OMB No: 3150-0011
NRCB 88-05, Supplement 2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

August 3, 1988

NRC BULLETIN NO. 88-05, SUPPLEMENT 2: NONCONFORMING MATERIALS SUPPLIED BY PIPING SUPPLIES, INC. AT FOLSOM, NEW JERSEY AND WEST JERSEY MANUFACTURING COMPANY AT WILLIAMSTOWN, NEW JERSEY

Addressees:

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose:

The purpose of this supplement is to (1) modify the schedule for actions addressees were requested to perform in Bulletin 88-05 and Supplement 1 and (2) provide additional information concerning materials supplied by Piping Supplies, Incorporated (PSI), West Jersey Manufacturing (WJM), and a recently identified affiliated company, Chews Landing Metal Manufacturers Incorporated (CLM).

Description of Circumstances:

On July 22, 1988, the NRC staff met with representatives of the Nuclear Management and Resources Council (NUMARC) to discuss the status of licensees' actions in response to Bulletin 88-05 and Supplement 1. During this meeting, NUMARC presented information on licensee and NUMARC/Electric Power Research Institute (EPRI) testing and evaluation methodology of PSI/WJM flanges. This information was summarized in a letter to the NRC from NUMARC dated July 25, 1988 and a detailed report and proposal was subsequently submitted on July 29, 1988 (Attachment 1).

Based on the reported measurement and analytical results to date, the NRC has concluded that for full power licensees it is appropriate to suspend, temporarily, the field measurements, testing, records review, and the preparation of justifications for continued operations (JCOs) that were requested by Bulletin 88-05 and Supplement 1 until further notice. Addressees that have not received a full power license are requested to continue the in-situ testing and the records review. The time frames of interest remain as specified in the original Bulletin, January 1, 1976 to present. During the temporary suspension of the requested activities, the NRC will review the measurement and test data and results of analysis performed and determine the extent to

which further actions are appropriate to assure the continued safe operation of nuclear power plants. However, addressees should continue to analyze the test results performed to date.

On July 22, 1988, the NRC staff completed its review of PSI/WJM/CLM purchase order and invoice records. Based on this review, the staff has determined that PSI/WJM/CLM provided product forms in addition to flanges and fittings. The additional product forms are identified in Attachment 2 and a list of nuclear power plants that were identified as possible recipients of PSI/WJM/CLM materials is provided in Attachment 3. The NRC staff also identified Certified Material Test Reports (CMTRs) for ASME Section III materials from CLM, which also should be considered as suspect. CLM was owned by parties involved in PSI and WJM and the persons signing the CMTRs for CLM also signed the CMTRs for PSI and WJM. Attachment 4 provices a listing of additional intermediary suppliers/fabricators of PSI/WJM/CLM products. Bulletin 88-05 identified 1976 as the beginning date for suspect materials provided by PSI/WJM; however, information available to the NRC now indicates that WJM may have provided ASME materials as early as 1962. The NRC is providing the above information to assist the industry in their understanding of the PSI/WJM/CLM issue.

Actions Requested:

The actions requested in Bulletin 88-05 and Supplement 1 are temporarily suspended with the following exceptions:

1. Addressees that have not received a full power operating license are requested to continue the records review and the in-situ testing of installed flanges and fittings.

2. Addressees are requested to maintain for inspection the documentation of the specific actions taken for the identified materials.

3. Addressees are requested to retain nonconforming materials until advised further by the NRC.

4. Addressees are encouraged to report the results of tests of PSI and WJM supplied flanges and fittings to the INPO Nuclear Network for dissemination to the industry.

Reporting Requirements:

The reporting requirements of Bulletin 88-05 and Supplement 1 are temporarily suspended with the following exceptions:

1. Holders of full power operating licenses are required to report the results of their records review, testing, and analysis performed as of the date of this supplement in accordance with the 120 day reporting requirement specified in paragraph 1 of Bulletin 88-05.

2. Holders of construction permits are required to report the results of the records review, testing, and analysis prior to the planned fuel load date.

If you have any questions about this matter, please contact one of the technical contacts listed below or the Regional Administrator of the appropriate NRC regional office.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contacts: Ray Cilimberg, NRR
(301) 492-3220

Ed Baker, NRR
(301) 492-3221

Attachments:
1. Ltr to NRC fm NUMARC, dtd July 29, 1988
2. Product Forms Sold by NUM/PSI/Chews Landing
3. Nuclear Plants Receiving Suspect Material
4. Purchasers Receiving Suspect Material
5. List of Recently Issued NRC Bulletins

NUCLEAR MANAGEMENT AND RESOURCES COUNCIL

July 29, 1988

Mr. Thomas T. Martin
Associate Director for Inspection
and Technical Assessment
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Martin:

In a meeting held July 22 with NRC, NUMARC requested that utility activities relative to NRC Bulletin 88-05 and Supplement 1 be suspended. This suspension request was based on a generic analysis provided to NRC by NUMARC's letter of July 22. In the subject NRC meeting, NUMARC also presented an analysis of utility and laboratory test data obtained to date. NUMARC's letter of July 25 to Dr. Thomas Murley formalized the request for suspension. In that letter, NUMARC committed to provide a written report to NRC reflecting the test data and conclusions presented in the July 22 meeting, and providing quantitative statistical evaluations relative to the conclusions presented at this meeting. That report is hereby provided as an attachment.

As noted previously, the NUMARC laboratory testing program will be carried to completion even if utility test efforts are suspended. An update of the attached report will be provided addressing conclusion of the NUMARC laboratory testing program as well as inclusion of field test data not yet reflected.

We would like to reiterate the importance of timely action in your consideration of NUMARC's request for suspension. Utility resource expenditures of major proportions are presently continuing without abatement. Continuation of testing is not resource effective and, as documented in the attachment, would not be expected to result in additional insights. Moreover, in conjunction with the generic analysis previously provided, the attachment substantiates that no significant public health and safety concern is represented by this issue.

NUMARC is studying all available information to determine what industry action should be taken to come to final resolution of this issue. We will discuss our intentions with you and your staff in the near future.

If you or your staff have any questions, please do not hesitate to contact us at any time.

Sincerely,

William H. Rasin
Director, Technical Division

WHR/reb
Attachment

cc: Lawrence C. Shao
Director, Division of Engineering and System Technology

D. J. McDonald
Executive Director
National Board of Boiler and Pressure Vessel Inspectors

NUMARC GENERIC TESTING PROGRAM

RESPONSE TO NRC BULLETIN 88-05

INTERIM REPORT
July 29, 1988

Prepared By

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San Francisco, California 94105

Prepared For

Electric Power
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Palo Alto, California 94203

ABSTRACT

The NRC Bulletin 88-05 addressed the alleged falsification of Certified Materials Test Reports (CMTRs) by two suppliers, WJM and PSI, of piping flanges and fittings. NUMARC, through the technical management of EPRI, developed a multifaceted program to assist utilities in addressing this bulletin. Laboratory testing of suspect material, the compilation of utility test data and analysis of that data are reported. These data show in general that, except for blind flanges, the suspect material meets tensile strength requirements and is satisfactory for ASME Code applications. The hardness testing results for the same materials exhibit a broad scatter band which would justify application of a testing tolerance band in comparison to the ASTM A370 conversion from hardness to tensile strength. The field and laboratory testing results both exhibit the same broad scatter band. A laboratory generated best fit curve is used to relate measured field hardness to tensile strength.

The field hardness test data for 1334 items show the same scatter band as found in laboratory tests, and follows the same general bell shape hardness distribution as laboratory hardness tests. The similarity in shapes and the lack of bumps at either the low ends or the high ends of these laboratory and field histograms indicates that there is not a concern for low strength material or high strength material. Applying a best fit approach from laboratory hardness and tensile data to field hardness data results in an estimate of strength. The best fit approach to the field data indicates that the vast majority are acceptable. Based on the laboratory testing and extensive field testing, it is concluded there is no materials problem, except possibly for some blind flanges.

Blind flanges and other components were addressed analytically in the NUMARC generic analysis report, and it was shown that in the majority of cases there would not be a stress concern even if strength in the order of 40 KSI were to be assumed.

This interim report concludes that the material has acceptable strength and except for some blind flanges is satisfactory for ASME Code applications. The continued use of these flanges and fittings does not present a safety problem.

Recommendations are made for follow-up activities.

NUMARC GENERIC TESTING PROGRAM
RESPONSE TO NRC BULLETIN 88-05

INTERIM REPORT

TABLE OF CONTENTS

1185m

LIST OF ILLUSTRATIONS

TABLES

FIGURES

INTRODUCTION

BACKGROUND

The NRC issued Bulletin 88-05 regarding alleged falsification of Certified Materials Test Reports (CMTRs) by West Jersey Manufacturing Co. (WJM) and Piping Systems, Inc. (PSI). Specific actions were required of utilities. Some of these could efficiently be addressed by a generic program. NUMARC initiated such a program. The NRC issued Supplement 1 to 88-05 subsequent to reports of two blind flanges having low tensile strength. The supplement required utilities to perform field tests on identified installed WJM/PSI items. The supplement also focused effort on piping flanges and fittings. The NUMARC program was modified to coordinate and standardize field testing methods and to compile utility generated data. Concurrently, the generic NUMARC laboratory testing program has been in progress.

NUMARC MULTIFACETED PROGRAM

Because several actions were required by 88-05 which could be efficiently addressed in a generic manner, NUMARC undertook the activities described herein as well as the testing and test data analysis which are the subject of this report.

A. Review of records to permit scope limitation.

B. Review of records to identify intermediate and secondary supply routes.

C. Interface with Authorized Inspection Agencies and the National Board of Boiler and Pressure Vessel Inspectors.

D. Generic stress analysis of fittings and flanges.

E. Testing, data compilation and evaluation.

GENERIC STRESS ANALYSIS

The generic stress analysis has been completed, reviewed with and provided to the NRC. The analysis indicates that there is little concern for the stress integrity of the fittings or flanges even if the materials were of substantially lower strength when compared to the strength requirements of SA-105. This report was formally transmitted to the NRC by NUMARC on July 22, 1988.

The testing program is described in the following sections of this report.

NUMARC TESTING PROGRAM

METHODS

This program contains two main elements: first, comprehensive laboratory testing of suspect items contributed by utilities; and second, utility generated data of destructive laboratory tests and in situ tests of installed suspect items.

NUMARC laboratory test methods follow ASTM standards for tensile testing to produce values for UTS, YS %El and %RA. Tensile strength correlations were developed based upon Equotip testing. Chemical analysis utilizes spectrographic analysis and portable X-ray fluorescence analysis methods. All laboratory testing equipment is calibrated to appropriate standards.

Utility test data of installed items or warehouse items has principally been portable hardness testing by means of the Equotip device. Other hardness test devices may also have been used in a few instances. The basis for selection of hardness test methods and the NUMARC training/coordination have been described previously.

For austenitic stainless steel items, the principle tests method has been a simple magnetic check. Some alloy analysis and replication metallography have been performed.

To the extent that utilities have contributed laboratory test data, these data has been accepted. These data are being reviewed for consistency and errors.

DATA COMPILATION AND RESULTS

Generic laboratory test data has been developed for 123 items to date contributed by utilities.

To date, the utilities have provided data regarding 1334 field hardness test items and 108 tensile results. The results are discussed in the following analysis. The actual amount of data used in this report is indicated on the plots or charts. Not all data is in the computer data base.

NUMARC has provided the NRC with computer discs and printouts as of 7/19/88. Some additional copies were provided during the July 22, 1988 meeting.

ANALYSIS

LABORATORY TESTING

All tensile test results exceed 70 KSI or are within the anticipated tolerance band. Figure 1 shows a histogram of laboratory tensile results. In general, field tests were performed with EQUOTIP testers and the data converted to BHN. For reasons discussed below, EQUOTIP values are used in this report.

Figure 2 shows a plot of laboratory tensile results and EQUOTIP hardness expressed as BHN data. Almost all the hardness data points fall at or below the ASTM A370 BHN tensile conversion line, indicating that this is a conservative approach, and that a test tolerance factor is required to avoid inappropriate rejection of acceptable material by field hardness test methods. It is apparent that the BHN tensile conversion approach is no longer appropriate for this application.

EQUOTIP-TENSILE CONVERSION

Another more accurate approach to assess the field hardness data is to develop a best fit line for the laboratory hardness using the original EQUOTIP (also referred to as Leeb values) and tensile data. That line, shown in Figure 3, was developed by computer program. The application of the tolerance or the

best fit approach are discussed below subsequent to a brief analysis of the utility field data. The histogram of laboratory hardness data expressed in EQUOTIP values is shown in Figure 4.

UTILITY TESTING

The utility-provided laboratory data is consistent with the generic program test data. The utilities have provided one set of data on a blind flange, Heat 7218, which is consistent with the two tests cited in 88-05 Supplement 1. This data point is not yet in the computer printout. Other than this, no substrength material has been reported based on tensile tests. These utilities have reported tensile strength for 108 items. Eight items slightly below 70 KSI have been reported. The remaining 101 values exceed 70 KSI. In one case the utility engineer indicated there was a subsize specimen removed from installed flange and was transverse to the primary working direction rather than parallel. These slightly low values are readily explained by the test direction, and by published data which confirms that tensile test results from product testing may be as much as 10 percent below the minimum specified strength. None of these utilities reported strength values are a concern.

The utility generated hardness data is shown in the histogram of Figure 5. This histogram has the same general bell shape as the histogram of laboratory hardness data. In simple terms, the bell shapes in both laboratory and field histograms and the lack of bumps at the low hardness ends of the histograms indicates that there is not a concern for low strength material. This means that the vast majority of field items would exceed 70 KSI if tested and that the remainder would be within the expected tolerance band. The conclusion is that installed items are acceptable and do not present a material concern, except for some blind flanges.

FIELD HARDNESS TO TENSILE

It is appropriate to compare the best fit curves of laboratory hardness and tensile results and apply the results of that plot to the utility generated hardness data. When this is done, refer to Figure 6, all items are shown to be acceptable. It must be realized that a best fit curve of field hardness should never be used to reject installed items, because some items which fall below the line can be within the acceptable tolerance band. This is shown by the fact that the original data had some acceptable items below the best fit curve. The best fit curve may be applied to warehouse items prior to installation, and should not be the sole justification for removal of installed items. This curve increases the confidence that the installed items are as initially intended to be.

BLIND FLANGES

The best fit curve applied to field data, or a field hardness test tolerance does not eliminate the fact that there are data in the histograms (but not yet in the computer data base) which indicates that blind flanges may be a concern for strength reasons. However, the stress analytical data provided to the NRC indicates that these substrength blinds are not a stress problem for service conditions.

The lowest hardness test result in either laboratory or field, aside from the suspect blind flanges, is 350 L_D. This is the lowest of a continuous spectrum of values. The 13 suspect blind flanges are at approximately 330 L_D and appear to be a unique group separate from the general population of acceptable material.

DATA QUANTITY AND STATISTICAL SIGNIFICANCE

Analysis indicates that there are sufficient field data upon which to draw conclusions. There is no need for additional field hardness data. There is also substantial tensile test data which permits interim conclusions. Non-parametric tolerance limit statistical calculations were used. The laboratory tensile results of 123 items provide 95 percent confidence that more than 97 percent of the population exceeds 60,600 psi tensile strength.

The utility provided 108 tensile test results provide 95 percent confidence that more than 97 percent of the population exceeds 66,400 psi tensile strength.

Assuming the materials come from the same population, combining both sets of tensile data provides 95 percent confidence that more than 98 percent of the population exceed 60,600 psi ultimate tensile strength. Similarly, there is 95 percent confidence that more than 98 percent of the population is less than 93,200 psi ultimate tensile strength.

TESTING SUMMARY

The laboratory tensile data indicates there is no technical concern for the SA 105 material. The similarities between the laboratory hardness distribution histogram and the field hardness histograms indicates that there should be no concern for installed items given that the laboratory tensile tests indicate no concern for this material. The best fit curve of hardness to tensile conversions applied to field hardness tests also indicates that there is no concern for SA 105 material.

TOLERANCES LOWER AND UPPER

The data indicate that there is no real concern for SA 105 material. The blind flanges of suspect material which have low tensile values have hardness at approximately 330 L_D.

Regarding high hardness, Table 1 shows the precedent to install materials over 187 BHN to 207 BHN which are common in nuclear plant piping. This table shows that 237 BHN is a value commonly applied to fabricated items, welds, base metals and HAZ, where H_2S stress corrosion cracking (SCC) is a concern in the petrochemical industry. Such SCC is not a concern in light water reactor piping and thus a specific upper limit should not be imposed. The Structural Welding Code applies a 265 BHN limit on submerged arc welds and HAZ to assure adequate strength, ductility and toughness. When recognized standards apply values such as 237 and 265 BHN to fabricated, welded and installed items, a specific upper hardness limit is not justified. This paragraph is discussed in BHN terms because the Code uses BHN terms.

The principle high hardness concern is weldability. If the installed item has acceptable weld inspections, has sustained bolt-up loads, hydrostatic tests, proof testing, functional test and whatever PSI/ISI that is applicable, then

there are objective reasons to use as is. The benefits of replacing installed high hardness items with acceptable welds and HAZ are minimal. In contrast, the risks in any replacement are greater. The ALARA considerations also indicate that high hardness items not be replaced unless there is a plant-unique overriding concern.

STAINLESS STEEL

There is a relatively small amount of stainless steel installed, and very little in warehouses. To date, all tests performed on stainless steel have been acceptable. Approximately four dozen items have been tested. All tensile results are acceptable, all chemical analyses are acceptable and all sensitization tests are acceptable. Approximately 10 dozen magnetic checks were also acceptable. Only one of all these test results is slightly low; that is, one yield strength value was 28.5 KSI vs. 30.0 KSI, and this difference is insignificant. These tests are summarized in Table 2.

While the absolute number of test results is not as great as for carbon steel, the results indicate there is no concern.

CONCLUSIONS

The strength of SA 105 material and stainless steel items which were suspect is not a concern.

RECOMMENDATIONS

1. The test results to date indicate there is no concern for materials and thus field testing may be suspended as there is sufficient data for evaluation.

   The generic stress analysis also indicates there is no concern for plausible low strength materials because it has been shown that even if substrength materials were installed, the vast majority of these cases would be acceptable. Thus, it is appropriate to suspend document reviews and field testing.

2. The laboratory program should be completed subject to constraints of available material.

3. The existing utility generated data should be compiled and analyzed in the NUMARC program.

4. A summary report should be generated.

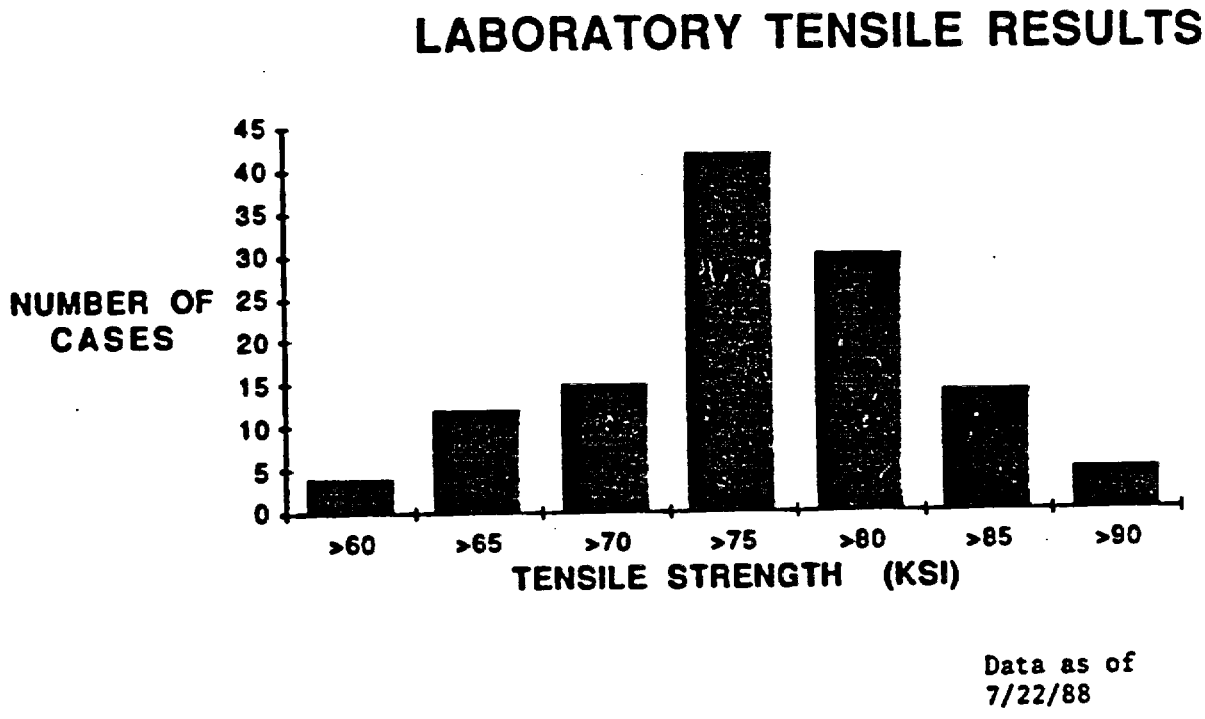

FIG. 1 HISTOGRAM OF LABORATORY TENSILE RESULTS

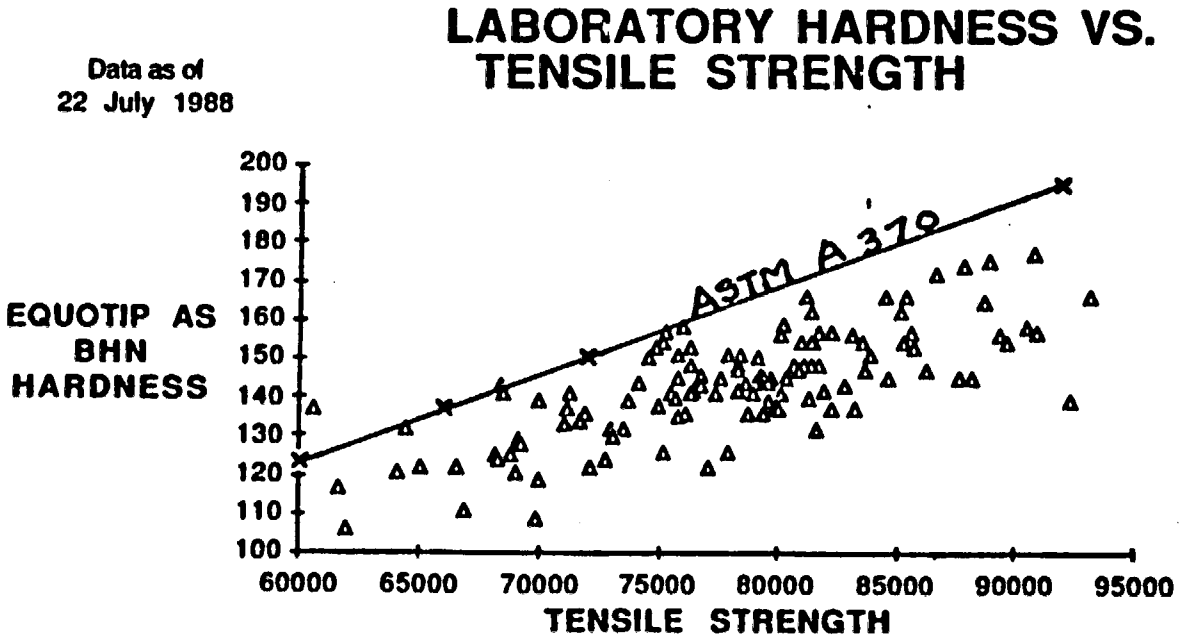

FIG. 2 EQUOTIP AS BHN HARDNESS COMPARED TO TENSILE & ASTM A370

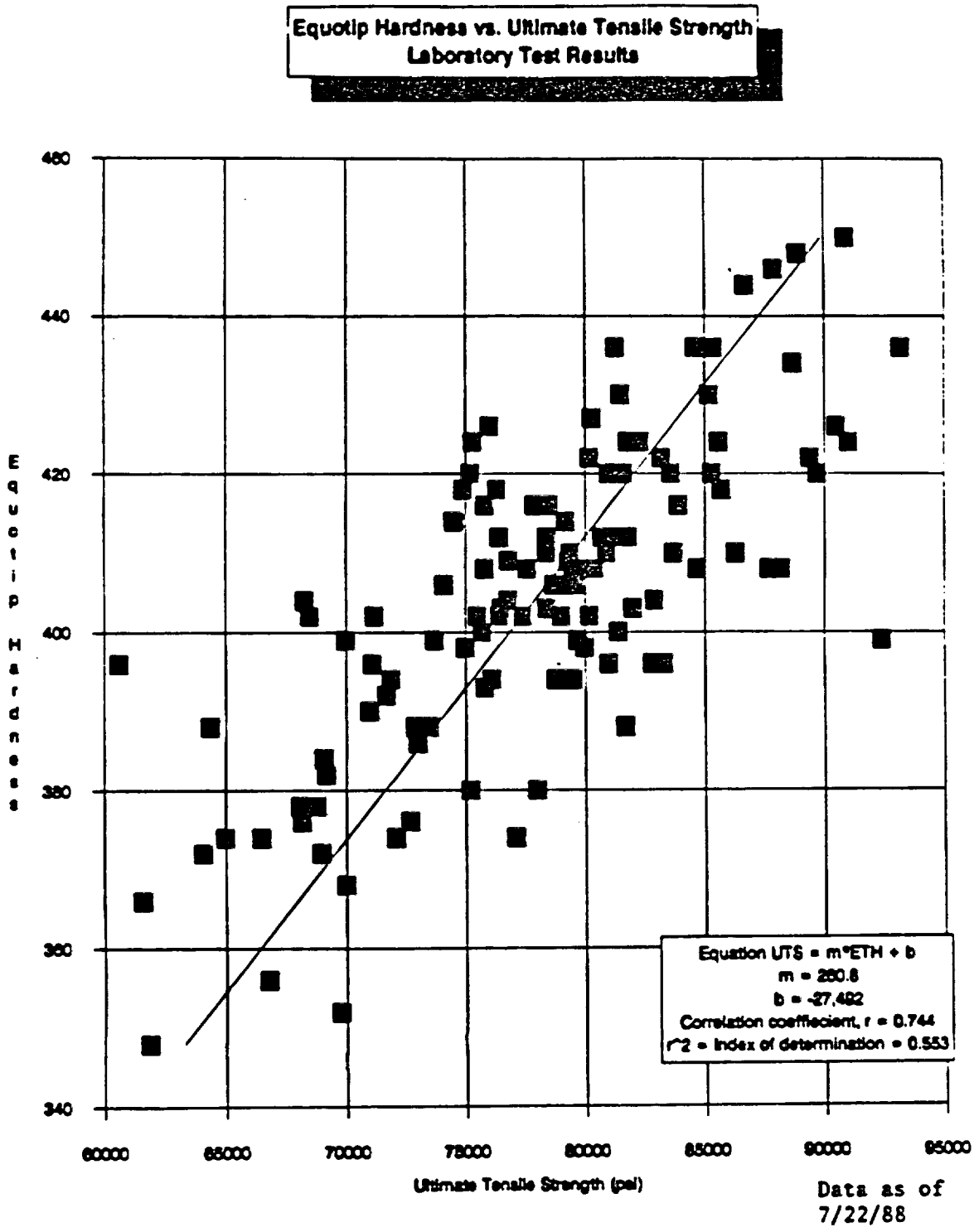

FIG. 3 BEST FIT EQUOTIP VS TENSILE STRENGTH

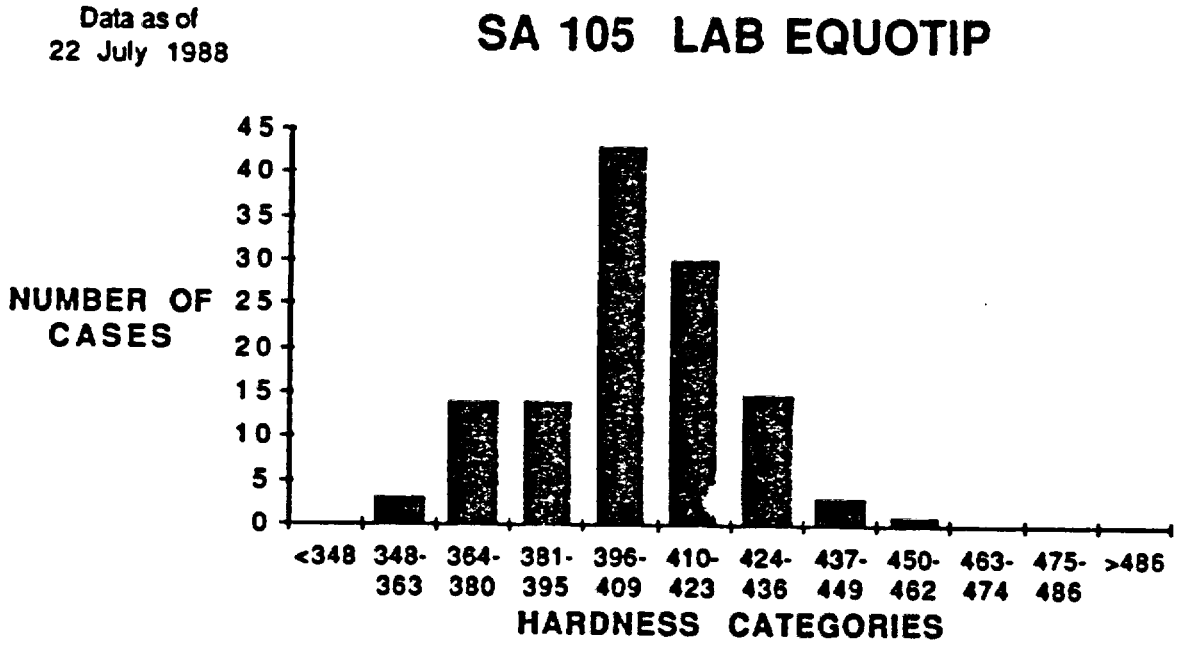

FIG. 4 HISTOGRAM OF LABORATORY EQUOTIP HARDNESS

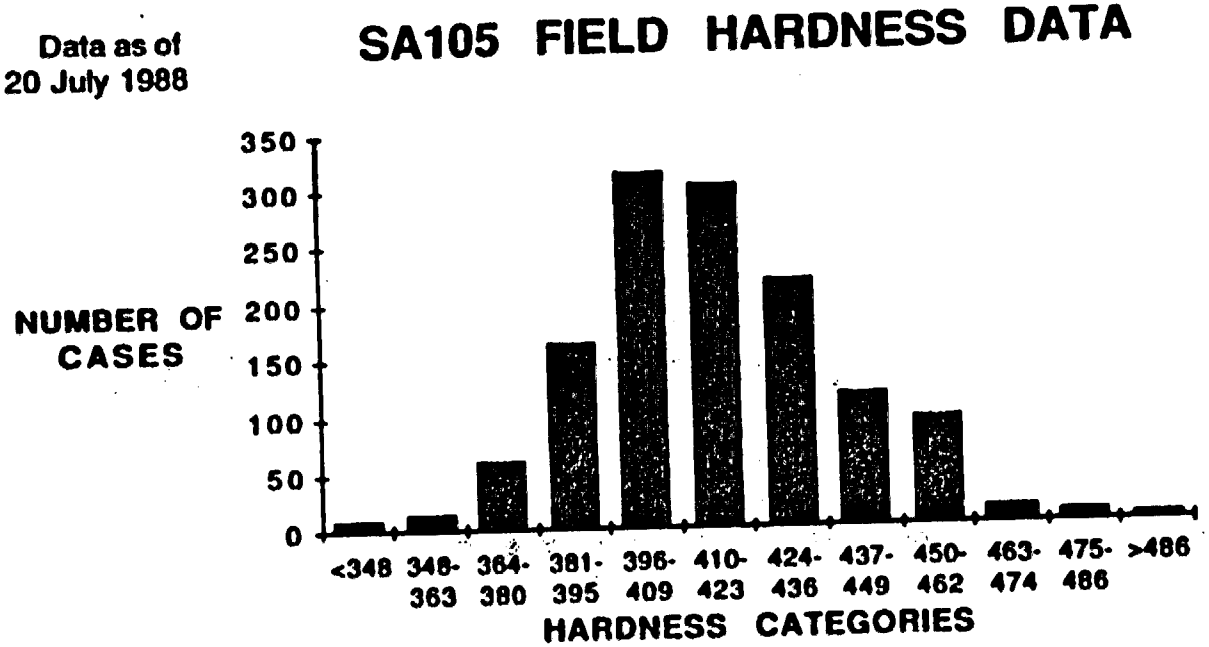

FIG. 5 HISTOGRAM OF EQUOTIP FIELD HARDNESS

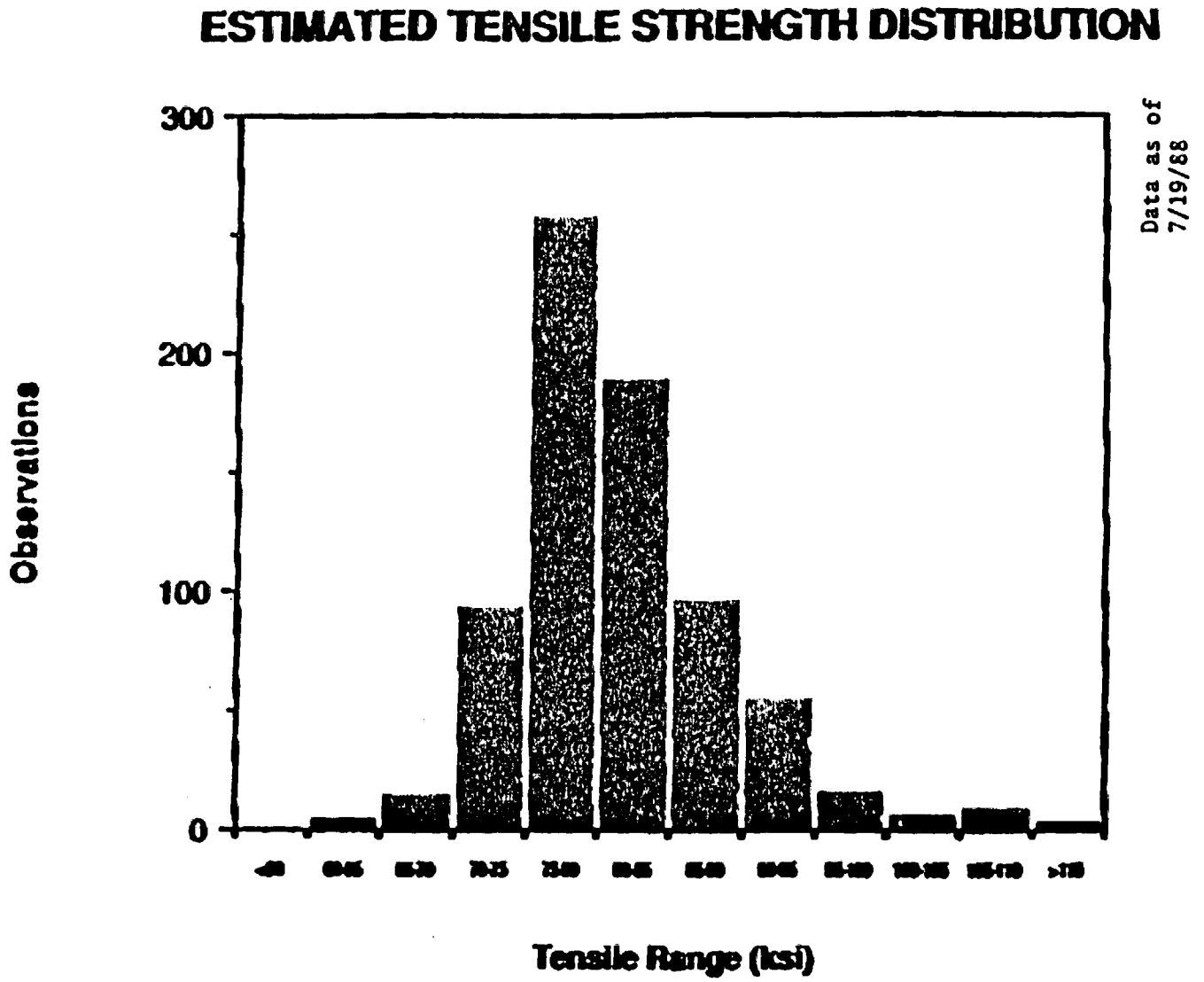

FIG. 6 BEST FIT DATA APPLIED TO FIELD HARDNESS STRENGTH ESTIMATE

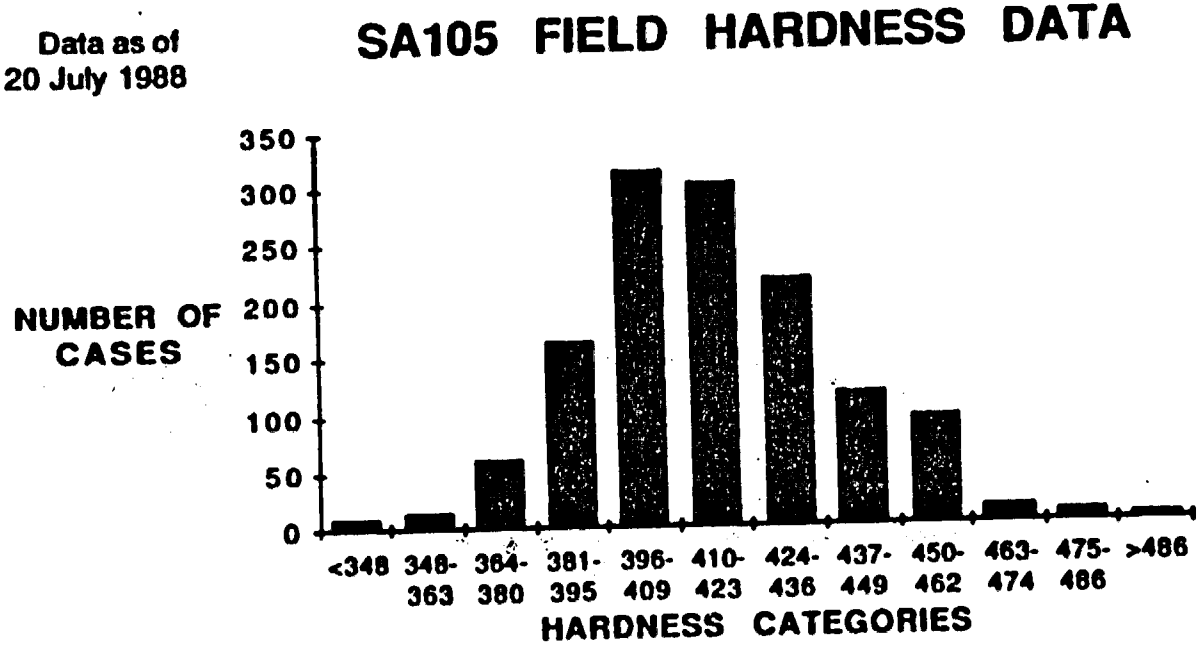

FIG. 5 HISTOGRAM OF EQUOTIP FIELD HARDNESS

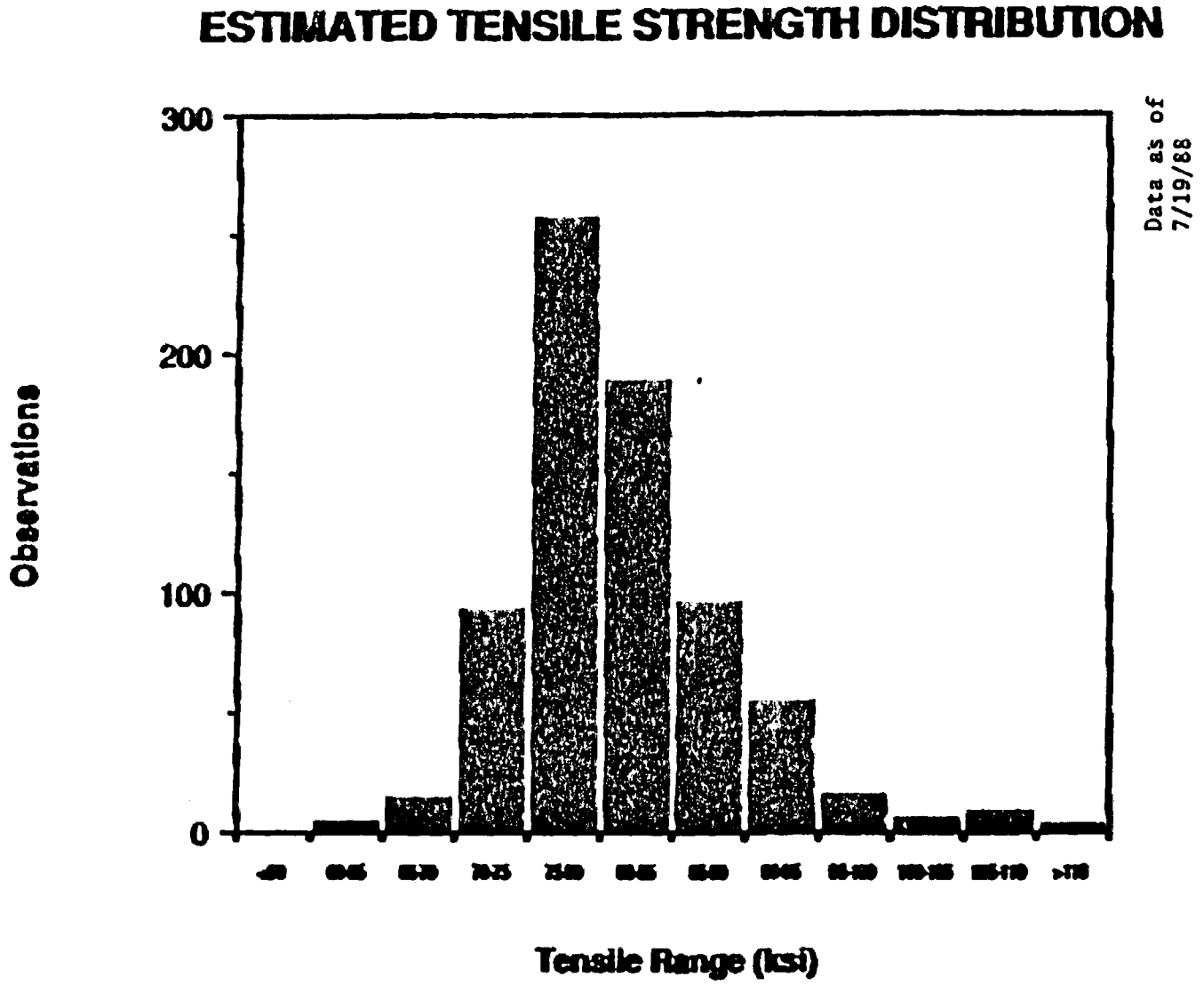

FIG. 6 BEST FIT DATA APPLIED TO FIELD HARDNESS STRENGTH ESTIMATE

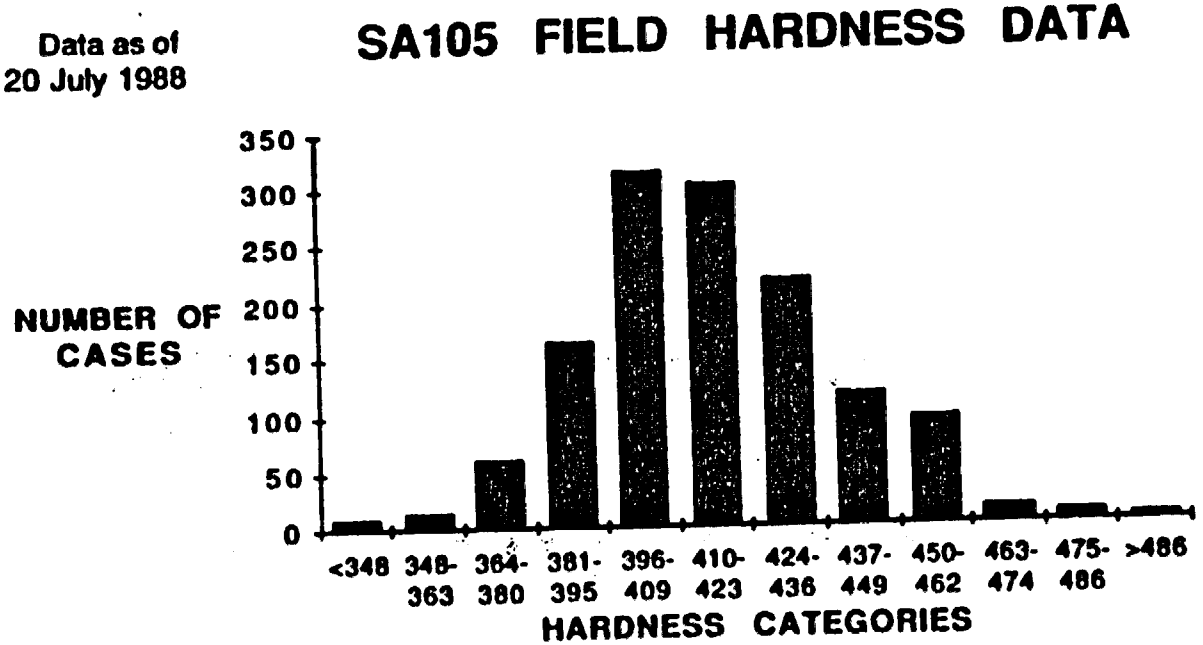

FIG. 5 HISTOGRAM OF EQUOTIP FIELD HARDNESS

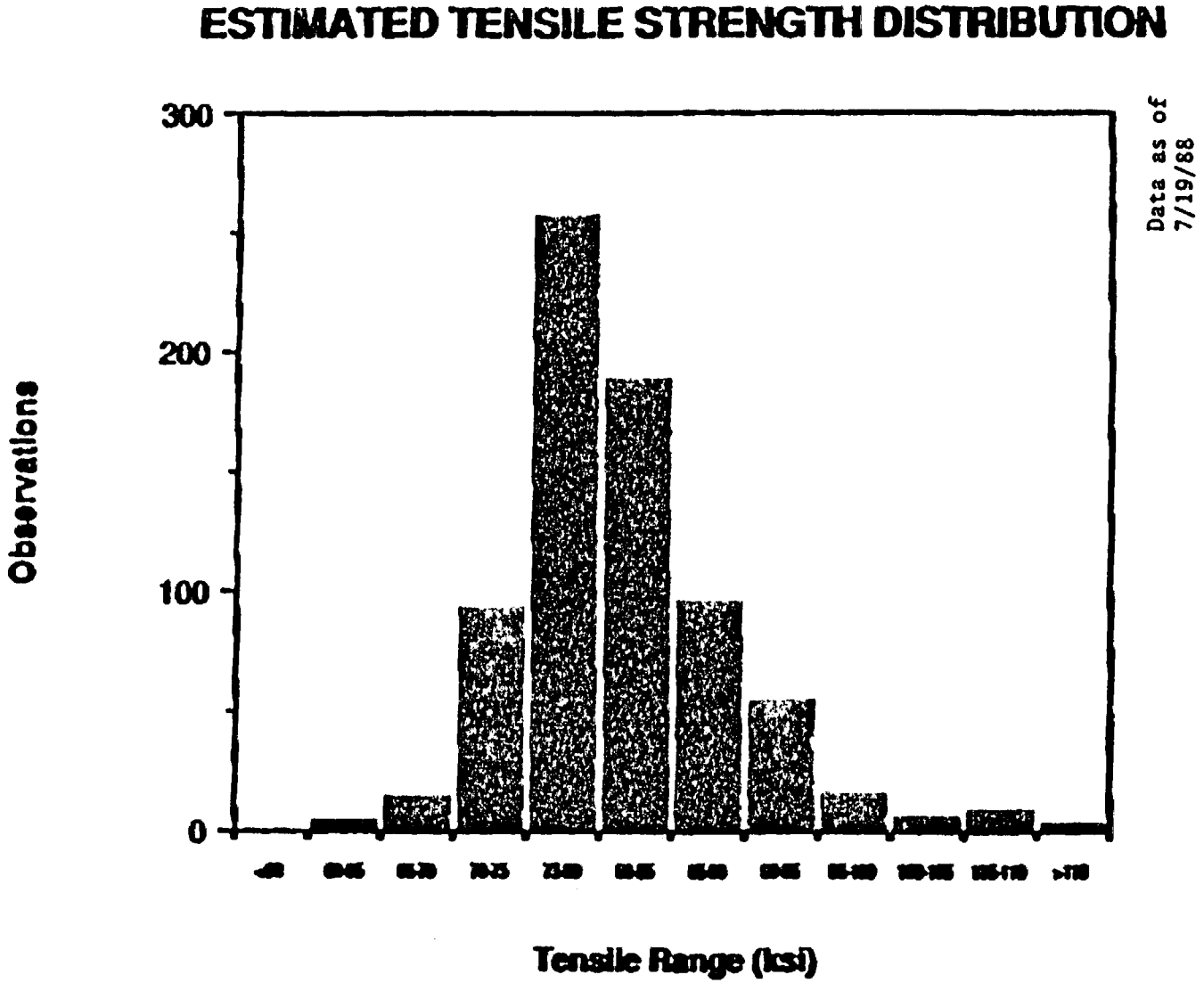

FIG. 6 BEST FIT DATA APPLIED TO FIELD HARDNESS STRENGTH ESTIMATE

TABLE 1

SUMMARY OF HIGH HARDNESS LIMITS

MAX. HARDNESS LIMITS

			BHN
SA	350		197
SA	105	PRE 1972	N/A
SA	105	POST 1972 ONLY IF QUENCHED	187
SA	234	WPB-SUPPLEMENTARY	197
SA	181		N/A
SA	182	F 1	192
		F 2	192
		F 11	207
		F 22	207
AWS	D1.1	WELD & HAZ, HV280	265
NACE	MR-01	75, Rc22 BASE METAL, WELDS, HAZ	237

TABLE 2

SUMMARY OF STAINLESS STEEL TESTS

STAINLESS RESULTS
7/19/88

TENSILE	9
HARDNESS	8
CHEMISTRY	44
SENSITIZATION	38
MAGNETIC	120

Attachment 2
NRCB 88-05, Supplement 2
August 3, 1988

Product Forms Sold By WJM/PSI/Chews Landing[1]

Flanges
Half Couplings
Full Couplings
Plate Rings
Penetration Plates -- SA516, GR70
Seal Plates -- SA516, GR70 (Perry)[2]
Socket Weld Nozzles (CLM)[3]
Long Drain Boss -- A182F11 & F22
Radiograph Plugs (CLM)
Square Bar -- 1018
Spacers
Sample Probes Class 1 -- SA312, T304 (Perry) (CLM)
Guide Lugs -- SA240, T304
Socket Welded Half Couplings Class 1 -- SA182, F3C4L (Vogtle)
Special Nozzles
Pipe Caps -- SA234
Lugs -- SA240, T304 (Palo Verde)
Lugs -- SA516, GR70 (Palo Verde)
Socket Weld Couplings
Plate -- SA36 (Perry)
Special Boss -- A234, A105, A739
Bolts -- SA193, GRB7 (Confrentes/Spain)
Instrument Penetration End Plate -- SA516, GR70 (Perry)
Hanger Lugs -- SA516, GR70 (Dravo/Site unknown)
Socket Weld Boss -- Class 1 -- SA182, F316 (Seabrook) (CLM)
Transition Piece -- SA105 (Vogtle)
Thermowells -- A182 (Dravo/Hunter/Site unknown) (CLM)
Bar Stock -- A105 (Dravo/Yellow Creek) (CLM)

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[1] This is a complete list of all product forms identified during the NRC staff's review of available records.

[2] Specific nuclear power plants or customers are noted in cases where the product form appeared to be a unique or special order and not wide spread.

[3] Indicates that material was sold by Chews Landing Metal Manufacturers Inc.

Attachment 3
NRCB 88-05, Supplement 2
August 3, 1988

Nuclear Plants Receiving Suspect Material[1]

Beaver Valley
Bellefonte
Browns Ferry
Callaway
Calvert Cliffs
Cook
Diablo Canyon
Duane Arnold
Fermi
Hatch
Monticello
North Anna
Prairie Island
Quad Cities
Shoreham
Turkey Point
Waterford
Yellow Creek
Zimmer

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[1] These nuclear power plants are in addition to those previously identified as receiving suspect material.

Attachment 4
NRCB 88-05, Supplement 2
August 3, 1988

Purchasers Receiving Suspect Material[1]

Barr - Saunders, Inc.
M.W. Kellogg (became Division of Pullman)
Lake Erie Iron & Metal Co., Inc.
Liberty Equipment, Co.
Metal Bellows (listed as Bellows in Bulletin)
Power Piping Co.
Standards Pipe & Supply Co., Inc.
Tioga Pipe Supply Co., Inc.
Tyler Dawson (listed in error as Tyler Davison in Bulletin)

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[1] These purchasers are in addition to those previously identified and are known to have received material for nuclear applications.

Attachment 5
NRCB 88-05, Supplement 2
August 3, 1988

LIST OF RECENTLY ISSUED NRC BULLETINS

Bulletin No.	Subject	Date of Issuance	Issued to
88-08, Supplement 2	Thermal Stresses in Piping Connected to Reactor Coolant Systems	8/4/88	All holders of OLs or CPs for light-water-cooled nuclear power reactors.
88-09	Thimble Tube Thinning in Westinghouse Reactors	7/26/88	All holders of OLs or CPs for W-designed nuclear power reactors that utilize bottom mounted instrumentation.
88-08, Supplement 1	Thermal Stresses in Piping Connected to Reactor Coolant Systems	6/24/88	All holders of OLs or CPs for light-water-cooled nuclear power reactors.
88-08	Thermal Stresses in Piping Connected to Reactor Coolant Systems	6/22/88	All holders of OLs or CPs for light-water-cooled nuclear power reactors.
88-05, Supplement 1	Nonconforming Materials Supplied by Piping Supplies, Inc. at Folsom, New Jersey and West Jersey Manufacturing Company at Williamstown, New Jersey	6/15/88	All holders of OLs or CPs for nuclear power reactors.
88-07	Power Oscillations in Boiling Water Reactors (BWRs)	6/15/88	All holders of OLs or CPs for BWRs.
88-06	Actions to be Taken for the Transportation of Model No. Spec 2-T Radiographic Exposure Device	6/14/88	All NRC licensees authorized to manufacture, distribute, or operate radiographic exposure devices or source changers.

OL = Operating License
CP = Construction Permit

If you have any questions about this matter, please contact one of the technical contacts listed below or the Regional Administrator of the appropriate NRC regional office.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contacts: Ray Cilimberg, NRR
(301) 492-3220

Ed Baker, NRR
(301) 492-3221

Attachments:
1. Ltr to NRC fm NUMARC, dtd July 29, 1988
2. Product Forms Sold by WJM/PSI/Chews Landing
3. Nuclear Plants Receiving Suspect Material
4. Purchasers Receiving Suspect Materials
5. List of Recently Issued NRC Bulletins

*SEE PREVIOUS CONCURRENCES

OFC	:RVIB:DRIS:NRR	:RVIB:DRIS:NRR	:RVIB:DRIS:NRR	:D:DRIS:NRR	:OGCB:DOEA:NRR	:TECH EDITOR
NAME	:RLCilimberg	:ETBaker	:EWBrach	:BKGrimes	:JGuillen	:
DATE	:8/2/88*	:8/2/88*	:8/2/88*	:8/2/88*	:8/2/88*	:8/ /88

OFC	:OGCB:DOEA:NRR	:D:DOEA:NRR	:	:	:	:
NAME	:CHBerlinger	:CERossi	:	:	:	:
DATE	:8/2/88*	:8/3/88	: 8/3/88	:	:	:

Attachments:
1. Ltr to NRC fm NUMARC, dtd July 29, 1988
2. Product Forms Sold by WJM/PSI/Chews Landing
3. Nuclear Plants Receiving Suspect Material
4. Purchasers Receiving Suspect Materials
5. List of Recently Issued NRC Bulletins

*SEE PREVIOUS CONCURRENCES

OFC	:RVIB:DRIS:NRR	:RVIB:DRIS:NRR	:RVIB:DRIS:NRR	:D:DRIS:NRR	:OGCB:DOEA:NRR	:TECH EDITOR
NAME	:RLCilimberg	:ETBaker	:EWBrach	:BKGrimes	:GHMarcus changes	:
DATE	:8/2/88*	:8/2/88*	:8/2/88*	:8/2/88*	:8/ /88	:8/ /88

OFC	:OGCB:DOEA:NRR	:D:DOEA:NRR	:	:	:	:
NAME	:CHBerlinger	:CERossi	:	:	:	:
DATE	:8/ /88	:8/ /88	:	:	:	:

This request is covered by Office of Management and Budget Clearance Number 3150-0011 which expires December 31, 1989. Thes estimated average burden hours is 0 man-hours per licensee response, including assessment of the new requirements, searching data sources, gathering and analyzing the data, and preparing the required reports. Comments on the accuracy of this estimate and suggestions to reduce the burden may be directed to the Office of Management and Budget, Room 3208, New Executive Office Building, Washington, D.C. 20503, and to the U.S. Nuclear Regulatory Commission, Records and Reports Management Branch, Office of Administration and Resources Management, Washington, D.C. 20555.

If you have any questions about this matter, please contact one of the technical contacts listed below or the Regional Administrator or the appropriate NRC regional office.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

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(301) 492-3220

Ed Baker, NRR
(301) 492-3221

Attachments:
1. Ltr to NRC fm NUMARC, dtd July 25, 1988
2. Product Forms Sold by WJM/PSI/Chews Landing
3. Nuclear Plants Receiving Suspect Material
4. Purchasers Receiving Suspect Materials
5. List of Recently Issued NRC Bulletins

OFC	:RVIB:DRIS:NRR	:RVIB:DRIS:NRR	:RVIB:DRIS:NRR	:D:DRIS:NRR	:OGCB:DOEA:NRR	:TECH EDITOR
NAME	:RLCilimberg	:EIBaker	:EMBrach	:BKGrimes (Phone concurrence)	:JGuillen	:
DATE	:8/2/88	:8/2/88	:8/2/88	:8/2/88	:8/ /88	:8/ /88

OFC	:OGCB:DOEA:NRR	:D:DOEA:NRR	:	:	:	:
NAME	:CHBerlinger	:CERossi	:	:	:	:
DATE	:8/ /88	:8/ /88	:	:	:	: