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HRT Test No. II A-22 a,b
TO: R. Van Winkle
FROM: J. R. Engel and P. N. Haubenreich

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PROCEDURE FOR TESTING HOLDUP TANK
HRT Test No. II A-22 a,b

Item 22 Holdup Tank (Drawing D-18291)

Function

Vapor and gases vented from the reflux condensers pass through the holdup tank and into the storage cold trap located directly above the holdup tank. The tank serves to collect any liquid which may be entrained in the vent stream as well as liquid which drains back from the cold trap. Liquid from the holdup tank can be transferred to the chemical plant loading pit or to either fuel or blanket low-pressure system.

Description of Equipment and Operation

The holdup tank consists of a capped section of 8-in. schedule 40 pipe with a total volume of 53.5 liters. It is equipped with a float switch which indicates by lights on the main control board whether or not the liquid level in the tank is above a certain level.

Liquid is transferred from the holdup tank to the chemical plant loading pit through line 148 which enters the top of the tank but terminates near the bottom. Transfers to the loading pit can be made by creating a vacuum in the receiver in the loading pit. An alternative is to pressurize the holdup tank with gas admitted through the low-pressure sampler via the transfer tank and line 138.

Liquid is transferred from the holdup tank to either low-pressure system through line 270 which is attached to the bottom of the tank. Such transfers are made by pressurizing the tank with gas admitted through the sampler in the low-pressure system opposite the one to which the liquid is to be transferred.

Purpose of Tests

Tests will be conducted to determine the operability of the float switch and the level at which it functions. Transfer operations will be carried out to establish their feasibility. The amount of liquid remaining in the holdup tank after transfer operations will be measured.

Description of Tests

The level at which the float switch gives an indication will be determined by filling the holdup tank with water from a weighed container.

Liquid will be transferred from the holdup tank to the chemical plant loading pit by pulling a vacuum in a receiver in the loading pit. The same transfer will be carried out by pressurizing the holdup tank with gas admitted through one of the samplers. The amount of liquid remaining in the tank will be determined.

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Liquid will be transferred from the holdup tank to the blanket low-pressure system by pressurizing with gas added through the fuel sampler and transfer tank. A transfer will be made to the fuel system by pressurizing through the blanket sampler.

Detailed Test Procedure

A. Preliminary

Make connections in fuel and blanket low-pressure samplers so that gas can be admitted from an external supply.

Replace HCV-341 and HCV-441 with special fittings and temporary valve SpV-341 and SpV-441. (These fittings are described in the procedure for testing the transfer tanks.)

Remove HCV-731 and attach an adapter to the lower flange so that a temporary line can be connected for filling the holdup tank.

Check the installation of the holdup tank float switch and indicator lights.

Check that the instruments for reading low-pressure sampler pressures are installed. These are PE-351 and PI-5100 on fuel sampler and PE-451 and PI-5110 on blanket sampler.

B. Test Procedure-transfer to loading pit by vacuum.

1. Check the following valves:

Closed:

HCV-334	HCV-732
SpV-341	HCV-734
HV-343	HV-443
HV-935	HCV-743

Open:

HCV-733	SpV-441
HCV-936	HCV-434

2. Attach line from drum of water on scales to lower flange at HCV-731 position.

3. Blow out any water in holdup tank by admitting gas through fuel sampler. Water (if any) and gas will flow out at SpV-441. Shut off gas supply.

4. Open HCV-734. Close HCV-936 and HCV-733.

5. Allow water to flow from weigh drum into the holdup tank. Stop when lights change on main control board. Record weight drained from drum. Note what part of this is holdup in supply line between weight drum and holdup tank.

6. Close HCV-734.

7. Attach line 148 to closed container in loading pit. Evacuate container.

8. Open HV-935. Leave open until flow ceases, then close. Weigh water collected and record.

9. Open HCV-733, HCV-936 and HCV-434.

10. Blow water out of holdup tank by admitting gas through fuel sampler. Collect and weigh water which comes out at SpV-441.

11. Repeat Steps 4 through 10.

12. Record data in HRT Data Log Book. Form indicated by sample data sheet.

C. Test Procedure--transfer to loading pit by pressure.

This procedure is the same as for transfer operation above except replace Step 7 by the following:

7. Open HCV-733. Admit gas through the fuel sampler until the pressure is at desired value. (Read pressure on PI-5100.) Shut off gas supply.

D. Test procedure--transfer to blanket side.

1. Fill holdup tank as in Steps 1 through 6 of Section B, above.

2. Open HCV-733 and pressurize with gas through fuel sampler to desired pressure. Shut off gas supply.

3. Open HCV-936 and collect water flowing from SpV-441. Weigh and record net weight collected.

4. Admit more gas through fuel sampler to blow out remaining water. Collect and weigh.

5. Repeat transfer with other initial pressures.

6. Record data in HRT Data Log Book.

E. Test procedure--transfer to fuel side.

1. Weigh drum should still be connected to lower flange at HCV-731 position.

2. Check valve positions:

Closed:

HCV-732	HV-343
HCV-733	HV-443
HCV-434	HV-935
HCV-743	SpV-441

Open:

HCV-734	HCV-334
HCV-936	SpV-341

3. Blow out holdup tank through SpV-341 by gas admitted at blanket sampler. Shut off gas supply.

4. Open HCV-733. Close HCV-734 and HCV-936.

5. Put in water from weigh drum until level lights change. Record weight drained from drum.

6. Close HCV-733. Open HCV-734.

7. Admit gas through blanket sampler to bring pressure to desired value. (Read pressure on PI-5110.) Shut off gas supply.

8. Open HCV-936 and collect water flowing from SpV-341. Weigh and record weight collected.

9. Admit more gas through blanket sampler to blow out water remaining in holdup tank. Collect and weigh.

10. Repeat transfer with other initial pressures.

11. Record data in HRT Data Log Book.

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JRE-PNH:be

Sample Data Sheet No. 1

Transfer from holdup tank to loading pit by vacuum.

1. Run			
2. Supply drum weight, initial, lb			
3. Supply drum weight when lights change, lb			
4. Weight of water added to holdup tank, lb			
5. Volume of water added to holdup tank, liters			
6. Volume of container in loading pit, liters			
7. Pressure in container before transfer, in. Hg vacuum			
8. Weight of water collected at loading pit, lb			
9. Weight of water collected at SpV-441, lb			
10. Remarks			

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Sample Data Sheet No. 2

Transfer from holdup tank to loading pit by pressure.

1. Run					
2. Supply drum weight, initial, lb					
3. Supply drum weight when lights change, lb					
4. Weight of water added to holdup tank, lb					
5. Volume of water added to holdup tank, liters					
6. Pressure in sampler and holdup tank
before transfer, psig					
7. Weight of water collected at loading pit, lb					
8. Weight of water collected at SpV-441, lb					
9. Remarks					

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Sample Data Sheet No. 3

Transfer of holdup tank to blanket system.

1. Run					
2. Supply drum weight, initial, lb					
3. Supply drum weight when lights change, lb					
4. Weight of water added to holdup tank, lb					
5. Volume of water added to holdup tank, liters					
6. Pressure in holdup tank before transfer, psig					
7. Weight of water collected at SpV-441
during transfer, lb					
8. Weight of water collected at SpV-441
when tank blow out, lb					
9. Remarks					

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Sample Data Sheet No. 4

Transfer from holdup tank to fuel system.

1. Run					
2. Supply drum weight, initial, lb					
3. Supply drum weight when lights change, lb					
4. Weight of water added to holdup tank, lb					
5. Volume of water added to holdup tank, liters					
6. Pressure in holdup tank before transfer, psig					
7. Weight of water collected at SpV-341
during transfer, lb					
8. Weight of water collected at SpV-341
when tank blown out, lb					
9. Remarks					

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