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AUTH.NAME AUTHOR AFFILIATION
BEACH,A.B. Region 4 (Post 820201)
RECIP.NAME RECIPIENT AFFILIATION
Region 4 (Post 820201)

SUBJECT: Summary of 940815 meeting w/util in Arlington,TX to discuss changes to engineering & maint programs at plant which resulted from licensee reengineering efforts.List of attendees encl.

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TITLE: Summary of Significant Meeting with Licensee (Part 50)

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IA-3

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

SEP 20 1994

Dockets: 50-528
50-529
50-530
Licenses: NPF-41
NPF-51
NPF-74

Arizona Public Service Company
ATTN: William L. Stewart
Executive Vice President, Nuclear
P.O. Box 53999
Phoenix, Arizona 85072-3999

SUBJECT: PUBLIC MEETING WITH ARIZONA PUBLIC SERVICE COMPANY (APS)

This refers to the management meeting, open to public observation, conducted on August 15, 1994, at the Region IV office in Arlington, Texas, concerning activities authorized by NRC Licenses NPF 41, NPF 51, and NPF 74 for the Palo Verde Nuclear Generating Station. Attendees at the meeting are listed in Attachment 1 to this letter.

The purpose of this meeting was to discuss changes to the engineering and maintenance programs at Palo Verde, which resulted from your re-engineering efforts. The descriptions of your new organization and management expectations of the new re-engineered work processes in these areas were very beneficial to the NRC staff. We will review the effects of your organizational changes in our future inspections. The slides presented during the meeting are provided as Attachment 2 to this letter.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," 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 then with you.

Sincerely,

A. Bill Beach, Director
Division of Reactor Projects

Attachments:
1. Attendance List
2. Presentation Slides

IE45

cc:
Arizona Corporation Commission
ATTN: Mr. Steve Olea
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Phoenix, Arizona 85007

Southern California Edison Company
ATTN: T. E. Oubre, Esq.
P.O. Box 800
Rosemead, California 91770

ABB Combustion Engineering Nuclear Power
ATTN: Charles B. Brinkman, Manager
Washington Nuclear Operations
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Rockville, Maryland 20852

Arizona Radiation Regulatory Agency
ATTN: Aubrey V. Godwin, Director
4814 South 40 Street
Phoenix, Arizona 85040

Maricopa County Board of Supervisors
ATTN: Chairman
111 South Third Avenue
Phoenix, Arizona 85003

Newman & Holtzinger, P.C.
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Washington, D.C. 20036

Palo Verde Services
ATTN: Curtis Hoskins, Executive
Vice President and
Chief Operating Officer
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Phoenix, Arizona 85004

Akin, Gump, Strauss, Hauer and Feld
El Paso Electric Company
ATTN: Roy P. Lessey, Jr., Esq.
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Washington, D.C. 20036

Arizona Public Service Company
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Nuclear Licensing
P.O. Box 52034
Phoenix, Arizona 85072-2034

SEP 20 1994

bcc to DMB (IE45)

bcc distrib. by RIV:

L. J. Callan	Resident Inspector
DRSS-FIPB	MIS System
Branch Chief (DRP/F, WCFO)	Project Inspector (DRP/F, WCFO)
RIV File	Branch Chief (DRP/TSS)
Leah Tremper, OC/LFDCB, MS: MNBB 4503	

C:DRP/F	D:WCFO	D:DRP	
HJWong;df	KEPerkins	ABBeach	
9/20/94	9/20/94	9/20/94	

260051

SEP 20 1994

bcc to DMB (IE45)

bcc distrib. by RIV:

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DRSS-FIPB	MIS System
Branch Chief (DRP/F, WCFO)	Project Inspector (DRP/F, WCFO)
RIV File	Branch Chief (DRP/TSS)

Leah Tremper, OC/LFDCB, MS: MNBB 4503

C:DRP/F	D:WCFO	D:DRP	
HJWong;df	KEPerkins	ABBeach	
9/20/94	9/20/94	9/20/94	

ATTACHMENT 1

ATTENDANCE LIST

Arizona Public Service Company

J. Bailey, Vice President, Nuclear Engineering
D. Mauldin, Director, Maintenance
D. Garchow, Director, System Engineering
J. Hesser, Director, Design and Projects Engineering
B. Chapin, Manager, Mechanical Maintenance
R. Lucero, Manager, Electrical Maintenance
A. Krainik, Manager, Nuclear Licensing

NRC Region IV

J. Montgomery, Deputy Regional Administrator
A. Beach, Director, Division of Reactor Projects (DRP)
T. Gwynn, Director, Division of Reactor Safety (DRS)
H. Wong, Chief, Project Branch F, DRP
D. Powers, Chief, Maintenance Branch, DRS
C. Paulk, Acting Chief, Engineering Branch, DRS
E. Collins, Team Leader, DRS

NRC NRR

B. Holian, Project Manager

Others

F. Gowers, Site Representative, El Paso Electric

Attachment 1

Palo Verde Engineering & Maintenance Meeting

An Introduction to NRC Region IV

September 15, 1994

Nuclear Engineering and Projects

Mission and Organization	Jack Bailey
Reengineering Update	John Hesser
Engineering Self-Assessment	Dave Garchow
Engineering Strengths and Weaknesses	Jack Bailey

Nuclear Engineering & Projects
1994 Strategic Plan

Mission - 1998

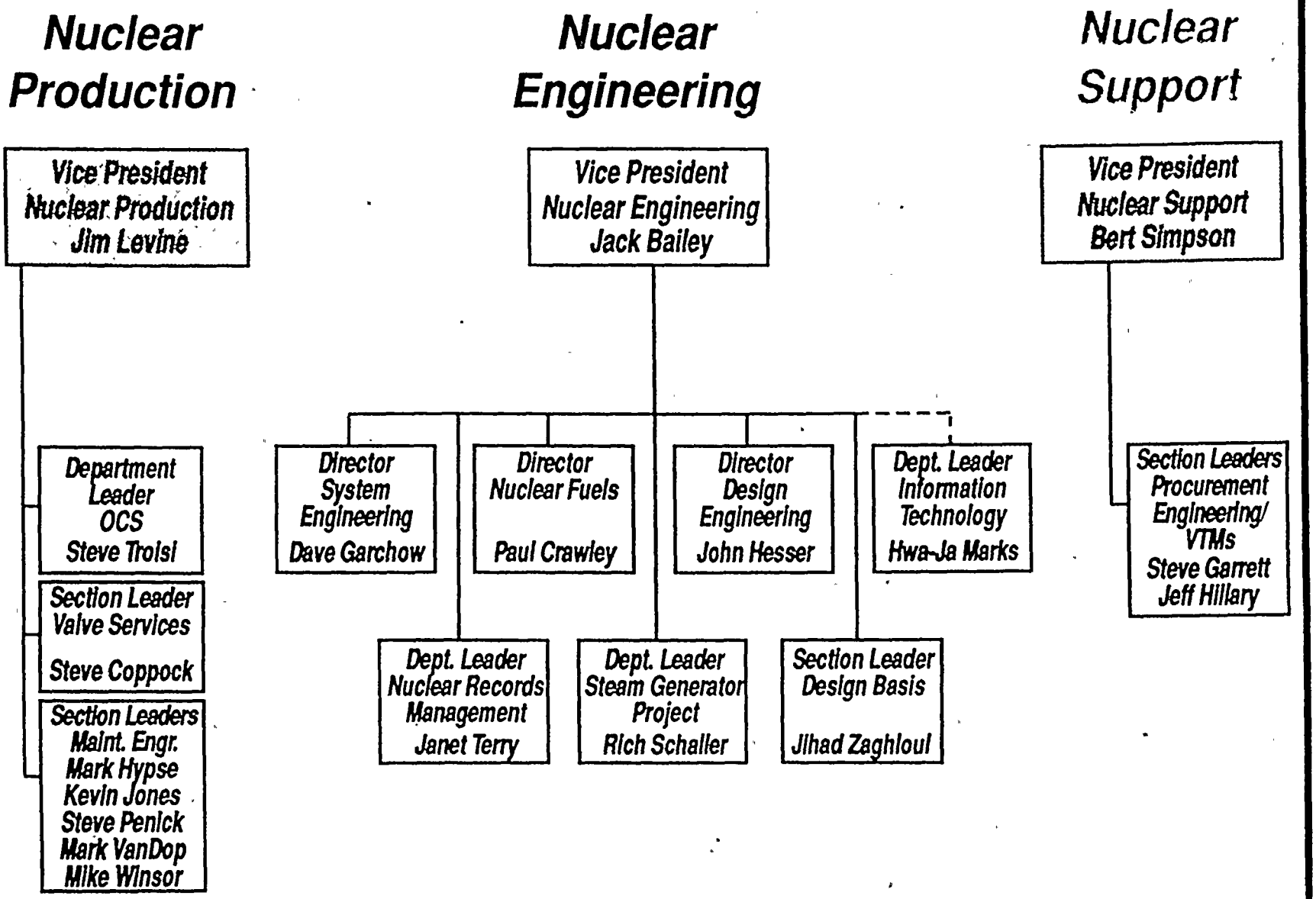
NE&P is the PVNGS design authority, and will be recognized as the leader in the nuclear industry in providing responsive, high quality, cost-effective design and technical solutions for Nuclear Production that enhance the safe and reliable operation of PVNGS.

This will be accomplished by an innovative winning team of professionals which is focused on results in the areas of:

- ***Regulatory performance***
- ***Establishment, control and communication of plant design bases***
- ***Human performance and strategic development***
- ***System and component performance monitoring that optimizes reliability and availability***
- ***Configuration management***
- ***Fuel management and safety analyses***
- ***Project design and management***

Our culture emphasizes integrity, open and effective communication, responsible risk-taking, and individual accountability and recognition.

Palo Verde Engineering



General Principles

- Technical self-sufficiency:
  - 100% of routine technical support in-house
  - Utilize contractors for infrequently performed or specialized support and peak project work
  - In-house consultants
- Involvement of Vendors/OEMs in equipment problems:
  - Verify latest guidance being utilized
  - Achieving agreement on selected course of action
  - Challenge vendor when necessary
- Industry involvement:
  - Owner's groups, EPRI, Utility Working Committee's Standards and Codes Commmittee's
  - Region V Engineering Forum now expanded to include IV and V utilities

What is Good Engineering

- Ability to identify, analyze and solve technical problems
- Rigorous application of engineering principles and analysis
- Effective communication of technical issues
- Preservation of design basis
- Application of new technologies
- Technical conscience focused on safe and efficient operation
- Good project management
- Strong technical program management

Major Changes Implemented to Date

- Modification Process
- Roles of:
  - Design Engineering
  - Maintenance Engineering
  - System Engineering

"Re-Engineered" Design Modification Process

- 4 types of modifications
  - Major design change
  - Maintenance (minor) modification
  - Equivalency modification
  - Like-for-like modification
- 3-tier filter
  - 1st: Initiator's Management & Engineering
  - 2nd: Technical Review Committee
  - 3rd: Plant Review Committee
- Site wide commitment
- Cross organizational teams
  - Cradle to grave ownership
  - Effective resource allocations
- Reduction of backlog
- Control the number of mods
- Long range planning for outage/non-outage

Modifications Progress

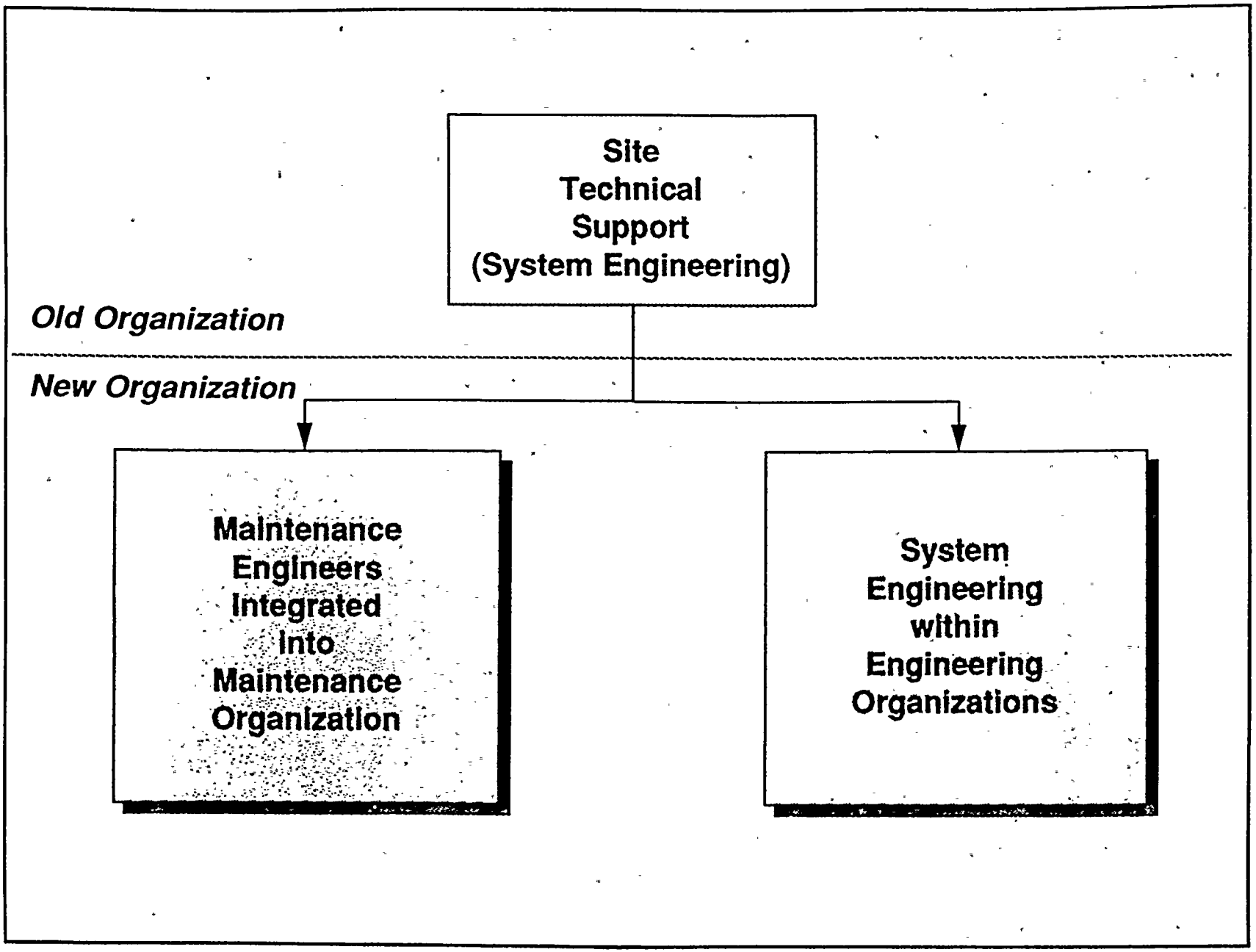
- New process in place
- Training completed
- Modification pilot/Lesson learned
- Review and eliminating backlog
- Filter - early results positive

Modifications Challenges

- Cross-organization design team consistency
- Skills cross-training of design team members
- Commitment to schedule
- Continued effective use of filters
- Balancing modification solutions versus administrative solutions

Design Engineering Responsibilities

- Modifications
- Configuration Management
- Design Bases Ownership
  - Support
  - Evaluations
- Re-located on site
  - Available for support to emergent issues
  - Enhance team relationships
- Design requirements, specifications and standards
- Project management


Site
Technical
Support
(System Engineering)
Old Organization
New Organization
Maintenance
Engineers
Integrated
Into
Maintenance
Organization
System
Engineering
within
Engineering
Organizations

Maintenance Engineering

- Integrated into Maintenance Teams
- Engineering Section Leader reports to Maintenance Department Leader
- Work focuses on component availability and reliability
- Support day-to-day maintenance activities

Maintenance Engineering
(Continued)

- **Technically supports issues on the spot**
  - Technical evaluations
  - Troubleshooting
  - Corrective action plans
- **Execution of minor modifications**
- **Input to PM Bases**
- **Work within existing engineering programs**

System Engineering

- System Expert for risk significant systems focusing on increased availability / reliability
- Availability and reliability monitoring for systems (Maintenance Rule based)
- Long term system planning / management
- Leader for major equipment root cause of failure analysis
- Brings industry experience to maintenance teams

System Engineer Results

- Building system teams
- Implementing system performance goals / tracking
- Performing system walkdowns / system reports
- Productive in users and industry groups

Major Self-Assessment Activities Completed Last Year

- Internal evaluation utilizing SALP criteria
- Engineering assessment of corrective action follow-up
- Implementation of Performance Assessment Cards (EPAC)

Improvement Areas Identified

- Technical rigor in evaluations
- Attention to detail in engineering document preparation
- Self improvement culture
- Timeliness of corrective actions
- Ownership of problems through solution implementation
- COMMUNICATION

Improvement Initiatives

- Establishment of Engineering Assessment Program Manager → *COMPLETE*
- Nuclear Assurance aligned by functional area to provide single focus for oversight → *COMPLETE*
- Management briefings completed regarding expectations for engineering rigor, ownership and need to be open and self-critical with internal and external oversight organizations → *COMPLETE*

Improvement Initiatives

- Development and implementation of engineering self-assessment guideline
- Enhancements to engineering performance assessment cards

Engineering Performance Assessment Cards (EPAC)

- Assessment tool for Section Leaders and peers to evaluate performance in "real time"
- Results are tabulated and trends produced for categories
- Pilot program implemented
- Results indicate that tool can be effective
- More work needed on engineering principles to ensure trends meaningful
- Categories to be assessed to be revised as part of Self Assessment Program
- Communication effort with frontline employees to ensure firmly anchored

Selected Programmatic Strengths and Weaknesses

Weaknesses:

- Large number of technical issues with interim solutions
- Inter-departmental and organizational interfaces

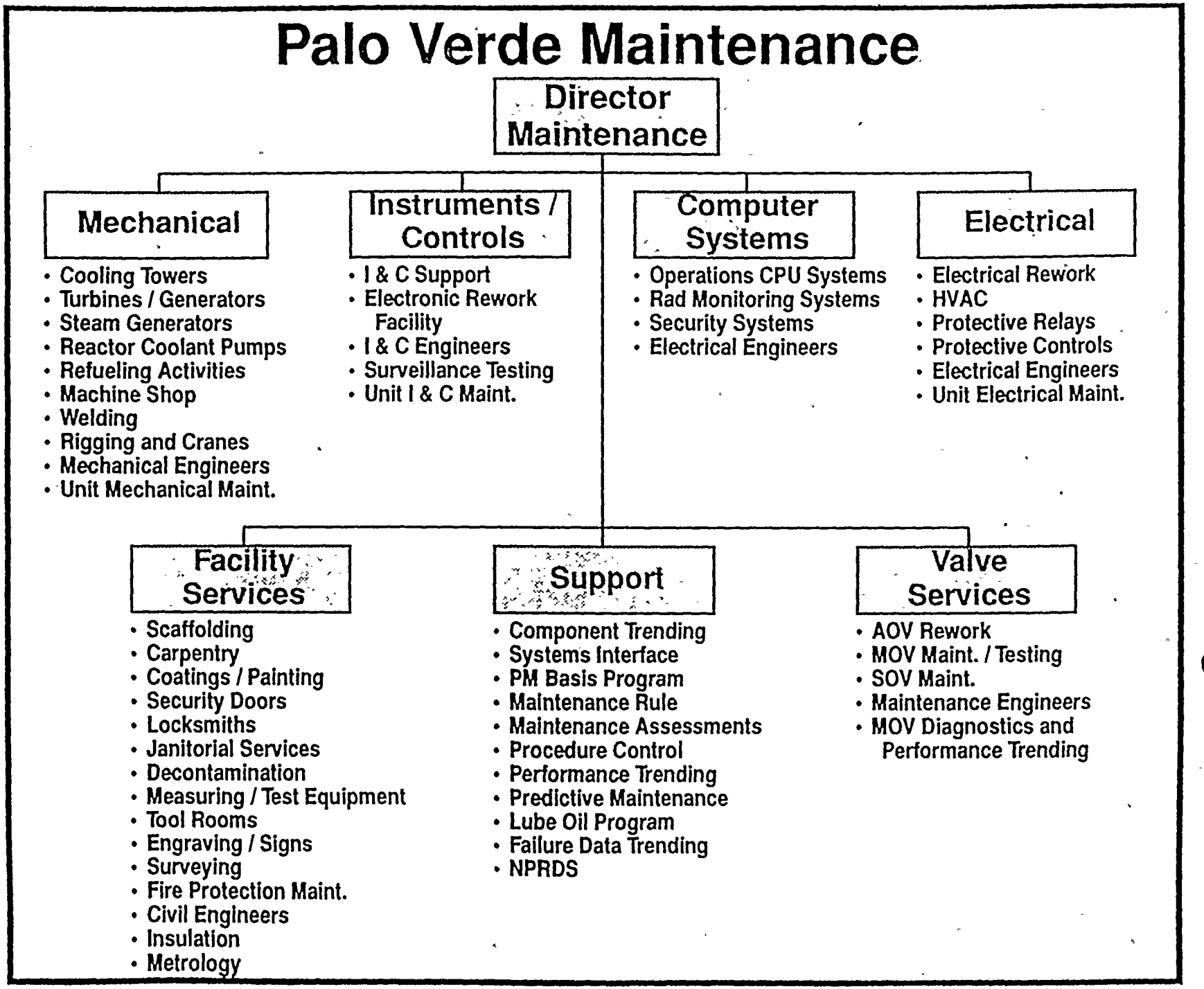
Strengths:

- Focused team performance for functional groups:
  - *Design Bases*
  - *Valve Services*
  - *Steam Generators*
  - *OCS*
  - *Nuclear Fuels*
  - *Fire Protection*
  - *PRA*
  - *ISI*
- Flexible, qualified staff committed to continuous improvement

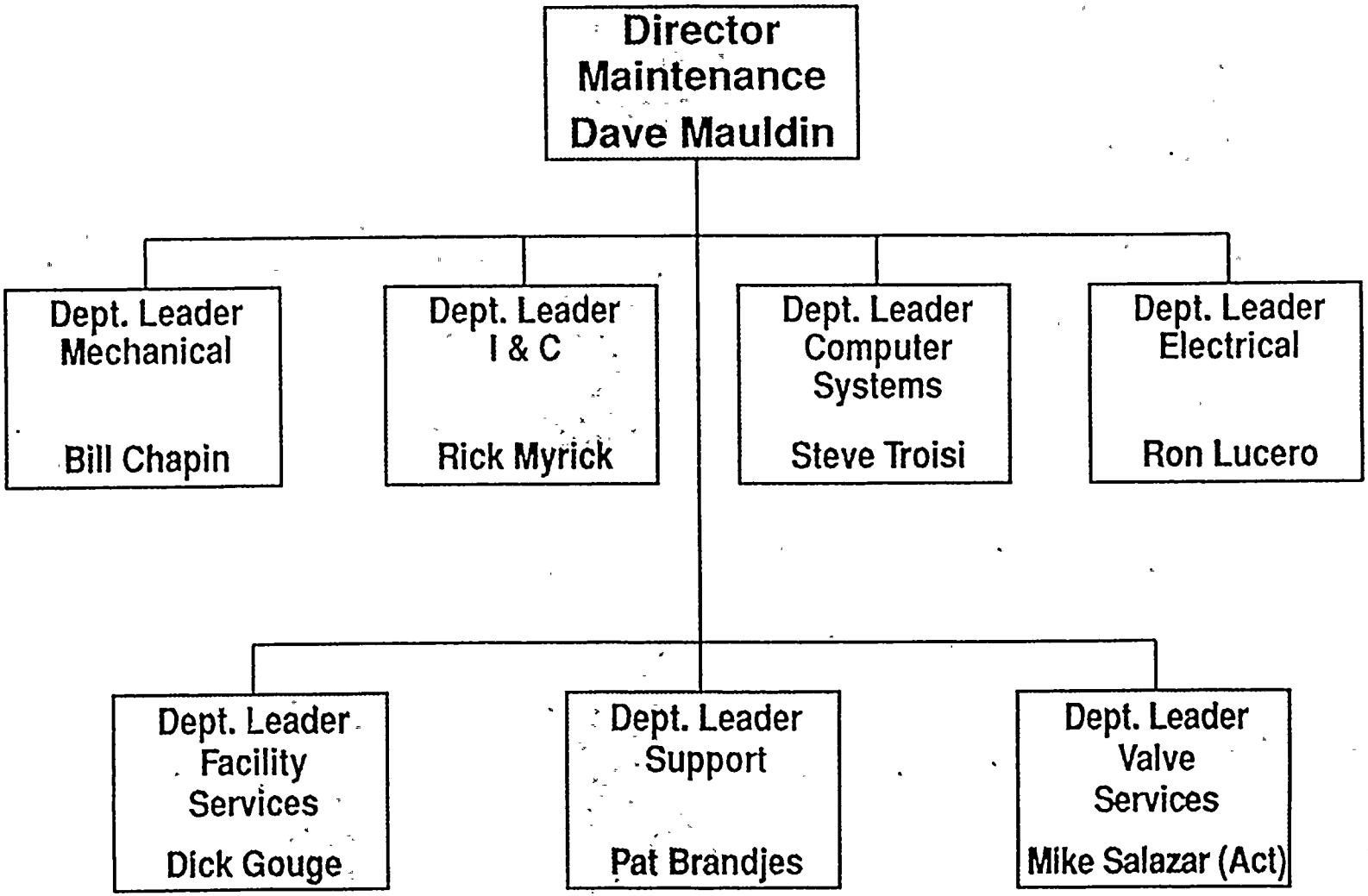
Maintenance

- Organization and functional responsibilities
- Reengineered Maintenance Group
- Reengineering efforts and results
- Material condition
- Self assessments
- Performance and communications
- Challenges

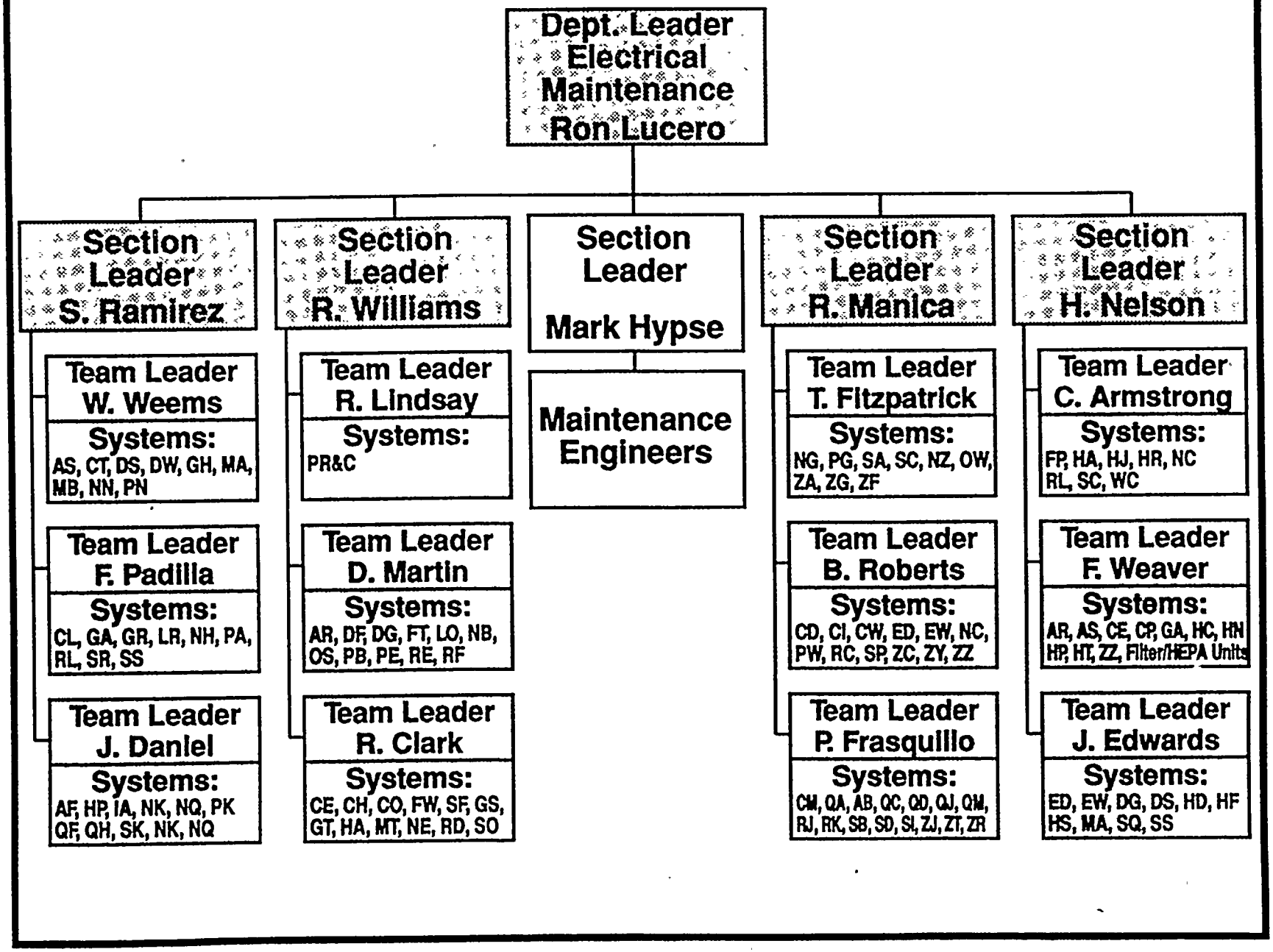
Palo Verde Maintenance



Palo Verde Maintenance



Palo Verde Electrical Maintenance



Maintenance Reengineering Effort and Results

- Roles of maintenance engineers
  - Maintenance engineering charter
  - Engineering responsibilities
- Changes in process and responsibilities
- Personnel development and training
  - Procedure writing
  - Work order development
  - Technical skills
- System/component ownership
  - PM program
  - Work order backlog
  - System walkdowns

Maintenance Engineering Charter

Mission: The Maintenance Engineering Sections will support the maintenance needs of Palo Verde to ensure safe, reliable, efficient operation is achieved. We will meet regulatory requirements and provide engineering support to station maintenance while prudently managing costs, effectively utilizing resources and continually improving our overall maintenance program through critical self-assessment.

1. The Maintenance Engineers shall be active members of the maintenance teams.

2. The Maintenance Team Leaders are the focal point for maintaining the health of the systems. The Team Leaders will provide day to day system priorities to the Maintenance Engineers. The Maintenance Engineers will communicate all issues concerning the reliability and availability of the system to the Team Leaders.

3. The Maintenance Engineer should resolve basic issues rapidly, as soon as the issues become known. The Maintenance Engineer should become a master at involving expertise in other organizations (i.e., PED, EQ, Design) to resolve complex, programmatic, or specialized technical issues. As an engineering team, we will provide rigorous and complete resolutions of technical problems.

4. Maintenance Engineering shall live within the confines of the Engineering programs and procedures.

5. Other engineering organizations shall be involved early in issues, not only after problems escalate in importance. Strong communications between the engineering organizations is vital to our success.

Plant Material Condition

- Team ownership
  - Plant walkdowns
  - Responsiveness
- Personal ownership
- Visibility/communications
  - Management daily involvement (Tue-Fri.)
    - 0745 daily site meeting
    - 0830 daily maintenance meeting
  - Management command and control
    - Level one actions
    - Monthly goal performance report
- Developing pride in station appearance
  - Signage program
  - Coatings program
  - Yard area cleanup

Maintenance Assessments

- Systematic approach
- More than 20 in last two years
- Maintenance assessment program (MAP) and results
- Pre/Post job briefing worksheet

MAINTENANCE DEPARTMENT ASSESSMENTS

REPORT NO.	TITLE
367-00008	PMs EXCEEDING GRACE PERIOD, UNIT "A"
368-00040	MAINTENANCE RULE, IMPACT AND RECOMMENDATIONS
368-00044	CENTRALIZED OTN EVALUATIONS - PROPOSAL
368-00045	TRAINING COORDINATION, MAINTENANCE
368-00046	MAINTENANCE SUPPORT DEPARTMENT, PERSPECTIVE
368-00047	M&TE CONTROL PROGRAM, PVNGS
368-00048	QC WORK ORDER REJECTION RATES, ASSESSMENT
368-00050	I&C REWORK FACILITY, PERSPECTIVE
368-00051	FIRE PROTECTION WORK BACKLOG, ASSESSMENT
368-00062	SCAFFOLDING PROGRAM, ASSESSMENT
368-00063	QAR 91-012-05 EVALUATION
368-00075	QA REJECT RATIO, ASSESSMENT
368-00082	MET LAB OTN BOOK, ASSESSMENT
368-00117	CHARGING PUMP PERFORMANCE, ASSESSMENT
368-00142	SNUBBER TEST PROGRAM EVALUATION
431-00001	SITE MAINTENANCE CRDR EVALUATIONS, ADEQUACY ASSESSMENT
431-00002	M&TE 34 SERIES PROGRAM, ASSESSMENT
431-00003	RETESTING, ASSESSMENT
431-00004	S.T.A.R. SELF-CHECKING PROGRAM, ASSESSMENT
431-00005	SALP SELF-EVALUATION - MAINTENANCE\SURVEILLANCE
431-00006	CONTROL OF OVERTIME, ASSESSMENT
431-00007	PLANT MATERIAL CONDITION, ASSESSMENT

MAINTENANCE ASSESSMENT PROGRAM

SERVED UNIT NUMBER: _____

SERVER UNIT NUMBER: _____

SERVER: _____ EXT: _____

IGIT ID# OF OBSERVER _____

TE: _____

ORK TYPE ___ CM ___ DFWO ___ EQ
___ LCM ___ PC ___ PL
___ PM ___ TE ___ ST
___ WR

ORK ORDER No. _____

OCEDURE No. _____

INTENANCE ACTIVITY OBSERVED

_____

_____

_____

ERALL EXPECTATIONS:

___ EXCEEDED ___ MET ___ BELOW

_____

STRUCTIONS: During the use of the check list, select (+) for items where expectations were exceeded, select (—) for any ns where expectations were not met and select (✓) for any items ere expectations were met. Additional written justification can be plied in the space provided on the back.

hen the observation is completed, forward the form to:

TREND
Mail Station 7965

sion 6

+✓- 1. SAFETY

OOO 1. Required safety permits obtained and adhered to (e g. Hot Work, Confined Space, etc).
OOO 2 Clearances verified prior to work
OOO 3. Injuries promptly reported to Maintenance Supervision.
OOO 4 Workers cognizant of the Job's Safety requirements
OOO 5 BLANK.
OOO 6 BLANK.
OOO 7. Chemicals being properly disposed of.
OOO 8 Proper protective clothing being used (face shields, gloves etc).
OOO 9. Personnel have the appropriate Safety Equipment, (e g safety belts, life jackets etc) and it is being used correctly.
OOO 10 Unsafe conditions properly controlled (e g barricades around open holes, etc.).
OOO 11. Flash shields in place for welding activities.
OOO 12. Combustibles stored properly.
OOO 13 Gas cylinders properly labeled/secured.
OOO 14. Hot work permits signed and being adhered to.
OOO 15. Fire watches present during welding/cutting activities.
OOO 16. Proper communication being used (e g hand signals, radios etc.) for rigging and lifting.
OOO 17. Heat Stress guidelines reviewed.
OOO 18 Proper clearance tagging for troubleshooting or testing.
OOO 19. Products in use have proper labels affixed.
OOO 20. Periodic verifications are performed for correct product labeling information.
OOO 21. Chemicals are used in accordance with CUP instructions.
OOO 22. CUP labels are clear and legible
OOO 23. Products are stored in accordance with MSDS/CUP instructions.
OOO 24. Containers containing chemicals are intact and sound
OOO 25. CUP label information is correct and in accordance with MSDS.
OOO 26. Personnel are knowledgeable of CUP/MSDS requirements when using chemical products.
OOO 27. Chemical product information is readily available to personnel using chemical products.

+✓- 2. GENERAL MAINTENANCE PRACTICES

OOO 1. Correct revision of all documents being used
OOO 2. Proper FME procedures followed for the job.
OOO 3. Correct drawings in use (e g. APS Tech manual drawing).
OOO 4. All Material control requirements observed (e.g shelf life, traceability, etc).
OOO 5. Appropriate pre-cleaning or securing of loose debris, solid contaminates and solid objects been completed
OOO 6 Clear and appropriate lines of communication established.
OOO 7. Plant configuration restored at the conclusion of all work activities.
OOO 8 Maintenance Supervision aware of and in control of all work evolutions.
OOO 9 Personnel aware of the complete scope of their work
OOO 10 Lanyards used on tools which were smaller than the opening of the component/system to prevent inadvertent entry.
OOO 11. Thorough and complete turnover conducted at the change of shift.

+✓- 3. PROCEDURE IMPLEMENTATION

OOO 1. Work instructions were followed as written, or pa[illegible] modifications were implemented prior to proceedi[illegible]
OOO 2. All work steps current for the job status (e g signed off for work performed, QC hold points completed, etc)
OOO 3. Proper authorizing signatures obtained
OOO 4 All notifications been made and documented as applicable.
OOO 5. Security notified of activities that result in degradation of security barriers, and present for activities requiring compensation.
OOO 6. All work activities adequately documented in the work package.
OOO 7. Action taken to correct identified procedure problems
OOO 8. Work package deficiencies identified and corrected
OOO 9. Work documents, other than problems with referenced procedures, adequate for job performance without corrections.
OOO 10. Procedures used in the work document adequate

+✓- 4. SELF - VERIFICATION

OOO 1. Crew using STAR verification method
OOO 2. All rigging visually inspected prior to use
OOO 3. Debris removed from the equipment prior to close-out
OOO 4. Wiring properly trained and supported
OOO 5. All covers, plates, etc. installed with all fasteners in place and tight.
OOO 6. All fasteners have the proper thread engagement
OOO 7. Lubricants at proper level.
OOO 8. All verifications performed. For example
Independent verification
2nd party verification
Determ / reterm verifications
Equipment configuration verifications (e g positioning switched, breakers, valves, lifting/landing leads, connection of M&TE, removing/installing fuses, etc)

+ ✓ - **5. PLANT MATERIAL CONDITION**

OOO 1. Materials/vehicles are properly stored within an isolation zone.
OOO 2 Components were free of leaks/damage.
OOO 3 Loose items were removed from the area.
OOO 4 No parts missing at the completion of work (e g. screws, covers, vent caps and drain lines)
OOO 5. No conditions were left at the end of a job that could affect equipment performance(e.g. scaffolding, test cables, etc.)
OOO 6. Thermal insulation properly removed, stored and replaced.
OOO 7. Lighting adequate for job performance.
OOO 8. Passageways free from obstructions.
OOO 9. Tags removed when work is commenced. (e g. MNCR, Maintenance required, etc.)
OOO 10. Components, parts and material not installed being properly maintained (e g bagged, tagged, stored etc.).
OOO 11. Work area returned to the proper level of housekeeping.
OOO 12. All transient material removed from the work area (e g. ladders, carts, tools, etc)
OOO 13. Maintenance Shops and laydown areas well maintained.

+ ✓ - **6. RADIOLOGICAL PROTECTION**

OOO 1. Contaminated rad materials being properly labeled and bagged.
OOO 2. Hazardous materials properly stored and handled.
OOO 3. Personnel practicing good ALARA (e g. standing in cold areas, tools and M&TE protected from contamination, etc.).
OOO 4. Individuals not sitting, kneeling or climbing in potentially contaminated areas without proper RP.
OOO 5. Protective clothing being properly worn.
OOO 6. Personnel removing protective clothing in the correct manner.
OOO 7. Personnel aware of Radiological work practices related to their job.
OOO 8. Maintenance Supervision notified of all personnel contaminations and significant exposures.

+ ✓ - **7. TRAINING AND QUALIFICATIONS**

OOO 1. Personnel completed the required training / qualifications
OOO 2. Qualifications current for the task.
OOO 3 Performer is having no difficulty performing the task.
OOO 4. OJT being properly conducted during the performance of the task.

+ ✓ - **8. TOOL USE**

OOO 1. M&TE properly handled and correct for the application.
OOO 2. Equipment properly labeled and tagged.
OOO 3 M&TE within its calibration due date
OOO 4. M&TE recorded in the implementing document.
OOO 5. Lifting equipment adequate for the job at hand.
OOO 6 Rigging off approved structures.
OOO 7. Using softeners on sharp corners.
OOO 8. Ladders at the proper angle, tied off and proper for the task.
OOO 9. Hand tools being properly used
OOO 10 Appropriate torquing techniques being followed
OOO 11. Were M&TE and tools checked in/out properly.

+ ✓ - **9. RISK JUDGMENTS**

OOO 1. Low risk judgments have been made when performing actions that could place the plant at risk, for example:
Lifting/rigging over sensitive components
Jumper placement
Lifting/landing leads
OOO 2. MDG-25 used to assess personnel and safety risks
OOO 3 Overhead lines clear of the crane's reach.
OOO 4. Area under the load is free of personnel.
OOO 5. Communications are adequate to preclude problems (e g line of sight).
OOO 6. An "Operator in attendance" in control of equipment and point of control prevents remote or automatic operation of the affected equipment.
OOO 7. Requirements of Sensitive Issues Manual met.

+ ✓ - **10. PROFESSIONALISM IN MAINTENANCE**

OOO 1. Good work practices being followed.
OOO 2. Professional appearance and attitude being exhibited.
OOO 3. The total job well organized and personnel taking responsibility for all aspects.

+ ✓ - **11. JOB PLANNING**

OOO 1. A person designated as in charge of the planned work activities.
OOO 2. A Pre-job checklist used in the briefing
OOO 3. MDG-24 used for pre-job planning and pre-job briefing.
OOO 4 ALARA issues been addressed.
OOO 5 Work process and documentation reviewed prior to starting work.
OOO 6. FME/Zone controls established.
OOO 7. Support Groups present / involved as required.
OOO 8. Hazardous Conditions identified and compensated for.
OOO 9. Work Document prerequisites/precautions adequate.
OOO 10. Contractor indoctrination prior to working.
OOO 11. Clearance prepared for the work being performed.
OOO 12. Type of clearance correct for the job.
OOO 13. Required permits/clearances (hot work, open door, etc.) reviewed prior to work.
OOO 14 Job planning (e g work order step sequence) adequate for the performance of the task
OOO 15. Work group had all the required tools to perform the task.
OOO 16 Work group had all the required documents available to successfully perform the task
OOO 17. Work group had all the required materials available to successfully perform the task
OOO 18 Planning included the correct documents as implementing references
OOO 19 Quality of the work order/work documents suitable
OOO 20 Documentation required for work performance legible
OOO 21. Post maintenance test requirements appropriate

+ ✓ - **12. SCHEDULING AND COORDINATING MAINTENANCE**

OOO 1 Work performed in an efficient manner to allow minimum equipment out of service time and / or ALARA.
OOO 2. Work started / finished in accordance with the schedule.

Additional Comments

Maintenance Performance

- Backlog Management
- Human Performance
- Predictive Maintenance
- Communications

PRE/POST-JOB BRIEFING WORKSHEET

Every Job

Provide an overview of the work activity:

- STATE THE WORK ORDER NUMBER
- NAME PERSON IN CHARGE
- DETAILS OF THE ACTIVITY
  - Unit ..... Use the STAR Program
  - Train ..... Use the STAR Program
  - Component Number ..... Use the STAR Program
  - Notifications/Communications ..... **Make Assignments**: Who/What/When
  - Critical Work Steps ..... Ensure a Complete Understanding
  - Safety ..... Special Equipment/Precautions
  - Verification Requirements ..... **Make Assignments**: Who/What/When
  - Retest Requirements ..... Ensure a Complete Understanding
  - Questions ..... Resolve all Questions Prior to Performance of Work

Discuss for complex activities

Provide details of the following information:

1. Importance of the work activity:
   - Sensitive Issues Manual ..... Present the Details from the Manual
   - Tech Spec Related ..... Time Restrictions and Communications
   - Quality Classification ..... Discuss Requirements
   - Frequency of the Activity ..... Infrequent work needs a more detailed review
2. Overview/Prerequisites :
   - *Clearances*
     - Tagging ..... Go over the boundaries
     - Permits ..... Ensure Permits are Obtained and Understood
       - Radiation Work Permit ..... REP Number; and details of the REP
       - Hot Work .....
       - Open Door .....
       - Confined Space ..... Safety Manual (Section XIV)
       - Security (Doors and Man-Holes) ..... Contact Phone # 82-6471 or 82-6473
   - *Precautions (From Work Document/Lessons Learned)*
     - Special instructions from the Control Room ..... Ensure an Understanding
     - Safety ..... Special Equipment/Precautions
     - Overtime Limitations ..... Ensure Limits are not Exceeded
     - Heat Stress ..... Safety Manual (Section IV)
     - Hazardous Material ..... Safety Manual (Section X)
     - Electrical Hazards ..... Safety Manual (Section X) MDG 24 &25
     - Overhead Loads .....
     - Operable Equipment .....
     - Impact on Other Equipment ..... Ensure an Understanding
3. Communications with the Control Room:
   - *Repeat Back Communications with the Control Room*
     - Equipment Numbers ..... Full Train. Equipment and Clearance Numbers
     - Scope of the work activity ..... Ensure a Complete Understanding
     - Changes during the work activity ..... Who to contact and Phone #
     - Problems encountered - ..... Who to contact and Phone #
     - Completion of work activity ..... Who to contact and Phone #
     - Retest scope and schedule ..... **Make Assignments**: Who/What/When

Backlogged Corrective Maintenance

March	1991 -	5000
May	1992 -	3600
May	1993 -	2300
August	1994 -	1000

PVNGS Human Errors

Significant Human Error CRDRs

- 1992 August = 25 Year Ending = 42
- 1993 August = 21 Year Ending = 21
- 1994 August = 16

Challenges

- Five outages in next sixteen months
- Monitor human performance in teams with new processes
- Ongoing assessments of program(s) implementation
- Post maintenance testing
- Continuing interface with operations, on station needs
- Control of contractors
- Engineering roles and optimum utilization
- Logistics
- Component performance monitoring
- Resolution of longer term reliability issues

MATERIAL CONDITION LEVEL 1 - (23 items)

RKM	•	Instrument Air Compressors reliability
MDS	•	Solenoid valve reliability and PM revision
RKM	•	FWCS reliability evaluation with Garchow
WDC	•	Four way valve (FWIV, MSIV) reliability
RKM	•	Pzr. spray valve reliability (100 E&F)
WDC	•	Pzr. safety valves - resolve seat leakage
WDC	•	FW pump seal leakage - resolve
MDS	•	Valve pressure locking/thermal binding
MDS	•	53 MOVs near margin - resolve
WDC	•	Leak containment
PLB	•	PM optimization
DL's	•	Work order closure
DL's	•	Work order backlogs
MDS	•	SG 134 A&B - resolution of reliability issues
WDC	•	BD heat exchanger repair of replacement
RJL	•	Generrex cabinet components reliability
WDC	•	DG reliability
RJL	•	RCP motors - long range maintenance plan
REG	•	Fire protection backlog progress
RJL	•	Raychem installation practices - followup
WDC	•	Valve packing program - review status
REG	•	Establish station coatings program and plan
PLB	•	Evaluation programs (CFAR, NPRDS, FDT, CPT, Pdm)