



Holtec Center, 555 Lincoln Drive West, Marlton, NJ 08053

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BY FAX AND OVERNIGHT MAIL

January 4, 2001

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Subject: 10 CFR 21 Notification for Discrepant Weight of Spent Fuel Racks

Reference: Holtec File No. HQP 15.1.3

Dear Sir:

Pursuant to Holtec Quality Procedure HQP 15.1, "Reporting of Defects and Noncompliances per 10CFR21", Holtec International hereby notifies the Commission of a defect in the design basis input data for the analyses and design of ancillary components for spent nuclear fuel (SNF) storage racks. Holtec International is under contract to design, fabricate, and install replacement spent fuel storage racks for Exelon's Byron and Braidwood Nuclear Power Stations. Part of our contracted scope of work includes the removal and disposal of the existing racks at each plant.

The existing racks were recently removed from the Byron spent fuel pool and released to our subcontractor, Alaron Corporation, for disposal. We have been informed by Alaron that the as-found weights of each of the four removed Region 1 Byron racks (supplied by Joseph Oat Company over ten years ago) range from approximately 8,200 to 10,500 lbs greater than the weights used in the analyses supporting the licensing of the racks and the design of lifting equipment for the racks. Similarly designed racks, provided by the same supplier, are currently licensed and in use at the Braidwood Nuclear Power Plant. While small variations in rack weight are typical and within the accuracy of the supporting analyses and lifting equipment design, the magnitude of these discrepancies is unusual and brings into question the results of the previous analyses and the level of compliance of the lifting equipment design with the governing regulatory guidance (i.e., NUREG-0612). To the best of our knowledge, these racks for Byron and Braidwood were designed and fabricated by Joseph Oat Corporation of Camden, New Jersey ca. 1987. Since we are not the designer of record, we are unable to determine the actual impact of the weight discrepancy on the analyses. The Byron re-rack effort has been completed.

We have accounted for the same potential discrepancy with the Braidwood racks in the design of the lifting equipment by increasing the maximum rack weight used in the design. Braidwood site construction is ongoing. We are unable to determine whether the same type of error in rack weight exists at other nuclear plants that may have procured fuel racks from the same supplier.

The specific information required by 10 CFR 21.21(d)(4) is provided below.

IE20



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Name and Address of Individual Informing the Commission:

Mr. Mark Soler
Q.A. Manager
Holtec International
Holtec Center
555 Lincoln Drive West
Marlton, NJ 08053

Identification of the Basic Component Supplied Which Contains a Defect:

The basic components are: 1) the supporting analyses for the licensing of the previous Region 1 Byron Plant spent fuel storage rack identification numbers A1, B1, B2, and B3 and 2) the lifting equipment used to lift these racks out of the spent fuel pool and move them to their designated storage location. These racks have been removed from service at Byron Plant.

Identification of the Firm Supplying the Basic Component Which Contains a Defect:

Joseph Oat Corporation
2500 Broadway
Camden, NJ 08104

Nature of the Defect and the Safety Hazard Which Could Be Created by the Defect:

Spent fuel storage racks removed from the Byron Nuclear Power Plant were discovered to have as-found weights ranging from approximately 8,200 to 10,500 lbs more than the weights used in the analyses supporting the original design and licensing of these racks and in the design of the lifting equipment used to lift the racks. The analyses related to seismic loadings, bearing pad design, spent fuel pool liner fatigue, and possibly others used to design and license these racks may no longer be conservative when the additional weight is considered. The actual impact on these analyses has not, to our knowledge, been evaluated. The impact on the design of the lifting equipment is that the design safety factors for the lifting equipment, while still above 1.0, may not meet the minimum safety factors in NUREG-0612 and associated reference documents.



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The Date on Which the Information of Such Defect was Obtained:

Approximately October 18, 2000

The Number and Location(s) of the Basic Component Which Contains the Defect

There were four (4) Region 1 racks removed from the Byron spent fuel pool found to have this discrepancy. While the racks in question are no longer in service, four similarly designed racks provided by the same supplier are known to be in service at the Braidwood Nuclear Station. Since Holtec is not the supplier of the hardware with the defect, the total number and locations where the basic component is in service is unknown to us. The lifting equipment used at Byron Station is no longer in service.

The Corrective Action Which Has Been, Is Being, or Will Be Taken, Name of Individual or Organization Responsible for the Action, and the Length of Time That Has Been, or Will Be Taken to Complete the Action:

There are no corrective actions required for the racks and lifting equipment at Byron Station since they have been removed from service. We are unaware of any corrective actions planned or taken regarding the licensing basis analyses as a result of this issue at Braidwood Station or elsewhere. However, the affected Braidwood Station racks are scheduled to be removed from service by the end of April, 2001. We have accounted for the potential overweight condition with the Braidwood racks by incorporating an appropriately higher design rack weight into the design of the lifting equipment to be used to remove the racks at Braidwood Station.

Any Advice Related to the Defect about the Basic Component That Has Been, Is Being, or Will Be Given to Purchasers or Licensees:

We have informed the Byron and Braidwood Station licensee (Exelon Corporation) of the issue. While we are not the supplier of the affected racks, the design and licensing of spent fuel racks is a core business for Holtec International. It is impossible to measure the weight of the racks currently in use at Braidwood Station. These racks are scheduled to be removed in the next few months. We recommend that, for any plant having similar vintage racks from the same supplier currently in service, the licensing basis analyses be re-performed with the corrected weight to confirm whether the results continue to be valid for those installed racks. The need for additional corrective actions would be determined based on the results of this re-analysis work.



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If you have any questions or require additional information, please contact me at (856) 797-0900, extension 619.

Sincerely,

Mark Soler
QA Manager

Concurrence:
Licensing

Brian Gutherman, P.E.

emcc: Mr. Ken Ainger, Exelon Corp. (w/encl.)
Mr. Steven Soler, Holtec International

Enclosure: Holtec 10 CFR 21 Evaluation and related information (12 pages)

Document I.D.: HQP15.1.3

In

To: Mark Soler <Mark_Soler@holtec.com>
Subject: 10CFR21 Evaluation - Byron Region 1 Racks

Mark,

In light of the recent discovery that the Joseph Oat Region 1 racks, which were removed from the Byron spent fuel pool, weigh approximately 10,000 pounds more than their licensed (design) weight, Steve Soler has performed an independent 10 CFR Part 21 Evaluation. Moreover, he concluded that this deviation is reportable under 10 CFR Part 21.

In accordance with the rules of 10 CFR Part 21, we reported our conclusion to Joe Bauer of Exelon Nuclear Corp. (i.e., the equipment owner) on 11/30/00, and we suggested that Exelon perform an independent evaluation of the incident. We further advised Exelon that if they disagree with our assessment and/or they do not intend to identify this deviation to the USNRC, Holtec will be required to proceed on our own. A response was requested from Exelon to Holtec by December 11, 2000.

Today I called Joe Bauer to receive an update on this issue. During our conversation, Joe confirmed that he had discussed this issue with his colleagues and that they concluded that Holtec should notify the USNRC in accordance with Holtec's QA program.

Chuck

Charles W. Bullard II
Project Engineer
Holtec International

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Fax: (856) 797-0909
E-mail: Chuck_Bullard@holtec.com

Visit our website at <<http://www.holtecinternational.com>>

Exhibit 15.1-1

10CFR21 DEVIATION AND NONCOMPLIANCE EVALUATION

BRIEFLY SUMMARIZE THE DEVIATION OR NONCONFORMING ITEM*:

Existing Region 1 style racks that were removed from the Byron spent fuel pool each was found to be approximately 10,000 pounds greater in weight than their weight listed in their related licensing submittal. These racks are also found at the Braidwood site.

DATE OF DISCOVERY:

10/11/2000

SOURCE DOCUMENT FOR DEVIATION OR NONCOMPLIANCE (E.G., AUDIT REPORT, QPVF, NCR, CAR, ETC.):

Letter received from Alaron dated 10/11/00 stating as found weights of delivered racks.

NAME AND ADDRESS OF ENTITY RESPONSIBLE FOR THE DEVIATION OR NONCOMPLIANCE:

Joseph Oat Corporation – fabricator

I. Determination of 10 CFR 21 Applicability

Is the affected component hardware or the design, analysis, inspection, testing, fabrication, replacement of parts, or consulting services associated with the component hardware a basic component (see Definition 2.1).

YES X NO

BASIS:

Rack weight is an integral input for much of the supporting rack analysis.

* Include part make/model or similar identifier, as applicable.

10CFR21 DEVIATION AND NONCOMPLIANCE EVALUATION

If the response is "NO", then 10 CFR 21 is not applicable to this deviation or noncompliance. The preparer and reviewer must sign this exhibit and obtain a QA concurrence signature. No further action is required.

II. Description of Deviation or Noncompliance

Provide a detailed description of the deviation or noncompliance as it relates to the basic component's ability to perform its safety function (see Definition 2.7).

In the processing of the existing spent fuel racks removed from the Byron site, it was discovered that each of the four Region 1 racks weighed approximately 10,000 pounds greater than the value listed in the previously submitted Licensing Amendment for these generation of racks. Though these racks have been removed from Byron, duplicate racks are presently in operation at the Braidwood facility. The racks were supplied by Joseph Oat Corporation. Their existence at other plants is not known.

III. Determination of 10 CFR 21 Reportability

Is the deviation or noncompliance described in Item II above a defect or failure to comply potentially involving a substantial safety hazard per 10 CFR 21 (see Definition 2.6). Pay particular attention to Definition 2.14 for Substantial Safety Hazard.

NOTE: For those occasions where it is indeterminate whether a defect or noncompliance constituting a substantial safety hazard exists, consult with the QA Manager; Licensing Manager, Vice President, Nuclear Projects; or other Holtec senior management. If, after discussion with Holtec management, the issue is still indeterminate and no further evaluation can be performed in a timely manner, check "YES" and report the issue to the NRC. Describe the issue as a "potential" defect or failure to comply potentially involving a substantial safety hazard in the basis below.

YES X

NO _____

BASIS:

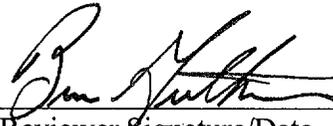
If the increased rack weight was not factored into the design basis, analyses related to seismic evaluation, bearing pad analysis, liner fatigue, etc. may not be conservative.

10CFR21 DEVIATION AND NONCOMPLIANCE EVALUATION

IV. Conclusion

The deviation/noncompliance **IS** reportable under 10 CFR 21

 11.10.00
Preparer Signature/Date

 11/14/00
Reviewer Signature/Date

The deviation/noncompliance **IS NOT** reportable under 10 CFR 21

Preparer Signature/Date

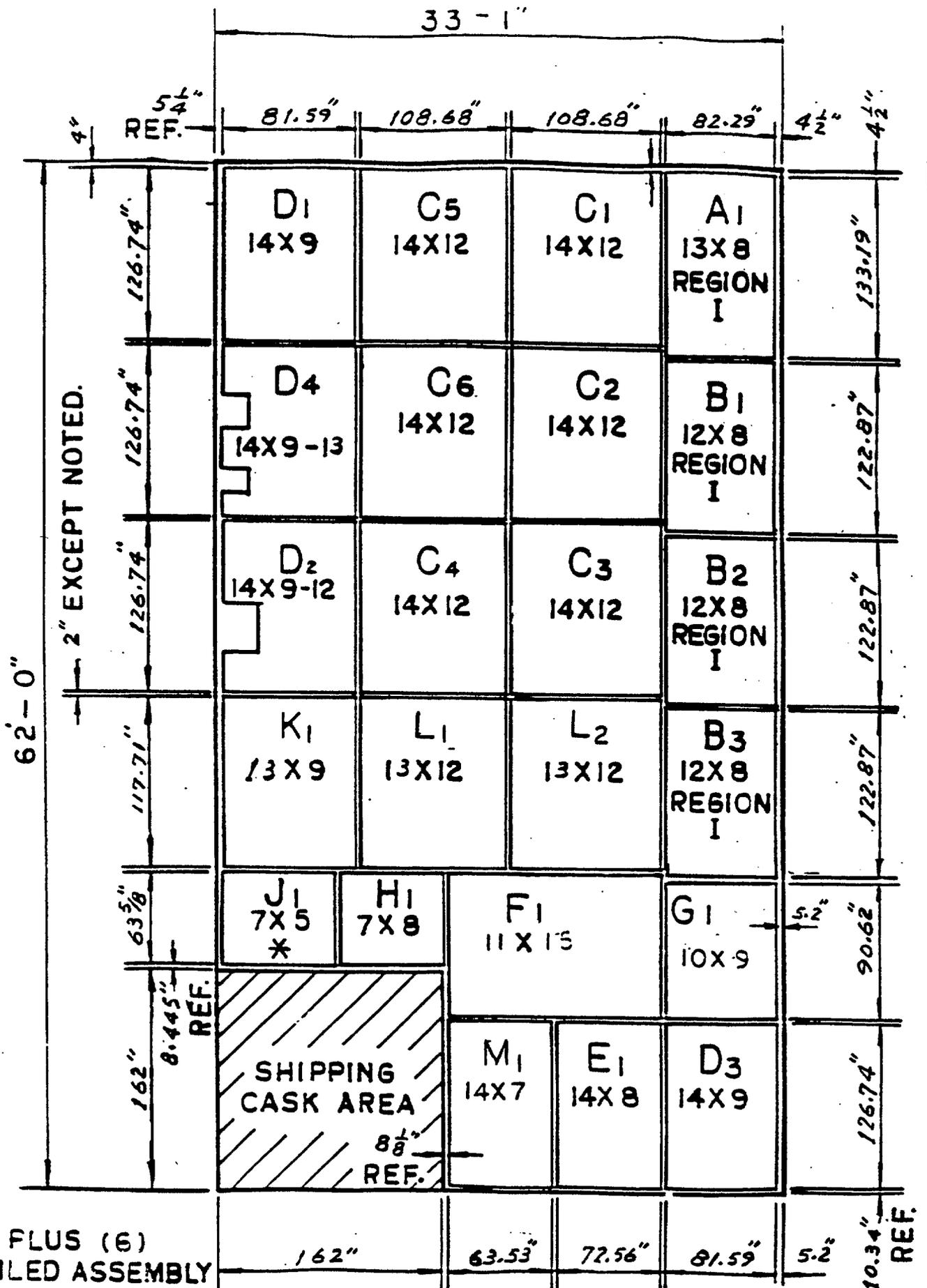
Reviewer Signature/Date

 11/14/00
QA Manager Concurrence Signature/Date

Table 2.2

MODULE DATA (FROM LICENSE DBHITAL)

Region	Module Type	Number of Modules	Cells per Module	Module Size	Approximate Weight (lb/module)
I	A1	1	104	13x8	20,800
I	B1-3	3	96	12x8	19,200
II	C1-6	6	168	14x12	26,900
II	D1&3	2	126	14x9	20,150
II	D4	1	113	14x9 -(2x2+3x3)	18,360
II	D2	1	114	14x9-(4x3)	18,250
II	E1	1	112	14x8	17,900
II	F1	1	165	11x15	26,600
II	G1	1	90	10x9	14,700
II	H1	1	56	7x8	8,950
II	J1	1	35+6 failed fuel containers	7x5	10,150
II	K1	1	117	13x9	19,000
II	L1-L2	2	156	13x12	25,200
II	M1	1	98	14x7	16,000



* FLUS (6)
 FAILED ASSEMBLY
 CELLS.

FIGURE 2.1 POOL LAYOUT (FROM UCSWE SUBMITAL)

BYRON EXISTING RACK INFORMATION PER ALARON

Shipment #	Alaron Tracking #	Rack ID	Cell Count	Manifest Weight	Actual Weight	Variance
1	36	D1	14 x 9	20150	20422	272
2	37	C5	14 x 12	28900*	26349	-2551
3	41	C1	14 x 12	26900	26629	-271
4	45	C6	14 x 12	26900	27407	507
5	46	C2	14 x 12	26900	29625	2725
6	51	D4	14 x 9 -13	18360	20250	1890
7	55	A1	13 x 8	20800	31308	10508
8	58	B1	12 x 8	20520	30636	10116
9	75	C3	14 x 12	26900	27970	1070
10	77	B2	12 x 8	19200	28401	9201
11	78	C4	14 x 12	26900	27250	350
12	79	D2	14 x 9 -12	20150	20324	174
13	90	L1	13 x 12	25200	25925	725
14	92	L2	13 x 12	25200	25897	697
15	96	K1	13 x 9	19000	15742	-3258
16	100	B3	12 x 8	19200	27428	8228
17	101	H1	7 x 8	8950	9038	88
18	102	F1	11 x 15	26600	27012	412
19	115	G1	10 x 9	14700	15298	598
20	117	M1	14 x 7	16000	17520	1520
21	118	D3	14 x 9	20150	22075	1925
22	119	E1	14 x 8	17900	17513	-287
23	124	J1	7 x 5 + 6 failed fuel canisters	10150	13046	2896

* assumed to be a typo on manifest -- design rack weight is 26900#

TOTAL: 485630 533065 47435

** 483630 533065 49435

** Totals adjusting for assumed typo on shipping manifest sheet



ALARON CORPORATION

#

RECEIVED

OCT 23 2000

HOLTEC INTERNATIONAL
NEW JERSEY OFFICE

90

October 18, 2000

Holtec International
Holtec Center
555 Lincoln Drive West
Marlton, New Jersey 08053
Attn. Mr. Steven Soler

Mr. Soler:

Alaron offers the following additional data on weight determination of the fuel racks from the Byron Nuclear Station.

Weights were determined using calibrated scales. See the attached calibration certificates from Youngstown Scale. The scales are calibrated on six month intervals in addition, Mr. Dave Puhalla of Alaron is a certified weigh master in the State of Pennsylvania. This certification is required for scales that are directly used in commerce.

Method of weight determination is as follows:

- 1) Containment Areas cleaned and inspected to be free of debris
- 2) Single fuel rack is loaded into the containment
- 3) Disposal boxes are weighed to determine their tare weight and placed inside the containment
- 4) The rack is sectioned and loaded into the boxes.
- 5) ONLY rack material is loaded into the boxes which includes chevron, base plates and slag from cutting.
- 6) The filled box is weighed upon removal from the containment.
- 7) If a partial box is generated upon completion of a rack, it is weighed then replaced into the containment.
- 8) The net weights of each box are summed to determine the actual incoming rack weight.

This methodology has been used at Alaron for many years and has withstood scrutiny several times in situations such as this.

RD#2, BOX 2140A
WAMPUM, PENNSYLVANIA 16157
(724) 535-5777
FAX (724) 535-1165
E-mail: alaronwm@ccia.com

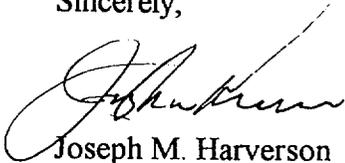
6359 DERBY SHIRE LANE
LOVELAND, OHIO 45140
(513) 583-1744
FAX (513) 583-8505
E-mail: alaronsmf@aol.com

The trucking company that hauled the racks does not have weigh slips available for each rack shipment.

No lead shielding weights were included in the rack weights. The shielding was removed prior to moving the rack into containment.

If you have any questions, please call.

Sincerely,

A handwritten signature in cursive script, appearing to read "J. Harverson".

Joseph M. Harverson
President

Youngstown Scale
 P.O. Box 2403
 Youngstown, OH 44509
 (330) 744-1333 or (800) 222-5750

Reference Number

State of Ohio Registration # YOD-492

Scale Test Record

Type of Scale	<input checked="" type="checkbox"/> Electronic	<input type="checkbox"/> Mechanical	<input type="checkbox"/> Hopper	<input checked="" type="checkbox"/> Floor	<input type="checkbox"/> Bench	<input type="checkbox"/> Lab	<input type="checkbox"/> Crane	<input type="checkbox"/> Dial	<input type="checkbox"/> Beam
Date of Inspection	6-19-00	Inspection Due	12-19-00	Company Name: Alaron Corporation					
Address: R.D. #2, Box 2140A, Warren, PA 15087						Location of Scale: 01 Building			
Maker/Model: Thermo UMC255AAAC			Serial Number: M2074			Condition of Seal (as found)		Broken	Intact
Capacity	10,000 lbs	Minimum Graduations	20 lbs	Sealing Capacity	100 lbs	Years Load Balance (as found)		0	100 lbs
Procedure Identification number (CP-11)				Standard Weights Expiration Date: 5/25/01					

Load	Load Position (Section)	Scale Readings			Errors (in divisions)		
		(1)	(2)	(3)	(1)	(2)	(3)
1000	Center	996	1000		-4	0	
2000	Center	996	1000		-4	0	
3000	Center	996	1000		-4	0	
4000	Center	996	1000		-4	0	
5000	Center	996	1000		-4	0	
6000	Center	996	1000		-4	0	
7000	Center	996	1000		-4	0	
8000	Center	996	1000		-4	0	
9000	Center	996	1000		-4	0	
Decreasing Load Test Results	1000						

SE at Maximum Test Load
 AIA
 Zero Load Balance Shift
 AIA

Remarks: Scale good I inspected, Calibrated & Tested

Status	As Found	Final	Errors	In Tolerance	Out of Tolerance	Adjustment Required	Needs Repair	Can't Repair	Out of Service

Weights Used: (individual weights list size & sn. and list type & sn of kit)

500 lbs cast iron test weight

640676
 NIST # 527252567

inspected by: Brian Gump
 inspector's sig: [Signature]

Youngstown Scale
 P.O. Box 2403
 Youngstown, OH 44509
 (330) 744-1333 or (800) 222-6750
 Scale Test Record
 State of Ohio Registration # YOS-192

Reference Numb

Youngstown Scale

Scale Test Record

State of Ohio Registration # YOS-192

Youngstown, OH 44509

P.O. Box 2403

Youngstown, OH 44509

(330) 744-1333 or (800) 222-6750

Scale Test Record

State of Ohio Registration # YOS-192

OF AT MAXIMUM TEST LOAD
 1000 lbs
 1000 lbs

Load	Load Position	Scale Readings	Errors (in Divisions)
1000	Center	4000	0
2000	Center	6000	0
3000	Center	6000	0
4000	Center	6000	0
5000	Center	12000	0
6000	Center	18000	0
7000	Center	6000	0
8000	Center	6000	0
9000	Center	6000	0
10000	Center	6000	0
11000	Center	6000	0
12000	Center	6000	0
13000	Center	6000	0
14000	Center	6000	0
15000	Center	6000	0
16000	Center	6000	0
17000	Center	6000	0
18000	Center	6000	0
19000	Center	6000	0
20000	Center	6000	0

Scale weighs accurate I inspected & tested

| AS FOUND | AS REQUIRED |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <input checked="" type="checkbox"/> |
| WEIGHTS |
| WEIGHTS |

50016 Cast Iron Test Weights

640676

Number of users

Number of users