

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8108040118 DOC. DATE: 81/07/28 NOTARIZED: NO DOCKET #
 FACIL: 50-220 Nine Mile Point Nuclear Station, Unit 1, Niagara Power 05000220
 AUTH. NAME: AUTHOR AFFILIATION
 DISE, D.P.: Niagara Mohawk Power Corp.
 RECIP. NAME: RECIPIENT AFFILIATION
 EISENHUT, D.G. Division of Licensing

SUBJECT: Forwards info re control of heavy loads, in response to NRC
 801222 & 810203 requests. Main handling sys include reactor
 bldg overhead traveling crane, auxiliary & overhead hoists
 & jib crane. *SEE Repts.*

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 TITLE: Control of Heavy Loads Near Spent Fuel (USI A-36) Operating Reactor

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AUG 06 1981

July 28, 1981

Mr. Darrell G. Eisenhut, Director
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Nine Mile Point Unit 1
Docket No. 50-220
DPR-63



Dear Mr. Eisenhut:

Your letter of December 22, 1980 as amended on February 3, 1981 requested information regarding the control of heavy loads at Nine Mile Point Unit 1. The attached information addresses your request.

Very truly yours,

NIAGARA MOHAWK POWER CORPORATION

Donald P. Dise

Donald P. Dise
Vice President Engineering

DPD:bd

Enc.

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Niagara Mohawk Power Corporation

Nine Mile Point Unit 1

Docket 50-220

DPR-63

Control of Heavy Loads

Control # 8108040118

REGULATORY DOCKET FILE COPY

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I. Introduction

By letter dated December 22, 1980 from Mr. D. G. Eisenhut, licensees were requested to review controls for the handling of heavy loads. The results of this review are to be reported in two parts.

This submittal is the review of the controls of heavy loads at Nine Mile Point Unit 1 relative to Section 2.1 of Enclosure 3 to the Commission letter. The remainder of the report will be supplied, as required, by September 22, 1981.

II. Discussion

Section 2.1(1)

Request

Report the results of your review of plant arrangements to identify all overhead handling systems from which a load drop may result in damage to any system required for plant shutdown or decay heat removal (taking no credit for any interlocks, technical specifications, operating procedures, or detailed structural analysis).

Response

The main handling systems at Nine Mile Point Unit 1 are the reactor building 125 ton overhead traveling crane, the reactor building auxiliary 25 ton hoist, the reactor building one half ton overhead hoist, the turbine building 150 ton overhead traveling crane with 35 ton auxiliary hoist, the reactor building jib crane and two 1 ton hoists on the west and south side of the refueling bridge. Of these systems, only the reactor building 125 ton and 25 ton hoists have been identified as handling loads over systems required for plant shutdown or decay heat removal.

Section 2.1(2)

Request

Justify the exclusion of any overhead handling system from the above category by verifying that there is sufficient physical separation from any load impact point in any safety related component to permit a determination by inspection that no heavy load drop can result in damage to any system or component required for plant shutdown or decay heat removal.

Response

The 150 ton turbine building crane with the 35 ton auxiliary hoist is used for maintenance of the turbine generator. There are no systems required for plant shutdown or decay heat removal within the pickup area of the turbine building crane. However, if the turbine floor were breached by a load drop, it may cause damage to safety related components. Niagara Mohawk is currently evaluating this postulated load drop and will report the results by September 22, 1981.

The reactor building jib crane is a semi-portable cantilever circular movement electrically controlled one-half ton hoist. The jib crane can be set up on any one of four setup areas on the refueling floor. These setup areas are near the corners of the spent fuel pool. The diameter of the pickup area is 15 feet which precludes handling of loads directly over the reactor core or any safety related component.

The two refueling bridge 1 ton hoists are used for handling of core components such as LPRMs and control blades. The travel path of the refueling bridge is limited to the core and spent fuel pool. However, since core components weigh less than fuel bundles, damage from dropped components would be within the results of the fuel drop analysis in the Nine Mile Point Unit 1 Final Safety Analysis Report.

Section 2.1(3)

Request

With respect to the design and operation of heavy load handling systems in the reactor building and those load handling systems identified in 2.1-1, above, provide your evaluation concerning compliance with the guidelines of NUREG 0612, Section 5.1.1. The following specific information should be included in your reply:

- a. Drawings or sketches sufficient to clearly identify the location of safe load paths, spent fuel, and safety related equipment.
- b. A discussion of measures taken to ensure that load-handling operations remain within safe load paths, including procedures, if any, for deviation from these paths.
- c. A tabulation of heavy loads to be handled by each crane which includes the load identification, load weight, its designated lifting device, and verification that the handling of such load is governed by a written procedure containing, as a minimum, the information identified in NUREG 0612, Section 5.1.1(2).
- d. Verification that lifting devices identified in 2.1.3-C above comply with the requirements of ANSI N14.6-1978, or ANSI B30.9-1971 as appropriate. For lifting devices where these standards, as supplemented by NUREG 0612, Section 5.1.1(4) or 5.1.1(5), are not met, describe any proposed alternatives and demonstrate their equivalency in terms of load handling reliability.
- e. Verification that ANSI B30.2-1976, Chapter 2-2 has been invoked with respect to crane inspection, testing and maintenance. Where any exception is taken to this standard, sufficient information should be provided to demonstrate the equivalency of proposed alternatives.
- f. Verification that the crane design complies with the guidelines of CMAA Specification 70 and Chapter 2-1 of ANSI B30.2-1976, including the demonstration of equivalency of actual design requirements for instances where specific compliance with these standards is not provided.
- g. Exceptions, if any, taken to ANSI B30.2-1976 with respect to operator training, qualification, and conduct.

Response a. Attached are sketches used at Nine Mile Point Unit 1 for movement of heavy loads. Figures MP1.1-1 through MP1.1-12 govern removal of the reactor head cavity plugs, the large canal shield plugs, small canal shield plugs 10 and 11, the drywell head, and the curtain shield support structure. Figures MP1.2-1 and MP1.2-2 govern removal of reactor head insulation and reactor. Figure MP1.3-1 governs removal of the steam dryer. Figures MP1.4-1 through MP1.4-3 govern removal of small canal shield plug no. 9 and the steam separator, and installation of the portable radiation shield. Figures MP1.5-1 through MP1.5-3, MP1.6-1, MP1.7-1 through MP1.7-3 and MP1.8-1 through MP1.8-12 govern the reversal of the above removals when the components are being installed. The sketch identified as Figure 5A is used for movement of spent fuel casks from the hatchway to the spent fuel pool cask drop protection system, and out again. Procedures for handling LPRM's, new fuel and control blades will be revised prior to their next use in the spring of 1983.

Load paths are not marked on the operating floor, since these would only confuse the crane operators.

Response b. The figures provided in response to a above are used in conjunction with maintenance procedures and fuel handling procedures to assure safe load paths are followed.

Other heavy loads, such as new fuel and packages and control blades with packaging, are moved in accordance with procedures which specify that the fuel pool area and safety related equipment should be avoided. These types of heavy loads are not normally moved when the reactor building plugs are removed. These administrative procedures provide adequate assurance that damage to plant shutdown and decay heat removal systems is avoided.

Response c. Provided below is a list of the heavy loads normally moved on the refueling floor at Nine Mile Point Unit 1, the associated procedure governing its movement, and identification of lifting devices. These procedures comply to NUREG 0612 Section 5.1.1(2), except that the safe load path is not marked on the refueling floor. These procedures are available at the Station. Figure 3 shows the location in which all loads are placed and their weights.

	<u>Removal Procedure</u>	<u>Installation Procedure</u>	<u>Designated Lifting Device</u>
Shield Plugs (Except No. 9)	MP1.1	MP1.8	S-1, S5A*
Drywell Head	MP1.1	MP1.8	Drywell Head Lift Ass.
Curtain Shield Support Structure	MP1.1	MP1.8	Drywell Head Lift Ass.**
Rx Head Insulation #1	MP1.2	MP1.7	4 point sling
Reactor Head	MP1.2	MP1.7	Reactor Head Lift Ass.
Shield Platform	MP1.2	MP1.7	Drywell Head Lift Ass.
Steam Dryer	MP1.3	MP1.6	Steam Dryer & Separator Lift Ass.
Shield Plug #9	MP1.4	MP1.5	S-5A
Portable Radiation Shield	MP1.4	MP1.5	Briddle Hitch
Steam Separator	MP1.4	MP1.5	Steam Dryer & Separator Lift Ass.
LPRMs		FHP 26	4 point sling
New Fuel		FHP 6	4 point sling
Control Blades		FHP 20	4 point sling
Waste Debris Shipping Casks		FHP 16	Cask Yoke

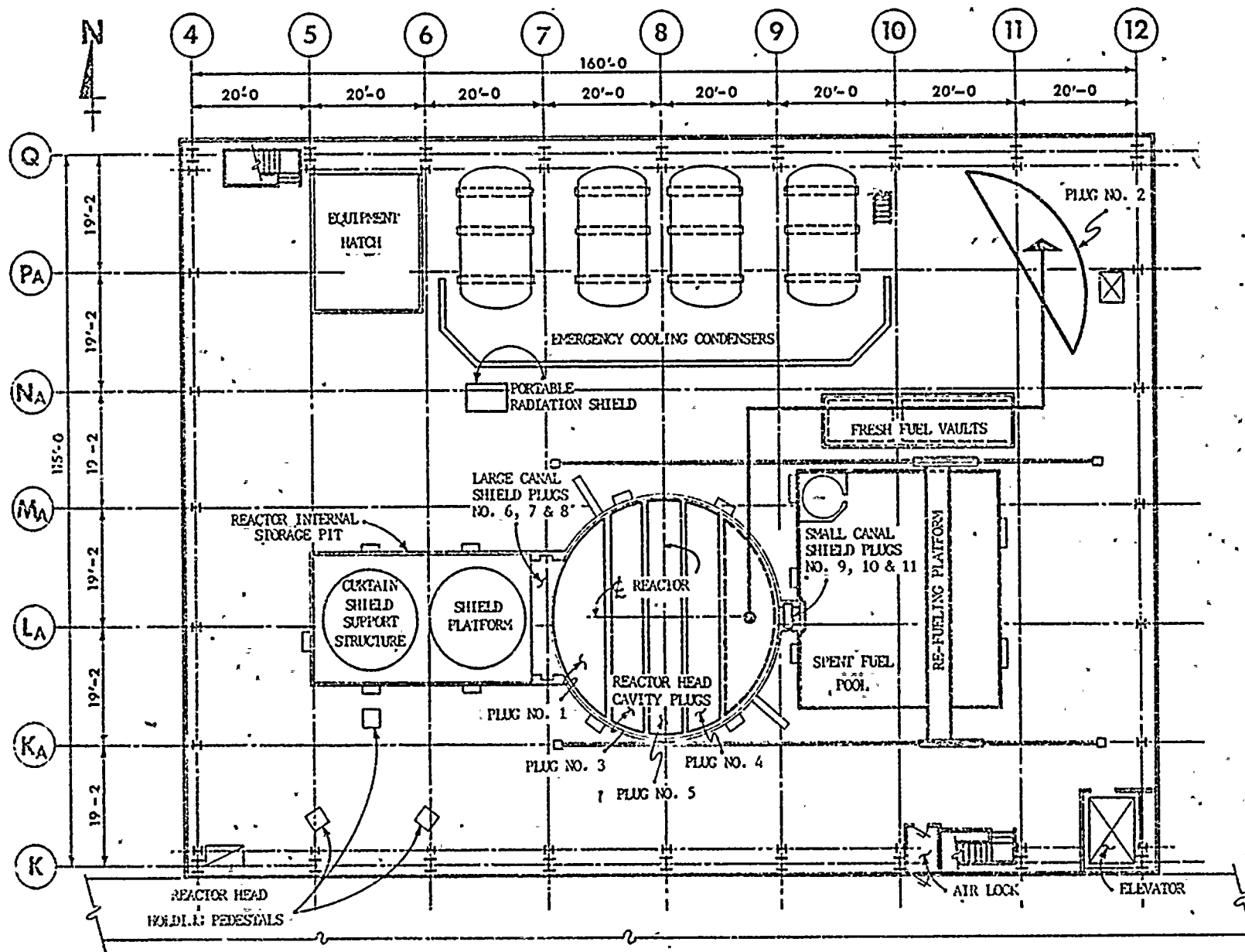
* S-1 is used for plugs 1 through 5, S-5A is used for the remainder.
 **Modified with 4 turnbuckles

Response Niagara Mohawk is in the process of verifying that the lifting
 d. devices used at Nine Mile Point Unit 1 meet these requirements.
 However, we do not expect final resolution until September, 1981.
 Therefore, Niagara Mohawk will report on the issue in September along
 with the remaining information required by the December 22, 1980
 letter.

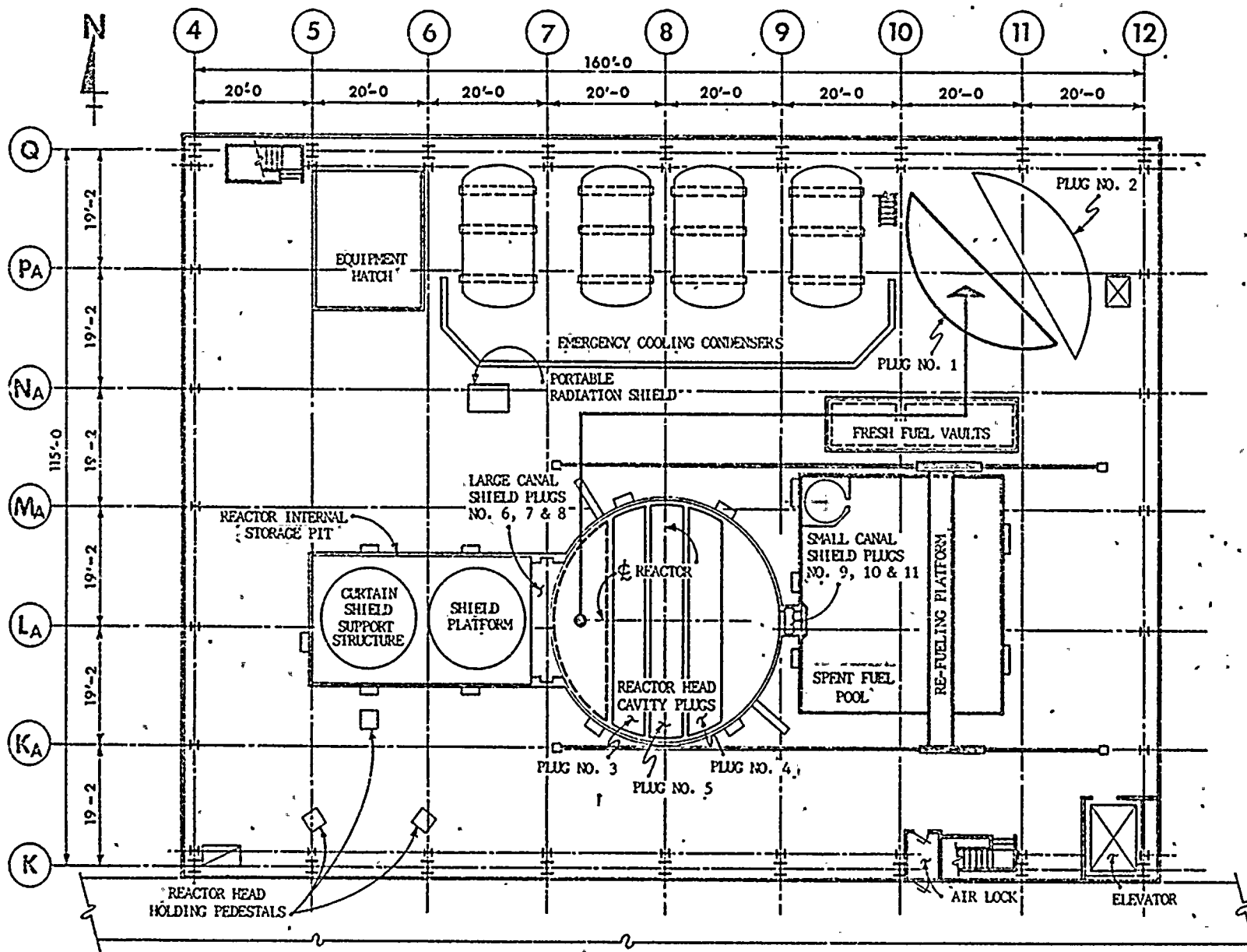
Response The reactor building cranes at Nine Mile Point Unit 1 are classified
 e. as cranes not in regular use per Section 2-2.1.4 of ANSI
 B30.2.0-1976. Therefore, inspections are performed before each use.
 This inspection incorporates the necessary requirements of Chapter
 2-2 relative to preventative maintenance.

Response As stated in Section III A.2 of Niagara Mohawk's letter from
 f. Mr. P. D. Raymond to Mr. Donald J. Skovholt dated July 26, 1973, the
 redundant hoisting system at Nine Mile Point Unit 1 complies with
 CMAA Specification #70-1971 and ANSI B30.2.0-1967. Since the crane
 was designed prior to 1976, it may not be in complete compliance with
 the 1976 version of ANSI B30.2. Niagara Mohawk is currently
 investigating this and will report the results of our review by
 September 22, 1981.

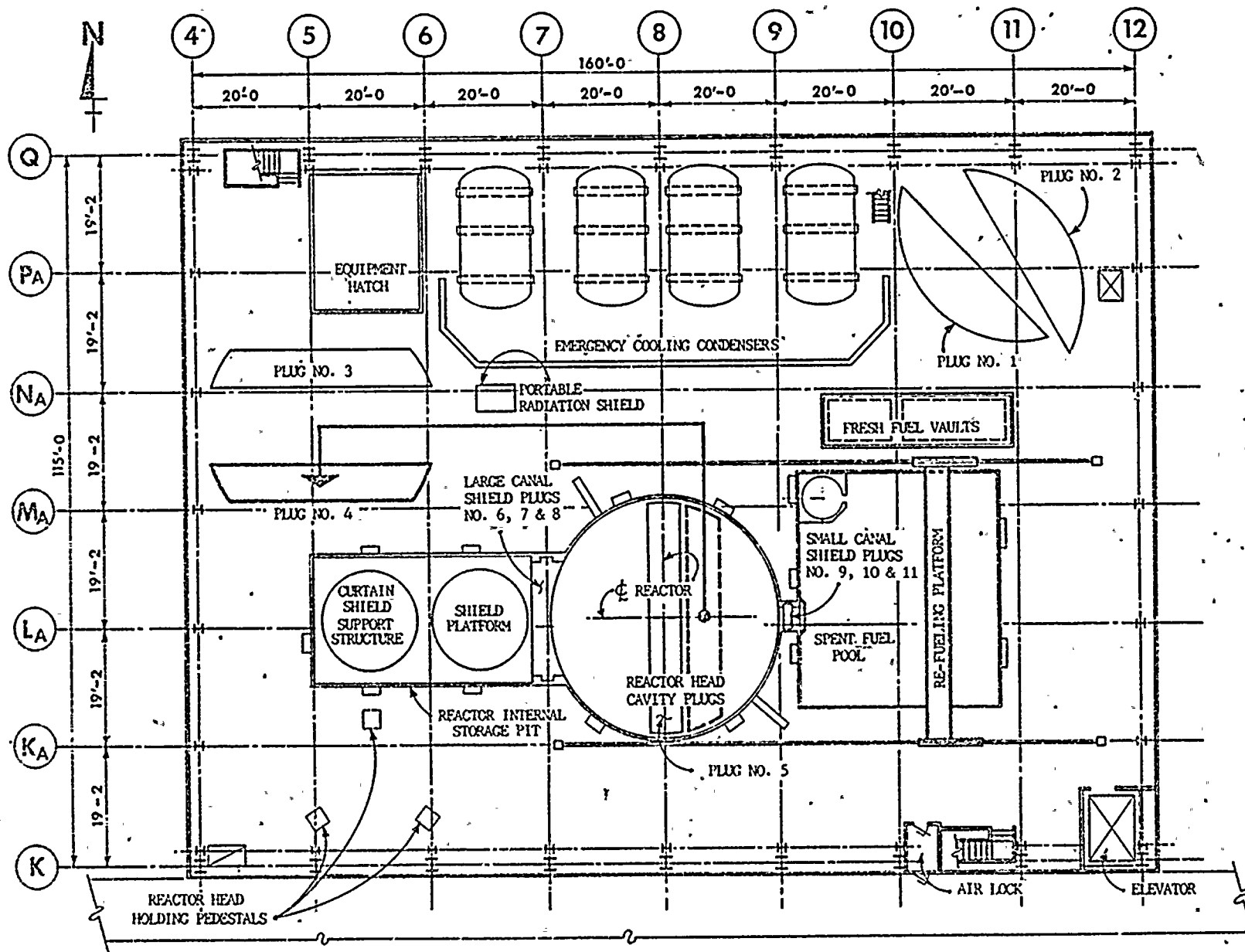
Response Niagara Mohawk has in place a lesson guide which is used to train
 g. crane operators. The intent of this lesson guide is to assure proper
 and safe operation of floor operated overhead cranes in accordance
 with ANSI B30.2-1976.

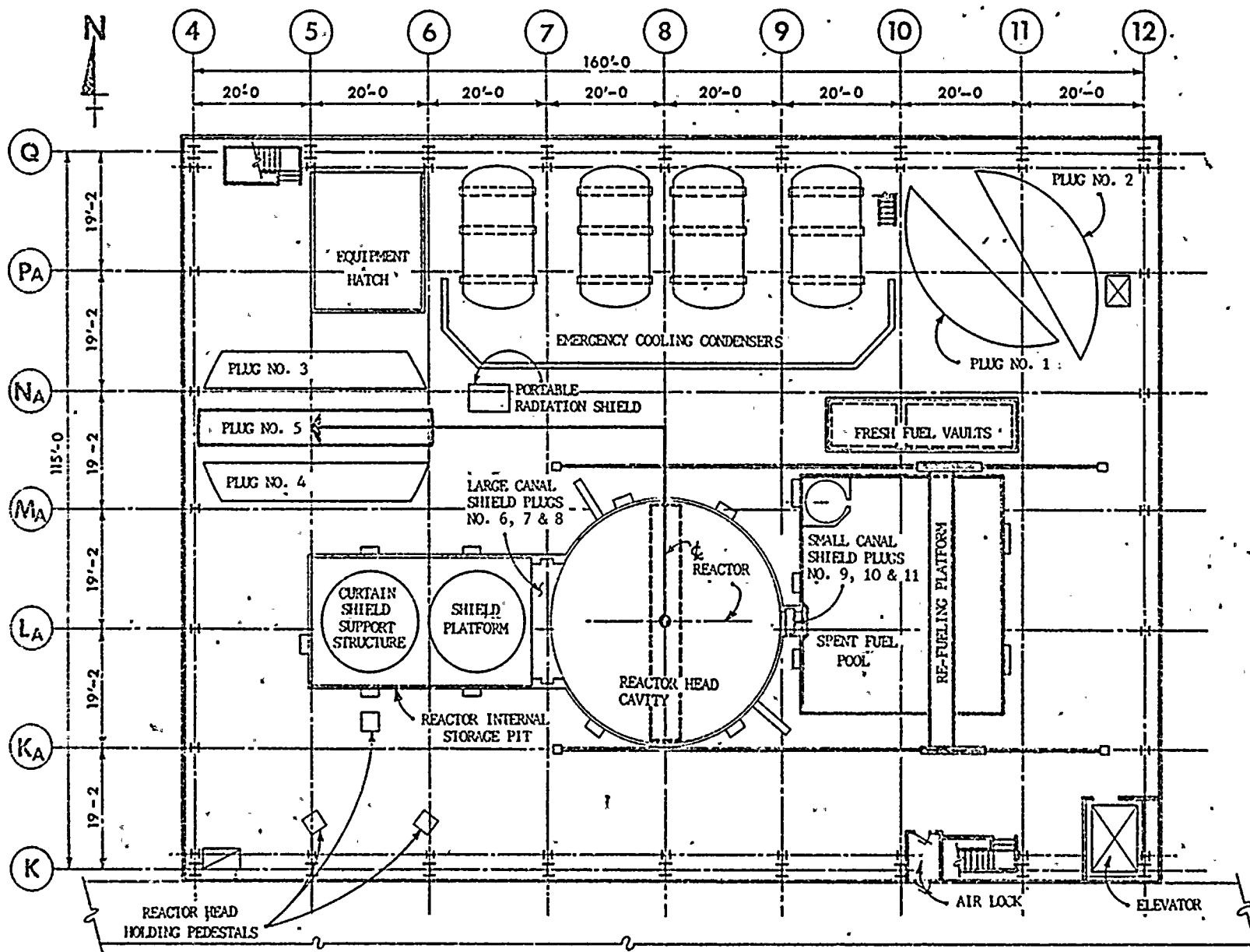


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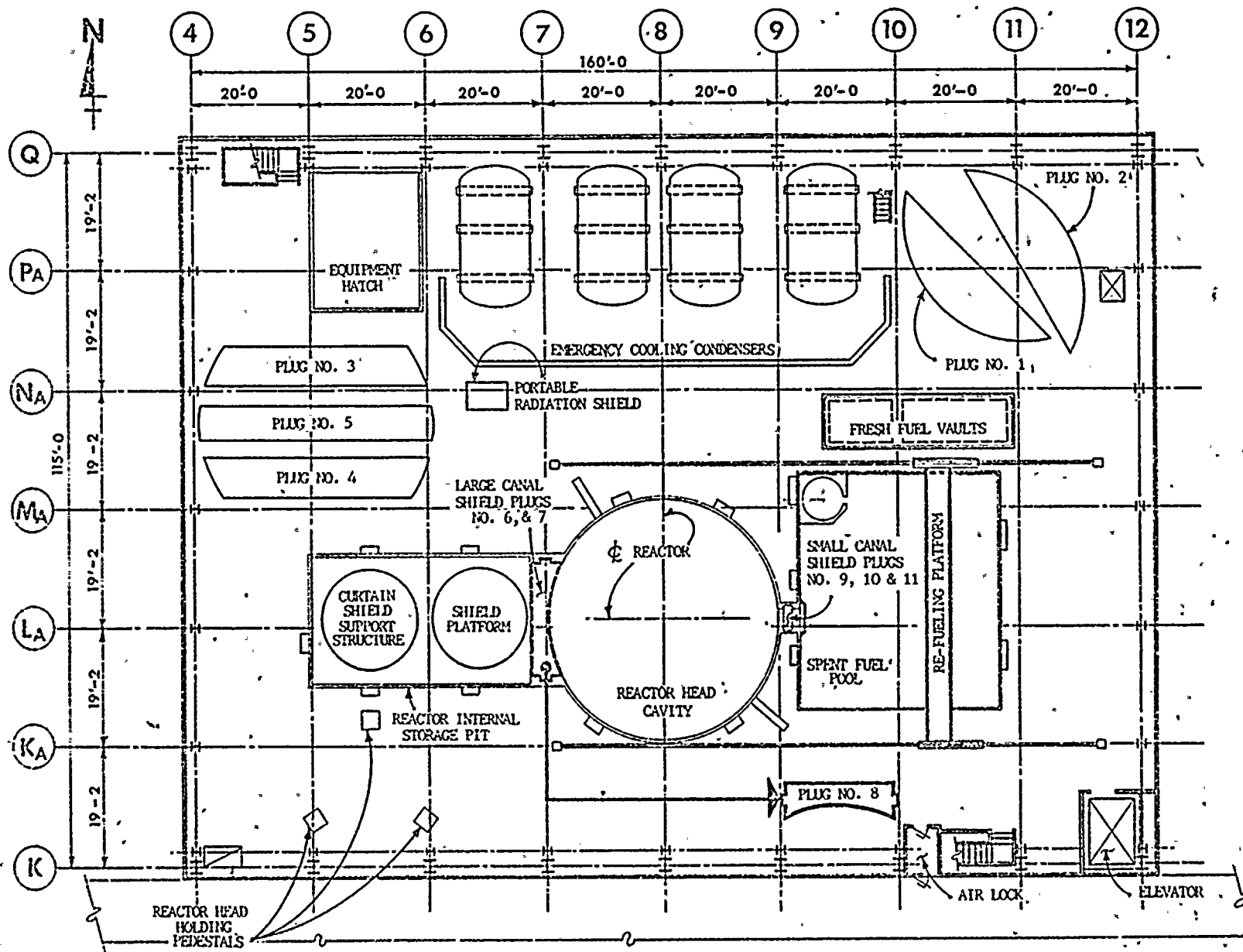


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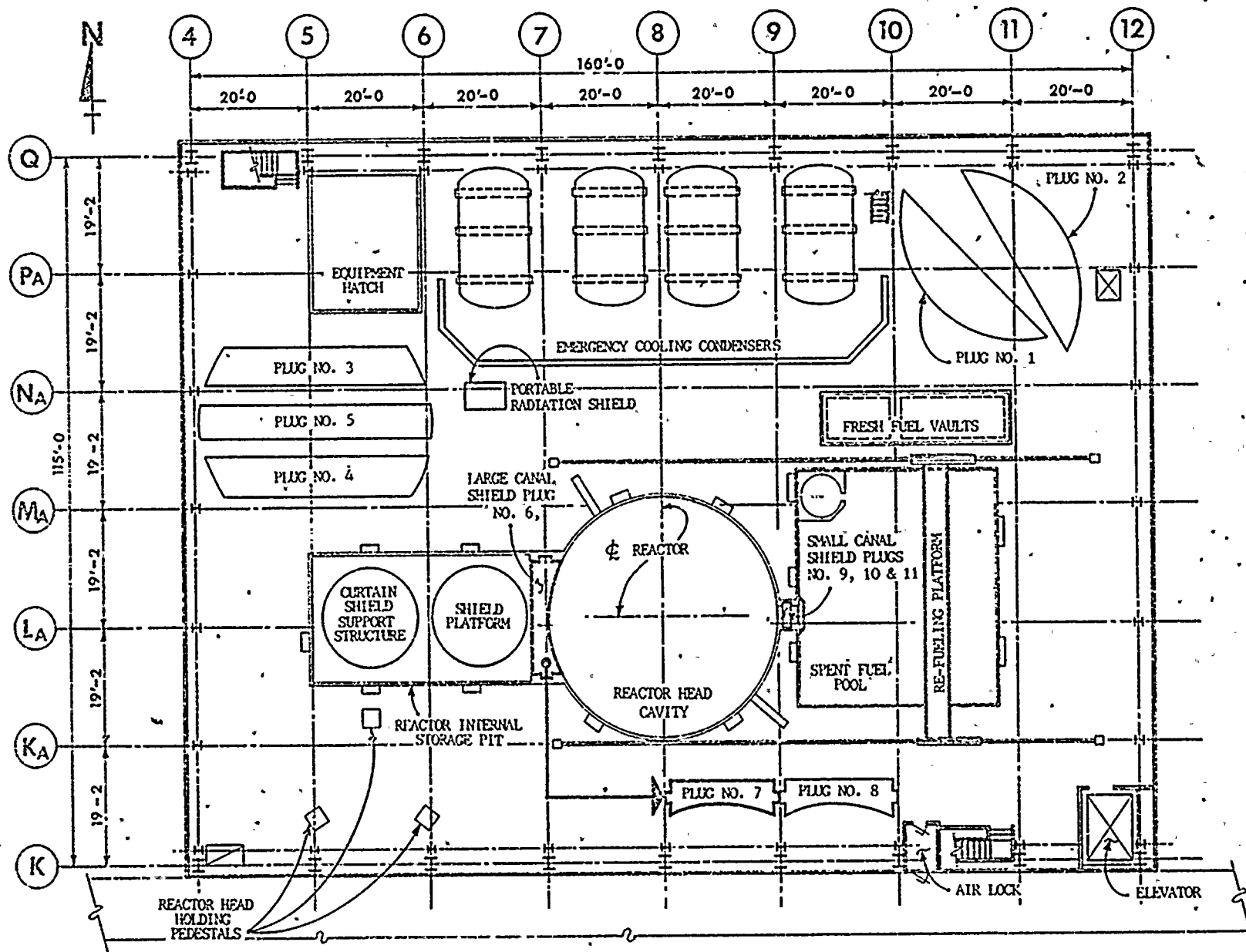




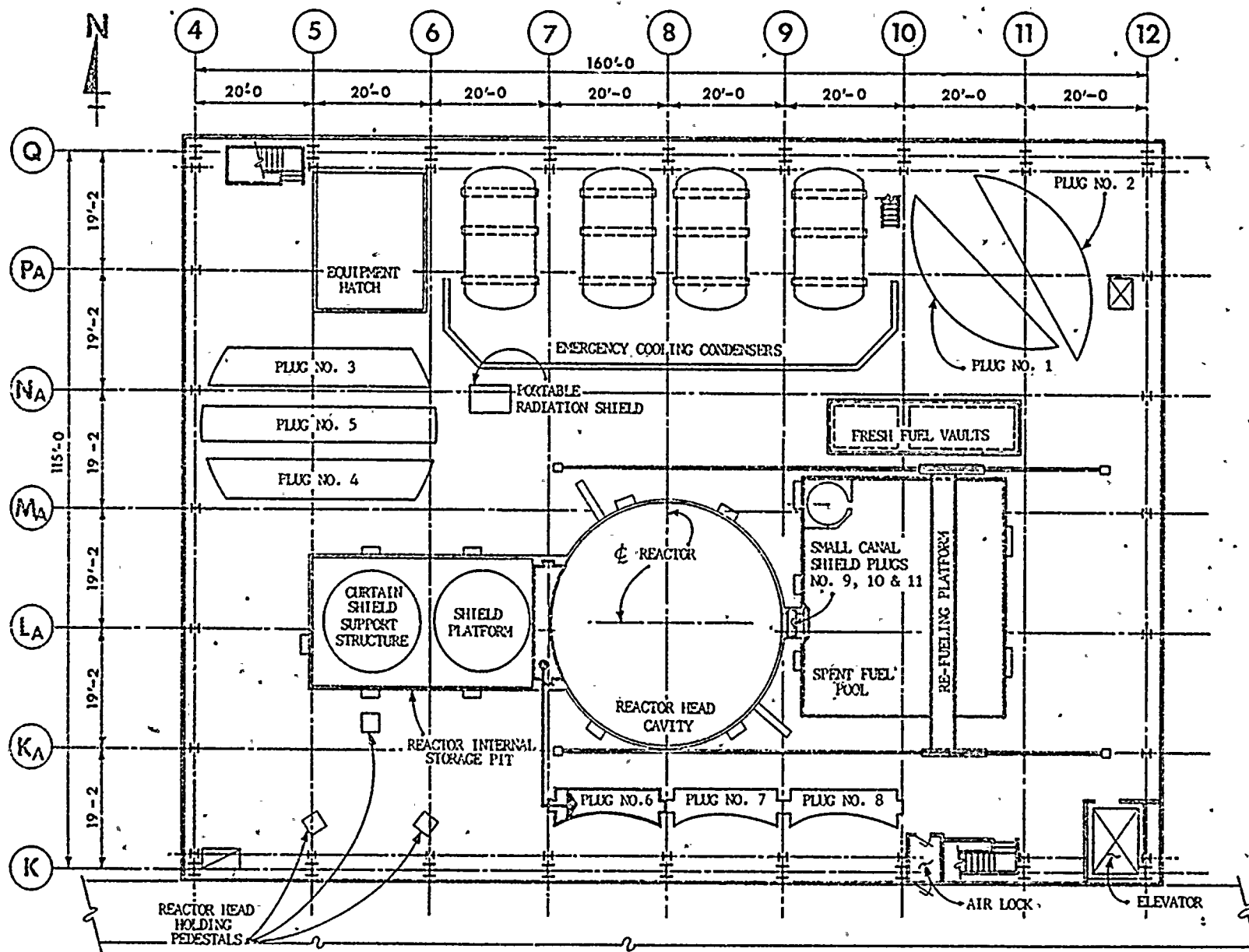
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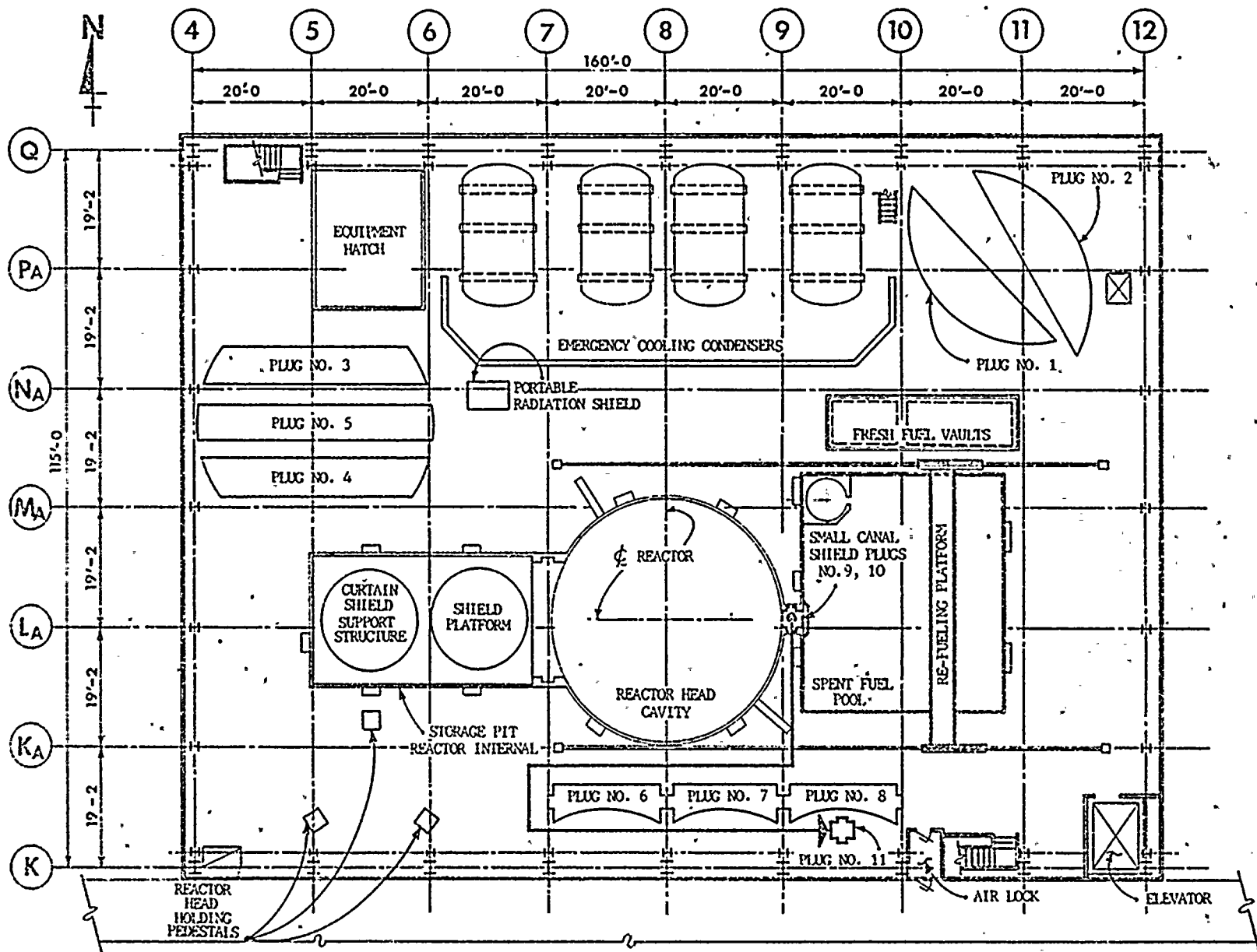
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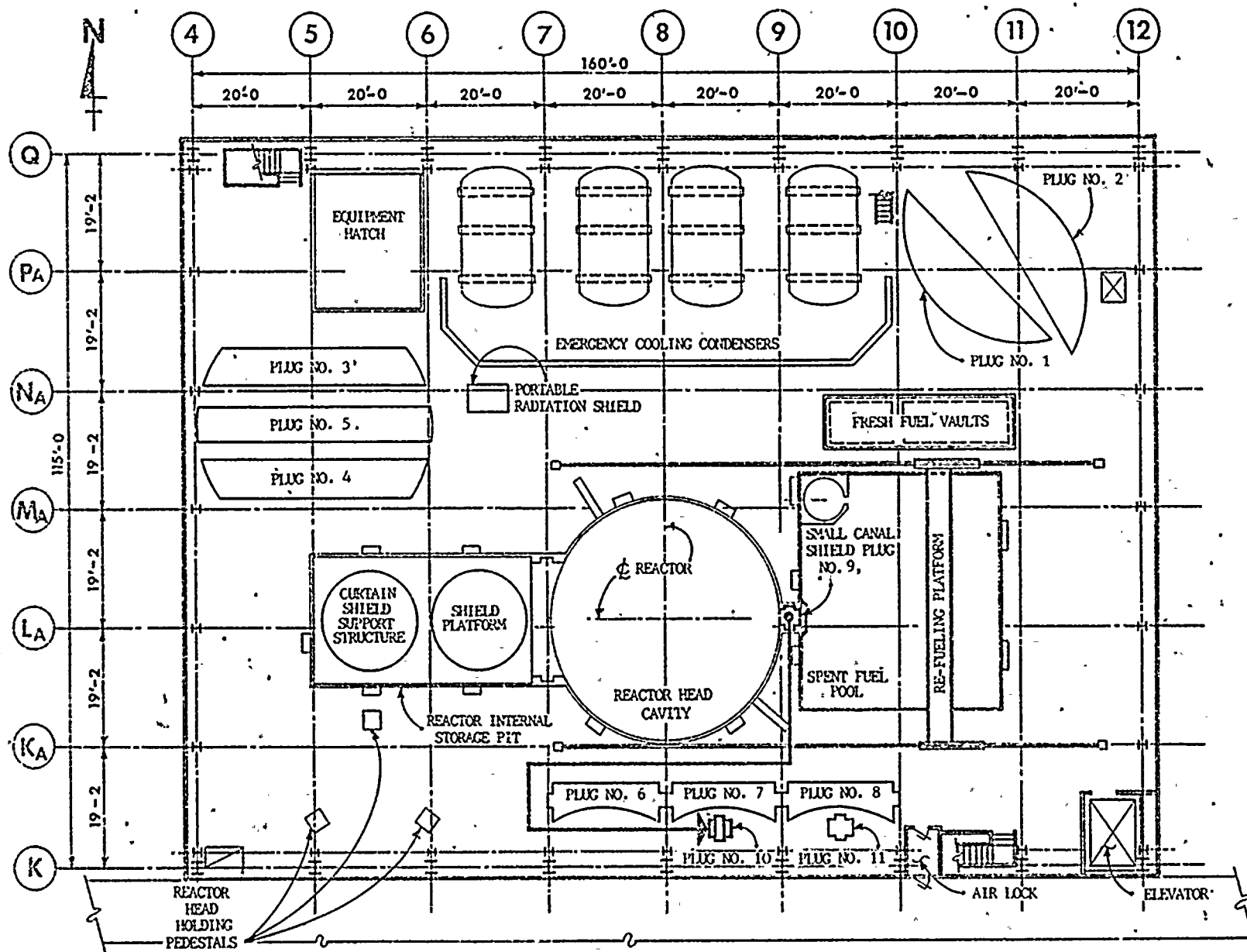


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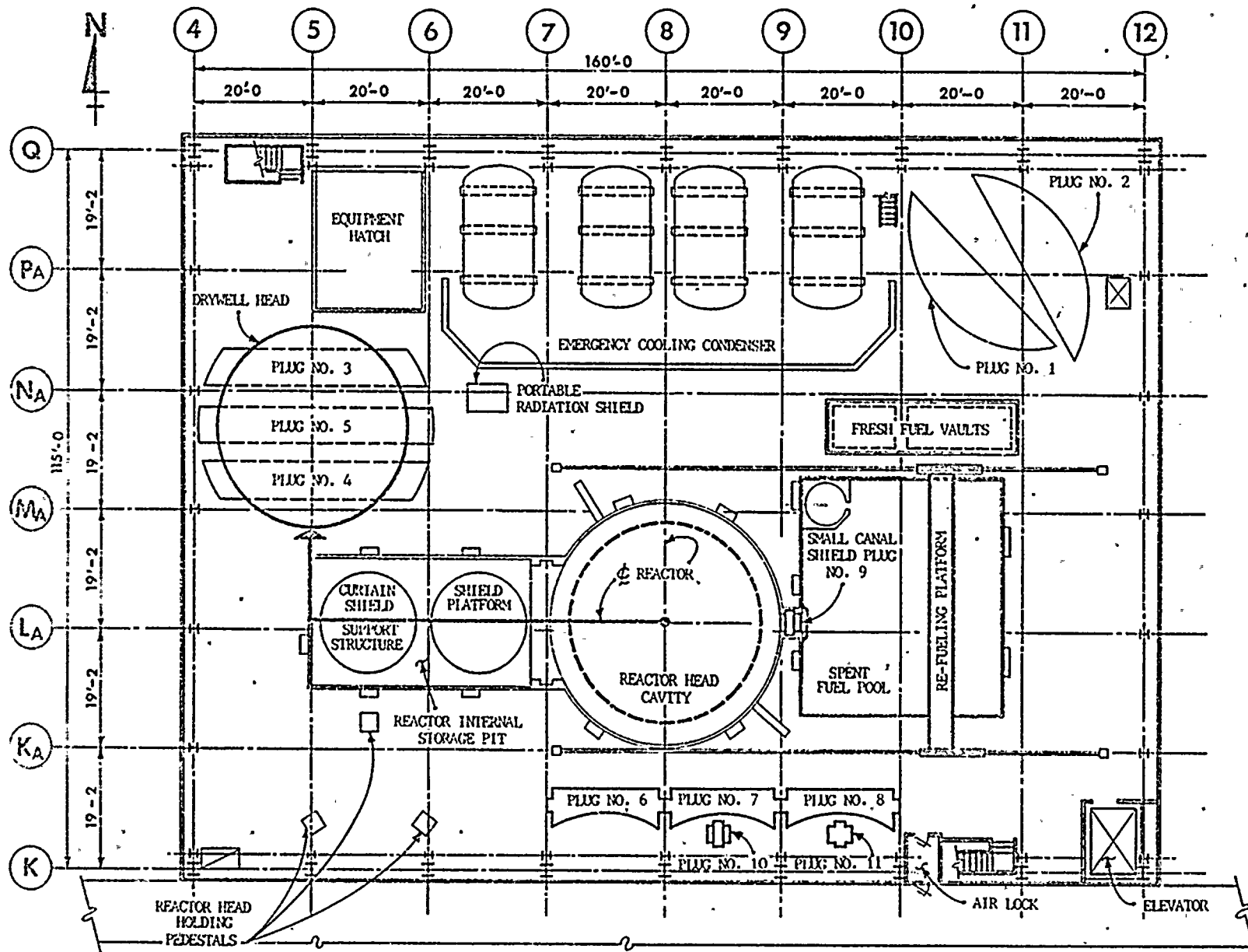
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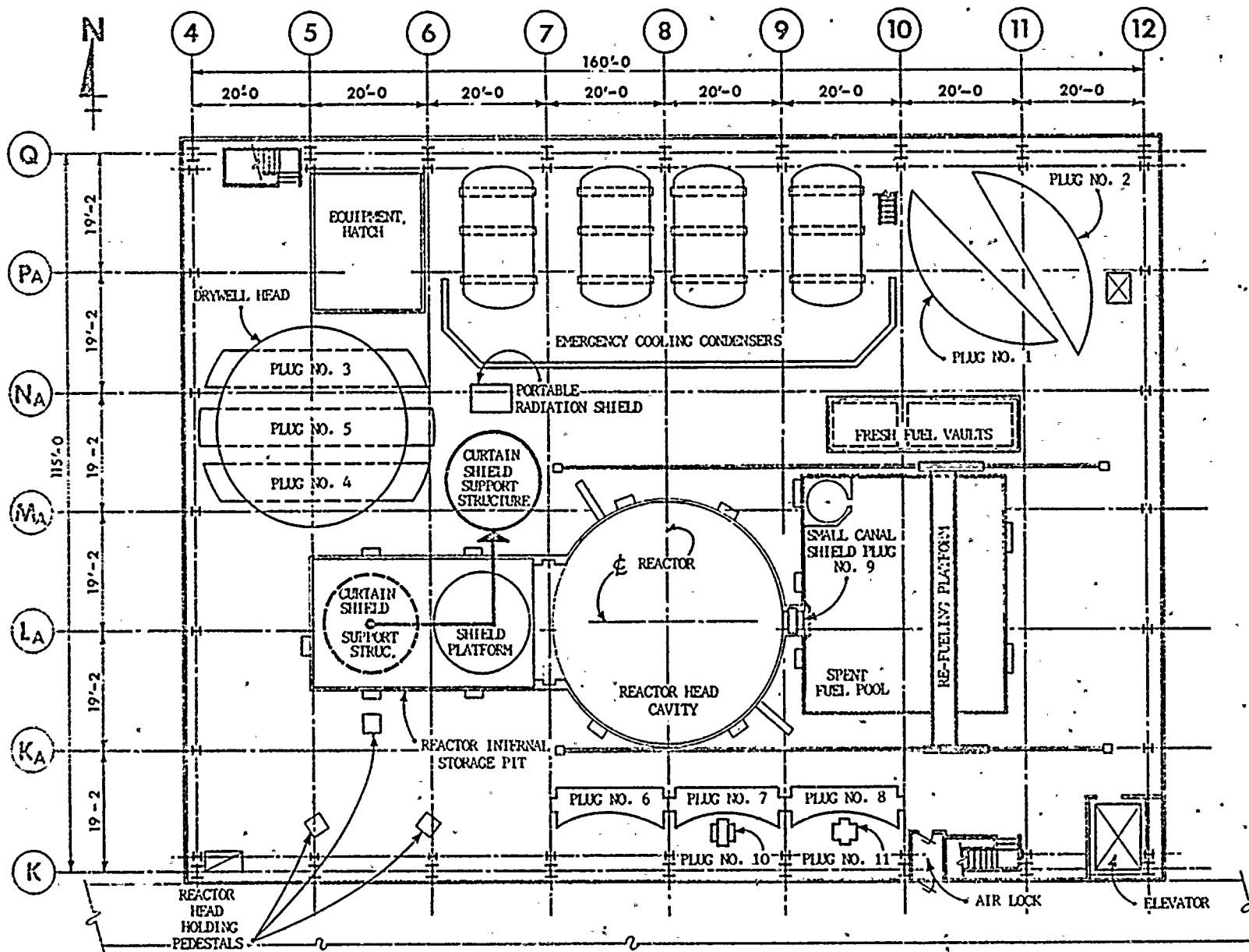
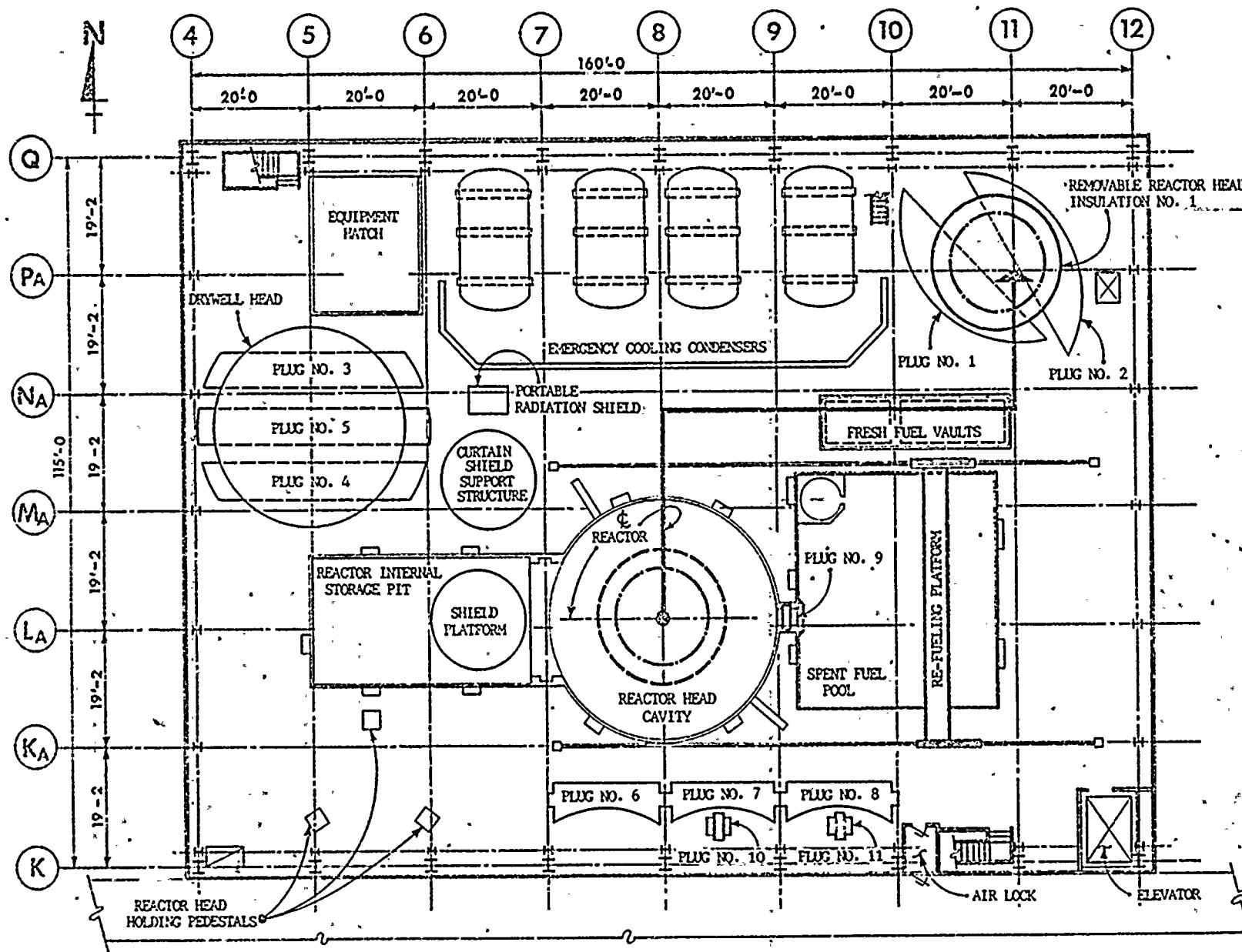
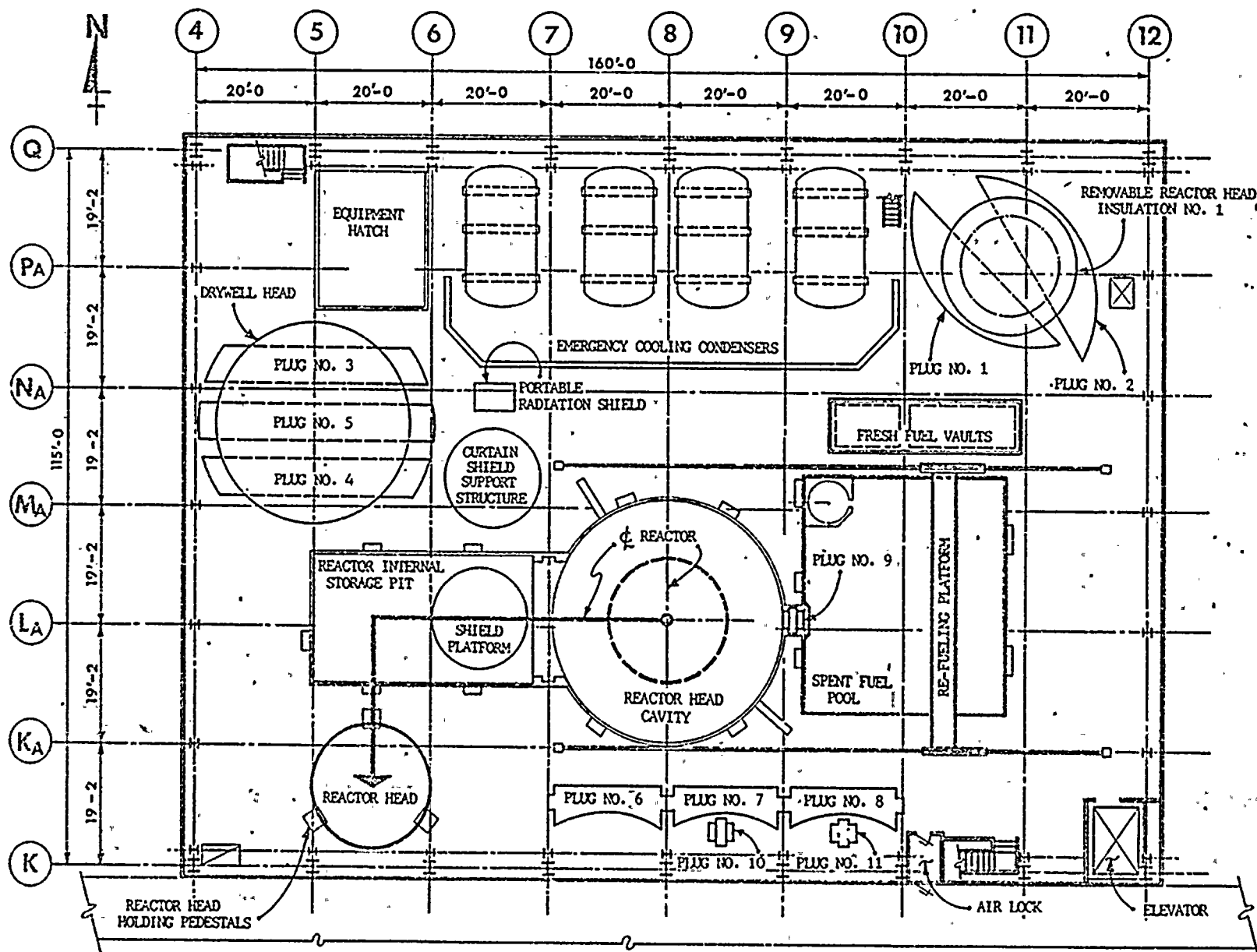


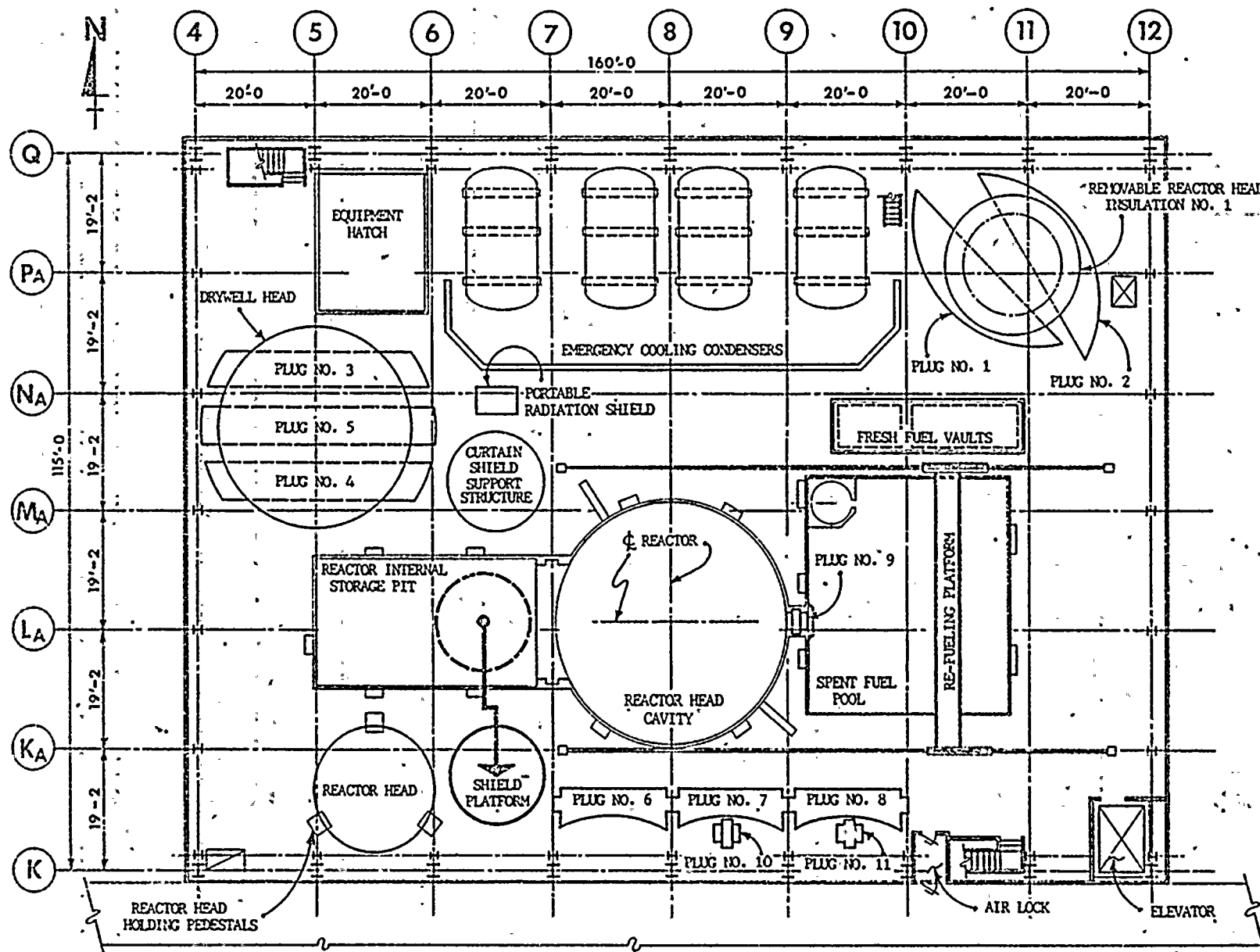
FIGURE MP 1.1-12



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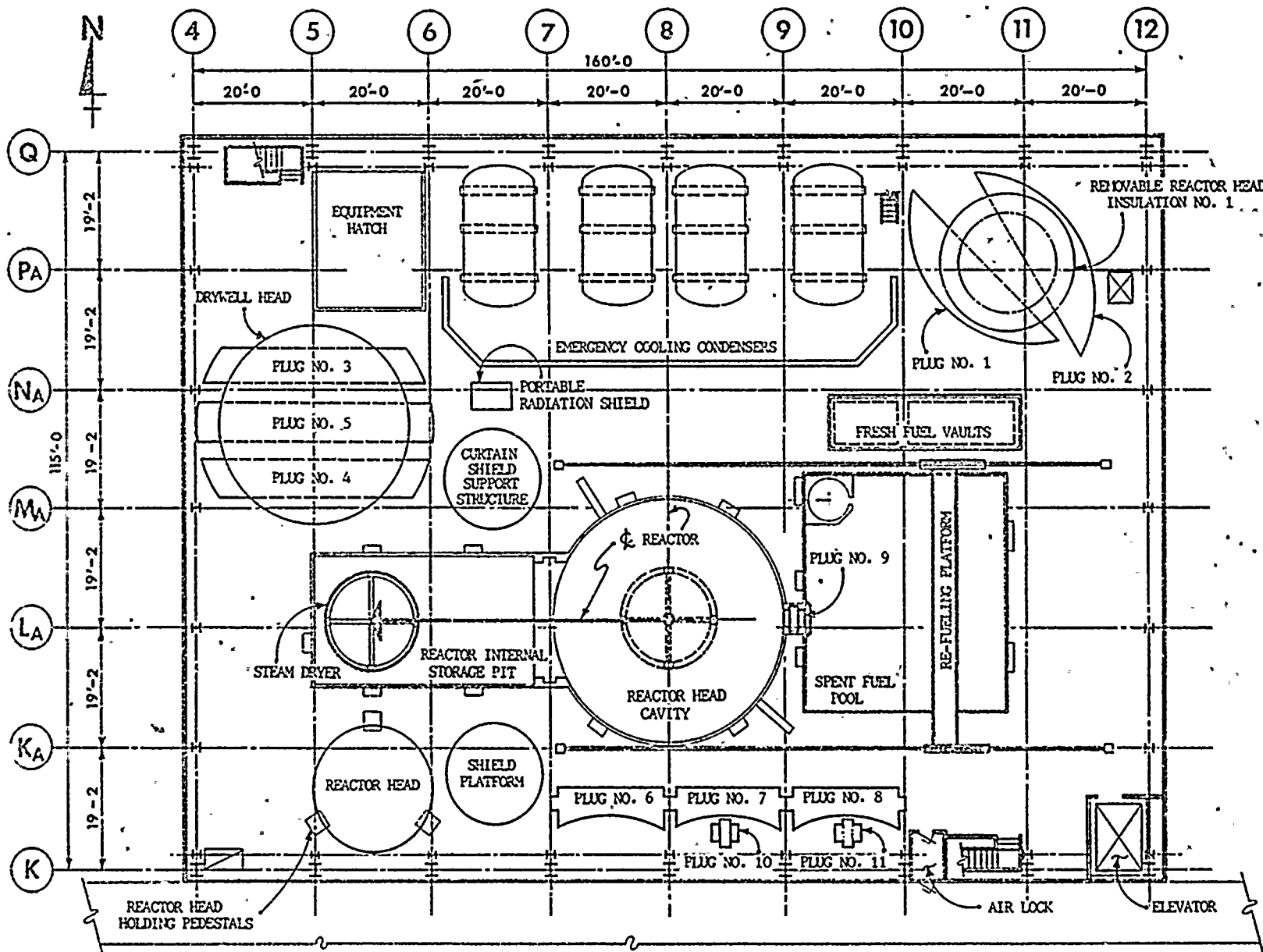
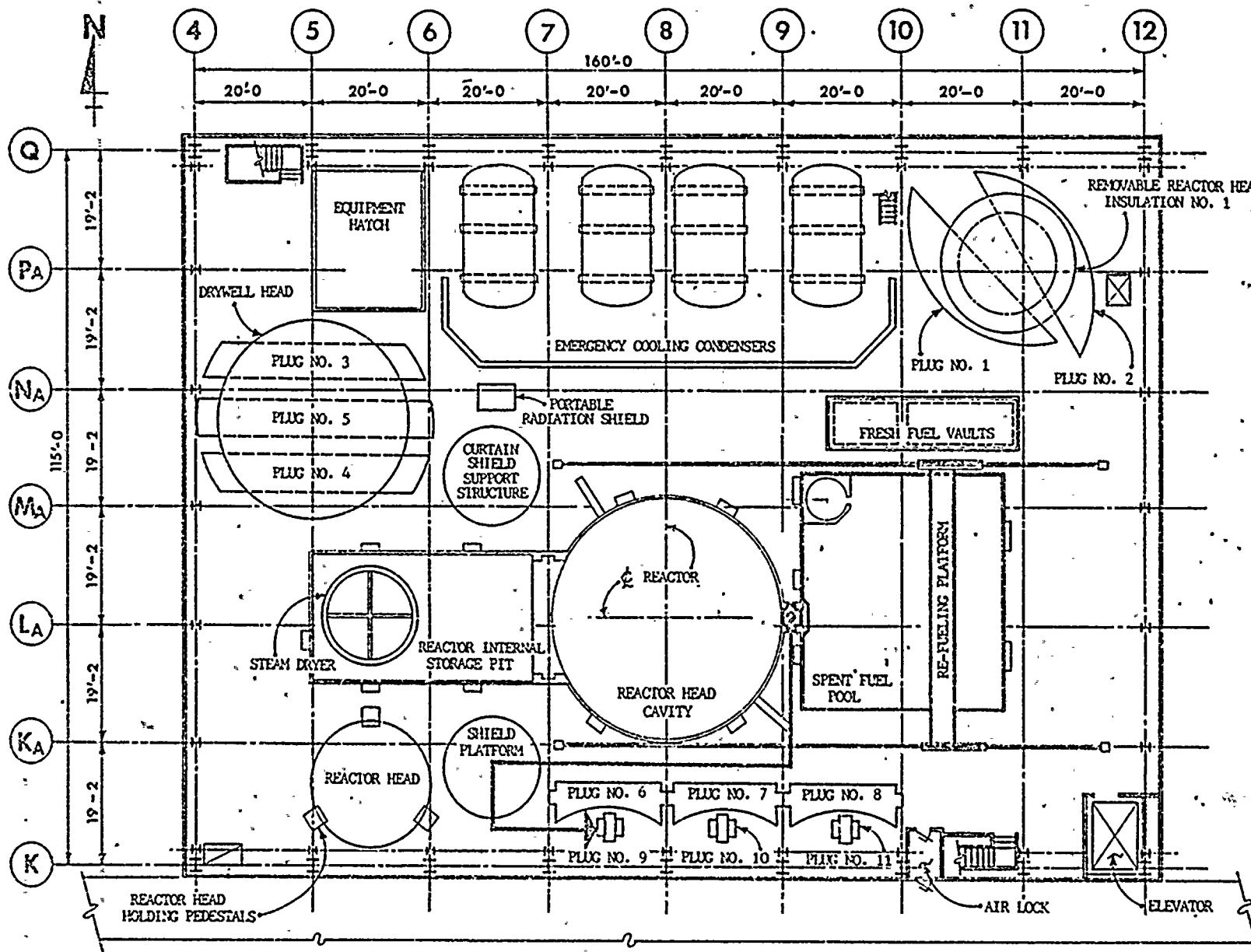
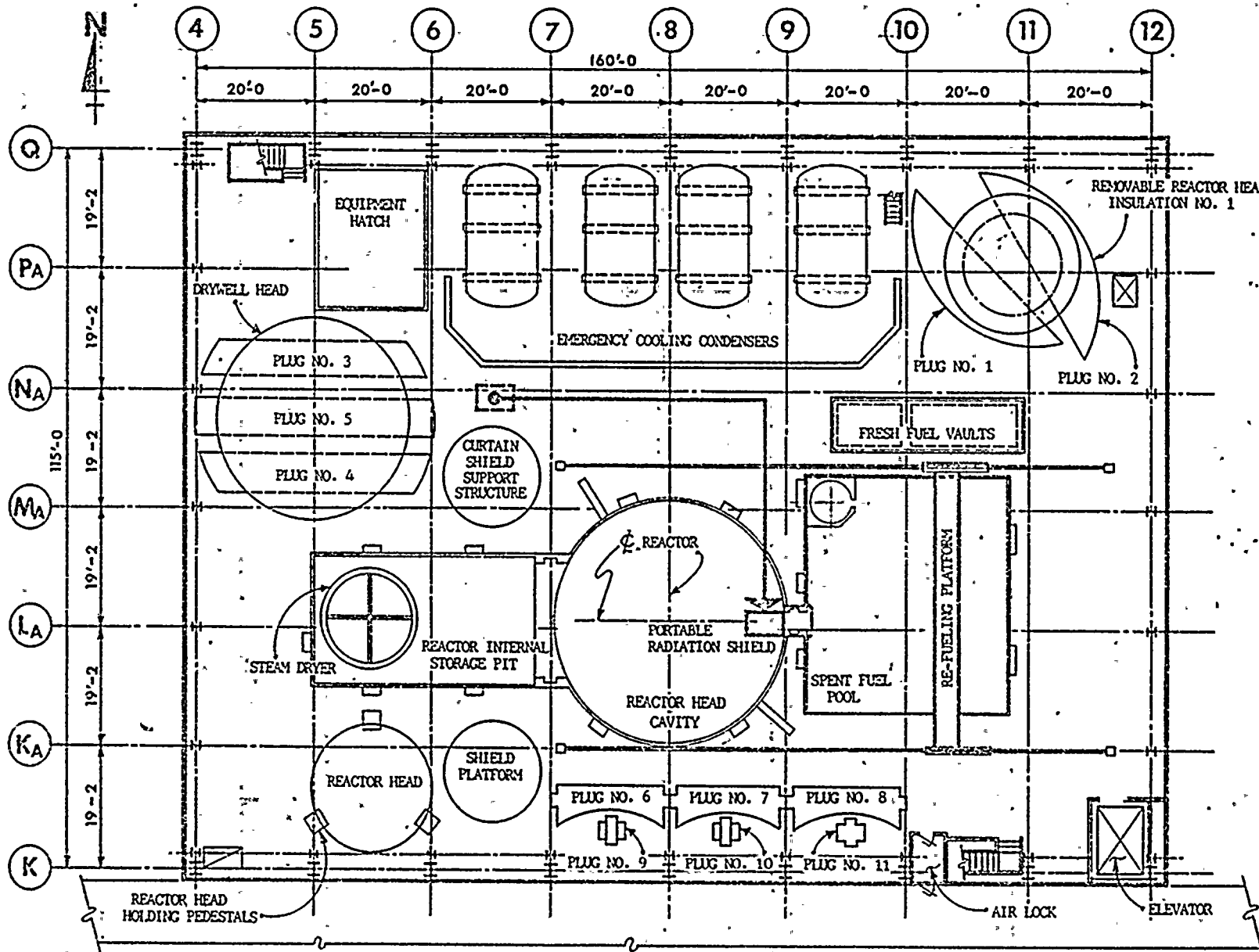


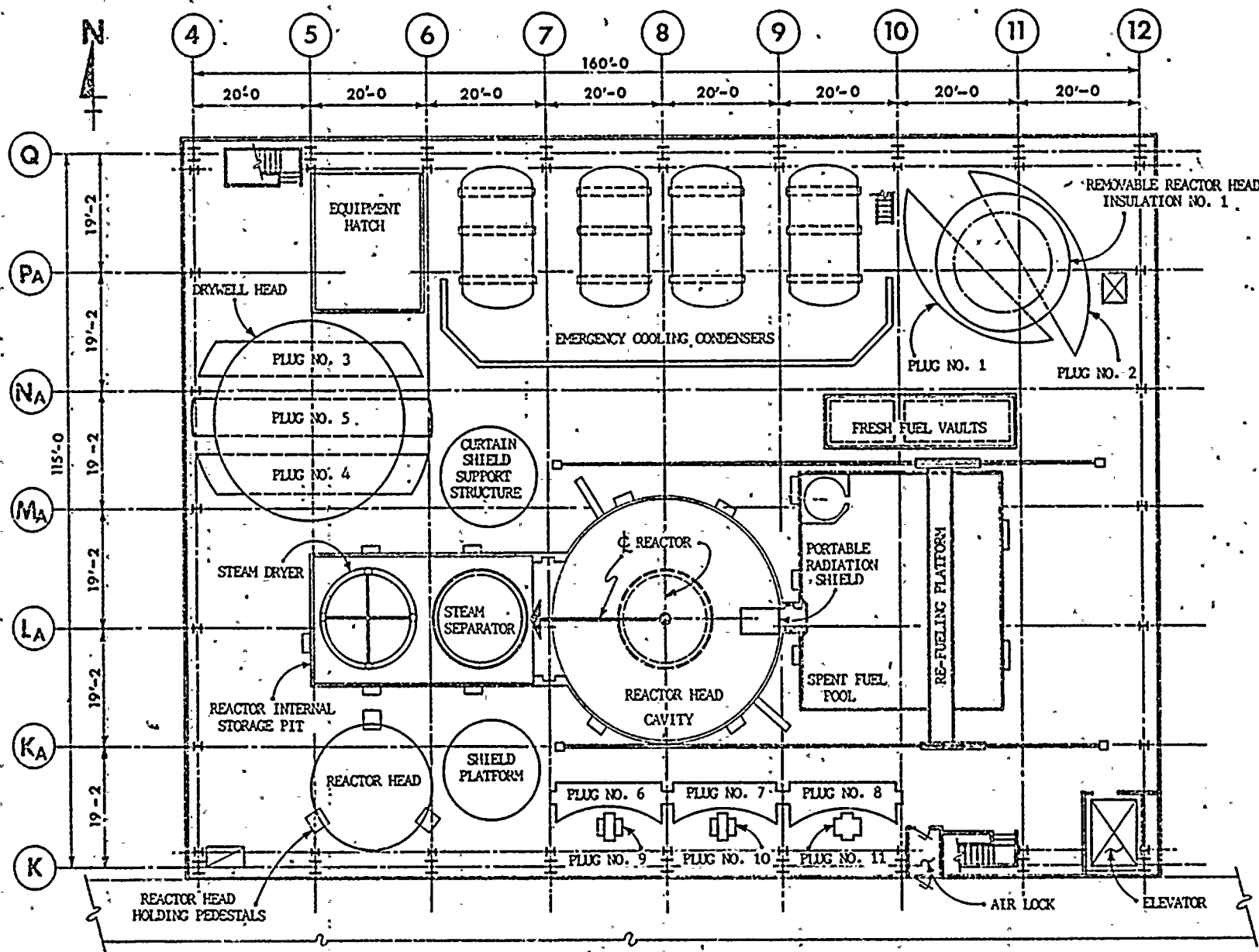
FIGURE M.P. 1.3-1



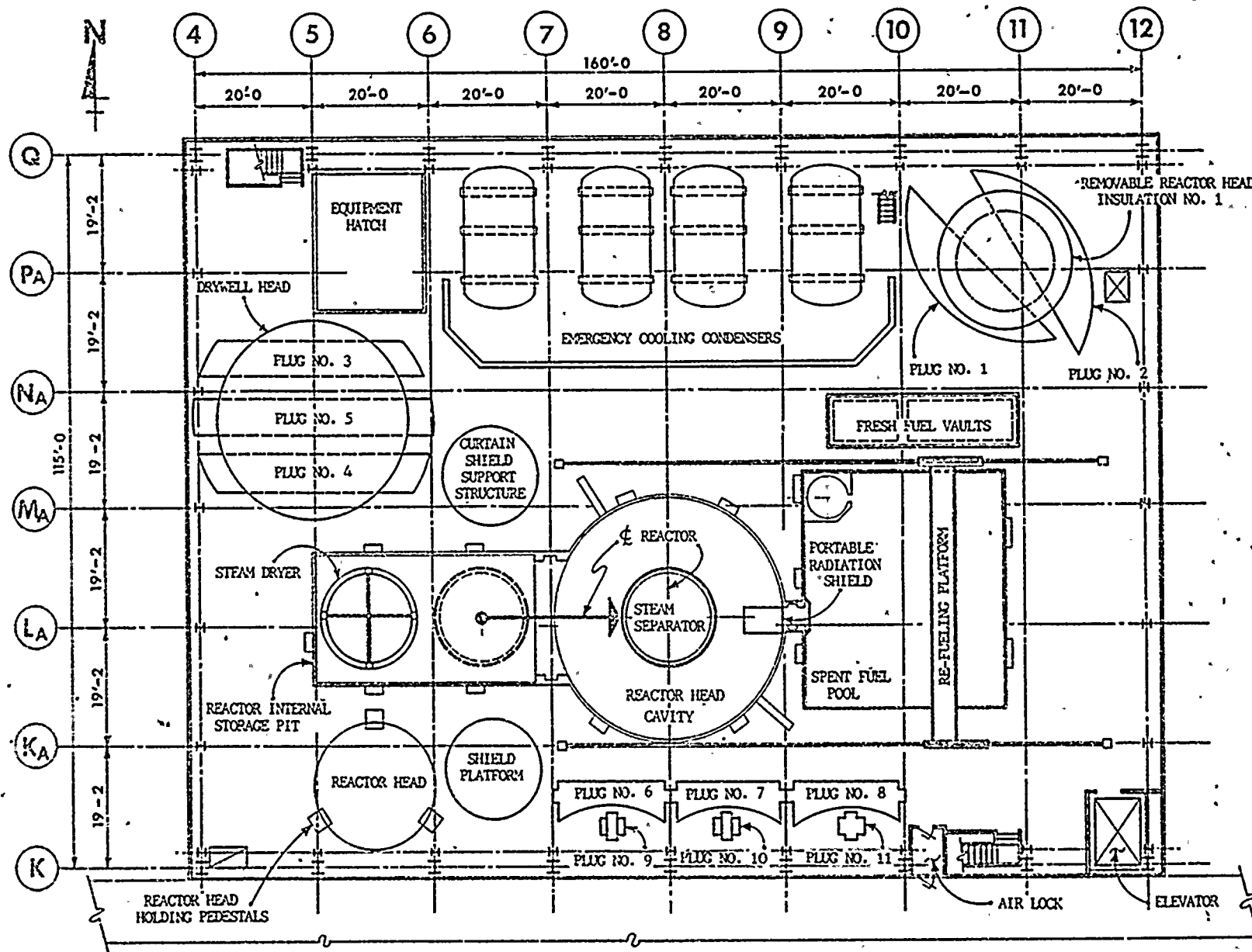
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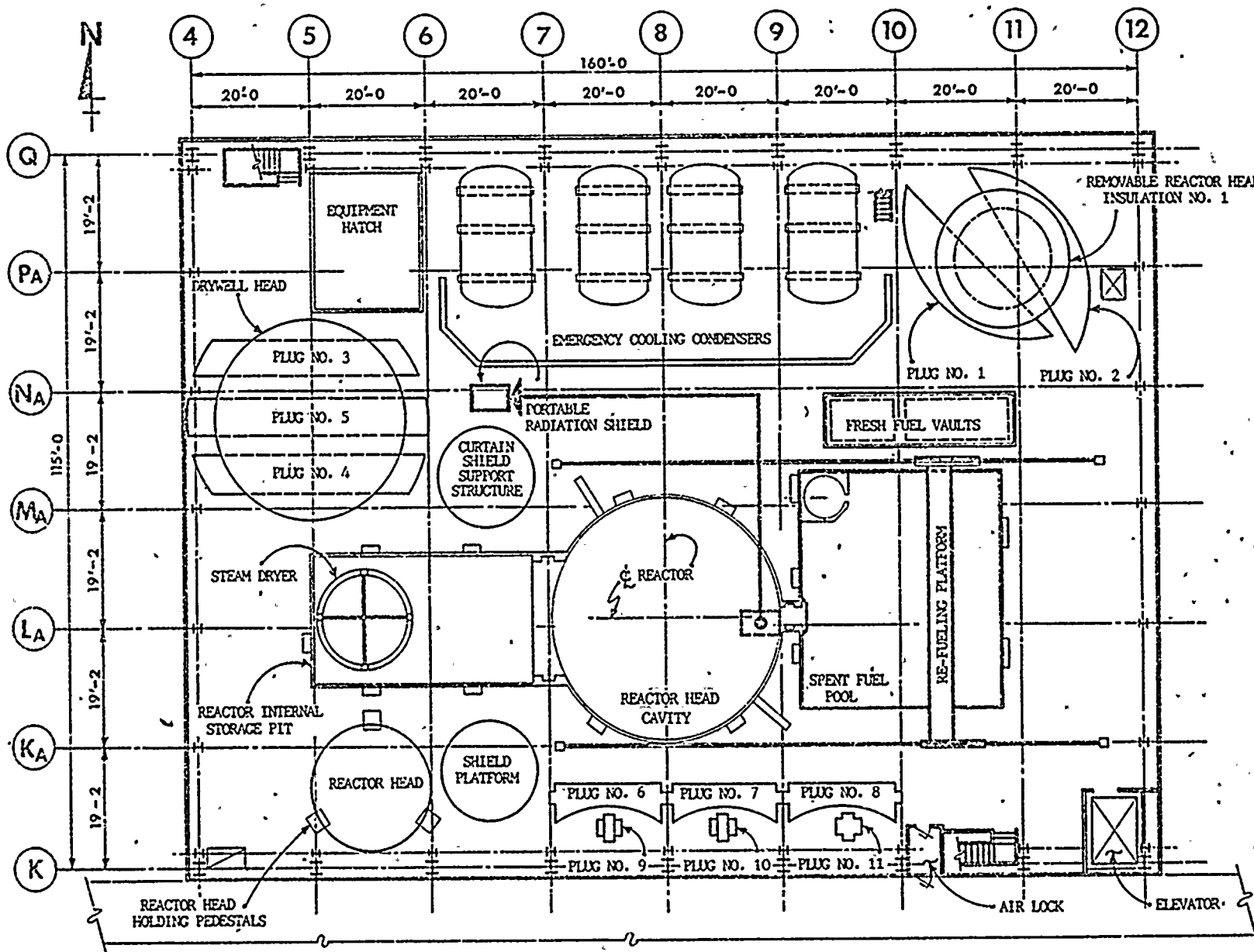
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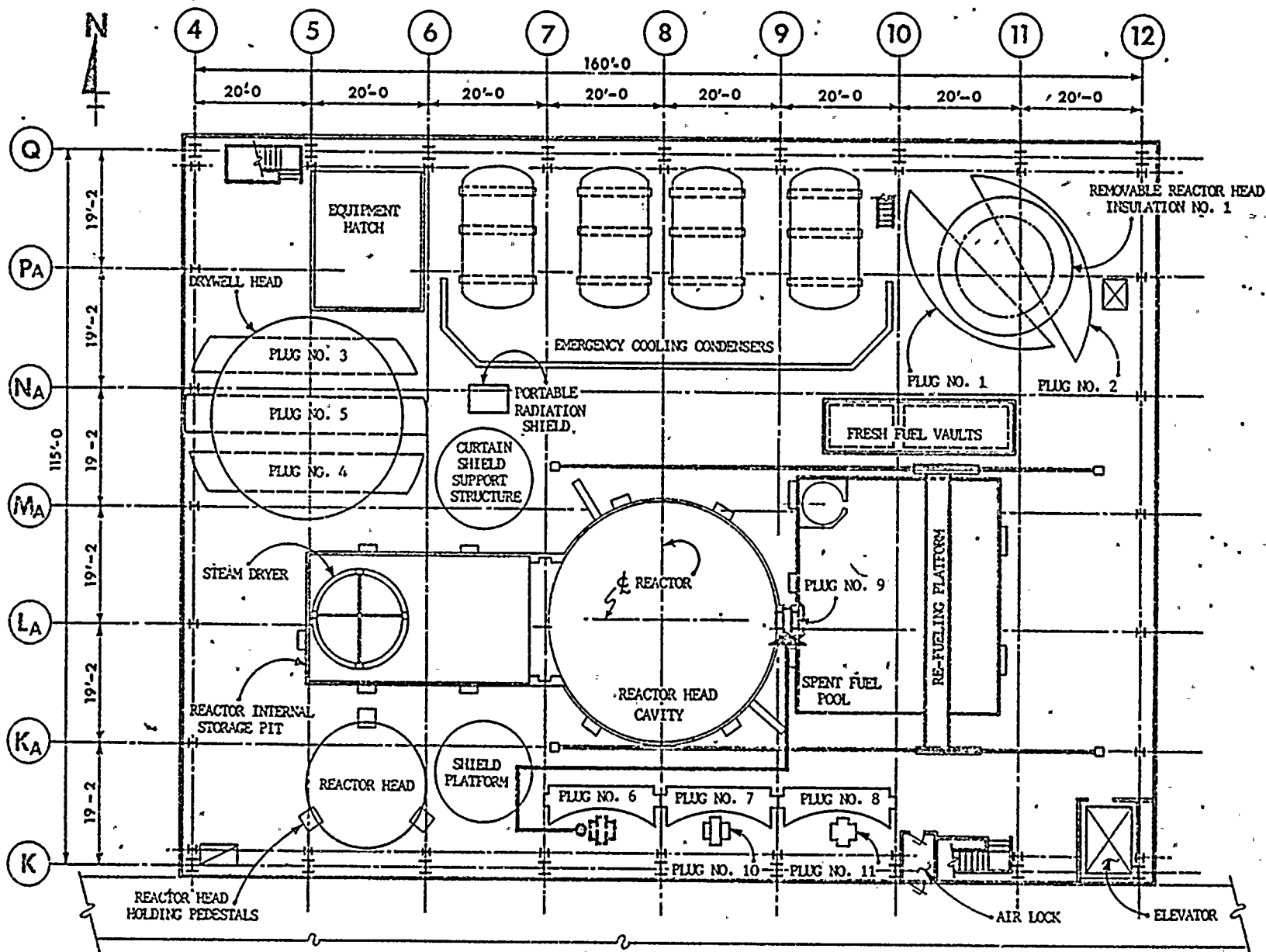
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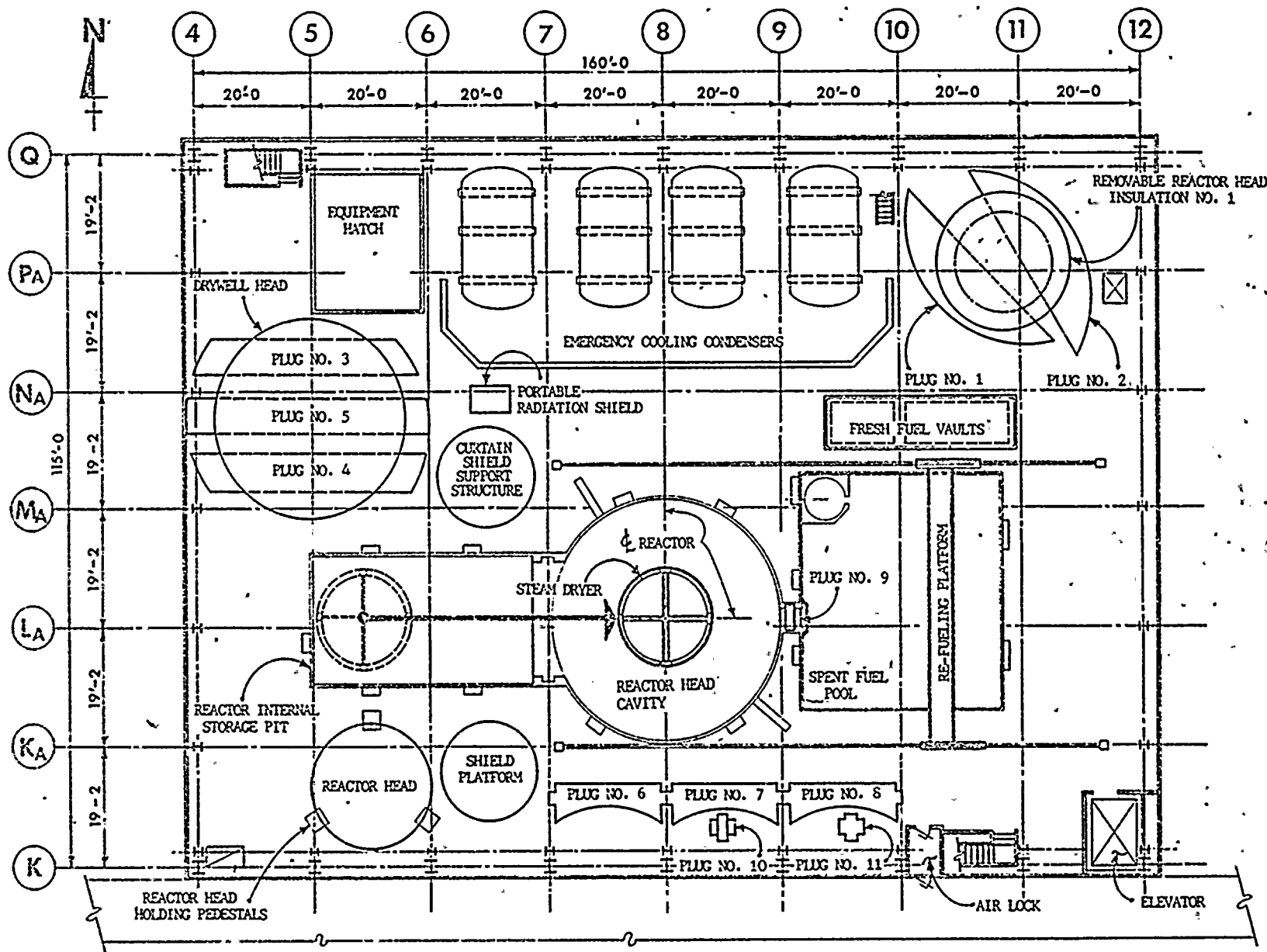
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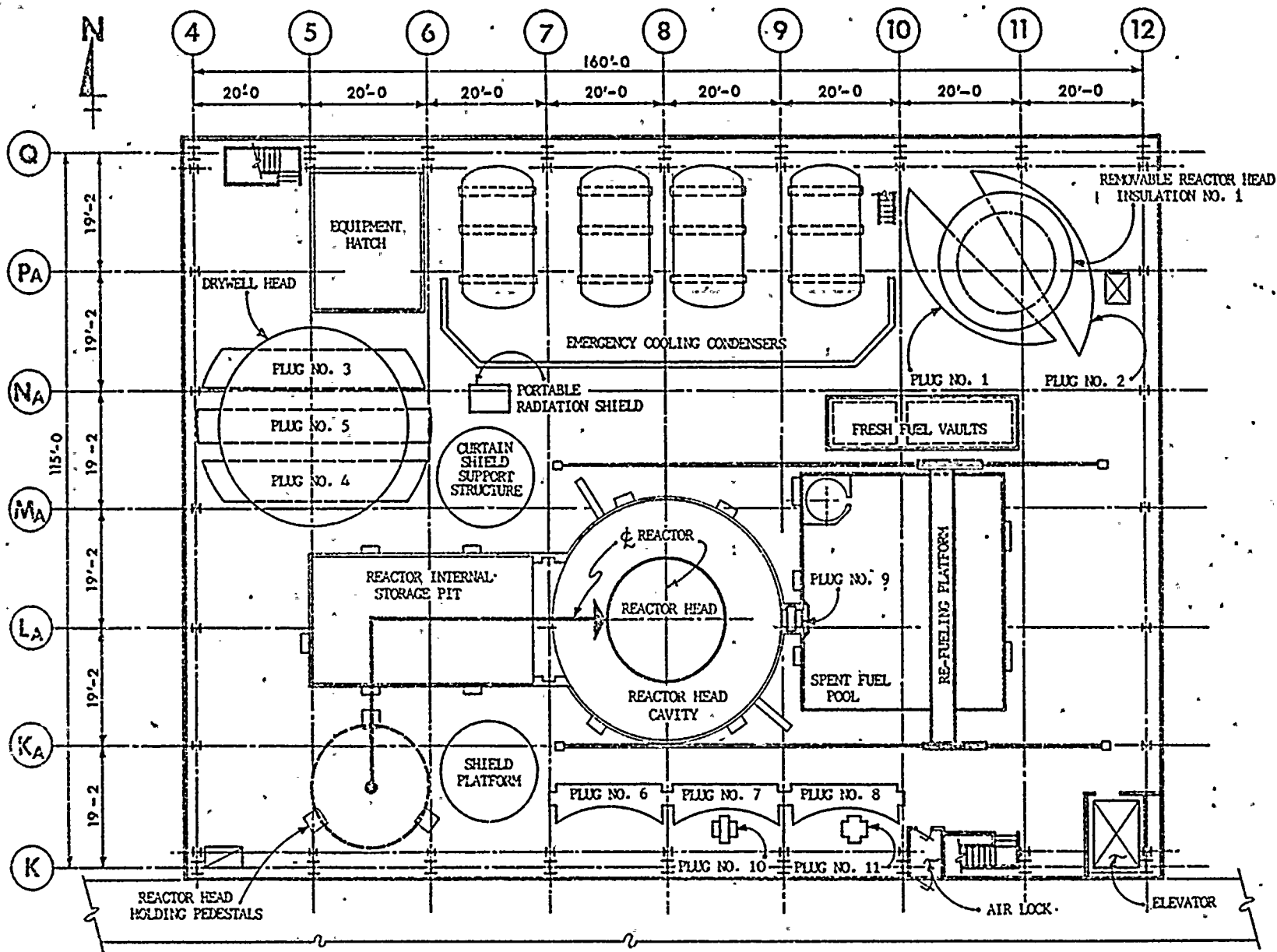
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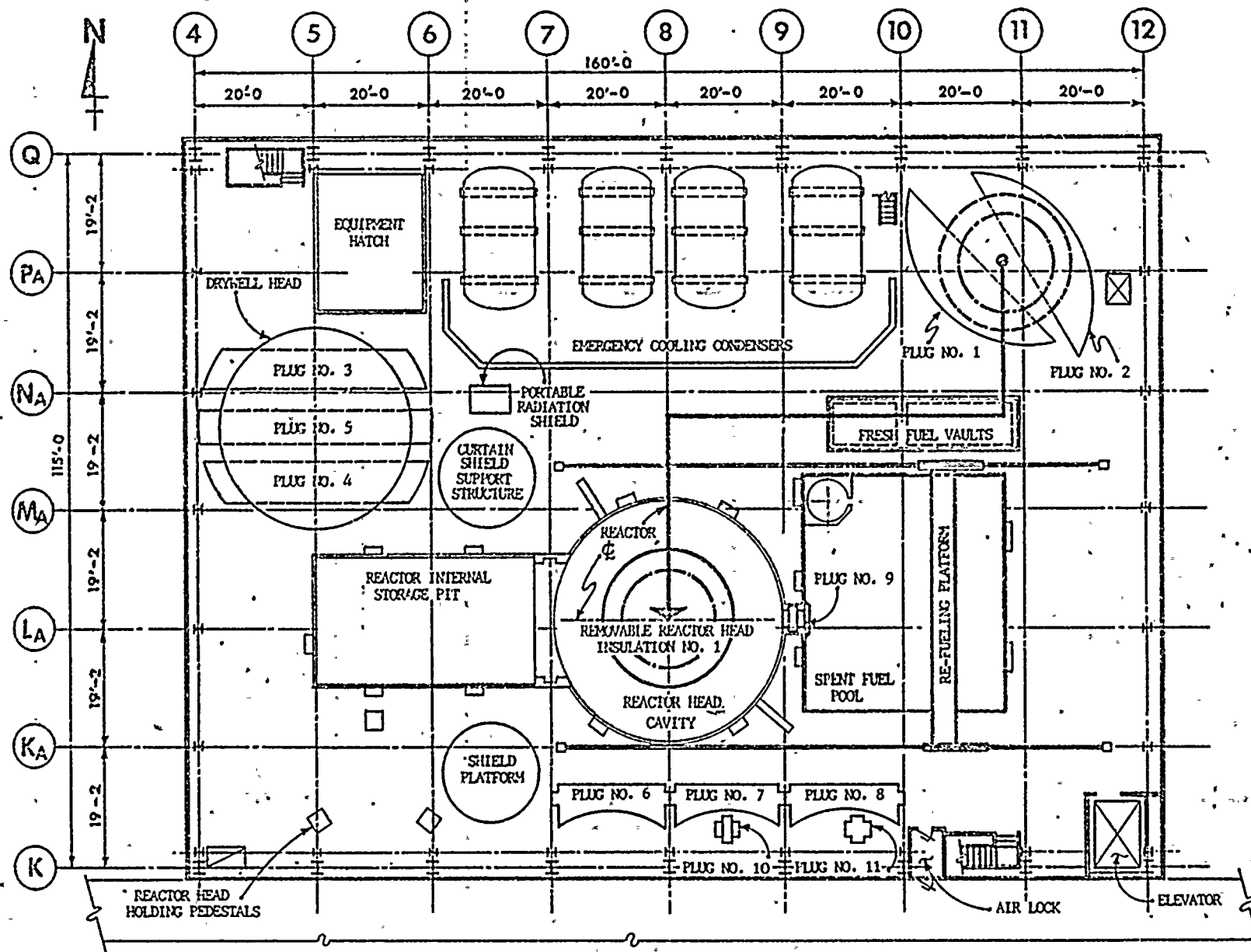
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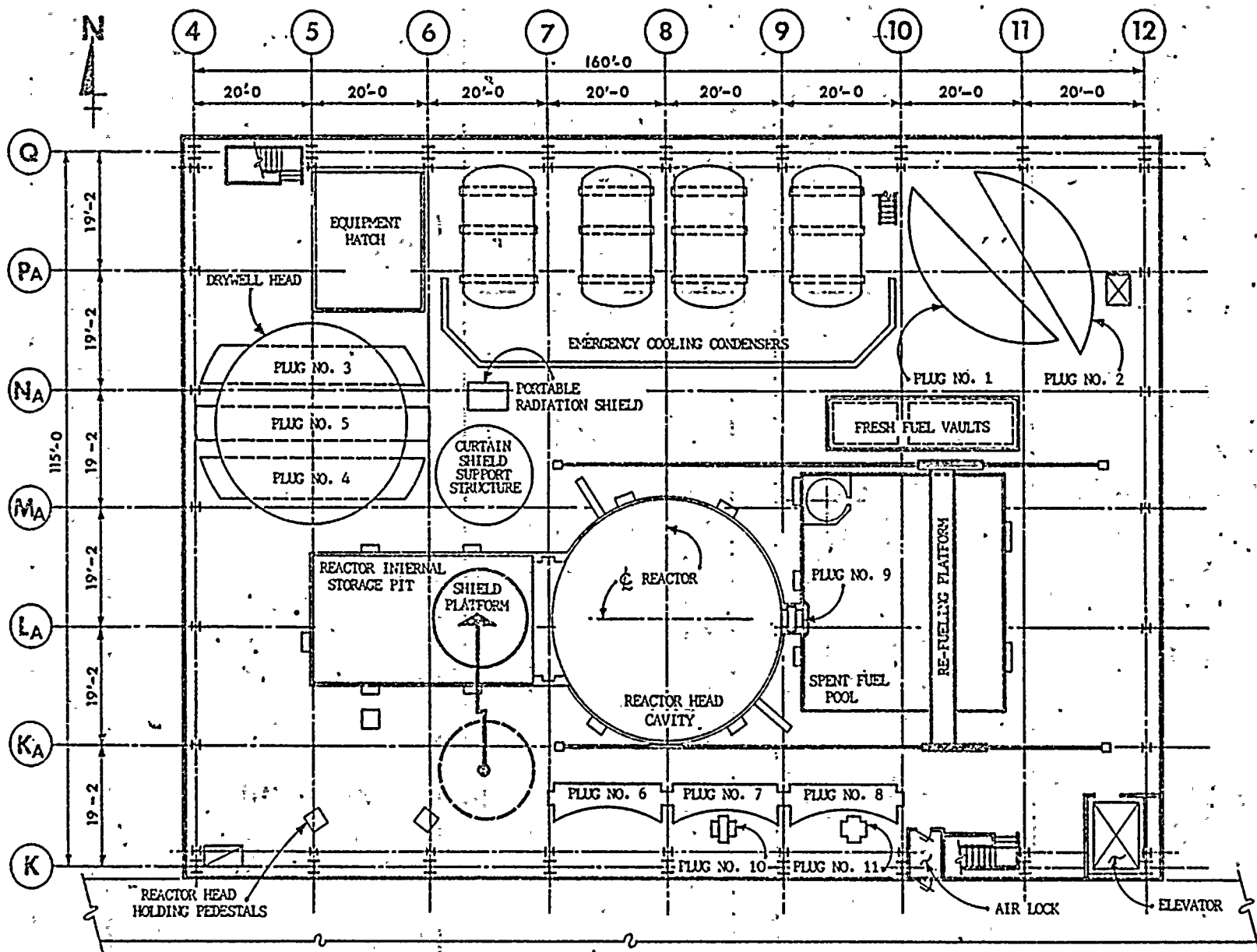
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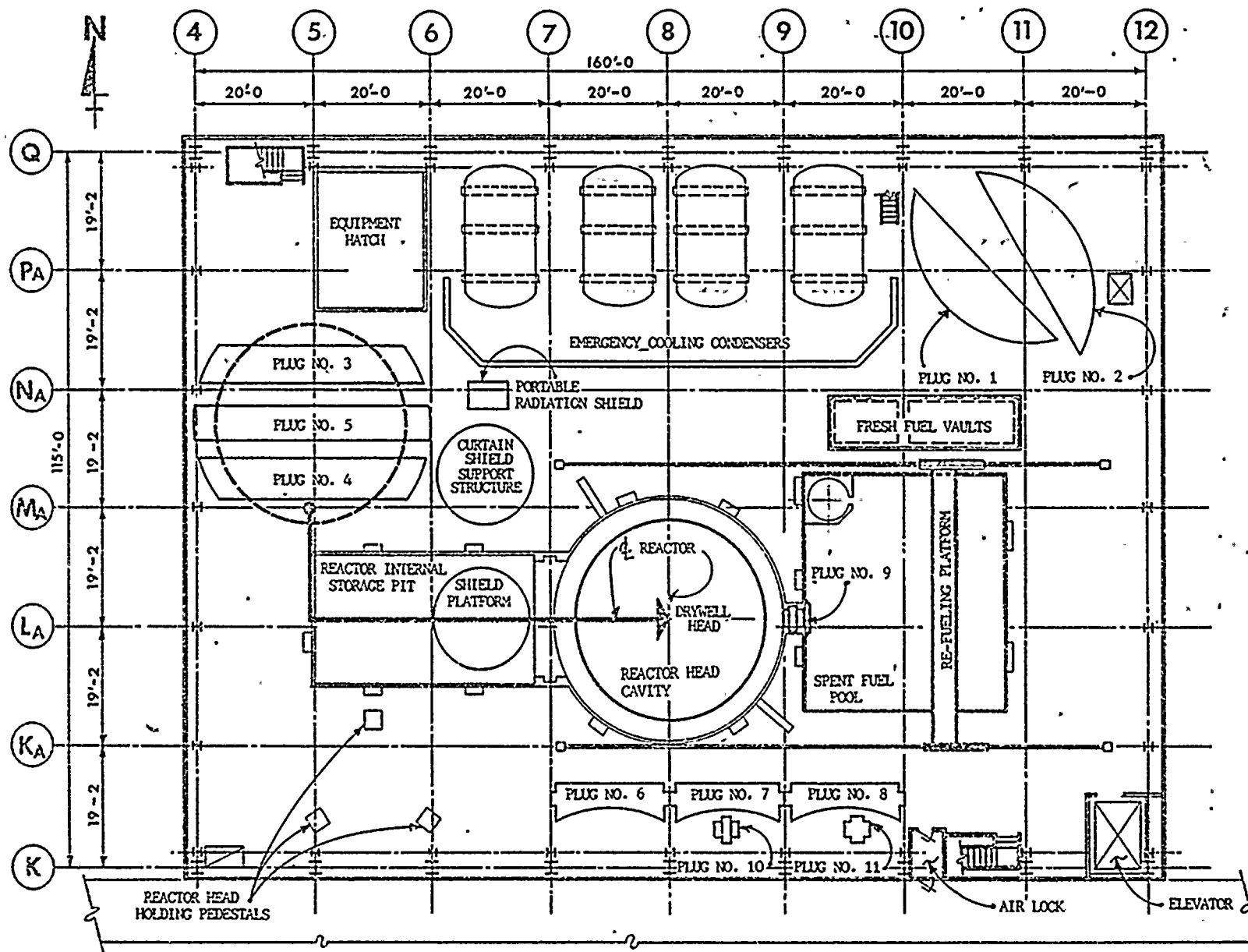
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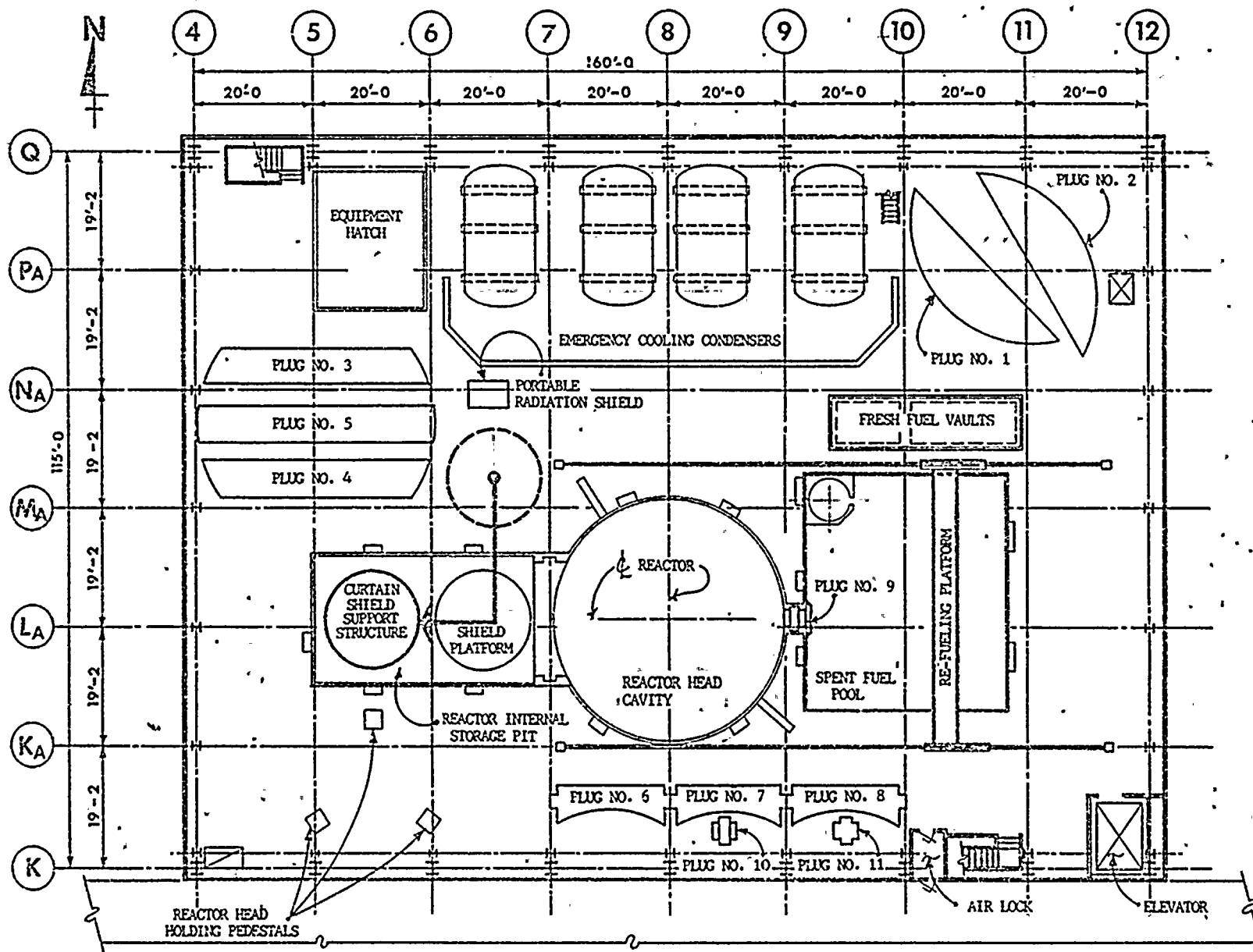
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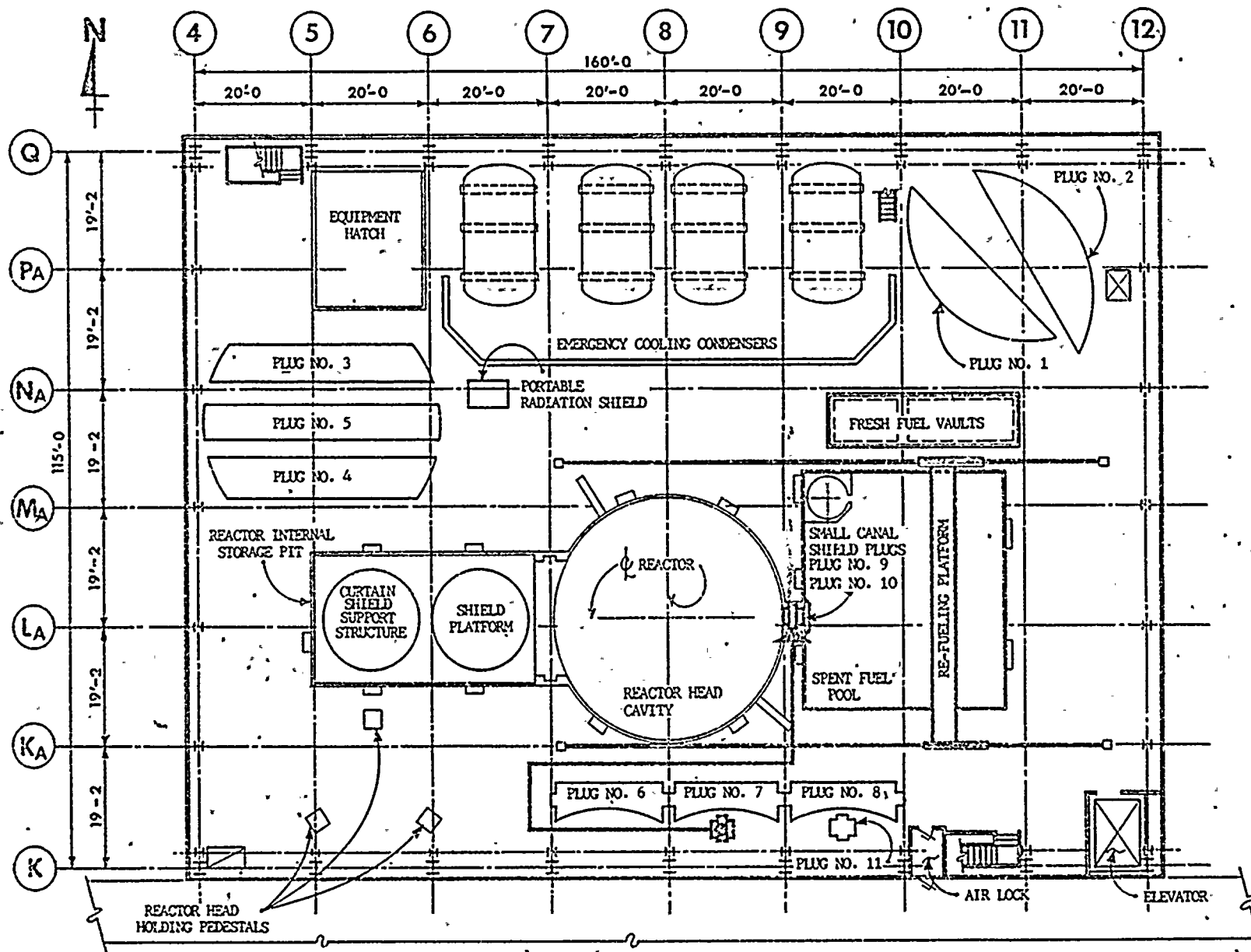


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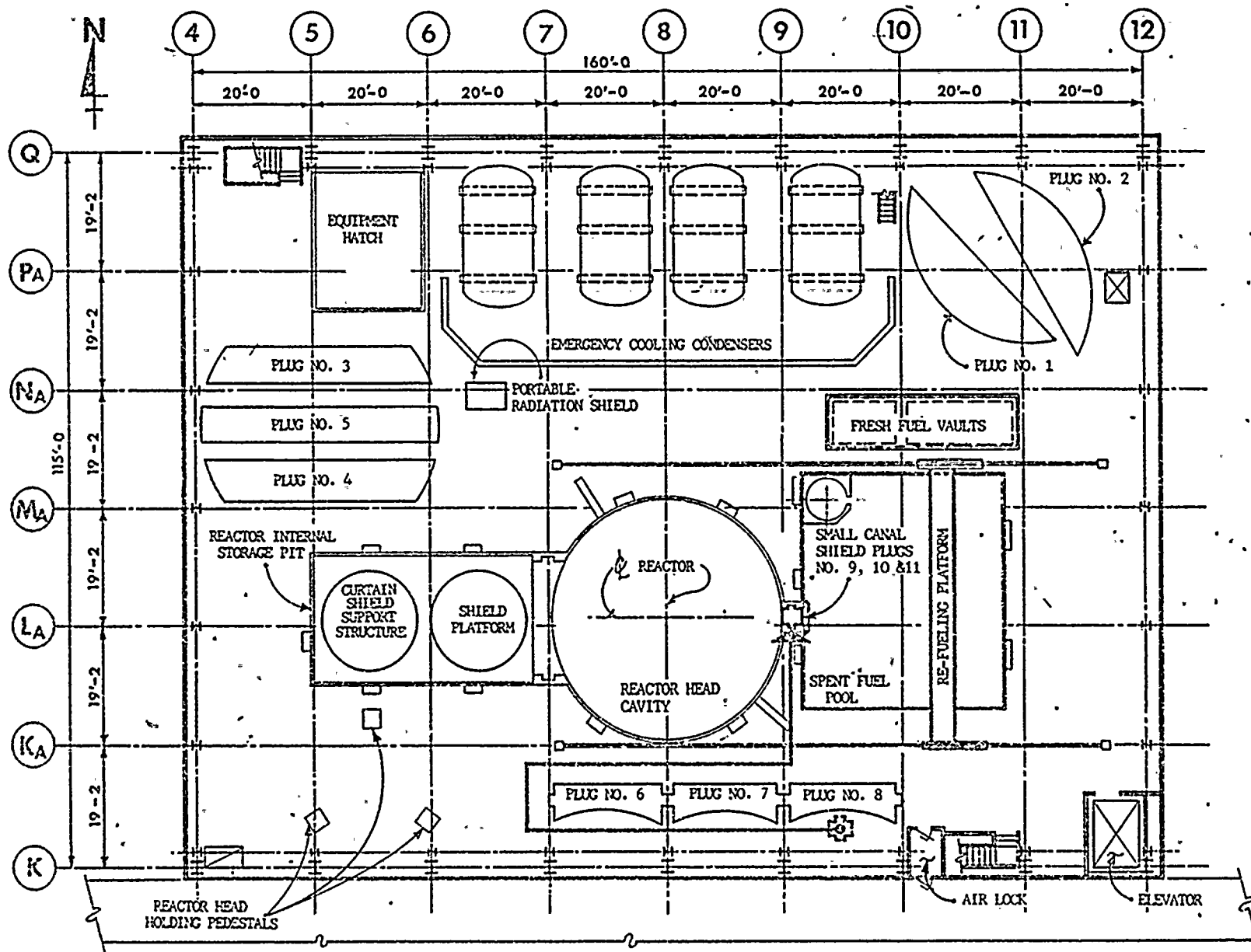
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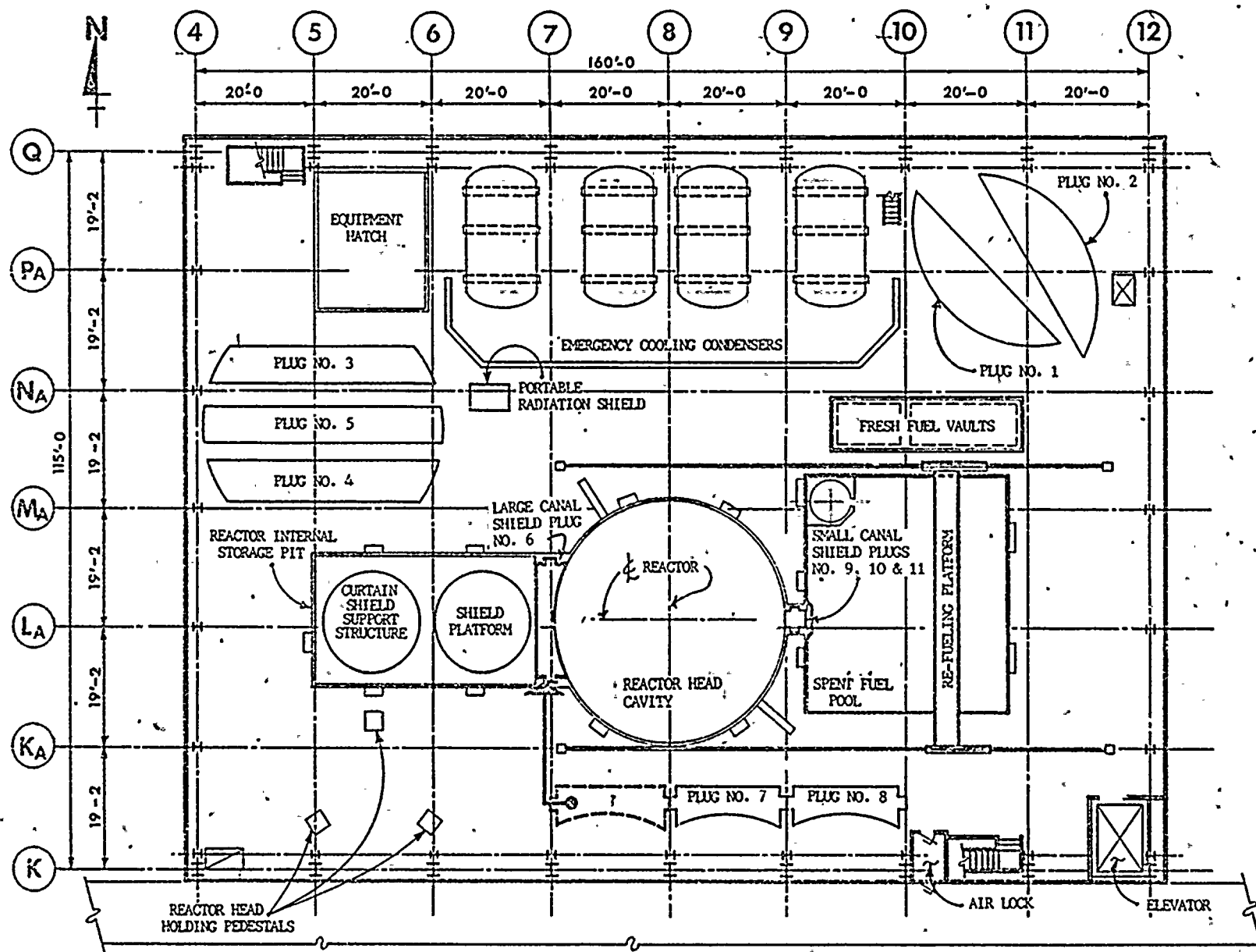


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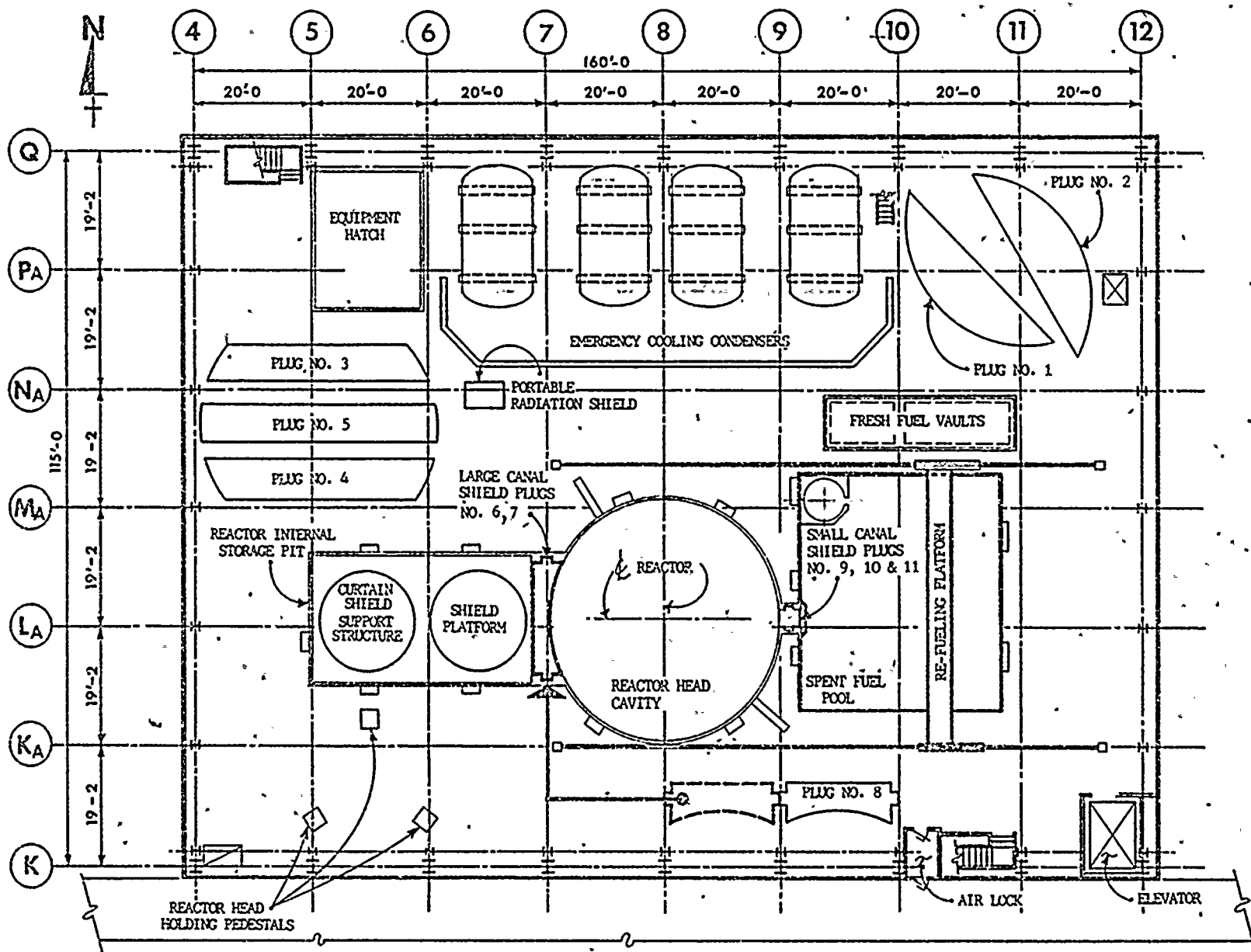


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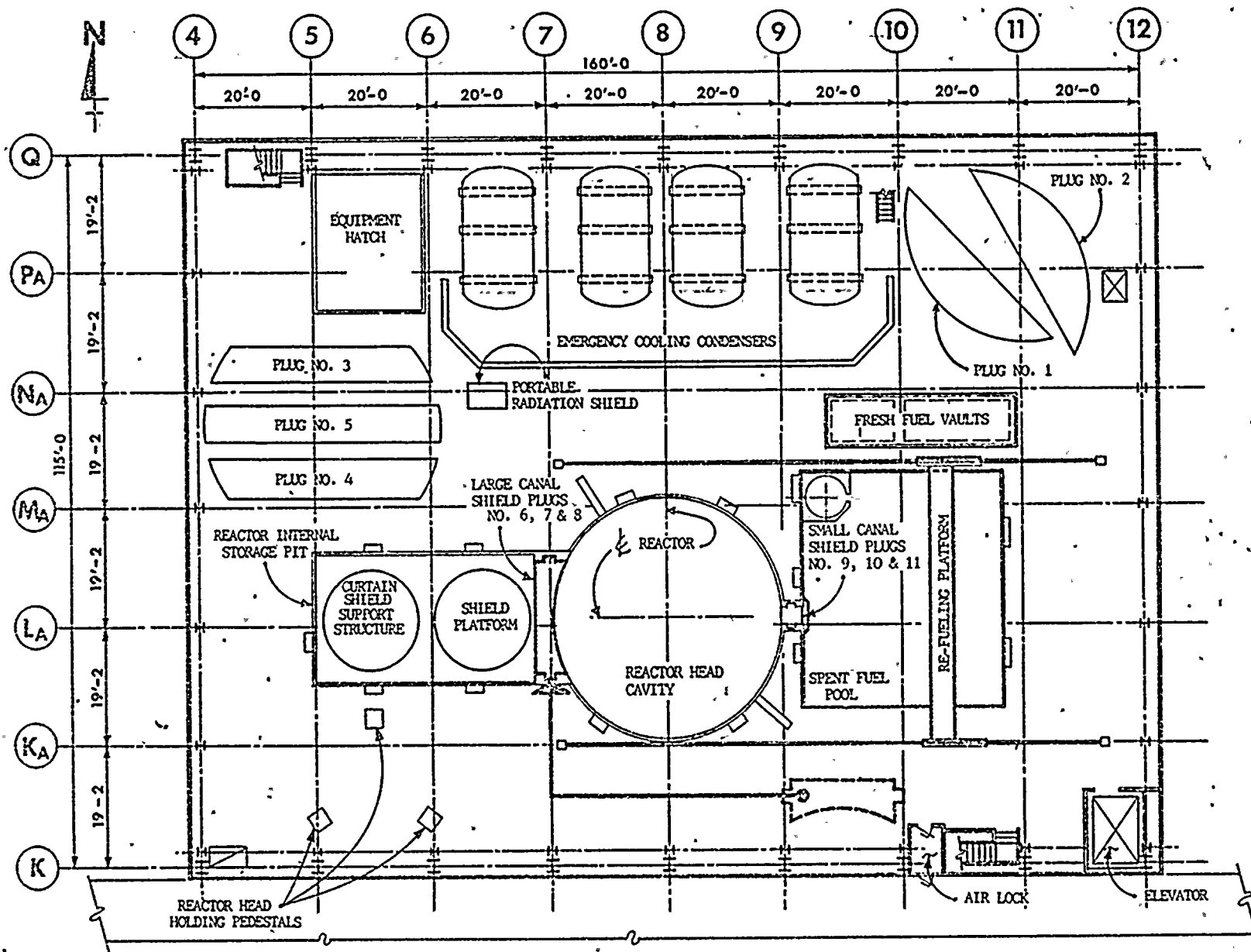
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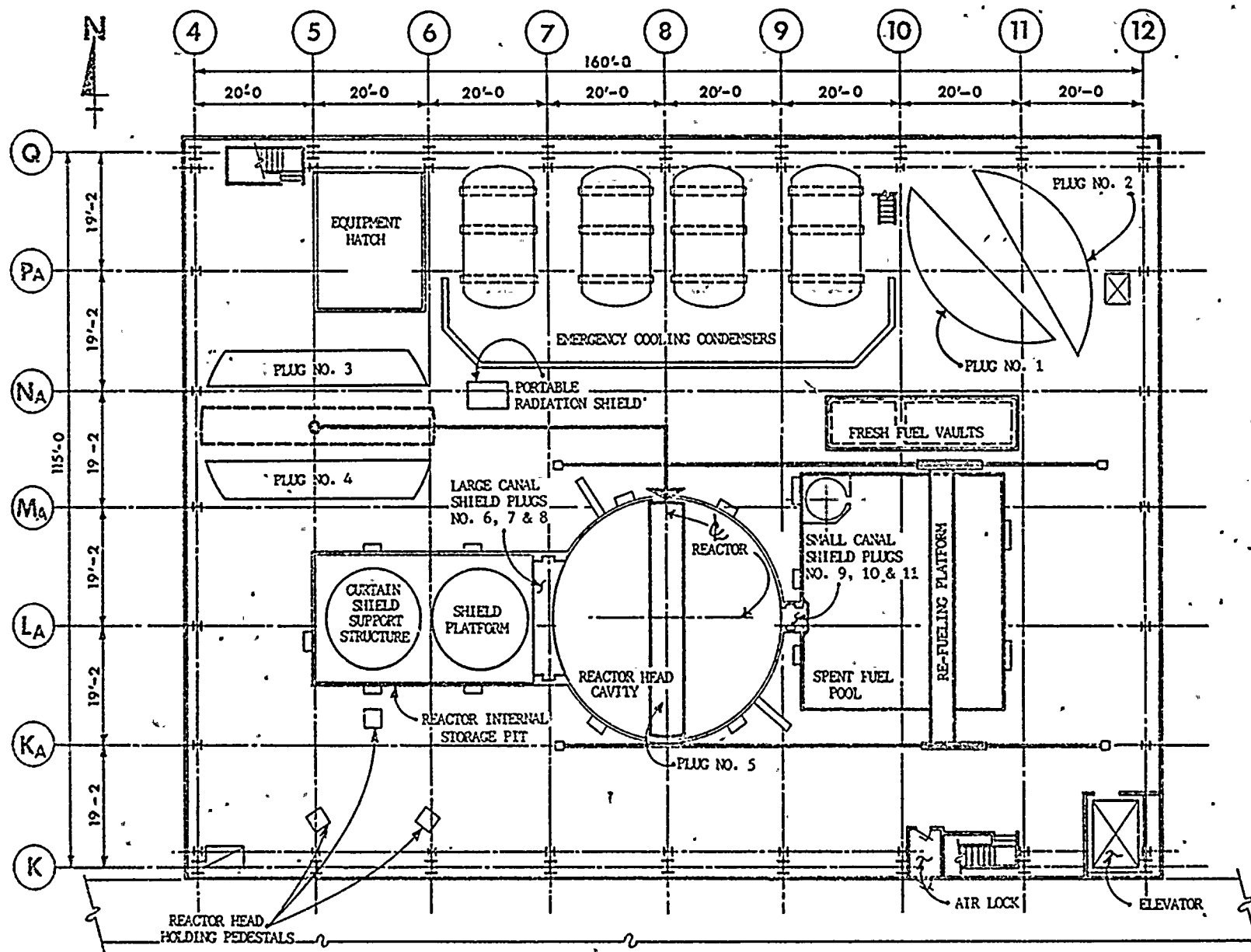


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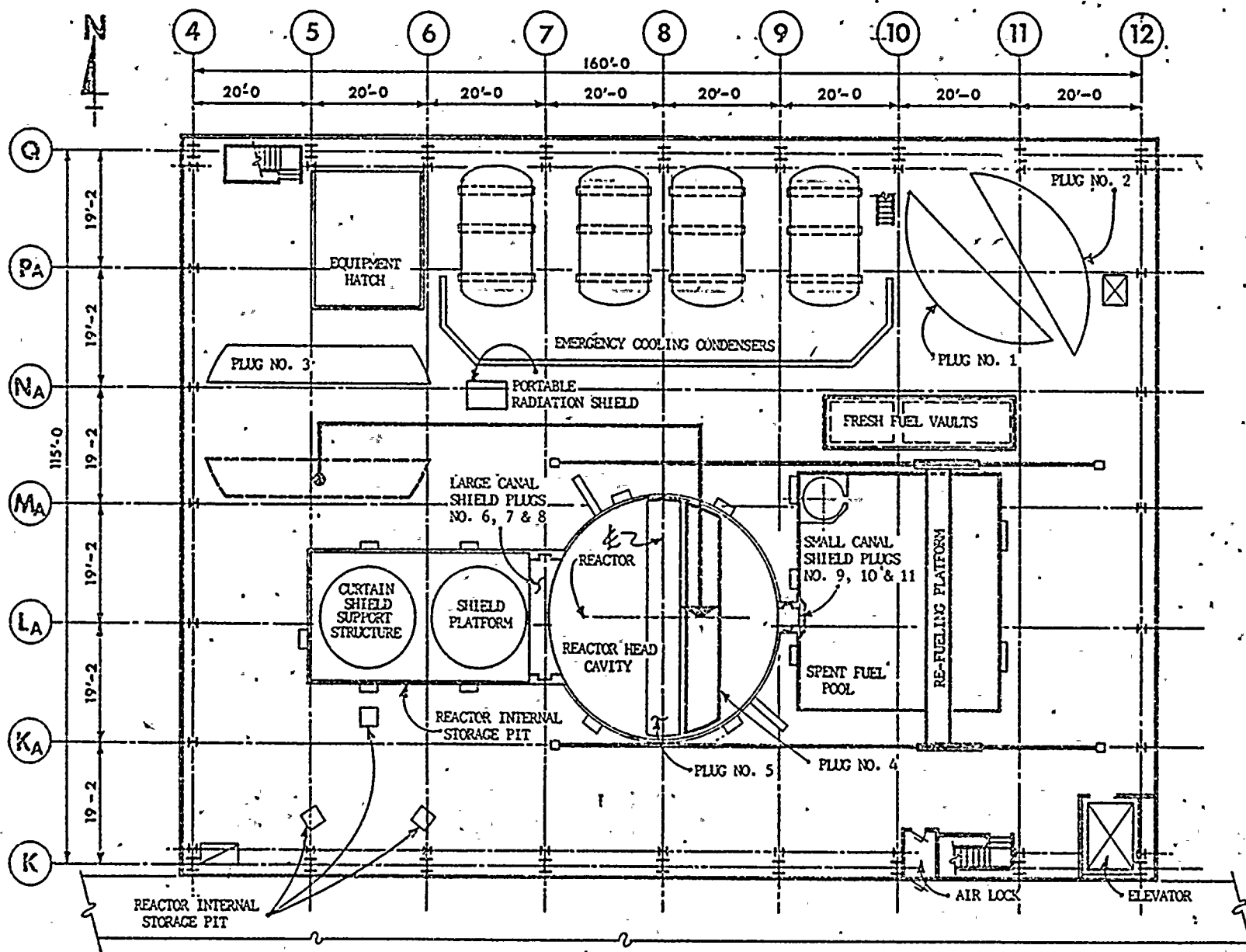




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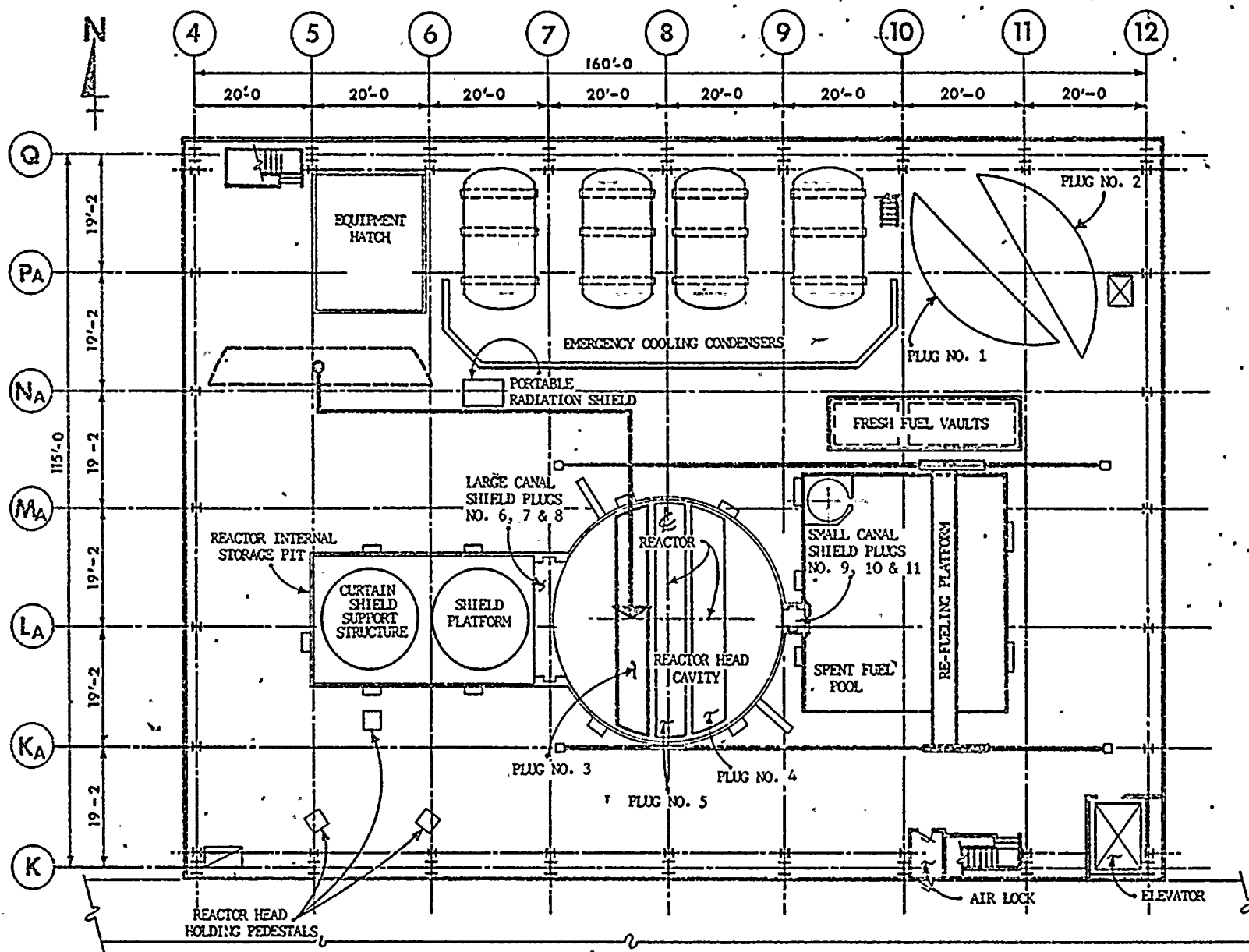


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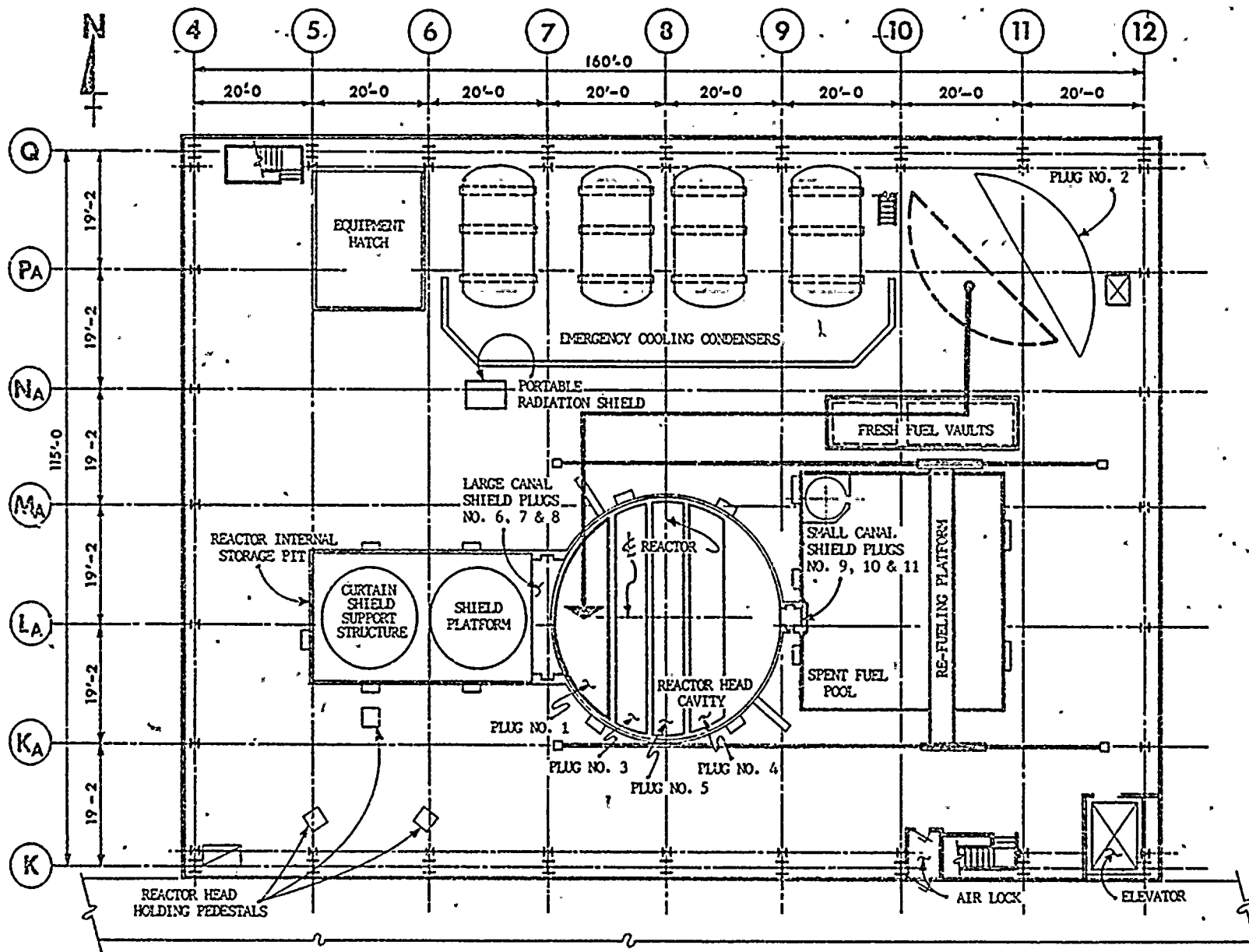
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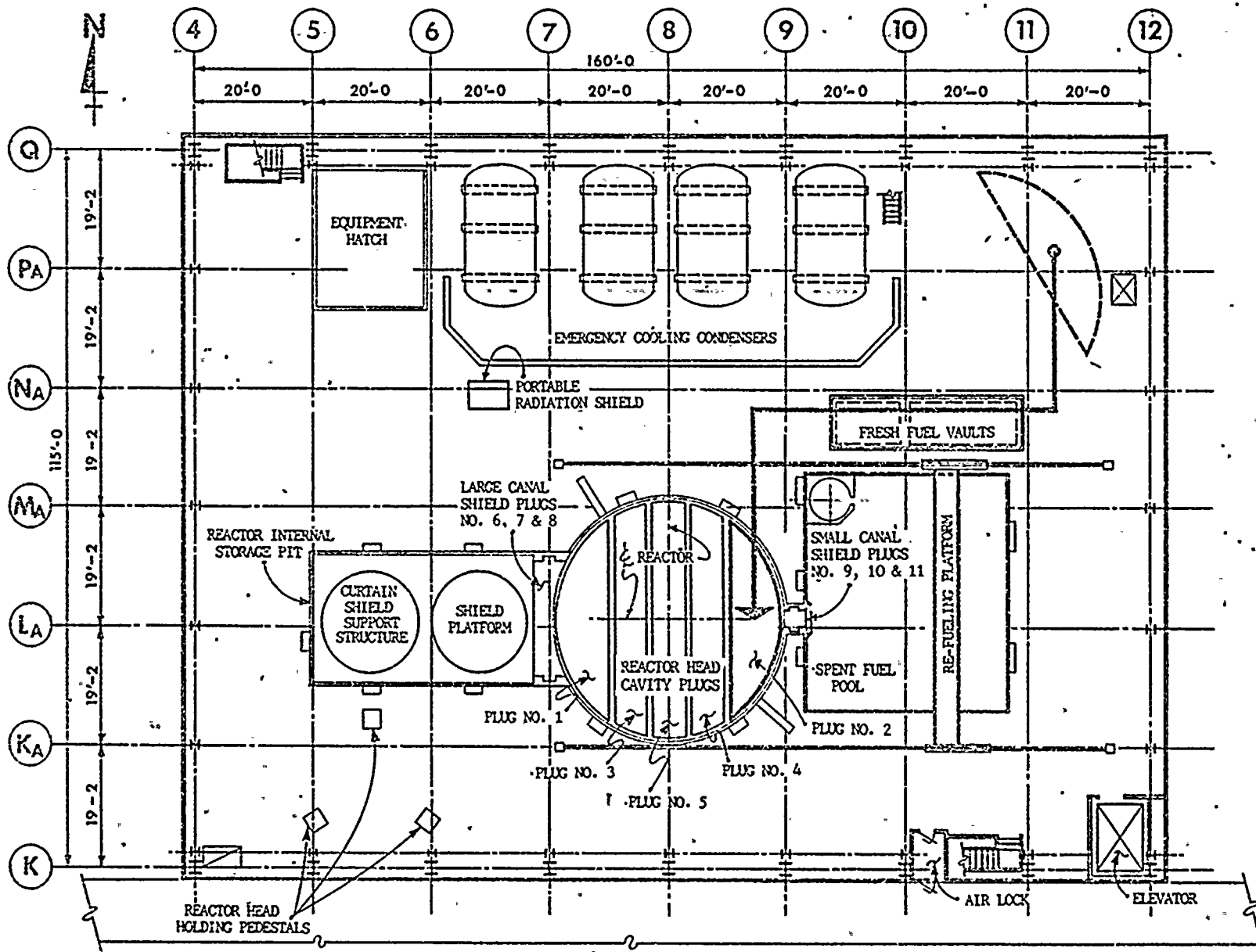
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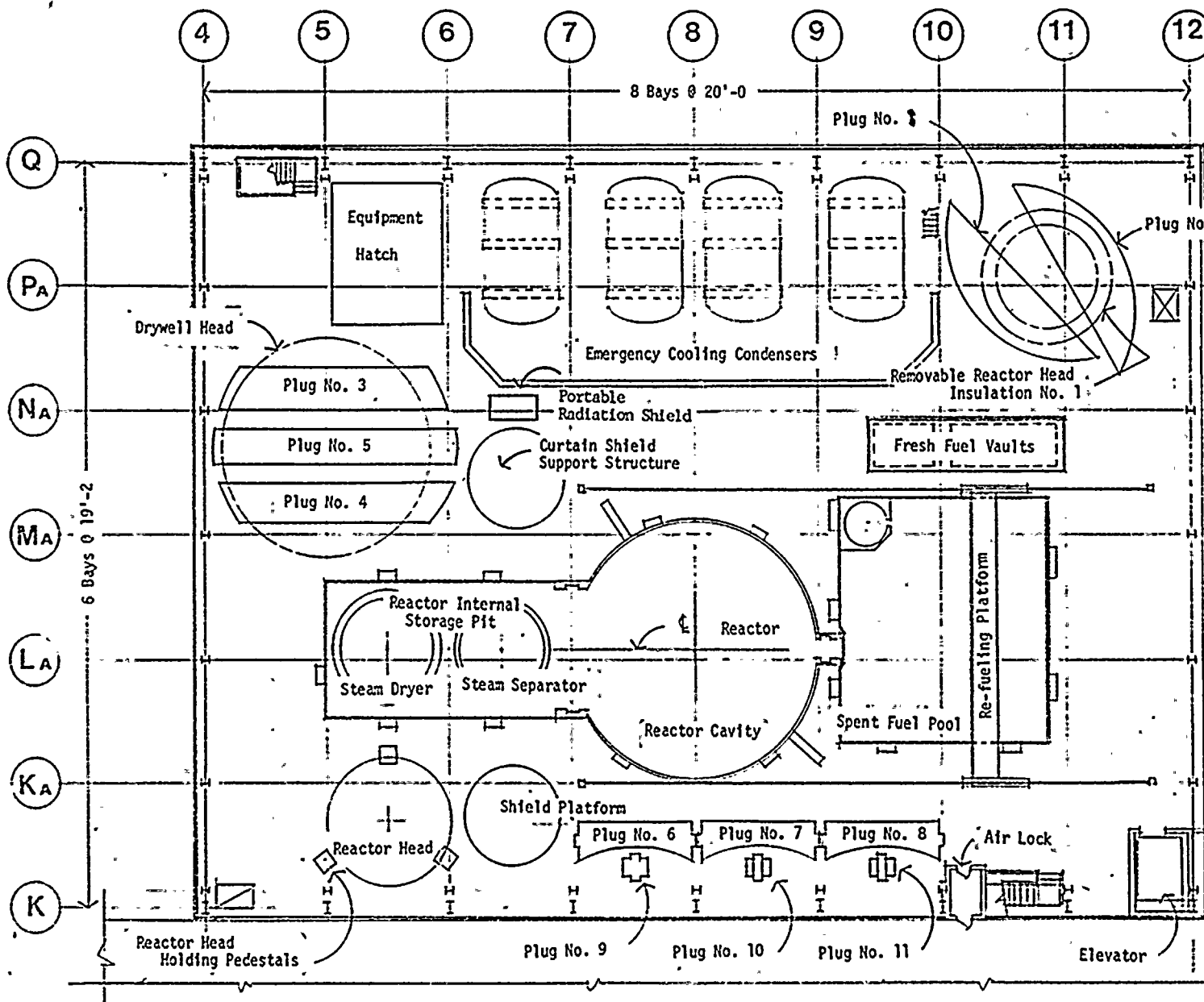
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PLAN OF OPERATING FLOOR EL. 340'-0





DESCRIPTION OF EQUIPMENT	APPROX. SIZE	APPROX. LIFTING WEIGHT
PLUG NO. 1	10'-5 x 34'-0 x 5'-5	121 TONS
PLUG NO. 2	DO	121 TONS
PLUG NO. 3	6'-4 x 38'-6 x 5'-5	122 TONS
PLUG NO. 4	DO	122 TONS
PLUG NO. 5	6'-8 x 39'-0 x 5'-5	122 TONS
PLUG NO. 6	4'-0 x 19'-7 x 7'-6	51 TONS
PLUG NO. 7	DO	51 TONS
PLUG NO. 8	3'-6 x 19'-7 x 7'-1	45.5 TONS
PLUG NO. 9	4'-0 x 4'-6 x 8'-1	9.75 TONS
PLUG NO. 10	DO	9.75 TONS
PLUG NO. 11	4'-0 x 4'-3 x 8'-2	9.5 TONS
DRYWELL HEAD	33'-0 Dia. x 15'-8 High	54 TONS
REACTOR HEAD	20'-1 Dia. x 10'-10 High	80 TONS
CURTAIN SHIELD SUPPORT STRUCTURE	16' Dia. x 18'-0 High	16,500#
SHIELD PLATFORM	16' Dia. x 2'-0 High	55,000#
STEAM DRYER	17' Dia. x 8'-0	46,000#
STEAM SEPARATOR	16' Dia. x 14'-0 High	78,000#
REMOVABLE REACTOR HEAD INSULATION NO. 1	-	LESS THAN 5 TONS
PORTABLE RADIATION SHIELD	-	LESS THAN 3 TONS

NORTH



PLAN OF OPERATING FLOOR EL. 340'-0

FIGURE 3

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