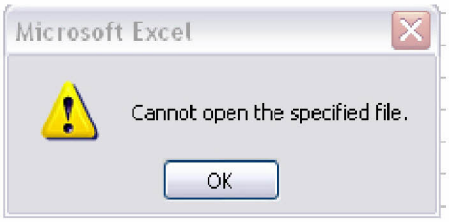
Preparation of Job Package

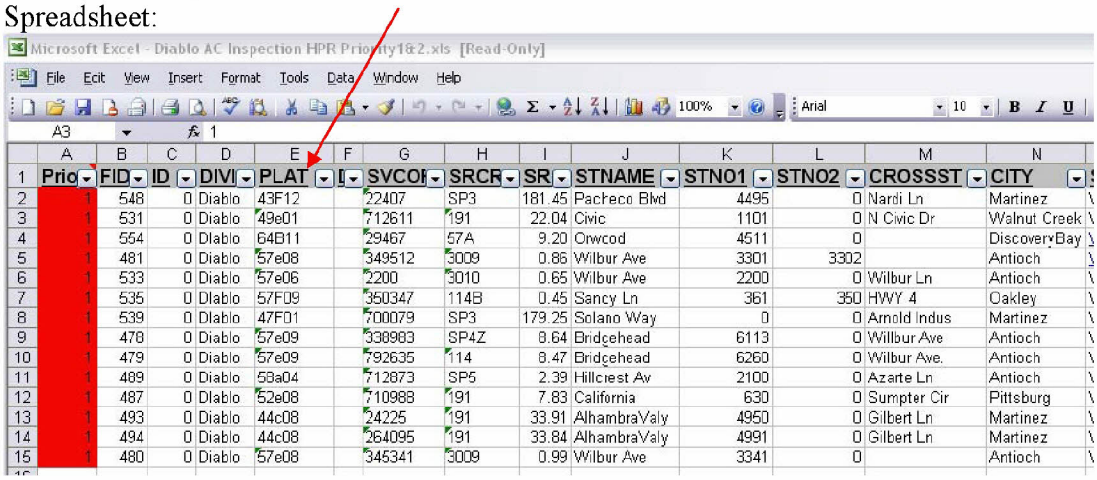
Print out the Service Order and HPR Atmospheric Corrosion Inspection Maps as shown in Bulletin TD-H-10B-001. If the HPR Atmospheric Corrosion Inspection Map has more than one HPR on it, only inspect the HPR's that are listed as Priority 1 or 2 in the spreadsheet. A map could contain Priority 1, 2, or 3 HPR's, and only Priority 1 and 2 HPR's are being inspected in 2010.

Print out the corresponding Service Order as shown in Bulletin TD-H-10B-001. The majority of the Service Records for found for each HPR, however, there are a number of HPR's whose Service Orders could not be located. When the link is clicked for these Service Orders, an error message will appear:



This indicates that a Service Order could not be obtained for this particular HPR. The HPR Atmospheric Corrosion Inspection Map as well as the Plat Map can be used to locate these HPR's.

Obtain Plat Maps if needed. The Plat number is listed in each Division Spreadsheet:



Identification of Atmospheric Corrosion

A challenge in Atmospheric Corrosion inspections is identifying what AC looks like.

Oxidation/Surface Rust is a common occurrence, and does not require any action. Below are examples of oxidation or surface rust:

Atmospheric Corrosion compromises the integrity of the pipe, as it diminishes wall thickness of pipe. It consists of scaling, pitting, and/or blistering. Below are examples of atmospheric corrosion conditions that may require repairs:

Measuring Level of Corrosion

Once it has been determined Atmospheric Corrosion is present, the wall thickness needs to be measured. Attached is a table with Pipe sizes, wall thickness, and the maximum pit depth that is compliant.

Pipe Size	Wall Thickness	Max Pit Depth Transmission	Max Pit Depth Distribution
1/4"	0.119	0.024	0.083
1/2"	0.147	0.029	0.103
3/4"	0.113	0.023	0.079
1"	0.133	0.027	0.093
1-1/4"	0.14	0.028	0.098
1-1/2"	0.145	0.029	0.102
2"	0.154	0.031	0.108
3"	0.216	0.043	0.151
4"	0.237	0.047	0.166
6"	0.28	0.056	0.196
8"	0.322	0.064	0.225
10"	0.365	0.073	0.256
12"	0.375	0.075	0.263
16"	0.375	0.075	0.263
18"	0.375	0.075	0.263
20"	0.375	0.075	0.263
22"	0.375	0.075	0.263
24"	0.375	0.075	0.263
26"	0.375	0.075	0.263
30"	0.375	0.075	0.263
34"	0.375	0.075	0.263
36"	0.375	0.075	0.263
42"	0.375	0.075	0.263

If the upstream (Transmission) portion of the piping has pitting with a depth equal to or greater than the above value, contact Pipeline Engineering to evaluate.

For example: On a 2" pipe, a pit depth measurement is taken, and pitting is found to be 0.036" deep. This is would indicate pitting that is deeper than the maximum according to the table above. This HPR needs to be reported to the T&R supervisor, so that Pipeline Engineering can be contacted.

If the downstream (Distribution) portion of the piping has pitting with a depth equal to or greater than the above values, corrective work beyond wax taping is needed. A GC notification needs to be created.

For example: On a 1-1/2" pipe, a pit depth measurement is taken, and pitting is found to be 0.111" deep. This would indicate pitting that is deeper than the maximum according

the table above. A GC Corrective Work Form needs to be filled out so a GC notification can be created in SAP to remediate this HPR.

If Atmospheric Corrosion is present, but the pit depths are less than the above values, recoat with wax tape.

For example: On a 4" upstream (Transmission) pipe, a pit depth measurement is taken, and pitting is found to be 0.039" deep. This would indicate pitting that is not deeper than the maximum according to the table. Recoat with wax tape. This does not warrant a GC Corrective Work Form, as this work is considered part of the inspection.

Documentation

Fill out the Stamp on each HPR Atmospheric Corrosion Inspection Map with non-erasable ink. You may use the back of the map to include additional notes. See examples below:


LAN ID: [redacted]
Initials: [redacted]
Date: 6/23/2010
[ ] CGI IF YES, PRESSURE TAKEN? [Y N]
[ ] Remediation Required
NOTES: HPR 147-needs piping replaced. See back for notes
7382 ADAMS
DRAFT
HPR# 147: [redacted]
E ADAMS AVE
HPR# 146 [redacted]
2306 MICHELLE
2300 MICHELLE
2400 MICHELLE
2406 MICHELLE
2312 MICHELLE
2418 MICHELLE
2412 MICHELLE
101 OLIVIA
107 OLIVIA
2319 MICHELLE
2313 MICHELLE
2407 MICHELLE
2401 MICHELLE
2413 MICHELLE
7274 WALTER
113 OLIVIA
2302 FLOYD
2220 TAMI
2314 FLOYD
2408 FLOYD
2402 FLOYD
2221 TAMI
2303 FLOYD
2403 FLOYD
2415 FLOYD
2409 FLOYD
213 OLIVIA
219 OLIVIA
PG&E CONFIDENTIAL
For Internal Use by Authorized Persons Only
Copyright 2005 Pacific Gas & Electric Corp.
HPR Atmospheric Corrosion Inspection
Gas System Maintenance and Technical Support
Geographic Information Services
1 inch equals 125 feet
N
W
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12/22/2009
01:57 PM


LAN ID: [redacted]
Initials:
Date: 6/23/2010
[Y] CGI IF YES, PRESSURE TAKEN? [Y N]
[ ] Remediation Required
NOTES: HPR 147- not found. Asked crew to locate. HPR146-ok
7382 ADAMS
DRAFT
HPR# 147: [redacted]
E ADAMS AVE
HPR# 146: [redacted]
2306 MICHELLE
2300 MICHELLE
2400 MICHELLE
2406 MICHELLE
2312 MICHELLE
2418 MICHELLE
2412 MICHELLE
101 OLIVIA
107 OLIVIA
2319 MICHELLE
2313 MICHELLE
2407 MICHELLE
2401 MICHELLE
2413 MICHELLE
7274 WALTER
113 OLIVIA
2302 FLOYD
2220 TAMI
2314 FLOYD
2408 FLOYD
2402 FLOYD
2221 TAMI
2303 FLOYD
2403 FLOYD
2415 FLOYD
2409 FLOYD
213 OLIVIA
219 OLIVIA
PG&E CONFIDENTIAL
For Internal Utility
Authorized Persons Only
Copyright 2005 Pacific Gas & Electric Corp.
HPR Atmospheric Corrosion Inspection
Gas System Maintenance and Technical Support
Geographic Information Services
1 inch equals 125 feet
N
W
E
S
12/22/2009
01:57 PM

94


LAN ID: [redacted]
Initials:
Date: 6/23/2010
[ ] CGI IF YES, PRESSURE TAKEN? [Y (N)]
[ ] Remediation Required
NOTES: 146 ok. Could not locate 147. Need M&C - pressure check
7382 ADAMS
DRAFT
HPR# 147: [redacted]
ADAMS AVE
HPR# 146: [redacted]
2306 MICHELLE
2300 MICHELLE
2400 MICHELLE
2406 MICHELLE
2312 MICHELLE
2418 MICHELLE
2412 MICHELLE
101 OLIVIA
107 OLIVIA
2319 MICHELLE
2313 MICHELLE
2407 MICHELLE
2401 MICHELLE
2413 MICHELLE
7274 WALTER
113 OLIVIA
2302 FLOYD
2220 TAMI
2314 FLOYD
2408 FLOYD
2402 FLOYD
2221 TAMI
2303 FLOYD
2403 FLOYD
2415 FLOYD
2409 FLOYD
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219 OLIVIA
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1 inch equals 125 feet
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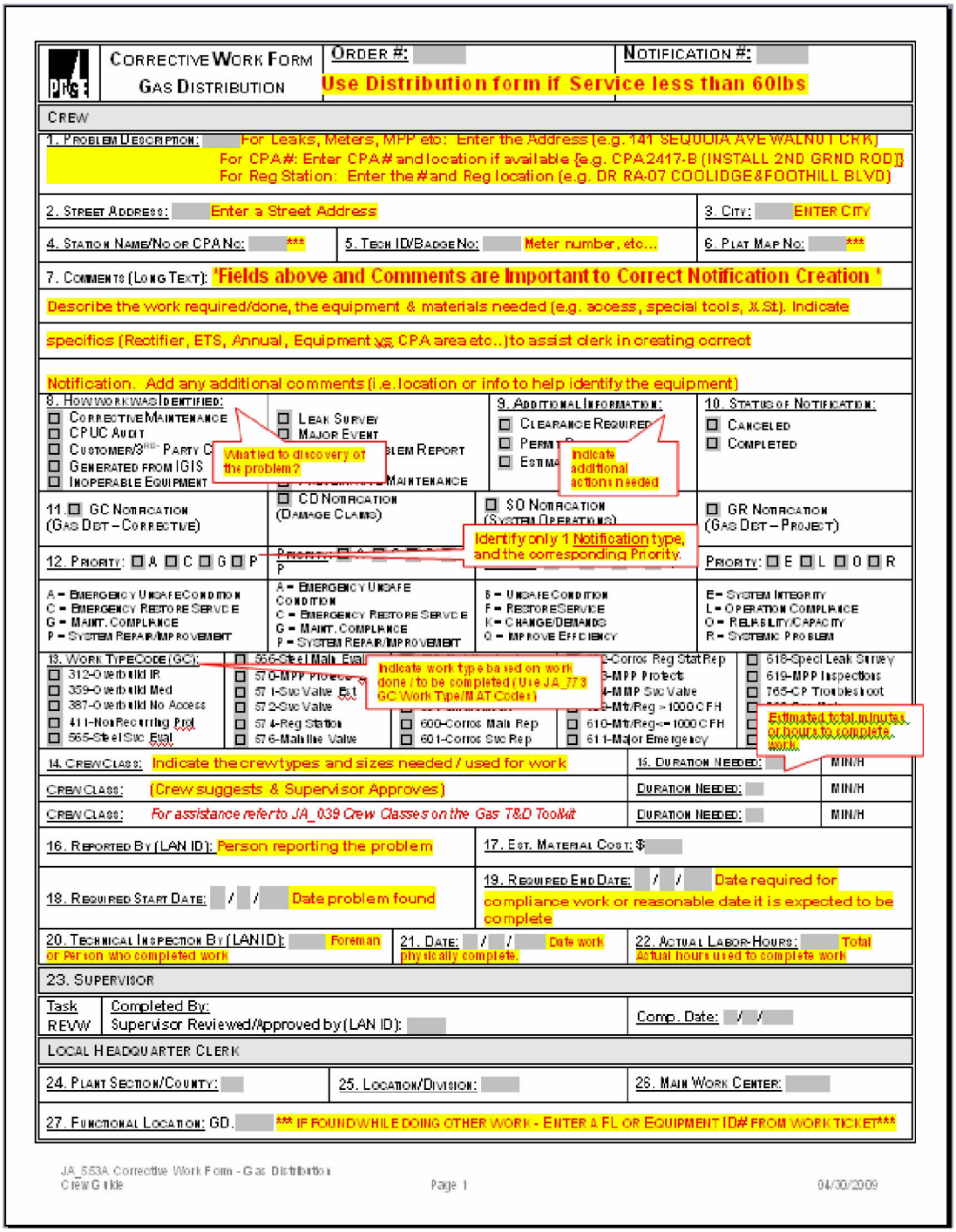
12/22/2009
01:57 PM

Fill out Corrective Work Form if Expense Work is Required

If an HPR needs remediation beyond recoating with wax tape or paint, fill out a Corrective Work Form. The majority of CWF's created from HPR Atmospheric Corrosion Inspections will be priority G – Maint. Compliance. This indicates work that must be performed to ensure that our assets remain in code compliance. In rare instances a HPR may be discovered that requires immediate action, and this CWF would be filled out after the fact with a priority of A – Emergency Unsafe Condition.

Follow the guide below when filling out the CWF:



CORRECTIVE WORK FORM
GAS DISTRIBUTION

ORDER #:

NOTIFICATION #:

Use Distribution form if Service less than 60lbs

CREW

1. PROBLEM DESCRIPTION: For Leaks, Meters, MPP etc: Enter the Address (e.g. 141 SEQUOIA AVE WALNUT CRK)
For CPA #: Enter CPA # and location if available (e.g. CPA2417-B (INSTALL 2ND GRND ROD))
For Reg Station: Enter the # and Reg location (e.g. DR RA-07 COOLIDGE&FOOTHILL BLVD)

2. STREET ADDRESS: Enter a Street Address

3. CITY: ENTER CITY

4. STATION NAME/NO OR CPA NO: ***

5. TECH ID/BADGE NO: Meter number, etc...

6. PLAT MAP NO: ***

7. COMMENTS (LONG TEXT): 'Fields above and Comments are Important to Correct Notification Creation '

Describe the work required/done, the equipment & materials needed (e.g. access, special tools, X.St). Indicate specifics (Rectifier, ETS, Annual, Equipment vs CPA area etc..)to assist clerk in creating correct Notification. Add any additional comments (i.e. location or info to help identify the equipment)

8. HOW WORK WAS IDENTIFIED:
- ☐ CORRECTIVE MAINTENANCE
- ☐ CPUC AUDIT
- ☐ CUSTOMER/3RD- PARTY C
- ☐ GENERATED FROM IGIS
- ☐ INOPERABLE EQUIPMENT
- ☐ LEAK SURVEY
- ☐ MAJOR EVENT
- ☐ BLEM REPORT
- ☐ MAINTENANCE

What led to discovery of the problem?

9. ADDITIONAL INFORMATION:
- ☐ CLEARANCE REQUIRED
- ☐ PERM
- ☐ ESTIMA

Indicate additional actions needed

10. STATUS OF NOTIFICATION:
- ☐ CANCELED
- ☐ COMPLETED

11. ☐ GC NOTIFICATION (GAS DIST – CORRECTIVE)

☐ CD NOTIFICATION (DAMAGE CLAIMS)

☐ SO NOTIFICATION (SYSTEM OPERATIONS)

☐ GR NOTIFICATION (GAS DIST – PROJECT)

Identify only 1 Notification type, and the corresponding Priority

12. PRIORITY: ☐ A ☐ C ☐ G ☐ P

PRIORITY:

P

PRIORITY: ☐ E ☐ L ☐ O ☐ R

A = EMERGENCY UNSAFE CONDITION
C = EMERGENCY RESTORE SERVICE
G = MAINT. COMPLIANCE
P = SYSTEM REPAIR/IMPROVEMENT

A = EMERGENCY UNSAFE CONDITION
C = EMERGENCY RESTORE SERVICE
G = MAINT. COMPLIANCE
P = SYSTEM REPAIR/IMPROVEMENT

E = UNSAFE CONDITION
F = RESTORE SERVICE
K = CHANGE/DEMANDS
Q = IMPROVE EFFICIENCY

E = SYSTEM INTEGRITY
L = OPERATION COMPLIANCE
O = RELIABILITY/CAPACITY
R = SYSTEMIC PROBLEM

13. WORK TYPE CODE (GC):
- ☐ 312-Overbuild IR
- ☐ 339-Overbuild Med
- ☐ 387-Overbuild No Access
- ☐ 411-NonRecurring Proj
- ☐ 565-Steel Stic Eval
- ☐ 566-Steel Main Eval
- ☐ 570-MPP Protect
- ☐ 571-Stic Valve Rpl
- ☐ 572-Stic Valve
- ☐ 574-Reg Station
- ☐ 576-Main line Valve
- ☐ 600-Corros Main Rep
- ☐ 601-Corros Stic Rep
- ☐ 602-Corros Reg Stat Rep
- ☐ 603-MPP Protect
- ☐ 604-MMP Stic Valve
- ☐ 605-Mtr/Reg > 1000 CFH
- ☐ 610-Mtr/Reg <= 1000 CFH
- ☐ 611-Major Emergency
- ☐ 616-Speci Leak Survey
- ☐ 619-MPP Inspections
- ☐ 765-CP Troubleshoot

Indicate work type based on work done / to be completed (Use JA_773 GC Work Type/MAT Codes)

Estimated total minutes or hours to complete work

14. CREW CLASS: Indicate the crew types and sizes needed / used for work — 15. DURATION NEEDED: — MIN/H

CREW CLASS: (Crew suggests & Supervisor Approves) — DURATION NEEDED: — MIN/H

CREW CLASS: For assistance refer to JA_039 Crew Classes on the Gas T&D ToolKit — DURATION NEEDED: — MIN/H

16. REPORTED BY (LAN ID): Person reporting the problem

17. EST. MATERIAL COST: $

18. REQUIRED START DATE: / / Date problem found

19. REQUIRED END DATE: / / Date required for compliance work or reasonable date it is expected to be complete

20. TECHNICAL INSPECTION BY (LAN ID): Foreman or Person who completed work

21. DATE: / / Date work physically complete.

22. ACTUAL LABOR-HOURS: Total Actual hours used to complete work

23. SUPERVISOR

Task REVW — Completed By: Supervisor Reviewed/Approved by (LAN ID):

Comp. Date: / /

LOCAL HEADQUARTER CLERK

24. PLANT SECTION/COUNTY:

25. LOCATION/DIVISION:

26. MAIN WORK CENTER:

27. FUNCTIONAL LOCATION: GD. *** IF FOUND WHILE DOING OTHER WORK - ENTER A FL OR EQUIPMENT ID# FROM WORK TICKET***

JA_553A Corrective Work Form - Gas Distribution
Crew Guide

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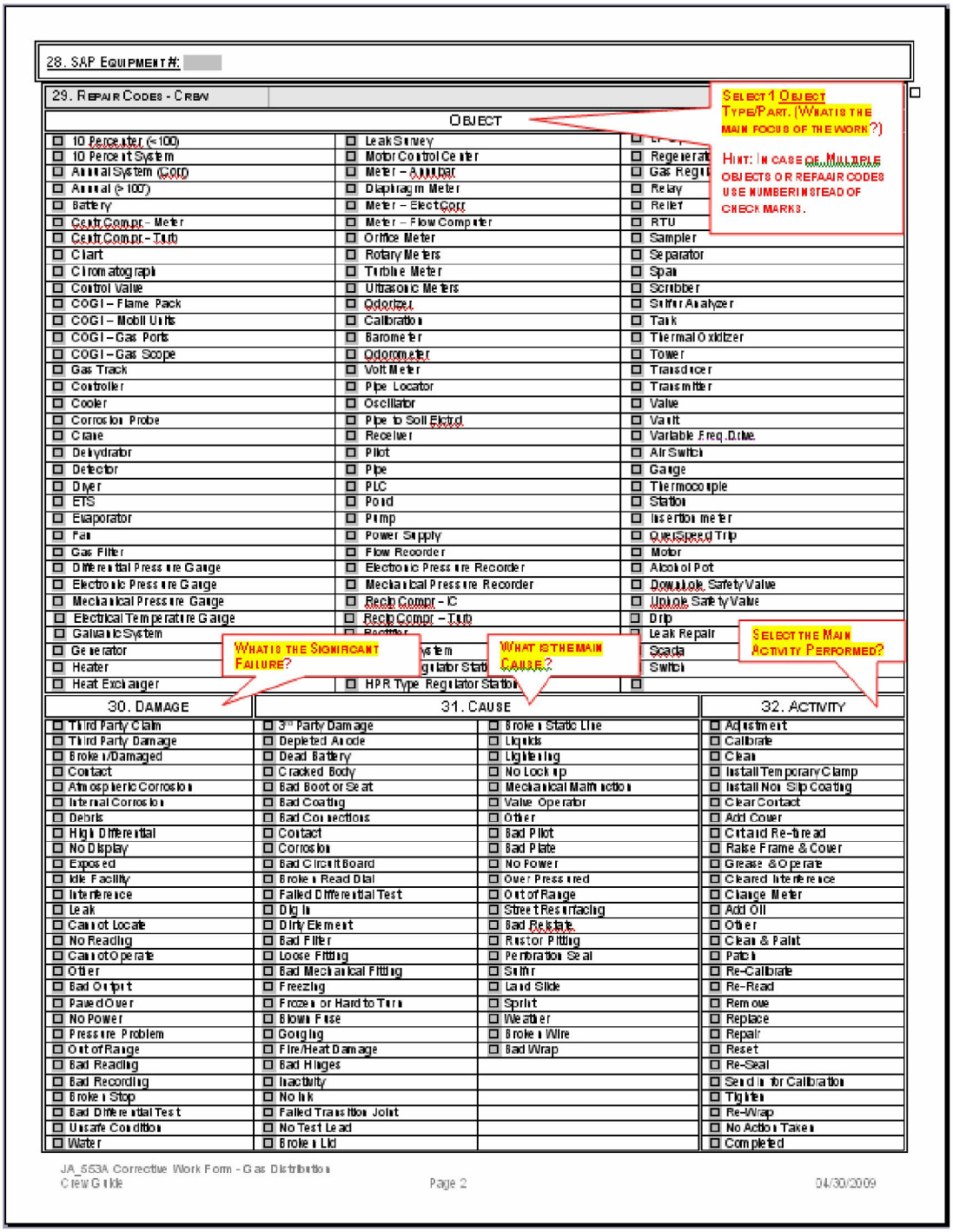

28. SAP EQUIPMENT #:

29. REPAIR CODES - CREW

SELECT 1 OBJECT TYPE/PART. (WHAT IS THE MAIN FOCUS OF THE WORK?)

HINT: IN CASE OF MULTIPLE OBJECTS OR REPAAIR CODES USE NUMBERS INSTEAD OF CHECK MARKS.

OBJECT		
10 Percenter (<100)	Leak Survey	
10 Percent System	Motor Control Center	Regenerat
Annual System (Corr)	Meter – Annular	Gas Regu
Annual (>100')	Diaphragm Meter	Relay
Battery	Meter – Elect Corr	Relief
Centr Compr - Meter	Meter – Flow Computer	RTU
Centr Compr - Turb	Orifice Meter	Sampler
Chart	Rotary Meters	Separator
Chromatograph	Turbine Meter	Span
Control Valve	Ultrasonic Meters	Scrubber
COGI – Flame Pack	Odorizer	Sulfur Analyzer
COGI – Mobil Units	Calibration	Tank
COGI – Gas Ports	Barometer	Thermal Oxidizer
COGI – Gas Scope	Odorometer	Tower
Gas Track	Volt Meter	Transducer
Controller	Pipe Locator	Transmitter
Cooler	Oscillator	Valve
Corrosion Probe	Pipe to Soil Elctrd	Vault
Crane	Receiver	Variable Freq. Drive
Dehydrator	Pilot	Air Switch
Detector	Pipe	Gauge
Dryer	PLC	Thermocouple
ETS	Pond	Station
Evaporator	Pump	Insertion meter
Fan	Power Supply	Over Speed Trip
Gas Filter	Flow Recorder	Motor
Differential Pressure Gauge	Electronic Pressure Recorder	Alcohol Pot
Electronic Pressure Gauge	Mechanical Pressure Recorder	Downhole Safety Valve
Mechanical Pressure Gauge	Recip Compr – IC	Uphole Safety Valve
Electrical Temperature Gauge	Recip Compr – Turb	Drip
Galvanic System	Rectifier	Leak Repair
Generator	ystem	Scada
Heater	gulator Stati	Switch
Heat Exchanger	HPR Type Regulator Station	

WHAT IS THE SIGNIFICANT FAILURE?

WHAT IS THE MAIN CAUSE?

SELECT THE MAIN ACTIVITY PERFORMED?

30. DAMAGE	31. CAUSE		32. ACTIVITY
Third Party Claim	3rd Party Damage	Broken Static Line	Adjustment
Third Party Damage	Depleted Anode	Liquids	Calibrate
Broken/Damaged	Dead Battery	Lightening	Clean
Contact	Cracked Body	No Lock up	Install Temporary Clamp
Atmospheric Corrosion	Bad Boot or Seal	Mechanical Malfunction	Install Non Slip Coating
Internal Corrosion	Bad Coating	Valve Operator	Clear Contact
Debris	Bad Connections	Other	Add Cover
High Differential	Contact	Bad Pilot	Cut and Re-thread
No Display	Corrosion	Bad Plate	Raise Frame & Cover
Exposed	Bad Circuit Board	No Power	Grease & Operate
Idle Facility	Broken Read Dial	Over Pressured	Cleared Interference
Interference	Failed Differential Test	Out of Range	Change Meter
Leak	Dig In	Street Resurfacing	Add Oil
Cannot Locate	Dirty Element	Bad Relstate	Other
No Reading	Bad Filter	Rustor Pitting	Clean & Paint
Cannot Operate	Loose Fitting	Perforation Seal	Patch
Other	Bad Mechanical Fitting	Sulfur	Re-Calibrate
Bad Output	Freezing	Land Slide	Re-Read
Paved Over	Frozen or Hard to Turn	Sprint	Remove
No Power	Blown Fuse	Weather	Replace
Pressure Problem	Gouging	Broken Wire	Repair
Out of Range	Fire/Heat Damage	Bad Wrap	Reset
Bad Reading	Bad Hinges		Re-Seal
Bad Recording	Inactivity		Send in for Calibration
Broken Stop	No Ink		Tighten
Bad Differential Test	Failed Transition Joint		Re-Wrap
Unsafe Condition	No Test Lead		No Action Taken
Water	Broken Lid		Completed

JA_553A Corrective Work Form - Gas Distribution Crew Guide — Page 2 — 04/30/2009

Supplemental Information for Performing AC Inspection of HPR-Type Stations

When filling out a GC Corrective Work Form for this type of work, there are many fields that will commonly have similar information, no matter the specific HPR being inspected. Here are some commonly used values:

1. Problem Description – always begin with "HPR AC Inspection", so that the work can be easily found in SAP. Then, input the address of the HPR. For example, a Problem Description would look like "HPR AC Inspection 1101 Roosevelt Danville.
7. Comments (Long Text) is the reason the corrective work is needed. Input the pit depth, condition of components, or other reasons in this area. For example: "Active corrosion found on relief valve and on downstream piping. Pit depth v measured above maximum."
8. How was work identified – always choose "CPUC Audit" for HPR AC inspections.
11. Always select GC Notification.
12. Priority – generally "G = Maint. Compliance" will be selected, unless an emergency situation was encountered, corrective work was done, and the GC Corrective Work Form is being filled out after the corrective work has been completed (this will happen in rare instances when the relief is blowing or there is a severe leak found during the inspection). If emergency work is completed, select priority "A = Emergency Unsafe Condition".
13. Work Type – select 609 if the meter being fed by the HPR is over 1000 CFH, or 610 if the meter is under 1000 CFH.
14. Crew Class – indicate if a T&R and/or Construction crew is needed.
15. Duration - Estimate the total man hours needed to complete the work.
16. Reported by – enter the LAN ID of the person who inspected the HPR.
20. Technical Inspection By – if the work has already been completed, enter the Foreman's LAN ID.