



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

JAN 19 2000

Mr. C. L. Terry
TXU Electric
Senior Vice President & Principal Nuclear Officer
ATTN: Regulatory Affairs Department
P.O. Box 1002
Glen Rose, Texas 76043

SUBJECT: PUBLIC MEETING CONDUCTED ON JANUARY 13, 2000

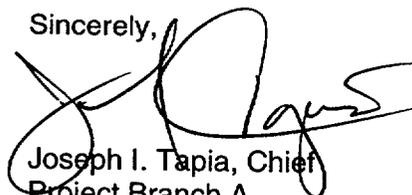
Dear Mr. Terry:

This refers to the meeting conducted at the Comanche Peak Steam Electric Station on January 13, 2000. This meeting related to your staff's performance during the seventh refueling outage for Unit 1. The information provided at the meeting was useful in providing us with your assessment of your performance during the outage, including the unplanned descent of Reactor Coolant Pump Motor 1-03. Our review of this event will be more fully documented in NRC Inspection Report 50-445/99-18; 50-446/99-18.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the NRC's Public Document Room.

Should you have any questions concerning this matter, we will be pleased to discuss them with you.

Sincerely,



Joseph I. Tapia, Chief
Project Branch A
Division of Reactor Projects

Enclosures:

1. Attendance List
2. Licensee Presentation

cc:

Roger D. Walker
TXU Electric
Regulatory Affairs Manager
P.O. Box 1002
Glen Rose, Texas 76043

TXU Electric

-2-

Juanita Ellis
President - CASE
1426 South Polk Street
Dallas, Texas 75224

George L. Edgar, Esq.
Morgan, Lewis & Bockius
1800 M. Street, NW
Washington, D.C. 20036

G. R. Bynog, Program Manager/
Chief Inspector
Texas Department of Licensing & Regulation
Boiler Division
P.O. Box 12157, Capitol Station
Austin, Texas 78711

County Judge
P.O. Box 851
Glen Rose, Texas 76043

Chief, Bureau of Radiation Control
Texas Department of Health
1100 West 49th Street
Austin, Texas 78756-3189

John L. Howard, Director
Environmental and Natural Resources Policy
Office of the Governor
P.O. Box 12428
Austin, Texas 78711-3189

TXU Electric

JAN 19 2000

bcc to DCD (IE45)

bcc distrib. by RIV:

Regional Administrator

DRP Director

DRS Director

Branch Chief (DRP/A)

Project Engineer (DRP/A)

Branch Chief (DRP/TSS)

Resident Inspector (2)

RIV File

RITS Coordinator

C. Hackney

B. Henderson

DOCUMENT NAME: R:_CPSES\CP1-13MS-DRP.wpd

To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

RIV:SPE:DRP/A	C:DRP/A						
DNGraves;df	JITapia						
1/19/00	1/19/00						

OFFICIAL RECORD COPY

TXU Electric

JAN 19 2000

bcc to DCD (IE45)

bcc distrib. by RIV:

Regional Administrator

DRP Director

DRS Director

Branch Chief (DRP/A)

Project Engineer (DRP/A)

Branch Chief (DRP/TSS)

Resident Inspector (2)

RIV File

RITS Coordinator

C. Hackney

B. Henderson

DOCUMENT NAME: R:_CPSES\CP1-13MS-DRP.wpd

To receive copy of document, indicate in box: "C" = Copy without enclosures "E" = Copy with enclosures "N" = No copy

RIV:SPE:DRP/A	C:DRP/A							
DNGraves;df	JITapia							
1/19/00	1/19/00							

OFFICIAL RECORD COPY

ENCLOSURE 1

<u>NAME</u>	<u>TITLE</u>	<u>TEL.</u>	<u>ORG.</u>
Roger D. Walker	Regulatory Affairs Manager	254-897-8233	TXU
Matt Sunseri	Nuclear Training Mgr.	(254)897-5688	TXU
MIKE BLEVINS	VP, Nuclear Operations	254-897-5209	TXU
BOBBY BIRD	PLANT Support MGR	254-897-5267	TXU
MURK REIMER	TECH SUPPORT MGR	254-897-6681	TXU
John Taylor	Design Basis Spk	254-897-6260	TXU
John Curtis	Radiation Prot. Manager	897-5332	TXU
KARL WARKENTIN	CONSULTING RAD. ANK. ENG.	254-897-8642	TXU
TOM LEVY	OUTAGE SUPPORT COORD	254-897-0618	TXU
Daniel Wilder	Radiation & Industrial Safety Mgr.	254-897-5541	TXU
Mickey R Killgore	Reactor Engg Mgr	254-897-0703	TXU
Donald R. Woodlan	Docket Licensing Mgr	254-897-6887	TXU
Chuck Feist	Consulting Engineer	254-897-0600	TXU
Harold W. Gutzman	W site Director	254-897-0981	W
Charles Cotton	DAY SHIFT MANAGER	254-897-6470	TXU
JEFF HULL	FUEL HANDLING WORK WINDOW MGR	254-897-0890	TXU
Bill Wells	NOD Root Cause Analyst	254-897-5975	TXU
John Audas	SAFE Team Mgr.	254-897-8786	TXU
DAN TIRSON	Risk + Reliability Eng.	254-897-0865	TXU
GARY MCKA	REG. AFFAIRS	254-897-6617	TXU
Ben Mays	Eng. Programs Mgr	254-897-6016	TXU
STEVEN KARPVAK	RISK; RELIABILITY	254-897-8047	TXU
DOUGLAS L DAVIS	NUCLEAR OVERVIEW	254-897-5284	TXU
MITCH LUCAS	MAINT. MGR	254-897-6731	TXU
DAVE MOORE	OPS MGR	254-897-5398	TXU
RANDY BYRD	MAINT SUPP MGR	" " 8322	TXU
LANCE TERRY	SENIOR VP & PRINCIPAL NUC OFF	254-897-8920	TXU
DAVE KROSS	OUTAGE MGR	254-897-8603	TXU

1. The first part of the report	describes the current situation	and the reasons for the problem.
2. The second part of the report	describes the proposed solution	and the benefits of the solution.
3. The third part of the report	describes the implementation plan	and the timeline for the solution.

4. The fourth part of the report	describes the monitoring and evaluation	process for the solution.
5. The fifth part of the report	describes the conclusion and	recommendations for the future.

6. The sixth part of the report	describes the budget and	financial requirements for the solution.
7. The seventh part of the report	describes the risk management	plan for the solution.

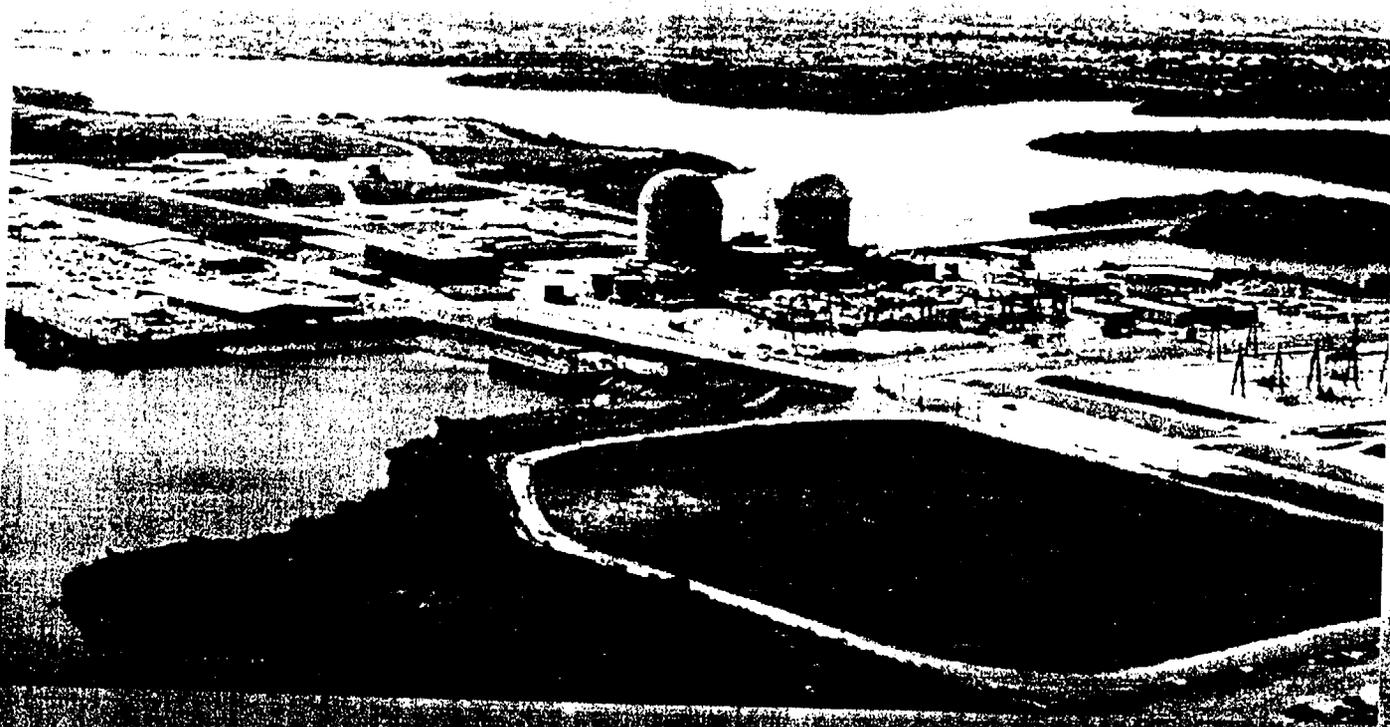
8. The eighth part of the report	describes the communication	and stakeholder engagement plan.
9. The ninth part of the report	describes the overall findings	and conclusions of the report.

Scott Schwand
 Tony Goad
 Joe Tapia
 Ellis Merschhoff
 KRC

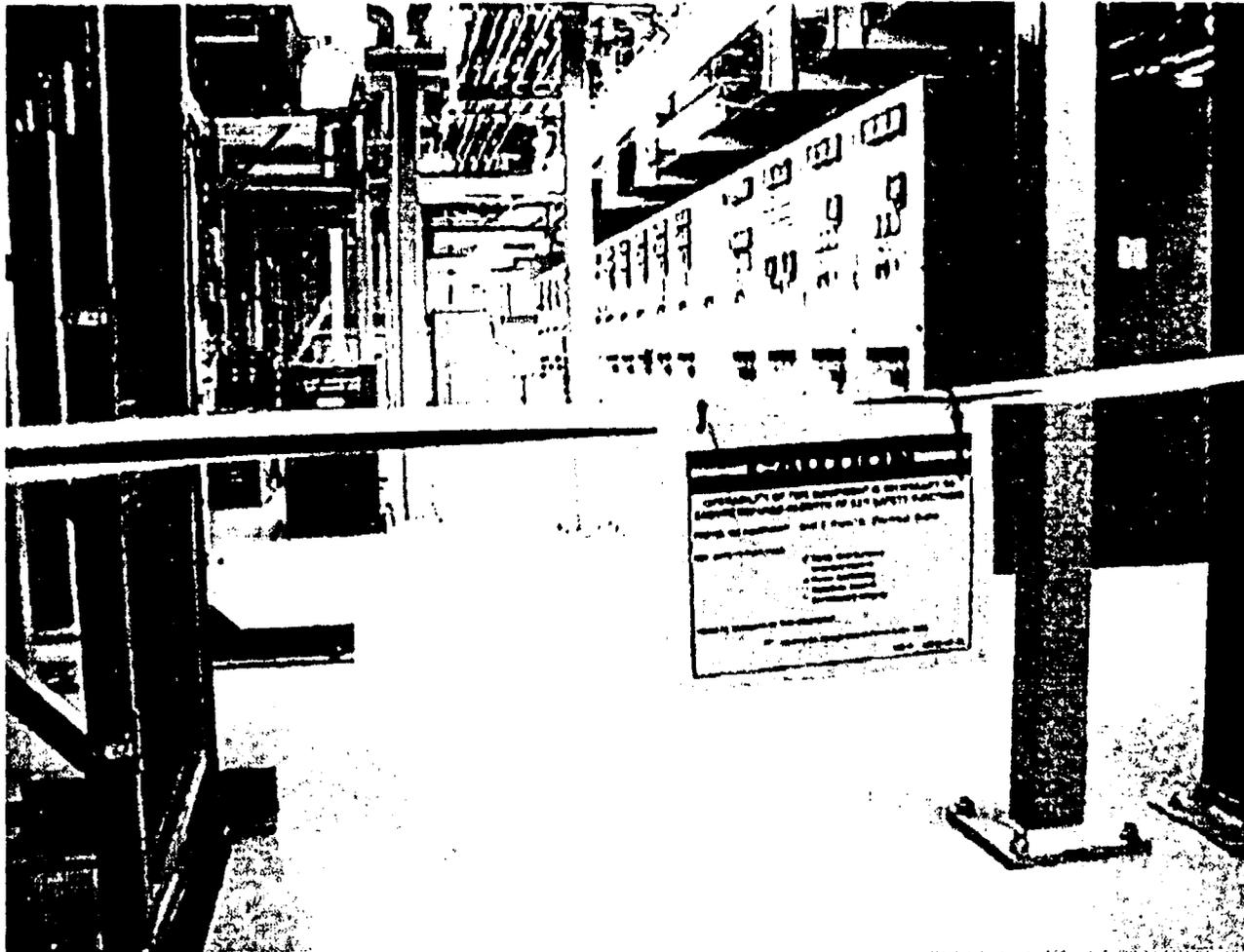


TXU Electric

Comanche Peak Refueling Outage



CPSES Refueling Outage Successes



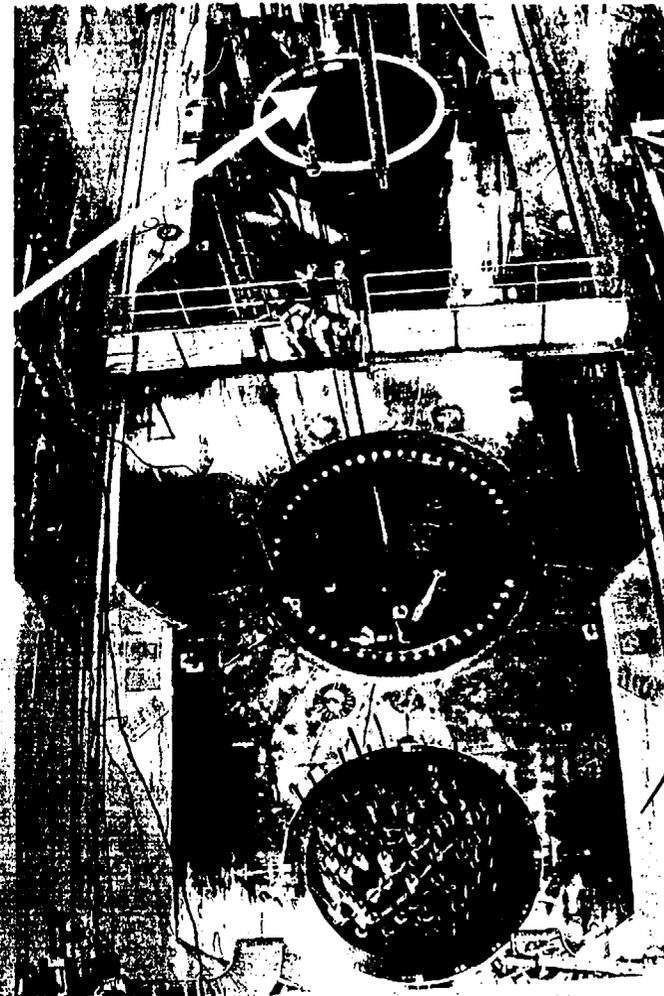
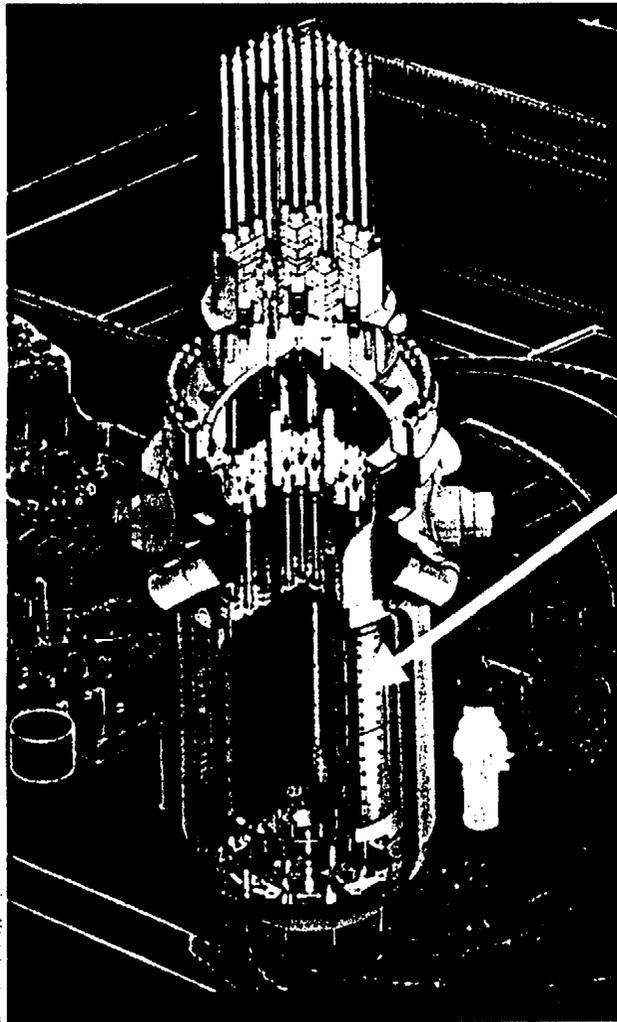
CPSES Refueling Outage Successes



CPSES Refueling Outage Successes



CPSES Refueling Outage Successes



CPSES Refueling Outage Lessons Learned



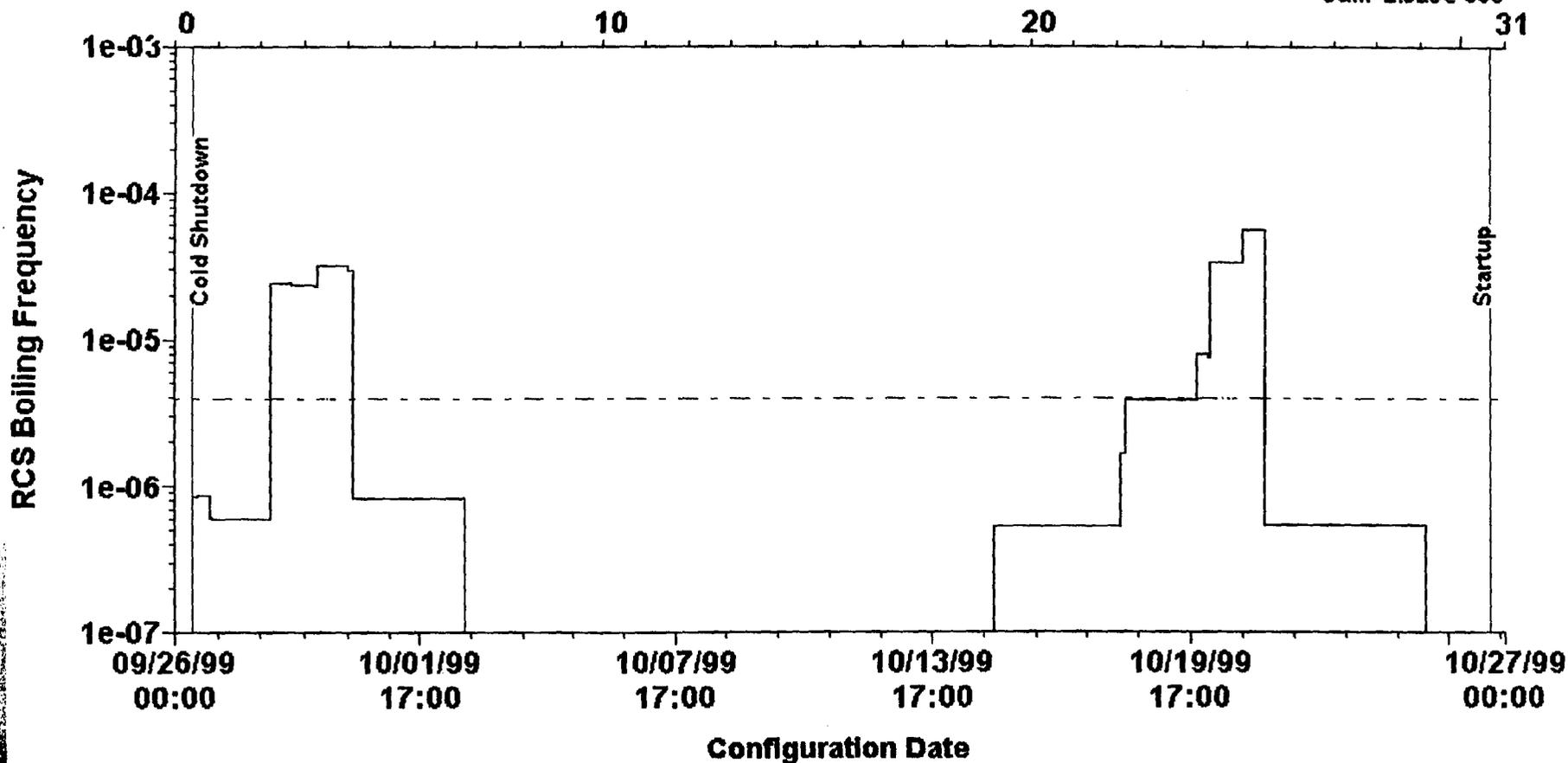
ORAM-SENTINEL
Version 3.1

Date: 08/09/99 14:44
Model: 1RF07RA1

RCS BOILING RISK

RCSBOIL
Shutdown Days

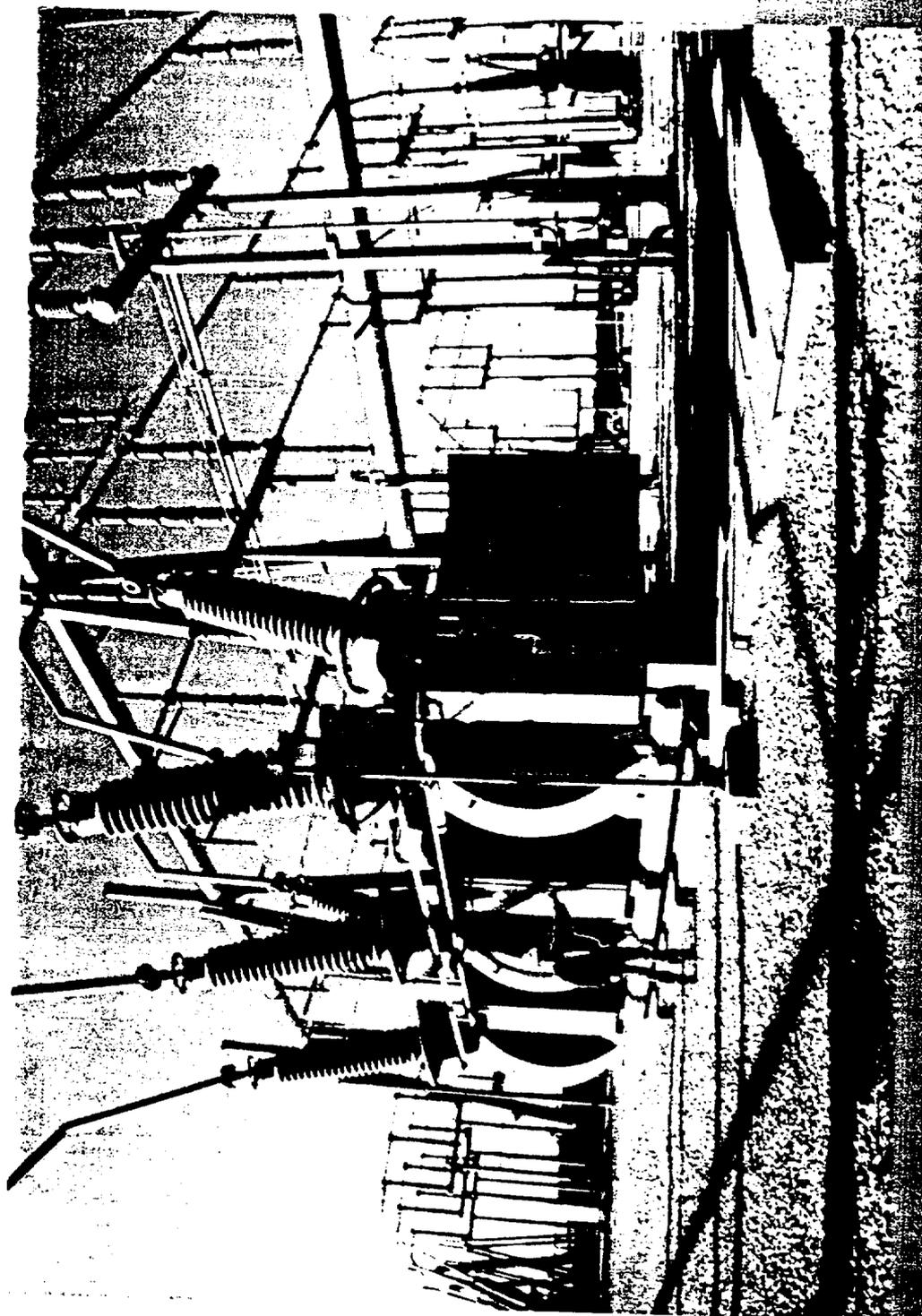
Avg=3.937e-006
Cum=2.929e-003



CPSES Refueling Outage Lessons Learned



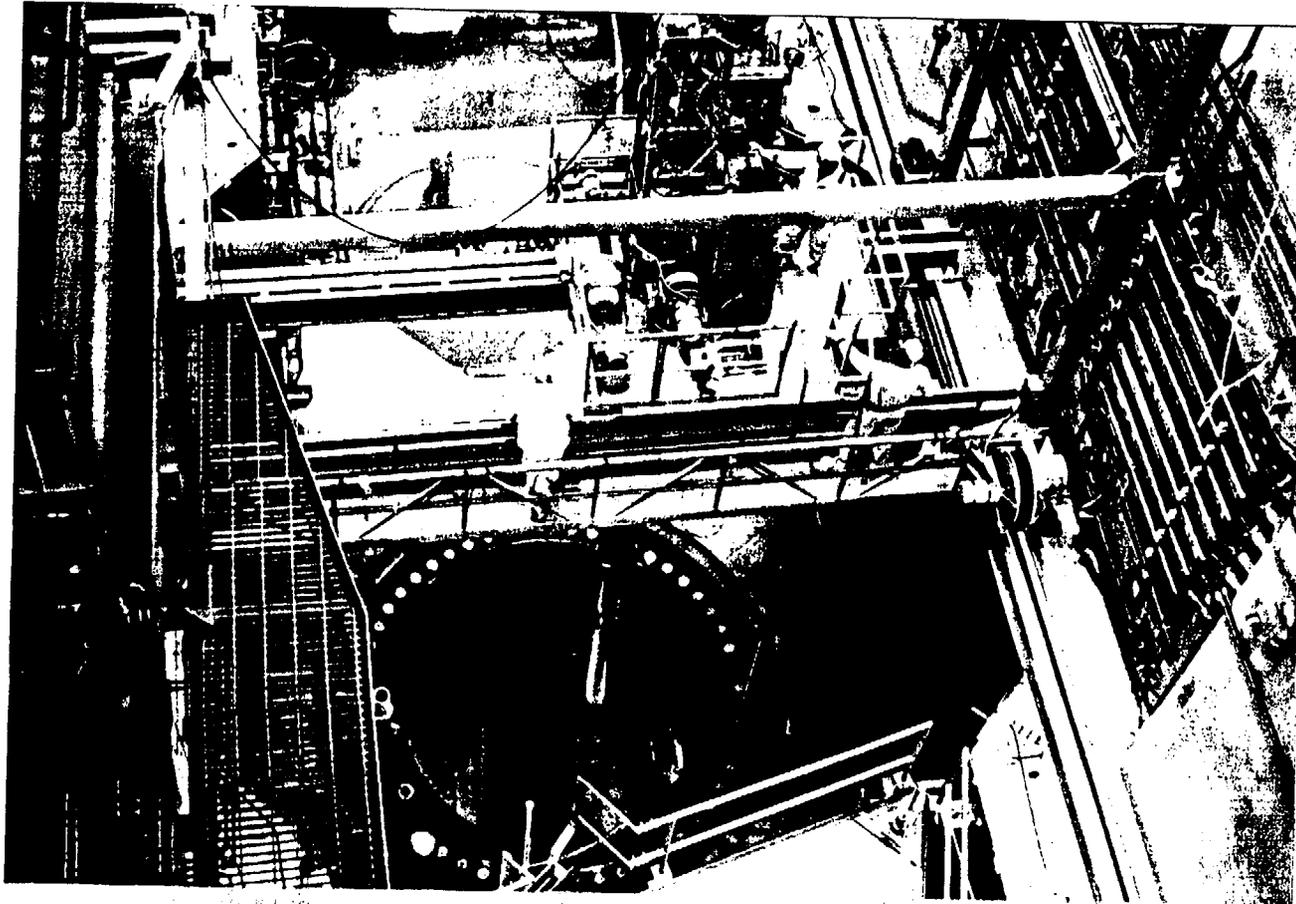
TXU



CPSES Refueling Outage Lessons Learned



CPSES Refueling Outage Challenges



CPSES Refueling Outage Challenges





TXU Electric

Plant Incident Report 1999-2650

*Unplanned descent of Unit 1
Reactor Coolant Pump Motor 1-03*

Objective of Work Activity

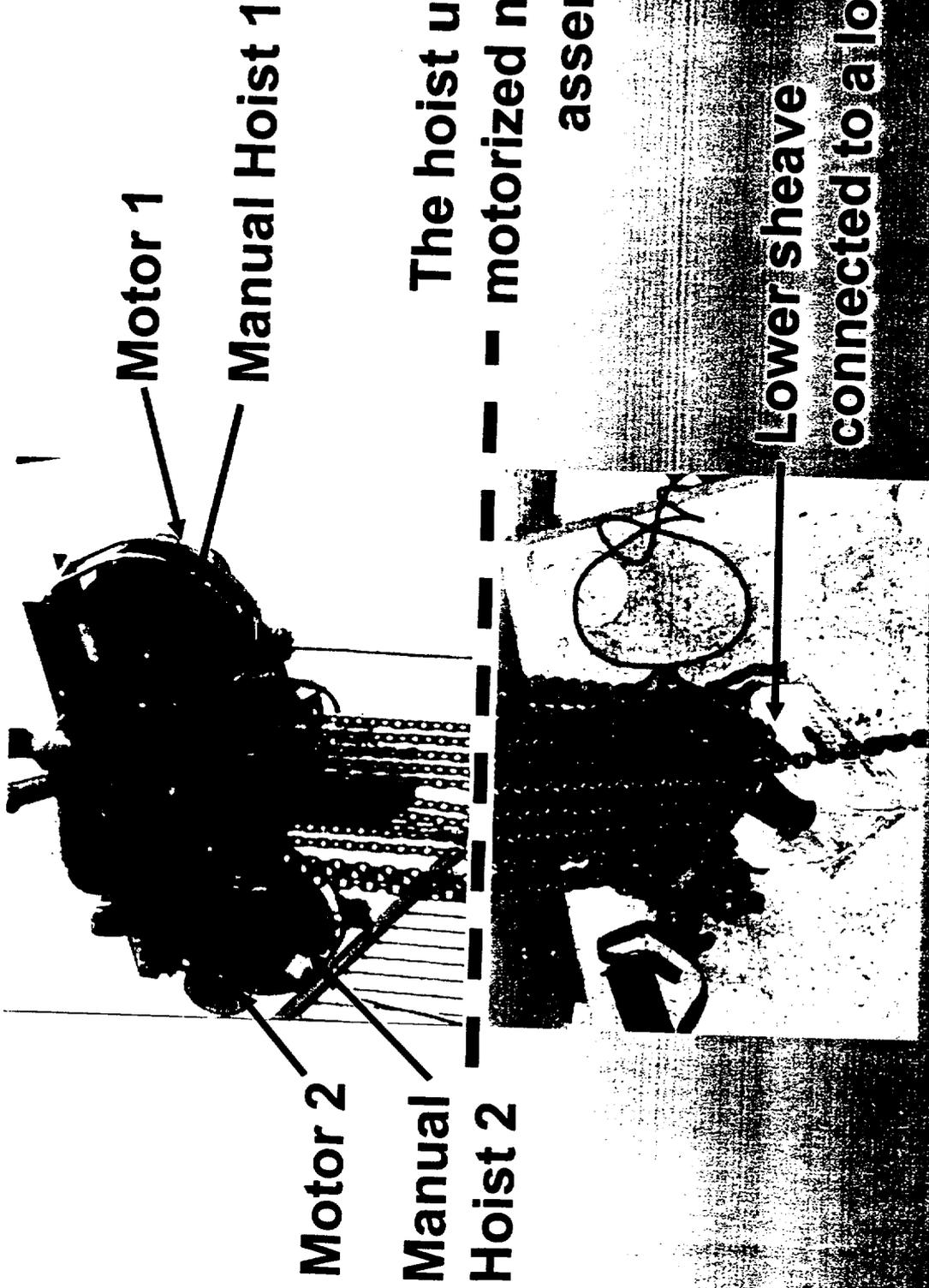


- **Remove RCP 1-03 motor and replace with RCP smart motor.**
- **Fifth RCP motor to be replaced with smart motor.**
- **Previous evolutions completed using one or the other of the two hoist units (CP1/CP2-MEMHCH-42).**

Composite of RCP Hoist Unit



Hoist Unit CP2-MEMHCH-42



The hoist unit is a dual motorized manual hoist assembly.

Preparations for the Activity



- **Pre-job inspection and functional test completed on this hoist before the outage.**
- **Functional test exceeded ANSI requirements.**
- **Before the lift, pre-job inspection was completed.**
- **Pre-job brief held.**
- **All-page announcement made related to lift.**

Event Description



- **At about the 875' level in containment, one of the manual hoist assemblies failed resulting in about a 20 foot unplanned descent of RCP Motor 1-03.**
- **One chain link became lodged in the brass guide bar and stopped the motor descent.**
- **No plant equipment was damaged.**
- **No personnel were injured.**

Chain Link Caught in Sheave



Brass bar

Chain link caught



Safety Impact of Event



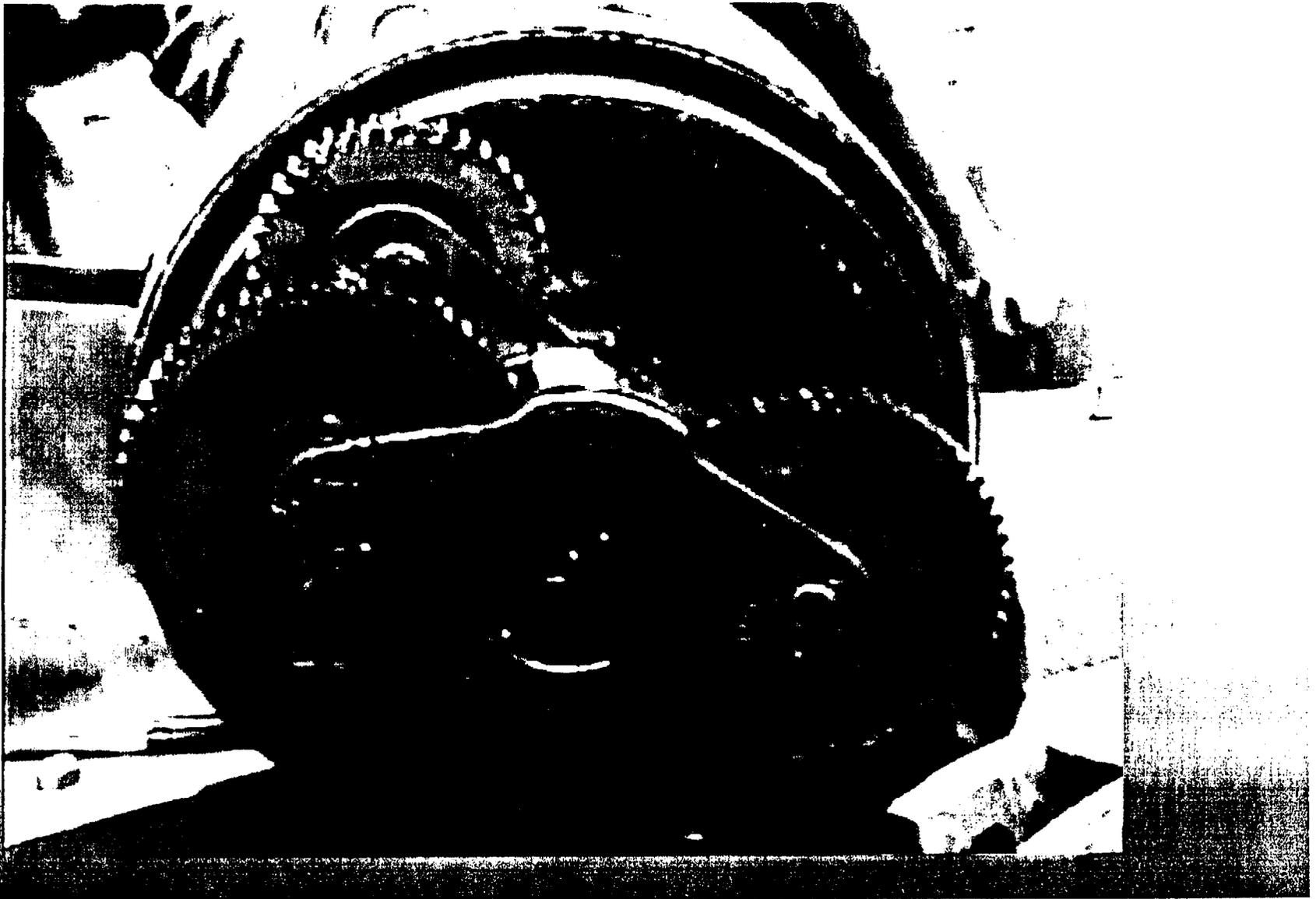
- **Worst case scenario would not have resulted in off-site releases of radiation.**
- **Worst case scenario is related to the potential for partially uncovering the core barrel and the radiological event confined to the containment building.**
- **No actual impact on the health and safety of the public.**

Conclusions



- **Improper re-assembly of the hoist after a site re-build left the spindle unit gear teeth partly engaged. Subsequent usage resulted in the spindle unit working its way out of the gear assembly until thread engagement was lost.**

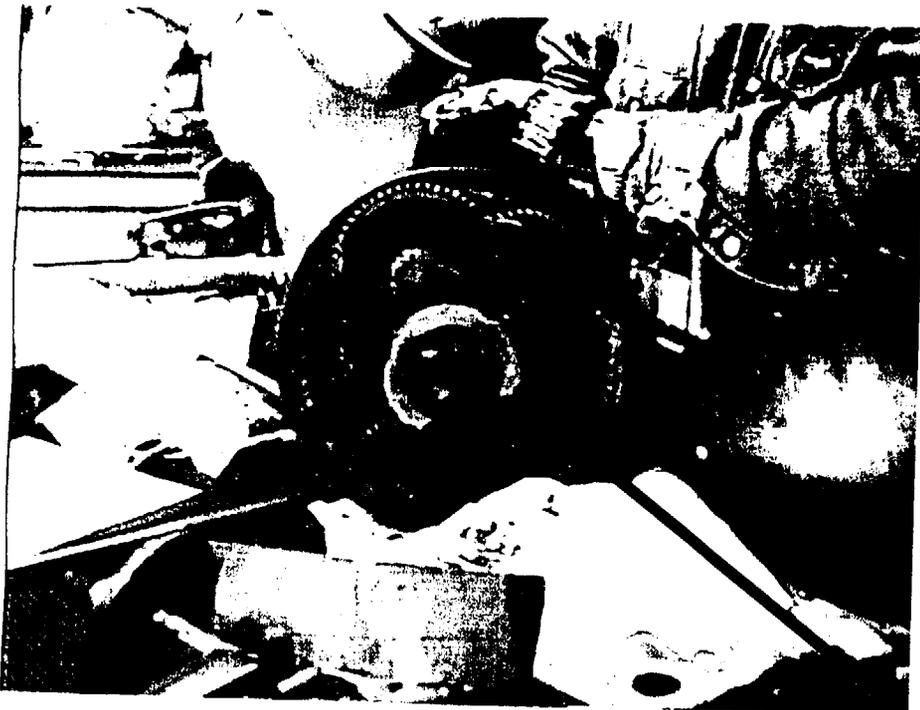
Gear Assembly from Good Hoist



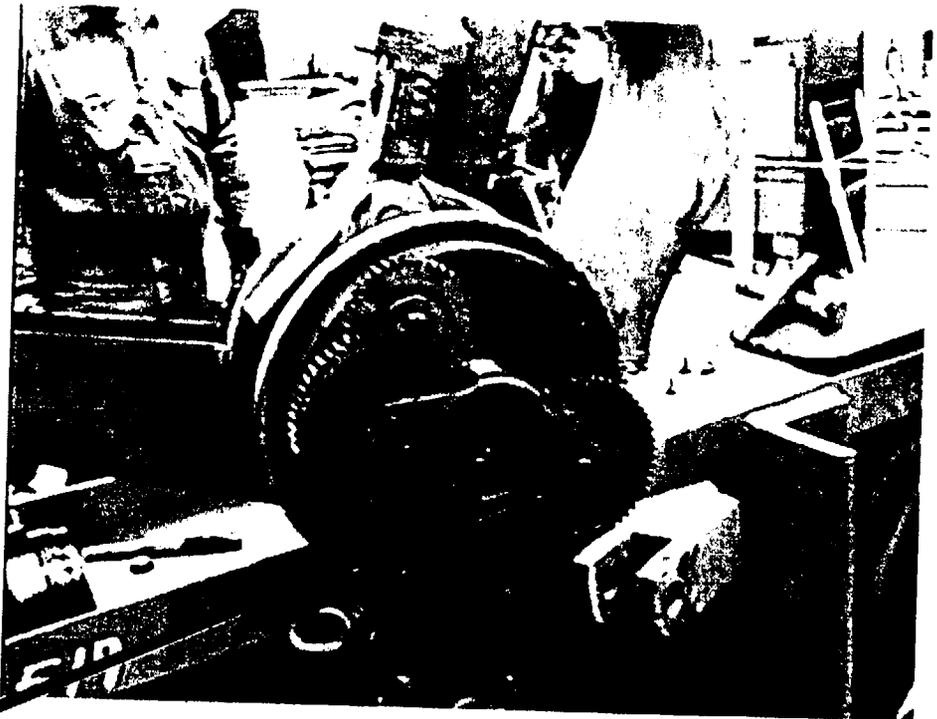
Comparison Between Gears



Damaged gear assembly

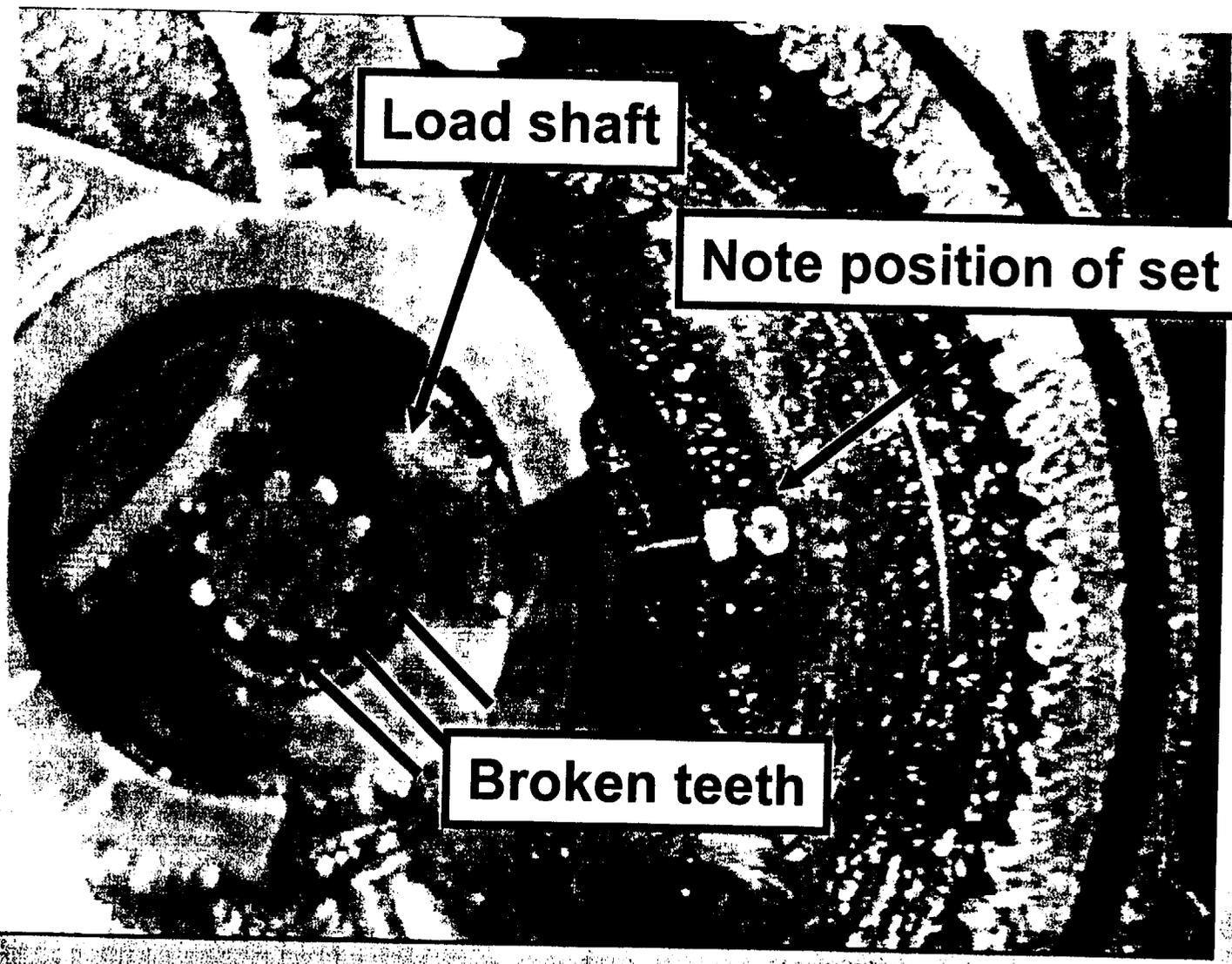


Undamaged gear assembly



Note broken & missing parts

Damaged Gear Assembly

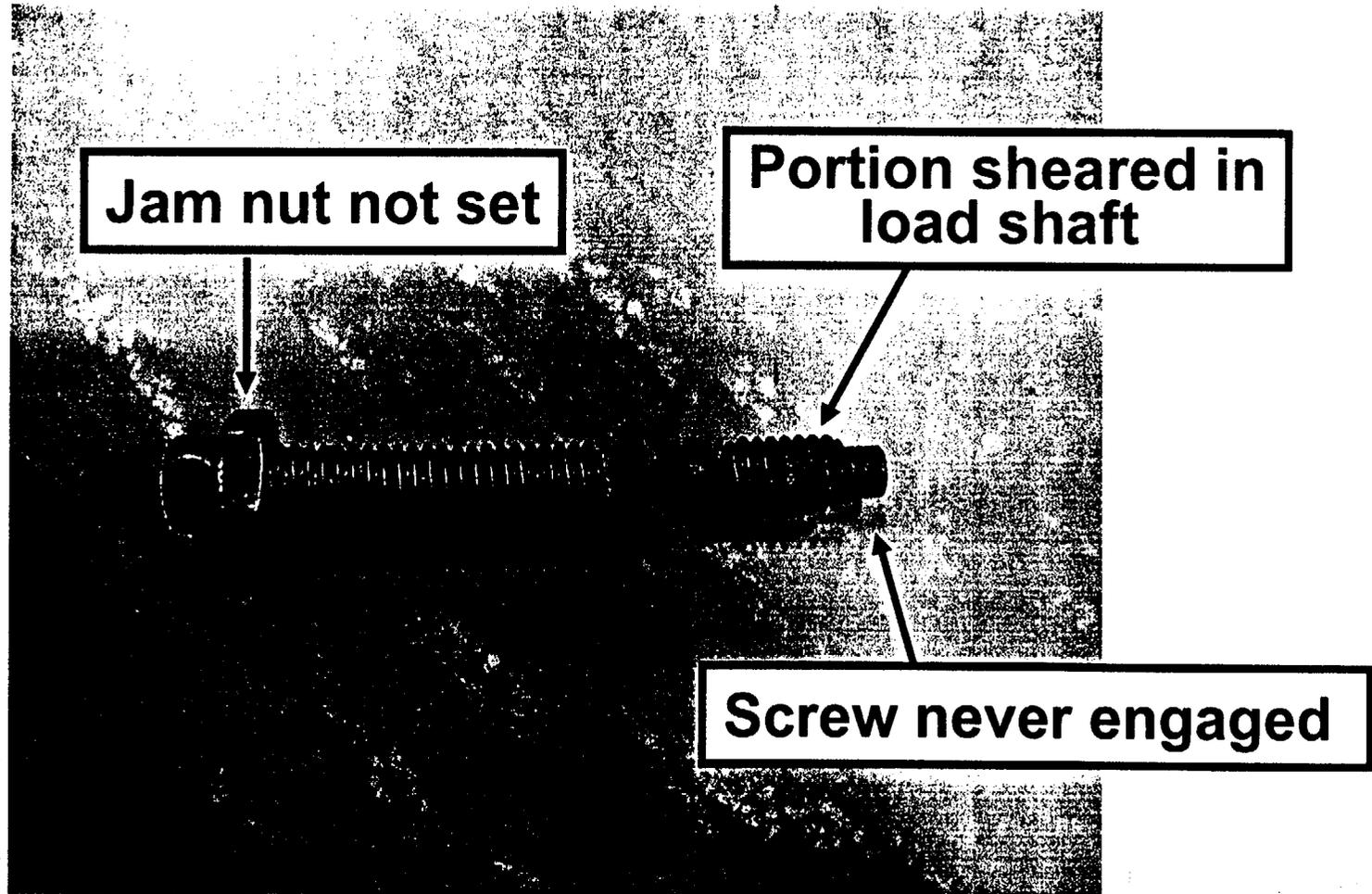


Load shaft

Note position of set screw

Broken teeth

Set Screw



Spindle Unit from Failed Hoist



Set screw goes in here

Note damage



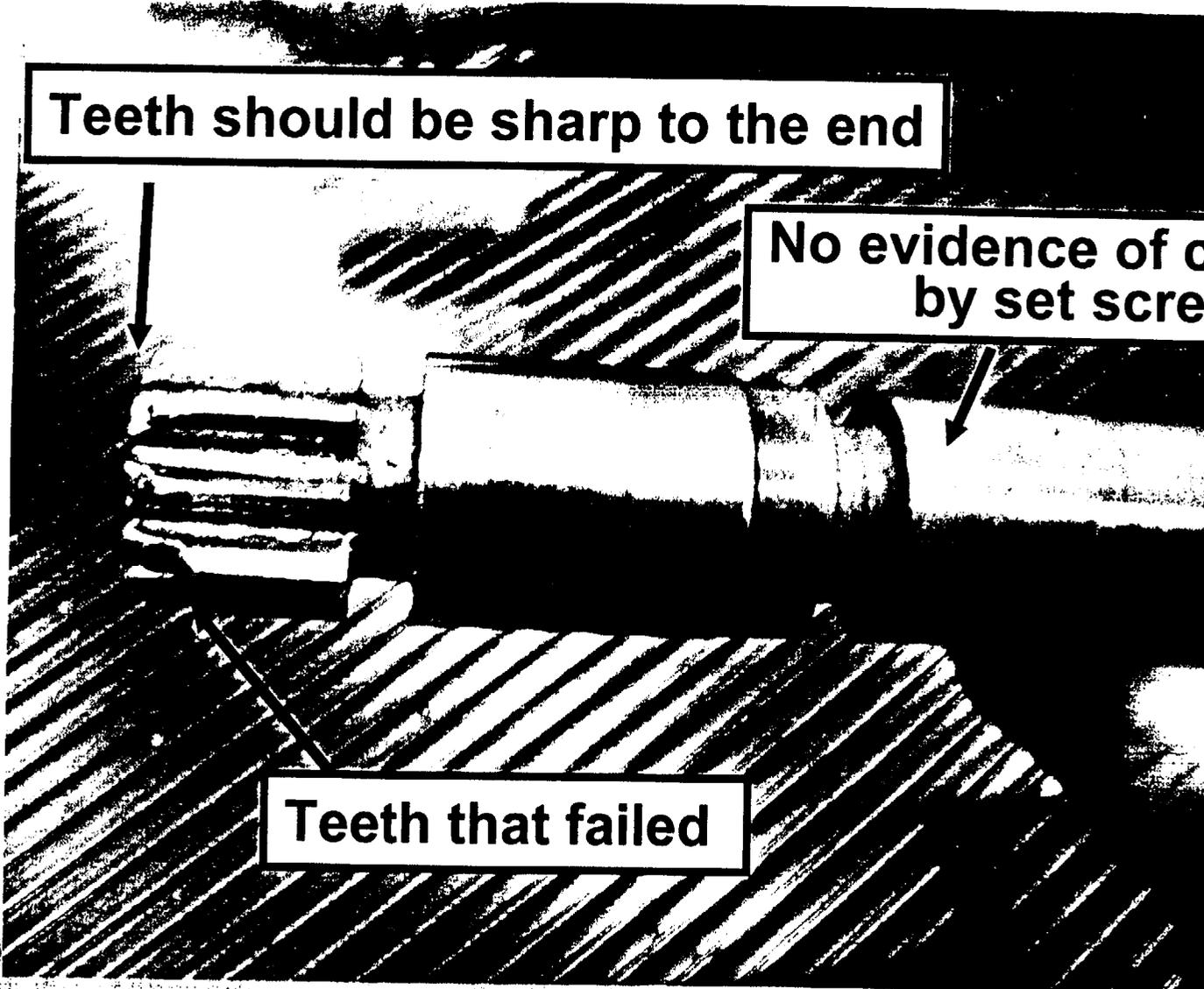
Damage to Spindle Teeth



Teeth should be sharp to the end

No evidence of contact
by set screw

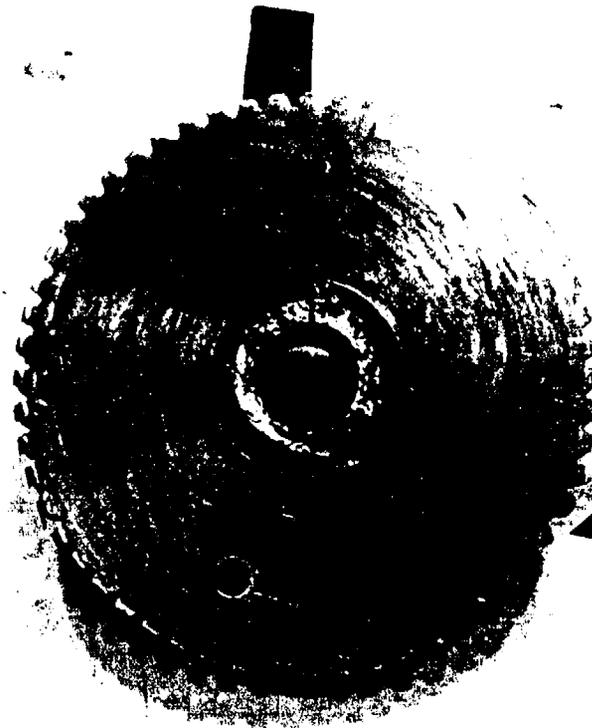
Teeth that failed



Failed Gear



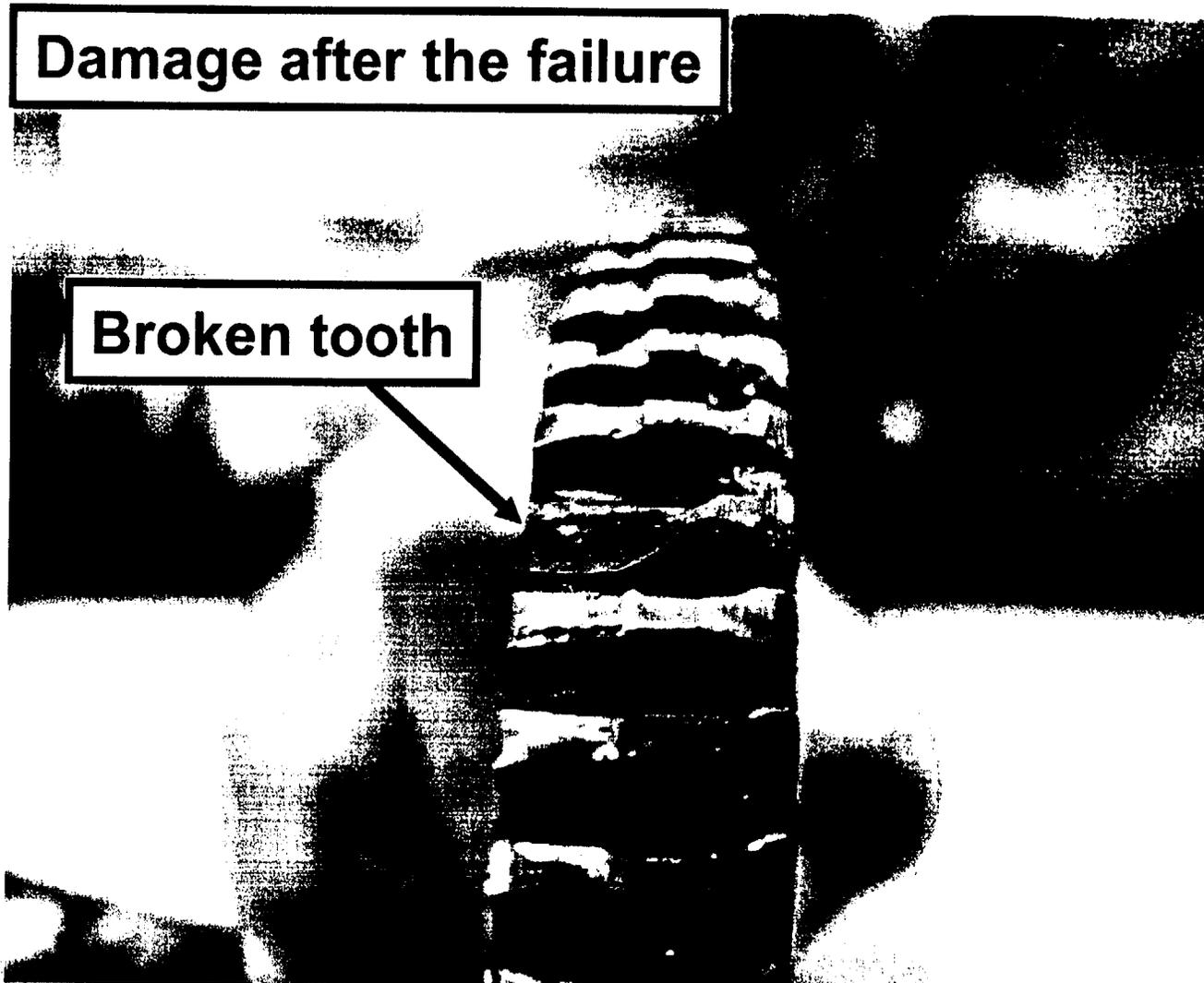
Damage after the failure



Broken tooth



Side View- Failed Gear



Cause



- **During re-assembly, the load shaft was not fully shouldered into the ball bearing on the hand wheel side of the frame unit.**
- **The set screw hole in the load shaft and the groove in the spindle shaft were misaligned.**
- **The set screw was not properly installed.**

Missed Opportunities



- **Misalignment noted during inspection.**
- **Sprocket would not move on 1 of 4 manual hoists. Focus was on the 3 that had movement.**
- **Last three uses, identified loose drive chain.**
- **Sprocket rubbing on chain guard- elongated holes on guard to move it out.**
- **Pre-job inspection noted hoist failed to respond to controller several times.**

Corrective Actions

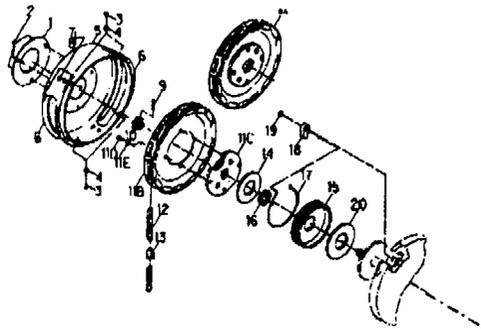


- **Scrap these two hoists.**
- **Identify & inspect ACCO Wright hoists.**
- **Revise Preventive Maintenance Work Orders to require additional inspections.**
- **Revise operating procedures for hoists.**
- **Develop a maintenance procedure for working on hoists.**
- **Evaluate ACCO Wright motorized manual hoists.**

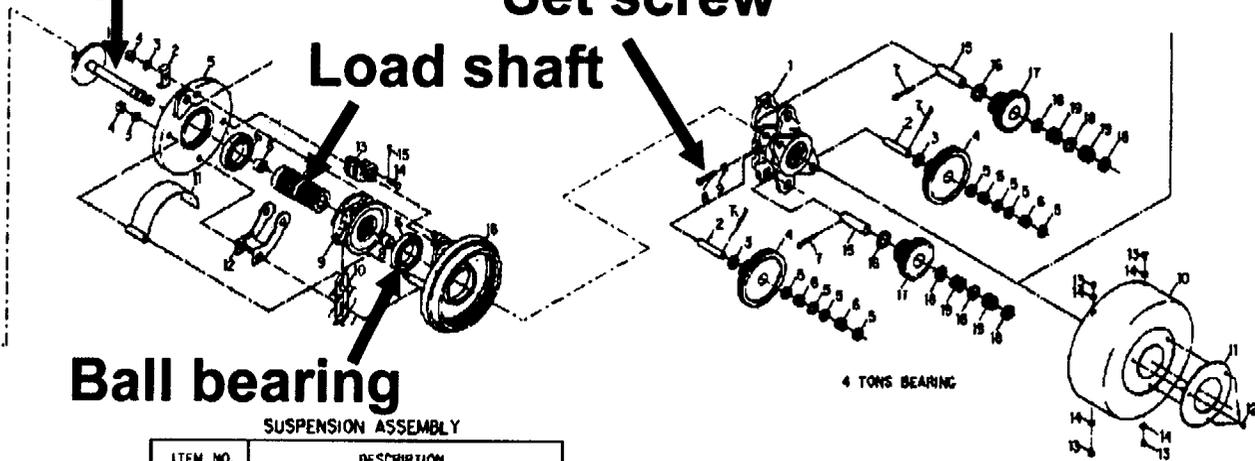
Other Corrective Actions



- **Revise risk assessment practices of heavy lifts during infrequent outage evolutions.**
- **Review & revise safety practices for personnel safety related to RCP lifts.**


HANDWHEEL SIDE ASSEMBLY

ITEM NO.	DESCRIPTION
1	CAPACITY PLATE (a)
2	DRIVE SCREW
3	SCREW, THREAD CUTTING
4	LOCKWASHER, INT. TOOTH
(b)	HANDWHEEL COVER ASSY.
5	HANDWHEEL COVER
6	HANDCHAIN GUIDE
7	RIVET
8	WASHER
9	GROVE PIN
10	NUT, SLOTTED HEX
11	HANDWHEEL
11A	HANDWHEEL UNIT W/LLC
11B	HANDWHEEL W/O LLC
11C	HANDWHEEL NUT
11D	BOLT
11E	LOCKWASHER
12	HANDCHAIN (a)
13	HANDCHAIN LINK
14	FRICTION WASHER
15	RATCHET W/BUSHING (a)
16	BUSHING
17	PAWL SPRING
18	PAWL
19	RETAINING RING
20	BRAKE LINING

Spindle unit
Set screw
Load shaft

Ball bearing
4 TONS BEARING
SUSPENSION ASSEMBLY

ITEM NO.	DESCRIPTION
1	SPINDLE UNIT
2	SPRING STOP
3	LOCKWASHER
4	NUT
5	FRAME UNIT, HMKWL SIDE
6	BALL BEARING
7	LOAD SHAFT (a)
8	BUSHING
9	LOAD SHEAVE
10	LOAD CHAIN (b) LENGTH
11	NOT USED
12	STRIPPER
13	DEAD END CHAIN GUIDE
14	DEAD END PIN
15	COTTER PIN
16	FRAME UNIT, INT. GEAR

GEAR SIDE ASSEMBLY

ITEM NO.	DESCRIPTION
1	PINION CAGE
2	GEAR & PINION SHAFT
3	THRUST WASHER
4	GEAR & PINION
5	ROLLER RETAINER
6	ROLLER BEARING (a)
7	COTTER PIN
8	SET SCREW
9	NUT
10	GEAR COVER
11	NAMEPLATE
12	DRIVE SCREW
13	SCREW
14	LOCKWASHER, INT. TOOTH
15	GEAR & PINION SHAFT
16	THRUST WASHER
17	GEAR & PINION
18	ROLLER RETAINER
19	ROLLER BEARING (a)

**WRIGHT HAND HOIST MODEL 06
CP2-MEMHCH-42**

Design Basis RCP Hoist

DBD-ME-006



- **Shall satisfy the single - failure - proof guidelines**

or

- **The effects of drops of heavy loads shall be analyzed**

Load Drop Analysis Criteria in DBD ME-006/NUREG-0612



- **Release of radioactive material from damage to spent fuel are well within 10 CFR Part 100 limits**
- **Damage of fuel / fuel storage racks does not result in a Keff larger than 0.95**
- **Damage to the reactor vessel or the spent fuel pool will not result in water leakage that could uncover the fuel**
- **Damage to equipment in redundant or dual safe shutdown paths will not result in loss of required safe shutdown functions**

Response to NUREG -0612



- **Docketed the results of the analysis that demonstrated conformance to the NUREG-0612.**
 - **Used only during cold shutdown / refueling**
 - **Core cooling is maintained by the separate and redundant RHR loops**
 - **Load paths / areas are defined and will not allow the load to traverse over or near the reactor vessel**
 - **Instructions insure proper rigging / transport**
 - **Conditions / instructions are in procedures**

Conclusions

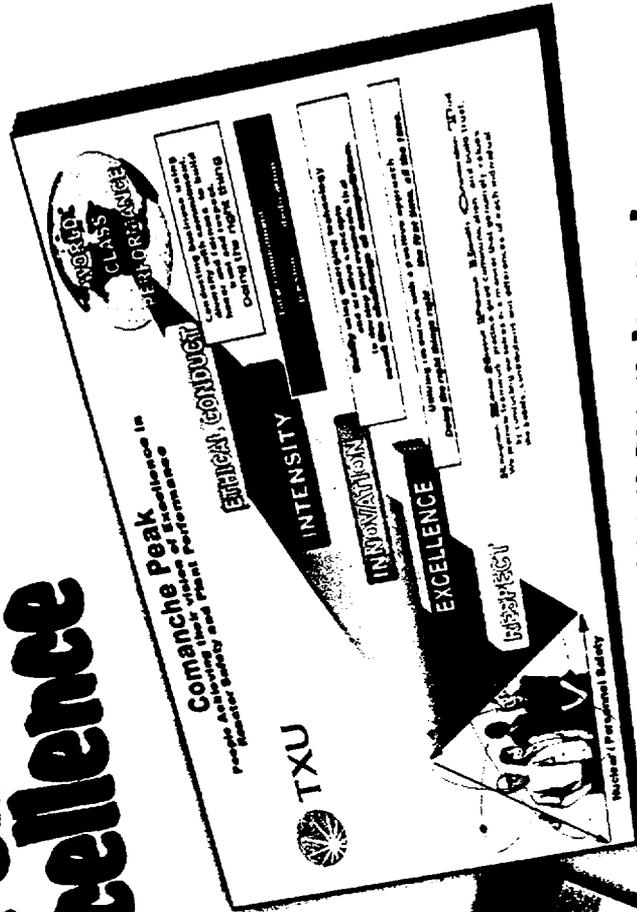


- RCP Hoist is properly classified as Non-Safety Related and is not required to be Single Failure Proof
- The conclusions of the analysis, which address NUREG-0612, are documented in the response to NUREG-0612
- While the NUREG criteria is oriented toward load drop calculations, our analysis is based on plant configuration and controls on the use of the hoist. Therefore, no calculations were needed.
- A review of controls appropriate to assure availability of RHR has been initiated under TXU's corrective action program.

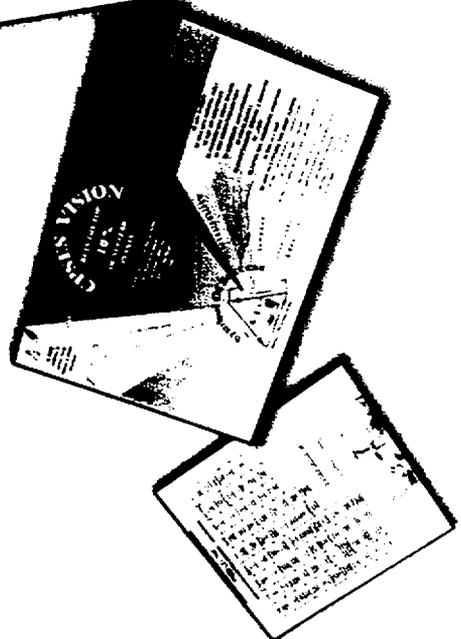


evolution of Comanche Peak's Culture of Excellence

from the eighties
into the
new millennium



as we move toward
our goal of
world-class
performance





Comanche Peak

People Achieving their vision of Excellence in
Reactor Safety and Plant Performance



ETHICAL CONDUCT

Conducting business using diversity with commitment, honor and fairness to build trust and respect: Doing the right thing.

INTENSITY

Total commitment
passion dedication

INNOVATION

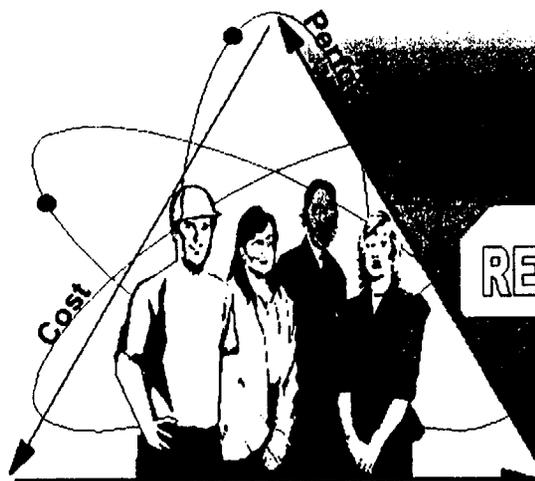
Boldly using emerging technology and creative concepts to develop improvements that meet the challenge of competition.

EXCELLENCE

Utilizing resources with a positive approach.
Doing the right things right . . . the first time, all the time.

RESPECT

Recognition **E**steem **S**upport **P**atience **E**quality **C**onsideration **T**rust
We promote teamwork, practice good communication, and build trust, by conducting ourselves in a manner that genuinely values the beliefs, contributions and differences of each individual



Nuclear / Personnel Safety