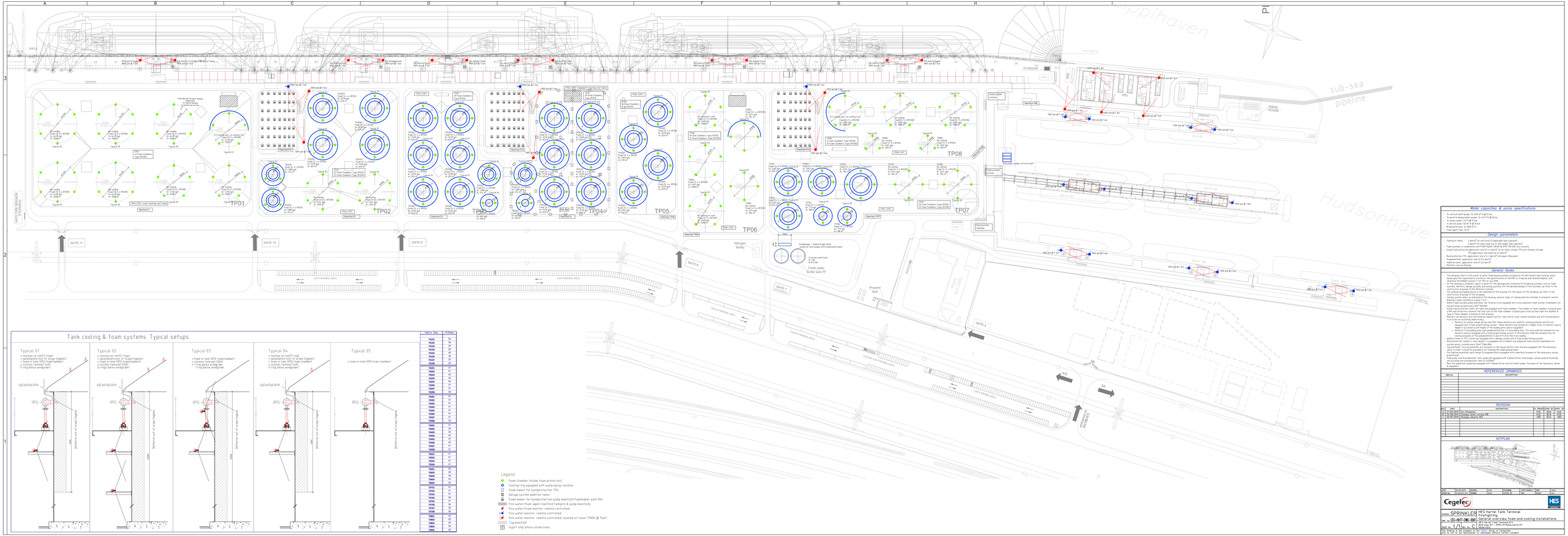

Tank nr. Tank	PHASE
70101	06
70102	06
70103	06
70104	06
70105	06
70106	06
70107	03
70108	03
70109	03
70201	01
70202	01
70203	01
70204	01
70205	06
70206	07
70207	01
70208	03
70209	03
70210	03
70211	01
70212	01
70213	01
70214	01
70215	01
70216	01
70217	01
70218	01
70219	01
70220	01
70221	01
70222	01
70223	01
70224	01
70225	01
70226	01
70227	01
70228	01
70229	01
70230	01
70231	01
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70245	01
70246	01
70247	01
70248	01
70249	01
70250	01
70251	01
70252	01
70253	01
70254	01
70255	01
70256	01
70257	01
70258	01
70259	01
70260	01
70261	03
70262	03
70263	06
70264	06
70265	06

Water capacities & pump specifications

- 3x vertical shaft pumps 3x 1250 m³/h @ 5 bar
- 3x positive displacement pumps 3x 12 m³/h @ 16 bar
- 1x jockey pump 10 m³/h
- 1x service pump 10 m³/h @ 5 bar
- Breakwaterfoam 2x 2500 m³/h
- Foam agent tank 24 m³

Design parameters

- Cooling of tanks: 2 l/min/m² on roof level (if applicable foam hydrants)
  2 l/min/m² on shell level (link or 10x height (see typicals))
- Foam systems: in accordance with NFPA 11 (2016) and NFPA 16 (2015 edition)
- Inside foam protection application rate of a 3 type/m² on all tanks, except TP3 with ethanol storage.
  TP3 application rate shall be a 5 type/m²
- Bund protection TP1: application rate of a 5 type/m² (storage of Benzeen)
- Polyethanolitic application rate of 6.5 type/m²
- Polyethanolitic application rate of 8.5 type/m²
- Monitors: see on drawing

General Notes

- This drawing refers to the water & system foam based systems installed on this HES Hartel Tank terminal and is based upon the requirements started on the specifications of the PFS, or integral plan (hardcoded)part, with additional requirements from the client and/or the design.
- On this drawing a schematic layout is given for the aboveground stationary fire fighting systems, such as foam systems, monitors, deluge systems and cooling systems. For the detailed design of this systems, we refer to the construction drawings of the respective systems.
- The underground piping layout is not indicated on this drawing. For the layout of the fire piping, we refer to the construction drawings of the VO pipes.
- Where the foam systems are indicated on the drawing, several types of cooling shall be installed. A schematic section drawing is given, marked as typical 1 to 5.
- Hartel foam systems pump manifolds. The three pc's are equipped with a low expansion foam system, foammakers on system setup. Located every 30m(9m).
- Inside foam protection tanks: all tanks are equipped with foam chambers. The number of foam chambers is based upon a TP3 load protection, however The flow rate of the foam chamber is based upon a full surface tank fire. Rubber & Plastic Purnell segment seal fire protection.
- Monitors: all monitors are connected by remote control, from control room, remote wireless and with the possibility to actuate on oscillating mode (scan).
  - Tank monitors (TM1, TM2, TM3 and VRU). These monitors are used for cooling purposes and are not equipped with a foam proportioning system. These monitors are located on a higher level, on monitor towers height in accordance with height of the loading arms and/or equipment.
  - Breakwater monitors (BWM1 and BWM2). These monitors are used for foam. This area shall be foreseen by two monitors and are equipped with a foam proportioning system. A third monitor shall be installed only for training purposes of the people/vessel in case of fire on the Foam loading.
- Breakwater foam: The breakwater is equipped with a foam system, based on a foam proportioning system. Bund protection tanks2 + duty tanks2 is a equipped with a tanks2 low expansion foam system foammakers on system setup. Located every 30m(18m/9m).
- Foam hydrants: The foam hydrants are located on 140 vessel berths. Each one also equipped with the necessary valves, in order to have the possibility for flushing the underground mains.
- Foam hydrants monitors roof tanks2 & pumpanthill is equipped with a manifold between of the necessary valves, in order to.
- Foam pumps: The foam proportioning system consists of 3 diesel driven foam pumps, jockey pump & 1foampl
- Foam tanks and breakwater foam tanks
- Two fire pumproom pumphouse equipped with 3 diesel driven vertical shaft pumps. Pumproom of the necessary valves & equipment

REFERENCED DRAWINGS

DWG.No.	DESCRIPTION

REVISION

REV.#	DATE	DESCRIPTION	by	checked/done	re-queries	QA
A	07/03/2019	1st Schematic	KVK	BVR		KVK
B	14/08/2019	Changes HAHLC version PB	KVK	BVR		KVK
C	04/09/2019	Changes HAHLC PB	KVK	BVR		KVK

KEYPLAN

DATE	04.09.2019	DESIGN	KVK	DRAWN	1:500 (ISO5)	SCALE
CHECK	BVR	APPROVAL	DRAW	SIZE	A0	SHEET

Cegelec

Division SPRINKLER

Doc. no. CC-HHTT-CWC-0002

Cegelec Fire & Safety Nederland B.V.
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Nederland

SHEET no. 1 / 1

HES

HES Hartel Tank Terminal
Fire fighting
Cooling & foam overview foam and cooling installations

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