<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: left;"> STA 4 SEP 14 1994 </div> <div> ENGINEERING DATA TRANSMITTAL </div> <div style="text-align: right;"> Page 1 of 1 1. EDT 601321 </div> </div>											
2. To: (Receiving Organization) DISTRIBUTION		3. From: (Originating Organization) SURV. SYSTEMS. ENG./7CF80		4. Related EDT No.: NA							
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8. Originator Remarks: ETN-94-0028 The following SD is being distributed for approval and issuance.				9. Equip./Component No.: NA							
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11. Receiver Remarks:				12. Major Assm. Dwg. No.: NA							
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1	WHC-SD-WM-OTP-158	ALL	0	ATP/OTP 101-SY Tank Camera Purge System and In Tank Color Camera Video Imaging System	S,Q	1	1				
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Approval Designator (F)		Reason for Transmittal (G)			Disposition (H) & (I)						
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(G)	(H)	17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)						(G)	(H)		
Reason	Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	Reason	Disp.
1	/	Cog.Eng. SM Werry	<i>[Signature]</i>	9/25/94	N1-46	EH Kohlman			H5-09	3	
1	/	Cog. Mgr. DB Smet	<i>[Signature]</i>	9/25/94		G Dunford			R2-50	3	
1	/	QA ML McElroy	<i>[Signature]</i>	9/7/94	S1-57	D Strasser			R1-51	3	
1	/	Safety LS Krogsrud	<i>[Signature]</i>	9/13/94	R3-08	CENTRAL FILES			L8-04		
1	/	JR Biggs	<i>[Signature]</i>	9-13-94	T4-07	O.S.T.I. (2)			L8-04		
3		JD Dunks			L4-90	GUY BEAR			R1-51	3	
3		R Leyva			N2-02						
18.		19.		20.		21. DOE APPROVAL (if required) Ctrl. No.					
<i>[Signature]</i> 8/25/94 Signature of EDT Originator Date		NA Authorized Representative Date for Receiving Organization		<i>[Signature]</i> 9/6/94 Cognizant Manager Date		☐ Approved ☐ Approved w/comments ☐ Disapproved w/comments					

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Document Number: WHC-SD-WM-OTP-158, REV 0

Document Title: ACCEPTANCE/OPERATIONAL TEST PROCEDURE 101-SY TANK
CAMERA PURGE SYSTEM AND IN TANK COLOR CAMERA VIDEO
IMAGING SYSTEM

Release Date: 9/14/94

* * * * *

**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 Broz

(Signature)

9/14/94

(Date)

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SUPPORTING DOCUMENT		1. Total Pages 13
2. Title ACCEPTANCE/OPERATIONAL TEST PROCEDURE 101-SY TANK CAMERA PURGE SYSTEM AND IN TANK COLOR CAMERA VIDEO IMAGING SYSTEM	3. Number WHC-SD-WM-OTP-158	4. Rev No. 0
5. Key Words 101-SY Tank Camera Purge System, 101-SY Color Camera Video Imaging System APPROVED FOR PUBLIC RELEASE <i>KMB 9/14/94</i>	6. Author Name: SM Werry <i>[Signature]</i> Signature Organization/Charge Code 7CF80/N2B79	
7. Abstract This Acceptance/Operational Test Procedure will document the satisfactory operation of the 101-SY color camera purge control system and color camera video imaging system.		
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**ACCEPTANCE/OPERATIONAL TEST PROCEDURE
101-SY TANK CAMERA PURGE SYSTEM AND
IN TANK COLOR CAMERA VIDEO IMAGING SYSTEM**

1.0 PURPOSE

This procedure will document the satisfactory operation of the 101-SY tank Camera Purge System (CPS) and 101-SY in tank Color Camera Video Imaging System (CCVIS). Included in the CPS is the nitrogen purging system safety interlock which shuts down all the color video imaging system electronics within the 101-SY tank vapor space during loss of nitrogen purge pressure. This procedure is separated into three sections (7.1, 7.2 and 7.3) identified below:

- 1) Section 7.1 verifies that PR-1, the regulator which maintains a positive pressure within the volume (cameras and pneumatic lines), is properly set. In addition, the correct flowrate is obtained to meet the requirements of National Fire Protection Association (NFPA), Article 496, for a Class 1, Division 1, Group B atmosphere.
- 2) Section 7.2 verifies that the purge cycle functions properly, the green light (PURGE ON) comes on, and that the safety interlock operates correctly during loss of purge pressure. During the loss of purge condition the operation of the red (In-Service) light will be verified.
- 3) Section 7.3 verifies that the color cameras, lights, pan and tilt and associated controls and components operate correctly.

2.0 TEST OBJECTIVES

Demonstrate the acceptability/operation of the color camera purge control system components, nitrogen purging safety interlock system and video imaging system.

3.0 REFERENCES

Tank Farms Health and Safety Plan	WHC-CM-4-3
Engineering Task Plan	WHC-SD-WM-ETP-011
SY Farm In Tank Video Installation	H-2-822805
200 Area Tank Camera Purge Mech.	H-2-822793
101-SY Color Camera Elect.	H-2-822794
101-SY Color Camera P & I	H-2-822795
ECN - 177415	
CVI File - 22580	

4.0 RESPONSIBILITIES

4.1 SURVEILLANCE SYSTEMS ENGINEERING

A Surveillance Systems 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/OTP.

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 documented by the SSE Test Engineer. Unless specific data is required, the initials of the person verifying acceptance will be entered in each test sheet blank to indicate compliance with the stated requirements or the successful completion of the given test step.

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 and signed off prior to final ATP/OTP 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/OTP 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/OTP and listed as an exception in Section 8.0.

6.0 PREREQUISITES

6.1 TEST COORDINATION

The SSE Test Engineer shall ensure:

- test witnesses receive timely notification of the test schedule.
- qualified support personnel have been scheduled.
- a test log (chronological log of events during testing) is maintained.
- tools and equipment required for testing have been staged and the following instrumentation calibrated.

Pressure Switch (H-2-822793-11)

Pressure Transmitter (H-2-822793-10)

Pressure Indicating Switch (H-2-822784-14)

Pressure Gages (H-2-822793-14,15)

Flow Meter (H-2-822793-9)

Flow Meter (H-2-822793-17)

Relief Valve (H-2-822793-18)

SSE TEST ENGINEER

Date

6.2 200 AREA MAINTENANCE

- 6.2.1 Verify that the nitrogen supply and return lines from the Purge Panel to the 101-SY color camera are connected per H-2-822805.

OPS / Date

7.0 ACCEPTANCE/OPERABILITY TEST

7.1 PURGE PANEL ACCEPTANCE

NOTE: Sequence of steps in section 7.1 can be altered per SSE Test Engineer discretion.

- 7.1.1 Turn on breakers #4, #5, and #7 located in Distribution Panel VDP-2 inside the 241-SY Video Shack.
- 7.1.2 Open the nitrogen supply valve and adjust PR-2 to 45 ± 5 psig.
- 7.1.3 Pressurize each leg (supply and return side) of the 101-SY Purge Panel, H-2-822793, 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.
- 7.1.4 The volume of the camera housing, purge panel lines and the hoses, is approximately 2.0 ft.^3 ($1.1 + .16 + .65 \text{ ft.}^3$). 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-1 so that a minimum of 20 ft.^3 will flow through the assembly in 10 minutes or less (2 CFM minimum). Adjust the purge pressure at PR-1 to obtain a flowrate of $2.3 +0.4/-0.0$ CFM. The purge flow rate will be read from the flowmeter, H-2-822793-9. The purge pressure will be read from pressure gages, H-2-822793-15 (supply) and H-2-822793-14 (return). Record below the final flowrate and pressures.

Flowrate: _____ Pressure: _____
Pressure: _____

- 7.1.5 Step 7.1 is complete.

SSE Test Engineer / Date

OPS / Date

QC / Date

7.2 PURGE CONTROL PANEL ACCEPTANCE

7.2.1 Adjust the Time Delay Relays (TDR1 and TDR2) to 10 minutes. Push the "Start" pushbutton and hold until the amber (Pressurized) light comes on indicating that pressure is satisfactory and that the purging has begun.

7.2.2 Sign off below that the amber light comes "ON".

_____	/	_____
SSE Test Engineer		Date
_____	/	_____
OPS		Date

7.2.3 Plug the pan and tilt and camera control unit into the safety interlock system receptacle located in Video Shack. Turn on the power switches to the pan and tilt and camera controls.

7.2.4 After the 10 minutes has elapsed verify that the green (Purging) light is off and that the Red (In-Service) light is "On" and that the camera lights have come "On" and that power is being provided to the pan and tilt and camera control equipment.

_____	/	_____
SSE Test Engineer		Date
_____	/	_____
QC		Date

7.2.5 Turn off valve PR-2 and allow the gas to bleed off to the set point on PS (low pressure switch) 10 ± 1 in. w.g. Verify camera lights go off and the red light (In-Service) goes off. Also verify that power is no longer being supplied to the pan and tilt and camera control equipment. QC signoff below that the lights turned off and power was no longer supplied to pan and tilt and camera control equipment at 10 ± 1 in. w.g.

_____	/	_____
SSE Test Engineer		Date
_____	/	_____
QC		Date

7.2.6 Signoff below that the red light goes out and record below the pressure where the light dropped out.

Pressure : _____

_____	/	_____
OPS		Date

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7.2.7 Open the valve on PR-2 to 45 ± 5 psig. Restart the purging process by pushing the "Start" pushbutton and hold until the amber (Pressurized) light comes on indicating that pressure is satisfactory and that the purging has begun.

7.2.8 Step 7.2 is complete _____ SSE Test Engineer.

7.3 COLOR CAMERA VIDEO IMAGING SYSTEM

7.3.1 Ensure the CPS is operating by visually verifying the Red (In Service) light is "ON".

Note: This video imaging system test includes two cameras. They will be referred to as cameras one and two. Camera one (1) provides pan and tilt capabilities and camera two (2) is a fixed view camera. Camera one (1) is tested in steps 7.3.1 through 7.3.13. Camera two (2) is tested in steps 7.3.14 through 7.3.16. The SSE Test Engineer will verify and initial satisfactory completion of the following steps.

7.3.2 Plug video monitor/s, video recorder and video printer into power source. Verify video monitor, video recorder, frame store integrator and video printer have power and are operational _____.

7.3.3 Verify that there is a color video image being transmitted on the video camera 1 system monitor (located in the 241-SY Video Shack) _____.

7.3.4 Using remote pan and tilt controls, pan in the clockwise direction. Verify that the pan electronic break holds _____.

7.3.5 Pan in the opposite direction. Verify that the pan electronic break holds and that the panning operation has covered approximately 360° _____.

7.3.6 Tilt the camera to the extreme down position. Verify that the camera is pointing down approximately vertically and that the electronic break holds _____.

7.3.7 Tilt the camera to the extreme upward position. Verify that the camera electronic break holds _____.

7.3.8 Using remote camera zoom control, manipulate the zoom control to wide angle. Verify zoom moves towards wide and when operated towards "wide" _____.

7.3.9 Manipulate the zoom control to telephoto. Verify zoom moves towards telephoto when operated towards "tele" _____.

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- 7.3.10 Using remote camera iris control, manipulate the iris control to open. Verify that the iris opens when operated towards "open" ____.
- 7.3.11 Manipulate the iris control to close. Verify that the iris closes when operated towards "close" ____.
- 7.3.12 Using remote camera focus control, manipulate the focus control to far. Verify that the focus adjusts to far when operated towards "far" ____.
- 7.3.13 Manipulate the focus control to near. Verify that the focus adjusts to near when operated towards "near" ____.

Camera 1 test is complete.

_____/_____
OPS Date

_____/_____
QC Date

_____/_____
SSE Test Engineer Date

- 7.3.14 Verify that there is a color image being transmitted on the Camera 2 system monitor and the image is in focus ____.
- 7.3.15 Verify the frame store integrator and video recorder are operational ____.
- 7.3.16 Verify the electronic shutter control is operational ____.

Camera 2 test is complete.

_____/_____
OPS Date

_____/_____
QC Date

_____/_____
SSE Test Engineer Date

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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
7.1		
7.2		
7.3		

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 101-SY CPS and CCVIS are ready for installation and service.

Tank Farm Operations / Date

11.0 POST INSTALLATION TEST

Repeat Steps 7.1, 7.2, and 7.3 of this procedure to ensure that the 101-SY CPS and CCVIS are operating satisfactorily after installation of Camera into riser 5A of tank 101-SY. Any discrepancies found with the 101-SY CCVIS and CPS in accordance with this section of the ATP/OTP shall be noted below. Section 11.0 shall not be complete without the SSE Test Engineers signature.

SSE Test Engineer / Date