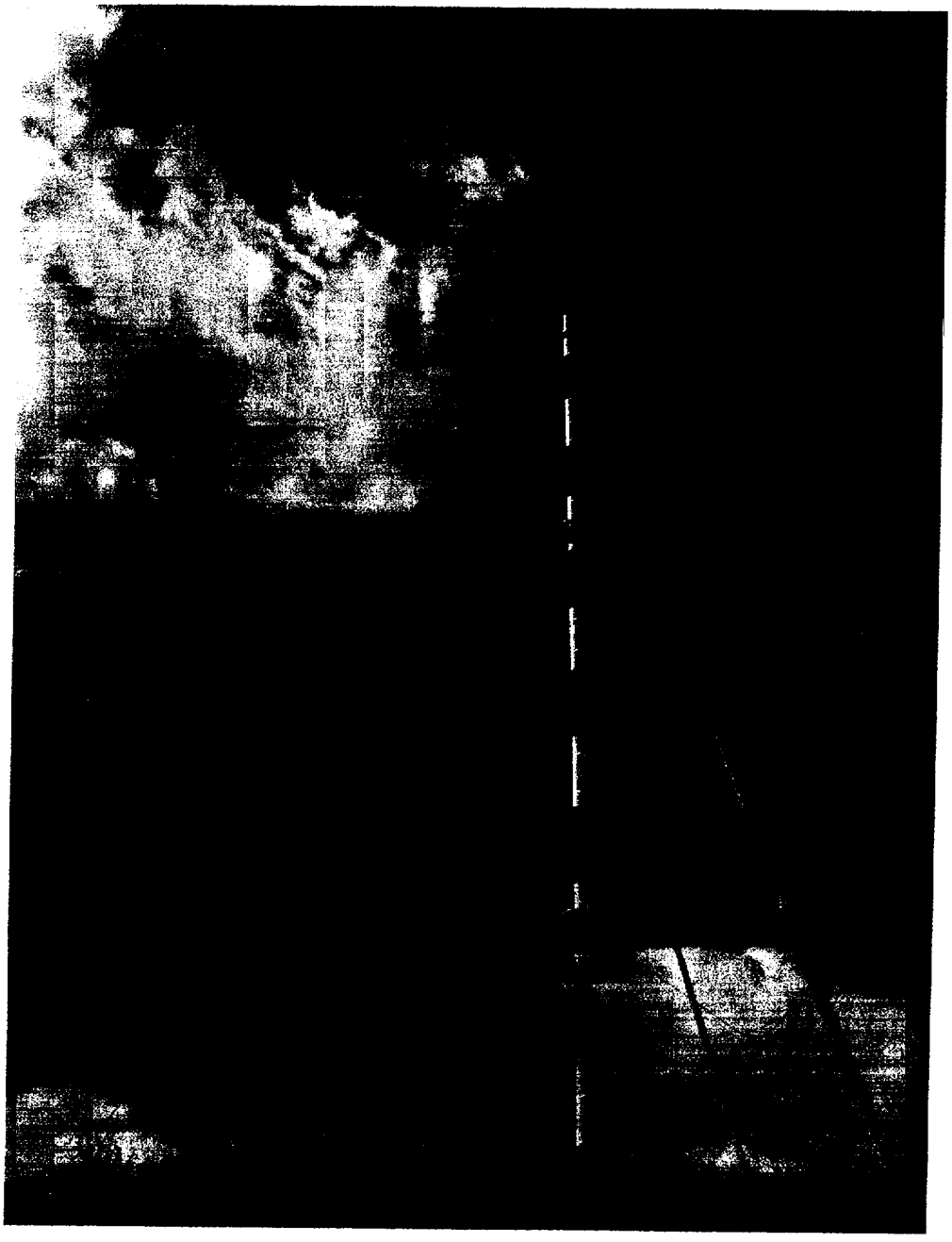
Entergy

Main Stack Inspection Report

5/08/06



Inspection completed for:
Entergy
Pilgrim Nuclear Power Plant
Rocky Hill Road
Plymouth, MA 02360
5/08/06

Inspection completed by:
Broadcast Tower Service Inc.
10 Jillian's Way
Bridgewater, MA 02324
Phone: 508-326-9485
Fax: 508-427-1756
Christopher Loycano
President

Work Sheet No. 2 – Augmented Scope

Guy Wire Tensions and Stack Alignment

[1] Measure existing guy wire tensions with a calibrated device provided by Engineering. Provide the following date:

North Guys: **Date:** 5/08/06
Start of shift: Temp. 50 degrees F. **Wind Speed:** 3 Mph **Direction:** N
Guy Tensions: 7/8" 8600lbs **1-1/4"** 12,000lbs **1-3/8"** 14,000lbs
End of Shift: Temp. 53 degrees **Wind Speed:** 4.6 Mph **Direction:** NE

West Guys: **Date:** 5/08/06
Start of Shift: Temp. 54 Degrees **Wind Speed:** 3 Mph **Direction:** N
Guy Tensions: 7/8" 9,000lbs **1-1/4"** 12,100lbs **1-3/8"** 15,400lbs
End of Shift: Temp. 56 degrees **Wind Speed:** 5 Mph **Direction:** NW

South Guys: **Date:** 5/08/06
Start of Shift: Temp. 56 degrees **Wind Speed:** 5 Mph **Direction:** NW
Guy Tensions: 7/8" 8,600lbs **1-1/4"** 12,200lbs **1-3/8"** 16,300lbs
End of Shift: Temp. 57 degrees **Wind Speed:** 14 Mph **Direction:** SW

[2] Measure existing stack alignment from positions on two azimuths approximately 90 degrees apart with a calibrated device approved by Engineering. Alignment data shall be the horizontal deflection from plumb at each guy location referenced to the stack base. Furnish a sketch showing locations chosen for instrument setup and provide the following data:

Position A (Instrument in North East quadrant, looking South West)

Start of shift: Temp. 63	**Wind Speed:** 15	**Direction:** 233*
Deviation: El. 165ft 0	**el.265ft** 0	**El. 365ft** 1" West
End of Shift: Temp. 63	**Wind Speed:** 15	**Direction:** 233*

Position B (Instrument in South East quadrant, looking Northwest)

Start of shift: Temp. 57	**Wind Speed:** 14	**Direction:** 227*
Deviation: El. 165ft 0	**El. 265ft** 1" East	**El. 365ft** 0

7/18/06-7/19/06 **Attachment 4**

Enclosure 2- Guy Wire Retensioning Final Results

Start of Work:
Air Temperature: 89 degrees F. **Wind Speed:** 8 Mph **Wind Direction:** S
70 degrees F. 3.7Mph N

North Guy Tensions:
Lower (7/8") 8,900lbs **Middle (1-1/4")** 12,000lbs **Upper (1-3/8")** 16,800lbs
Down One Turn Up One Turn

West Guy Tensions:
Lower (7/8") 9,000lbs **Middle (1-1/4")** 12,100lbs **Upper (1-3/8")** 16,800lbs
Up Two Turns Up Two Turns

South Guy Tensions:
Lower (7/8") 9,000lbs **Middle (1-1/4")** 12,200lbs **Upper (1-3/8")** 16,800lbs

End of Work
Air Temperature: 89 degrees F. **Wind Speed:** 14 Mph **Wind Direction:** SSW
69.6 degrees f. 9.2 Mph N

ENCLOSURE 3 - STACK ALIGNMENT AFTER GUY WIRE RETENSIONING

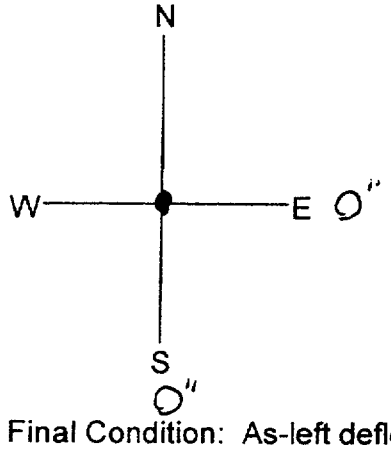
Instruction: Show to scale a point with dimensions representing the position of the centerline of the stack at the guy location, with respect to centerline of the stack at the base, in the applicable quadrant. In this case the stack "base" is the lowest visible elevation which can be seen from the set-up locations of the optical survey instruments.

NOTE

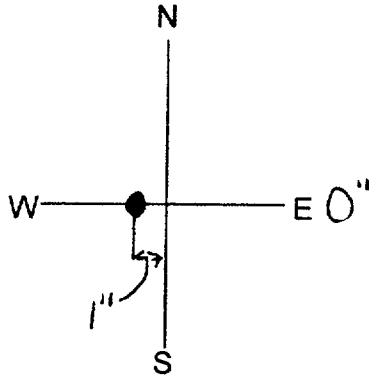
North is defined by the PNPS convention shown on Drawing C322A, which differs from true north.

Initial Condition: As-found deflection with respect to the stack base

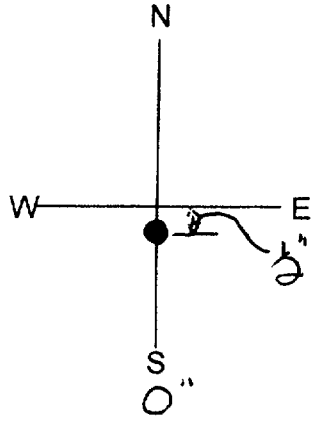
Lower Guy Attachment



Middle Guy Attachment

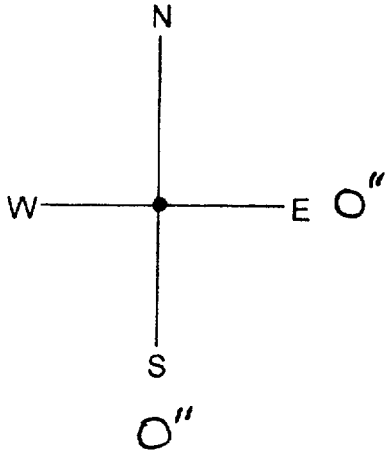


Upper Guy Attachment

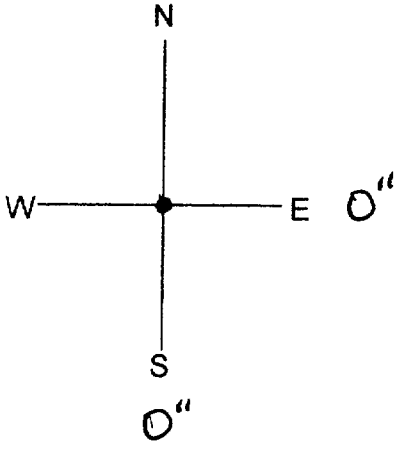


Final Condition: As-left deflection with respect to the stack base

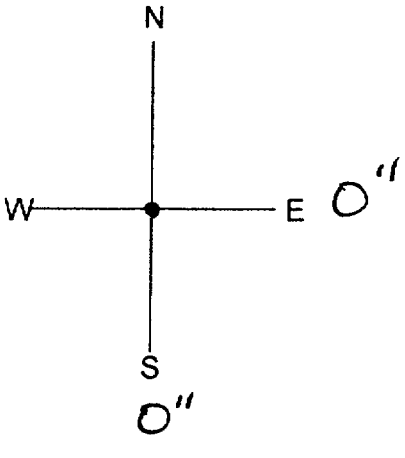
Lower Guy Attachment



Middle Guy Attachment



Upper Guy Attachment



RTYPE H6.03

PILGRIM NUCLEAR POWER STATION

Procedure No. 3.M.5-2

MAIN STACK INSPECTION GUIDELINE

Stop
Think
Act
Review

REFERENCE USE

Rev Verified

4.0 DISCUSSION

The Main Stack is constructed from 30" diameter by 5/8" thick steel pipe and is supported atop the Main Stack Filter Building, located about 700 feet northwest of the Reactor Building. Its top elevation is approximately 400 feet above mean seawater level. It is laterally supported at three different elevations by three guy wires 120 degrees apart. Each guy wire is connected to the stack at the upper end and fastened to a concrete anchor block at the ground level. Guy wire tensions must be maintained within acceptable ranges to limit stack deflections and stresses under design basis wind loading.

5.0 SPECIAL TOOLS AND EQUIPMENT

[1] Transit (or equal) to check stack alignment (Augmented Scope only)

[2] Shunt type dynamometer (or equal) to check guy wire tension (Augmented Scope only)

[3] Access to wind speed, direction, and air temperature data (Augmented Scope only)

[4] Binoculars for visual inspections of unreachable locations above ground level

[5] Radios and phone for emergency communications

[6] Safety equipment for worker protection when climbing

[7] Camera

6.0 PRECAUTIONS AND LIMITATIONS

The following safety precautions shall be observed at all times while performing inspection:

[1] Authorization must be obtained from the SM prior to the inspection.

[2] General condition inspection should be performed by experienced and trained personnel using proper safety equipment (PNPS 1.4.54).

[3] Personnel climbing the stack ladder shall use a full body harness and center rail ladder climbing device and have a means of communication (preferrably radio/phone) with ground personnel.

[4] Ground personnel shall be equipped with a radio/phone to permit communications with climbers and the Station.

15½ 233°
Top 63

WORK SHEET NO. 1 - BASIC INSPECTION

CONDITION OF GUY WIRES, CONNECTIONS, AND STACK EXTERIOR SURFACES

Perform the following inspections and provide descriptions and photographs of all conditions determined to be unsatisfactory.

[1] At each reinforced concrete "deadman" anchor block, inspect the concrete block for evidence of cracking, spalling, or any other form of deterioration. Inspect the surrounding ground area for evidence of block movement, soil erosion, interfering vegetation growth, or any other unusual conditions.

North Block	Sat [✓]	Unsat [ ]
West Block	Sat [✓]	Unsat [ ]
South Block	Sat [✓]	Unsat [ ]

[2] At each reinforced concrete "deadman" anchor block, inspect the 2" thick embedment plate, the threaded eye bars and cotter pins, wire rope bridge sockets, vibration dampers, and electrical ground wire connections for each of the three guys for coating failure, corrosion, pitting, loose parts, damage, evidence of deformation, movement or wear, or any other unusual conditions.

North Block	Sat [✓]	Unsat [ ]
West Block	Sat [✓]	Unsat [ ]
South Block	Sat [✓]	Unsat [ ]

[3] At the guy wire attachment points to the main stack, inspect the connection plates and the open wire rope sockets and cotter pins for each of the three guy wires for coating failure, corrosion, pitting, damage, evidence of deformation, movement or wear, or any other unusual conditions.

Guy @ El. 165 ft	Sat [✓]	Unsat [ ]
Guy @ El. 265 ft	Sat [✓]	Unsat [ ] — picture - South guy
Guy @ El. 365 ft	Sat [✓]	Unsat [ ] picture South

[4] At each of the nine guys, inspect the entire length of the wire for corrosion, damage, interfering vegetation growth, evidence of deformation or wear, broken strands, or any other unusual conditions.

7/8" Guy @ North Block	Sat [ ]	Unsat [ ]
1-1/4" Guy @ North Block	Sat [ ]	Unsat [ ]
1-3/8" Guy @ North Block	Sat [ ]	Unsat [ ]
7/8" Guy @ West Block	Sat [ ]	Unsat [ ]
1-1/4" Guy @ West Block	Sat [ ]	Unsat [ ]
1-3/8" Guy @ West Block	Sat [ ]	Unsat [ ]
7/8" Guy @ South Block	Sat [ ]	Unsat [ ]
1-1/4" Guy @ South Block	Sat [ ]	Unsat [ ]
1-3/8" Guy @ South Block	Sat [ ]	Unsat [ ]

[5] At all main stack pipe sections, inspect bolted connections for coating failure, corrosion, pitting, loose fasteners, damage, evidence of deformation, movement or wear, or any other unusual conditions:

Stack Base and Seven Bolted Flanges (Ref: Dwg C332A, Details 2 and 7)

Base @ El. 95'	Sat [ ]	Unsat [ ]
Flange @ El. 136'	Sat [ ]	Unsat [ ] rust/between
Flange @ El. 177.75'	Sat [ ]	Unsat [ ]
Flange @ El. 219.54'	Sat [ ]	Unsat [ ]
Flange @ El. 261.33'	Sat [ ]	Unsat [ ] - Rusted Nuts -
Flange @ El. 303.05'	Sat [ ]	Unsat [ ]
Flange @ El. 344.81'	Sat [ ]	Unsat [ ]
Flange @ El. 386.59'	Sat [ ]	Unsat [ ]

[6] Inspect pipe segment exterior surfaces for coating failure, corrosion, pitting, damage, or any other unusual conditions:

Eight Pipe Segments

El. 95' to 136'	Sat [✓]	Unsat [ ]	- Paint peeled - surface rust.
El. 136' to 177.75'	Sat [✓]	Unsat [ ]	platform/1st gray - rust white
El. 177.75' to 219.54'	Sat [✓]	Unsat [ ]	
El. 219.54' to 261.33'	Sat [✓]	Unsat [ ]	- rust/flaked paint
El. 261.33' to 303.05'	Sat [✓]	Unsat [ ]	platform/2nd gray white
El. 303.05' to 344.81'	Sat [✓]	Unsat [ ]	
El. 344.81' to 386.59'	Sat [✓]	Unsat [ ]	3rd gray/platform Red
El. 386.59' to 400'	Sat [✓]	Unsat [ ]	

[7] Engineering Review

Evaluation of Conditions Identified as Unsatisfactory by the Basic Inspection:

Condition: _____

Evaluation: _____

Condition: _____

Evaluation: _____

Condition: _____

Evaluation: _____

Prepared by: _____ _____
Mechanical/Civil/Structural Engineer Date

Reviewed by: _____ _____
Mechanical/Civil/Structural Mgr Date

7.0 PREREQUISITES

Prior to performing specific tasks, the performer will:

[1] Complete the following for personnel who sign for steps being completed in Section 7.0:

Name (print)	Initials
PAUL J. KRISTIAN	PJK

[2] Notify and obtain permission from the SM immediately prior to starting work. J. WHEARY J. CONO 5/17/06 — PJK Initials

[3] Notify the Safety Coordinator. L. SCHRAUL ✓ PJK 5/17/06 — PJK Initials

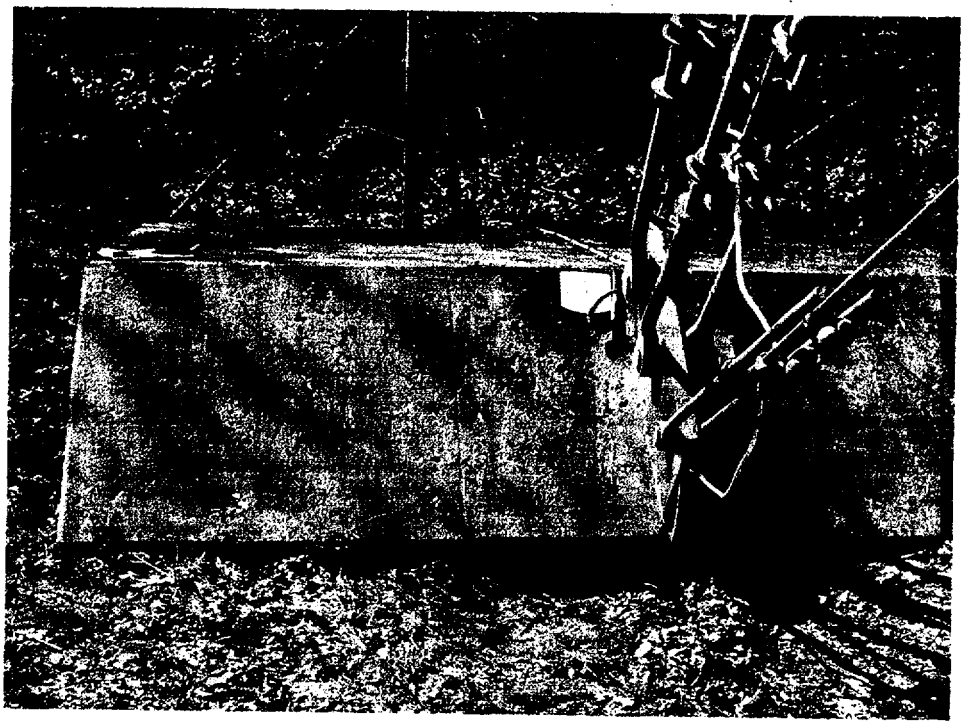
[4] Verify with Maintenance MT&E that the guy wire tension measuring equipment is properly calibrated. (Augmented Scope only) — PJK Initials

[5] Notify Radiation Protection (Red Line control point). R. HARTWELL 5/17/06 x8135 PJK — PJK Initials

[6] Notify the Security Shift Commander. S. PURDY x8151 — PJK Initials

[7] Notify Engineering (Civil/Structural). S. PURDY 5/17/06 G DYCKMAN — PJK Initials

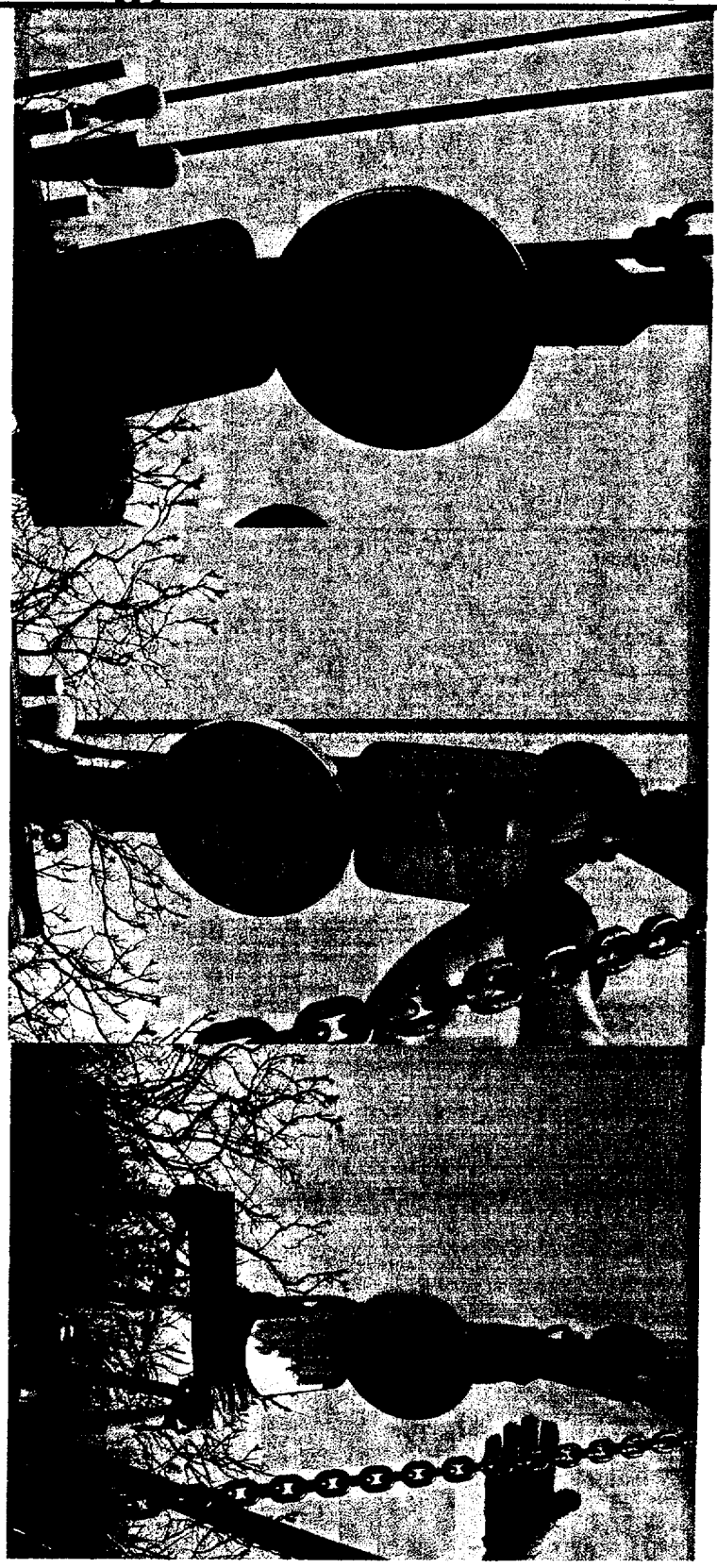
Entergy South Anchor



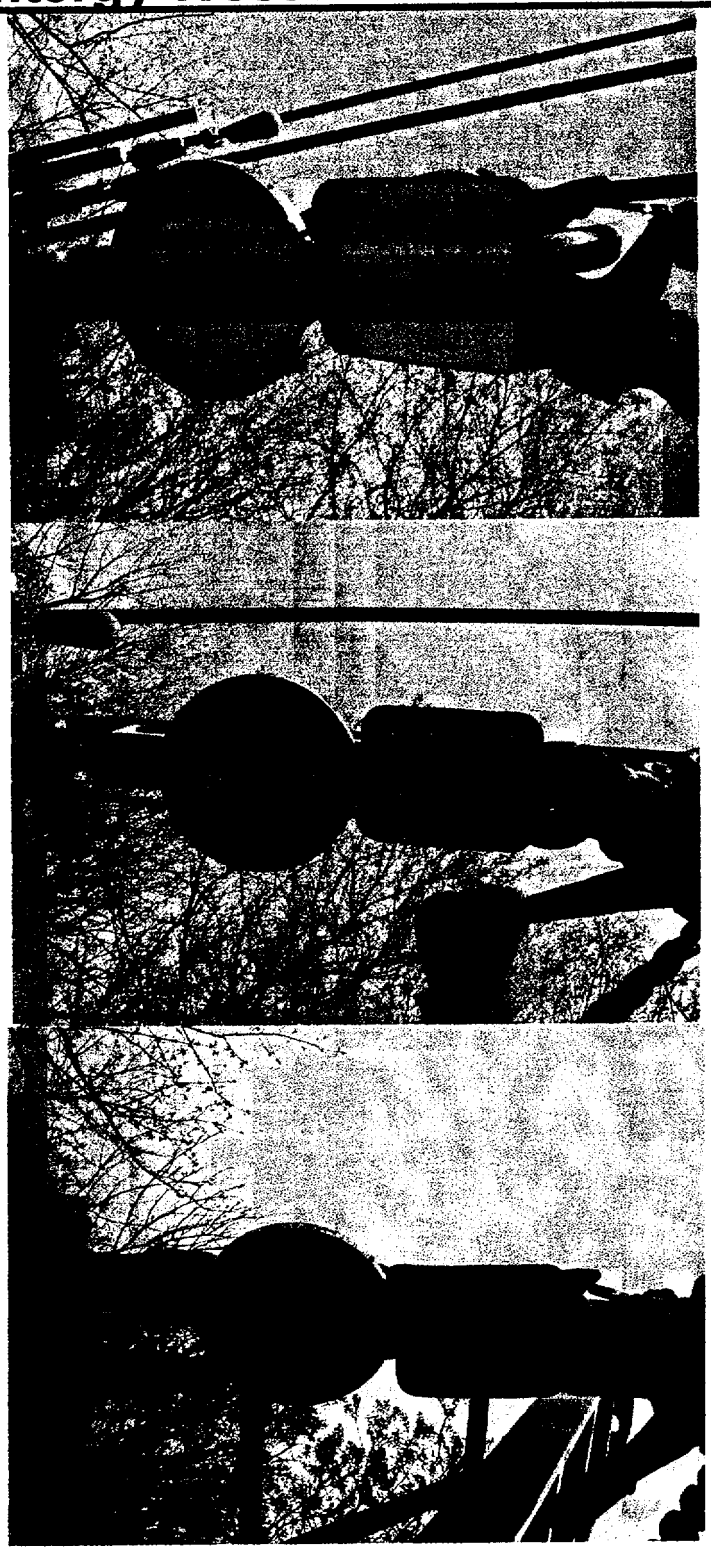
West Anchor

North Anchor

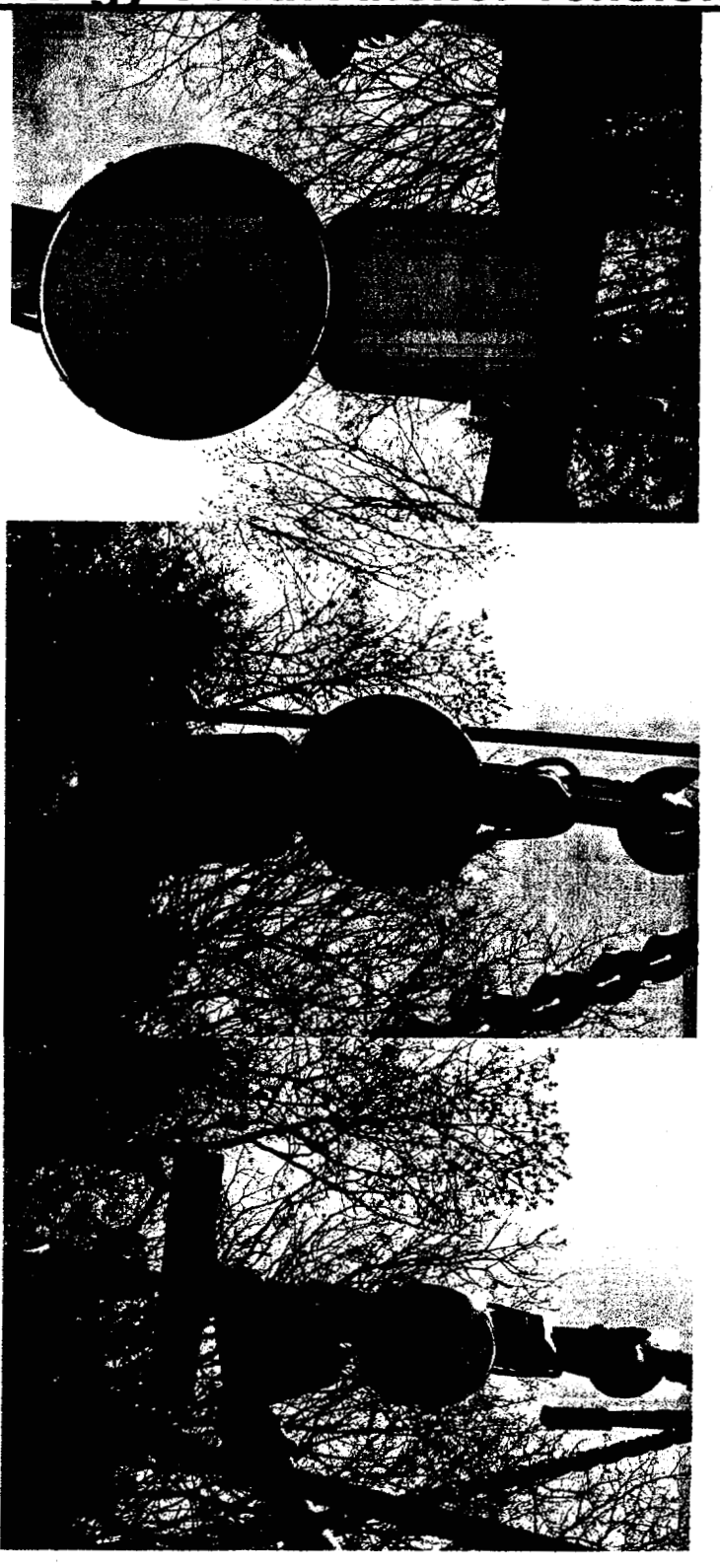
Entergy North Anchor Tensions



Entergy West Anchor Tensions



Entergy South Anchor Tensions



Entergy Flaking Paint

MAKEPEACE™

Certificate of Calibration

Issued to: Broadcast Tower Serv.
10 Jillian's Way
Bridgewater MA

MANUFACTURER	MODEL	SERIAL NUMBER
Lietz	NO10C	# 027344

We hereby certify that the above referenced equipment has been calibrated to original factory specifications

Authorized Signature

4-26-06
Date

B.L. Makepeace, Inc. • 125 Guest Street, Brighton, MA 02135 • 800.835.0194