

United States Nuclear Regulatory Commission Official Hearing Exhibit

ENT000400
Submitted: March 30, 2012

In the Matter of: Entergy Nuclear Operations, Inc.
(Indian Point Nuclear Generating Units 2 and 3)



ASLBP #: 07-858-03-LR-BD01
Docket #: 05000247 | 05000286
Exhibit #: ENT000400-00-BD01
Admitted: 10/15/2012
Rejected:
Other:

Identified: 10/15/2012
Withdrawn:
Stricken:

UNITED ENGINEERS & CONSTRUCTORS INC.
Philadelphia, Pennsylvania 19105



Specification

for

Floor, Equipment and Roof Drains

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

Date: December 28, 1966

Specification No. 9321-01-44-2

#2

44-2

OK 4-8-70

INDEX

<u>SECTION I</u>	<u>PAGE</u>
General Information	1
 <u>SECTION II</u>	
Extent of Work	2
 <u>SECTION III</u>	
Material and Equipment	5
 <u>SECTION IV</u>	
Installation	8
 <u>SECTION V</u>	
Piping System	11
 <u>SECTION VI</u>	
General	12

SECTION I

GENERAL INFORMATION

Owner: Consolidated Edison Company of New York.

Contractor: United Engineers & Constructors Inc.
1401 Arch Street,
Philadelphia, Pennsylvania 19105

Description: Refer to Section II, under Item I,
"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. Floor, equipment and roof drainage system except sheet metal roof gutters and sheet metal downspouts.
- B. Installation of equipment furnished by Others as noted in Section II, Item 2-B, "Work and Material by Others."
- C. PVC drain piping unless noted otherwise on drawings.
- D. 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.
 - (2) All excavation and blasting.
 - (3) Pipe sleeves unless noted otherwise on the drawings.
 - (4) All steam and condensate piping and all heating and ventilating work.
 - (5) Yard storm drainage system including catch basins and manholes.
 - (6) Yard fire protection system including hydrants and post indicator valves.
 - (7) Turbine hall standpipe fire protection systems.

SECTION II

2. Work and Material by Others (continued)

A. (continued)

- (8) Cooling water to air-conditioning unit.
- (9) Cathodic protection of underground lines.
- (10) Sheet metal roof gutters and downspouts.
- (11) All subsurface drainage piping.
- (12) All electrical wiring including electric tracing of pipe or equipment.
- (13) Finished painting.

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

- (1) Sump pumps will be furnished by Others but installed, including piping, 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 for his records.

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. Drain and rain water conductors inside the buildings shall be filled with water. All other openings shall be provided with temporary plugs. Water shall stand without change of level for a period of not less than five hours.

SECTION II

5. Tests (continued)

Polyvinyl chloride piping shall be tested in accordance with manufacturer's recommendation.

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 floor and roof drains, traps and other points of lodgement in the drain pipe systems shall be cleaned of all dirt and debris.

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, or A-106, Grade A, seamless or resistance weld. Pipe shall be black or galvanized steel, as called for under Section V, Piping Systems, or on 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.

A. Fittings

Fittings for drainage pipe shall be cast iron, recessed, pitched fittings, standard weight, galvanized with standard pipe thread, and shall be long turn pattern wherever possible. Welding fittings shall be Schedule 40 and flanges shall be 150# weld neck.

B. Valves

All shutoff valves one inch and larger shall be gate valves. All valves used for throttling shall be globe valves.

Gate valves shall be brass, screwed, rising stem, Crane Company's No. 431 for 150 lb. SWP, or approved equal. Globe valves shall be brass, screwed, rising stem, renewable disc, Crane Company's No. 7, 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.

C. Lead

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

SECTION III

3. Polyvinyl Chloride Pipe

Polyvinyl Chloride pipe shall be rigid, normal impact unplasticized Schedule 40 or 80 and plain or threaded ends, as called for on the drawings. Pipe shall be as manufactured by the National Tube Division, United States Steel Corporation, Kraloy/Chemtrol Company, or approved equal.

A. Fittings

Shall be made of the same material as the pipe and shall be drainage fittings. Fittings for Schedule 40 pipe shall be joined by the solvent cementing process. Fittings for Schedule 80 pipe shall be screwed.

B. Flanges

Shall be 150 lb injection molded, threaded.

C. Gaskets

Shall be full face Neoprene, 1/8-inch thick.

D. Check Valves

Polyvinyl Chloride same class as pipe, ball type, flanged, Chemtrol, or approved equal.

E. Valves

Polyvinyl Chloride same class as pipe, ball type, flanged, Chemtrol, or approved equal.

F. Expansion Joints

Expansion joints for the above grade installation shall be corrugated teflon, Garlock No. 8764, or approved equal.

4. 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. Roof Drains

Roof drains shall be cast iron, japanned, with removable brass strainer, gravel stop, deck clamp and clamping ring. Drains shall be of the size and

SECTION III

5. Roof Drains (continued)

type tabulated on the drawings and shall be as manufactured by Josam Manufacturing Company, or Zurn Industries, Inc.

6. Floor Drains

All floor drains shall be of the size, type and material tabulated on the drawings and shall be as manufactured by Josam Manufacturing Company, or Zurn Industries, Inc.

7. Insulation

Horizontal runs of roof drains shall be insulated with a one-inch layer of heavy density fibre glass antisweat insulation covered with a flame-resistant vapor barrier jacket. Insulation shall be installed in accordance with the manufacturer's recommendations.

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.

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 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. Polyvinyl Chloride Pipe

Polyvinyl Chloride pipe shall be installed, including handling, assembly of joints and fittings, cutting, hanging, anchoring, bedding, backfilling and testing, in strict accordance with manufacturer's recommendation.

SECTION IV

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.

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 or to facilitate the removal or repair of any piece of apparatus without interfering with the use of other apparatus.

8. Traps

Traps, if required, shall be of the type and installed at points shown on the drawings.

9. Cleanouts

All cleanouts shall be accessible and shall be installed at the ends of all horizontal drain lines, at the base of vertical leaders, on buried

SECTION IV

9. Cleanouts (continued)

horizontal runs at intervals not exceeding 50 feet for lines 4 inches or less in diameter or not more than 100 feet for larger piping, and all other points shown on the drawings in addition to those specified for traps or required by code.

Cleanouts, where drain lines are buried under floor, concealed between floor and finished ceiling or in wall, shall be turned up flush with the finished floor or wall and shall be full size of line up to 4-inch diameter and 4-inch for all larger lines. Plugs shall be brass, flush type with countersunk socket, unless specified otherwise on the drawings.

Wall cleanout access covers shall be cast brass, chromium plated, secured to the tapped-brass cleanout plug. Floor cleanout access covers shall be round, scoriated and flush.

SECTION V

PIPING SYSTEM

Unless otherwise noted on the drawings, piping systems shall be installed with material called for below.

1. Underground Pipe Sleeves

All lines 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. Roof Drains

Flashing for roof drains shall be sheet lead and shall weight not less than 4 pounds per square foot. Lines above grade shall be constructed of Schedule 40 black steel pipe and welding fittings. Underground piping shall be extra-heavy cast-iron or as indicated on the drawings.

Expansion joints, where indicated on drawings or required, shall be integral with drain body and shall be complete with brass sleeve, pressure ring, packing gland and graphited gasket. Total travel of each joint shall not be less than 3 inches.

3. Floor and Equipment Drains

Drain lines below grade or in slab shall be extra-heavy cast-iron bell and spigot pipe. Drain lines above grade shall be galvanized or black steel pipe as specified on the drawings. Flanges, valves, fittings and pipe at the sump pumps, shall be as specified on the drawings.

4. Corrosive Drains

No corrosive drain system is anticipated for Unit No. 2, however, if required, gravity flow or pressure drain lines and vent lines shall be assembled using Schedule 40 or Schedule 80 Polyvinyl Chloride pipe, as called for on the drawings.

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.

UNITED ENGINEERS & CONSTRUCTORS INC.
Philadelphia

QUALITY CONTROL
MANUFACTURERS FACILITIES SURVEY

J.O. 9321-01Client Woolinghouse - Indian Point No. 2Item to be manufactured Piping - Cement lined Spec. No. 9321-01-24-1Vendor Chas. F. Guyon Inc. Address 1000 S. 4th St.
Harrison N.J.Person Consulted Z. Gzari Title Works Mgr. Date June 8, 1967
J. Burghoffer Title Chief Engr.

1. Are machine tools and shop facilities adequate to fabricate? Yes
2. Is erection space adequate? Yes No. and Cap. of cranes One - 50 Ton,
Two - 25 "
Three - "
3. Quality Control Group
Supervised by (name) No formal Q.C. group (title) -
4. Reports to (name) - (title) -
5. Are Control charts in use? Yes
6. Are Quality Control records readily available? Yes - In Engineering
7. List non-destructive testing facilities Dye Penetrant - Magnetix -
* Ray and 120 tape.
8. Are ^{technicians} ~~technicians~~ qualified to operate equipment and evaluate results? Yes
9. How are materials identified: Tags Color code: Stencil:
Stock Bins: Other:
10. How are defective materials identified? By reject tags
How are they segregated from stock? Removed from shop.
11. Is shop qualified for "Code" Construction? Yes - Pressure Piping and Vessels
List qualifications ASA and ASME.
On call as needed from
12. No. of Shop Inspectors 3 "Code" Inspectors Insurance Company
13. Additional Comments: See attached copy of memo to
Mr. E. E. Nagle.