Attachment (1) Director of NRR, USNRC February 20, 1980

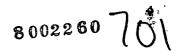
Fire Barrier Seal Upgrade Program

Sections 3.1.8(5), 3.1.8(6), 5.2.6, 5.5.6, 5.8.6 and 5.15.6 as well as Sections 3.2.2(1), 4.9.1, and 4.9.3 of the NRC Fire Protection Safety Evaluation Report for the Monticello Nuclear Generating Plant require unsealed fire barrier penetrations to be sealed and existing seals to be upgraded where necessary. To satisfy these requirements, the following actions will be taken.

- 1. New seals or replacement seals will be designed with a 3-hour rating. This rating will be substantiated by test data.
- 2. Existing seals will be reviewed and upgraded as necessary. All seals will be upgraded to a rating at least equal to the maximum fire loading on either side of the barrier. This rating will be substantiated by test data.
- 3. Seals in the following areas will be upgraded to a 3-hour rating. This rating will be substantiated by test data:
 - a. Reactor Building zone 3A barriers shared with zones 3B and 3E.
 - b. Lube oil storage tank room ceiling opening and wall pipe penetrations.
- 4. Unsealed penetrations in the cable spreading room and battery rooms will be sealed with new seals of a qualified design.

To develop a test program to determine the fire resistance of the existing penetration seal designs and to design and test a method of upgrading existing seals to a 3-hour rating or a rating based on the existing fire loading, we have obtained the assistance of Nuclear Services Corporation (NSC). They are providing engineering services for testing and upgrading penetration seals at both nuclear generating plants operated by Northern States Power Company, Prairie Island and Monticello. The Fire Protection Safety Evaluation Report for the Prairie Island plant contained requirements for a program of penetration seal testing and upgrading similar to those specified for Monticello. In this discussion we will describe the preliminary test and modification program formulated by Nuclear Services Corporation for both plants. A considerable savings in time and cost can be obtained by combining the testing required for both plants.

The electrical and mechanical penetrations at Monticello and Prairie Island were sealed with materials that have not passed the fire test and the hose stream test currently specified for such penetrations in ASTM El19-76 and IEEE 634-1978 (with NRC comments RS-809-5). Therefore, the existing



penetrations must be tested and, if necessary, either replaced or modified so that the resultant configurations will pass these tests in accordance with today's requirements. The physical access to some of the existing penetrations make it impracticable if not impossible to remove the presently installed fireproofing material. Therefore, several different materials will be tested in an add-on configuration in which another material is built up over the existing material. See the attached preliminary notes, sketches, and list of material.

The material used in the penetrations at Monticello was primarily polyurethane foam, an Insta-Foam product. The material used at Prairie Island was primarily Thermal Insulating Wool which is an Owens-Corning fiberglass product. A primary concern at Monticllo is the steel sleeve cable penetrations from the cable spreading room to the reactor building and to the turbine building. The only practical modification in this area is an add-on material over the existing configuration. Several test penetrations of this configuration will be tested. With the test sleeves filled with cable supplied by the plant using a 50% fill and sealed with polyurethane foam, the sleeve will be wrapped with a metal lath which is fastened to the wall and overlaid with different materials, including Flamemastic 77, Pyrocrete 241, Silicate Gel, and Intumastic 285.

Some of these same materials and also ICMS Product 60 will be tested as add-on modifications for the Control Room penetrations for both plants. The attached preliminary sketches were supplied to the test lab (Southwest Research) which laid out three test slabs. These slabs will allow testing of all of the configurations proposed by NSC and will also provide for spares to allow adding on additional designs. The attached sketches do not include the Silicate Gel upgrade which is being added. This is a new material developed by Southwest Research Institute and was very recently brought to the attention of NSC. There is some data, from a different application, that indicates that it may be adequate for our needs. The Intumastic 285 is being added on one of the extra penetrations as a possible solution. This material was designed to be used as a flame retardant on cable, but the manufacturer believes it to be an excellent candidate for protecting the sleeve penetrations in the cable spreading room at Monticello.

The specifications, ASTM & IEEE, state that a seal that has been qualified in a floor test is also qualified for use in a wall. Therefore, our plan is to use a floor slab and thereby qualify both wall and floor seals.

All penetration seals will be subjected to a 3-hour fire test and then the hose stream test. The temperatures are always monitored throughout the complete test. As complete a visual inspection as possible, with photographs, will be performed at 1-1/2 hours. Any test configuration that is good at 1-1/2 hours but fails at 3 hours, or fails the hose stream test, is a candidate for retest in a 1-1/2 hour test. For this purpose, the test lab has been requested to use an existing test slab and prepare selected penetration seals using the materials that require a lengthy cure time. This test slab will be held in readiness. Configurations passing a 1-1/2hour test plus the hose stream test may be used to upgrade seals in areas of the plant where a rating of less than 1-1/2 hours is sufficient and 3-hour rated seals were not explicitly required by the NRC review.

IEEE 634-1978 states that penetration seals that are unsymetrical should be fire tested from each side. Therefore, the preliminary test plan includes additional test penetrations to comply with this requirement.

The attached sketches are for review and comment.

The penetration testing should be completed by May 1, 1980. Following evaluation of the test results, specific seal upgrade precedures will be developed and field work at both plants will begin. A completion date of October, 1980 is required. Any work which cannot be completed by that date will be reported to the NRC Staff and a revised schedule will be submitted for review.

If there are any comments related to the preliminary test plan we have described, they should be submitted to Northern States Power Company no later than March 15, 1980 to permit us to complete this project on schedule.

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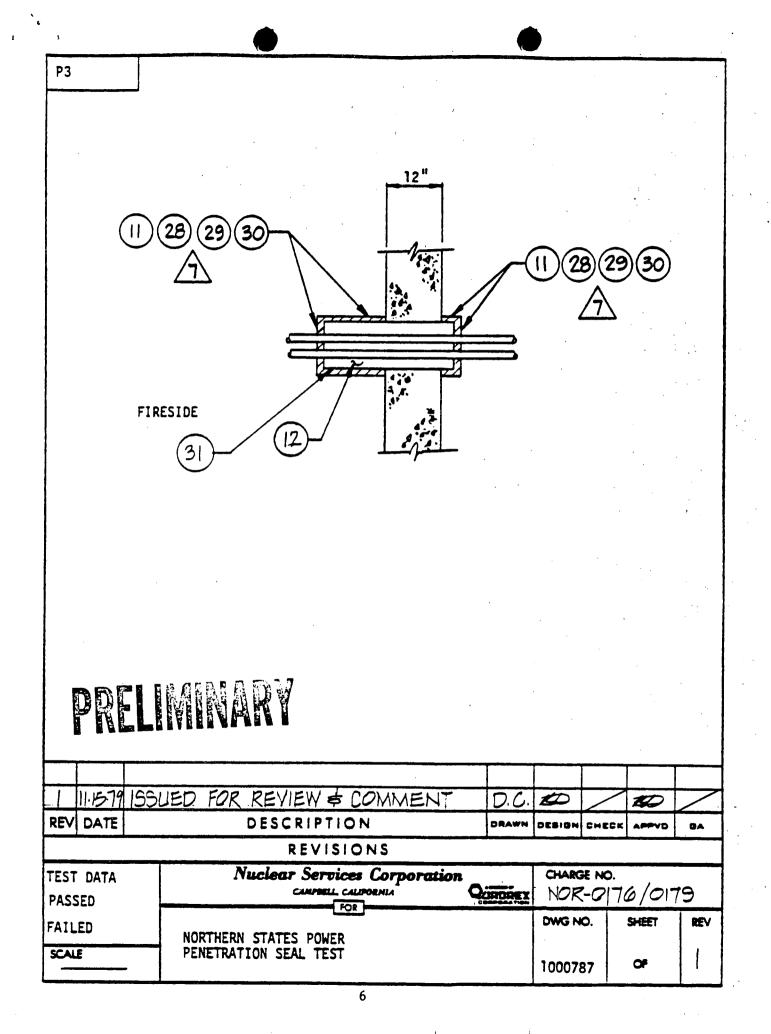
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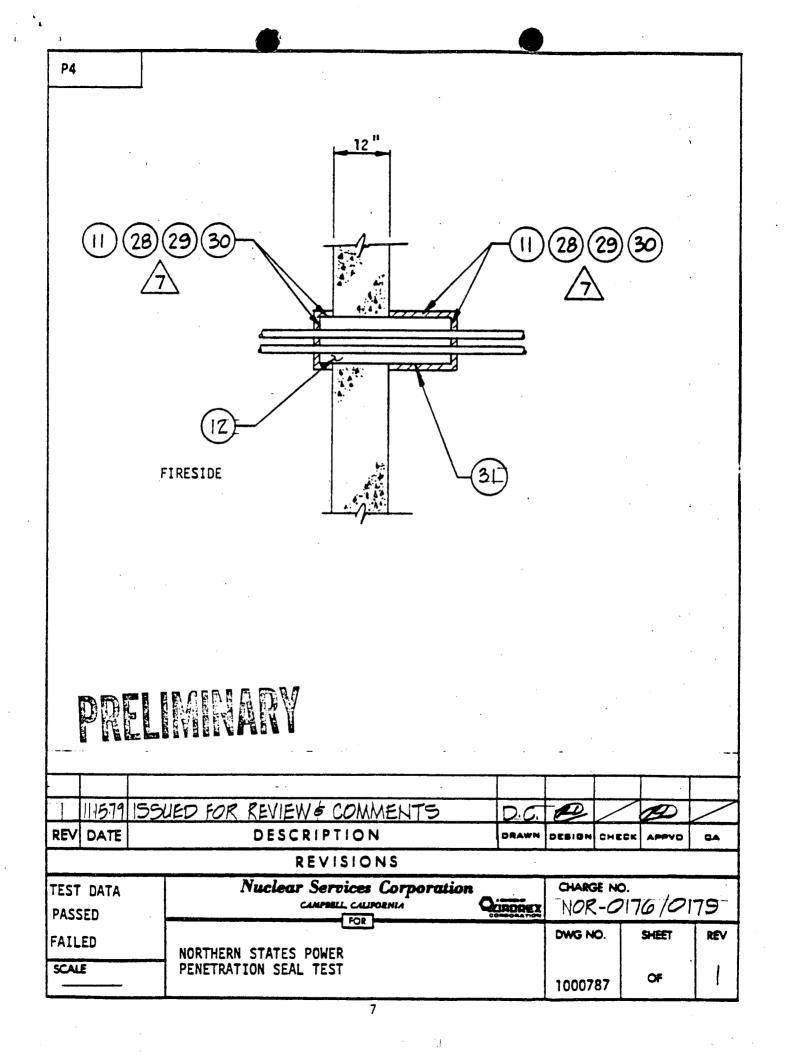
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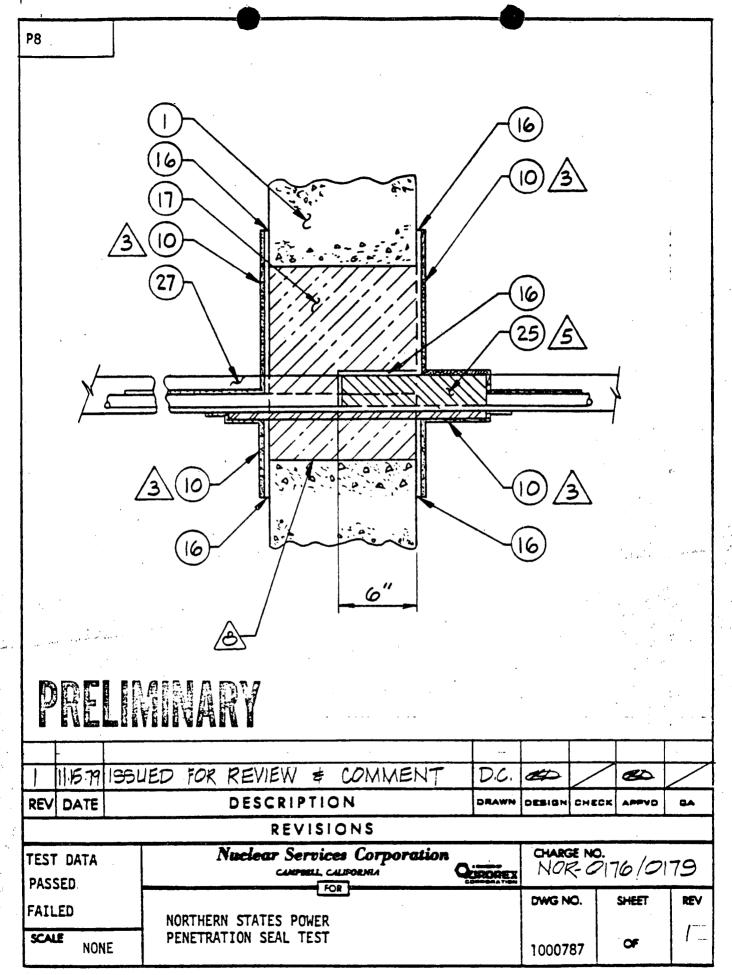
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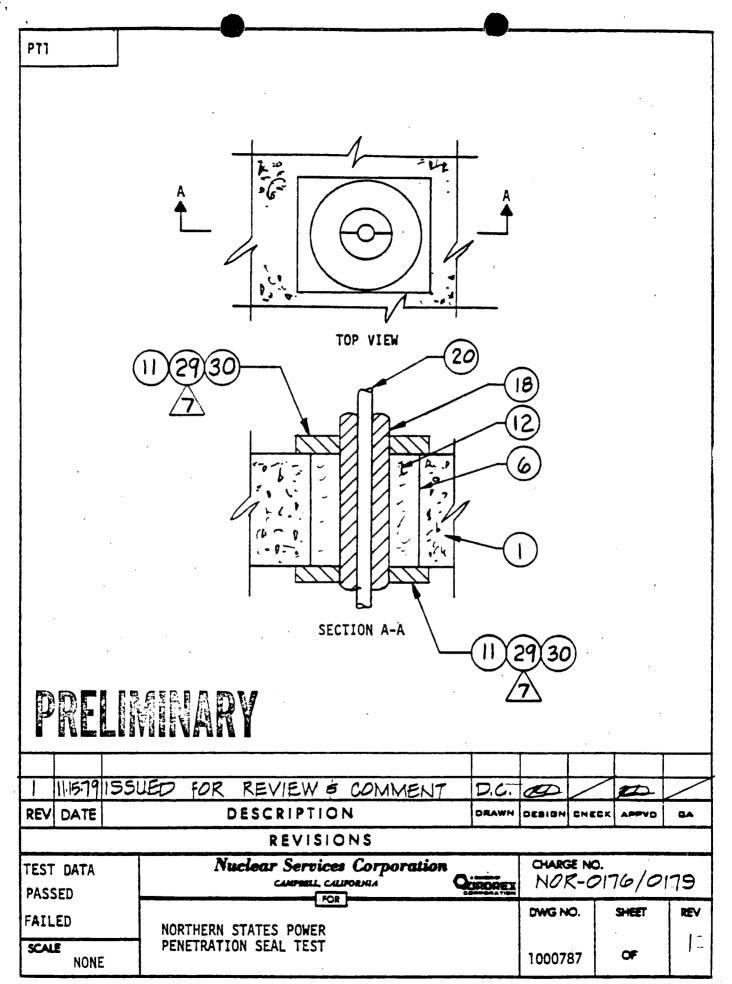
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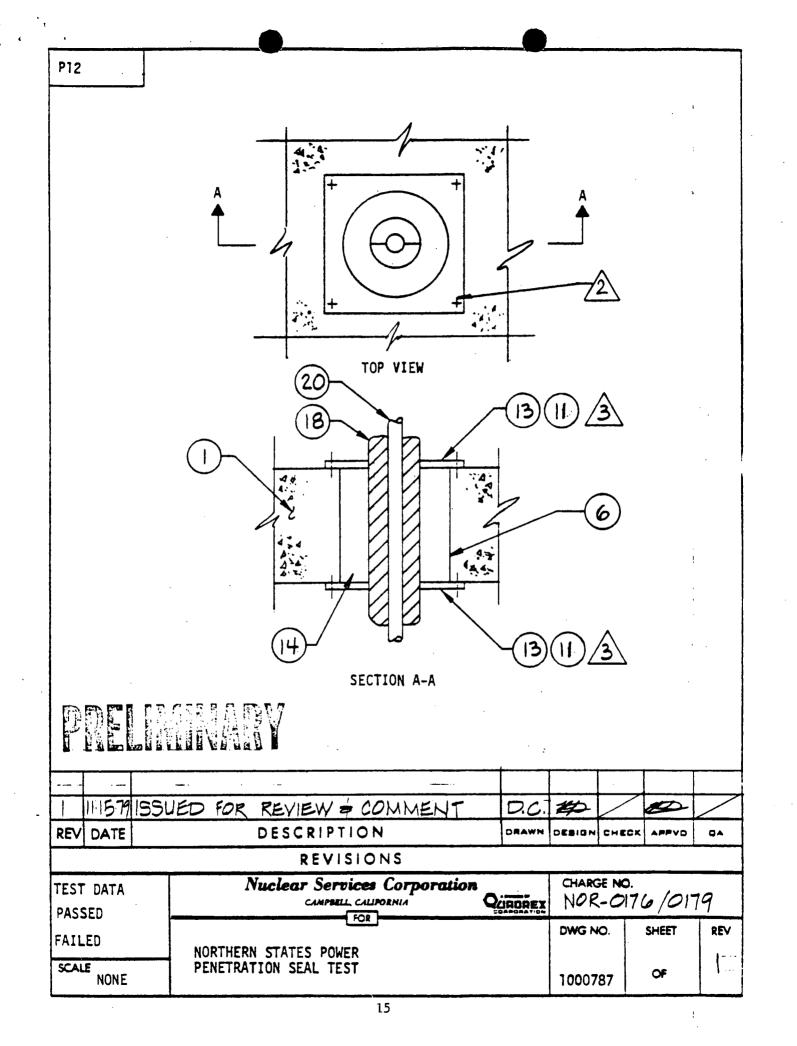
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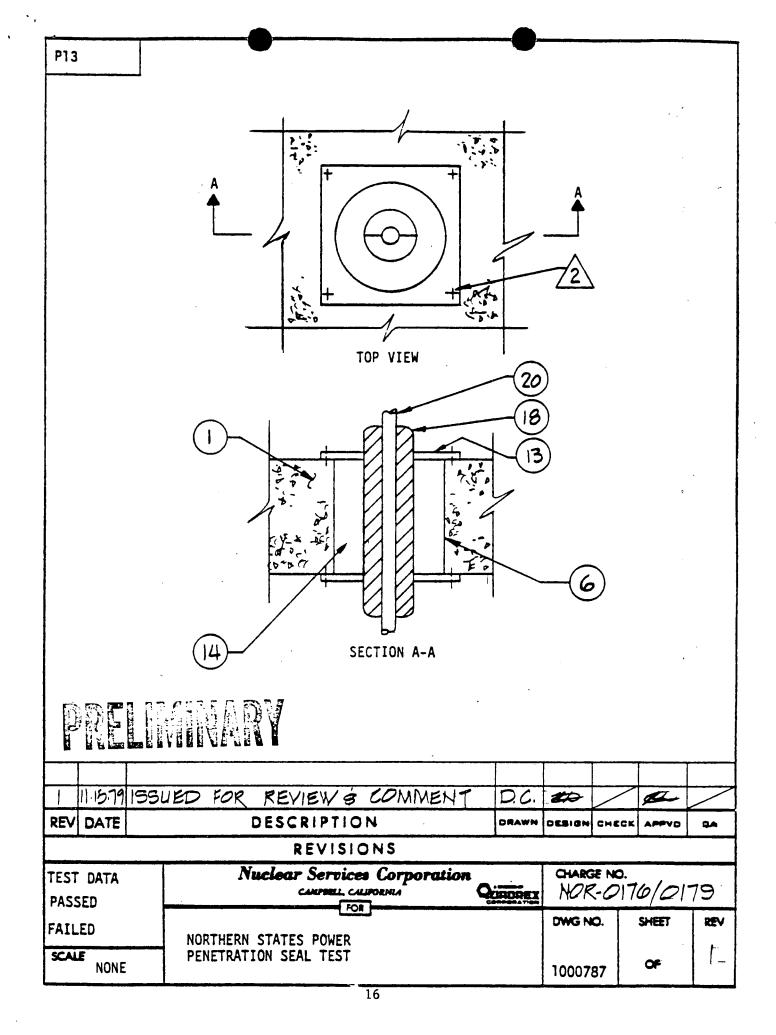


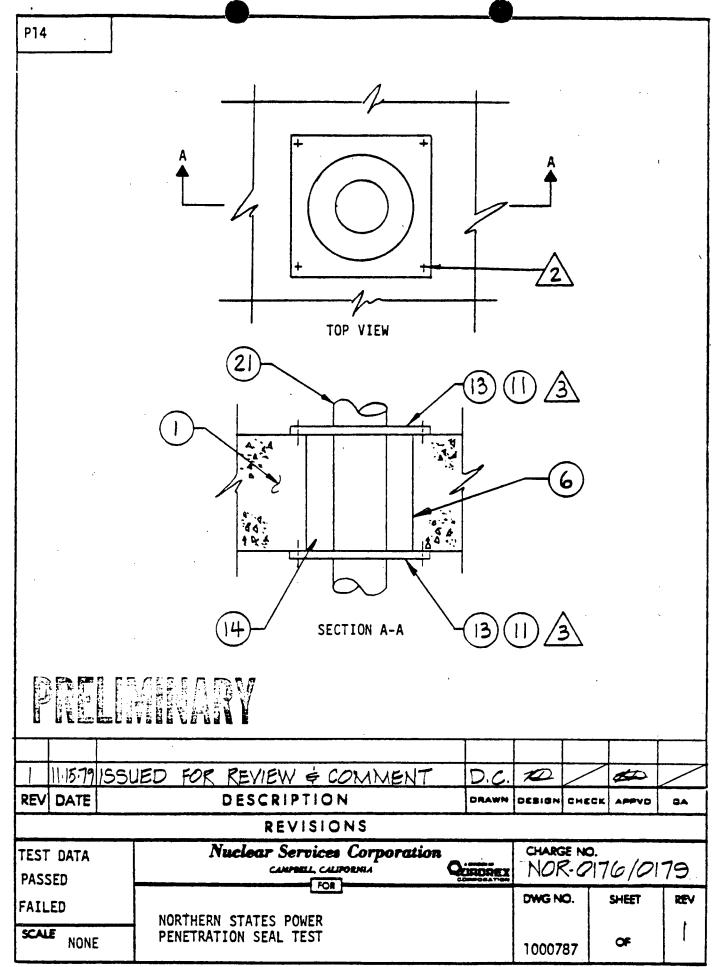
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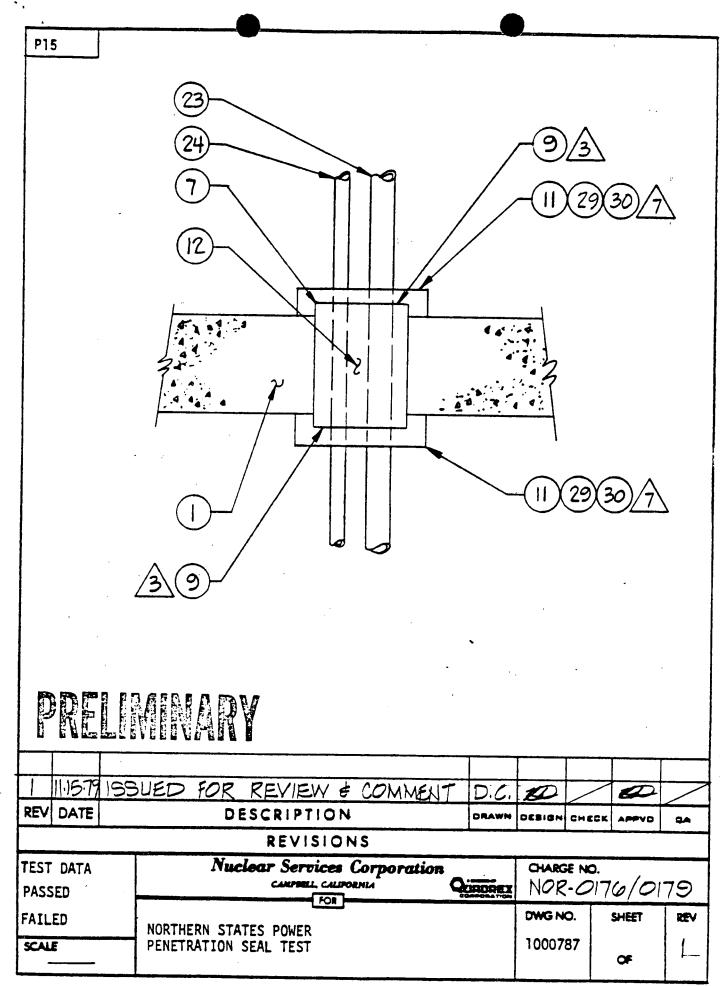
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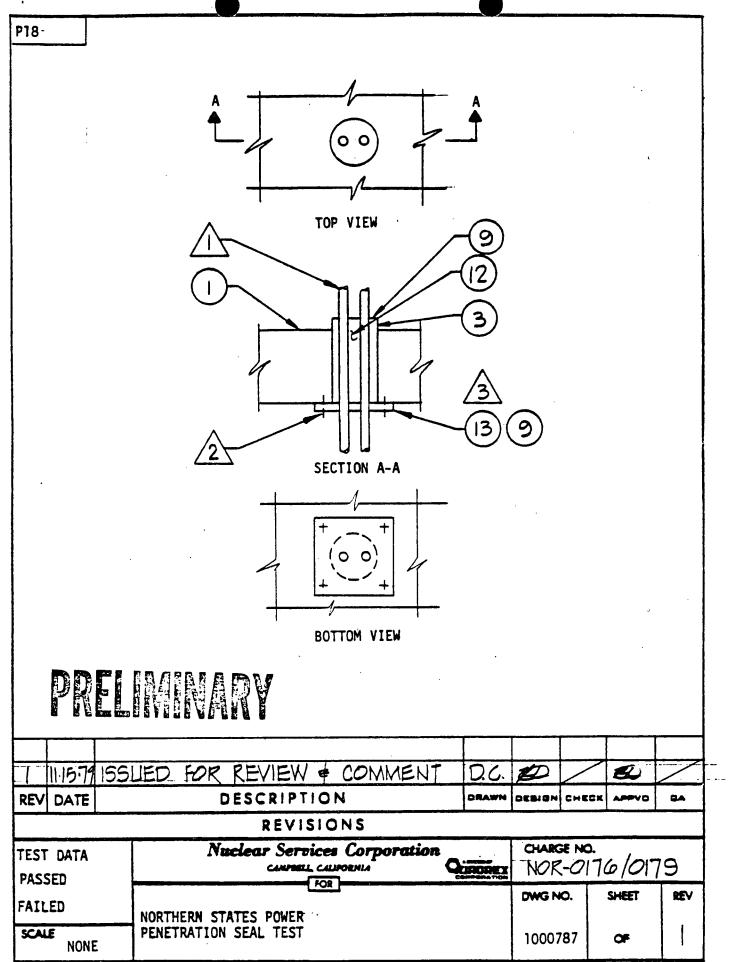
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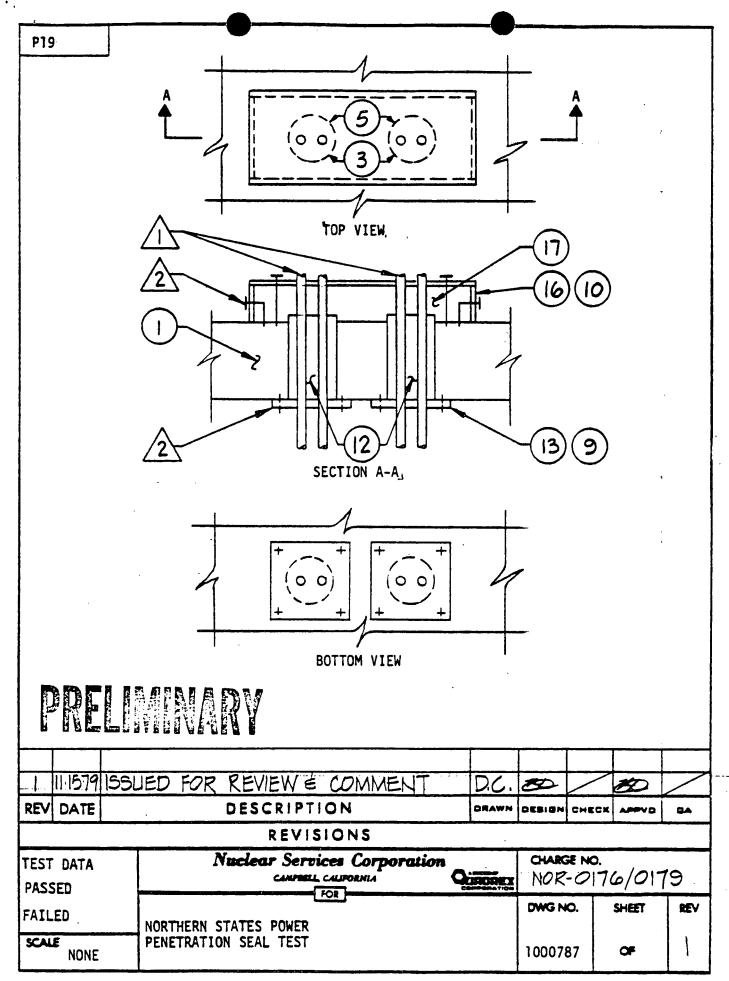
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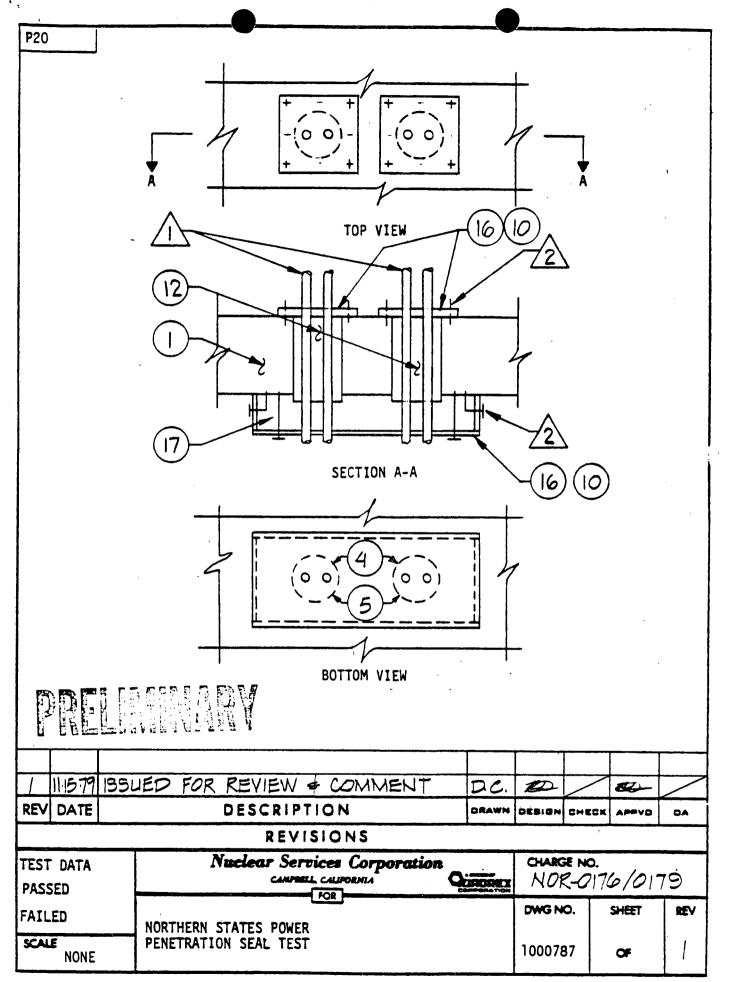
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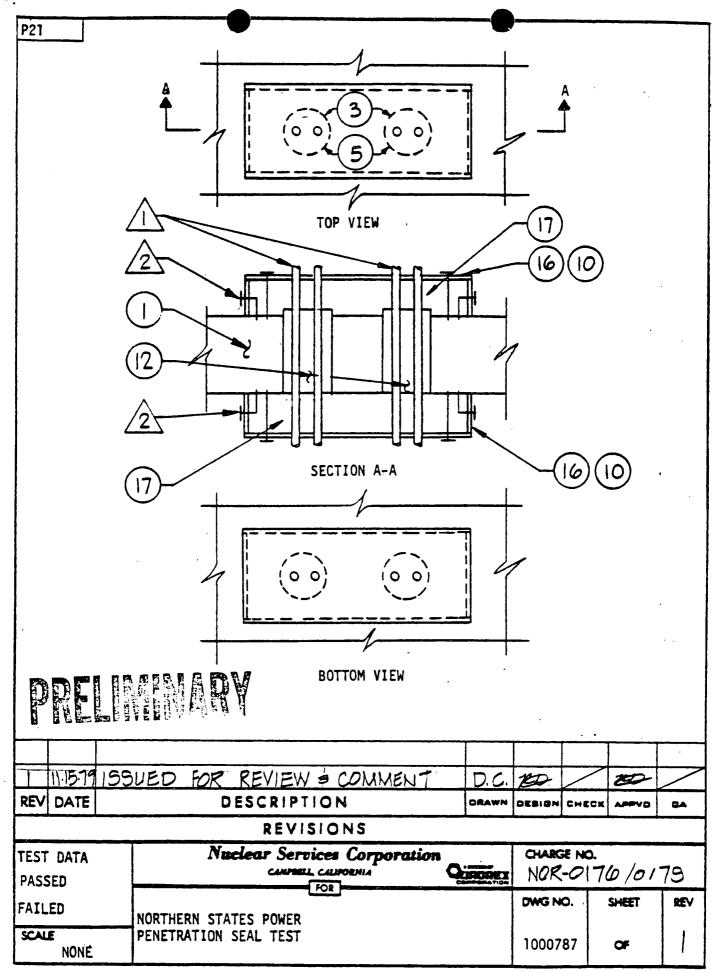
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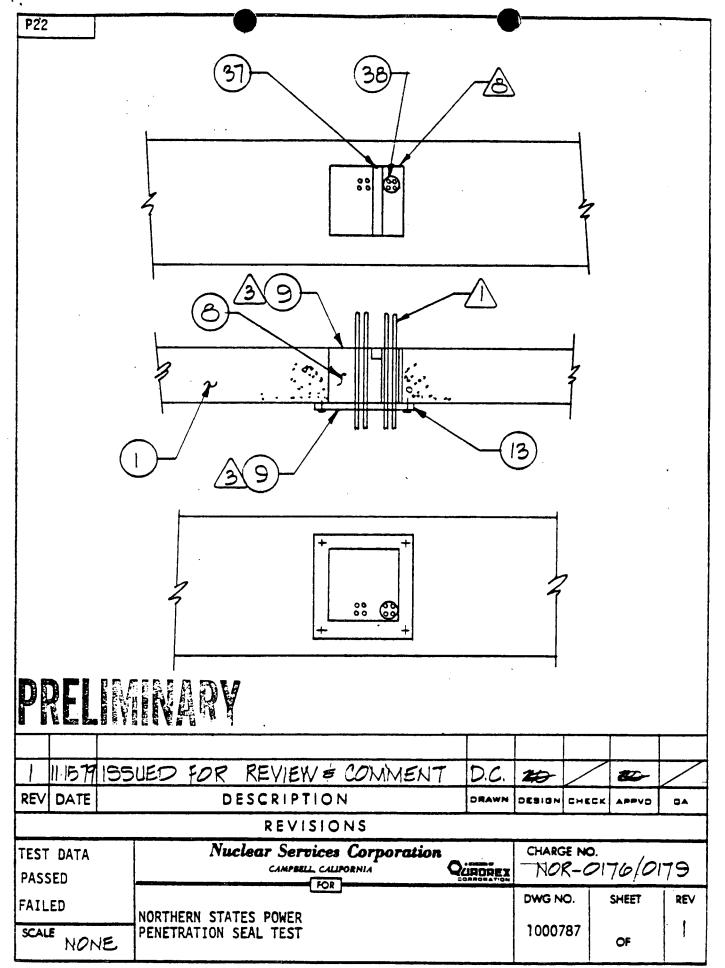
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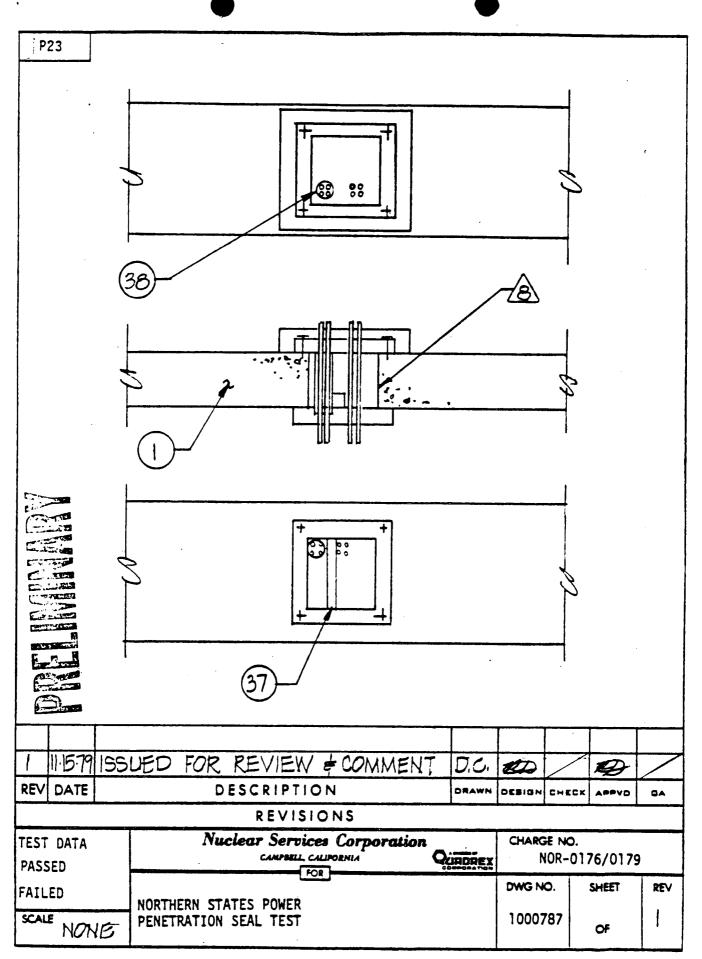


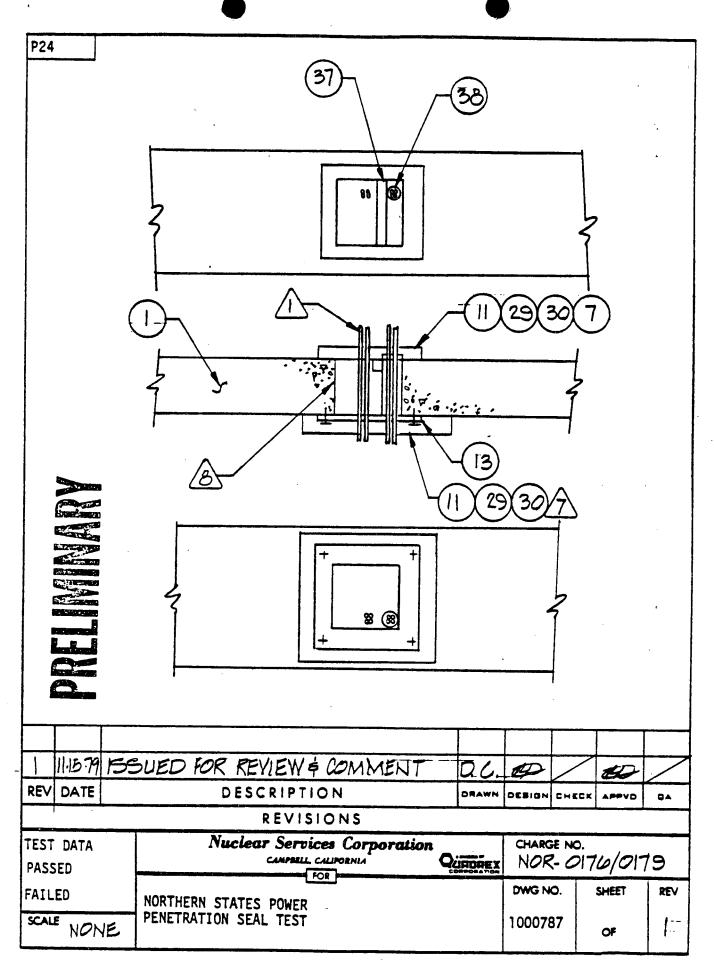




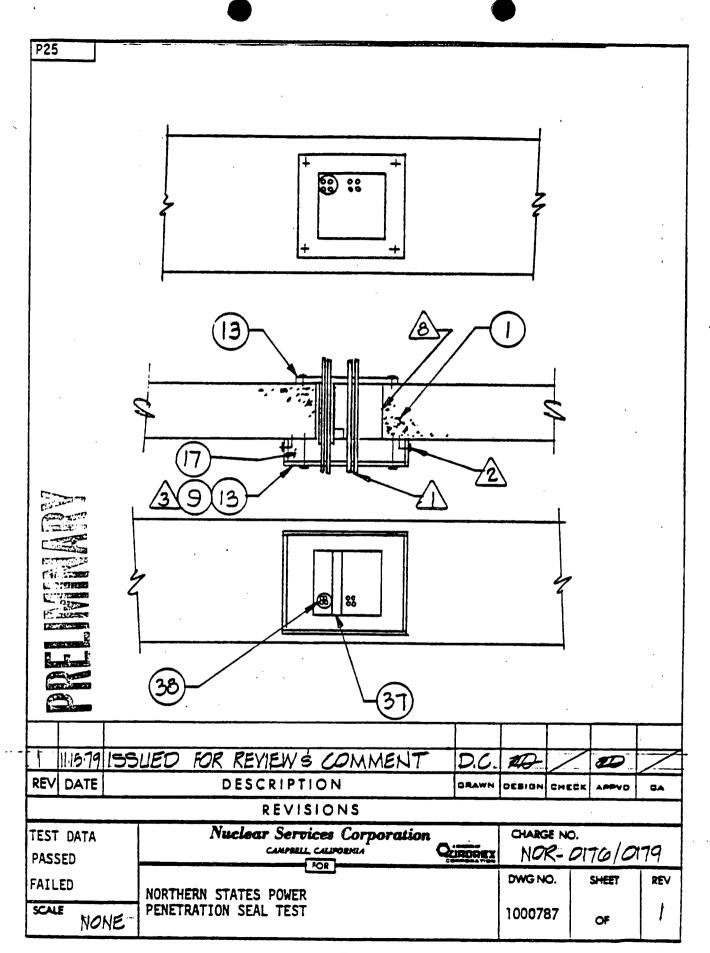




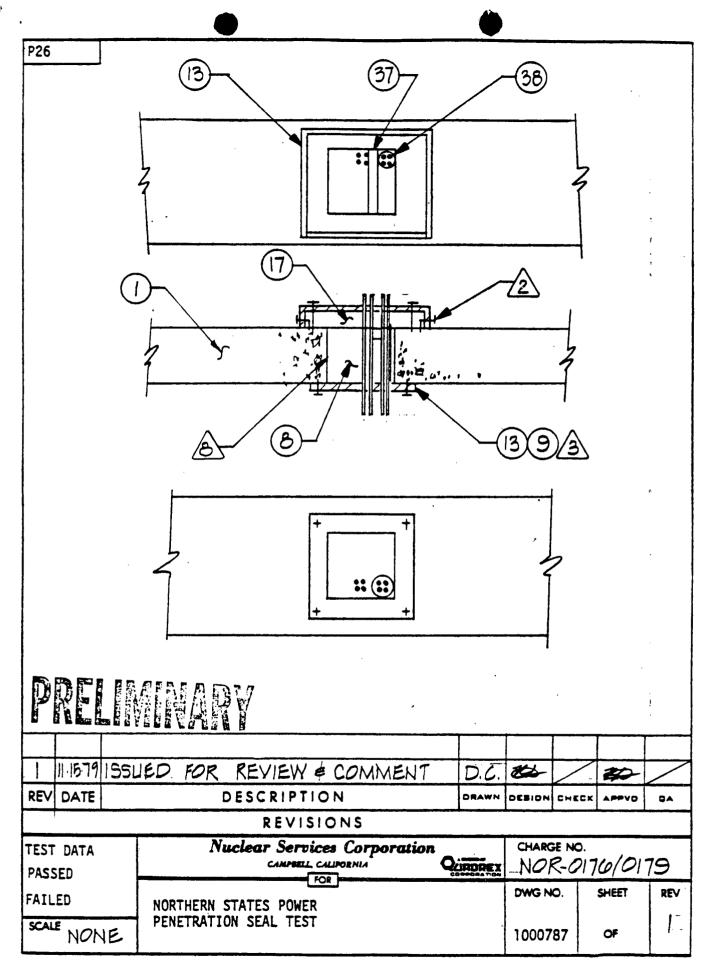




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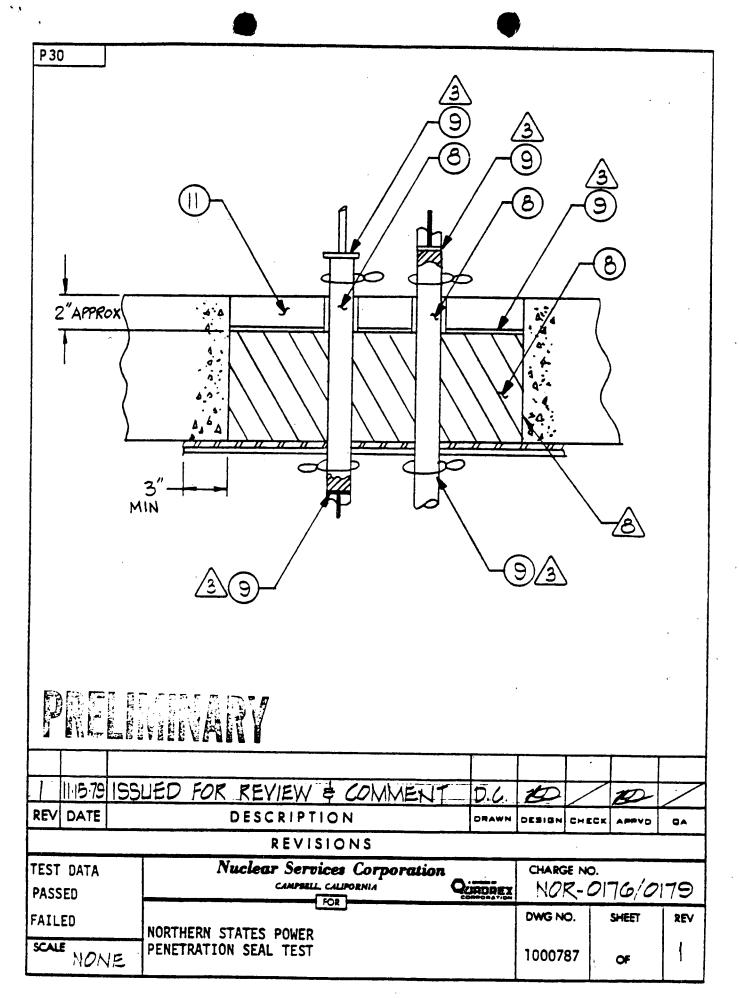


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(CA CA	ROCRETE 241 RBOLINE COMPANY, FIREPROOFING PRODUCTS DIVISION O HANLEY INDUSTRIAL COURT, ST. LOUIS, MO. (314)644-100	00		
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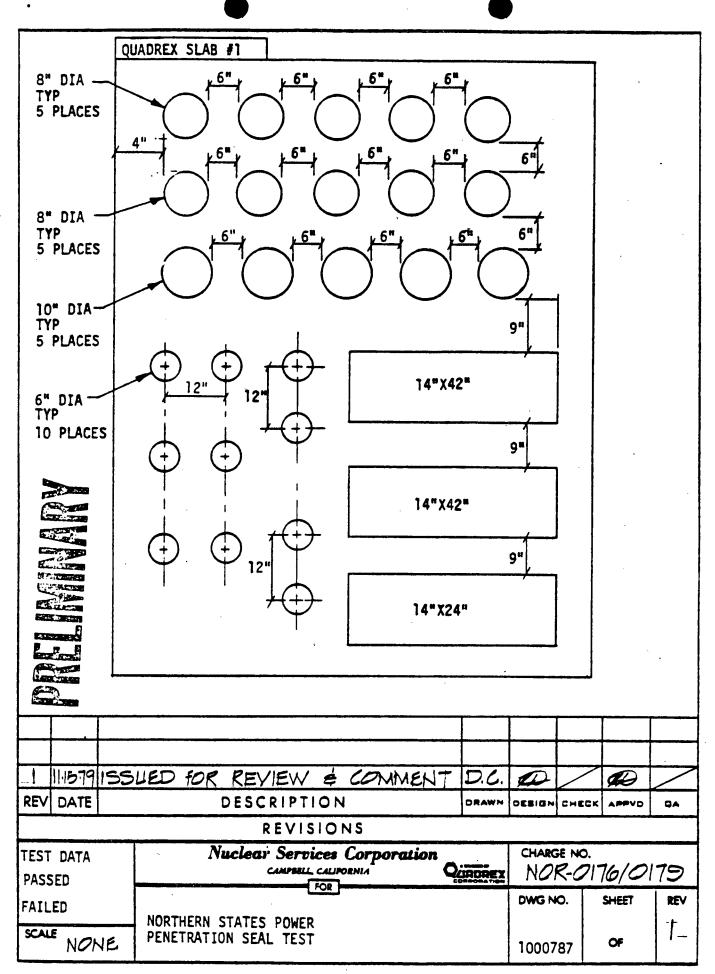
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PIPE 5", 316 STAINLESS STEEL, 4' LONG, EXTENDING 1' BELOW SLAB, 21 CAPPED AT EACH END. CONDUIT 4", 4' LONG, EXTENDING 1' BELOW SLAB, CAPPED AT EACH END. 22 CONDUIT 2", 4' LONG, EXTENDING 1' BELOW SLAB, CAPPED AT EACH END. 23 CONDUIT 1", 4' LONG, EXTENDING 1' BELOW SLAB, CAPPED AT EACH END. 24 25 PRIMER SS 4044 & RTV 511 GENERAL ELECTRIC COMPANY 1 RIVER ROAD, SCHENECTADY, N.Y. 12345 (518)385-2211 SCLID SHEET METAL FULL WIDTH OF TRAY (16 GA MINIMUM) 26 27 LADDER BACK TRAY, ALUMINUM, 24" WIDE, 4" HIGH 28) PYROPRIME 772 CARBOLINE COMPANY 29) 3.4 POUND PER SQUARE YARD METAL LATH 30 SELF-STICK INSUL-ANCHORS H.A. JONES CO. INC, DAYTON, OHIO OR SELF-STICK STICK-UPS MIRACLE ADHESIVES CORP. BELLMORE, LONG ISLAND, NEW YORK OR EQUIV. TO FASTEN TO THE WALL, AND USE TIE WIRE TO FASTEN THE METAL LATH AROUND THE SLEEVES. 11.15.79 ISSUED FOR REVIEW & COMMENT. D.C. AD 1C REV DATE DESCRIPTION DRAWN DESIGN CHECK APPYO REVISIONS Nuclear Services Corporation CHARGE NO. CAMPBELL CALIFORNIA QUADREX NOR-0176/0179 FOR DWG NO. SHEET REV 1 NORTHERN STATES POWER SCALE PENETRATION SEAL TEST ļ., NONE 1000787 OF

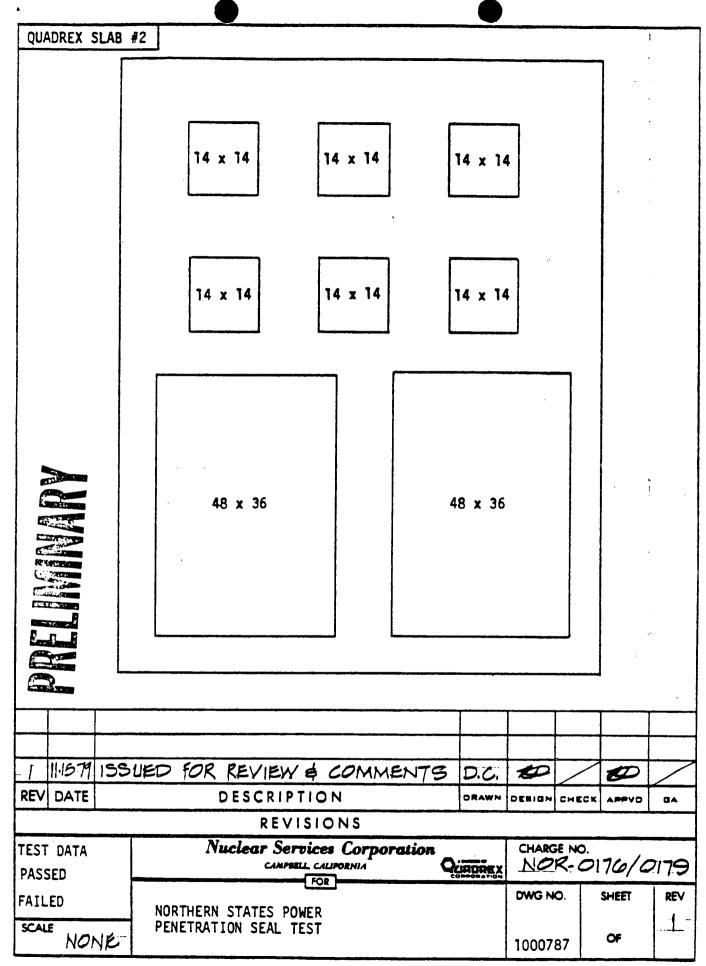
31 SLEE 2" 1	EVE, 8" DIAMETER, 34" LONG, EXTENDING FROM ONE SIDE OF THE SLAB AND 20" FROM THE C	THER	SIDE.			
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CRO CON ROO 155	USE-HINDS COMPANY STRUCTION MATERIALS PRODUCTS DIVISION M 625 BOVET ROAD MATEO, CALIF. 94402 (415) 574-3737					
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