05-15-97 09:02:54

GPU NUCLEAR

B/A No. 128108

W/O No. 95-552A-52108

# SEISMIC QUALIFICATION

No. SQ - T1 - EG-T-0001B-1

REVISION 0

COMPONENT: EG-T-0001B-1

SUBCOMPONENT(S): _____

_____

_____

Sheet 1 of 15

S.M.Y. 12/12/95 ADDED SHEET A1 OF 5 RAJ 7.14.95

EVALUATED BY: RA Smith DATE 17 Sep 93

EVALUATED BY: JCW DATE 9-17-93



8X

GPU Nuclear

DOCUMENT NO.
SQ-T1-EC-T-0001B-1

TITLE EDG 1B AIR START 1 RESERVOIR

| REV | SUMMARY OF CHANGE | APPROVAL | DATE |
|---|---|---|---|
| 0 | 9/17/93 COMPLETION DATE OF ORIGINAL SQ-PACKAGE | | |
| | 7/14/95 REVISED SQ-PACKAGE TO REFLECT NEW DIESEL GENERATOR RESPONSE SPECTRA (SEE EQE CALC# 42105-C-004, FIG 2) ADDED ATTACHMENT A (2 SHEETS) | R A Smith. RASVOTELIS<br>S M Lazorchak S.M. Lazorchak<br>K Smith | 14 JULY 95<br>12/12/95<br>4/2/96 |

05-15-97 09:02:54

# SQUG DATA FILE INDEX

**COMPONENT TAG NUMBER** EG-T-0001B1

DESCRIPTION EDG 1B AIR START 1 RESERVOIR

▸ **DOCUMENTS** — **NUMBERS/STATUS**

| | | |
|---|---|---|
| SEWS | | ✓ |
| GMS-2 (TECHNICAL FUNCTIONS DATA SURVEY) | | ✓ |
| PHYSICAL DRAWING/ASSEMBLY DRAWING | PT-8027X (A026G) | ✓ |
| VENDOR CATALOG/DATA/INSTRUCTION MANUAL | | — |
| INSTALLATION SPECIFICATION | | — |
| SEISMIC ANALYSIS/TEST REPORTS/CALCS | | — |
| CONCRETE OR PAD DRAWINGS, SPECS, BLOCK WALLS | | — |
| EMBEDDED STEEL DRAWINGS | | — |
| ANCHORAGE DRAWING/DETAILS/AIDS | 421-401 | ✓ |
| FIELD CHANGE DOCS/MNCR'S | — | |

OTHER IE-157-02-001

RL 4/22/93
signature

▸ **GENERIC ISSUES**

____ POTENTIAL OUTLIER

____ BASE PLATE PLUG WELDS

____ OTHERS

▸ **DISPOSITION**

____ NEED MORE DATA

____ KNOWN OUTLIER

____ SEISMIC DATA ACCEPTABLE, CONFIMATION WALKDOWN ONLY

ANCHORAGE CALCULATIONS: ___ EXIST ___ PERFORM IN FIELD

COMMENTS VERIFY ANCHORAGE. PAD DETAILS HAVE NOT BEEN FOUND. PAD MAY NOT BE REINFORCED OR ATTACHED TO CONCRETE.

✓ READY FOR SQUG WALKDOWN

Seismic Capacity Engineer (SCE)

05-15-97 09:02:54

Status Y N U

SCREENING EVALUATION WORK SHEET (SEWS) Sheet 1 of 2

Equip. ID No. EG-T-0001B-1 Equip. Class 21 - Tanks and Heat Exchangers

Equipment Description EDG 1B AIR START 1 RESERVOIR

Location: Bldg. DG Floor El. 305 Room, Row/Col "B" DG BLDG NR DIESEL

Manufacturer, Model, Etc. (optional) MORRISON BROS. CO.

SHELL CAPACITY VS DEMAND

Buckling capacity of shell of large, flat-bottom, vertical tank is equal to or greater than demand: Y N U (N/A)

ANCHOR BOLTS AND EMBEDMENT

Capacity of anchor bolts and their embedments is equal to or greater than demand: ~~Y~~ (N) U N/A COMMENT 1 DH 7/14/95

CONNECTION BETWEEN ANCHOR BOLTS AND SHELL

Capacity of connections between the anchor bolts and the tank shell is equal to or greater than the demand: (Y) N U N/A

FLEXIBILITY OF ATTACHED PIPING

Attached piping has adequate flexibility to accommodate motion of large, flat-bottom, vertical tank: * (Y) N U N/A COMMENT 2

TANK FOUNDATION

Ring-type foundation is not used to support large, flat-bottom, vertical tank: Y N U (N/A)

IS EQUIPMENT SEISMICALLY ADEQUATE? ~~Y~~ (N) U DH 7/14/95

05-15-97 09:02:54

SCREENING EVALUATION WORK SHEET (SEWS) Sheet 2 of 2

Equip. ID No. EG-T-0001B-1 Equip. Class 21 - Tanks and Heat Exchangers

Equipment Description EDG 1B AIR START 1 RESERVOIR

COMMENTS

1. TANK & ITS SUPPORTING SKIRT FORM A RIGID ASSEMBLY ~~WHICH IS STABLE UNDER~~ ~~THE LOW ACCELERATION THAT IT SEES. THE LOW ACCELERATION ALSO FORM THE BASIS~~ ~~FOR CONCRETE PAD ACCEPTABILITY & THE LOW FORCES ON THE TANK HOLD DOWN BOLTS.~~ SEE CALC: EG-T-0001A-1-SEW1 TANK UNSTABLE UNDER SEN ACCLS SEE EQE CALC #42105-C-004. OUTLIER RAS 7/14/95 STM 10/9/95

2. TANK IS NOT FLAT-BOTTOMED & ATTACHED PIPING IS ENOUGH TO BE FLEXIBLE ENOUGH TO ACCOMMODATE TANK MOVEMENTS.

3. ALL ~~BOLT~~ FOUR MET GIP TORQUE TEST REQD

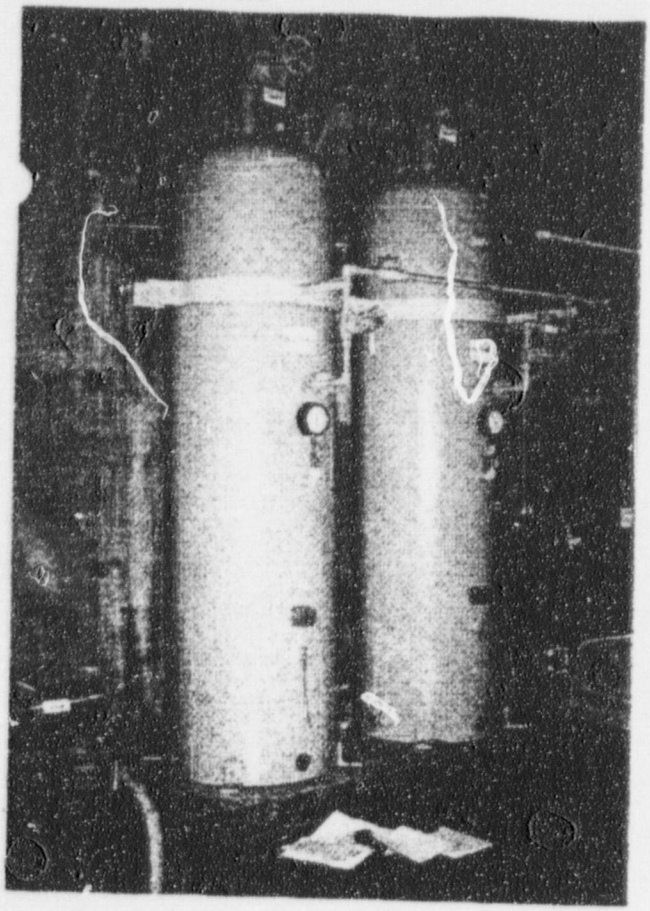
PHOTO: 15 SEPT 93 'B' FRAMES: 9, 10, 11

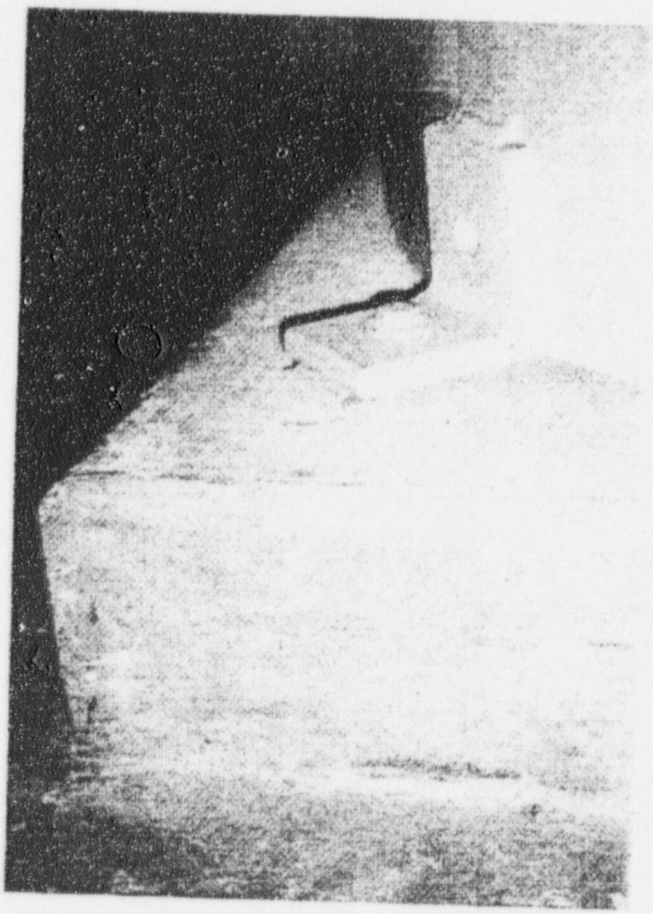
Evaluated by: RA Sato Date: 17 Sep 93

JCW 9-17-93

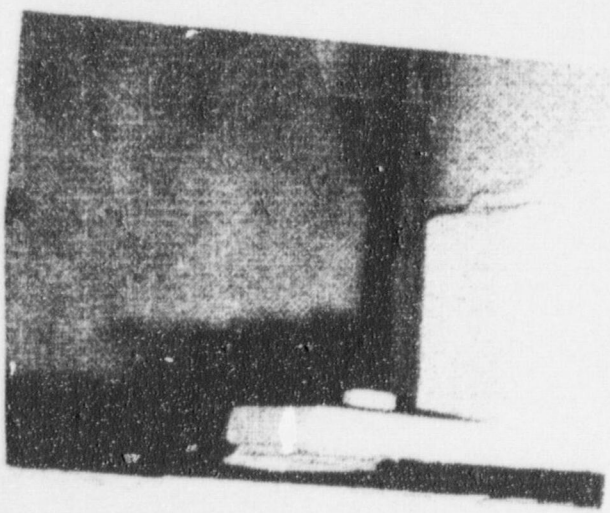
05-15-97 09:02:54

EG-T-1B1
EG-T-1B2





EG-T-1B
WORST ANCHOR
(MOST SHIMS)



EG-T-1C
SHIMMED ANGLE
BRACKET

ATTACHMENT A

Revision 2
Corrected, 6/28/91



## Exhibit 5-1

## OUTLIER SEISMIC VERIFICATION SHEET (OSVS)

1. OUTLIER IDENTIFICATION, DESCRIPTION, AND LOCATION

Equipment ID Number EGF-0001B-4 Equipment Class 21

Equipment Location: Building DG Floor Elevation 305'

Room or Row/Column — Base Elevation 305'

Equipment Description EDG 1B AIR START 1 RECEIVER

2. OUTLIER ISSUE DEFINITION

a. Identify all the screening guidelines which are not met. (Check more than one if several guidelines could not be satisfied.)

| | | | |
|---|---|---|---|
| **Mechanical and Electrical Equipment** | | **Tanks and Heat Exchangers** | |
| Capacity vs. Demand | ___ | Shell Buckling[1] | ___ |
| Caveats | ___ | Anchor Bolts and Embedment | ___ |
| Anchorage | X | Anchorage Connections | ___ |
| Seismic Interaction | ___ | Flexibility of Attached Piping[1] | ___ |
| Other | ___ | Other | ___ |
| | | | ___ |
| **Essential Relays** | | **Cable and Conduit Raceways** | |
| Capacity vs. Demand | ___ | Inclusion Rules | |
| Mounting, Type, Location | ___ | Other Seismic Performance Concerns | ___ |
| Other | ___ | Limited Analytical Review | ___ |
| | | Other | ___ |
| | | | ___ |

1 Shell buckling and flexibility of attached piping only apply to large, flat-bottom, vertical tanks.

b. Describe all the reasons for the outlier (i.e., if all the listed outlier issues were resolved, then the signatories would consider this item of equipment to be verified for seismic adequacy):

TANK HAS INSUFFICIENT FS AGAINST OVERTURNING OR SLIDING SINCE CONCRETE FOUNDATION PAD IS NOT INTEGRAL WITH FLOOR.

ATTACHMENT A

Revision 2
Corrected, 6/28/91



Exhibit 5-1 (Cont'd)

OUTLIER SEISMIC VERIFICATION SHEET (OSVS)

Equipment ID Number EG-T-00018-1

3. PROPOSED METHOD OF OUTLIER RESOLUTION (OPTIONAL)

a. Define proposed method(s) for resolving outlier.

1. PROVIDE UPPER SUPPORT AT HORIZONTAL BAND AROUND TANK

b. Provide information needed to implement proposed method(s) for resolving outlier (e.g., estimate of fundamental frequency).

No 1 - Outlier resolved per Attachment B & C of SQ-T1-EG-0001A-1 SM Lazorchak 12/12/95

4. CERTIFICATION:

The information on this OSVS is, to the best of our knowledge and belief, correct and accurate, and resolution of the outlier issues listed on the previous page will satisfy the requirements for this item of equipment to be verified for seismic adequacy:

Approved by: (For Equipment Classes #0 - #22, all the Seismic Capability Engineers on the Seismic Review Team (SRT) should sign; there should be at least two on the SRT. One signatory should be a licensed professional engineer. For Relays, the Lead Relay Reviewer should sign.)

| Print or Type Name | Signature | Date |
|---|---|---|
| R A SVOTELIS | R A Svotelis | 7/14/95 |
| Stephen M. Lazorchak | S M Lazorchak | 12/12/95 |
| | | |