September 9, 1986

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Docket File
PD#3 Rdg.
H. Schierling
C. Vogan

Enclosure 2

Docket Nos. 50-275
50-323

MEMORANDUM FOR:

H. Denton*	R. W. Houston	F. Rosa
R. Vollmer*	D. Crutchfield	V. Benaroya
J. Lyons*	E. Rossi	B. Clayton
H. Thompson*	G. Lainas	L. Rubenstein*
F. Miraglia*	T. Speis	G. Lear
R. Bernero*	W. Russell	B. J. Youngblood
G. Holahan*	J. Milhoan	S. Varga
T. Novak	R. Ballard	V. Noonan
F. Schroeder	C. Berlinger	

THRU: Steven A. Varga, Director
Project Directorate #3
Division of PWR Licensing-A

FROM: Hans E. Schierling, Senior Project Manager
Project Directorate #3
Division of PWR Licensing-A

SUBJECT: DAILY HIGHLIGHT

Plant Name: Diablo Canyon Reinstallation of Original Spent Fuel Racks under 10 CFR 50.59

On September 5, 1986 Region V requested NRR to review the PG&E safety evaluation performed according to 10 CFR 50.59 for the reinstallation of the original fuel racks into the Unit 1 spent fuel pool. NRR staff will discuss with PG&E details of the installation in a meeting on Wednesday, September 10, 1986. Originally the racks had been bolted to the spent fuel pool floor using anchors. The bolts had been cut off and the liner surface prepared for the new, high density racks which would be freestanding. The original racks are being reinstalled by welding the feet to embed plates which are welded to the liner. PG&E started the welding process on September 5, 1986 and all original racks are expected to be fully reinstalled by September 19, 1986. As of September 8, 1986 the Ninth Circuit Court of Appeals had not issued a final decision regarding intervenors request for a stay of our license amendment authorizing use of the high density racks, pending a hearing on this matter.

Original signed by:

Hans Schierling, Senior Project Manager
Project Directorate #3
Division of PWR Licensing-A

PD#3
HSchierling
9/9/86

PD#3
SVarga
9/ /86

* THESE COPIES MUST BE HANDCARRIED

8609120370 XA

ENCLOSURE 3

PG&E Design Changes Safety Evaluation Summary and Design Change Details

(25 pages)

Procedure 3.6 ON
Attachment A
Page 1 of 1

PRIORITY

Required Condition, Mode, or Operability Status to Implement:
Plant
System
Component

NPO Reviewer   Date

NO: M 35152-R1

DESIGN CHANGE COVER SHEET

DESCRIPTION OF CHANGE:

Remove Joseph Oat high density spent fuel storage racks and bridge plates from fuel pool.

Modify and reinstall original spent fuel storage racks

(Rev. A comments incorporated)

REASON FOR CHANGE:

In response to Ninth Circuit Court of Appeals ruling which prevents immediate use of the high density fuel racks.

COPY

EFFECT ON PLANT OPERATION:

☐ Not Applicable

None

Note: This DCP is on HOLD and will not be implemented unless required to comply with Ninth Circuit Court of Appeals ruling.

RESPONSIBLE DISCIPLINE Mechanical

TR-56 - 1/23/86

~~Procedure No. 3.6 ON~~
~~Attachment B~~
~~Page 1 of 1~~

DESIGN CHANGE PACKAGE FOLLOWER

DCP# M-35152- R 1

COST & SCHEDULING/ENGINEERING

ESTIMATE

			By	Date
Engineering Start	6-1-86	Engineer	SA Bluman	8/15/86
Construction Complete	9-24-86	Approved (EGS)	SCC	8/15/86
Estimated Total Cost	[illegible]	Accepted (PE)	pga	8-18-86

sky

Cost & Scheduling Spv. By [illegible] Date 8/19/86 ☐ Not Required (level of effort)

NPG APPROVAL

	By	Date		By	Date
Scope Approved			Schedule Approved		

Package Separation Requested ☐ yes ☐ no

Budget Approved: ☐ additional ☐ existing

Package rejected (reason) ____

Authorizing Job Estimate Job Order Number BLI 732; JE 000051

ESTIMATE

DESIGN — ENGINEERING

	By	Date		By	Date
Engineer	SA Bluman	8/15/86			
Approved (grp ldr)	[illegible]	8/15/86	Accepted (PE)	pga for MRTresler	8-18-86

DESIGN

CONSTRUCTION — PLANT STAFF REVIEW

	By	Date		By	Date
Received by EM			Imp to Safety or		
PSRC Approves (y/n) ___			Imp to Environ (y/n)		

Reason for Rejection ____

Plant Manager Approval ____ Date ____

Transmitted By ____ Date ____

COPY

CONSTRUCTION

	By	Date		By	Date
Received			Installation Complete		
Start Up Complete			As-Builts Attd (y/n) ___		

Released by Package Coordinator ____ Date ____

FC No. ____ FCTs ____

CONSTRUCTION

ACCEPTANCE — PLANT STAFF

	By	Date		By	Date
Received work complete			Staff review complete		

Plant Manager Final Approval ____ Date ____

Transmitted By ____ Date ____

ENGINEERING CLOSE OUT

All design documents issued for Operation: ____ Project Engineer ____ Date

RMS Purged ____ By ____ Date RMS Indexed ____ By ____ Date

ACCEPTANCE

4

TR-56 - 1/23/86

~~Procedure No. 3.6 ON~~
~~Attachment G~~
~~Page 1 of 1~~

TABLE OF CONTENTS

DCP# M - 35152 - R 1

Page 1 of 1

DCN NUMBER	CURRENT REVISION	ATTACHED	LATER*
DCI-EM-35152	1	[X]	[ ]
DCI-EC-35152	1	[X]	[ ]
		[ ]	[ ]
		[ ]	[ ]
		[ ]	[ ]
		[ ]	[ ]

SEE NEXT SHEET FOR ADDITIONAL DCNS [ ] Yes [X] No

* DCNs identified to be provided under approved package separation

8/19

COPY

5

PG&E

~~Procedure 3.6CK~~
~~Attachment C~~
~~Page 1 of 2~~

PACIFIC GAS AND ELECTRIC CO
ENGINEERING DEPARTMENT
SAN NO. BLL 073
PRIORITY NO.

NUCLEAR POWER PLANT DESIGN CHANGE

Diablo Canyon Unit 1
(PLANT)

DATE 8/15/86
DCN NO. 1-EM-35152
REV. NO. 1
SHEET 1 OF 3

REQUEST

To: E C Connell
From: S A Johnson

Structure or System: Fuel Handling Bldg. Spent Fuel Pool
Sys No. 13

Component: Spent Fuel Storage Racks

Description of Change: Replace Joseph Oat high density fuel racks with original spent fuel racks in the spent fuel pool. Include modification to original racks, and a modified mounting system.

Reason for Change: In response to Ninth Circuit Court of Appeals ruling which prevents use of the high density fuel racks.

Schedule/Justification: Prior to filling the pool (first refueling)

List of Attachments Not on DDL:

COPY

Requested by: S A Johnson

APPROVAL

Requested Change is:

- ☐ Approved per delegation of authority
- ☒ Approved
- ☐ Noted, document change not required
- ☐ Rejected (explain)
- ☐ Per telecon with ______ on ______ (If required by delegation of authority)
- ☒ As-built documents required
- ☐ Approved, document change only

Safety-Related Work: ☒ Yes ☐ No
Important to Environmental Quality: ☐ Yes ☒ No
DCN required to close an NCR ☐ Yes ☒ No
NCR No.

Reviewed By: S A Johnson — Discipline Engineer — Date 8/15/86

Approved By: E C Connell — Group Leader/Supervisor — Date 8/15/86

COMPLETION

	By	Date		By	Date
Installation Complete			Received Engineering		
Start-up Complete			Accepted Engineering		
Accepted NPO			Revisions Approved		

Distribution:
MNN, RLP, BDM, EAC, AS

~~Procedure 3.6 ON~~
~~Attachment C~~
~~Page 2 of 2~~

DESIGN EVALUATION

DCN No. DC1-EM-35152
Rev. No. 1
Page 2 of 3

1. DESIGN DOCUMENT REVIEW. The following documents are relevant to this change and have been originated, reviewed, or require revision as indicated:

Document, No., Rev.	Originated	Reviewed	Requires Revision
• Q-List			No
• Design Criteria Memorandums			
			No
• Calculations			
			No
• Design Verification Reports			
			No

COPY

2. LICENSING. The following NRC Licensing submittals are relevant to this change and have been reviewed as indicated below. Where a revision is required, Licensing has been notified.

Document	Reviewed	Requires Revision
a. FSAR		Yes
b.		

3. SAFETY ISSUES. The following issues could affect the safety evaluation; Engineering results/conclusions for each are as follows (Use additional sheets as needed):

- ~~Issue A~~ Note: Since This change essentially restores The pool to its originally
  ~~Results/Conclusions:~~ licensed condition, There are no new safety issues. Formal Safety Evaluation is not required.
- Issue B
  Results/Conclusions:

4. COORDINATION
Design Package Lead Discipline Mechanical

Coordination Required: [ ] No [X] Yes Coordinated With:

Department	Engineer (Signature)	Date	DCN Required	
Civil	A Sudhakar	8/15/86	Yes	No
			Yes	No
			Yes	No
			Yes	No
			Yes	No
			Yes	No
			Yes	No

Installation Instructions

Removal of high density racks and installation of original racks to use the same load paths and restrictions contained in Rev. D of this DCN.

Prior to installation, original racks are to be modified per Civil DCN, then steam cleaned, and should meet the cleanliness requirements of ANSI N45.2.1, Level C. In addition, surface contamination should be less than 150 $\mu g/dm^2$ Cl and 15 $\mu g/dm^2$ Fl.

Installed racks shall be drag tested using a dummy fuel assembly, and maintain less than 50 lbs. drag force during insertion and withdrawal. Any cells not passing the drag test shall be brought to the attention of Engineering for disposition.

Removal of rust/scale can be done by brushing or blasting. Wire brushes, etc. previously used on carbon steel materials shall not be used. Blasting shall use iron free sand.

PACIFIC GAS AND ELECTRIC COMPANY
DEPARTMENT OF NUCLEAR PLANT OPERATIONS
DIABLO CANYON POWER PLANT UNIT NOS. 1 AND 2

DESIGN CHANGE SAFETY EVALUATION SUMMARY

SUBJECT: Remove Joseph Oat high density spent fuel storage racks and bridge plates from fuel pool. Modify and reinstall original spent fuel storage racks.

1. DCP Number: M-35152 R1 DCSE Number: 1078,U1

2. Classification

Does this change affect:

		Yes	No
A.	The FSAR?	(X)	( )
B.	The Q-List?	(X)	( )
C.	Security?	( )	(X)
D.	The Emergency Plan?	( )	(X)
E.	Fire Protection?	( )	(X)
F.	Does the proposed design change have the potential to impact any area of the environment or the Environmental Qualification Report?	( )	(X)
G.	Is the affected equipment important to safety?	(X)	( )
H.	Is the affected equipment important to environmental quality?	( )	(X)
I.	Is radioactive material contained in the system or does the change affect ALARA?	(X)	( )
J.	Is the change a major radioactive waste treatment system change?	( )	(X)
K.	Will it require a change in the Technical Specifications?	(X)	( )

If any of the previous questions have been answered "yes", complete the next page(s) before answering L.

L.	Has this been determined to constitute an unreviewed safety question or an unreviewed environmental question? (Yes if any of questions 1, 2, 3, or 4b on the following page(s) are marked yes)	( )	(X)

INFORMATION ONLY DCPP

3. References:

DCP M-35152, R0	Tech. Specs. 3/4.9
FSAR 9.1, 3.2, 3.8.2	Regulatory Guide 1.13 Rev. 1

Performed by: P. V. Holton [signature] Date: 8/19/86

Reviewed by: P. E. Beckham [signature] Date: 8/19/86

PSRC Review: [signature] Date: AUG 28 1986

DESIGN CHANGE PACKAGE SAFETY EVALUATION

	Yes	No
1. Is the possibility of an accident or malfunction of a different type than any evaluated previously in the FSAR created?	( )	(X)

The racks being re-installed are of the same configuration as those on which the FSAR's original accident and malfunction evaluations were based. The modifications to the racks' bracing and the welding to the liner plane are per code and do not oppose current FSAR restrictions. Note that the above statements are made assuming the re-installation is performed only while the spent fuel pool is void of any new or spent fuel.

	Yes	No
2. Is the margin of safety as defined in the basis for any Technical Specification reduced?	( )	(X)

While Tech Spec. section 3/4.9 (Figure 3.9-1) will have to be revised, the bases supporting this section do not define any specific safety margin that would be decreased by this modification.

	Yes	No
3. Is the probability of occurrence or the consequences of an accident or malfunction of equipment important to safety previously evaluated in the FSAR increased?	( )	(X)

For the reasons stated in item 1 above, returning the spent fuel storage racks to their original configuration (with small modifications) is consistent with previous accident and malfunction evaluations and would therefore not increase the probability or consequences of the FSAR evaluations.

4. A. Environmental Evaluation

Briefly describe the nature of the environmental impact(s) caused by the design change.

Negligible. Production of radioisotopes from reactor operations would be unchanged. The work will be done while the spent fuel pool is void of fuel so there would not likely be any significant radiological impact to workers or generation of rad-waste during construction phase. Since the racks have already been fabricated, the increase in resources needed to perform the work would be minimal.

B. Unreviewed Environmental Question

	Yes	No
Does the change involve an unreviewed environmental question?	( )	(X)

Explain.

See 4A above.

TT

PRIORITY ______
Required Condition, Mode, or Operability Status to Implement:
Plant ______
System ______
Component ______
______ NPO Reviewer ______ Date

~~Procedure 3.8 ON; Attachment A Page 1 of 1~~

NO: M 35152 R 1

DESIGN CHANGE COVER SHEET

DESCRIPTION OF CHANGE:

Remove Joseph Oat high density spent fuel storage racks and bridge plates from fuel pool.

Modify and reinstall original spent fuel storage racks

(Rev. A comments incorporated)

REASON FOR CHANGE:

In response to Ninth Circuit Court of Appeals ruling which prevents immediate use of the high density fuel racks.

COPY

EFFECT ON PLANT OPERATION:

☐ Not Applicable

None

Note: This DCP is on HOLD and will not be implemented unless required to comply with Ninth Circuit Court of Appeals ruling.

RESPONSIBLE DISCIPLINE Mechanical

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TR-56 - 1/23/86

~~Procedure No. 3.6 ON~~
~~Attachment B~~
~~Page 1 of 1~~

DESIGN CHANGE PACKAGE FOLLOWER

DCP# M-35152- R 1

COST & SCHEDULING/ENGINEERING

ESTIMATE

Engineering Start 6-1-86

Construction Complete 9-24-86

Estimated Total Cost [illegible]

Engineer — By: SA [illegible] — Date: 8/15/86

Approved (EGS) — By: SCC — Date: 8/15/86

Accepted (PE) — By: pga — Date: 8-18-86

Cost & Scheduling Spv. — By: [illegible] — Date: 8/18/86   / / Not Required (level of effort)

NPG APPROVAL

	By	Date		By	Date
Scope Approved			Schedule Approved		

Package Separation Requested / / yes / / no

Budget Approved: / / additional / / existing

Package rejected (reason)

Authorizing Job Estimate Job Order Number BLI 732; JE 000051

DESIGN — ENGINEERING

	By	Date		By	Date
Engineer	SA [illegible]	8/15/86			
Approved (grp ldr)	[illegible]	8/15/86	Accepted (PE)	pga for MRTresler	8-18-86

CONSTRUCTION — PLANT STAFF REVIEW

	By	Date		By	Date
Received by EM			Imp to Safety or		
PSRC Approves (y/n)			Imp to Environ (y/n)		

Reason for Rejection

Plant Manager Approval ______ Date ______

Transmitted By ______ Date ______

COPY

CONSTRUCTION

	By	Date		By	Date
Received			Installation Complete		
Start Up Complete			As-Builts Attd (y/n)		

Released by Package Coordinator ______ Date ______

FC No. ______ FCTs ______

ACCEPTANCE — PLANT STAFF

	By	Date		By	Date
Received work complete			Staff review complete		

Plant Manager Final Approval ______ Date ______

Transmitted By ______ Date ______

ENGINEERING CLOSE OUT

All design documents issued for Operation: ______ Project Engineer ______ Date

RMS Purged ______ By ______ Date   RMS Indexed ______ By ______ Date

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~~Procedure No. 3.6 ON~~
~~Attachment G~~
~~Page 1 of 1~~

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DCN NUMBER	CURRENT REVISION	ATTACHED	LATER*
DCI-EM-35152	1	[X]	[ ]
DCI-EC-35152	1	[X]	[ ]
		[ ]	[ ]
		[ ]	[ ]
		[ ]	[ ]
		[ ]	[ ]

SEE NEXT SHEET FOR ADDITIONAL DCNS [ ] Yes [X] No

* DCNs identified to be provided under approved package separation

8/19

COPY

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DCN • SHT 1. CF-14

PG&E

PACIFIC GAS AND ELECTRIC CO
ENGINEERING DEPARTMENT
SAN NO BLI 073
PRIORITY NO

NUCLEAR POWER PLANT DESIGN CHANGE

DIABLO CANYON UNIT #1
(PLANT)

DATE 7-20-86
DCN NO. DC1-EC-35152
REV. NO. 1
SHEET 1 OF 12

REQUEST

To: J. K. McCall
From: K. Liu / A. Sudhakar

Structure or System: Aux Bldg, Spent Fuel Pool — Sys No. 13

Component: Low Density Spent Fuel Storage Racks

Description of Change: Weld Bracket of Spent Fuel Storage Racks to Embed Pl; Reinforce bracing with Flat bars & additional welds; Replace damaged bar on Rack #1

Reason for Change: To reinstall Low density spent fuel racks

COPY

Schedule/Justification: See Mechanical DCN

List of Attachments Not on DDL: Sketches SK-439501 SHT 1 through sht. 11

Requested by: K. Liu

APPROVAL

Requested Change is:

- ☐ Approved per delegation of authority
- ☒ Approved
- ☐ Noted, document change not required
- ☐ Rejected (explain)
- ☐ Per-telecon with ______ on ______ (If required by delegation of authority)
- ☒ As-built documents required
- ☐ Approved, document change only

Safety-Related Work: ☒ Yes ☐ No
Important to Environmental Quality: ☐ Yes ☒ No
DCN required to close an NCR ☐ Yes ☒ No
NCR No.

Reviewed By: K. Liu — Discipline Engineer — Date 7-20-86

Approved By: [signature] for J.K. McCall — Group Leader/Supervisor — Date 8/15/86

COMPLETION

	By	Date		By	Date
Installation Complete			Received Engineering		
Start-up Complete			Accepted Engineering		
Accepted NPO			Revisions Approved		

Distribution:
MNN, RLP, BDM, JKM, SJ

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TR-56 - 1/23/86

DESIGN EVALUATION

DCN No. DCI-EC-35152
Rev. No. 1
Page 2 of 12

1. DESIGN DOCUMENT REVIEW. The following documents are relevant to this change and have been originated, reviewed, or require revision as indicated:

Document, No., Rev.	Originated	Reviewed	Requires Revision
• Q-List		YES	NO
• Design Criteria Memorandums			
DCM C-36		YES	NO
• Calculations			
Calc. File 52.15	✓		
Calc. # 52.15 36.1			
• Design Verification Reports			
		N/A	

2. LICENSING. The following NRC Licensing submittals are relevant to this change and have been reviewed as indicated below. Where a revision is required, Licensing has been notified.

Document	Reviewed	Requires Revision
a. FSAR	YES	YES
b.		

COPY

3. SAFETY ISSUES. The following issues could affect the safety evaluation; Engineering results/conclusions for each are as follows (Use additional sheets as needed):

- Issue A Seismic Adequacy:
  Results/Conclusions: The tanks including the anchorage have been designed and evaluated in accordance with FSAR commitments.
- Issue B
  Results/Conclusions:

4. COORDINATION
Design Package Lead Discipline Mechanical

Coordination Required: [ ] No [X] Yes Coordinated With:

Department	Engineer (Signature)	Date	DCN Required	
Mech	Scott Johnson [signature]	8/15/86	Yes	No
			Yes	No
			Yes	No
			Yes	No
			Yes	No
			Yes	No
			Yes	No

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G&E

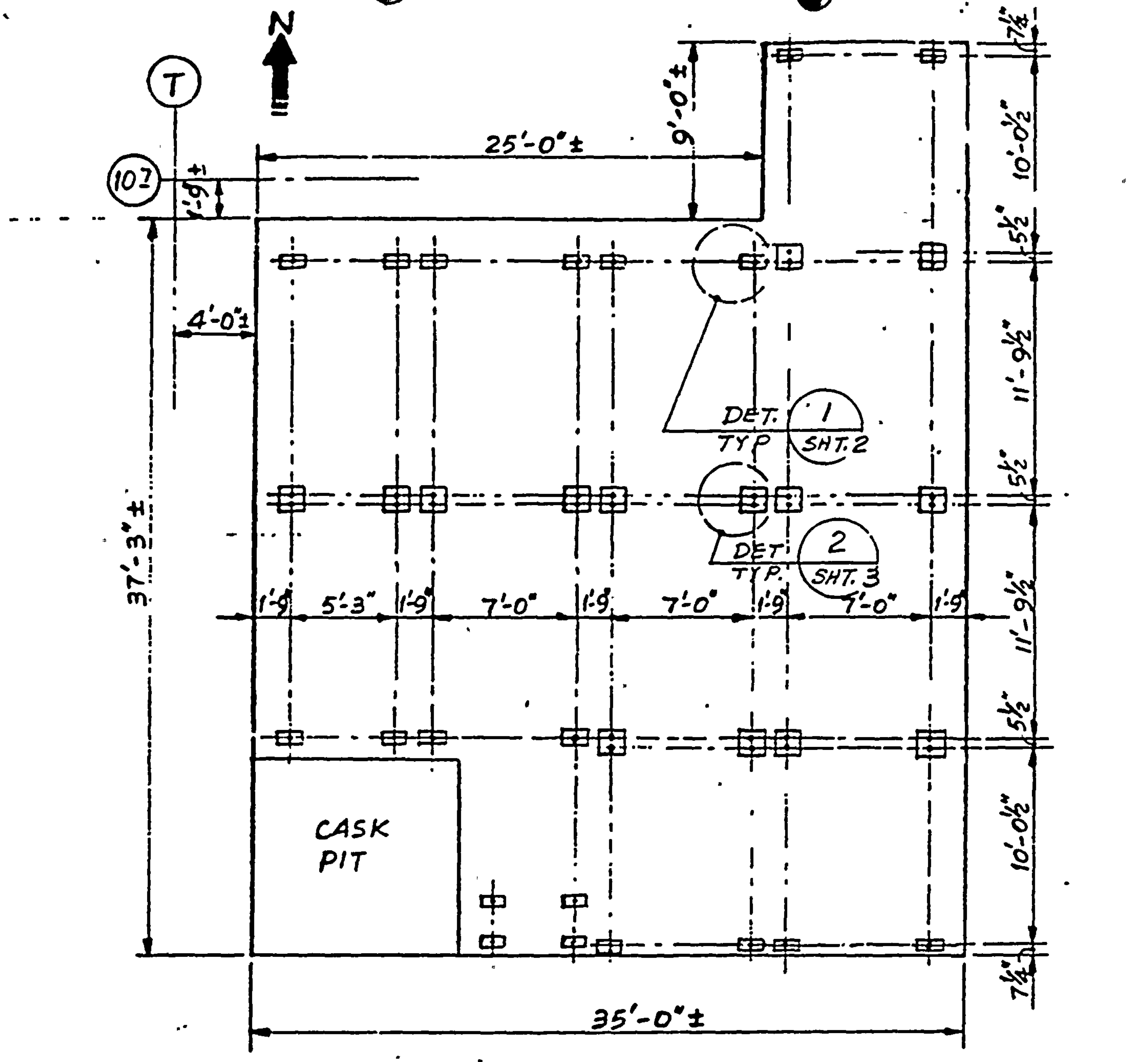
PACIFIC GAS AND ELECTRIC COMPANY
ENGINEERING DEPARTMENT
DESIGN DOCUMENTS LIST
DOCUMENTS AFFECTED BY DESIGN CHANGE NOTICE (DCN)

PLANT DC #1 DCN NUMBER DC1-EC-35152 REVISION 1 DATE 7-20-86 ENGINEER K. Liu

DOCUMENT NUMBER	SHEET NO.	REVISION CURRENT	REVISION INTERIM	REVISION AS BUILT	DOCUMENT TITLE	DATE COMPLETED	BY	DATE APPROVED	BY
439501		7			PLAN & DETAILS - SPENT FUEL POOL LINER - AUX. BLDG. - Area J				
439516					Spent Fuel Storage Racks				
439517					Sections & Details - Spent Fuel Storage Racks				

COPY

DCN SHT 3 OF 14



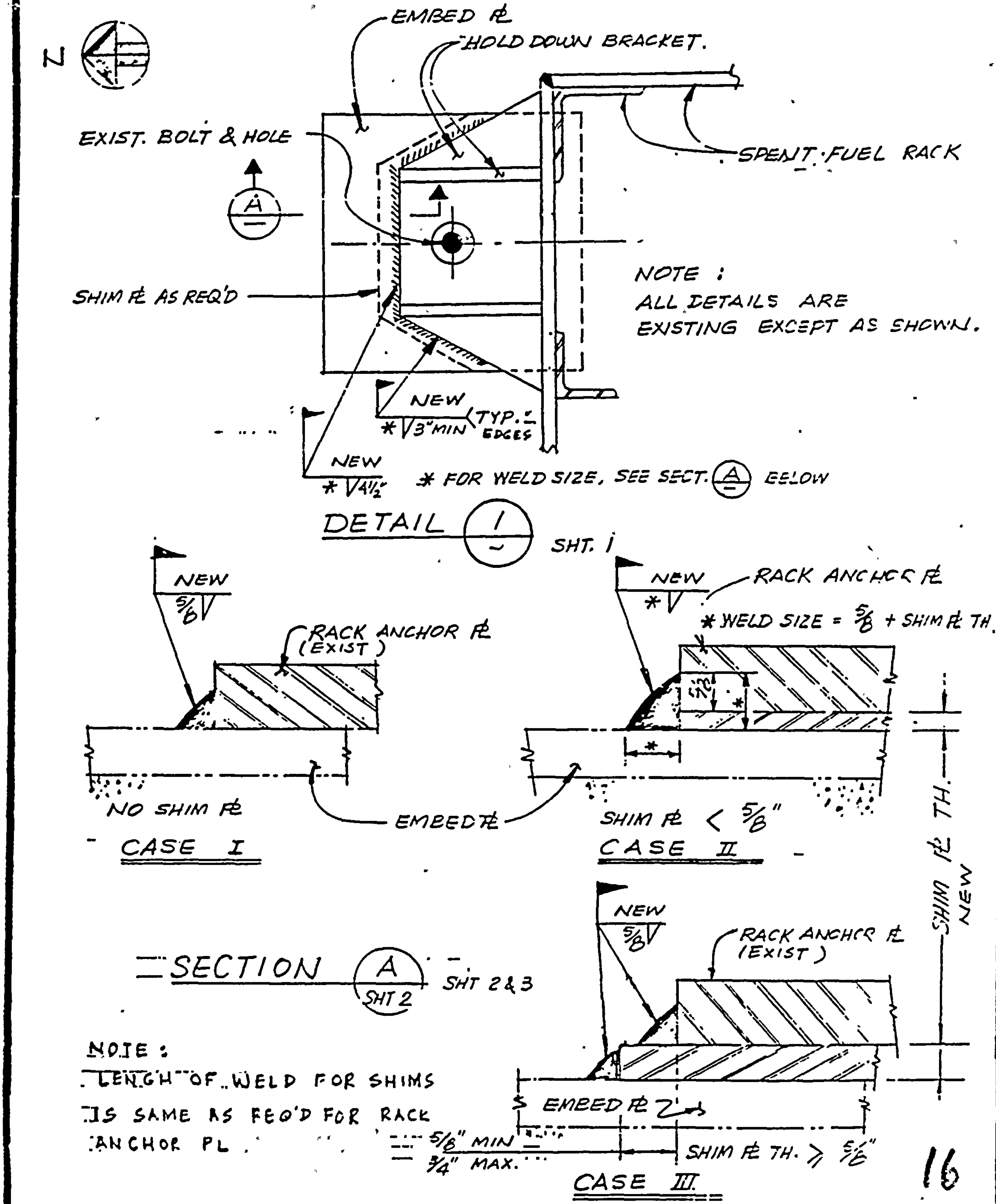
SPENT FUEL POOL PLAN @ ELEV. 99'

EMBED PL LOCATION PLAN

REF. DWG 439501

APPROVED BY								
0	8-15-86	INITIAL ISSUE W/DCN-DC1-EC-35152 REV. 1		KL		K.	KB
REV.	DATE	DESCRIPTION	GM	DWN.	CHKD.	SUPV.	APVD.

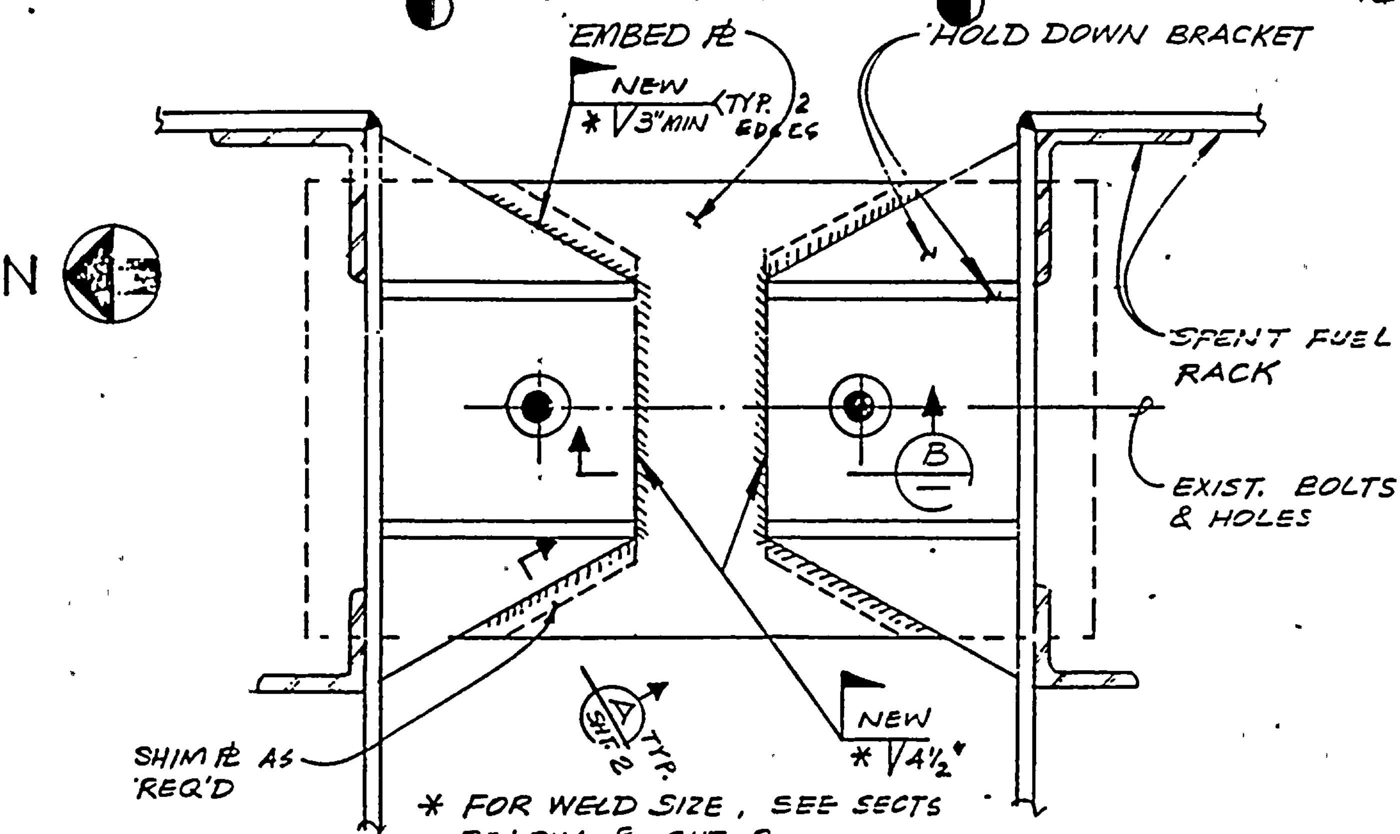
GM SUPV. A. Sudi... DSGN. K. LIU DWN. K. LIU CHKD. O.K.	DIABLO CANYON UNIT #1. AUX. BLDG SPENT FUEL STORAGE RACK MODIFICATION DETAILS	B/M CALC. NO. 15 REV.
DATE / SCALE NTS	**PACIFIC GAS AND ELECTRIC COMPANY** **SAN FRANCISCO, CALIFORNIA**	SHEET NO. 1 OF 9 DRAWING NUMBER SK-439501 REV. 1



AS	DIABLO CANYON UNIT # 1	SHEET NO. _ OF _	
DATE 8/15/86	SCALE NTS	PACIFIC GAS AND ELECTRIC COMPANY SAN FRANCISCO, CALIFORNIA	DRAWING NUMBER SK-437501	REV. 1

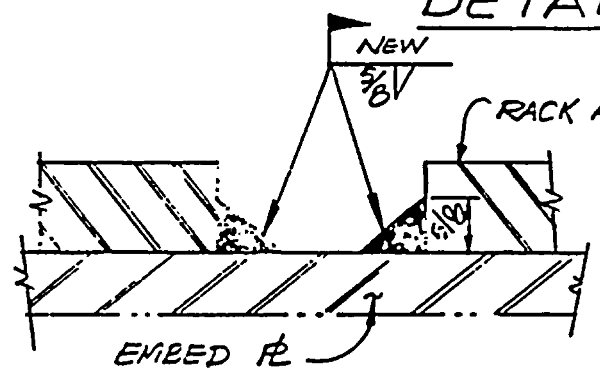
MICROFILM

DCI-EC-35152 R1 DCN SHT 6 of 14

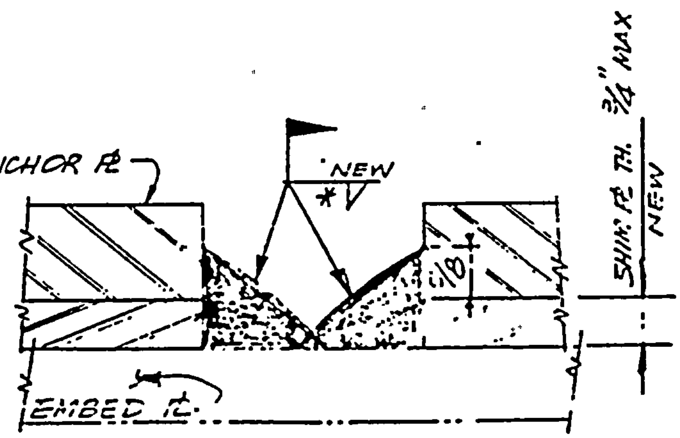


* FOR WELD SIZE, SEE SECTS BELOW & SHT. 2

DETAIL 2 SHT. 1



CASE I



*WELD SIZE = 5/8" + SHIM PL TH.

CASE II

SECTION B

NOTE :

1. ALL DETAILS ARE EXISTING EXCEPT AS SHOWN.
2. LENGTH OF WELD FOR SHIMS IS SAME AS REQ'D. FOR RACK ANCHOR PL

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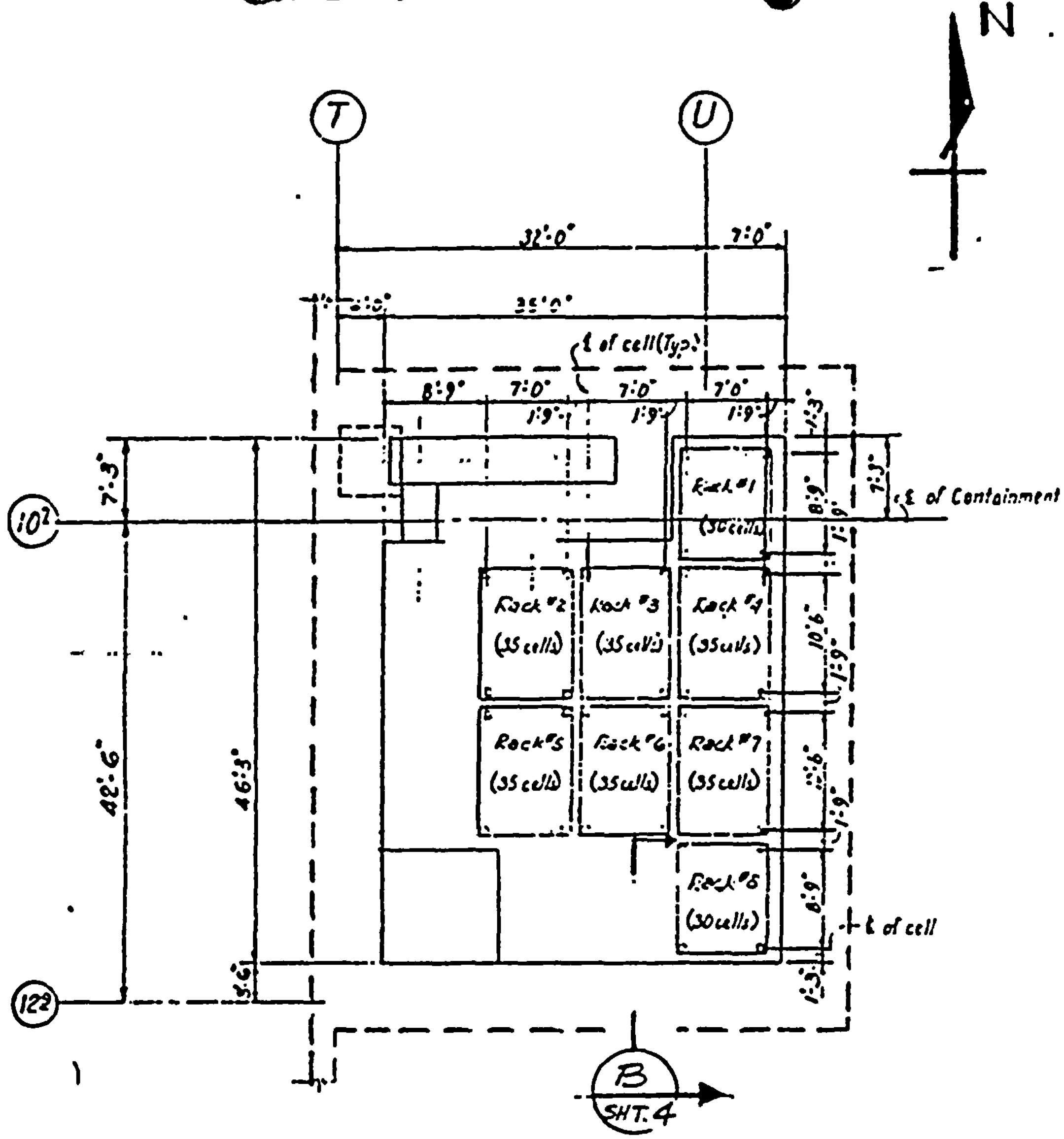
AS		DIABLO CANYON UNIT #1	SHEET NO. 5 OF 7	
DATE 5/13/82	SCALE NTS	PACIFIC GAS AND ELECTRIC COMPANY SAN FRANCISCO, CALIFORNIA	DRAWING NUMBER SK-439501	REV. 1



SPEN FUEL STORAGE RACKS
LOCATION PLAN @ EL 99'

AUX. BLDG

REF. DWG. 439516

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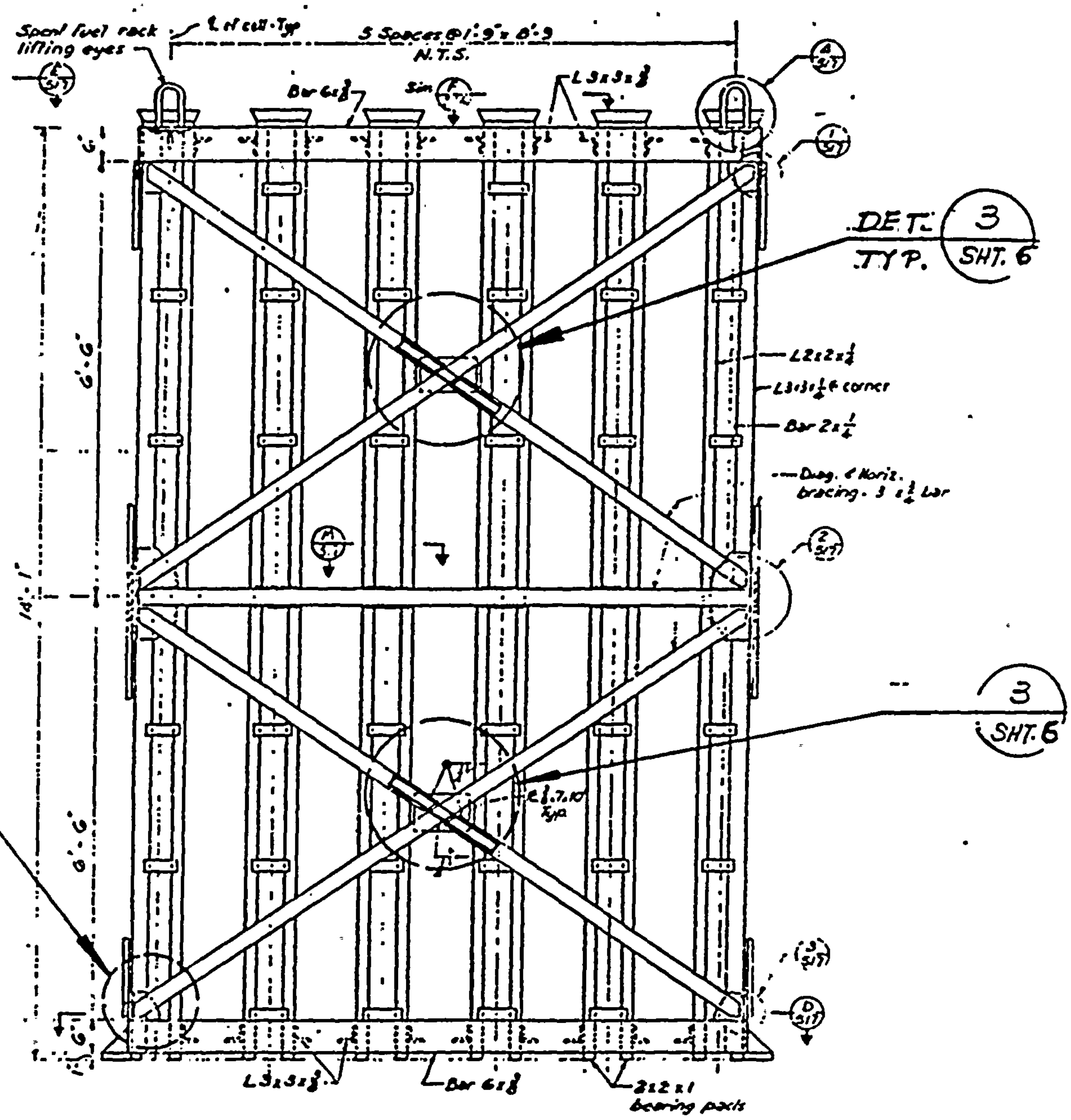
AS	DIABLO CANYON UNIT # 1	SHEET NO. 4 OF 7	
DATE 5/15/86	SCALE NTS	DRAWING NUMBER	REV.
	PACIFIC GAS AND ELECTRIC COMPANY SAN FRANCISCO, CALIFORNIA	SK-439501	1



SECTION B ~ SHT 4

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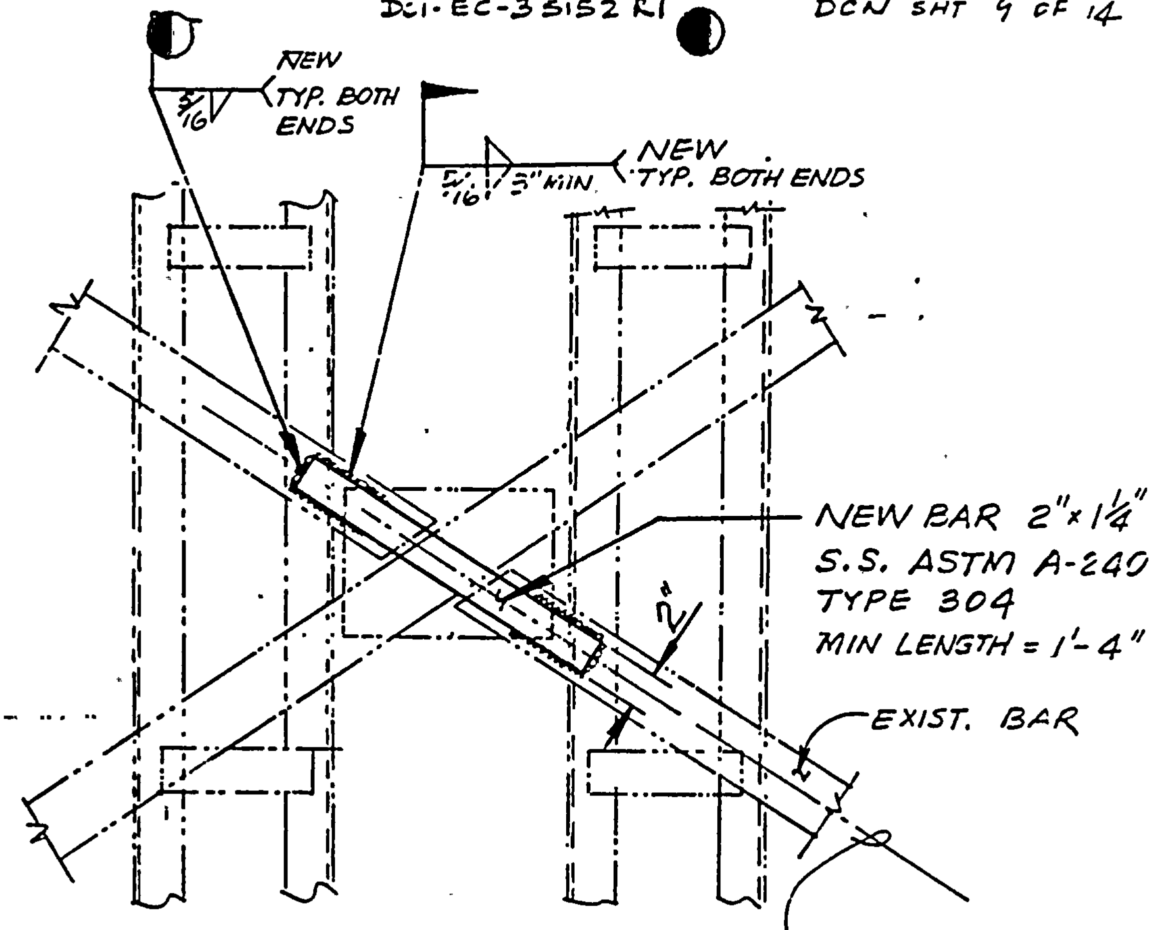
DATE 5/15/86	SCALE NTS	DIABLO CANYON UNIT #1 **PACIFIC GAS AND ELECTRIC COMPANY** SAN FRANCISCO, CALIFORNIA	SHEET NO. 5 OF 9 DRAWING NUMBER SK-439501 REV. 1



ALL DETAILS ARE EXISTING EXCEPT AS SHOWN.

DETAIL 3/~ SHT. 5

TYP 8 PLACES PER RACK

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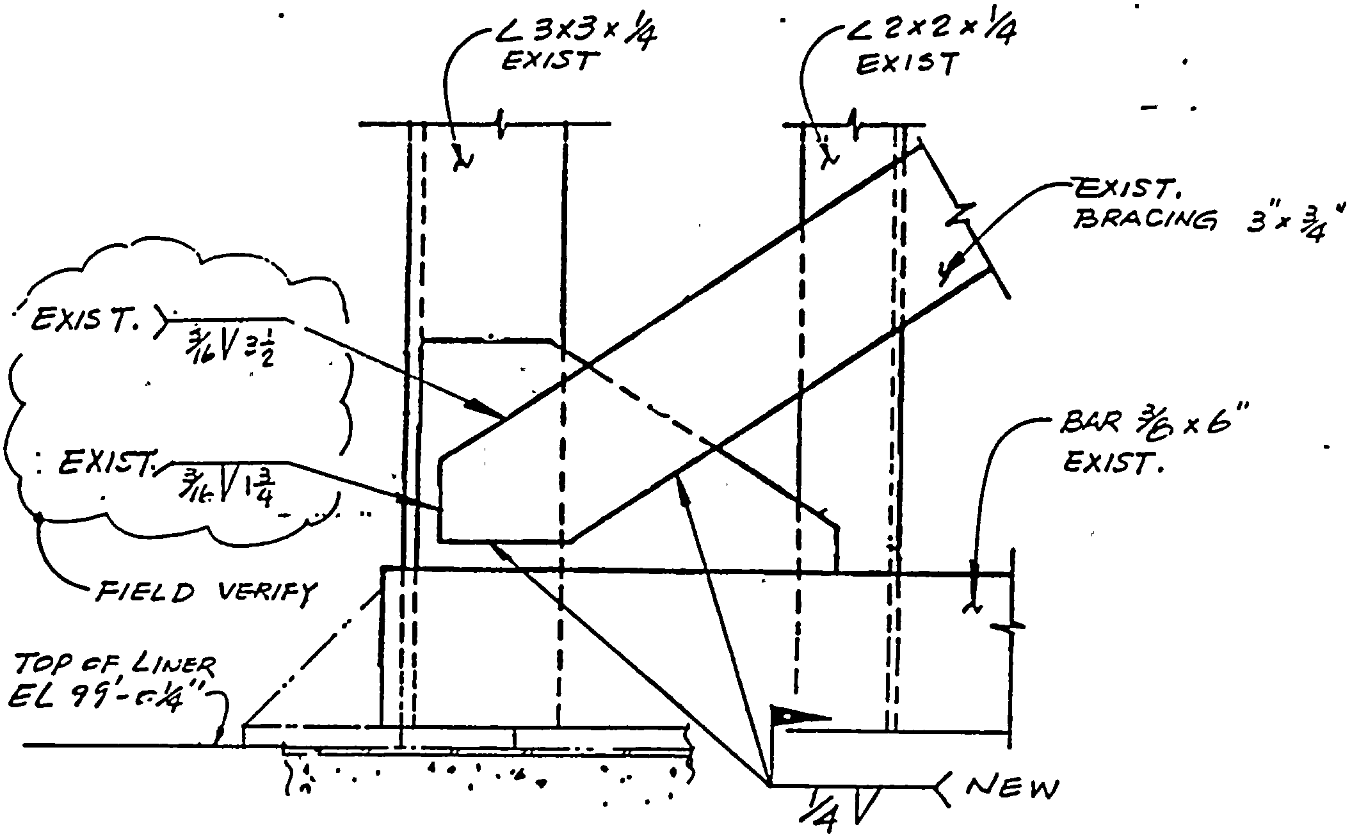
ks	DIABLO CANYON UNIT #1	SHEET NO. 6 OF 9	
DATE 5/15/86	SCALE NTS	PACIFIC GAS AND ELECTRIC COMPANY SAN FRANCISCO, CALIFORNIA	DRAWING NUMBER SK-459501	REV. 1

MICROFILM



SPENT FUEL RACK NO. 8

WEST FACE ONLY

DETAIL 4 SHT. 5

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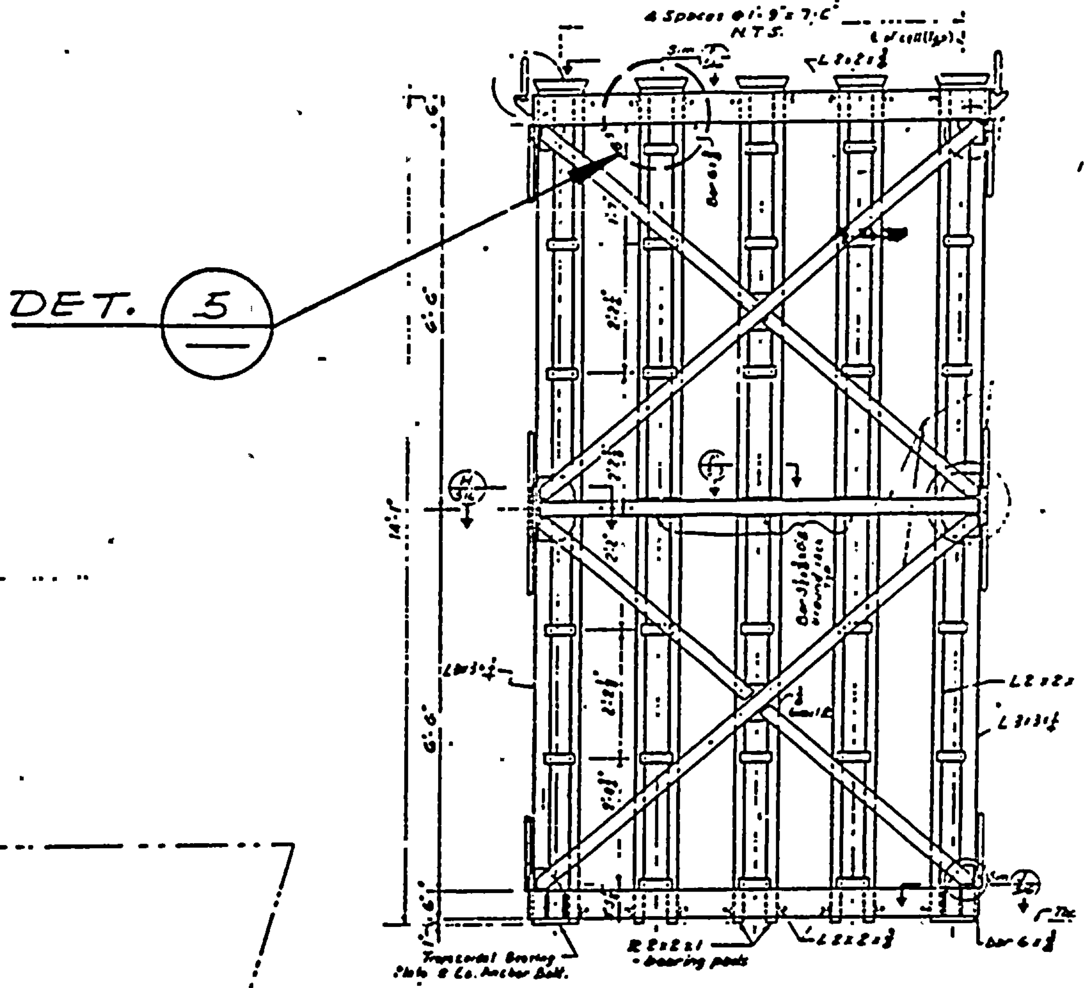
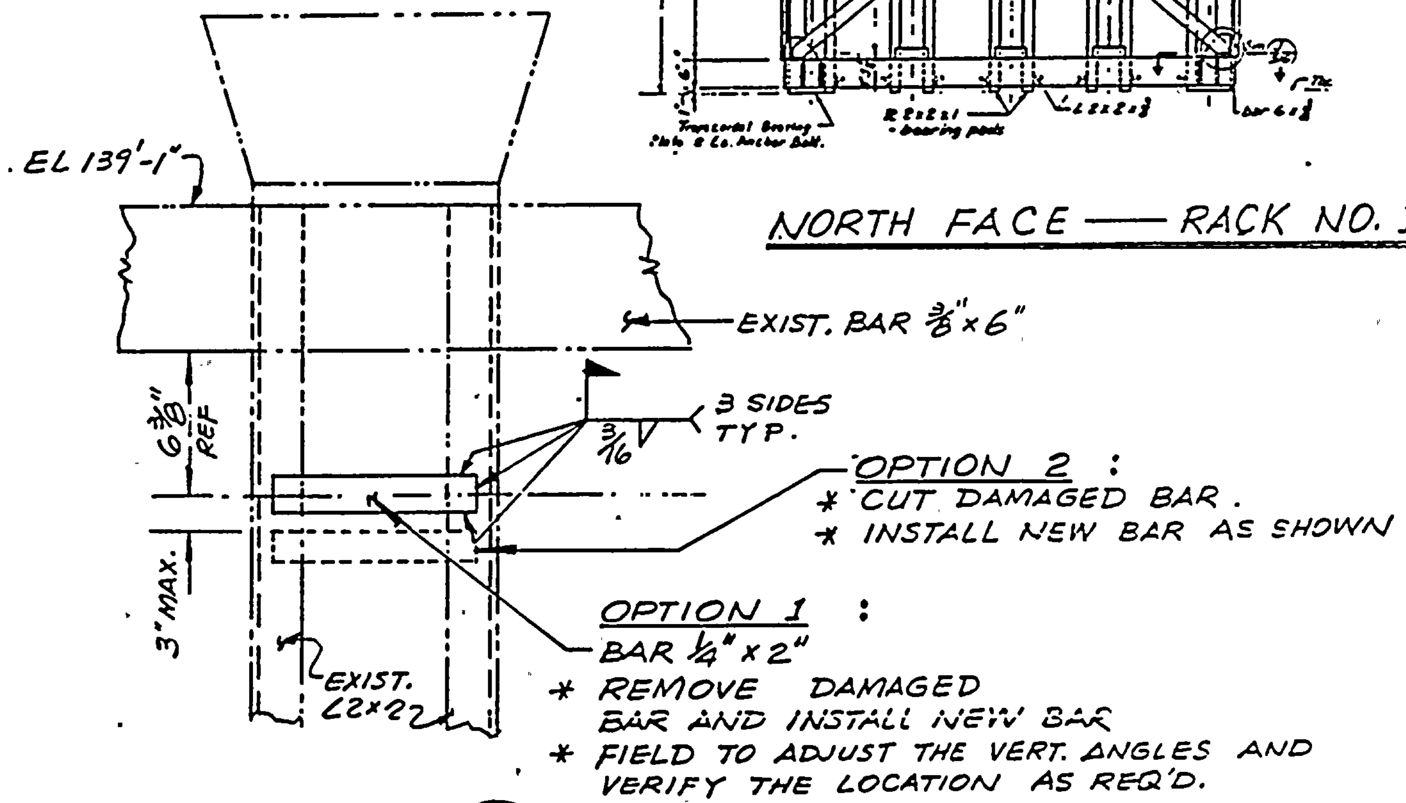
DATE	SCALE	PACIFIC GAS AND ELECTRIC COMPANY SAN FRANCISCO, CALIFORNIA	SHEET NO. 7 OF 7	
6/13/86	NTS		DRAWING NUMBER SK-439501	REV. 1

MICROFILM



NORTH FACE —— RACK NO. 1



DETAIL 5

22

ks	DIABLO CANYON UNIT #1	SHEET NO. OF 7	
DATE 8/11/86 SCALE NTS	PACIFIC GAS AND ELECTRIC COMPANY SAN FRANCISCO, CALIFORNIA	DRAWING NUMBER SK-439501	REV. 1

NOTES :

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH SPEC. 8831R.
2. STAINLESS STEEL WELDING ELECTRODES SHALL CONFORM WITH ASTM A-371 CLASS 308 OR 308L. WELDING SHALL BE DONE IN ACCORDANCE WITH ASME SECTION III, 1983 EDITION.
3. INSTALLATION SEQUENCE OF SPENT FUEL STORAGE RACKS SHALL BE CAREFULLY ARRANGED TO ENSURE THAT ALL WELDS MEET SPEC. REQUIREMENTS.
4. A-193 STUD BOLTS THAT HAVE BEEN CUT OFF CAN BE RESTORED, IF NEEDED AS A CONSTRUCTION AID TO POSITION & TIGHTEN RACK MODULES BEFORE WELDING.
5. SHIM & STEEL BAR SHALL BE STAINLESS STEEL ASTM A-240, TYPE 304.
6. SEE SHEETS 13 & 14 OF THIS DCN FOR RECOMMENDATIONS FROM BECHTEL M&QS TO ALLEVIATE WELDING PROBLEM.
7. AFTER THE WELDS ARE DEPOSITED, THEY SHOULD BE VISUALLY INSPECTED AS REQ'D BY ASME SECTION III SUBSECTION NF, PARA NF 5231(b), FOR CLASS 3 COMPONENTS. NDE & HYDRO TESTING NOT REQ'D.

23

AS		DIABLO CANYON UNIT #1	SHEET NO. 1 OF 4	
DATE	SCALE	PACIFIC GAS AND ELECTRIC COMPANY	DRAWING NUMBER	REV.
8/15/86	NTS.	SAN FRANCISCO, CALIFORNIA	SK-439501	1

MICROFILM

Bechtel National, Inc.
Engineers—Constructors

Fifty Beale Street
San Francisco, California
Mail Address, P O Box 3965, San Francisco, CA 94119

To: A. Sudhakar

Subject: Diablo Canyon Project, Low Density Spent Fuel Rack Bechtel Welding, Job 18269

Copies: T. J. Anderson
B. D. Hackney
R.A.Manley/F.C.Breismeister
DCC 15521-53

Date: August 15, 1986

From: T. C. Wiesner

Of: R&D/Materials & Quality Services Department

At: 50/15/A12 8-3114

Materials and Quality Services has reviewed the proposed DCN (No. DC1-EC-35152) and have the following comments and recommendations.

A plywood mock-up constructed in our laboratory has demonstrated that all of the proposed welds of the hold down brackets to the liner embeds are capable of being made. Some of the welds are more difficult to make than others due to restricted access. The attached sheet is an enlargement of Sheet 7 of the DCN and shows the eight racks and the four welds on each (indicated by letters).

The racks should be installed in such a sequence as to reduce the number of "difficult" welds (those with the tightest access problems). The suggested sequence is: Rack #1, 4, 7, 8, 3, 6, 2 and 5, the most difficult welds being #1A, 8D, 5B and 6B. It is recommended that prior to actual welding, the welders be trained on a full scale mock-up or the actual racks.

M&QS foresees no distortion problems with welds to the embeds. Sheet 9 of 12 of the DCN does show a potential distortion problem when adding the new 2" x 1¼" stainless bar to the existing cross bracing or stiffener. These welds should be made by welding toward the "free" or unrestrained end or section (i.e. the side welds at one end should be welded first, then the opposite end side welds followed by the end welds).

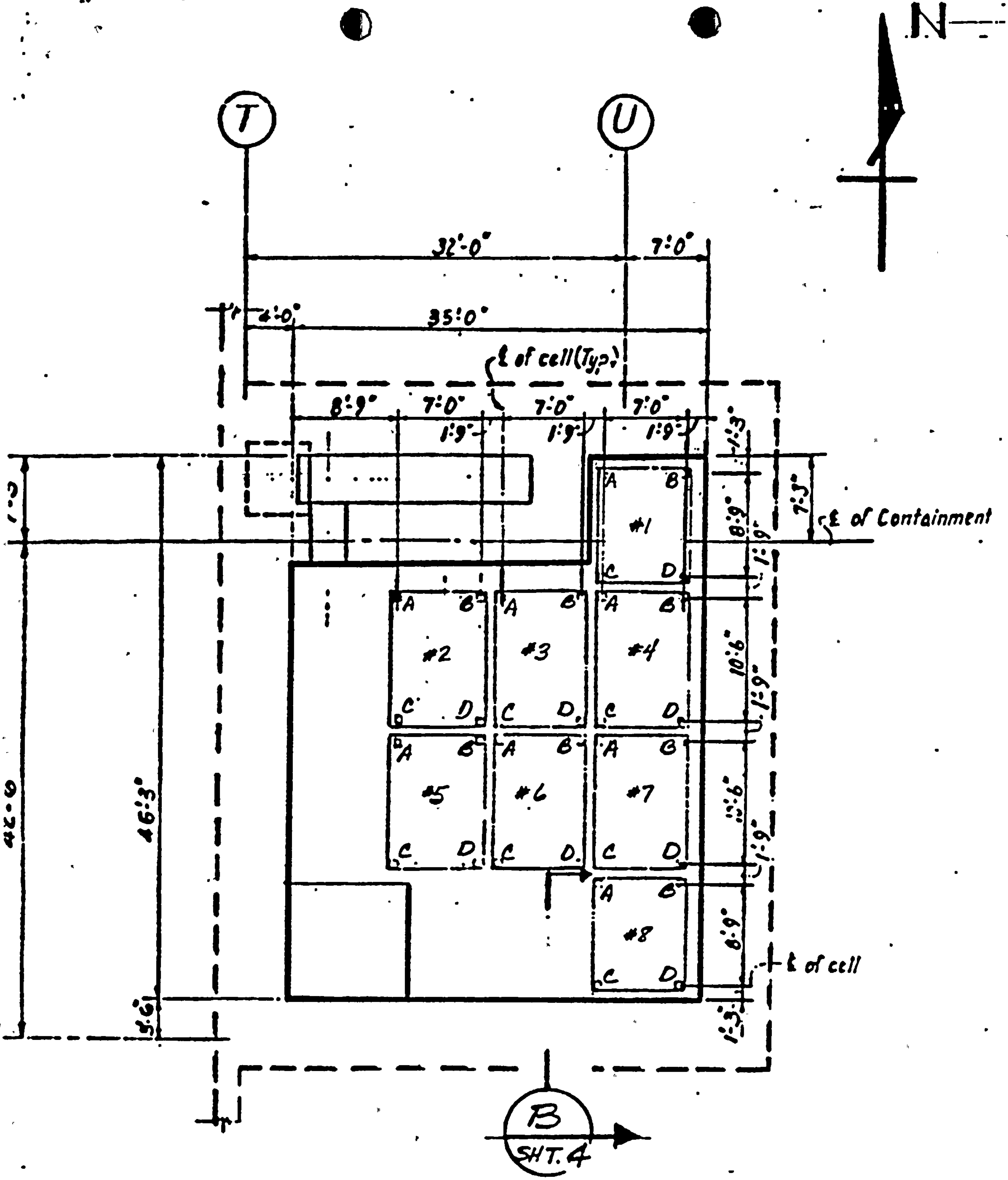
Option 2 on sheet 11 of 12 for repair of damaged bar is preferred. If damaged bar can be left in place option 2 becomes even better.

M&QS is available to provide additional mock-ups or welder training should the project require. Please call this office if you have further questions.

T C Wiesner
T. C. Wiesner

TCW/sla

Attachment



SPENT FUEL STORAGE RACKS
LOCATION PLAN @ EL 99'

ENCLOSURE 4

PG&E Telephone Call Summary
List of 21 NRC Questions
of September 8, 1986
(5 pages)

DRAFT

TELEPHONE CALLS

ROUTE

FROM See Below	OF	FILE 026.14	DATE 9/8/86
TO See Below	OF	JOB NO. [illegible]	TIME 1:00 p.m.

ITEMS OF DISCUSSION			ACTION REQ'D. (INCLUDE NAMES & DATES)
Subject:	Spent Fuel Racks		
From:	B. S. Lew	PGandE	
	S. Johnson	"	
	B. Giffin	"	
	M. R. Tresler	"	
	C. O. Coffer	"	
	G. H. Moore	"	
	R. Lieber	"	
	J. Gisclon	"	
	P. Beckham	"	
	E. C. Connell	Bechtel	
	D. Ovadia	"	
	S. Bhattacharya	"	
	D. W. Ogden	Kaiser	
	T Holton		
To:	H. E. Schierling	NRC	
	D. Jeng	NRC	
	F. Rinaldi	NRC	

Hans indicated the discussion should be limited to technical issues, and not the 10 CFR 50.59 evaluation.

D. Jeng had the following questions:

TELEPHONE CALLS

ROUTE

FROM	OF	FILE 026.14	DATE 9/8/86
TO	OF	JOB NO. 18320	TIME 1:00 p.m.

ITEMS OF DISCUSSION	ACTION REQ'D. (INCLUDE NAMES & DATES)
1. (Related to 10 CFR 50.59 evaluation)	
2. What is the status of installation of the original racks? What was done to remove the anchor bolts? (Tinkle)	
3. NRR would like to review the proposed FSAR changes associated with reinstallation of the original racks (Civil)	
4. What does "essentially unchanged" mean as used in the Mechanical design evaluation (DC1-EM-35152). We should be more specific; what are the differences? (NOS and Civil)	
5. What is the basis for the 50 pound criteria for drag load testing? (Tresler)	
6. We indicated the original racks will be cleaned before reinstallation; what procedures will be used? (i.e., no iron, etc.) (Tinkle)	
7. Justify why there is no need to change the design calculations for the racks; address seismic adequacy. Are the earlier conclusions still valid? (Civil)	
8. Discuss the engineering analysis to show how the load transfer path may have changed from bolting to welding. (State	

TELEPHONE CALLS

ROUTE

FROM	OF	FILE 026.14	DATE 9/8/86
TO	OF	JOB NO. [illegible]	TIME 1:00 p.m.

ITEMS OF DISCUSSION	ACTION REQ'D. (INCLUDE NAMES & DATES)
assumptions, etc.) (Civil)	
9. Discuss asymmetric loadings on the rack modules. (Civil)	
10. Bracing weld reinforcement - why did we make the modification to the rack bracing? Did we consider all the effects of the change? (i.e., local considerations, temperature, etc.) (Civil)	
11. DCN, Sheet 9 of 9 - what is the basis for 1983 version of ASME Code? (Civil)	
12. Discuss the installation sequence for the original racks, welding access and sequence, etc. (Tinkle)	
13. Why were the anchor bolts not restored to the original condition. (Civil)	
14. Are QC requirements and the materials the same as initially reviewed by the Staff? What are the differences? (Tinkle)	
15. Clarify the details of the embedded plates and the liner plate. Explain the load path for seismic loads to the base slab (Civil)	
16. Elaborate further on the statement that M&QS foresees no problem with distortion,	

01003311

[illegible]

TELEPHONE CALLS

FROM	OF	FILE 026.14	DATE 9/8/86
TO	OF	JOB NO. 15320	TIME 1:00 p.m.

ITEMS OF DISCUSSION	ACTION REQ'D. (INCLUDE NAMES & DATES)
warping, etc. with regard to welding to the embedded plates. Will welding affect the leak-tightness of the liner? (Civil)	
17. Have the holddown brackets on the corner of each rack been revised in any way from the original design? If so, how? Are the load paths different? (Civil)	
18. Were warping and distortion considered when designing the rack bracing modification? (Civil/GC)	
19. Does the new anchorage and other rack modifications affect the seismic analysis and qualification of the original racks? In particular, the tension and compression aspects arising from rack rocking should be addressed. (Civil)	
20. Considering the limited access, how can we be assured that the anchorage weldments will be of good quality and able to transfer the design laods? (GC)	
21. What type of analysis was originally performed for the racks? What was done recently which caused the changes? How did we consider the interaction of the	

TELEPHONE CALLS

ROUTE

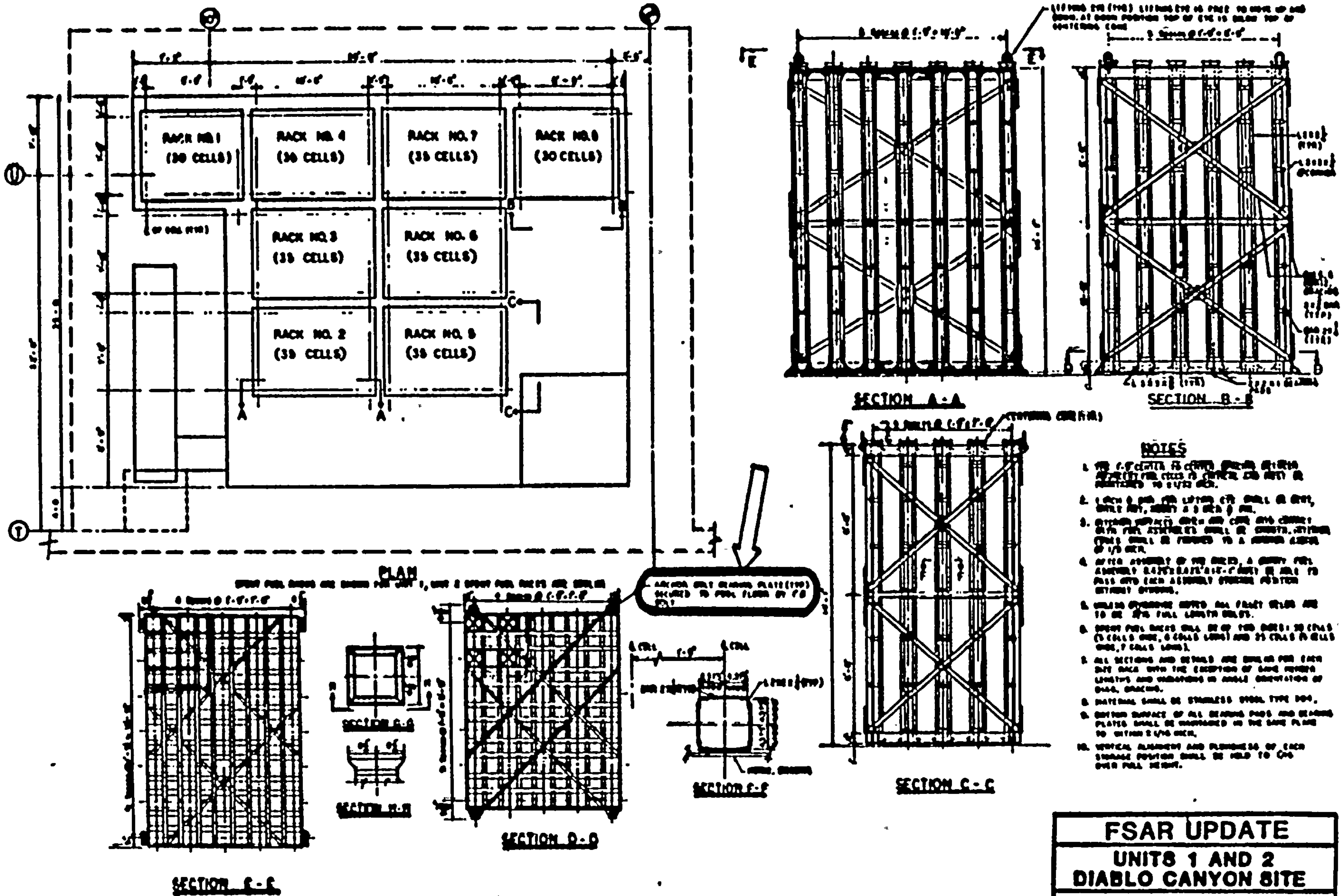
FROM	OF	FILE 026.14	DATE 9/
TO	OF	JOB NO. 15320	TIME 1:

ITEMS OF DISCUSSION	ACTION REQ'D. (INCLUDE NAMES & D
8 rack modules as part of the original qualification of the racks? (Civil)	
A meeting was scheduled for September 10, 1986 in Bethesda to discuss these qustions.	
DWOgden:ry	

01003811

ENCLOSURE 5

PG&E Viewgraphs Used at Meeting September 10, 1986
(11 pages)

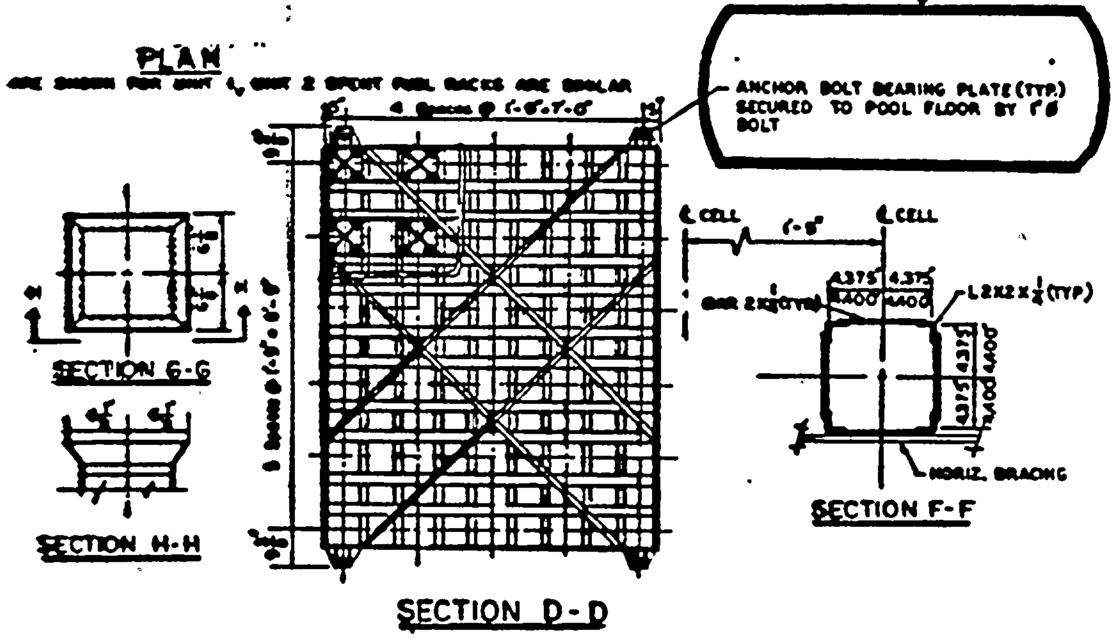


FSAR UPDATE

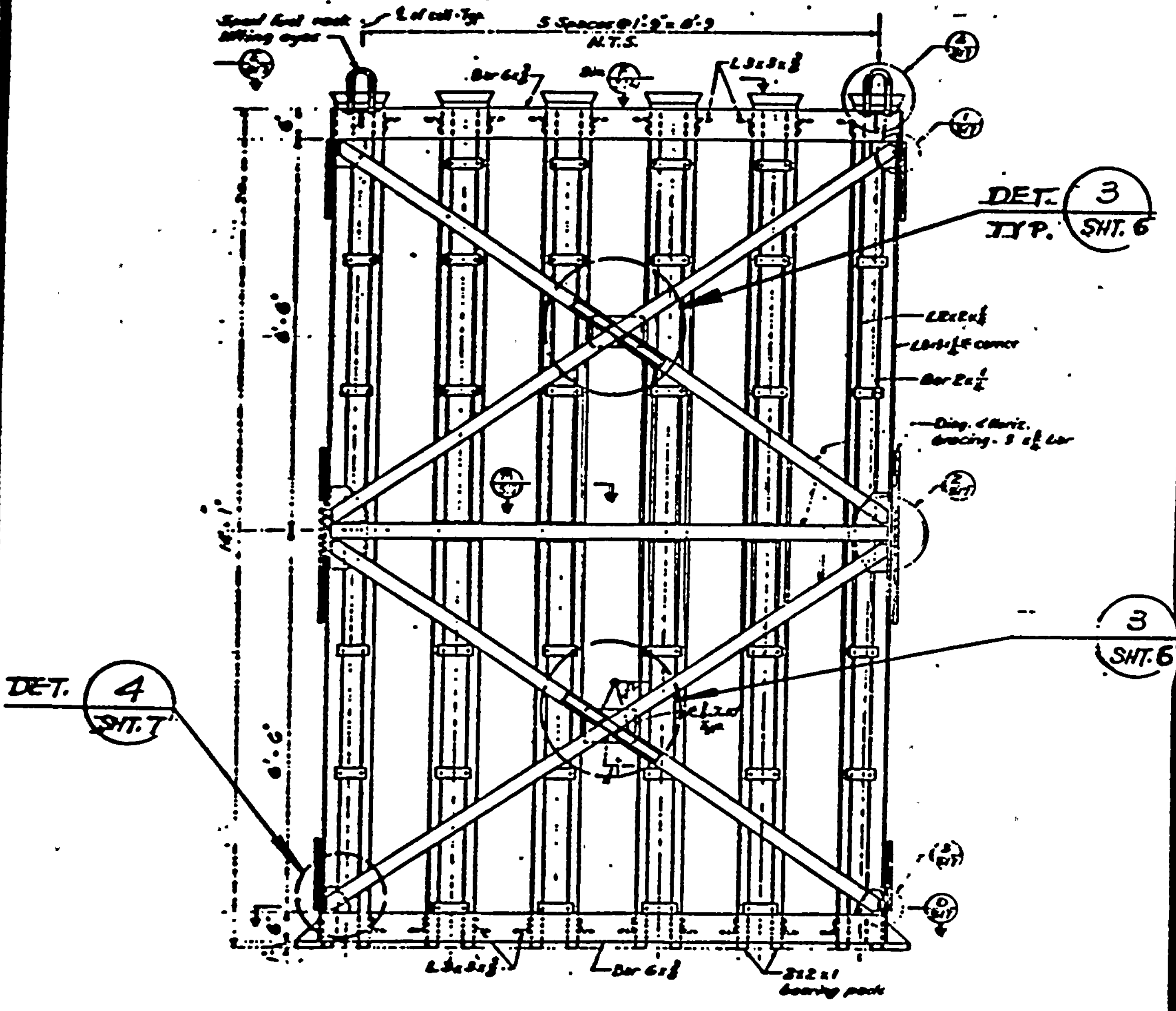
UNITS 1 AND 2
DIABLO CANYON SITE

FIGURE 9.1-2
SPENT FUEL STORAGE

DELETE REFERENCE TO 1" Ø BOLT



PROPOSED FSAR CHANGE



SECTION B SHT 4

BACKGROUND

- RACKS ORIGINALLY DESIGNED IN 1970 FOR DE AND DDE LOADING CONDITIONS
- RACKS CHECKED FOR POSTULATED HOSGRI EVENT USING ORIGINAL METHODOLOGY
- DESIGN AND DESIGN METHODOLOGY REVIEWED AND ACCEPTED BY NRC (PER SER, OCT. 16, 1974)

EXTRACTED FROM SER, OCTOBER 16, 1974

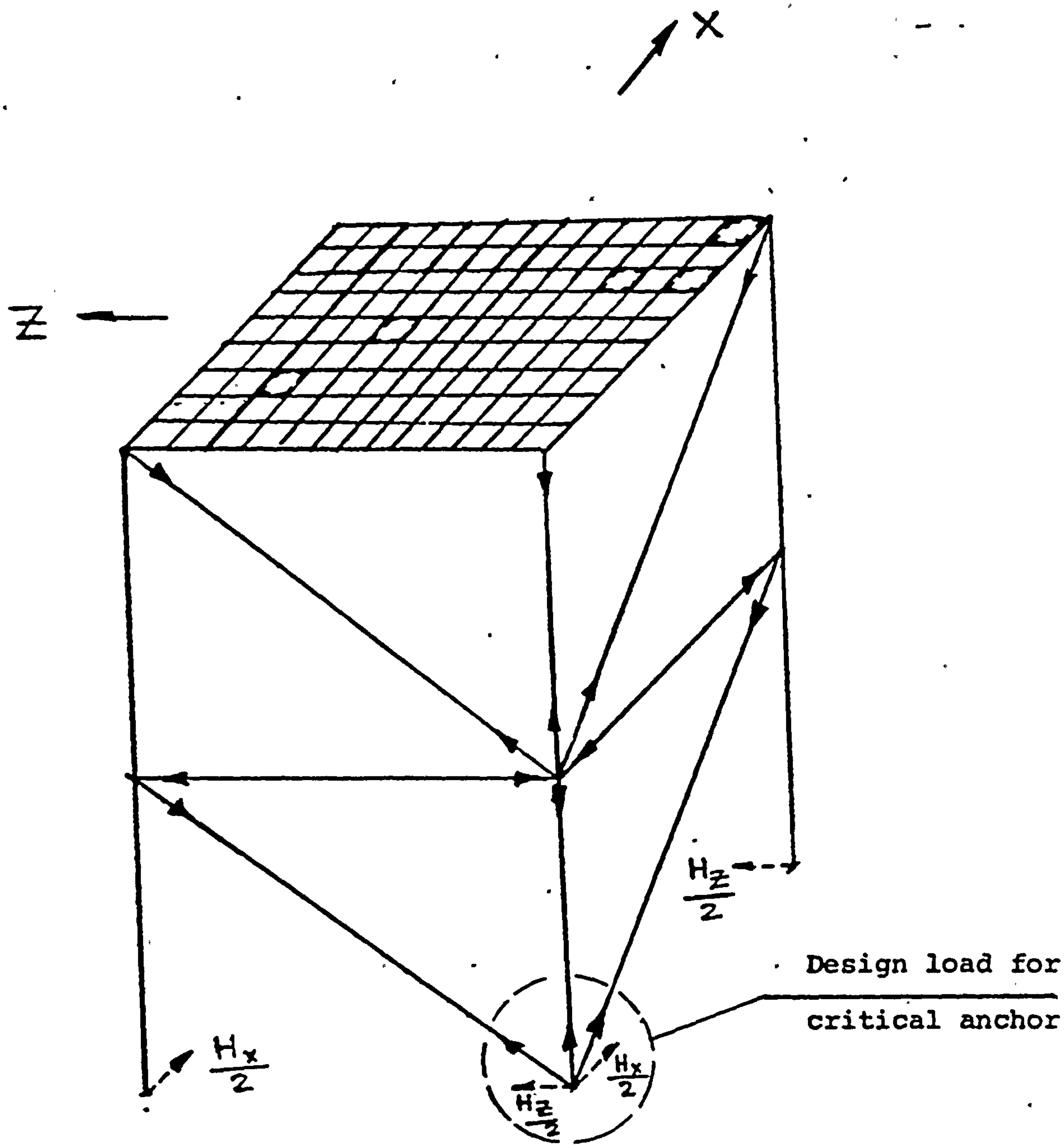
New and Spent Fuel Storage

Fuel handling and storage facilities for each unit are provided for storage and transfer of new and spent fuel. Spent fuel will be stored underwater in the spent fuel storage pool and new fuel will be stored dry in the new fuel storage area. The new and spent fuel storage racks are designed to prevent assemblies from being placed in other than prescribed locations. The new fuel storage area accomodates one-third of a core and the spent fuel pool accomodates a full core plus the normal quantity of spent fuel assemblies from the reactor during refueling (usually one-third of a core). The fuel is stored in a vertical array with sufficient center-to-center distance between assemblies to assure that k_{eff} will not exceed 0.90, even if unborated water is used to fill the pool.

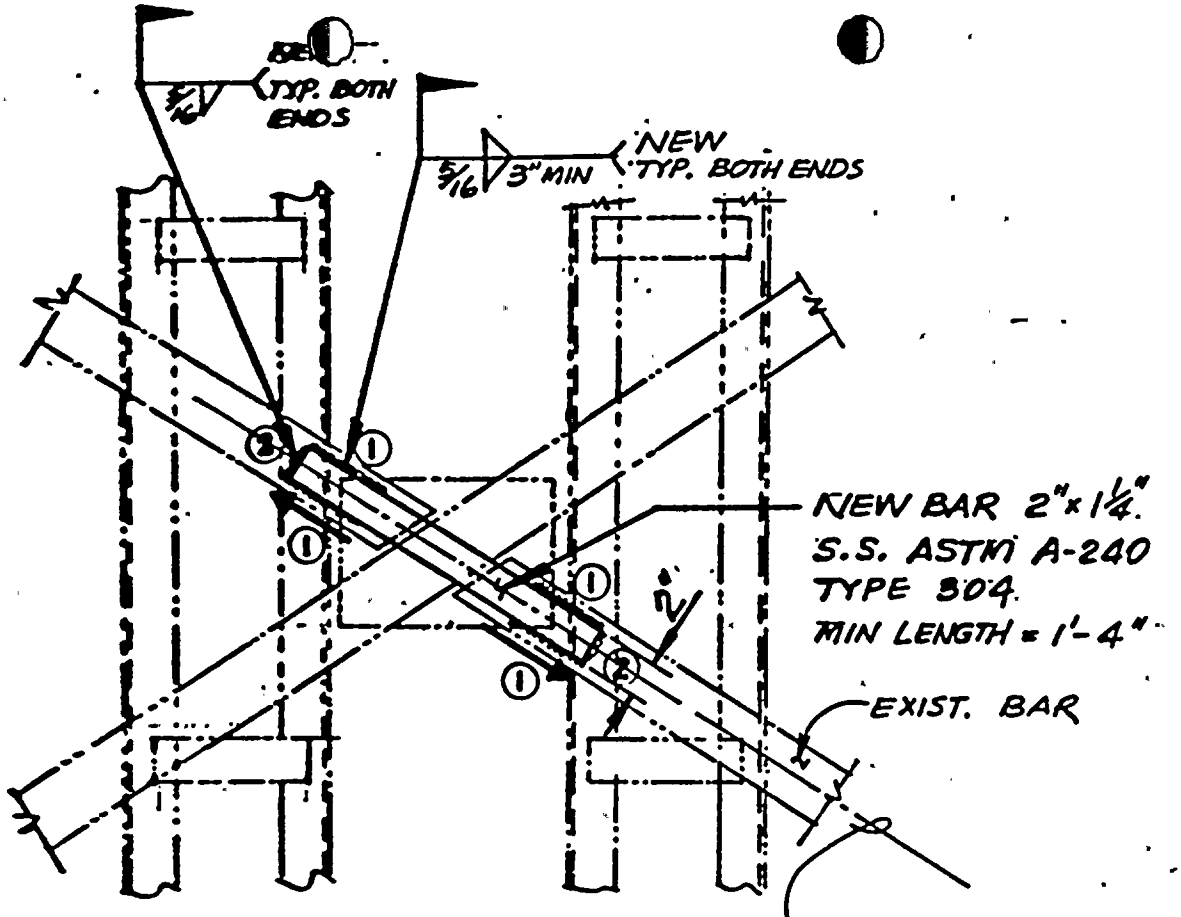
We conclude that the designs of the new and spent fuel storage facilities are acceptable.

9

- RACKS RE-EVALUATED FOR DE, DDE AND HOSGRI LOADING CONDITIONS IN 1986, USING ORIGINAL METHODOLOGY, AND SHOWN TO BE ADEQUATE.



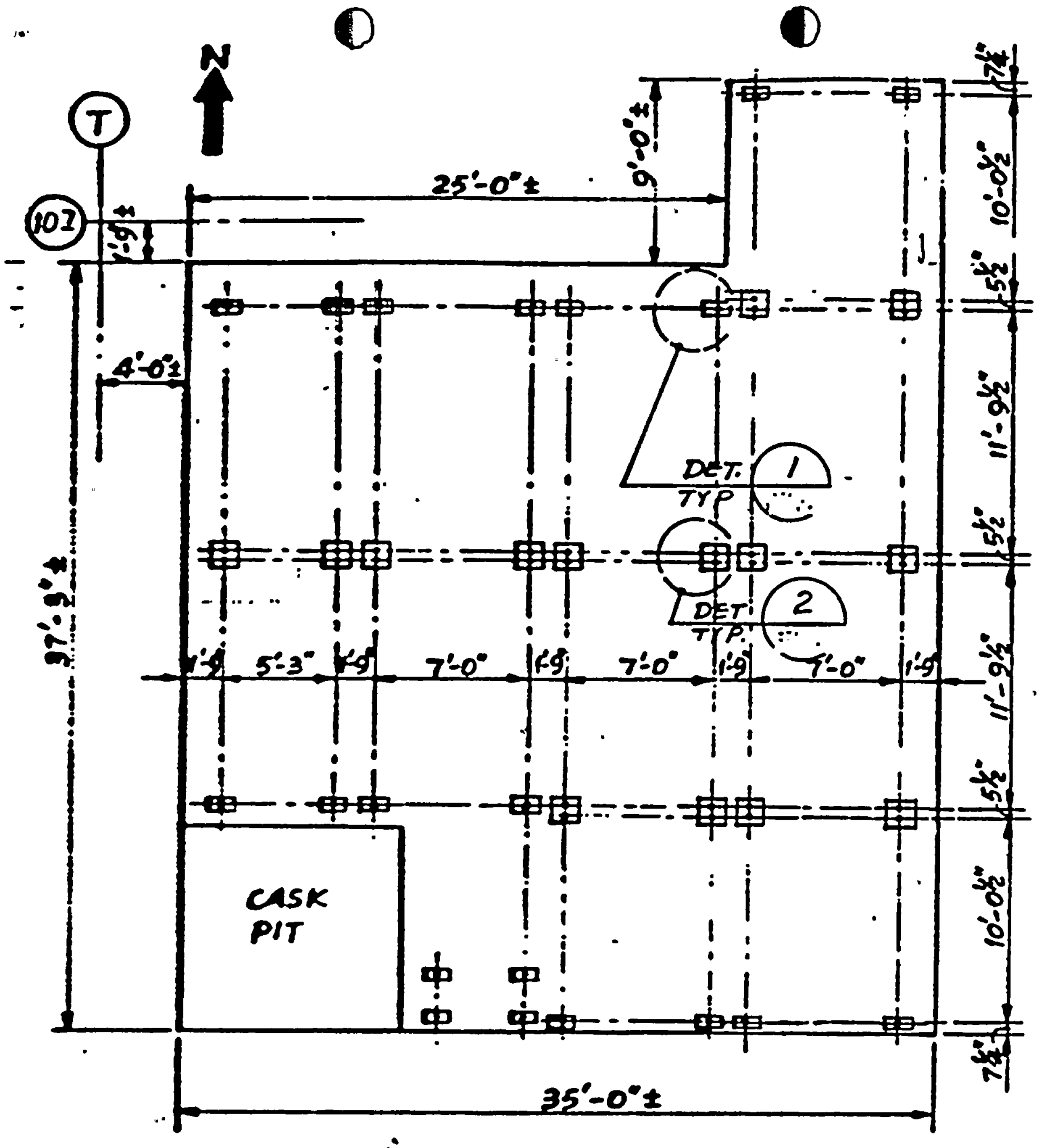
ISOMETRIC TYP. RACK



BRACING REINF. DETAIL

PROCEDURE TO MINIMIZE DISTORTION

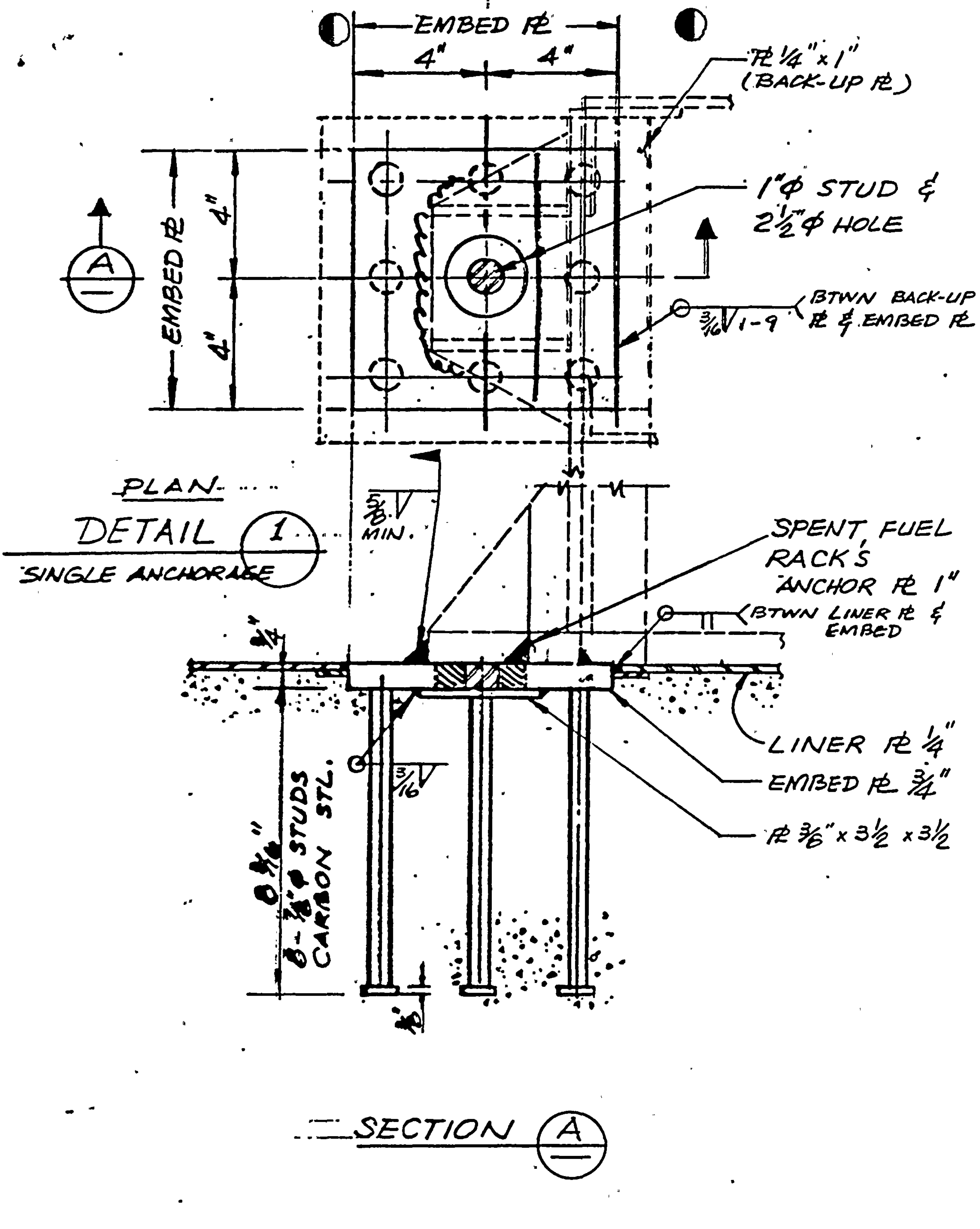
These welds should be made by welding toward the "free" or unrestrained end or section (i.e. the side welds at one end should be welded first, then the opposite end side welds followed by the end welds as shown).



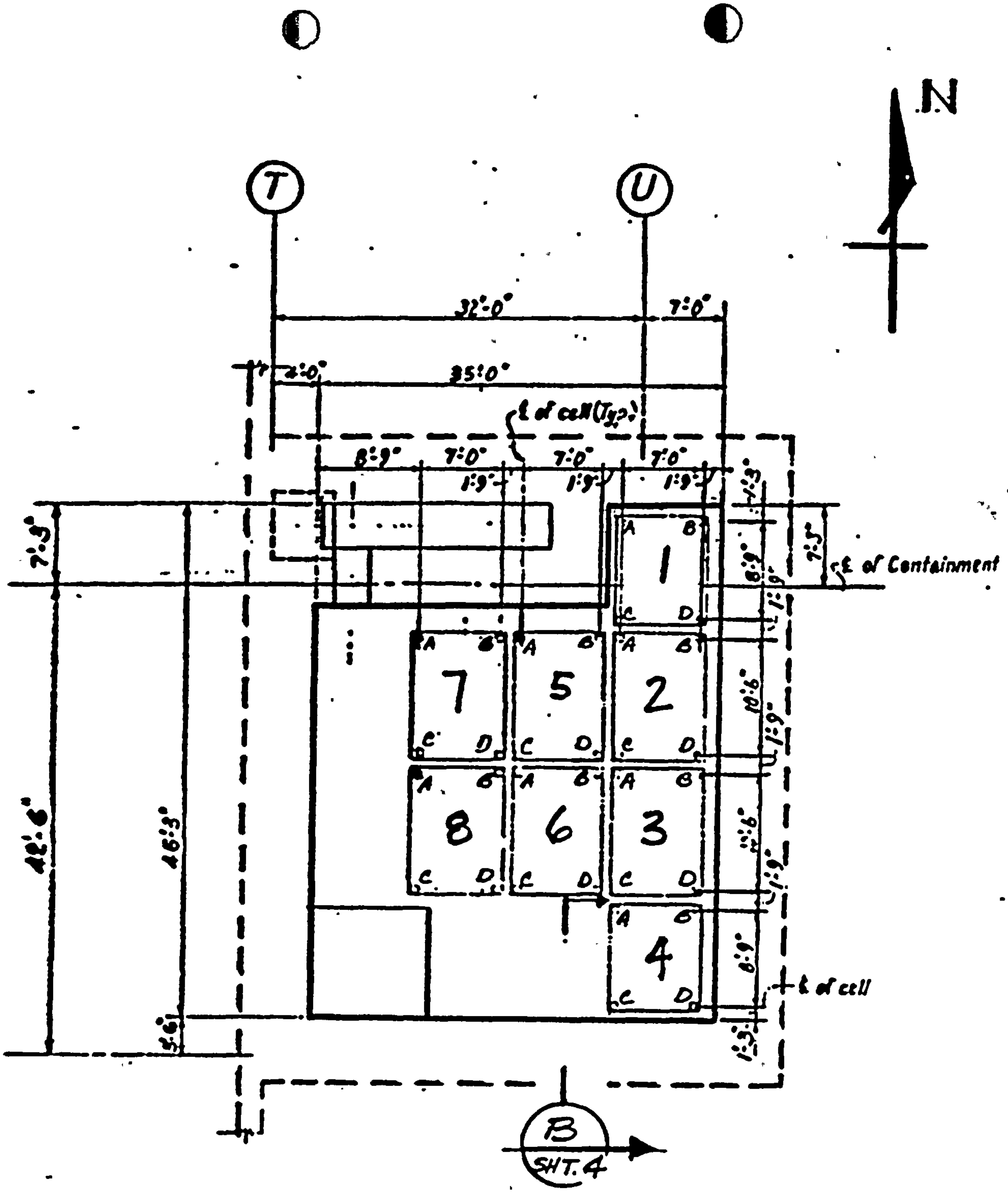
SPENT FUEL POOL PLAN @ ELEV. 99'

EMBED PL LOCATION PLAN

9


EMBED PL
4"
4"
PL 1/4" x 1"
(BACK-UP PL)
1"Φ STUD &
2½"Φ HOLE
A
EMBED PL
4"
4"
3/16 1-9
BTWN BACK-UP PL & EMBED PL
PLAN
DETAIL 1
SINGLE ANCHORAGE
5/8 MIN.
SPENT FUEL RACK'S ANCHOR PL 1"
BTWN LINER PL & EMBED
LINER PL 1/4"
EMBED PL 3/4"
PL 3/8" x 3½ x 3½
3/16
8-7/8"Φ STUDS CARBON STL.
SECTION A

10



SPENT FUEL STORAGE RACKS
LOCATION PLAN @ EL 99'
AUX BLDG