H2

44-1

ENT000397
Submitted: March 30, 2012

O.K. 3-10-70

AJ0020

UNITED ENGINEERS & CONSTRUCTORS INC.
Philadelphia, Pennsylvania 19105

# Specification
for
# Yard Storm Drainage
and
# Yard and Building Standpipe Fire Protection System

Westinghouse Electric Corporation
Indian Point Generating Station - Unit No. 2
for
Consolidated Edison Company of New York

Date: October 31, 1966
Rev. 1: December 28, 1966

Specification No. 9321-01-44-1

# INDEX

## SECTION I

## GENERAL INFORMATION

| | |
|---|---|
| Owner: . . . . . | Consolidated Edison Company of New York. |
| Contractor: . . . . . | United Engineers & Constructors Inc.<br>1401 Arch Street,<br>Philadelphia, Pennsylvania 19105 |
| Description: . . . . . | Refer to Section II, under Item 1, "Scope." |
| Location: . . . . . | Indian Point Generating Station, Unit No. 2, near Peekskill, New York. |
| Handling and Storage Facilities: . | For motor truck, daily site deliveries are made by commercial carriers from terminals in nearby communities. Rail shipment via New York Central Railroad-Peekskill Freight Station (South Yard). Storage will be outdoors. |

## SECTION II

## EXTENT OF WORK

1. Scope

The work involved under this specification, and as shown on the drawings, shall include all labor and materials for furnishing and installing all pipe, valves, fittings, the installation of certain material provided by Others, and all other materials and appurtenances hereinafter explained, specified or required to complete the work, except as specifically omitted under "Work and Material by Others," all as more fully described herein and as shown on the drawings. All material furnished by this Subcontractor or by Others for installation by this Subcontractor, shall be unloaded and stored, as required, by this Subcontractor.

The work shall consist of the following:

A. Installation of equipment furnished by Others as noted in Section II, Item 2-B, "Work and Material by Others."

B. Yard storm drainage system including catch basins and manholes.

C. Yard fire protection system including hydrants and post indicator valves.

D. Turbine hall standpipe fire protection system.

E. All backfilling, shoring, and pumping as required for the work covered by the contract. Excavation will be done by Others.

2. Work and Material by Others

A. The following work and material will be furnished by Others:

(1) All concrete and masonry work except yard manholes and catch basins.

(2) All excavation and blasting.

(3) Pipe sleeves unless noted otherwise on drawings.

(4) All steam and condensate piping and all heating and ventilating work.

(5) Floor, equipment and roof drainage systems including sheet metal roof gutters and sheet metal downspouts.

SECTION II

2. Work and Material by Others (continued)

A. (continued)

(6) Special hazard fire protection systems including transformers, clean and dirty oil storage tank, turbine oil reservoir and seal oil unit.

(7) Cooling water to air-conditioning unit.

(8) Cathodic protection of underground lines.

(9) Sheet metal roof gutters and downspouts.

(10) All subsurface drainage piping.

(11) All electrical wiring including electric tracing of pipe or equipment.

(12) Finished painting.

B. The following material will be furnished by Others but installed by the Subcontractor:

(1) Portable fire extinguishers.

(2) Hose reels, including hose, pressure reducers and valves for the turbine hall standpipe system, will be furnished by Others but installed by this Subcontractor.

3. Permits

Include as part of this specification all permits and supervision fees required relative to the installation of this work. Two photostatic copies of all permits and certifications of inspection shall be forwarded to the Contractor.

4. Rules and Regulations

All work performed and all materials supplied under this specification shall be in accordance with all rules, regulations, and ordinances of the various bureaus having jurisdiction including New York State, applicable Federal Regulations and Associated Factory Mutuals or the National Board of Fire Underwriters.

5. Tests

All concealed or buried piping shall be tested and proved tight before being built-in or backfilled. Fire lines shall be tested in accordance with

SECTION II

5. Tests (continued)

Associated Factory Mutuals or the National Board of Fire Underwriters standards. The hydrostatic test pressure shall be 200 pounds per square inch applied for a period of not less than two hours. All joints shall be made tight at these pressures.

Any leaks that develop shall be repaired in an approved manner and to the satisfaction of the Contractor. Required test shall then be repeated until the system is proven tight.

Before any backfilling is done, underground drainage lines shall be subject to a careful inspection for grading, alignment of pipe, construction of joints, cracks and other defects in workmanship and materials. All defective work shall be corrected to the satisfaction of the Contractor.

All tests shall be made in the presence of the Contractor or their authorized representatives.

All bolts and rods on underground pipe and fittings shall be given a heavy coating of hot bitumastic or asphaltum paint after tests have been completed and approved.

6. Cleaning and Adjusting

At the completion of the installation, all water piping shall be thoroughly flushed and drained to remove all grease, chips, dirt, or other foreign matter. All points of lodgement in the storm and drain pipe systems shall be cleaned of all dirt and debris. After flushing, the water lines shall be refilled and left ready for use.

7. Cleaning and Patching

No cutting of walls or burning of holes in structural steel, necessary for erection of pipe or pipe supports, shall be done by the Subcontractor unless approval has been given by the Contractor.

## SECTION III

## MATERIAL AND EQUIPMENT

1. Carbon Steel Pipe

Carbon steel pipe shall be ASA Schedule 40, ASTM Specification A-53, of A-106, Grade A, seamless or resistance weld. Pipe shall be black or galvanized steel, plain or coated and wrapped, and cement lined, as called for under Section V, Piping Systems, or the drawings. Nipples shall be of the same material as the pipe. Close nipples shall not be used.

Steel pipe buried in ground shall be wire brushed and shop or field wrapped with coal tar and asbestos felt in accordance with AWWA Specification C203, latest revision.

Cement lining for steel pipe shall meet the requirements and shall be applied in accordance with AWWA Specification C205-62T (or the latest revision).

A. Fittings

Welding fittings shall be Schedule 40 and flanges shall be 150# weld neck. They shall be coated and wrapped or plain, cement lined--to conform and be consistent with pipe used.

B. Valves

All shutoff valves one inch and larger shall be gate valves. Valves shall be brass, screwed, rising stem, Crane Company's No. 431 for 150 lb. SWP, or approved equal.

2. Cast Iron Pipe

Pipe shall be either AWWA Class 150 or extra-heavy cast iron soil pipe, as designated on the drawings, with bell and spigot ends. Pipe installed in ground shall be coated with Roskote 612-XM.

A. Fittings

Fittings for AWWA bell and spigot pipe shall be Class 250 for fittings 12 inches and under, and Class D for fittings 14 inches and up. Fittings for cast iron soil pipe shall be extra-heavy bell and spigot.

B. Joint Yarning

Yarning for cast iron drain piping shall be either twisted jute or oakum.

2. Cast Iron Pipe (continued)

C. Lead

Lead for joints shall be commercial soft pig lead and shall contain not less than 99.9 percent metallic lead.

3. Corrugated Metal Pipe

Corrugated metal pipe shall be Armco galvanized smooth-flo sewer pipe, or approved equal. This pipe shall be fabricated and riveted in accordance with A.A.S.H.O. Specification M-36, latest revision, except that the longitudinal seams shall be riveted on the outside crest of each corrugation. Field joints shall be made with bands of the same material as the pipe and shall be a minimum of 7-inches wide for pipe up to 30-inches in diameter and a minimum of 12-inches wide for pipes greater than 30-inches in diameter. The 7-inch band shall have at least two galvanized bolts not less the 1/2-inch in diameter. The 12-inch shall have three bolts.

Pipe 21-inches in diameter and under shall be fabricated from 16 gauge steel sheets, pipe over 24-inches from 14 gauge.

The bituminous material for the pipe shall withstand freezing temperatures without cracking and elevated temperatures of about 150F without flowing or sagging. The pipe shall be uniformly coated inside and outside with a 0.05-inch minimum thickness of bituminous material. Additional bituminous material shall be centrifugally applied to the interior of the pipe filling the corrugations and providing a smooth lining having a minimum thickness of 1/8-inch above the crest of the corrugations.

Elbows, stubs and all other appurtenances, when called for on the drawings shall be fabricated of the same material as the pipe.

All pipe sections shall be furnished with lifting lugs or brackets to permit handling pipe without damaging coating.

4. Manhole Frames and Covers, Catch Basin and Trench Frames with Grating

All frames, covers and grating shall be made of close-grained grey cast iron of the type and size tabulated on the drawings and shall be as manufactured by Flockhart Foundry Company, or approved equal.

5. Fire Hydrants

Fire hydrants shall be compression type; ductile iron, one-piece barrel with 5-inch bottom valve and 6-inch flanged inlet connection; two 2-1/2-inch

5. Fire Hydrants (continued)

diameter hose nozzles; 4-1/2-inch pumper nozzle; pentagon operating nut 1-1/2-inch from point to flat, turn counterclockwise to open; depth of bury as called for on the drawings; and operating wrenches.

Hydrants shall be made to Factory Mutual specifications; 175 lbs working pressure, 300 lbs test pressure and shall be Darling b-50-b, Kennedy Figure 1080, R.D. Wood, or approved equal. Threads shall be National (American) Standard.

6. Valves and Indicator Posts

Valves shall be Factory Mutual approved, 175 lb cold water rating, 300 lb hydrostatic test, ductile iron bronze mounted, non-rising stem, turn counterclockwise to open and flanged connections.

Factory Mutual approved indicator posts and/or extension valve boxes shall have depth of bury called for on the drawing.

Valves shall be Kennedy Figure 701 or approved equal. Indicator posts shall be Kennedy Figure 541, or approved equal. Extension valve boxes shall be as specified on the drawing.

## SECTION IV

## INSTALLATION

1. Steel Pipe

Black carbon steel pipe shall be beveled for welding. Galvanized steel pipe shall be assembled with screw joints using standard threads. Threaded joints shall be made tight with graphite and oil, or approved jointing compound, applied to the male thread only.

All pipe shall be placed on end and well hammered to remove all scale, dirt, and rust before being assembled.

Cement lined steel pipe shall be assembled by welding. Welding shall be performed with small, low heat welding rods, to avoid excessive temperatures. Pipe shall be cut with a saw or pipe cutting machine to ensure a square cut. Joints shall be lightly buttered with a joint compound (in accordance with accepted recommended practice) before butting and welding.

Coated and wrapped steel pipe shall be assembled by welding. Welded field joints shall be cleaned, primed and coated in accordance with AWWA Specification C203, latest revision.

2. Cast Iron Pipe

Cast iron soil and AWWA pipe shall be assembled with bell and spigot joints.

The pipe shall be laid to true alignment and pitched to grades shown on the drawings. Pipes shall be graded and provided with firm and uniform supports. Adjacent lengths of pipe shall be adjusted with reference to each other as blocking or wedging between bell and spigot will not be permitted. Open ends of pipe, at the close of each day's work, shall be sealed with temporary wood plugs to prevent the entrance of foreign matter.

Picked oakum or jute yarn of best commercial grade shall be packed tightly into the annular spaces between the pipes to a depth of 1-1/2 inches, measured from the bottom of the bell. Gaskets shall not project into the bore of the finished joints. After the gaskets are placed, the joints shall be cleaned and the remaining space filled at one pouring with soft pig lead which shall be properly caulked to assure tight joints without overstraining the iron of the bells. After caulking, the lead shall be practically flush with the faces of the bells.

All tees, plugs, bends and valves of cast iron pipe lines under pressure shall be securely anchored in an approved manner by means of

2. Cast Iron Pipe (continued)

tie rods and pipe clamps. Clamps shall be made up of 3/4" x 2" steel flat bar with 5/8" diameter bolts and 3/4" diameter tie rods. Clamps, when used at steel to cast iron joints, shall be welded to steel pipe. Clamp assembly shall be given a heavy coating of hot bitumastic or asphaltum paint after pressure tests have been completed and approved.

3. Corrugated Metal Pipe

The corrugated pipe shall be assembled with standard coupling bands. The pipe shall be laid true to alignment and pitched to grades shown on the drawings. Where pipe connects to manholes or catch basins, the ends shall be placed or cut-off flush with the inside face of the structure.

Pipe trench shall be cut to permit thorough compaction of the back-filling material around the pipe. Where rock or hard shale is encountered, it shall be excavated below the bottom of the pipe for a depth of 8 inches and replaced with well-tamped compactible material.

Where pipe is to be placed in fill, the fill construction must be completed to an elevation 8 inches above the elevation of the crown of the pipe and then trench excavated and pipe placed.

Excavation at pipe ends for installation of pipe bands shall be held to a minimum.

Trench shall be backfilled with compactible soil material free from large stones, hard lumps or clods larger than 3-inches in diameter, sod, cinders or frozen fill. Fill shall be compacted by hand or pneumatic tampers in layers not exceeding 6-inches in compacted thickness. The backfill shall be brought-up evenly on both sides of the pipe for its full length to avoid lateral displacement of the pipe.

Coupling bands shall be field coated with Bitumastic #50, manufactured by the Koppers Company, Inc., or approved equal. Coating or lining bruised or damaged in shipment, installation, or burned by cutting or welding, shall be repaired by the application of the bituminous material used for shop coating the pipe or other suitable and approved material.

4. Pipe Hangers, Anchors and Supports

All piping shall be properly supported by substantial, adjustable wrought or malleable iron clevis-type hangers with steel rods suspended from malleable iron or wrought iron beam clamps or inserts.

4. Pipe Hangers, Anchors and Supports (continued)

Where indicated on drawings or required, provide suitable anchors and special strap type hangers and supports.

Hangers for lines larger than 1-1/2 inches shall be placed not more than 10 feet on centers; for lines 1-1/2 inches and smaller, not exceeding 8 feet on centers or at shorter intervals where necessary to prevent sagging and vibration. Vertical lines shall be substantially supported at the floor construction.

Furnish and install all structural steel required for the installation of pipe hangers and anchors.

5. Inserts

Inserts shall be cast iron or cast steel, designed to receive a machine bolt head or nut after installation. They shall permit adjustment of the bolt in one direction and shall be so designed and installed to develop the full strength of the bolt when installed in properly cured concrete.

6. Sleeves

All sleeves required by work covered by this contract shall be furnished and set by this Subcontractor, unless noted otherwise on the drawings. Asbestos wool packing shall be provided in space between the sleeve and pipe passing through it for those located in walls above grade and lead and oakum, for a watertight joint, in those located in walls below ground level.

7. Valve Installation

Valves shall be installed where specified or indicated on the drawings for the proper control of equipment, draining of lines, or to facilitate the removal of repair of any piece of apparatus without interfering with the use of other apparatus.

8. Cleanouts

All cleanouts shall be accessible and shall be installed at the ends of all horizontal drain lines and all other points shown on the drawings.

## SECTION V

## PIPING SYSTEM

Unless otherwise noted on the drawings, piping systems shall be installed with material called for below. All steel pipe, except pipe sleeves, buried in ground shall be coated and wrapped as specified under Item 3, Fire Lines-yard.

1. Underground Pipe Sleeves

   All lines, except corrugated metal pipe, installed under railroad tracks shall be run in standard weight steel pipe sleeve coated with Roskote 612-XM, and shall be provided with insulating spacers to eliminate the possibility of metallic contact between pipe and casing.

2. Storm Drains

   Yard storm lines shall be assembled using corrugated galvanized smooth-flow sewer pipe, unless specified otherwise on the drawings.

3. Fire Lines - Yard

   Piping shall be assembled using Schedule 40 cement lined, coated and wrapped black steel pipe and weld fittings. Pipe joints are welded butt connections to post indicator valves and hydrants shall be flanged. Flanged connections shall be made up with rust-proofed steel bolts and then given a heavy coating of hot bitumastic or asphaltum paint.

4. Fire Lines - Standpipe System

   Building standpipe fire protection system shall be assembled using Schedule 40, cement lined, black steel pipe and weld fittings.

## SECTION VI

## GENERAL

1. Shop Drawings

Twelve (12) copies of cuts, descriptive matter, and detailed prints of all equipment and accessories specified herein or on drawings together with one sepia of each, shall be submitted for approval before placing an order.

After approval, twelve (12) copies of all approved prints, and descriptive matter with one reproducible of each, shall be furnished for final distribution.

CRANE 50-25-25-10-10-10 ~ Hookroom 50'

Hot welders

Ovens

Welding Under Gen Foreman ~

Inspectors Under foremans (in area) has appeals to work Mgr.

250 KVA ~ Source probably Indian 192

Technician experienced - X/R - DP - Magnaflux.

JOHN - ~~Bob~~ BURGHOFFER CHIEF ENG

2 GEZARI WORKS MNGR.

Bidder: _____

Date: _____

QUESTIONNAIRE

Data to be Submitted with Proposal
for
Plant Drainage
and
Yard and Building Standpipe
Fire Protection Systems
for
Indian Point Generating Station - Unit No. 2
Consolidated Edison Company of New York

United Engineers & Constructors Inc. Philadelphia, Pennsylvania 19105
Date: October 31, 1966 Specification No. 9321-01-44-1

---

Bidders shall quote as follows:

1. State variations and exceptions, if any, to the specification.

2. State lump sum price for furnishing labor and material for installation of work outlined in this specification and shown on the drawings including work, if any, marked "Hold." . . . . . $_____

3. Cost, if any, of each extra trip to the job if the work cannot be completed in one continuous operation . . . . . $_____

4. State unit price per foot of pipe, including labor and material, for additon to or deduction from scope of work:

   A. Corrugated Metal Pipe, Yard Storm Sewer:

      (1) 30" Diameter . . . . . $_____

      (2) 24" Diameter . . . . . $_____

      (3) 21" Diameter . . . . . $_____

      (4) 18" Diameter . . . . . $_____

      (5) 15" Diameter . . . . . $_____

      (6) 12" Diameter . . . . . $_____

QUESTIONNAIRE

4. (continued)

B. Yard Fire Line, Schedule 40, Cement Lined, Coated and Wrapped:

(1) 12" Diameter . . . . . $_____

(2) 10" Diameter . . . . . $_____

(3) 8" Diameter . . . . . $_____

(4) 6" Diameter . . . . . $_____

C. Standpipe System, Schedule 40, Black Steel, Cement Lined:

(1) 10" Diameter . . . . . $_____

(2) 8" Diameter . . . . . $_____

(3) 6" Diameter . . . . . $_____

(4) 4" Diameter . . . . . $_____

D. Extra-heavy Cast-iron soil pipe (building drains):

(1) 12" Diameter . . . . . $_____

(2) 8" Diameter . . . . . $_____

(3) 6" Diameter . . . . . $_____

(4) 4" Diameter . . . . . $_____

(5) 2" Diameter . . . . . $_____

E. AWWA, Class 150 (building drains):

(1) 12" Diameter . . . . . $_____

(2) 8" Diameter . . . . . $_____

(3) 6" Diameter . . . . . $_____

(4) 4" Diameter . . . . . $_____

(5) 2" Diameter . . . . . $_____

QUESTIONNAIRE

4. (continued)

F. Polyvinyl Chloride Pipe (building drains):

(1) Schedule 80:

a) 4" Diameter . . . . . $_____

b) 3" Diameter . . . . . $_____

c) 2" Diameter . . . . . $_____

(2) Schedule 40:

a) 4" Diameter . . . . . $_____

b) 3" Diameter . . . . . $_____

c) 2" Diameter . . . . . $_____

200546-P

FORM NO. 762
REV. 10-67

UNITED ENGINEERS & CONSTRUCTORS INC.
Philadelphia

QUALITY CONTROL

INSPECTION REPORT

- [ ] Shop
- [x] Field
- [ ] Receiving

J.O. 9321-01

Client Westinghouse (Indian Point #2) Date 6-26-69

Item Inspected Fire Protection Piping No. _____ P.O. No. 9321-01-44-1

Vendor _____ Address _____

Firm & Work Location John Schneider

Type of Inspection Holiday Dimensional _____ Visual X Other _____

Date of Inspection 6-6-69 Acceptable _____ Non-acceptable _____

DWG. No. F-4006 Specification No. 44-1 Waiver _____

J. Schmidt

J. Schmidt - Inspector

Comments

This report covers the electrical (Holiday) testing of a section of 8" Fire Protection Piping.

Piping inspected was the tie-in to Unit No. 1 High Pressure Water Line approximately 50' South East of the Primary Water Storage Tank, running North to an 8" valve. The 16" city water and 15" drain lines were also inspected for any damage sustained during excavation.

All Holidays revealed were repaired in conformance with the above specification. Piping was then retested and found to be acceptable.

There is no record of an acceptable Hydrostatic Test being performed. It is understood however, that a line pressure of 120 to 125 PSI was held for approximately 3 hours with no evidence of leakage.

00530-P

21-01

19-69

1

Other

tor

ection of

er.

e above
able.

FORM NO. 762
REV. 10-67

UNITED ENGINEERS & CONSTRUCTORS INC.
Philadelphia

200394-P

☐ Shop
☒ Field
☐ Receiving

QUALITY CONTROL

INSPECTION REPORT

J.O. 9321.01

Client Westinghouse (Indian Point #2) Date 12-6-68

Item Inspected Fire Protection Line No. _____ P.O. No. 9321.01-44-1

Vendor Chas. Guyon Inc. Address Harrison, N.J.

Firm & Work Location UE&C - on site.

Type of Inspection Hydrostatic Dimensional _____ Visual x Other _____

Date of Inspection 12-5-68 Acceptable _____ Non-acceptable x

DWG. No F-4006-3 Specification No. 44-1 Waiver _____

R.J. Phelps - Inspector

Comments

This report covers the Hydrostatic Testing of the Fire Protection System in the Transformer Yard. Subject portion of the line tested commences 20'-0" West of the Northeast corner of the Turbine Building near Fire Hydrant #24 thru the Transformer Yard to Fire Hydrant #26.

Specification 9321-01-44-1, Section II, Page 4, Paragraph 5 states: The Hydrostatic Test Pressure shall be 200 pounds per square inch applied for a period of not less than two hours.

Test was performed at line pressure which does not meet the requirements of the specification.

SPEED LETTER

FROM JE Faust
Indian Point
Buchanan, NY

TO K J Vorellat

SUBJECT 9371.01-44-1 Rept 200392-D & 200396-D

FOLD

MESSAGE

DATE Dec 16 1967

Please refer to above reports!

Inspectors should note test requirements prior to witnessing tests.

Please follow up and reference the reports in report of retest when available.

SIGNED

REPLY

DATE Dec 19 1968

Do not assume that the inspector was not cognizant of the test requirements. The report is a statement of facts as they existed at this point in time.

FOLD

SIGNED

Graylong SNAP-A-WAY FORM 34-932 3-PARTS
WILSON JONES COMPANY © 1961 PRINTED IN U.S.A.

RETAIN WHITE COPY, RETURN PINK COPY. TURN OVER FOR USE WITH WINDOW ENVELOPE.

569

FORM NO. 762
REV. 10-67

UNITED ENGINEERS & CONSTRUCTORS INC.
Philadelphia

200394 - P

☐ Shop
☒ Field
☐ Receiving

QUALITY CONTROL

INSPECTION REPORT

J.O. 9321.01

Client Westinghouse (Indian Point #2) Date 12-6-68

Item Inspected Fire Protection Line No. P.O. No. 9321.01-44-1

Vendor Chas. Guyon Inc. Address Harrison, N.J.

Firm & Work Location UE&C - on site.

Type of Inspection Hydrostatic Dimensional Visual x Other

Date of Inspection 12-5-68 Acceptable Non-acceptable x

DWG. No F-4006-3 Specification No. 44-1 Waiver

R.J. Phelps - Inspector

Comments

This report covers the Hydrostatic Testing of the Fire Protection System in the Transformer Yard. Subject portion of the line tested commences 20'-0" West of the Northeast corner of the Turbine Building near Fire Hydrant #24 thru the Transformer Yard to Fire Hydrant #26.

Specification 9321-01-44-1, Section II, Page 4, Paragraph 5 states: The Hydrostatic Test Pressure shall be 200 pounds per square inch applied for a period of not less than two hours.

Test was performed at line pressure which does not meet the requirements of the specification.

RF Duerr
DH Rhoads
JR Slotterback
WP Robinson
AS Bocchino

GE Sarsten
DS Peikin
GC Duerr
ED Crocheron
EL Lunkenheimer

JB Silverwood
FA Cook
GE Gray
RA Ambrose, W
RG Jones-WEDCO

MJ Br[illegible]a-WEDCO
Day File
General Files

RJV/RAM

FEB 26 '70 1.B.S.

FEB 2 [illegible] '70 [illegible]

February 13, 1970
APD No. 8651

44-1

Mr. A. A. Simmons, Engineering Manager
Indian Point Projects
Westinghouse Electric Corporation
PWR Systems Division
P.O. Box 355
Pittsburgh, Pa. 15230

Attention: Mr. H. A. Croyle

Dear Mr. Simmons:

Indian Point Generating Station-Unit No. 2
Cement Lined City Water Piping

Your letter, IPP-3121, dated February 6, 1970, requests the benefit of our experience with cement-lined pipe. You also request our recommendation regarding the use of permanent pump suction strainers at the auxiliary feedwater pumps, or other means of protection including possible operational practices, to protect against consequences of lining failures.

Before specifying cement-lined pipe for this service, we reviewed UE&C experience as well as the experience of many utilities using cement lined pipe extensively, including Consolidated Edison. No failures were reported. We, therefore, have not included permanent pump suction strainers in our piping design at the auxiliary feedwater pumps. However, temporary strainers as detailed on foreign print 9321-20756 are provided for initial start-up protection. These consist of 1/32-inch diameter 9-mesh stainless steel wire, leaving a clear opening of approximately 5/64-inch. Total flow area through the perforations is equal to approximately 3 times the cross-sectional pipe area where maximum design velocity is approximately 6-feet per second. These strainers are not the design we would recommend for permanent installation.

An alternate solution to installation of permanent strainers could be a drop-out pipe at the bottom of the downcomer just upstream of the tie-in location where the use of cement lined piping ends. (See drawing 9321-F-2127, Section C-C). Before making a final recommendation, however, we request you advise of Con-Edison's failure experience with cement lined piping, if any, with a description of the nature of the lining failure, i.e. did lining fail in large quantities which would be inclined to plug the strainer or fill the drop out pipe or did it fail only in small pieces? Further descriptions of Con-Edison's failure experience would be valued for our future use also.

Very truly yours,

Reimar F. Duerr
Supervising Engineer

GES:dlc
cc: A. A. Simmons-W PWR 1L
O. M. Hauge -W PWR 5L
J. A. O'Cilka-W PWR 1L
C. E. Hanton -W PWR 1L
E. J. Staffel-W PWR 1L
E. S. Clark -WEDCO 1L
K. J. Culp -WEDCO 1L
[illegible] -W PWR 1L

9321-01

Construction

J. B. Silverwood

J. E. Fant

Buchanan, N.Y.

June 20, 1969

R. J. Vurpillat
D. E. Anderson
E. C. Nagle/G.E.Gray
J. E. Fant/File

Westinghouse Electric Corporation
Indian Point Generating Station - Unit #2
Quality Control Inspection Report

Attached hereto are two copies of Quality Control Inspection Report #200530-P - Holiday Testing of Fire Protection Line.

JEF:rwb
Att.

J. E. Fant

9321-01

Construction

J. B. Silverwood

J. E. Fant

Buchanan, N.Y.

June 4, 1969

R. J. Vurpillat
D. E. Anderson
E. C. Nagle/G.E.Gray
J. E. Fant/File
G. Blount

Westinghouse Electric Corporation
Indian Point Generating Station - Unit #2
Quality Control Inspection Report

Attached hereto are two copies of Record of Field Inspection & Hydrostatic Tests #200516-P, Yard Fire Protection Piping.

J. E. Fant

JEF:rwb
Att.

COPY

UNITED ENGINEERS & CONSTRUCTORS INC.

9321-01

Construction

J. B. Silverwood

J. E. Fant

Buchanan, N.Y.

February 18, 1969

R. J. Vurpillat
D. E. Anderson
E. C. Nagle/G.E.Gray
J. E. Fant/File

Westinghouse Electric Corporation
Indian Point Generating Station - Unit #2
Quality Control Inspection Report

Attached hereto are two copies of Record of Field Inspection & Hydrostatic Tests - Yard Fire Protection Piping - Report No. 200426-P.

JEF:rwb
Atts.

J. E. Fant

**SPEED LETTER®**

TO J E Faust
Indian Point
Buchanan, N.Y.

FROM K. J. Vurpillat

SUBJECT 9321.01-44-1 Report 200392-P & 200394-P

**MESSAGE**

DATE Dec. 16 1968

FOLD

Please refer to above reports!

Inspectors should note test requirements prior to witnessing tests.

Please follow-up and reference above reports in report of retest when accomplished

SIGNED

**REPLY**

DATE Dec 19 1968

Do not assume that the inspector was not cognizant of the test requirements. The report is a statement of facts as they existed at this point in time.

FOLD

SIGNED

GrayLine "SNAP-A-WAY" FORM 44-902 3-PARTS
WILSON JONES COMPANY © 1961 PRINTED IN U.S.A.

RETAIN WHITE COPY, RETURN PINK COPY

568

9321-01

Construction

J. B. Silverwood

J. E. Fant

Buchanan, N.Y.

December 12, 1968

R. J. Vurpillat
D. E. Anderson
E. C. Nagle/G.E. Gray
J. E. Fant/ File

Westinghouse Electric Corporation
Indian Point Generating Station - Unit #2
Quality Control Inspection Report

Attached hereto are two copies of Quality Control Inspection Report #200394-P - Hydrostatic Tests - Fire Protection Line.

JEF:rwb
Atts.

J. E. Fant

Mr. J. E. Fant,
Indian Point

9321-01

Reliability & Quality Assurance

Mr. G. C. Duerr

R. J. Vurpillat

Philadelphia

January 22, 1968

Mr. R. F. Duerr
Mr. E. C. Nagle, Indian Point
Mr. A. E. Payne
Mr. J. E. Fant, Indian Point
Mr. J. B. Silverwood

Indian Point Unit No. 2
Tubeco, Brooklyn, N.Y. - ~~9321-01-248-18~~
Chas. F. Guyan, Harrison, N.J. - 9321-01-44-1

We have made arrangements to have personnel from the Quality Control group at Indian Point inspect material scheduled for shipment this week from the captioned sources.

Quality Control reports will be issued in the usual manner upon completion of the inspections.

RJV:epr

R. J. Vurpillat

Tubeco inspection scheduled for [illegible]

1-29-68 Lopez (QC Mgr) will give us 1200 day notice re shipping date. We are to notify Rhoades Dorr of inspection date.

SEE REPORT NO. [illegible]5-P