



## Omaha Public Power District

1623 HARNEY

OMAHA, NEBRASKA 68102

TELEPHONE 536-4000 AREA CODE 402

May 23, 1979

Director of Nuclear Reactor Regulation  
ATTN: Mr. Robert W. Reid, Chief  
Operating Reactors Branch No. 4  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Reference: Docket No. 50-285

Gentlemen:

By letter dated February 23, 1979, the Omaha Public Power District proposed a modification intended to prevent structural steel framing in the vicinity of the diesel fire pump fuel storage tank from being damaged by a fire at the tank. The modification was proposed in accordance with the requirements of the Fort Calhoun Station Fire Protection Safety Evaluation Report (SER), issued by the Commission on August 23, 1978. As a result of conversations held with members of the staff, the design description for the modification was revised in the form attached hereto. The revisions include provisions for a concrete berm surrounding the structure and wing walls which provide protection for the drain line and site glass.

Sincerely,

T. E. Short  
Assistant General Manager

TES/KJM/BJH:jmm

Attach.

cc: LeBoeuf, Lamb, Leiby & MacRae  
1757 "N" Street, N. W.  
Washington, D. C. 20036

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111

7906050 35.5

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GSE-B-2-2 FORM

REVISION 01

DATE AUG 01 1975

MR NO FC-78-51

PREPARED BY H. H. H. H. H.

CHECKED BY C. G. K.

APPROVED C. G. K.

REV. 2 DATE 1/15/79

Fuel Tank for Diesel Driven  
Fire Pump Design Description

SH. 1 CONT. ON SH. 2

OMAHA PUBLIC POWER DISTRICT  
GENERATING STA ENG.

### DESIGN DESCRIPTION

FUEL TANK FOR DIESEL DRIVEN FIRE PUMP MODIFICATION  
FORT CALHOUN STATION

MODIFICATION REQUEST NO. MR FC-78-51

- A. DESCRIPTION
- B. JUSTIFICATION
- C. SCOPE
- D. TASK ESTIMATE
- E. TASK SCHEDULE

2299 327

GSE-B-2-2 FORM  
REVISION 01  
DATE AUG 01 1975  
MR NO. FC-78-51

PREPARED BY M. HENDERSON  
CHECKED BY C. G. K.  
APPROVED C. G. K.  
REV. 0 DATE 11/1/79

Fuel Tank for Diesel Driven  
Fire Pump Design Description  
SH. 2 CONT ON SH. 3

OMAHA PUBLIC POWER DISTRICT  
GENERATING STA ENG.

### DESIGN BASIS

In accordance with the Safety Evaluation Report by the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Docket No. 50-285, paragraph 3.1.4, page 3-1, a modification will be made to prevent structural steel framing in the vicinity of the fuel storage tank, supplying the diesel engine-driven fire water pump, from being damaged by a fire at the tank. A postulated fire outside the Fort Calhoun Power Station Intake Structure associated with the 550 gallon fuel oil supply tank could potentially damage the structural frames of the Intake Structure and collapse the structure resulting in damage to the raw water pumps.

2299 328

GSE-B-2-2 FORM REVISION <u>01</u> DATE <u>AUG 01 1975</u>	PREPARED BY <u>M. H. Jackson</u> CHECKED BY <u>C. G. K.</u> APPROVED <u>C. G. K.</u> REV. <u>1</u> DATE <u>5/9/77</u>	Fuel Tank for Diesel Driven Fire Pump Design Description SH. <u>3</u> CONT. ON SH. <u>4</u>
MR TASK NO. <u>EC-78-51</u>	OMAHA PUBLIC POWER DISTRICT GENERATING STA ENG.	

### DESIGN PACKAGE

#### A. DESCRIPTION:

In accordance with a recommendation by NUS Corporation's R. A. Eman and Consultant W. H. Doyle, a solution to protection of the structure from a fuel tank fire is to bury it above ground. Their recommendation to accomplish this would be to coat the tank with a corrosion resistant paint, surround the tank with a reinforced steel tank and fill the tank with sand to provide a minimum of one foot of sand cover completely around the tank.

In order to correct the current potential hazard, the recommendation to bury the tank above ground appears to be the best approach. Any other possible correction would require pumping the fuel from the tank to the fire pump and the tank located at a much further distance. Rather than using a reinforced steel tank to surround the fuel tank, it is recommended that a reinforced concrete block structure be built around the tank with a precast 8" concrete span deck roof.

#### B. JUSTIFICATION:

The approach to bury the tank above ground allows the prerogative of leaving the tank in its current vicinity. To move the tank physically far enough away from the building so as to not cause structural damage to the building in the event of a fire or to bury the tank north of the Intake Structure would require the addition of fuel pumps to transfer the fuel from the tank to the fire pump. Such a move would jeopardize the capability to provide fuel to the fire pump by having to rely on the operability of a fuel pump.

The installation of a reinforced concrete block structure around the fuel tank is considered more advantageous than a reinforced steel tank. The concrete block structure will blend in with the surrounding buildings better and will be easier to maintain. The tank would be easier to service.

An analysis was performed for the structural slab upon which the concrete block structure is to be built. This indicated that both shear and moment capacities of the slab are adequate when considering a AASHTO H0-20 wheel loading on the west side of the structure simultaneously with an earthquake load of an estimated 2/3 of .17g in the vertical direction.

2299 329

GSE-8-2-2 FORM	PREPARED BY <u>M. HENNINGSEN</u>	SH. <u>4</u> CONT ON SH. <u>5</u>
REVISION <u>01</u>	CHECKED BY <u>C. G. K.</u>	
DATE <u>AUG 01 1975</u>	APPROVED <u>C. G. K.</u>	OMAHA PUBLIC POWER DISTRICT GENERATING STA. ENG.
TASK NO. <u>HR-FC-78-51</u>	REV. <u>1</u> DATE <u>5/8/79</u>	

C. SCOPE:

The existing fuel tank is located on a metal stand within a concrete basin on the west side of the Intake Structure. The fuel tank is currently surrounded by a concrete berm, which is 8 inches wide and 10 inches high along the north, south and west sides.

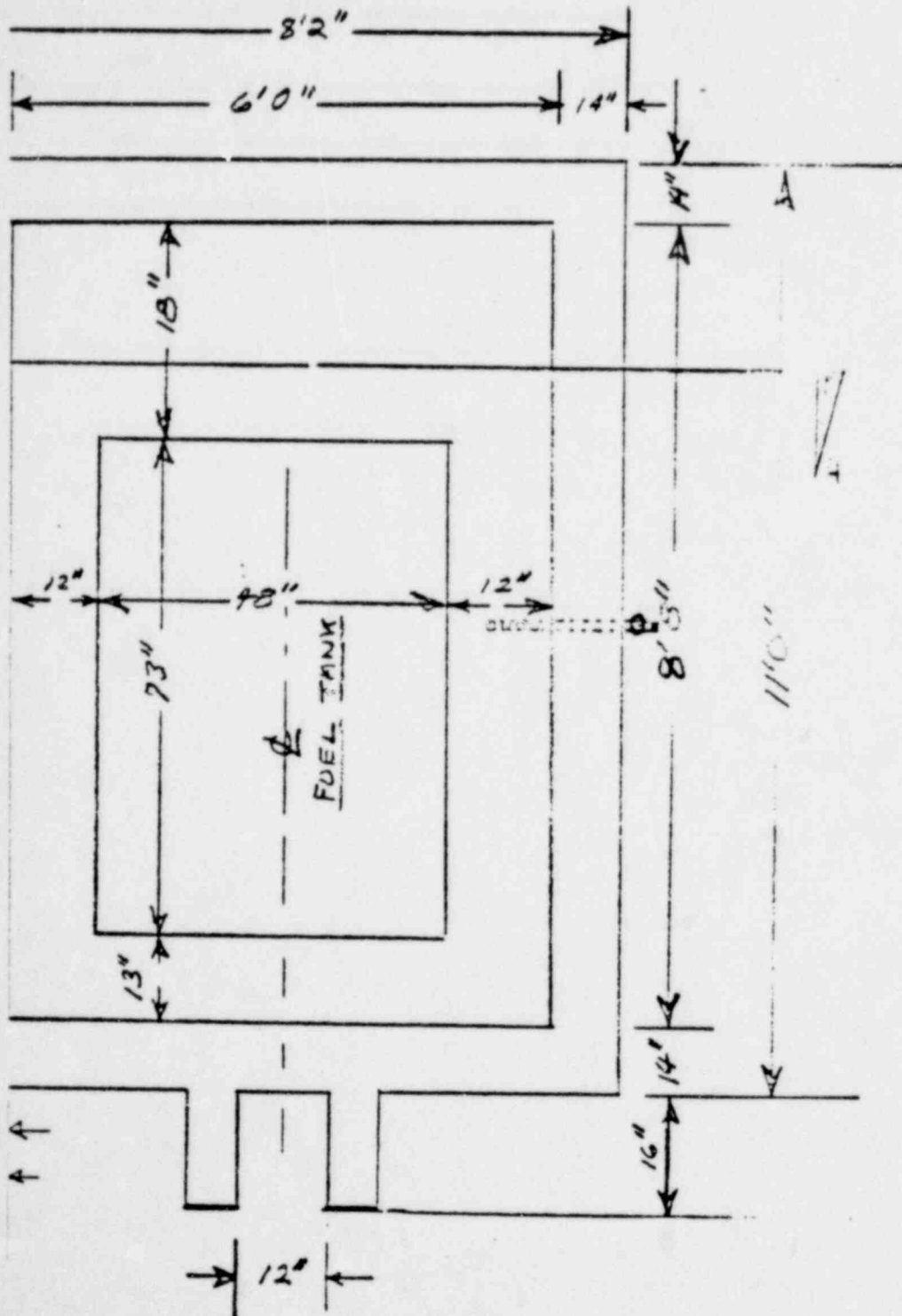
This modification would require that the existing concrete berm be removed and that the fuel tank and stand be moved 13 inches further away from the Intake Structure. A new concrete berm 12 inches high by 14 inches wide (15 inches wide along the wall of the Intake Structure) would be constructed around the fuel tank and utilized as a base footing for the new concrete block wall. The floor of this new basin would be grouted with a 1:4 slope to the drain. A 1 inch drain line would be installed in the new berm with a sand screen fastened to the basin side and a locking valve with an attachment for a hose on the exterior side. The existing fuel tank drain line, fill line, and vent line would be extended to reach beyond the bounds of the new structure both horizontally and vertically. The tank with its associated piping and the metal stand would be coated with a corrosion resistant paint. A concrete block wall, 11 courses high would be constructed on top of the concrete berm on all four sides and would be reinforced horizontally and vertically and grouted full. A sealer application would be made to the interior and exterior side of the walls and to the floor to prevent moisture from penetrating through the structure. The basin would be filled with a mixture of 1 1/2 inch crushed limestone and sand to a depth of 2 feet and with dry sand to the top. An 8 inch thick pre-cast concrete span deck would be installed for the roof deck. All joints and penetrations would be caulked. A steel ladder would be installed on the south exterior face to allow access to the roof. The exterior would then be painted in a color compatible to the Intake Structure. A new concrete berm 12 inches high by 12 inches wide would be constructed 4 feet away from the new structure along the north, south and west sides. Two 1 inch diameter drain pipes would be cast in place on the west side and they would be plugged for normal operations.

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PREPARED BY A. H. ...  
CHECKED BY C. G. K.  
APPROVED C. G. K.  
REV 1 DATE 5/7/79

SH. 5 CONT. ON SH. 6

OMAHA PUBLIC POWER DISTRICT  
GENERATING STA. ENG.



2299 331

PLAN VIEW "FOOTING"

"NO SCALE"

GSE-B-2-2 FORM

REVISION 01

DATE AUG 01 1975

TASK NO FC 72-51

PREPARED BY M HINDRICHSEN

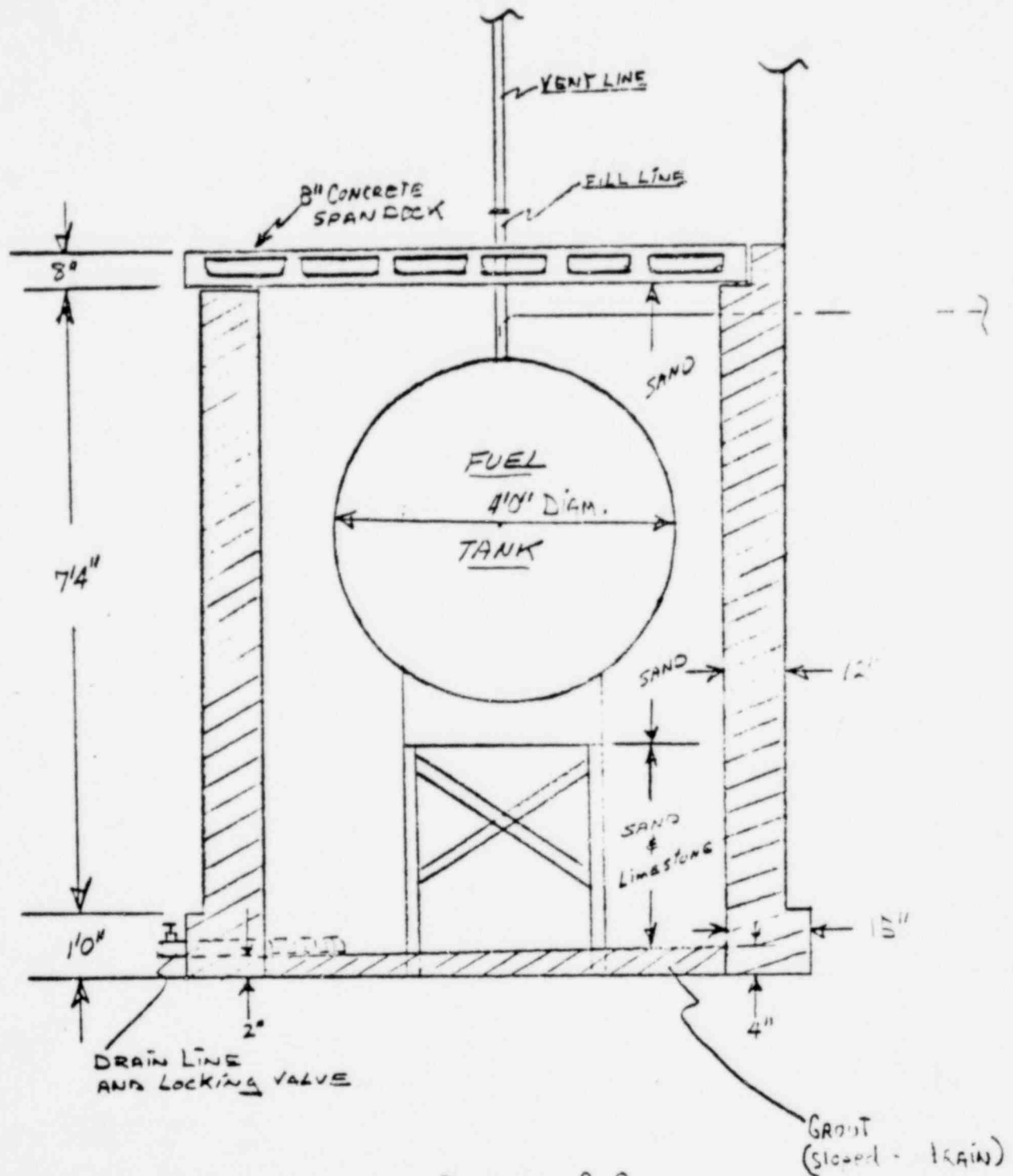
CHECKED BY CGK

APPROVED CGK

REV. 1 DATE 5/8/79

SH 6 CONT ON SH 7

OMAHA PUBLIC POWER DISTRICT  
GENERATING STA ENG.



SECTION A-A

"NO SCALE"

2299 332



GSE-B-2-2 FORM

REVISION 01

DATE AUG 01 1975

TASK NO FC 79-51

PREPARED BY M. H. McJannet

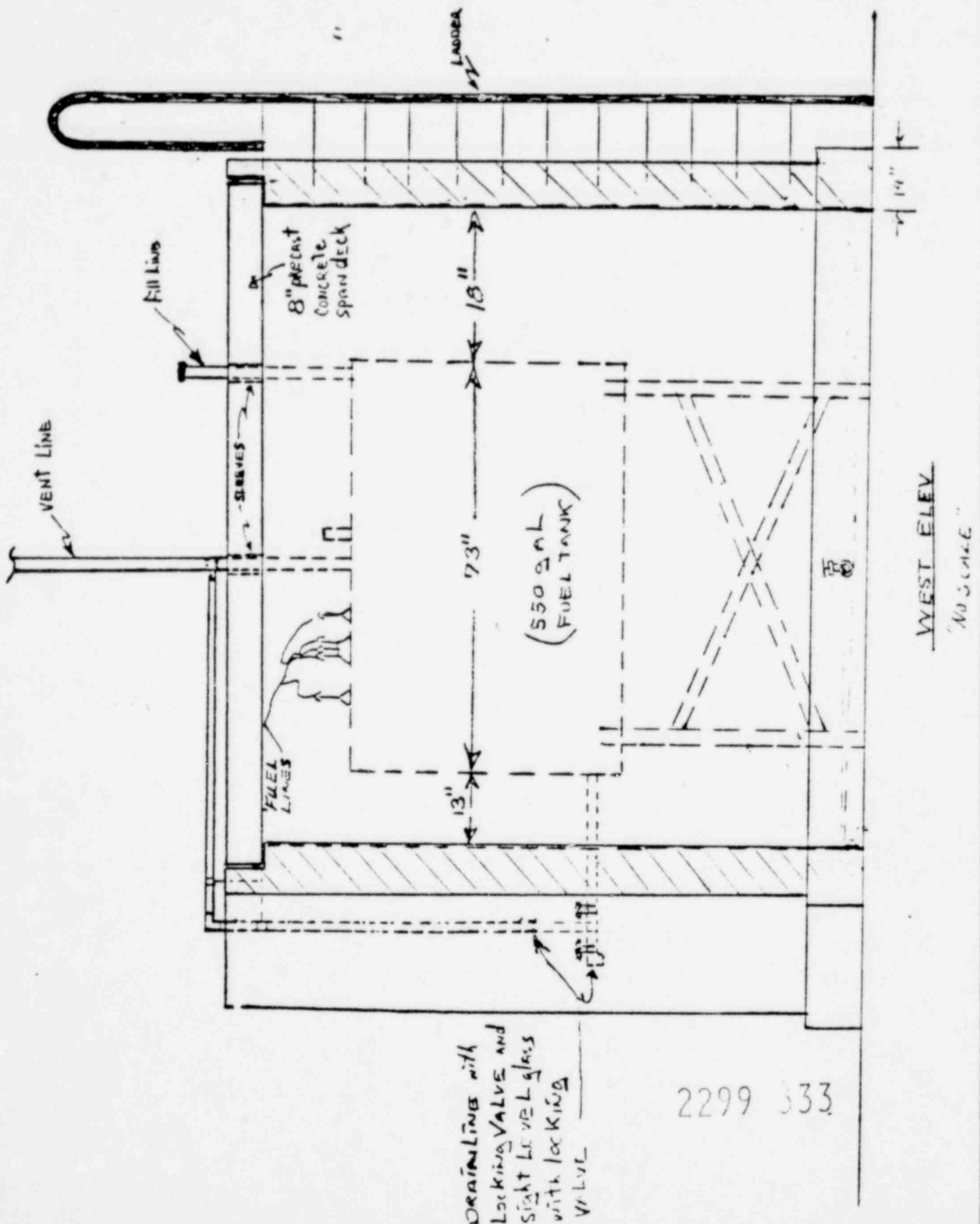
CHECKED BY C. G. K.

APPROVED C. G. K.

REV 1 DATE 5/7/77

SH. Z CONT. ON SH. A

OMAHA PUBLIC POWER DISTRICT  
GENERATING STA. ENG.



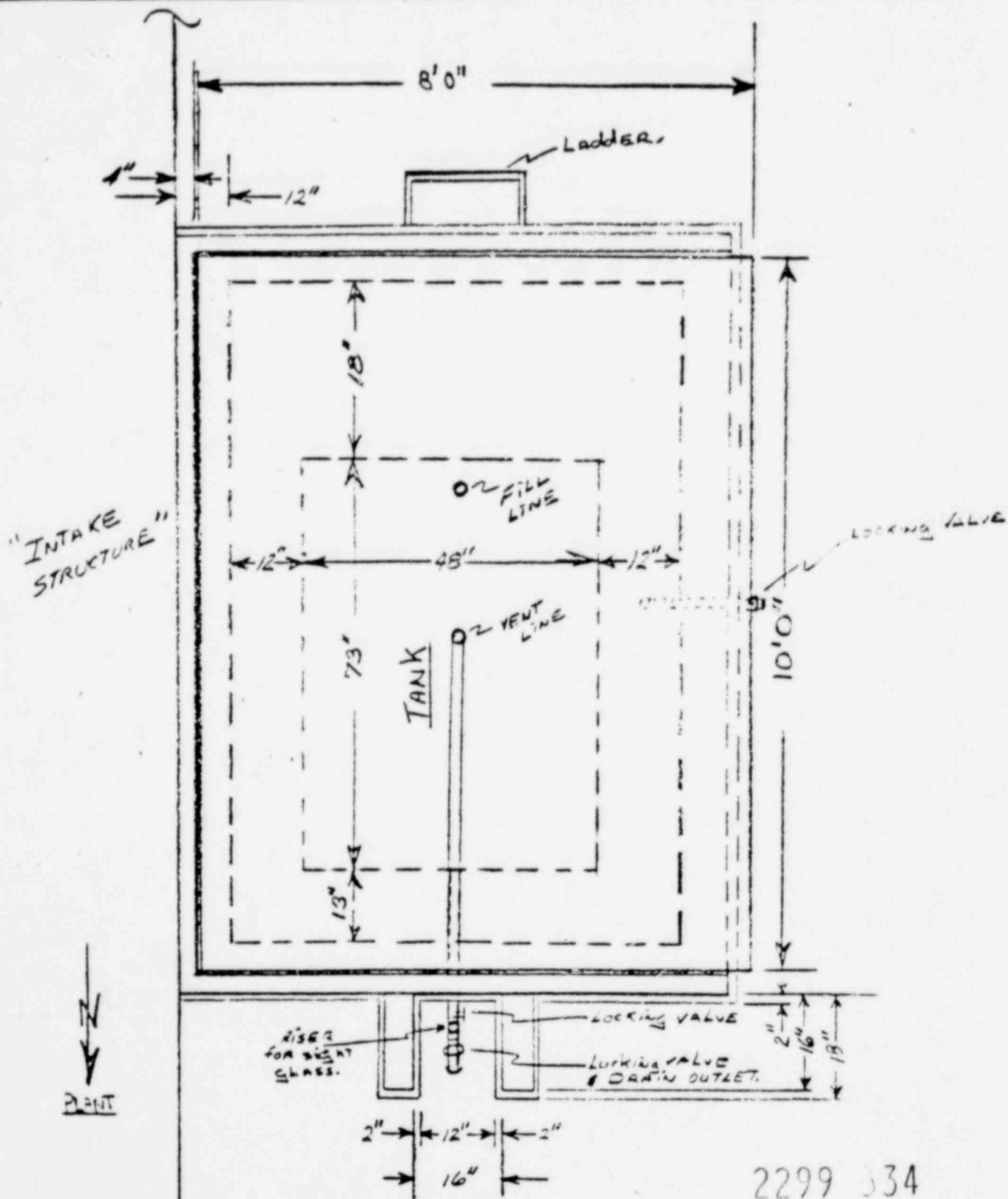


GSE-B-2-2 FORM  
REVISION 01  
DATE AUG 01 1975  
TASK NO EC 73-51

PREPARED BY M. HENDERSON  
CHECKED BY CGK  
APPROVED CGK  
REV 1 DATE 5/3/79

SH. 8 CONT. ON SH. 9

OMAHA PUBLIC POWER DISTRICT  
GENERATING STA ENG.



PLAN VIEW  
"NO SCALE"

2299 334

GSE-B-2-2 FORM

REVISION 01

DATE AUG 01 1975

TASK NO EC 78-51

PREPARED BY M. H. K. K.

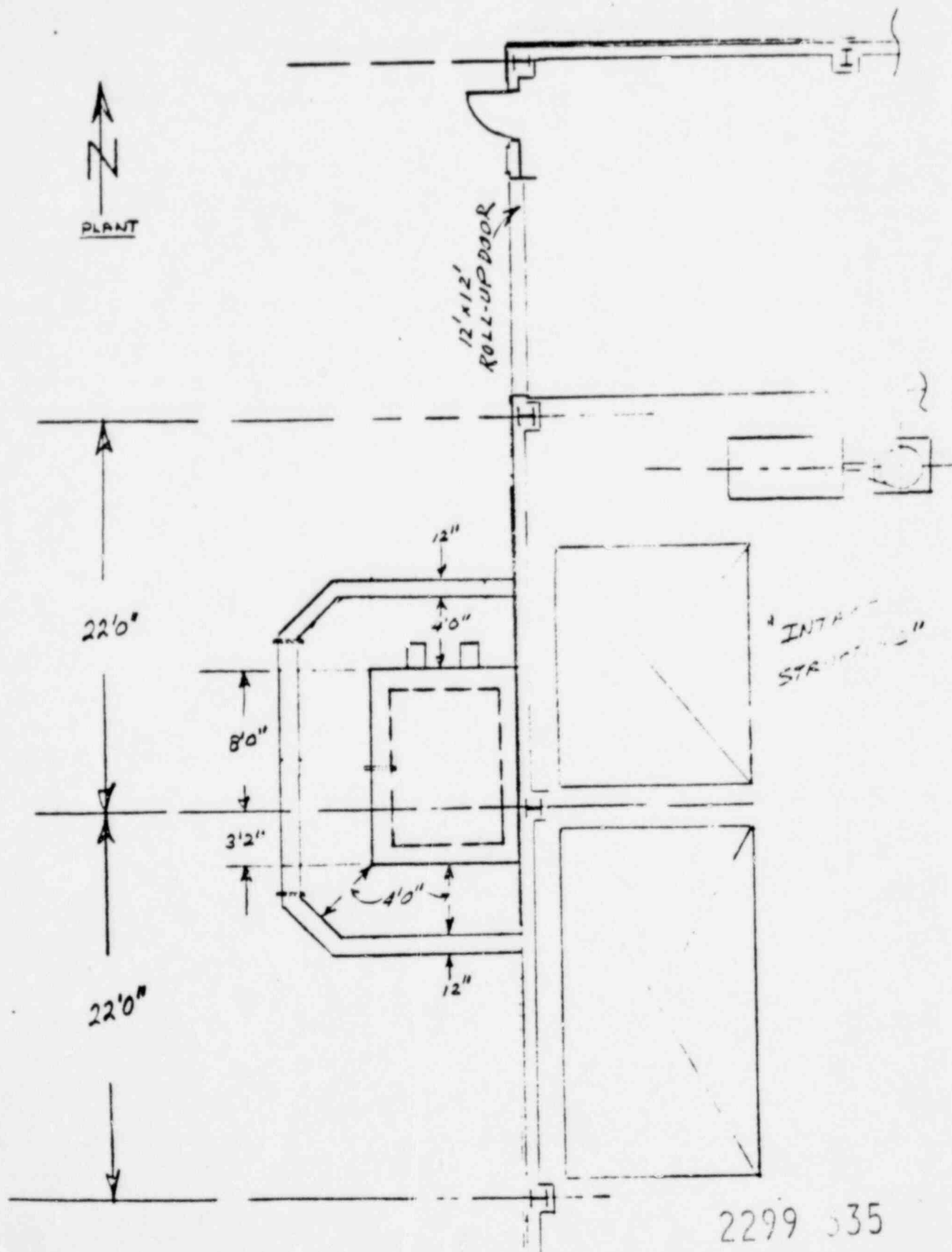
CHECKED BY C. G. K.

APPROVED C. G. K.

REV 0 DATE 5/5/77

SH 9 CONT ON SH 10

OMAHA PUBLIC POWER DISTRICT  
GENERATING STA ENG.



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