State of California
AIR RESOURCES BOARD

Executive Order G-70-7-AD

Modification to the Certification of
the Hasstech Model VCP-2 and VCP-2A
Phase II Vapor Recovery Systems

WHEREAS, the Air Resources Board (the "Board") has established, pursuant to Sections 39600, 39601 and 41954 of the Health and Safety Code, certification procedures for systems designed for the control of gasoline vapor emissions during motor vehicle fueling operations ("Phase II vapor recovery systems") in its "Certification Procedures for Gasoline Vapor Recovery Systems at Service Stations" as last amended December 4, 1981 (the "Certification Procedures"), incorporated by reference in Section 94001 of Title 17, California Code of Regulations;

WHEREAS, the Board has established, pursuant to Sections 39600, 39601 and 41954 of the Health and Safety Code, test procedures for determining the compliance of Phase II vapor recovery systems with emission standards in its "Test Procedures for Determining the Efficiency of Gasoline Vapor Recovery Systems at Service Stations" as last amended September 1, 1982 (the "Test Procedures"), incorporated by reference in Section 94000 of Title 17, California Code of Regulations;

WHEREAS, Executive Order G-70-7-AB, issued January 22, 1985, certified the Hasstech VCP-2 and VCP-2A Phase II vapor recovery system ("Hasstech VCP system") to be at least 95 percent effective in self-serve or attendant use;

WHEREAS, Executive Order G-70-7-AC, issued November 8, 1991, certified the Hasstech VCP system to be at least 95 percent effective when integrated with Board-certified Phase I aboveground tank vapor recovery systems;

WHEREAS, A new test procedure has been developed which more accurately measures the effectiveness of bootless nozzle vapor recovery systems;

WHEREAS, draft procedure TP-201.1 was adopted as an alternative test procedure pursuant to Section 3.7 of Method 2-1 on July 13, 1992, by Executive Order G-70-141;

WHEREAS, the HP-2 nozzle was certified by the Executive Officer on December 3, 1982, as a replacement for the HP-1 nozzle, the manufacture of which has since been discontinued;

WHEREAS, Ed Hasselmann of Hasstech ("Hasstech"), has requested modification of the certification of the Hasstech VCP system to include the inverted coaxial hoses and the HP1000 bootless nozzle for use with the Hasstech VCP system, and to eliminate the obsolete HP-1 nozzle;

WHEREAS, the Hasstech VCP system with inverted coaxial hoses and HP1000 nozzles was tested in accordance with the alternate procedure TP-201.1;

WHEREAS, the Hasstech VCP system with inverted coaxial hoses and HP1000 nozzles has been evaluated pursuant to the Board's Certification Procedures;

WHEREAS, I find that the Hasstech VCP system with HP1000 bootless nozzles and inverted coaxial hoses conforms with all the requirements set forth in Sections I through VII of the Certification Procedures, and results in a vapor recovery system which is at least 95 percent effective for attendant and/or self-serve use at gasoline service stations when used in conjuction with a Phase I vapor recovery system which has been certified by the Board; and

WHEREAS, Section VIII-A of the Certification Procedures provides that the Executive Officer shall issue an order of certification if he or she determines that the vapor recovery system conforms to all of the requirements set forth in Sections I through VII of the Certification Procedures.

NOW THEREFORE, IT IS HEREBY ORDERED that the certification, Executive Orders G-70-7-AB and G-70-7-AC, is hereby modified to include inverted coaxial hoses and the HP1000 bootless nozzle.

IT IS FURTHER ORDERED that the Hasstech VCP system is certified to be at least 95 percent effective in the self-serve and/or attendant use at gasoline service stations when used with a Board-certified Phase I vapor recovery system, or when integrated with Board-certified Phase I aboveground tank vapor recovery systems. The maximum dispensing rate for the Hasstech VCP system shall be twelve (12) gallons per minute. Exhibit 1 contains a list of the equipment certified for use with the Hasstech VCP system. Exhibit 2 contains installation and performance specifications for the system. Exhibit 3 contains specifications pertaining to the integration of the system with Board-certified Phase I aboveground tank vapor recovery systems. A list of suggested minimum maintenance requirements for the system may be found in Exhibit 4.

IT IS FURTHER ORDERED that compliance with the certification requirements and rules and regulations of the Division of Measurement Standards of the Department of Food and Agriculture, the State Fire Marshal's Office, and the Division of Occupational Safety and Health of the Department of Industrial Relations is made a condition of this certification.

IT IS FURTHER ORDERED that the certified Hasstech VCP system shall, at a minimum, be operated in accordance with the manufacturer's recommended maintenance intervals and shall use the manufacturer's recommended operation, installation, and maintenance procedures.

IT IS FURTHER ORDERED that the use of the Hasstech HP-1 is prohibited after January 1, 1994. The HP-1 nozzle may not be used in facilities installed

after the effective date of this order, but may remain in use at existing installations of the system until January 1, 1994.

IT IS FURTHER ORDERED that any alteration of the equipment, parts, design, or operation of the systems certified hereby is prohibited, and deemed inconsistent with this certification, unless such alteration has been approved by the Executive Officer or his/her designee.

IT IS FURTHER ORDERED that installations of the system certified hereby shall perform in actual use with the same effectiveness as the certification test systems. If, in the judgement of the Executive Officer, a significant fraction of installations fail to meet the specifications of this certification, or if a significant portion of the vehicle population is found to have configurations which signficantly impair the system's collection efficiency, the certification itself may be subject to modification, suspension or revocation. Any revision to the certification and/or test procedures relevant to this certification may be the basis for evaluation of the system and may constitute grounds for modification, suspension or revocation of this certification.

IT IS FURTHER ORDERED that the following requirements are made a condition of certification for any installation which is installed or modified after the effective date of this Order. The Hasstech VCP system shall be installed only in facilities which are capable of demonstrating on-going compliance with the vapor integrity requirements of the local air pollution control district ("district"). The owner or operator of the installation shall conduct, and pass, a static pressure decay test at least once in each twelve month period. Documentation of the test, including test results, shall be submitted to the district within thirty days. The district may elect to impose more stringent test frequency requirements. The test shall be conducted in accordance with a Board-approved or district-approved test procedure. (The most current draft procedure TP-201.3 may be used until a static pressure decay test procedure is adopted by the Board.) Alternative test procedures may be used if determined by the Executive Officer to yield comparable results.

IT IS FURTHER ORDERED that, at such time as sufficient information becomes available that the fugitive emissions which may result from pressurization of the storage tanks can be quantified, if such emissions are found to adversely affect the overall effectiveness of the system, the efficiency of the system may be reevaluated and revised.

IT IS FURTHER ORDERED that all nozzles approved for use with the Hasstech VCP system shall be 100 percent performance checked at the factory including checks of proper functioning of all automatic shut-off mechanisms.

IT IS FURTHER ORDERED that the certified Hasstech VCP system shall be performance tested during installation for ability to dispense gasoline and collect vapors without difficulty in the presence of the station manager or other responsible individual. The station manager, owner or operator shall

also be provided with instructions on the proper use of the Hasstech system, its repair and maintenance, and where system replacement and system components can be readily obtained. Copies of the manufacturer's warranties for each of the Hasstech VCP system components shall be made available to the station manager, owner or operator.

Executed at Sacramento, California this 22nd day of March, 1993.

James D. Boyd
Executive Officer

Attachments

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Exhibit 1
Hasstech VCP System Equipment List

Component	Manufacturer/Model	State Fire Marshal Identification Number
Nozzle	OPW HP-1 *	1016-1
	OPW HP-11	1016-1
	Husky HP-2	1016-1
	OPW HP1000 (bootless)	005:001:001
Vapor Hose	Hasstech (1/2" or greater ID)	1016-2
Hose Swivels	State Fire Marshal approved (dual hose systems only)	
Coaxial Hose	Any Board-certified coaxial hose listed in the current revision of Executive Order G-70-52. (Not to be used with bootless nozzles)	
Inverted Coaxial Hose	Thermoid Hi-Vac	005:037:003
	Goodyear Flexsteel	005:036:002
	(To be used only with HP1000 bootless nozzles)	
Flow Control Valve	Hasstech 1016-33 underpump vapor valve	1016-3
	Existing installations may instead have <u>both</u> of the following:	
	A. Y. McDonald 9760176 impact valve	1016-4
	ITT-General Control, either SF1FE01A101H or SF1FE01A101H	1016-3
Collection Unit		
Pump Flame Arrestor		
Inlet	Protectoseal SP 4951 (1-1/4")	1016-6
Outlet	Protectoseal SP 4951 (1-1/4")	1016-8
<u>OR</u> substitute	Hasstech 1025-(1-1/4")	1016-6 and -8
Collection Pump	Rotron D312 (1/3 hp.)	1016-7
	Rotron D313 (1/2 hp.)	1016-7

* The HP-1 nozzle may not be used after January 1, 1994. The HP-1 nozzle may be used in existing installations (only) until January 1, 1994.

Dispenser Flame Arrestor	Hasstech 1025-3/4"	1016-5
Processing Unit	Hasstech 1016-PR (for VCP-2) or Hasstech 1016-PR-A (for VCP-2A)	1016-PR 1016-PRA
Control Panel	Hasstech 1016-CP	1016-CP
Pressure/Vacuum Valve	Varec 2010-811-2	1016-9
Optional Components		
In-tank Drain Check	Hasstech 1044	1016-31
Out-of-tank Drain Ck	Hasstech 1042	1016-32

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Exhibit 2

Specifications for the Hasstech VCP Bootless Nozzle System

Drawings of typical installations of the Hasstech VCP Phase II vapor recovery system are shown in Figures 2-A and 2-B. The requirements and performance standards listed below apply, at a minimum, to all systems installed or modified after the effective date of this Order.

Nozzles

1. Leaded and unleaded spouts are interchangeable.

2. Bootless nozzles shall be used only with the inverted coaxial hose.

Coaxial Hoses

1. The hoses shall be inspected regularly for damage. Hoses with perforations exceeding 1/8" in diameter, or slits or tears in excess of 1/4" in length, or cumulative damage which similarly compromises the integrity of the vapor hose, shall be deemed defective and removed from service.

Inverted Coaxial Hoses

1. The maximum length of the hose shall be fourteen (14) feet.

2. Inverted Coaxial hoses shall be used only with bootless nozzles.

Collection Unit

1. A threaded tap at least 1/8" in diameter shall be provided on the inlet side of the collection unit. The vacuum level at this point shall be 20 to 40 inches water column.

2. A threaded tap at least 1/8" in diameter shall be provided on the outlet side of the collection unit. The tap shall remain plugged and vapor tight except when test equipment is being connected or removed. The pressure at this point shall be within the normal operating range of the storage tank.

3. OSHA-acceptable access to the collection unit shall be provided immediately upon request for inspection and testing.

4. The air to liquid ratio of the system shall be within the limits shown in the table below, measured with the nozzle held fully open (linear interpolation may be used for values between those indicated). Any fueling point not capable of demonstrating compliance with this

performance standard shall be deemed defective and removed from service. The air to liquid ratio shall be determined by a Board-approved or district-approved test procedure. (Draft procedure TP-201.5 may be used until an air to liquid ratio test procedure is adopted by the Board.) Alternative test procedures may be used if they are determined by the Executive Officer to yield comparable results.

	Air to Liquid Ratio	
Flow Rate (gpm)	Minimum	Maximum
6	1.4	2.4
8	1.4	2.3
10	1.4	2.15
12	1.4	2.0

Processing Unit

1. The processing unit shall be set to activate at a pressure of 1 inch water column during normal vehicle refueling operations. A pressure of 2 inches water column or 2.8 inches gasoline, which does not cause the processing unit to attempt incineration, shall be deemed a failure of the processing unit unless it occurs within two hours of normal vehicle fueling operations after a bulk delivery.

2. Observation of 3 consecutive unsuccessful attempts to ignite the incinerator shall be deemed a failure of the unit unless it occurs within three minutes of fueling a recreational vehicle or within two hours of normal vehicle fueling operations after a bulk delivery.

3. OSHA-acceptable access to the processing unit shall be provided immediately upon request for inspection and testing.

4. The system shall include an audible alarm to alert station personnel that the the process unit has made at least twenty unsuccessful attempts to ignite and has shut down. The manual reset shall be used to restart the unit. If the alarm sounds again within several hours, the unit is presumed to be malfunctioning and requires service.

5. A temperature sensing or flame sensing device shall be installed which permits the station operator or inspector to verify proper operation of the incinerator from the ground.

6. A device capable of creating a permanent record of burner temperature or flame duration shall be installed. Alternatively, a device capable of creating a permanent record of storage tank pressures may be installed. The records created by the device(s) shall be maintained, at a minimum, for twelve consecutive months and shall be made available upon request.

7. At no time shall emissions from the processing unit exceed Ringelmann one-half (1/2) or ten percent (10%) opacity.
   Note: visible emissions, except water vapor or heat waves, may indicate improper burner operation unless associated with a Phase I delivery.

Vapor Lines and Tank Vents

1. Underground vapor and vent lines shall be at least two inch nominal inside diameter (2" ID) and sloped to drain toward underground tank. The condensate drain line may be a minimum of one inch (1") ID (refer to Figure 2-A). All vapor lines shall remain unobstructed in normal operation of the system. For aboveground tank system specifications, also refer to Exhibit 3 and Figure 3-A.

2. A pressure/vacuum (P/V) valve shall be installed at a height not less than 12 feet above the driveway surface used for Phase I tank truck filling operations. The outlet shall vent upward into the open atmosphere and be located to eliminate the possibility of vapors accumulating or traveling to a source of ignition or entering adjacent buildings.

3. The horizontal distance between the P/V valve and the processing unit shall be not less than twenty (20) feet.

4. All vapor return and vent piping shall be installed in accordance with the manufacturer's instructions and with applicable regulations.

Storage Tank and Phase I System

WARNING: Phase I fill caps should be opened with caution because the storage tank may be under pressure.

1. A tank level correction gauge may be installed at the vent line. The gauge shall be installed so that it can be read from ground level and so that any condensate will drain away from the gauge. The gauge is shown in Figure 2-C and reads in inches of gasoline (pressure to the left of zero and vacuum to the right).

2. The static pressure in the storage tanks shall not exceed one inch (1") water column. For the purpose of determining compliance with this requirement, the static pressure within the storage tank shall be defined as the average of readings taken at regular intervals, over a period of at least sixty consecutive minutes, by visual observation of a pressure gauge or by examination of a permanent record of pressure gauge or pressure transducer readings. The period of observation shall begin at least two (2) hours after the end of, and shall not include, Phase I product delivery. For the purpose of measuring static pressure, a threaded tap at least one-eighth inch (1/8") in diameter shall be installed in the system at which the tank pressure may be monitored. The tap may be in the dispenser riser connection or on the vent line, and shall be accessible for connection to a pressure gauge. One tap is adequate for manifolded systems. The tap shall remain plugged and vapor tight except when test equipment is being connected to or removed from

it. If located on the vent line, the tap shall be at least six feet (6′) and not more than eight feet (8′) above the ground.
Note: observation of pressure decline when no vehicles are fueling, and the processing unit is not in operation, may indicate leaks in the system; a static pressure decay test may be used to determine compliance with the vapor integrity requirements. Negative pressure which becomes increasingly negative as a result of vehicle loading may indicate collection unit malfunction.

3. Coaxial Phase I vapor recovery systems shall not be used with new installations of Hasstech VCP-2 and VCP-2A Phase II systems after January 1, 1994. Replacement of storage tanks at existing facilities, or modifications which cause the installation of new Phase I vapor recovery equipment, are considered new installations with regard to this requirement. Two point Board-certified Phase I systems shall be installed at these facilities.

4. The Phase I vapor and fill caps provide an additional seal which may prevent vapor emissions when they are in place. However, the caps must be removed during Phase I operations and may result in loss of vapor from the storage tank. Therefore, compliance with static pressure decay test criteria shall be demonstrated with these caps removed.

5. The Phase I vapor recovery system shall be operated during product deliveries so as to minimize the loss of vapors from the facility storage tank, which may be under pressure. This may be accomplished in the following manner: The Phase I vapor return hose is connected to the delivery tank and to the delivery elbow before the elbow is connected to the facility storage tank. The delivery tank vapor valve is opened only after all vapor connections have been made, and is closed before disconnection of any vapor hoses. The vapor hose is disconnected from the storage tank before it is disconnected from the delivery tank.

6. Spill containment manholes which have drain valves shall demonstrate compliance with the static pressure decay criteria with the drain valves installed as in normal operation. Manholes with cover-actuated drain valves shall demonstrate compliance both with the cover open and with the cover closed.

General

1. The minimum maintenance requirements in Exhibit 4, or similar requirements of equal or greater stringency, are recommended as conditions of the Permit to Operate for all new or modified installations permitted after the effective date of this Order.

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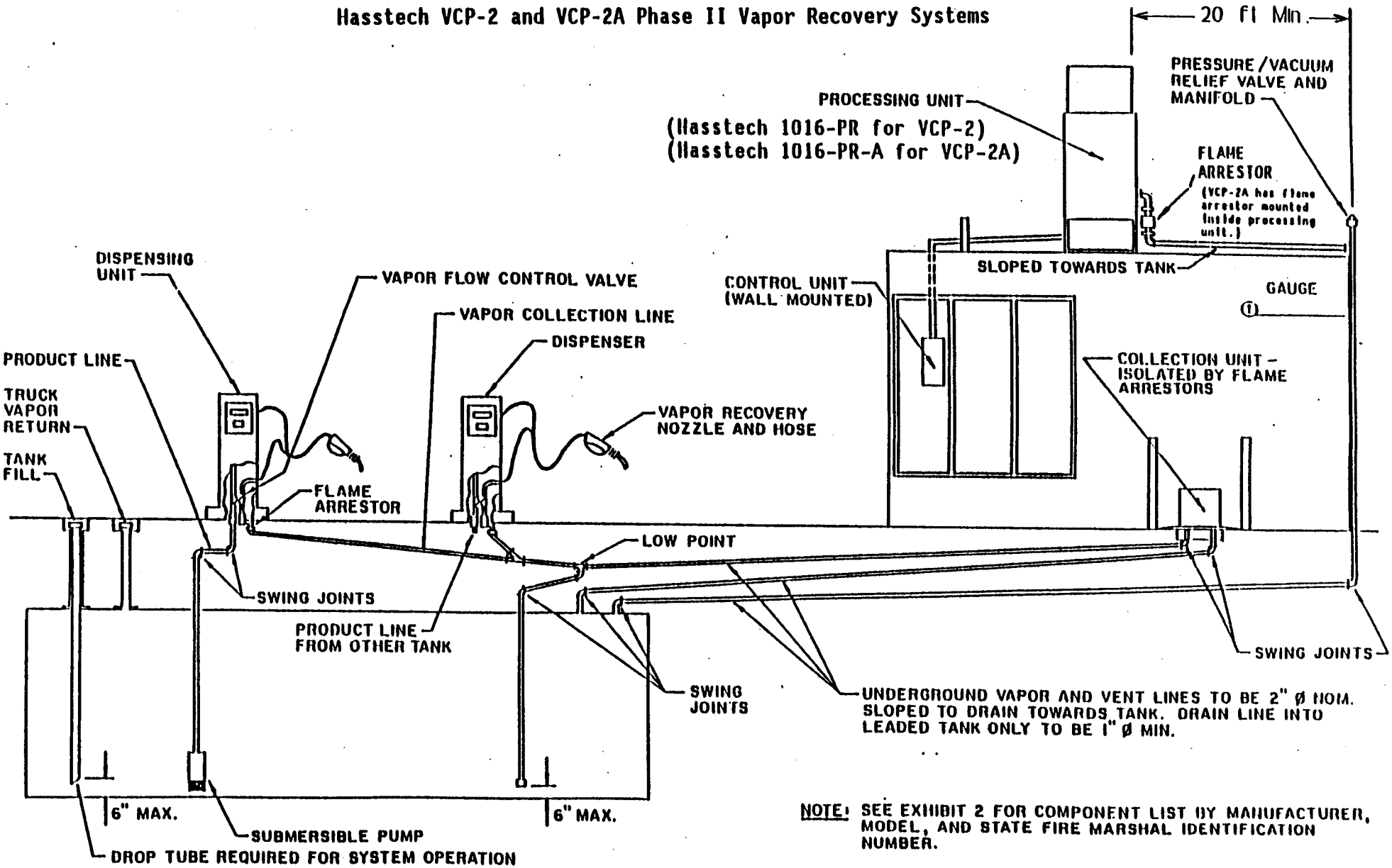
Figure 2-A

Hasstech VCP-2 and VCP-2A Phase II Vapor Recovery Systems



NOTE: SEE EXHIBIT 2 FOR COMPONENT LIST BY MANUFACTURER, MODEL, AND STATE FIRE MARSHAL IDENTIFICATION NUMBER.

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Figure 2-B

Alternative Configuration for Hasstech VCP-2 and VCP-2A Systems

Notes on Figure 2-A also apply to Figure 2-B

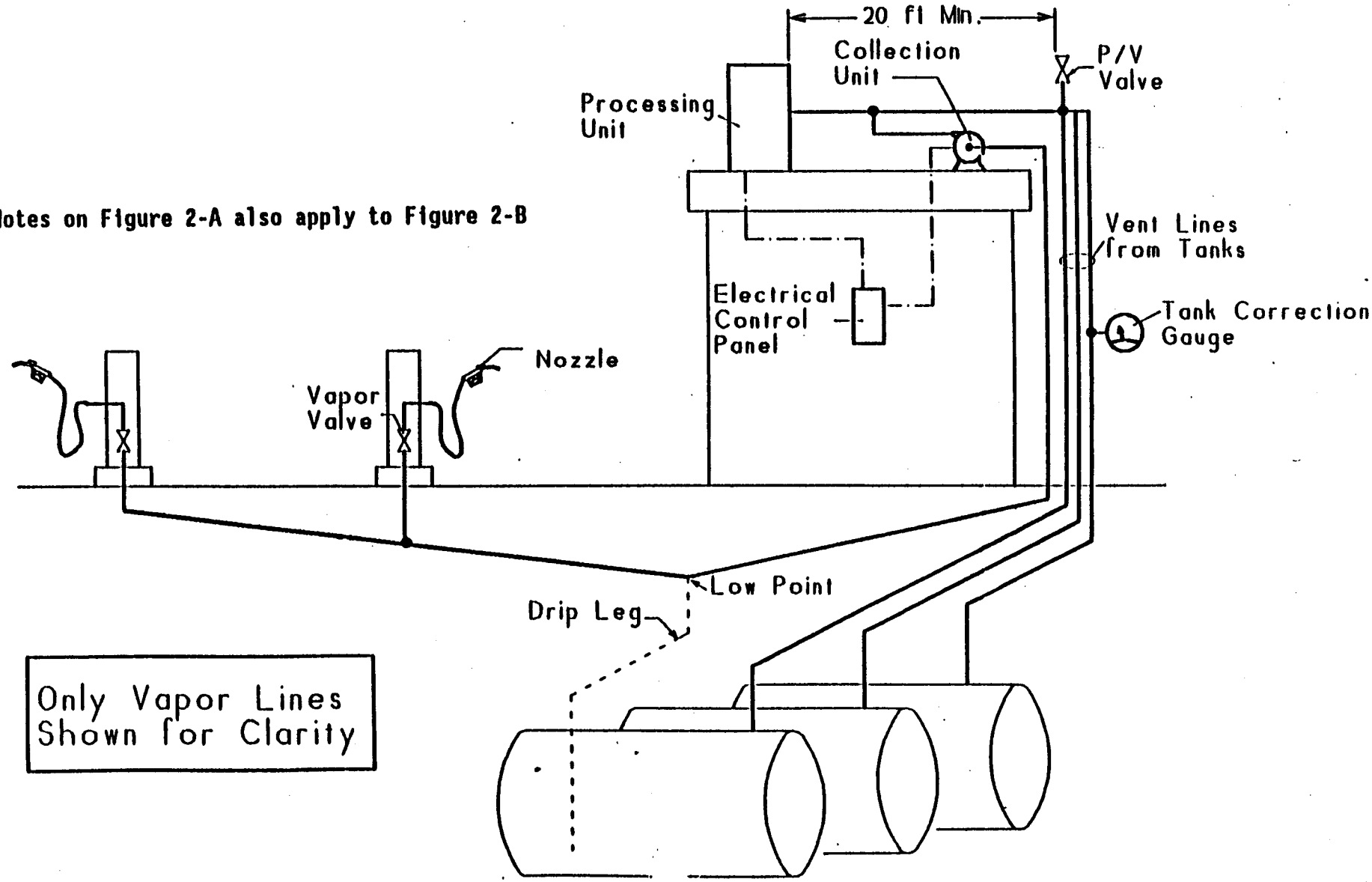

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Figure 2-C

Hasstech Tank Correction Gauge

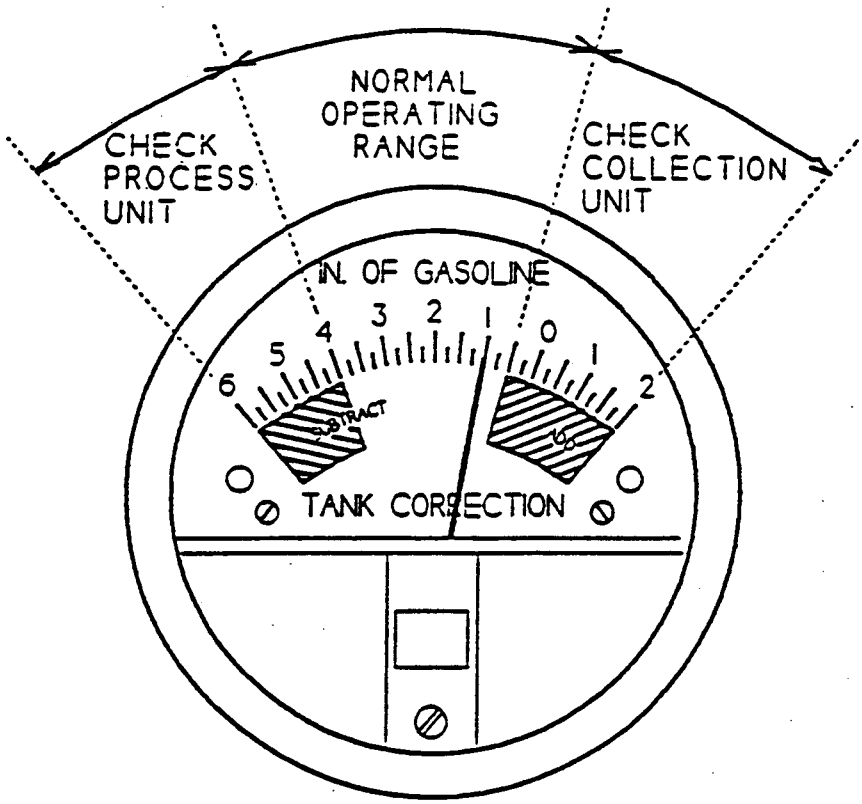

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Exhibit 3

Additional Requirements for the Hasstech VCP System
With Aboveground Storage Tanks

Figure 3-A shows the integration of the Hasstech VCP system with a Board-certified Phase I aboveground tank vapor recovery system.

General Requirements

1. Compliance with the rules and regulations of the local air pollution control district where the installed system is located is made a condition of this certification.

2 The tank(s) and associated piping and other equipment not specifically listed as approved Phase II equipment in this Order shall comply with the rules and regulations of the local fire officials with jurisdiction where the installed system is located.

3. The minimum maintenance requirements in Exhibit 4 shall be included in the Permit to Operate issued by the district in which the system is installed.

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Exhibit 4

Minimum Maintenance Requirements for the Hasstech VCP System

1. The owner/operator shall conduct the following maintenance on a yearly basis if the facility dispensed 75,000 or less gallons per month. If the facility dispensed more than 75,000 gallons per month in any given month, checks a, b and c shall be conducted at least every six months.

   a. Clean all screens in the vapor return system.

   b. Check the ionization detector and replace any defective electrodes in accordance with the manufacturer's instructions.

   c. Check vapor flow control valves in each dispenser to determine if they are opening properly and for liquid leaks and replace any valves that are not opening or are found leaking.

   d. Check blower for proper operations in accordance with the local district's instructions and, if necessary, replace or repair defective components per manufacturer's instructions. Is the local district does not have requirements on proper operations, check blower motor in accordance with manufacturer's instructions.

   e. Check pressure/vacuum valve for proper operation and leaks and repair any valve that is not operating properly or is leaking.

   f. Check operation of collection unit by starting a dispensing unit and observing motor run.

   g. Check operation of process unit by observing heat waves from stack when storage tank pressure gauge indicated a pressure of two inches water gauge or greater.

2. If the facility dispenses an average of 20,000 gallons or more of gasoline per month, the owner/operator shall replace or rebuild the blower motor five years or less after installation, or when repairs are needed to maintain performance at least equal to that achieved by the certification test system. If the facility dispenses an average of less than 20,000 gallons of gasoline per month, the owner/operator shall replace or rebuild the blower motor ten years or less after installation, or when repairs are needed. Blower motors shall be rebuilt or repaired in accordance with the manufacturer's instructions.

3. The owner/operator shall check and replace any defective bellows or vapor recovery hoses on a weekly basis.

4. The owner/operator shall record and maintain records of all installation tests, scheduled inspections and repairs for a minimum of two years and shall make such records available to district, ARB or EPA inspectors upon demand.

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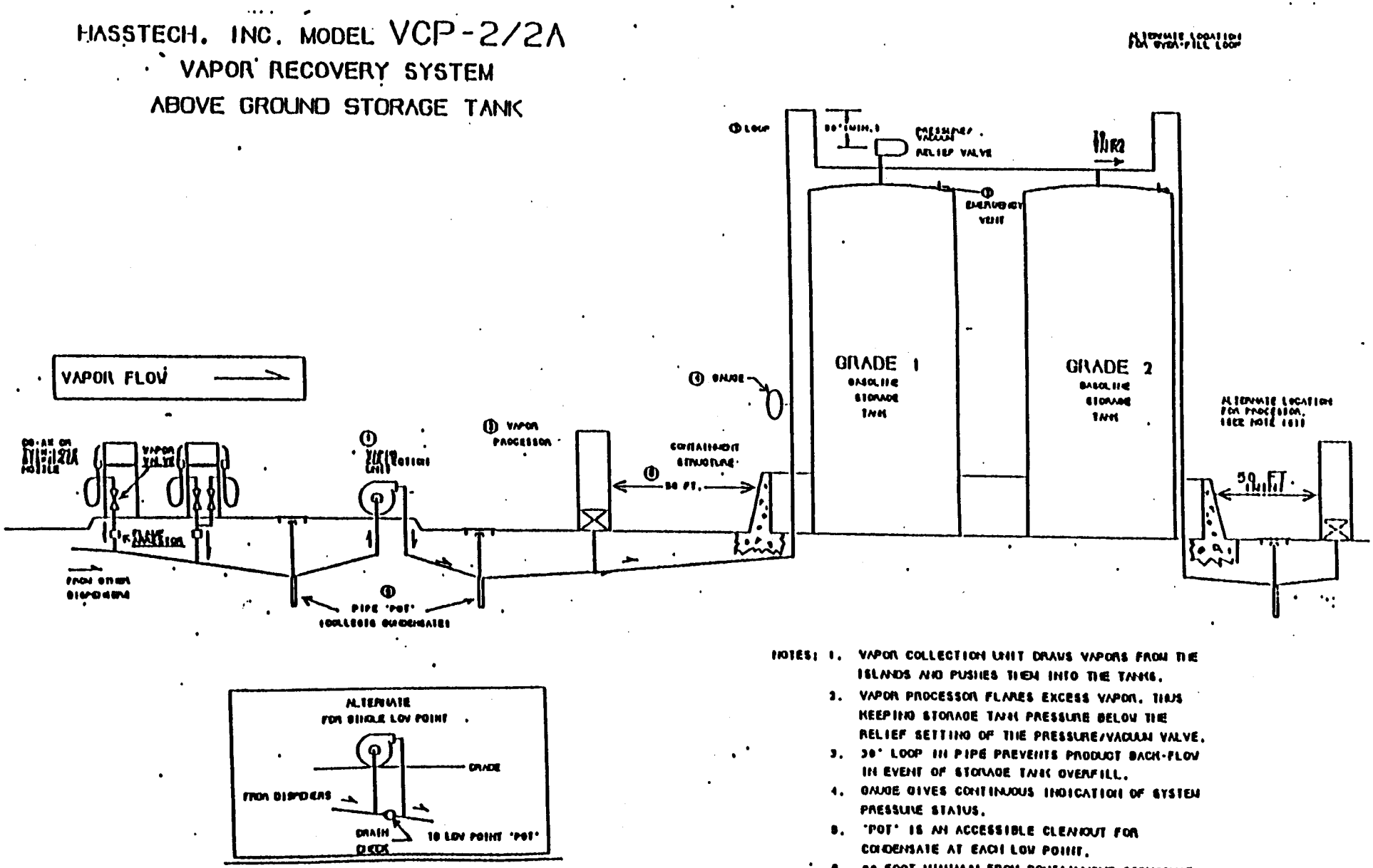
Figure 3-A

Hasstech VCP-2 and VCP-2A Phase II Vapor Recovery Systems
For Installation With Aboveground Storage Tanks



NOTES:
1. VAPOR COLLECTION UNIT DRAWS VAPORS FROM THE ISLANDS AND PUSHES THEM INTO THE TANKS.
2. VAPOR PROCESSOR FLARES EXCESS VAPOR, THUS KEEPING STORAGE TANK PRESSURE BELOW THE RELIEF SETTING OF THE PRESSURE/VACUUM VALVE.
3. 30" LOOP IN PIPE PREVENTS PRODUCT BACK-FLOW IN EVENT OF STORAGE TANK OVERFILL.
4. GAUGE GIVES CONTINUOUS INDICATION OF SYSTEM PRESSURE STATUS.
5. "POT" IS AN ACCESSIBLE CLEANOUT FOR CONDENSATE AT EACH LOW POINT.
6. 50 FOOT MINIMUM FROM CONTAINMENT STRUCTURE FOR LESSER DISTANCES SEE SECT. 1018.03 CALIF. STATE FIRE MARSHAL REGULATIONS.
7. EMERGENCY VENTS TO BE VAPOR TIGHT AND MEET REQUIREMENTS OF NFPA-30 (1981), APPENDIX A.