

VISTA CHEMICAL
GROUNDWATER REMEDIATION PLAN
February 6, 1991

Presently, two options are available for the remediation of the VCM groundwater. The details of each option are outlined below; the similarities and differences are presented immediately after the discussion of the two options. The last section of this document explains the purpose and/or operation of some of the key components, or processes, that are utilized in the remediation. A schematic is attached which shows the key components and flow and concentration data.

Option I

The groundwater is pumped from the wells to the following components/processes:

1. Collection Tank
2. Incinerator Flame Arrestor
3. Steam Stripper Feed Tank
4. Steam Stripper
5. Biological Treatment
6. Outfall

Option II

The groundwater is pumped from the wells to the following components/processes:

1. Collection Tank
2. Steam Stripper Feed Tank
3. Steam Stripper
4. Biological Treatment
5. Outfall

Option Comparison

The method of removing the groundwater from the wells and, subsequently, treating it is the same for both options. The difference between the two is that Option I will substitute the groundwater for process water in the flame arrestor, reducing the amount of process water needed by 15 to 20 gpm.

Operation

The key components in the remediation are:

1. Incinerator Flame Arrestor
2. Steam Stripper
3. Biological Treatment (ASU)

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A short explanation of the operation of each component is given below. Concentration and flow data are presented on the schematic.

Flame Arrestor

The flame arrestor provides a liquid (water) seal between the process vent system and the incinerator. The vents (HCl, Cl_2 , organics, etc.) are bubbled through the liquid seal then to the incinerator. The water prevents flames from propagating upstream into the vent system, which could cause explosions.

Presently, clean process (deep well) water is used for this seal. Option I would replace the process water with groundwater.

Water is constantly fed to the flame arrestor and is withdrawn for treatment by a level control system. The makeup water rate is 15-20 gpm.

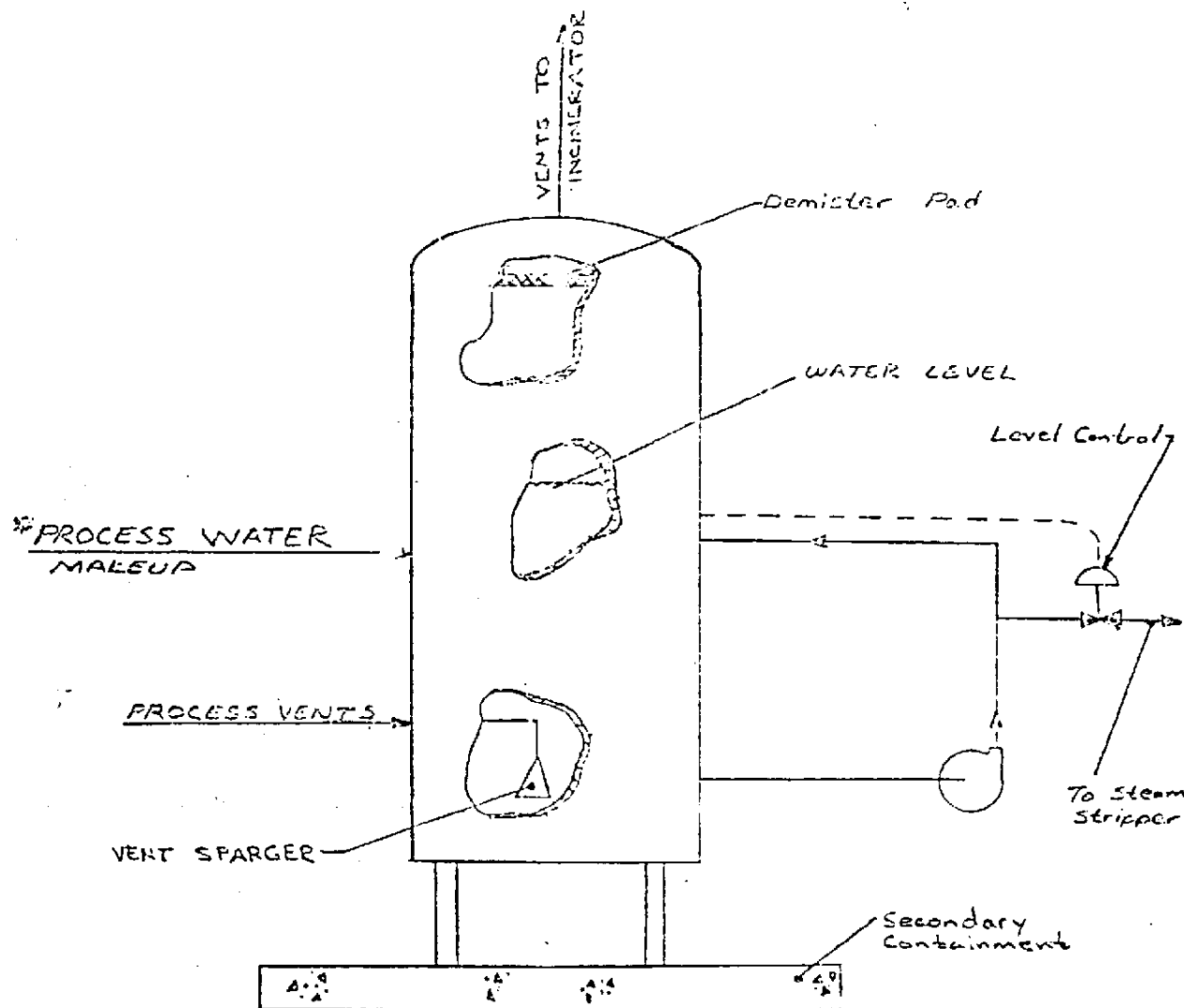
Steam Stripper

The steam stripper receives contaminated water from the various processes at the VCM Plant. Steam is utilized to strip the impurities from the stripper feed water. The overhead, or contaminates, are recycled back to the process. The bottoms, or clean water, are discharged along with other wastewaters to the secondary treatment unit for biological treatment.

Biological Treatment

The secondary treatment system utilizes biological treatment methods to further treat the wastewater from the steam stripper and other sources.

After equalization, the activated sludge process is utilized, with clarification. This treatment is necessary to polish the B.O.D. left in the process wastewaters.



FLAME ARRESTOR DETAIL

* - stream to be replaced by groundwater

BRUNING 40-536 70445

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VISTA Vista Chemical Company Lake Charles VCM Plant				DRAWN		CHECKED	APPROVED
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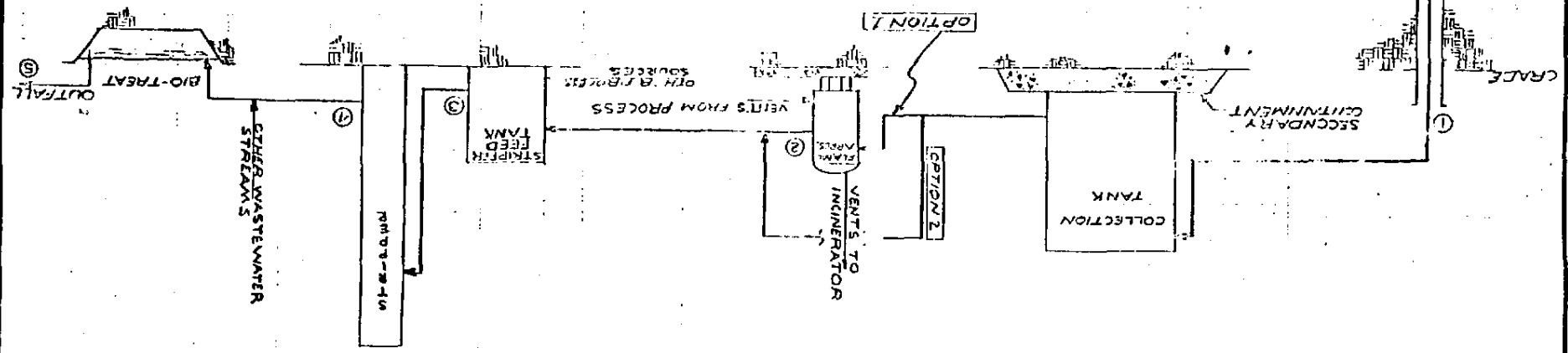
EDC CONCENTRATION DATA

① WELLS -	≈ 300 FPM	25
② FLAME ARRESTOR -	≈ 3500 PPM	20
③ STRIPPER FEED -	≈ 4000 PPM	80
④ STRIPPER BOTTOMS -	≈ .02-2 PPM	90
⑤ NPDES OUTFALL	≈ 10-15 PPB	1500-2200

FLOW RATE (GPM)

LEGEND

- ⑤ - Below Grade
- ④ - Secondary Containment
- ③ - ROUTE GROUNDWATER THROUGH FLAME ARRESTOR
- ② - BYPASS FLAME ARRESTOR



REV. NO.	DATE	DESIGN LDD	CHECKED	APPROVED

VISTA
VISTA CHEMICAL COMPANY
LAKE CHARLES VCM PLANT
LAKE CHARLES, LOUISIANA

PROPOSED GROUNDWATER REMEDIATION OPTIONS

SCALE

APPROVED
DATE: 2-1-90
VCM-