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Rea- son	Dis- p.	(J) Name	(K) Signature (M) MSIN	(L) Date	(J) Name	(K) Signature (M) MSIN	(L) Date	Rea- son	Dis- p.
1	1	Cog.Eng. JL Castleberry		11/10/94	R Leyva		N2-02	3	
1	1	Cog. Mgr. DB Smet		N1-46	EH Kohlman		H5-09	3	
1	1	QA ML McElroy		11/14/94	JD Dunks		L4-90	3	
1	1	Safety LS Krogsrud		R3-08 11/20/94	JR Biggs		T4-07	3	
1	1	GL Dunford		11/16/94	Central Files		L8-04	3	

18. Signature of EDT Originator	19. Authorized Representative for Receiving Organization	20. Cognizant Manager	21. DOE APPROVAL (if required) Ctrl. No. ☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments
11/10/94 Date	11/10/94 Date	11/16/94 Date	

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Document Number: WHC-SD-WM-OTP-161, REV 0

Document Title: Acceptance/Operational Test Procedure 103-SY Tank
Camera Purge Control System

Release Date: 11/30/94

**This document was reviewed following the
procedures described in WHC-CM-3-4 and is:**

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Kara M. Broz

November 30, 1994

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6. Author

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Signature

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**APPROVED FOR
PUBLIC RELEASE**

KMB 11/30/94

7. Abstract

This Acceptance/Operational Test Procedure will document the satisfactory operation of the 103-SY Camera Purge Control System.

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8. RELEASE STAMP

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ACCEPTANCE/OPERATIONAL TEST FOR
103-SY CAMERA PURGE CONTROL SYSTEM

Impact level SQ

Jim Castleberry
November 1994

ETN-94-0019

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DT

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ACCEPTANCE/OPERATIONAL TEST PROCEDURE
103-SY TANK CAMERA PURGE SYSTEM

1.0 PURPOSE

This procedure will document the satisfactory operation of the 103-SY Tank Camera Purge System (CPS). The safety interlock which shuts down all the electronics inside the 103-SY vapor space, during loss of purge pressure, will be tested to ensure reliable performance. This procedure is separated into three sections (6.1, 7.1 and 7.2) identified below:

- 1) Section 6.1 is performed in the 306 building prior to delivery to the 200 West Tank Farms. This section involves the following:
 - Leak checking all fittings on the 103-SY Purge Panel for leakage using a "Snoop" solution and resolving the leakage.
 - The following instrumentation has been calibrated and calibration stickers have been affixed.
 - Pressure Switch set to 10 ± 2 in. w.g., Pt. No. H-2-821236-11.
 - Pressure Transmitter, Pt. No. H-2-821236-10.
 - Pressure Gage, Pt. No. H-2-821236-14.
 - Pressure Gage, Pt. No. H-2-821236-15.
 - Flowmeter, Pt. No. H-2-821236-9.
 - The Relief Valve, Pt. No. H-2-821236-18 has been tested to open at $5 +0.0/-2.0$ psig and closes with an inlet pressure of 10 ± 2.0 in. w.g. and an outlet pressure of -0.5 ± 0.2 in. w.g.
- 2) Section 7.1 verifies that PR-1, the regulator which maintains a positive pressure within the volume (cameras and pneumatic lines) when the camera is not in use, is properly set. In addition the green light (PRESSURIZED) (located on the Purge Control Panel) is verified to turn on above 10 in. w.g. and after the time delay relay (TDR) has timed out.

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- 3) Section 7.2 verifies that the purge cycle functions properly, the red light (PURGE ON) comes on, and that the correct flowrate is obtained to meet the requirements of the National Fire Protection Association (NFPA), Article 496, for a Class 1, Division 1, Group B atmosphere.

2.0 TEST OBJECTIVES

- 2.1 Demonstrate the proper operation of the purge control system components.

3.0 REFERENCES

P&ID	H-2-821238
Electrical Drawings	H-2-821237
Mechanical Drawings	H-2-821236

4.0 RESPONSIBILITIES

4.1 SYSTEMS SURVEILLANCE ENGINEERING

A Systems Surveillance Engineering (SSE) Test Engineer shall be responsible for the coordination, scheduling, performance and documentation of the test procedure.

4.2 TEST WITNESSES

Tank Farm Operations and their Quality Assurance will provide a representative to witness the satisfactory completion and approval of pertinent steps identified in this ATP.

Witnesses are responsible for verifying that organizational requirements are met throughout the testing and documentation sequences of the procedure.

5.0 DOCUMENTATION

5.1 TEST RECORD

All personnel involved in the performance of this test including the SSE Test Engineer shall fill out a line in Section 9.0 Records.

Test results shall be recorded by the SSE Test Engineer. Unless specific data is required, the initials of the person accepting the item will be entered in each test sheet blank to indicate compliance with the stated requirements or the successful completion of the given test step. Unacceptable conditions or readings are to be referred to Section 8.0, Exceptions.

The SSE Test Engineer will maintain a chronological test log, documenting when various phases of the test are conducted and any pertinent information not recorded in the test procedure.

5.2 EXCEPTIONS

Exceptions by step number, and other notes are to be recorded under Section 8.0. This section must be dispositioned, (including the generation of any required ECNs) and signed off prior to final ATP acceptance. If no exceptions are encountered, this section may be so noted and closed out with the required signatures.

5.3 TEST EXECUTION RECORD

The final acceptance of the ATP results shall be indicated by signatures listed under Section 10.0.

NOTE: During the performance of this test, errors in text may be encountered which require correction/adjustment to complete the test. The correction is to be noted in the ATP and listed as an exception in Section 8.0.

6.0 PREREQUISITES

6.1 SHOP TEST

NOTE: Sequence of steps in section 6.1 can be altered per SSE Test Engineer discretion. Section 6.1 must be performed in the shop.

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6.1.1 Relief Valve, Pt. No. H-2-821236-18

- A. Setup the relief valve as shown in Figure 1, and slowly pressurize the inlet side and record below the pressure where bubbles are first noticed. Continue to increase pressure and record below the flow at 5 +0.0/-2.0 psig.

Pressure: _____

Flow at 5 +0.0/-2.0 psig: _____

- B. Setup the relief valve as shown in Figure 2, and pressurize and isolate the inlet side to a pressure of 10 ± 2.0 in. w.g.. Apply an outlet pressure of -0.5 ± 0.2 in. w.g. Record below the volume and the amount of time that it takes for the inlet pressure to drop to 0.0 psig, if applicable.

Volume _____

Inlet Pressure/Time: _____ / _____

Outlet Pressure/Time: _____ / _____

SSE Test Engineer signoff below that Section 6.1 has been performed to your satisfaction.

SSE Test Engineer _____ /Date _____

NOTE: Sections 6.2 and 6.3 may be performed in either the shop or the field.

6.2 PURGE PANEL LEAK CHECK

- 6.2.1 Pressurize each leg (supply and return side) of the 103-SY Purge Panel, H-2-821236, to approximately 2.0 psig and "Snoop" each fitting and resolve any leakage by tightening the fitting. If the leakage continues then replace the fitting. SSE Test Engineer signoff below that the Purge Panel is acceptable.

SSE Test Engineer _____ Date _____

6.3 PURGE PANEL INSTRUMENT CALIBRATION

6.3.1 The following instrumentation has been calibrated and calibration stickers have been affixed. SSE Test Engineer signoff below that the instrumentation listed below has been calibrated and a calibration sticker has been affixed.

- Pressure Switch set to 10 ± 2 in. w.g., Pt. No. H-2-821236-11.
- Pressure Transmitter, Pt. No. H-2-821236-10.
- Pressure Gage, Pt. No. H-2-821236-14.
- Pressure Gage, Pt. No. H-2-821236-15.
- Flowmeter, Pt. No. H-2-821236-9.

SSE Test Engineer _____ Date _____

7.0 ACCEPTANCE TEST

7.1 PURGE PANEL ACCEPTANCE IN THE 200 WEST TANK FARMS

7.1.1 Turn on breakers #1, #2, and #3 in the panel box VDP-2 located inside the 241-SY-101/103 Video Shack.

7.1.2 Open the N₂ bottle and adjust PR-2 to 45 ± 5 psig.

7.1.3 Adjust PR-1 to 15 ± 3 in. w.g read off of pressure transmitter, H-2-821236-13. It may be necessary to open the calibration port valve, Pt. No. H-2-821236-23 (return or supply side) to decrease pressure.

7.1.4 Step 7.1 is complete _____ SSE Test Engineer.

7.2 PURGE CONTROL PANEL ACCEPTANCE

NOTE: The volume of the camera housing, purge panel lines and the hoses is approximately 2.0 ft.³ (1.1 + .16 + .65 cu. ft.). Per NFPA 496 requirements, ten volumes of purge gas, 20 ft.³, must flow through the assembly. The purge pressure will be set by adjusting PR-2 so that a minimum 20 ft.³ will flow through the assembly in 10 minutes or less. The purge rate is read off of the flowmeter, FI, located in the Purge Panel.

7.2.1 At the Purge Control Panel set the time delay relay to 2 minutes and turn the Control Switch (CS) to "Purge" and hold for a few seconds until the red light (Purge ON) comes on indicating that the purge has just begun.

7.2.2 Signoff below that the red light comes "ON".

OPS _____/Date _____

7.2.3 Slowly adjust the purge pressure at PR-2 until the flow rate is 2.3 +0.4/-0.0 CFM.

7.2.4 Record the pressure off of H-2-821236-15 and the flowrate below.

Pressure/Flowrate _____/ _____

SSE Test Engineer: _____/Date _____

7.2.5 Divide the flowrate into 20 ft.³ and this will be the time setting for the TDR at the Purge Control Panel. Record this number and round it up to the next minute.

Time Setting for the TDR = 20 ft.³/flowrate (CFM) = _____

Time Setting rounded to the next minute: _____

SSE Test Engineer: _____/Date _____

7.2.6 Plug pan and tilt and camera control unit into failsafe receptacle system located in the 241-SY-101/103 Video Shack. Turn on the power switches to the pan and tilt and camera controls.

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- 7.2.7 At the Purge Control Panel set the time delay relay to the time shown in step 7.2.6 and turn the Control Switch (CS) to "Purge" and hold for a few seconds until the red light (Purge ON) comes on indicating that the purge has just begun.
- 7.2.8 On the Purge Control Panel, located in the Video Shack, verify the green light (system pressurized above 10" w.g.) is "ON".

_____/_____
OPS /Date

- 7.2.9 After the purge has completed its purge cycle verify Red light is "OFF" and that the in-tank camera lights have come "ON", and that power is being provided to the 103-SY pan and tilt and camera.
- 7.2.10 Signoff below that the amber light comes "ON".

_____/_____
OPS /Date

- 7.2.11 Turn off valve PR-2 and allow the gas to bleed off to the setpoint on PS (low pressure switch) 10 ± 2 in. w.g. Verify in-tank camera lights go off and the amber light (PURGE FAIL) is "ON" and the green light goes off. Also verify that power is no longer being supplied to the 103-SY pan and tilt and camera. QC signoff below that the lights turned off and power was no longer supplied to pan and tilt and camera at 10 ± 2 in. w.g.

_____/_____
QC /Date

- 7.2.12 Step 7.2 is complete _____ SSE Test Engineer.

8.0 EXCEPTIONS

ITEM	STEP	PAGE	DESCRIPTION/ REASON	DISPOSITION/ RESOLUTION

TEST APPROVED WITH EXCEPTIONS

SSE Test Engineer

Quality Control

Tank Farm Operations

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9.0 RECORDS

DATA/VERIFICATION LIST

NAME PRINT	NAME SIGN	INITIALS	POSITION	DATE

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10.0 TEST EXECUTION RECORD

REFERENCE SECTION	ACCEPT / REJECT	REMARKS

TEST WITNESSES:

SSE Test Engineer / Date

Quality Control / Date

Tank Farm Operations / Date

10.1 FINAL ACCEPTANCE

Testing per this procedure is completed satisfactorily and the 103-SY tank camera purge system is ready for installation and service.

Tank Farm Manager/Date

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