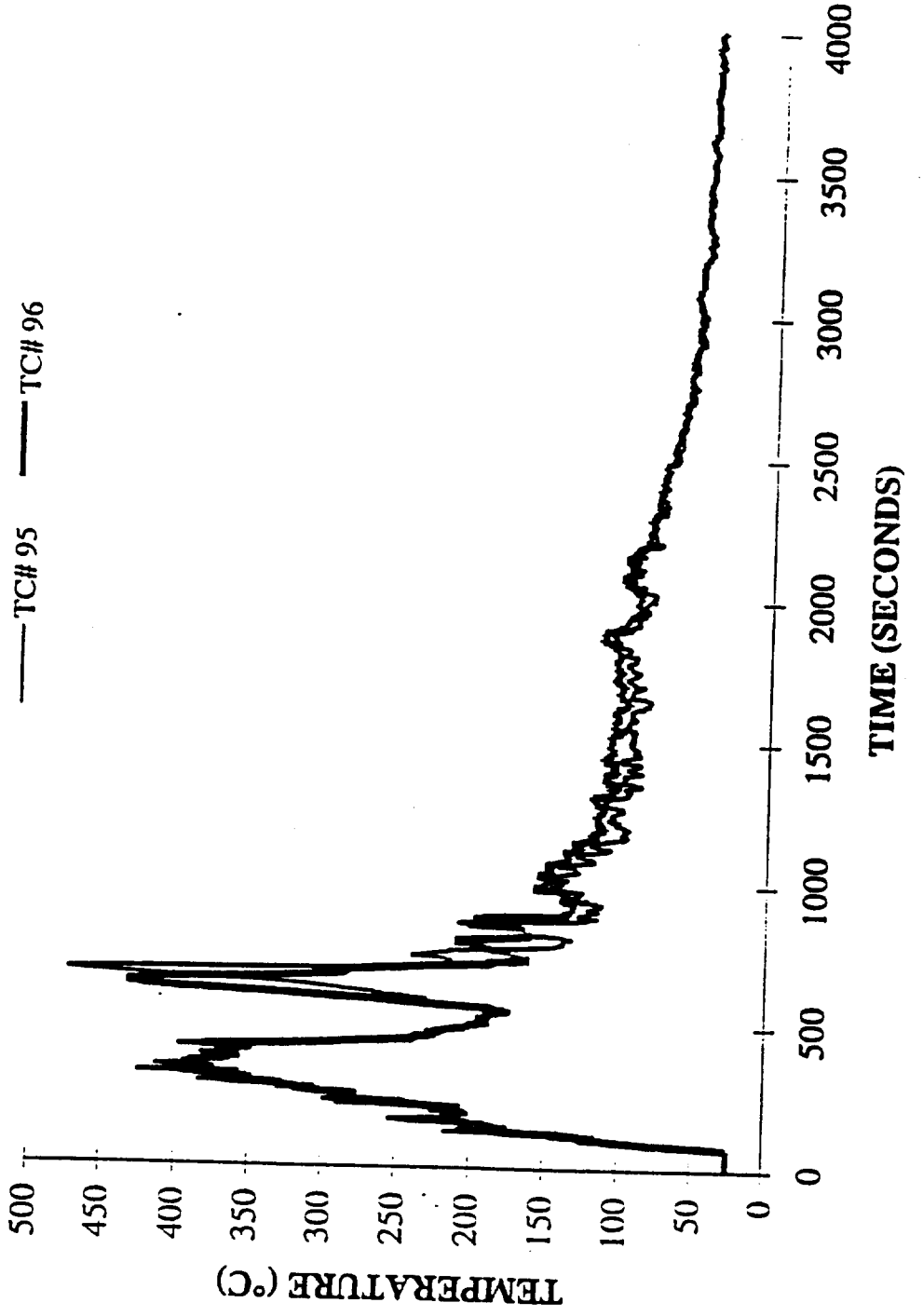
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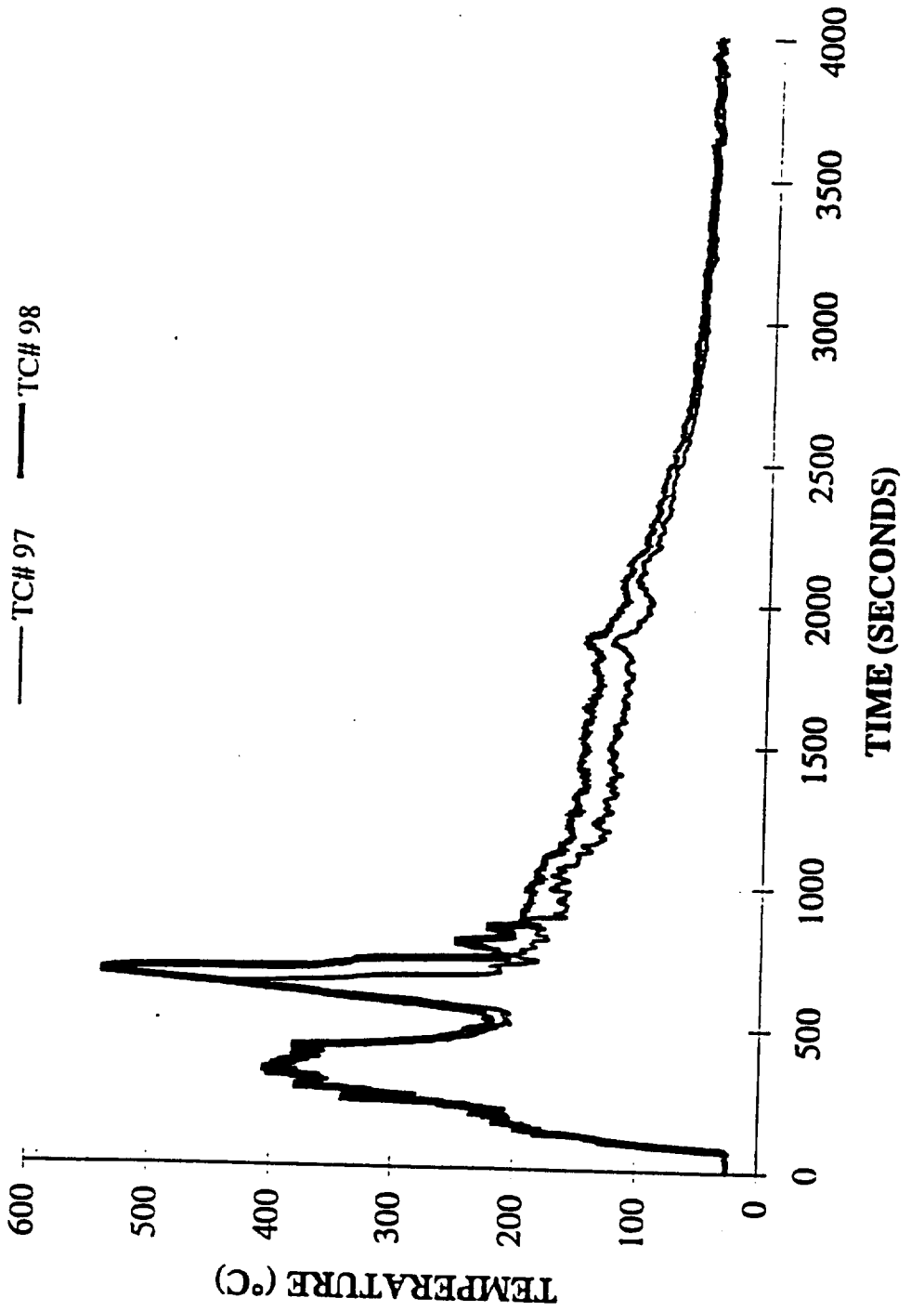
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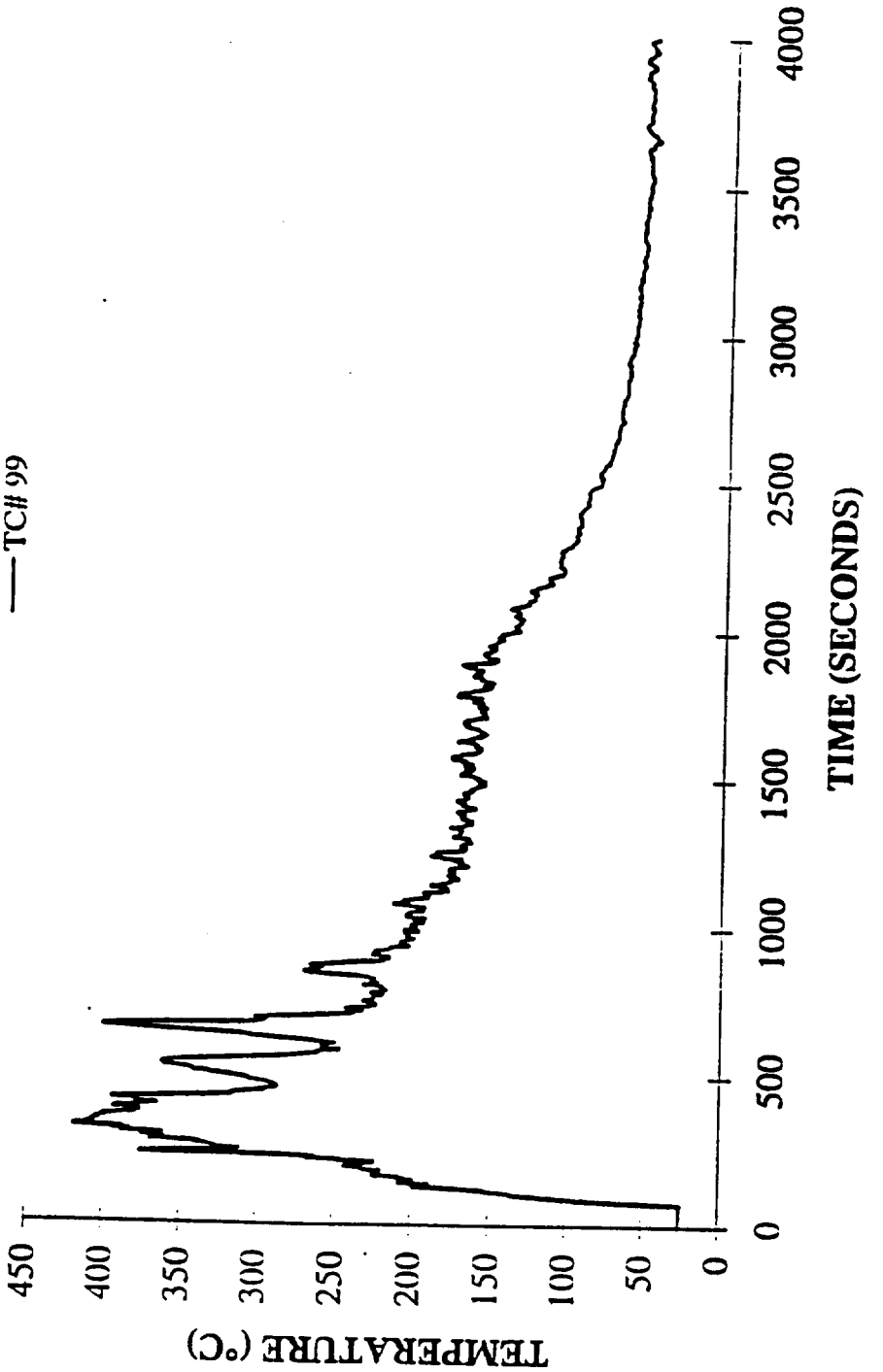
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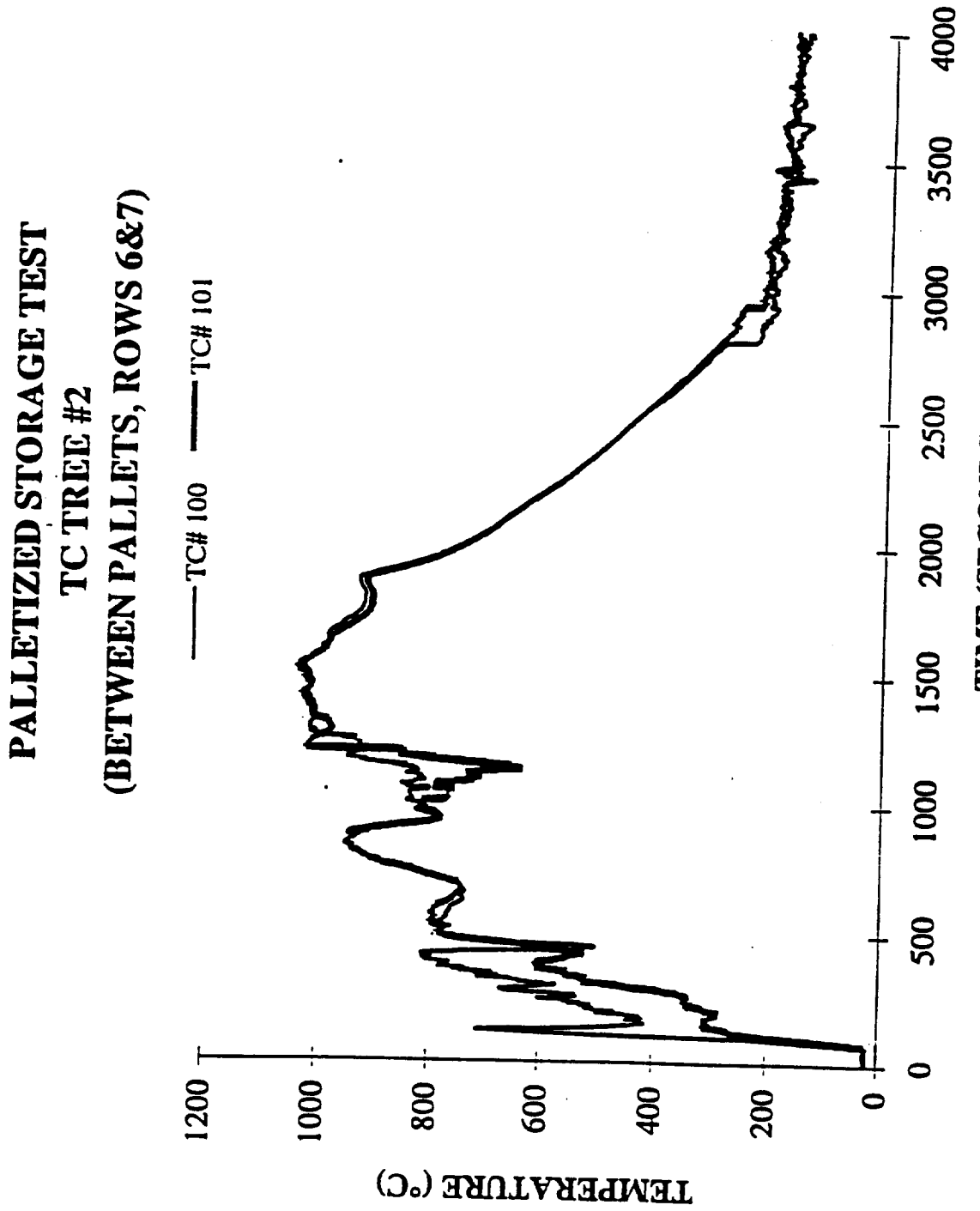
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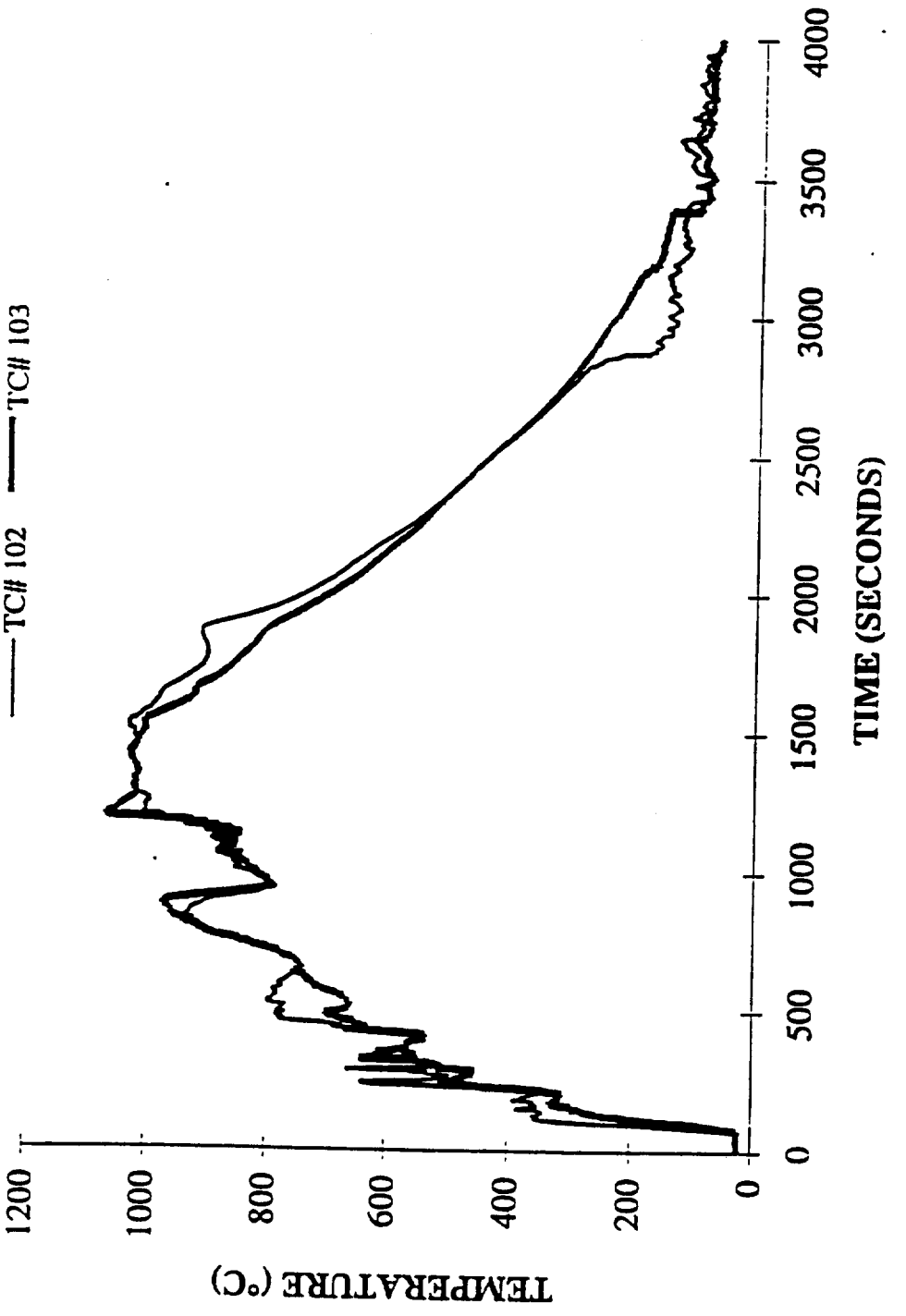
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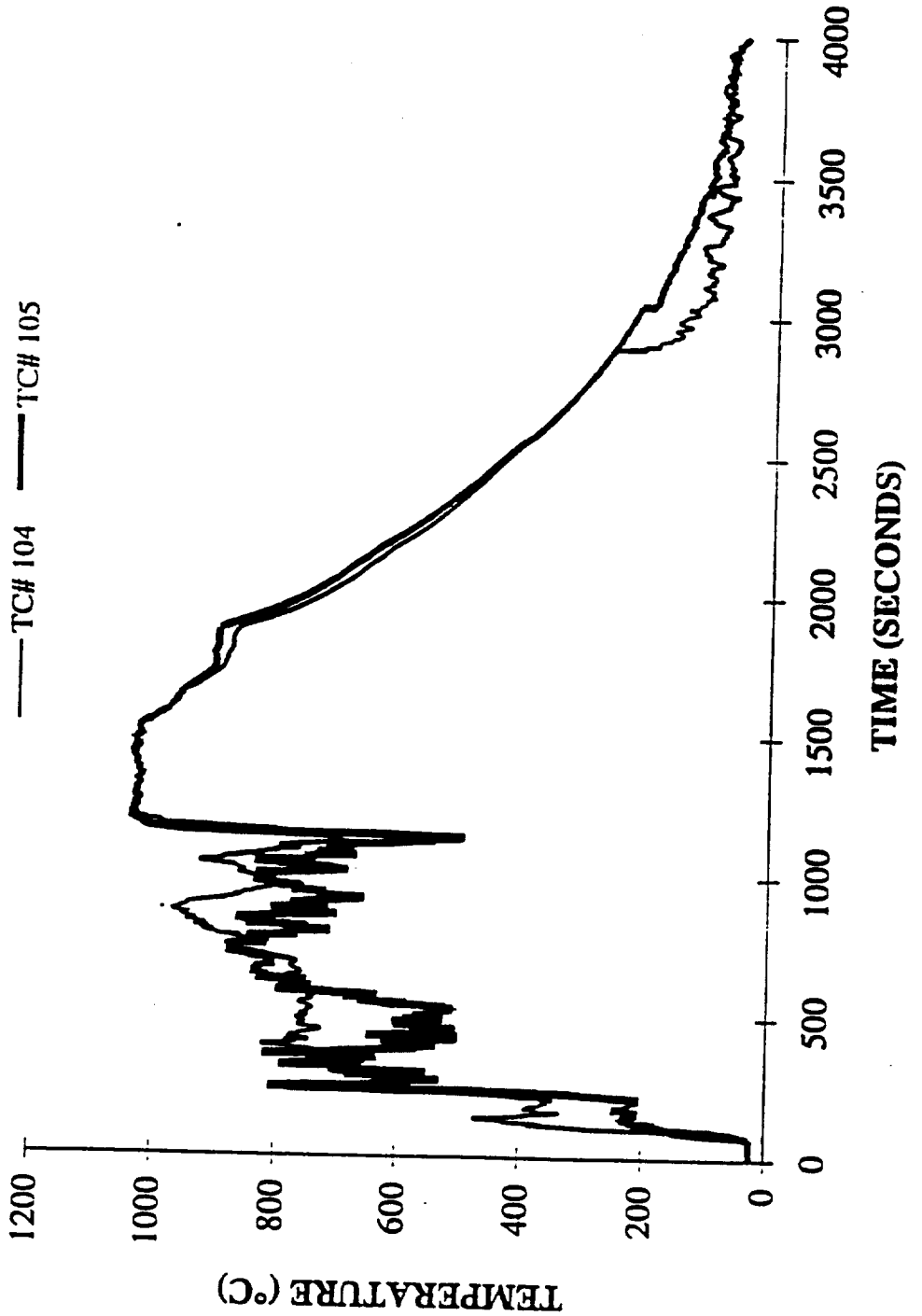
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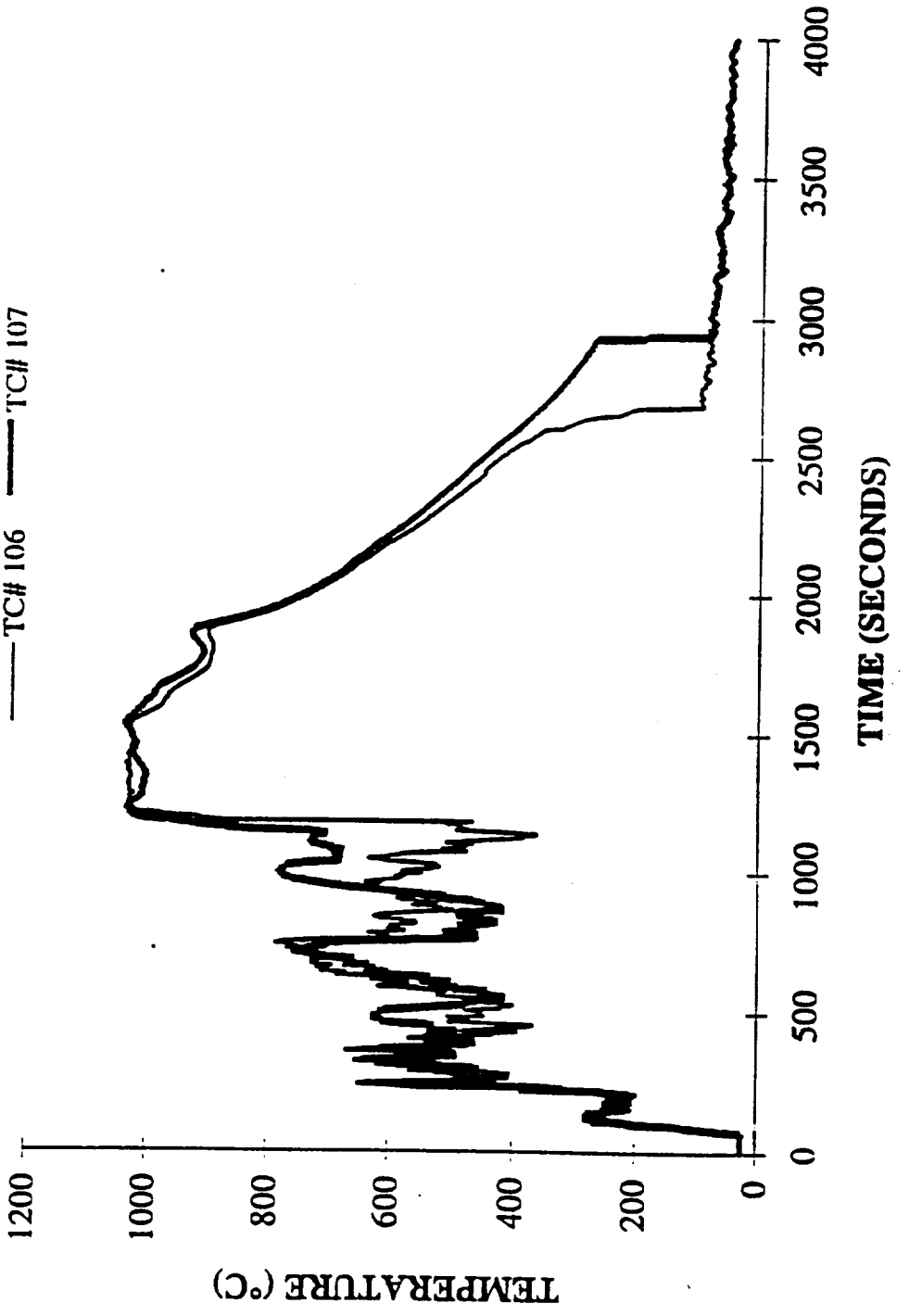
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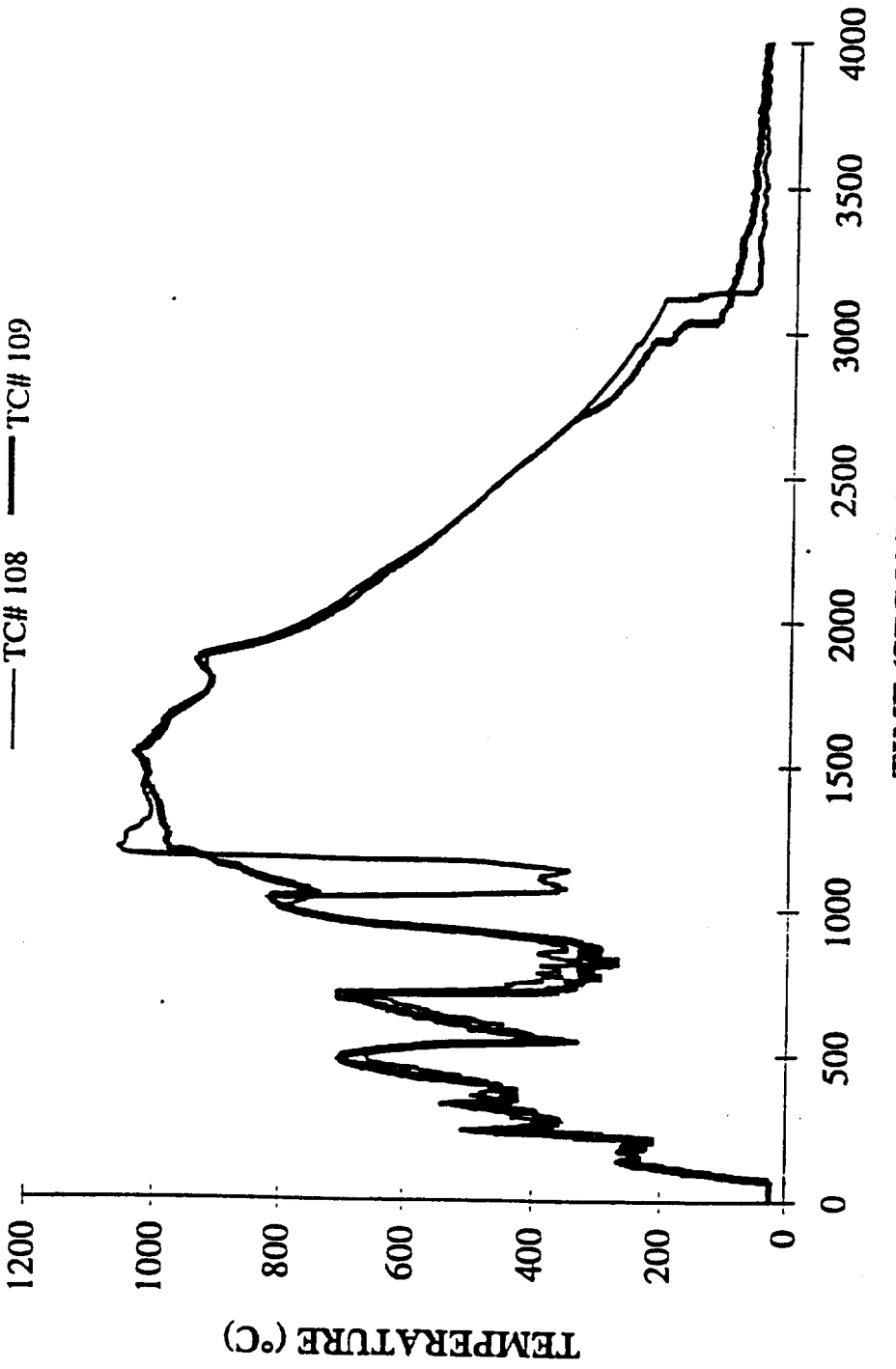
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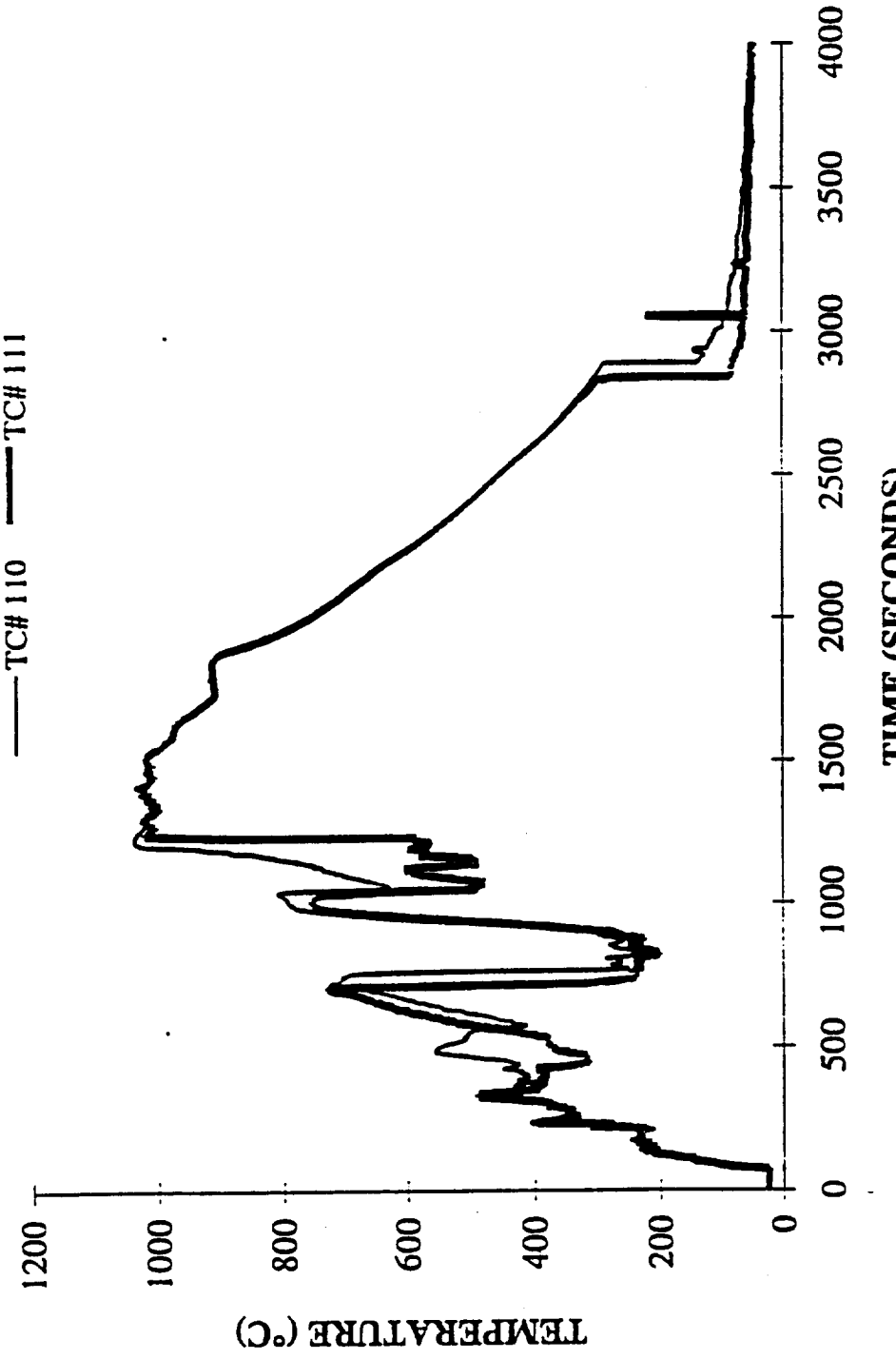
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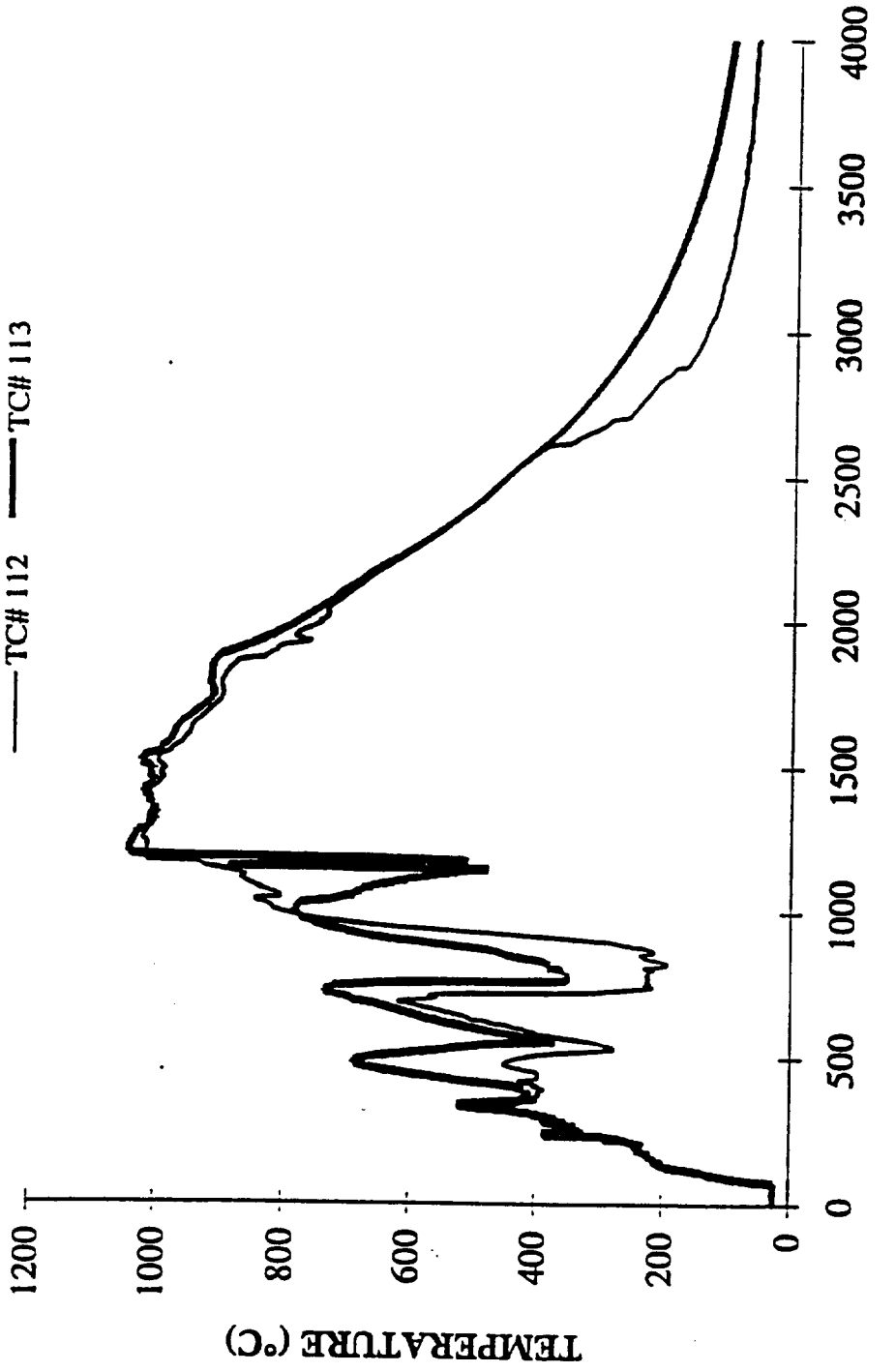
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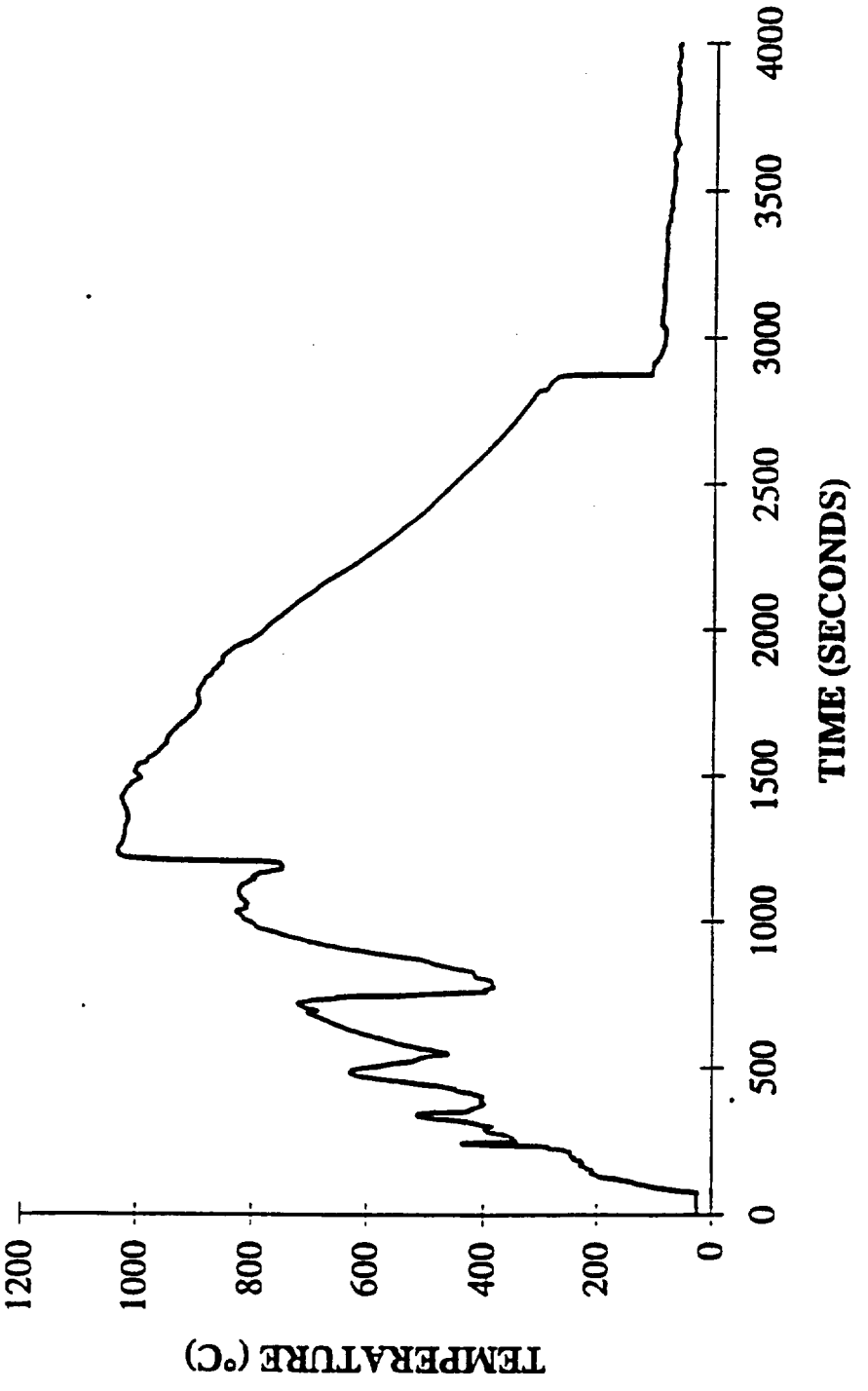
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DATE: 6 JUNE 1995
TEST ID: 157LR7.DAT



CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR7.DAT



CLIENT: LATA
PROJECT NO.: SwRI 01-7106
DATE: 6 JUNE 1995
TEST ID: 157LR7.DAT



Blank

Appendix F

Palletized Storage Drum Data Sheets

Blank

Palletized Storage Drum Data Sheet

Drum No. C411

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.1
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

(FILL, T-250)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0411 176.0 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 somewhat compressed

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
~~Pressure~~ (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
slightly melted to wall 12" left of seam

video 98
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0421

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial MP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial MP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial MP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.3

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

#PALL-1231
~~Rack Storage~~ Drum Data Sheet

Drum No. 0421 176.2 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 24" compressed + hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
barely melted 19" at of seam

Photo taken: X Yes _____ No
VIDEO 97

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0431

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial RP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial RP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial RP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

FALL 1731
~~Rack Storage~~ Drum Data Sheet

Drum No. 0431 175.7 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 7"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern:
NONE except 8" spot near rim centered 28" left of seam

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
at burn spot - melting of plastic and surface charring of material against wall

Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 10441

Description (Check):
_____ Standard load
_____ Instrumented for Pressure
_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.1
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PFALL-1231
~~Rack Storage~~ Drum Data Sheet

Drum No. 0441 176.1

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 somewhat compressed

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
some melting at seam — ~10" span

Photo taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0451

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

(FALL 1781)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0451 176.0 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 slightly compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
NO melting
NO char

Photo taken: X Yes _____ No
~~Photo~~ 1 DEC 125

Comments:

Palletized Storage Drum Data Sheet

Drum No. 04601

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial DF

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial DF

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial DF

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

#FILLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0461 176.216.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 52° compressed thard.

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
no melting
no char

VDE0125
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0471

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

FULL, TEST)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0471 175.5 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 slightly compressed

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
no char
no melting

VIDEO 137
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

No. 0481

ription (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	—	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

n Filled: Date 5-15-95 Initial AP

g bolt placed opposite drum seam in down position: Date 5-15-95 Initial AP

sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

k tested: N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

-test weight (lb) 176.2 Target weight ~ 175.6 lb

t-test weight (lb) _____

Loss = _____

Palletized Storage Drum Data Sheet

Drum No. 0511

Description (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

PFLL2, 7/23
~~Rack Storage~~ Drum Data Sheet

Drum No. 0511 175.8 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 37"

Contents expelled: ____ Yes X No

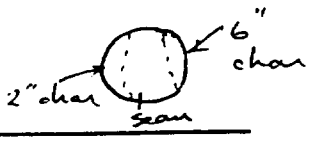
Seal failure: ____ Yes X Not visible

Burn pattern:
29" seam to left

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
~~Pressure~~ (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:



~~Photo~~ Video 99 taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0521(P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PUREX
~~Rack Storage~~ Drum Data Sheet

Drum No. 0521 191.1 lb. H_2O

Post-test Assessment

Position: _____ original: _____ tipped; _____ toppled

Lid on drum: _____ Yes X No stuck to steel pallet above

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
26" seam to left

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
10" of charred contents remaining

Video ~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0531

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.4

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PUREX
~~Rack Storage~~ Drum Data Sheet

Drum No. 0531 173.5 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No top bulged

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: X Yes ____ Not visible appears to be a crack b/w lid & ring at bulge

Burn pattern:
27" at mid ht.



Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
Top charred ~ 4-5" char all around

Photo taken: X Yes ____ No
~~Photo~~ Video #2

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0541(P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.3
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

~~Rack Storage~~ Drum Data Sheet

Drum No. 0541 (P) 175.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 48"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern:
19" at mid Ht.
lid burned

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
Top is charred
4" char all around

~~Photo~~ Video taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0551

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.0 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

~~Rack Storage~~ Drum Data Sheet

Drum No. 0551 175.9 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: x Yes _____ No

Gasket missing (cm) 19"

Contents expelled: _____ Yes x No

Seal failure: _____ Yes x Not visible



Burn pattern: 10" mid ht.

Photo taken: _____ Yes + No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____



Interior assessment: 4" char 28" span centered on burn area

Video 127
Photo taken: x Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. C5Ce1

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.6
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

~~Rack Storage~~ Drum Data Sheet

Drum No. 0561 175.5 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 65" compressed charred

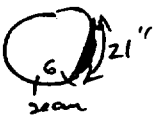
Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____



Interior assessment:
21" span ~2" char
top material NOT charred

Photo taken: X Yes ____ No
VIDEO 126

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0571

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.2
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PAILE (1/30)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0571 176.2 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 slightly hard & compressed 19"

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
melted to wall 14" span about seam
no char

VIDEO 190
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0581

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.2

Post-test weight (lb) _____

Loss = _____

Target weight ~ 175.6 lb

PALLET TEST
~~Rack Storage~~ Drum Data Sheet

Drum No. 0581 176.2 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 slightly compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
plastic slightly melted 16" Rt of seam

VIDEO 139
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. CC11(P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A ✓	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.8 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PUREX (T-151)
~~Rock Storage~~ Drum Data Sheet

Drum No. 0611 171.5 16.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No - 1/4 x 22" jp

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
16" top of drum to top of char

VIDEO 39
Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0621

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.2
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PRELIL-1281)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0621 169.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible top bulged difficult to see crack - 1/4" x 4" space b/w lid + ring

Burn pattern: all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 18" top of drum to top of char

Photo taken: X Yes _____ No
VIDEO 4C

Comments:

Palletized Storage Drum Data Sheet

Drum No. CG31(P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.7

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

FALL-1(B)
~~Rock Storage~~ Drum Data Sheet

Drum No. C631(P) 164.7 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: _____ Yes X No out of ring + resting of drum

Gasket missing (cm) all ~1/3 was white residue

Contents expelled: _____ Yes _____ No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
14" top of drum to top of char

Photo taken: X Yes _____ No
video 3

Comments:

Palletized Storage Drum Data Sheet

Drum No. C2041 (P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.0
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

~~Rack Storage~~ Drum Data Sheet

Drum No. 0641 (P 171.9

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No bulge ~ (1/3 - 1/4") x 3" gap

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: Y Yes _____ Not visible



Burn pattern:
21" at mid lit. also

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
13" top of drum to top of char

Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. Ae51

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.2
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

~~Rack Storage~~ Drum Data Sheet

Drum No. 0651 175.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ring + bolt loose lid not loose

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
5" seam to left + around rim

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
8" top + top of char

Photo taken: X Yes _____ No
video 141

Comments:

Palletized Storage Drum Data Sheet

Drum No. C1e1

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓ ✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.7 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

FALL 1994
~~Rack Storage~~ Drum Data Sheet

Drum No. 0661 175.0

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No lid rocks

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
- 25" Rt of seam appears flames impinging on bottom third
- around rim

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
7" top to top of char
-4-5" char all around

VIDEO 143
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0671

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.2 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(FALL, 1995)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0671 175.9 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none except around rim

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred ~ ~2" all around

Video: 21
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. Q681

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.1

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

FILL (TRU)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0681 176.3 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No ring & lid loose

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none except at rim

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
Top charred, char 3-8" all around ½" at seam, 3" at bolt side.

VIDEO 129
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0711 (P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PFALL (TRU)
~~Rock Storage~~ Drum Data Sheet

Drum No. 0711 (P) 170.C lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No 1/4" x 4" gap

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
15" Top of drum to top of char

Photo taken: X Yes _____ No
VIDEO 37

Comments:

Palletized Storage Drum Data Sheet

Drum No. C721(P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

PRELIMINARY
~~Rack Storage~~ Drum Data Sheet

Drum No. 0721(P) 109.3 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No lid bulged

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
17" top of drum to top of char

Photo taken: X Yes _____ No
VIDEO 28

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0731

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.5 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

(FALL 1994)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0731 170.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No slightly bulged in center

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern:
29" at mid ht.

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~, or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
15" top of drum to top of liner

Video 27
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0741 (P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FILLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0741 (P) 171.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern: 19" around lit centered on bolt

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: ~10" top of drum to top of liner

VIDEO 32
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. C751

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.7
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FALLFIELD
~~Rack Storage~~ Drum Data Sheet

Drum No. 0751 174216.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No lid loose, ring is not (i.e. doesn't rotate) (i.e. rocks)

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
around rim

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
8" top to top of char

VIDEO 142
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 07661

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A ✓
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) ____ Time (min) 0
- Pressure (psig) ____ Time (min) 5
- Date ____ Initial ____

Pre-test weight (lb) 177.4 Target weight ~ 175.6 lb

Post-test weight (lb) ____

Loss = ____

PILLTEX
~~Rack Storage~~ Drum Data Sheet

Drum No. 0761 176.0 16.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes ____ No lid & ring loose (rotate freely)

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
around rim

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
7" Top to top of char
~6" char all around

VIDEC 44
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0771

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.6 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PFLL-TRU
~~Rack Storage~~ Drum Data Sheet

Drum No. 0771 175.4 lb.

Post-test Assessment

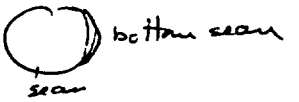
Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No lid & ring loose

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible



Burn pattern: mainly around rim and some on bottom seam

Photo taken: ____ Yes ~~X~~ No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment: Top is charred up to ~6" char all around

VIDEO 122
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0781

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.2
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

(FULL TEST)
~~Rock Storage~~ Drum Data Sheet

Drum No. 0781 176.9 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ~~not ring bolt~~

Gasket missing (cm) 52"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none except around rim

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred, char 4-5" all around

~~Photo~~ VIDEO 123 taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 3811(P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-16-95 Initial P.S.

Ring bolt placed opposite drum seam and in down position: Date 5-16-95 Initial P.S.

Lid sealed and torqued to 40 ft/lb: Date 5-16-95 Initial P.S.

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.9 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PFTL-7(23)
~~Rock Storage~~ Drum Data Sheet

Drum No. 0811 wt. = 170.9

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ~ 1" x ~23" gap

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern: 13" at mid ht ~~1"-to-1~~ centered 12" left of seam somewhat all around.

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 15" from top of drum to top of charred contents

Video 2
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0821

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-16-95 Initial R.S.

Ring bolt placed opposite drum seam and in down position: Date 5-16-95 Initial R.S.

Lid sealed and torqued to 40 ft/lb: Date 5-16-95 Initial R.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

FALL (FY)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0821 170.216

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No 10" x ½" gap starting 10" left of seam

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
27" at mid ht.

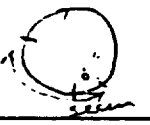


Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
12" char top to drum top
~9" inte central all around

Photo taken: X Yes _____ No
VIDEO 4

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0831 (P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-16-95 Initial P.S.

Ring bolt placed opposite drum seam and in down position: Date 5-16-95 Initial PS

Lid sealed and torqued to 40 ft/lb: Date 5-16-95 Initial P.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.3 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

PALLETIZED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0531 176.9 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) ____ all but 10"

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible



Burn pattern:
17"

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
Top partially charred - 5"

VIDEO 51
Photo taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0841

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-16-95 Initial P.S.

Ring bolt placed opposite drum seam and in down position: Date 5-16-95 Initial P.S.

Lid sealed and torqued to 40 ft/lb: Date 5-16-95 Initial P.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.6 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

FAILED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0841 174.9 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern:
14" at mid ht.

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred
~9" charred into center - 6" below top

Video 49
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. ORS1

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-16-95 Initial P.S

Ring bolt placed opposite drum seam and in down position: Date 5-16-95 Initial P.S.

Lid sealed and torqued to 40 ft/lb: Date 5-16-95 Initial P.S

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.4 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

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Accession #: D195061641

Document #: SD-WM-TRP-246

Title/Desc:
SOLID WASTE DRUM ARRAY FIRE PERFORMANCE [SEC 6 OF 7]

Pages: 151

THIS DOCUMENT WAS TOO LARGE TO SCAN AS A SINGLE DOCUMENT. IT REQUIRED BREAKING INTO SMALLER SECTIONS.

DOCUMENT NUMBER: SD-WM-TRP-246

SECTION: 6 OF 7

TITLE: Solid Waste Drum Array Fire Performance

AUTHOR: Louie RL

RECIPIENT:

DATE: 11/07/95

KEYWORDS:

REFERENCES: EDT-612232

Blank

FALL 1994
~~Rack Storage~~ Drum Data Sheet

Drum No. 0551 175.8 16.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No lid & ring loose

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
only around top rim

Photo taken: ____ Yes X No

Leak tested: (N)A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
top charred ~5" all around

VIDEO 59
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. CBLC1

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-16-95 Initial P.A.

Ring bolt placed opposite drum seam and in down position: Date 5-16-95 Initial P.A.

Lid sealed and torqued to 40 ft/lb: Date 5-16-95 Initial P.A.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.0
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PULLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0861 177.4 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 27"

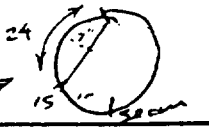
Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top material charred as shown → 

vrec 57
Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0871

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-16-95 Initial P.S.

Ring bolt placed opposite drum seam and in down position: Date 5-16-95 Initial P.S.

Lid sealed and torqued to 40 ft/lb: Date 5-16-95 Initial P.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.5 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

PFALL 7/25)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0871 177.4 lb,

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 ~10-15" compressed+hard

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
barely melted plastic at seam

Video ST
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0881

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-16-95 Initial P.S.

Ring bolt placed opposite drum seam and in down position: Date 5-16-95 Initial P.S.

Lid sealed and torqued to 40 ft/lb: Date 5-16-95 Initial P.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.8
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

(PFLL-TRU)
~~Rack Storage~~ Drum Data Sheet

Drum No. 08851 176.8 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 somewhat compressed

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
no melting
no char

VIDEO #5
Photo taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. C911

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-17-95 Initial P.S.

Ring bolt placed opposite drum seam and in down position: Date 5-17-95 Initial P.S.

Lid sealed and torqued to 40 ft/lb: Date 5-17-95 Initial P.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.1 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

PULLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0911 wt. = 175.5 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
11" at mid lt centered 17" left of seam
also 10" wide x 12' spot below bolt

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
Top charred
2-5" charred all around

Video 1
~~Photo~~ taken: ✓ Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. C921

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-17-95 Initial P.S.

Ring bolt placed opposite drum seam and in down position: Date 5-17-95 Initial P.S.

Lid sealed and torqued to 40 ft/lb: Date 5-17-95 Initial P.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.0 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

FALL FY 95
~~Rack Storage~~ Drum Data Sheet

Drum No. 0921 175.7 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern: at top edge and ~12" x 12" spot below bolt

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: Top charred, 5-7" char all around

VIDEO 3
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. C931

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-17-95 Initial P.L.

Ring bolt placed opposite drum seam and in down position: Date 5-17-95 Initial P.L.

Lid sealed and torqued to 40 ft/lb: Date 5-17-95 Initial P.L.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.0
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FAILED
~~Rack Storage~~ Drum Data Sheet

Drum No. C931 175.2 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none except around rim

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred - 5" char all around

Video 52
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. C941

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-17-95 Initial P.L

Ring bolt placed opposite drum seam and in down position: Date 5-17-95 Initial P.L

Lid sealed and torqued to 40 ft/lb: Date 5-17-95 Initial P.L

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.0
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

~~Rack Storage~~ Drum Data Sheet

Drum No. 0941 175.7 16

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No Ring + Lid Loose

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - some flaming around the rim

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
Top charred 2-5" char

Video SC
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0951

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-17-95 Initial P.S.

Ring bolt placed opposite drum seam and in down position: Date 5-17-95 Initial P.S.

Lid sealed and torqued to 40 ft/lb: Date 5-17-95 Initial P.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

~~Rack Storage~~ Drum Data Sheet

Drum No. 0951 176.4

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ring + lid loose

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none - some around rim

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
top charred, 3-5" of char depth

VIDEO EC
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 07601

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-17-95 Initial P.S.

Ring bolt placed opposite drum seam and in down position: Date 5-17-95 Initial P.S.

Lid sealed and torqued to 40 ft/lb: Date 5-17-95 Initial P.S.

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.7 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

~~Rack Storage~~ Drum Data Sheet

Drum No. 0961 177.8 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 27" compressed & hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
plastic melted to wall ~ 20", below bolt
no char

~~Photo~~ video ss taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. C971

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-17-95 Initial P.S.

Ring bolt placed opposite drum seam and in down position: Date 5-17-95 Initial P.S.

Lid sealed and torqued to 40 ft/lb: Date 5-17-95 Initial P.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.0
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PFTF-TRU
~~Rock Storage~~ Drum Data Sheet

Drum No. 0971 177.1 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 compressed & hard all around

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
NO melting
NO char

VIDEO ONLY
~~Photo~~ taken: X Yes ____ No

Comments:

Drum No. 0981

Pre-test Data Sheet Missing

Loading was videotaped, and pre-test weight was 176.3 lb.

PFLL 7/23/)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0981 177.4 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 like new

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
no melting
no char

V.1060 86
~~Photo~~ taken: X Yes _____ No

Comments:
like new

Palletized Storage Drum Data Sheet

Drum No. 0412

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.7
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PACKAGED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0412 176.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed + band all around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
no melting melting
no char

VIDEO 93
~~Photo~~ taken: Y Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. C422

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.1
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

BALLAST (B)
~~Rock Storage~~ Drum Data Sheet

Drum No. 0422 175.9 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 13"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
at rim 15" Rt of seam – small spot otherwise none

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~2" char centered at bung

Photo taken: X Yes _____ No
Video 95

Comments:

Palletized Storage Drum Data Sheet

Drum No. C432

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 174.4 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

~~Rack Storage~~ Drum Data Sheet

Drum No. 0432 176.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 ~1/2" dark brown

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~1" melting & surface charring, 15" span about the bolt

~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0442

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

#Fill (T251) ~~Rack Storage~~ Drum Data Sheet

Drum No. 0442 176 2 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 46" compressed gland

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~1" deep melting at seam ~12" span

Photo taken: X Yes _____ No
videocs

Comments:

Palletized Storage Drum Data Sheet

Drum No. C452

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.0 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PILLOW
~~Rack Storage~~ Drum Data Sheet

Drum No. ~~05+0452~~ 175.9

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 slightly compressed

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
no char
no melting

VIDEO 119
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0462

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.3 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

FILLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0462 176.2 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 slightly compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
no melting
no char

U1DC0118
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0172

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.6 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

FAILED TEST
~~Rack Storage~~ Drum Data Sheet

Drum No. 0472 176.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
no char
no melting

Photo taken: X Yes _____ No
VIDEO 133

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0482

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-15-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-15-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-15-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.7
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FALLED TEST
~~Rack Storage~~ Drum Data Sheet

Drum No. 0482 176.6 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 slightly compressed

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none

Photo taken: ____ Yes XO No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
NO char
no melting

Photo taken: VIDEO 134 XO Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0512

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.2

Post-test weight (lb) _____

Loss = _____

Target weight ~ 175.6 lb

?FALL, 1/23)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0512 ~~+76~~ 177.016.

Post-test Assessment

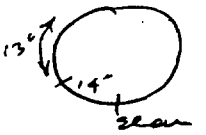
Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 22"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern:
13" at mid ht

Photo taken: ~~X~~ Yes ~~X~~ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
9" top to top (top contents not charred except for outer edges.) ~5" char all around.

Photo taken: video 14 X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0522

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) ____ Time (min) 0
- Pressure (psig) ____ Time (min) 5
- Date ____ Initial ____

Pre-test weight (lb) 176.6

Post-test weight (lb) ____

Loss = ____

Target weight ~ 175.6 lb

PILLARED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0522 173.9 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No top + bottom slightly bulged

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible



Burn pattern:
~16" at mid ht.

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
12" top to top of char

Photo taken: X Yes ____ No
video 96

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0532

Description (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:

N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 177.8 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

Retrieval (T-151)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0532 (P) 173.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No top bulged

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible bottom slightly bulged

Burn pattern:
22" at mid ht. seam to left

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
15" top to top

Photo taken: X Yes _____ No
0100: 108

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0542

Description (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:

N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 175.4

Post-test weight (lb) _____

Loss = _____

Target weight – 175.6 lb

PULLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0542 173.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 61"

Contents expelled: _____ Yes X No

Seal failure: ? Yes ~~X~~ Not visible bottom & top bulged bottom seam appears split

Burn pattern: 24" seam to right

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 10" top to top of chair

Photo taken: X Yes _____ No
VIDEO 107

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0552

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.3

Target weight – 175.6 lb

Post-test weight (lb) _____

Loss = _____

FULL (TED)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0552 177.1 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 20"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
10" at mid ht. seam to left

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
5" char on burn area, opposite side surface char & melting

VIDEO 120
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0562

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	[illegible]	✓
1/3 of the 10-mil plastic	✓	[illegible]	✓
1/3 of the bond paper	✓	[illegible]	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.1

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

FAILED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0562 177.0

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed & hard all around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
1" char seam to lt 28"

Photo taken: X Yes _____ No
U.Rec 117

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0572

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.4
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FAILED
~~Rock Storage~~ Drum Data Sheet

Drum No. 0572 176.4 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed & hard all around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____



Interior assessment:
plastic melted 2" span

VIDEO 136
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0582

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial RK

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.7
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PALLET (S)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0582 176.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 slightly compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
slight melting to wall 17" RT of seam

VIDEO 135
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0612

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.3 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

FAILED
~~Rack Storage~~ Drum Data Sheet

Drum No. 2612 171.8 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No bulged

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
all around a little paint ~12" seam to left

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
18" top of drum to top of char

VIDEO 2a
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0622

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 178.2
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FILLER (T23)
~~Rock Storage~~ Drum Data Sheet

Drum No. 0622 162.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: _____ Yes X No it was out of the ring + resting on the top of the drum

Gasket missing (cm) all ~ 1/4 was white powder residue

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
20" top of drum to top of char

Photo taken: VIDEO IS X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0632

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.6
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FALLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0632 (P)

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No 1/4" x 6" gap lid + ring loose

Gasket missing (cm) _____

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern: all around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 20" Top of drum to top of shaft

VIDEO 48
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0642

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.6
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PILLTIES)
~~Rock Storage~~ Drum Data Sheet

Drum No. 0642 (80.C 16)

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No 1½ x 17 gy

Gasket missing (cm) _____

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~24" Top of drum to top of char

Photo taken: VIDEO 46 X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0652

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.3

Post-test weight (lb) _____

Loss = _____

Target weight ~ 175.6 lb

FALL 1781
~~Rack Storage~~ Drum Data Sheet

Drum No. 0652 169.216.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible top/bottom bulged

Burn pattern:
35" at mid ht seam to left

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
17" top of drum to top of char

VIDEO 73
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0662

Description (Check):

✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:

N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 177.6 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(PILLS-1231) ~~Rock Storage~~ Drum Data Sheet

Drum No. 0662 171.2 16

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern: mainly around top + bottom rim also 3" wide top to bottom

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 15" top of char to top of drum

Photo taken: (VIDEO 75) X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0672

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.6 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

#FILLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0672 171.3 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No top slightly bulged

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible bottom bulged.

Burn pattern: seam to left 8 x 12" spot at top, small spot at bottom
same location & size

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 14" top to top

Photo taken: V Yes _____ No
since 80

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0682

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.4
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PAIL-7130
~~Rack Storage~~ Drum Data Sheet

Drum No. 0682 174.5 lb.

Post-test Assessment

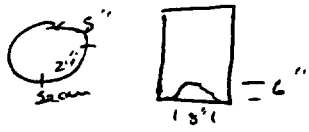
Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ring + lid loose

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern: around rim + →

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
12" top of drum to top of char

Video??
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0712

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.1
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FALL 1231
~~Rack Storage~~ Drum Data Sheet

Drum No. 0712 165.4 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible lid bulged barely see 1/8" crack ~6" long

Burn pattern: all around

Photo taken: _____ Yes C No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
~~Pressure (psig)~~ _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 19" top of drum to top of char

VIDEO 17
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0722 (P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.9

Post-test weight (lb) _____

Loss = _____

Target weight ~ 175.6 lb

PAUL, 7/28/0
~~Rack Storage~~ Drum Data Sheet

Drum No. 07722(P) 163.1 lb. Press tap fitting + = ~0.2 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No bulged

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern: all around

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment: 21" Top of drum to top of char

VIDEO 19
~~Photo~~ taken: X Yes ____ No

Comments: bottom seam appears ruptured

Palletized Storage Drum Data Sheet

Drum No. 0732

Description (Check):
✓ Standard load
_____ Instrumented for Pressure
_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.1
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

~~Rack Storage~~ DRILLED Drum Data Sheet

Drum No. 0732 16.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible top & bottom bulged

Burn pattern: all around

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 18" Top of drum to top of char

Photo taken: X Yes _____ No V.DCC 44

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0742

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.9
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PFLL-TRU
~~Rack Storage~~ Drum Data Sheet

Drum No. 0742 166.0 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No some bulging lid + ring at base

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ? Yes ____ X Not visible bottom bulged, seam may be broken ?

Burn pattern:
all but ~16" seam to right

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
21" top of drum to top of char

VIDEO 47
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0752

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial RK

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.5

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

SAMPLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0752 169.9 lb.

Post-test Assessment

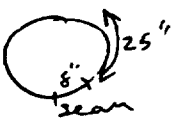
Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No ring & lid loose

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible



Burn pattern:
25" at mid ht.

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
17" top of drum to top of char

Photo taken: X Yes ____ No
VRDCC 76

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0762

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.1

Post-test weight (lb) _____

Loss = _____

Target weight ~ 175.6 lb

(FILLED)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0762 172.115.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No lid + ring loose

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible



Burn pattern:
21" left of seam starts several spots
~15" wide

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
15" Top of drum to top of char

VIDEO 74
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0772

Description (Check):
✓ Standard load
_____ Instrumented for Pressure
_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

~~Rack Storage~~ Drum Data Sheet

Drum No. 0772 173.9 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: x Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes x No

Seal failure: _____ Yes x Not visible



Burn pattern: around rim, 10" by 6" high spot at bottom

Photo taken: _____ Yes x No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
15 Top to Top

Video 79
~~Photo~~ taken: x Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0782

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 177.7
Post-test weight (lb) ____
Loss = ____

Target weight ~ 175.6 lb

PALLETIZED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0782 175.9 lb.

Post-test Assessment

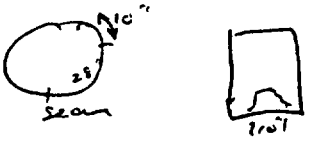
Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No ring + lid loose

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible



Burn pattern:
10" x 10" spot + around rim

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
7" top to top of char
~5" char around

Video 78
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0812

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5·5·95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5·5·95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
- N/A or Pressure (psig) ____ Time (min) 0
- Pressure (psig) ____ Time (min) 5
- Date ____ Initial ____

Pre-test weight (lb) 176.9 Target weight ~ 175.6 lb

Post-test weight (lb) ____

Loss = ____

PAUL TEST
~~Rack Storage~~ Drum Data Sheet

Drum No. 0812 183.5 w/ H_2O

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No busted off after drum was toppled ~1 x 15" gap

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern: all around

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 23" top of drum to top of charred contents

Video 12
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0822

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5·5·95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

FALLTIED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0822 164.0 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ½ x 11" gap centered 19" Left of seam

Gasket missing (cm) _____

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
47" seam to left

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
19" top of drum to top of charred contents

Photo taken: VIDEO II X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0832

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.9 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(PALLETIZED)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0832 175.1 lbs.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
1A" seam to right

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
12" top of drum to top of char

Photo taken: V1000 29
X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0842

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.8

Post-test weight (lb) _____

Loss = _____

Target weight ~ 175.6 lb

#BILLFISH Rock Storage Drum Data Sheet

Drum No. 0342 171 0 16.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern:
18" at mid ht.

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
18" top of drum to top of char

Photo taken: X Yes _____ No
VIDEO 28

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0852

Description (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested: N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 176.6 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(FILLING) ~~Rack Storage~~ Drum Data Sheet

Drum No. 0852 170.6

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ring & lid loose

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern: around rim & ~12" up around bottom

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 17" top to top of charge

Video 53
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0862

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

PILLTECH
~~Rack Storage~~ Drum Data Sheet

Drum No. 0862 175.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
None except ~12"×12" spot below bolt

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
8" top of drum to top of char

Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0872

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.4
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PAUL (TED)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0872 177.4 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) ____ 49"

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none except around rim

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
2-5" char (5" on half left of seam)

VIDEO 53
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0882

Description (Check):
- 1 Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial RK

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.2

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PAILLETTES)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0882 177.3 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 39" compressed x-hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
barely melted plastic 17" left of seam
no char

video
~~Photo~~ taken: _____ Yes _____ No

Comments:
like new

Palletized Storage Drum Data Sheet

Drum No. 0912

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.9

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(FILLED)
~~Rock Storage~~ Drum Data Sheet

Drum No. 0912 170.9 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
40" seam to RT

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
14" Top of drum to top of charred contents
up to ~8" into center

V.Dec 16
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0922

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.1

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

FAILED
~~Rack Storage~~ Drum Data Sheet

Drum No. C922 171.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ring + lid rotate freely

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
10" at mid ht start 29" Rt of seam
around lid

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
16" top of drum to top of char

VIDEO IS
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0932

Description (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:

N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 176.0

Post-test weight (lb) _____

Loss = _____

Target weight ~ 175.6 lb

~~Rack Storage~~ Drum Data Sheet

Drum No. 09932

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern: primarily around lid and conical shape from bottom up to center below bolt

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 15" top of drum to top of char

Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0942

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.4
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

(FULL-TIED)
~~Rack Storage~~ Drum Data Sheet

Drum No. C942 172516.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ring + lid rotate freely

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern:
27" at mid ht

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
13" top of drum to top of char

Photo taken: X Yes _____ No (VIDEO 26)

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0952

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.4
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FILLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0952 173.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No ring + lid loose

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
around rim and ~12" up from bottom, bolt side

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
14" top of drum to top of char

Photo taken: X Yes _____ No
video 54

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0962

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.5
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PFALL-1231
~~Rock Storage~~ Drum Data Sheet

Drum No. 0962 175.5 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No lid + ring loose

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern: around rim only ~6" bright spot below bolt

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: top charred - 5-6" all around

~~Photo~~ Video SG taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0972

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.5
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PAILLTEST
~~Rack Storage~~ Drum Data Sheet

Drum No. 0972 176.4 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 24"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
top half of lid centered 20" Rt. of seam
NONE on walls

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
20" Rt. of seam is center of ~3" char
~~top not charred~~ top partially charred

Video 34
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0982

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-12-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-12-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-12-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.2

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

FILLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0982 177216.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 slightly compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
no melting
no char

VIDEO 52
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0413

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.5

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PALLETIZED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0413 177.3 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 Compressed & band all around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
NC melting
NC char

VIDEO 92
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0423

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.0 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

PFALL-1250
~~Rack Storage~~ Drum Data Sheet

Drum No. 0423 176.9

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 36" compressed + hard

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
some melting to wall 19" Rt of seam

VIDEO 39
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0433

Description (Check):
- ___/___ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

(FALL 1251) ~~Rack Storage~~ Drum Data Sheet

Drum No. 0433 175.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed & hard 30"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
slightly melted 22" left of seam

Photo taken: X Yes _____ No
VIDEO 02

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0443

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.8

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(FALL 1 (B))
~~Rack Storage~~ Drum Data Sheet

Drum No. 0493 175.7 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 65" compressed + hard

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
None

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
barely melted below belt

Photo taken: X Yes ____ No
(VIDEO 103)

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0453

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5·5·95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5·95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5·95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.5
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FAILED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0453 176.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed and hard all around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
no char
no melting

Photo taken: X Yes _____ No
V 10 Dec 16

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0463

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

PFLL-TRU
~~Rock Storage~~ Drum Data Sheet

Drum No. 0463 176.7 15.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 somewhat compressed

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
NO melting
no char

VIDEO IS
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0473

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-93 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-93 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-93 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

~~Rack Storage~~ Drum Data Sheet

Drum No. 0473 175.8 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed & held 8"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
none

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
no char
no melting

Video 132
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0483

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

FILLED
~~Rack Storage~~ Drum Data Sheet

Drum No. 0483 176.8 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 compressed + hard all around

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
no char
no melting

VIDEO 129
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0513

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.0 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(FILLED)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0513 ~~176.7~~ 177.0 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) ____21"

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible



Burn pattern:
11" at mid ht

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
3-5" char around

VIDEO 90
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0523

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.2 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PFALL-1250
~~Rock Storage~~ Drum Data Sheet

Drum No. 0523 176 4

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 37"

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible bottom bulged



Burn pattern: 17" t mid ht.

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment: 10" top to top of char

Photo taken: X Yes ____ No
VIDEO 91

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0533

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5·5·95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5·95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5·95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.1
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

(FILLED) ~~Rack Storage~~ Drum Data Sheet

Drum No. 0533 (P) 174.8 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No lid bulged ~1/16 x 2" crack

Gasket missing (cm) _____ 47"

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
22" ~~seen~~ at mid ht. seam to left

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
14" top to top of char

Photo taken: ~~Photo~~ video 01 X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0543

Description (Check): _____ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:

N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 177.0 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PRELIMINARY
~~Rack Storage~~ Drum Data Sheet

Drum No. 0543 176.2 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 39"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible bottom slightly bulged

Burn pattern:
20" at mid ht.

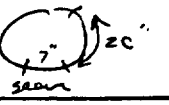


Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
6" top to top
4-6" char all around

Photo taken: X Yes _____ No
VIDEO 104

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0553

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5·5·95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5·5·95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5·5·95 Initial AS

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.4 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

~~Rack Storage~~ Drum Data Sheet

Drum No. 0553 176.1 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 20' centered on burn area

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
5" mid ht. (top to bottom) seam to left

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
5" deep char centered on burn area

Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0563

Description (Check): ___/___ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested: N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 177.2 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PFTF-T-1231
~~Rack Storage~~ Drum Data Sheet

Drum No. 0563 177.1 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 compressed & hard all around, ~8" brown

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
NONE

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
16" span ~6" deep melting & char

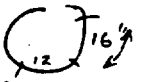


Photo taken: X Yes ____ No
11 Dec 19

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0573

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

*** RMIS View/Print Document Cover Sheet ***

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Accession #: D195061642

Document #: SD-WM-TRP-246

Title/Desc:
SOLID WASTE DRUM ARRAY FIRE PERFORMANCE [SEC 7 OF 7]

Pages: 73

THIS DOCUMENT WAS TOO LARGE TO SCAN AS A SINGLE DOCUMENT. IT REQUIRED BREAKING INTO SMALLER SECTIONS.

DOCUMENT NUMBER: SD-WM-TRP-246

SECTION: 7 OF 7

TITLE: Solid Waste Drum Array Fire Performance

AUTHOR: Louie PL

RECIPIENT:

DATE: 11/07/95

KEYWORDS:

REFERENCES: EDT-612232

Blank

(FALL 1, 1231)
~~Rock Storage~~ Drum Data Sheet

Drum No. 0573 175.8

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 21" compressed and hard

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
melting 19" span about seam

video131
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0583

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5·5·95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5·5·95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5·5·95 Initial AS

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 176.2
Post-test weight (lb) ____
Loss = ____

Target weight ~ 175.6 lb

#FILL-7151
~~Rack Storage~~ Drum Data Sheet

Drum No. 0583 176.1

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 20" compressed and hard

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none

Photo taken: ____ Yes X No

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
slightly melted to wall 11" to Rt of seam

VIDEO 130
~~Photo~~ taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0613

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5·5·95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5·5·95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5·95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.7
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

~~Rack Storage~~ Drum Data Sheet

Drum No. 0617 167.516

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) All

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible bulge at bolt

Burn pattern:
26" at mid lt. starts 12" to left of seam

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~19" Top of drum to Top of charred contents

Photo taken: VIDEO X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0623

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5·5·95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5·95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5·95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.0
Post-test weight (lb) _____
Loss = _____

Target weight – 175.6 lb

PFALL (T/B)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0623 at = 197 9 16.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No 1½" x 15" gap
lid + ring rotate freely

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible



Burn pattern:
35" at mid ht starting

Photo taken: X Yes _____ No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
18" top of drum to top of charred contents

VIDEO &
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0633

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial A.S.

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial A.S.

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial A.S.

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

~~Rack Storage~~ Drum Data Sheet

Drum No. 0633(P) 153.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No 1/4" x 16" gap

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
-21" top of drum to top of liner seam

Video 95
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0643

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5·5·95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5·5·95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5·5·95 Initial AS

Leak tested:
N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Pre-test weight (lb) 177.0
Post-test weight (lb) ____
Loss = ____

Target weight ~ 175.6 lb

~~Rack Storage~~ Drum Data Sheet

Drum No. 0643 159.4

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No 3/8" x 6" gap

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern: all around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 20" Top of drum to Top of char

Photo taken: VIDEO 43 X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0653

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 177.0 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PULLED
~~Rock Storage~~ Drum Data Sheet

Drum No. 0653 164.4

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible top + bottom bulged

Burn pattern:
41" seam to left

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
19" top of drum to top of char

Video 67
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0663

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.7 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

(FILL-7151)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0663 166.7 16.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible top + bottom bulged

Burn pattern:
~~8~~ 14" wide, starts 16" left of seam, other spots at bottom near seam

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
20" top of drum to top of char

VIDEO #70
Photo taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0673

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.9
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

(FALL-1251)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0673 174.5 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 52"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible bottom bulged

Burn pattern:
~ 1.5 ft² spot bottom of drum below bolt - smaller spot below bolt at top

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
13" top of drum to top of char

Video 66
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0683

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 177.0 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

PFLL/TRU
~~Rack Storage~~ Drum Data Sheet

Drum No. 0653 175.216.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 27"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible bottom bulged some



Burn pattern:
12" at mid ht. starts 27' rt. of seam

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
6" char all around
12" top of drum to top of contents (Top contents not charred)

V1000685
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0713

Description (Check):
/ Standard load
_____ Instrumented for Pressure
_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.6
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PRELIMINARY
~~Rack Storage~~ Drum Data Sheet

Drum No. 0713 1641 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No bulge at 12" left of seam and opposite side, no gap visible

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: ~~X~~ Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
21" Top of drum to top of charred contents

VIDEO'S
~~Photo~~ taken: X Yes _____ No

Comments:
~10" of bottom seam is cracked open

Palletized Storage Drum Data Sheet

Drum No. 0723

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-5-95 Initial AS

Ring bolt placed opposite drum seam and in down position: Date 5-5-95 Initial AS

Lid sealed and torqued to 40 ft/lb: Date 5-5-95 Initial AS

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.1 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(ALL, 1-251) ~~Rack Storage~~ Drum Data Sheet

Drum No. 0723 161.2 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No 1/4" x 5" gap centered 17" RT of seam

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern: all around

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 18" top of drum to top of liner

(1 Dec 7) ~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0733

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-4-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-4-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-4-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.4 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

(FALL-1181)
~~Rack Storage~~ Drum Data Sheet

Drum No. 2733 1615 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible bottom & top bulged

Burn pattern:
all around except ~21" centered on seam

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
18" Top to top of char - material burned away from
bolt side wall



Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0743

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-4-95 Initial AP

Ring bolt placed opposite drum seam and in down position: Date 5-4-95 Initial AP

Lid sealed and torqued to 40 ft/lb: Date 5-4-95 Initial AP

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) _____ Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

#FILL (7/25)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0743 (P) 155.2

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible top + bottom bulged

Burn pattern:
all around, also distinct flare below bolt

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
~22" top of drum to top of char



Photo taken: X Yes _____ No
video 41

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0753

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.2 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

#FALL-1231
~~Rack Storage~~ Drum Data Sheet

Drum No. 0753 163.7

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible bottom & top bulged

Burn pattern: somewhat all around, mainly seam to Rt. side

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 19" top of drum to top of char

Video 72
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0763

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

(FALL '93)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0763 168.2 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) ____ 55"

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible top + bottom bulged

Burn pattern:
33" at mid ht.



Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
~~20~~ 19" top of drum to top of char

Photo taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0773

Description (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:

N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 175.6

Post-test weight (lb) _____

Loss = _____

Target weight ~ 175.6 lb

9PALL-1281) ~~Rack Storage~~ Drum Data Sheet

Drum No. 0773 173.0 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No top & bottom bulged

Gasket missing (cm) _____ 39"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible maybe at bottom seam

Burn pattern:
at both location ~ 1ft² spot at Top, also spot at bottom of drum 10" high ~ 20" wide

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
17" top of drum to top of char

~~Photo~~ VIDEO 67 taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0783

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PAUL-TEST
~~Rack Storage~~ Drum Data Sheet

Drum No. 0783 174.7 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No top bulged

Gasket missing (cm) _____ 49" - remaining is mostly burned + goo

Contents expelled: _____ Yes X No

Seal failure: ? Yes _____ Not visible bottom bulged seam buckle?

Burn pattern: 10' at mid ht. 24" left of seam



Photo taken: X Yes _____ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 13" Top of drum to top of shaw

Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0813 (P)

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.9 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

FAILED
~~Rock Storage~~ Drum Data Sheet

Drum No. 0513 LT-161.515

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No came off when drums were toppled

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
27" top of drum to top of charred contents

VIDEO 13
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0823

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 176.2

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(PAILLETTE)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0523 165.9 lb

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No 4" x 1/4" gap 17" left of seam

Gasket missing (cm) 211

Contents expelled: ____ Yes X No

Seal failure: X Yes ____ Not visible



Burn pattern:
52" at mid ht.

Photo taken: ____ Yes X No

Leak tested: N/A or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
18" top of drum to top of charred contents

Photo taken: X Yes ____ No
Video 9

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0833

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.9

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(FULL, 7/28)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0837 107.5

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No top & bottom bulged

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes _____ Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
22" top of drum to top of char

VIDEO 24
~~Photo~~ taken: X Yes _____ No

Comments:
bottom seam may be broken hard to tell

Palletized Storage Drum Data Sheet

Drum No. 0843

Description (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial RK

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:

N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 176.6

Post-test weight (lb) _____

Loss = _____

Target weight ~ 175.6 lb

(PAUL, 7/23)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0543 169.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes ~~X~~ Not visible bottom & top bulged
↳ bottom seam opened - flame pattern up from this inside

Burn pattern:
all except ~22" centered on seam

Photo taken: X Yes ~~X~~ No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
19" top to top of contents
appears that contents burned from below - rubber is starting to blister

VIDEO 22
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0853

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.8

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

(FULL, 7/30)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0853 167.1 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No top + bottom bulged

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
all around

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
22" top of drum to top of char

VIDEO 36
Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0863

Description (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.4
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

FALL TEST
~~Rack Storage~~ Drum Data Sheet

Drum No. 0863 1653

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No top + bottom bulged

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern:
44" at mid ht.

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
17" Top of drum to top of char

video 35
~~Photo~~ taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0873

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.9

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

~~Rack Storage~~ Drum Data Sheet

Drum No. 0873 175.C

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No top + bottom bulged

Gasket missing (cm) ~~0~~ 55"

Contents expelled: _____ Yes X No

Seal failure: ? Yes _____ Not visible bottom seam may be broken

Burn pattern: ~9" wide 3/3 up drum



Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Interior assessment:

7" char all around

9" top of drum to top of char - top not fully charred

Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0883

Description (Check):
- / Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

~~Rack Storage~~ DRILLED Drum Data Sheet

Drum No. 0583 175.9 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) 0 15' compressed + hard

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
none

Photo taken: ____ Yes X No

Leak tested: (N/A) or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
plastic barely melted 16" left of seam

~~Photo~~ video taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0913

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) _____ Time (min) 0
- Pressure (psig) _____ Time (min) 5
- Date _____ Initial _____

Pre-test weight (lb) 175.6 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

~~Rack Storage~~ Drum Data Sheet

Drum No. 0913 171.3 lb.

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No bulge 1.5" to Rt. of seam

Gasket missing (cm) all

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible

Burn pattern:
35" at mid lt. starting 8" rt. of seam

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
1.5

Photo taken: X Yes ____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0923

Description (Check): ___✓___ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:

N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 175.3

Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

9PALL-7(23)
~~Rock Storage~~ Drum Data Sheet

Drum No. 5923 169.5 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
25" at mid lt. starting 25" to rt of seam

Photo taken: _____ Yes 0 No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
13"
~6" charred into drum

VIDEO 14
Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0933

Description (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested: N/A or Pressure (psig) _____ Time (min) 0

Pressure (psig) _____ Time (min) 5

Date _____ Initial _____

Pre-test weight (lb) 175.7 Target weight ~ 175.6 lb

Post-test weight (lb) _____

Loss = _____

PULLMAN
~~Rack Storage~~ Drum Data Sheet

Drum No. 0933 173.4 lb

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 38"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern: mainly 11" at mid ht. below bolt some burning from seam to RT.

Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: 17" top of drum to top of shaft → rubber almost like new except materials charred on outer edge. Appears contents baked from the bottom. Top of drum (i.e. lid) in reasonable condition

Dec 21
~~Photo~~ taken: X Yes _____ No

Comments: bulged on bottom

Palletized Storage Drum Data Sheet

Drum No. 0943

Description (Check):
- ✓ Standard load
- ____ Instrumented for Pressure
- ____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
- N/A or Pressure (psig) ____ Time (min) 0
- Pressure (psig) ____ Time (min) 5
- Date ____ Initial ____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb

Post-test weight (lb) ____

Loss = ____

PFLL 7/25)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0943 1095

Post-test Assessment

Position: ____ original: ____ tipped: ____ toppled

Lid on drum: X Yes ____ No

Gasket missing (cm) ____ all but 14" seam to RT

Contents expelled: ____ Yes X No

Seal failure: ____ Yes X Not visible bottom bulged



Burn pattern:
32" at mid lt

Photo taken: ____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) ____ Time (min) 0
Pressure (psig) ____ Time (min) 5
Date ____ Initial ____

Interior assessment:
17" top to top of char

Video 23
~~Photo~~ taken: X Yes ____ No

Comments:
gasket material dripping down drum at seam

Palletized Storage Drum Data Sheet

Drum No. 0953

Description (Check):
- ✓ Standard load
- _____ Instrumented for Pressure
- _____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 176.2 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

~~Rock Storage~~ Drum Data Sheet

Drum No. 0953 17C.6 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: Y Yes _____ No

Gasket missing (cm) all

Contents expelled: _____ Yes X No

Seal failure: X Yes X Not visible ? bottom & top bulged

Burn pattern: burn pattern above bottom seam at place suspected of failing

36" at mid ht



Photo taken: _____ Yes X No

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
15" top of drum to top of char

Photo taken: X Yes _____ No
DE033

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0963

Description (Check): ✓ Standard load

_____ Instrumented for Pressure

_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested:
N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8
Post-test weight (lb) _____
Loss = _____

Target weight ~ 175.6 lb

PFLL-TRU
~~Rack Storage~~ Drum Data Sheet

Drum No. 09623 169.0 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No Top + bottom bulged to at least

Gasket missing (cm) _____ all but 7" which was quite burned (dark brown)

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible



Burn pattern:
44 at mid ht.

Photo taken: X Yes ~~X~~ No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
17" top of drum to top of char

Photo taken: X Yes _____ No

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0973

Description (Check): ✓ Standard load
_____ Instrumented for Pressure
_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.6 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

D:\WPDATA\DEPTFORMS\DRUMRACK.FRM

(FALL 1981)
~~Rack Storage~~ Drum Data Sheet

Drum No. 0973 175.3 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) _____ 26"

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible bottom bulged

Burn pattern: centered 17" RT of seam



Photo taken: _____ Yes X No

Leak tested: ~~N/A~~ or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment: Top in good condition 3-5" char around

Photo taken: X Yes _____ No
Video 64

Comments:

Palletized Storage Drum Data Sheet

Drum No. 0983

Description (Check): ✓ Standard load
_____ Instrumented for Pressure
_____ Instrumented for Temperature

Loading Starting at Bottom	Layer 1	Layer 2	Layer 3
3 pieces of steel	✓	N/A	N/A
1/3 of the brown paper	✓	✓	✓
1/3 of the 10-mil plastic	✓	✓	✓
1/3 of the bond paper	✓	✓	✓
1/3 of the towels	✓	✓	✓
1/3 of the bags	✓	✓	✓
1/3 of the cut paper	✓	✓	✓
1/3 of the fabric	✓	✓	✓
1/3 of the rubber	✓	✓	✓
	Go to Layer 2	Go to Layer 3	

Drum Filled: Date 5-3-95 Initial R.K

Ring bolt placed opposite drum seam and in down position: Date 5-3-95 Initial R.K

Lid sealed and torqued to 40 ft/lb: Date 5-3-95 Initial R.K

Leak tested: N/A or Pressure (psig) _____ Time (min) 0
Pressure (psig) _____ Time (min) 5
Date _____ Initial _____

Pre-test weight (lb) 175.8 Target weight ~ 175.6 lb
Post-test weight (lb) _____
Loss = _____

D:\WPDATA\DEPT\FORMS\DRUMBACK.FRM

#FILL-1(B) ~~Rock Storage~~ Drum Data Sheet

Drum No. 0983 176.0 lb.

Post-test Assessment

Position: _____ original: _____ tipped: _____ toppled

Lid on drum: X Yes _____ No

Gasket missing (cm) 0 30" compressed to hand

Contents expelled: _____ Yes X No

Seal failure: _____ Yes X Not visible

Burn pattern:
NONE

Photo taken: _____ Yes X No

Leak tested: (N/A) or Pressure (psig) _____ Time (min) 0
~~Pressure~~ (psig) _____ Time (min) 5
Date _____ Initial _____

Interior assessment:
1 - ~10 in² spot slightly melted
NO char

~~Photo~~ video taken: X Yes _____ No

Comments:

Blank

DISTRIBUTION SHEET

To	From	Page 1 of 1
SWP	SWP	Date 10/12/95
Project Title/Work Order		EDT No. 612232
SOLID WASTE DRUM ARRAY FIRE PERFORMANCE		ECN No. N/A

Name	MSIN	Text With All Attach.	Text Only	Attach./ Appendix Only	EDT/ECN Only
J. R. Bell	B1-10	X			
T. L. Erickson	H5-71	X			
D. J. Hart	S2-42				X
J. R. Keene	S2-42	X			
R. L. Louie (3)	G3-15	X			
D. R. Lucas	G3-15				X
K. M. McDonald	T4-03	X			
J. R. McGee	G3-15				X
W. W. Olson	H4-70	X			
. B. Powell	T4-03	X			
K. M. Quigley	T3-01	X			X
J. B. Sepahpur	B1-10	X			
WRAP 1 DMC	G3-15	X			

Blank