

MOM on the TS46 WHG Project

Basic Design Approval

Time: 30 June ~ 1 July, 08

Place: Sinoma-ec Meeting Room

Delegates:

STS:	Mr. Ekalak Wacharayingyong,	Project Manager, ME
	Mr. Anawat Pornpunyapat,	Vice Manager, EE
	Mr. Jirasalk Thammasila,	EE
	Mr. Wipuchpong Vatvitthayakhlung,	ME (SCG CEMENT)
SEC:	Mr. Wei Wenhua,	Vice President;
	Mr. Ge Liwu,	Vice President;
	Mr. Li Yong,	Engineering Manager
	Ms. Luo Zhilan,	ME
	Mr. Wang Jianfeng	ME
	Mr. Zhu Qiang,	EE
	Mr. Zhang Jinying,	EE
	Mr. Wang Lin,	EE
	Ms. Xu Qin,	WE
	Mr. Yang Zhen,	CE
	Ms. Zhang Qian	Interpreter

1. Process and Mechanical

1. It is agreed as to the general layout, but as for the details, left to be further confirmed during the detailed design.
总图同意，细节等详细设计时再进一步确认。
2. The condensate water in the T/G building shall be connect through with that of Phase 1, The TS5 steam can work for TS46 turbine in case of both Kiln TS6 stop and turbine of TS5 stop.
T/G 厂房中，凝结水与一期连通，TS5 蒸汽在 TS6 停窑并且 TS5 汽机停转时供 TS46 汽机工作。
3. As for the cooling for the tap water in the water jet tank, Sinoma-ec will take measures in order to reduce the consumption of tap water, such as introduce the circulating water for cooling.
射水箱中自来水的冷却问题，我方将采取措施，以减少自来水的用量，如将循环水引过来冷却等措施。



4. Sinoma-ec will design a 200mm bund around the four sides of the oil supply devices and connect a tube from the unit to the outdoor emergency oil pit for collecting the oil spilled out and emergency oil discharge. SEC has already design the underground emergency oil tank beside the TG building.
供油装置四周将做 200mm 围墙，并将收集的油通过管道输送到室外的事故油坑中。
5. Sinoma-ec shall design the drain water ditch around the water jet pump and feed water pump for draining the water organizationally.
射水泵、给水泵等四周都设有排水沟，进行有组织排水。
6. STS agreed the proposal submitted as of the routing of the outdoor piping, arranging the pipeline route of TS4 along the raw material silo of pre-heater TS4 and sharing the support together with those of TS5 to the T/G building.
室外管线的走向，同意业主提出的方案，将 TS4 的管线走向沿窑尾生料库的方向通过，并与 TS5 共架到 T/G 厂房。
7. Sinoma-ec shall re-check and verify the diameter of the air mixing valve of the AQC boiler during the detailed design to ensure reduce the temp. of the hot gas from the cooler from 550 to 450
窑头锅炉的混风阀直径，详细设计时我们将重新核实，以保证将取自冷却机的热风从 550℃ 降到 450℃。
8. According to the requirement from STS, Sinoma-ec will add flow meter in the inlet duct of the AQC and SP boilers during the detailed design.
按照业主的要求，在详细设计时，在余热锅炉的进风管道加设流量计。
9. Sinoma-ec agreed to add blind flange gate damper at the inlet and outlet of the boilers for convenience of isolating the boiler from the system during boiler maintenance
同意在余热锅炉的进口与出口加设法兰，以利于锅炉检修时将锅炉从系统中分离出来。
10. Sinoma-ec shall take the inclination of the gas take-in duct from the cooler into consideration for decreasing the dust accumulations thereof during the detailed design. If this inclination is not enough SEC will add air blaster to clean the accumulate dust.
对于窑头冷却机的取风管道，在详细设计时，将考虑管道的角度减少积灰。如果角度不够 SEC 将增加空气清灰装置。
11. Sinoma-ec agreed to design two safety valves at each super-heater header and each drum.
在余热锅炉的锅筒及过热器集箱各设置两个安全阀。
12. Sinoma-ec will reduce the platform of the TS4AQC near the road side to 1.2m to reduce the odds of occupying the road.
TS4 AQC 锅炉靠近路侧的平台宽，将减小到 1.2m，减少占路。
13. Sinoma-ec shall consider to add the access to connection with the every pre-heater floors during the detailed design as of the SP boiler,
窑尾锅炉在详细设计时将考虑增加与窑尾预热器平台连通的通道。
14. Sinoma-ec shall design the hopper under the AQC boiler in V-shape.
窑头锅炉的灰斗采用 V 型结构。
15. Sinoma-ec agreed to place the dust transport of TS6 SP boiler to the 6-0734. 2 screw and shall check and verify the capacity of the screw conveyor. If the dust transportation capacity is not enough, replace the screw to meet the requirements.
SEC 同意将 TS6 SP 锅炉的灰输送到 6—0734.2 绞刀上，并核实绞刀的能力，如该绞刀输灰能力不够，将更换该绞刀，以达到要求。
16. Sinoma-ec agreed to place the dust transport of TS4 SP boiler to the K4J23 screw and shall check and verify the capacity of the screw conveyor. If the dust transportation capacity is not enough, replace the screw to meet the requirements.



SEC 同意将 TS4 SP 锅炉的灰输送到 K4J23 绞刀上, 并核实绞刀的能力, 如该绞刀输灰能力不够, 将更换该绞刀, 以达到要求。

17. Sinoma-ec shall design the embedded plate of the electric chain block under the beam of TS4&6 SP boiler, and the purchase of the electric chain block shall be borne by STS.

在 TS6 SP 锅炉的梁下预留电动葫芦埋件, 电动葫芦由业主采购。

2. Electric

1. Sinoma-ec should add one energy meter (2 directions) in the tie-in cabinet of Main SS side with the type of the meter being in consistence with that on the tie-in of WHG side.
总降侧联络柜中增加一只双向计量电能表, 表计型号与电站侧联络线电能表一致。
2. Sinoma-ec should add one set of PT inside bus adapter cabinet and shall give specification of PT cabinet (Main SS. Side) for STS and STS hire ABB to make the bus adapter cabinet.
总降侧转接柜中需增加一组 PT, 转接柜及 PT 由 STS 供货, PT 型号由 Sinoma-ec 提供。
3. UPS input power is three phase and output power is single-phase; the control power of MCC shall be supplied from UPS and no need the control transformer outside.
UPS 为 3 相电源进单相电源出模式, MCC 控制电源由 UPS 提供并取消控制变压器。
4. The emergency power supply cable will be supplied by STS, Sinoma-ec will provide ABB(China) brand motors for 4 circulation pump.
保安联络电缆将由 STS 提供, 对于 4 台循环水泵 Sinoma 将提供 ABB(China)电机。
5. Sinoma-ec add the operating signal to the DCS system as of all the motors at the chemical water workshop as STS requirement.
化学水车间所有电机需增加运行信号引至 DCS。
6. Sinoma-ec shall adopt the high temp resistance electric control circuit card for the actuator of the damper.
烟道阀门的执行器选用耐高温的芯片。
7. Sinoma-ec will change UPS power capacity for DCS increase to 10 kVA.
Sinoma-ec 将 DCS 系统需要的 UPS 电源供电能力提高到 10KVA。
8. Sinoma-ec will revise the drawing to add the overload relay symbol in every power line diagram in TH2-No.13 and add the contact symbol to show the direction in drawing TH2-No.30 ,(Typical sequence diagram for valve).
Sinoma-ec 将修改标准图 TH2-No.13 在每一个电气回路上增加过载继电器的符号, 修改 TH2-No.30 增加接触器符号以显示方向。
9. Sinoma-ec will provide damper control which has the torque limit control to protect motor damper.
Sinoma-ec 将提供具有力矩控制装置的执行机构以保护电机。
10. Sinoma-ec will change monitor from color TV 21" (2 WHG CCR and 2 Cement CCR) to LCD TV 42" (1 WHG CCR and 1 Cement CCR)



Sinoma-ec 将把监视器由 21"彩色电视 (2 台 WHG CCR, 2 台水泥线 CCR) 改为 2 台 42"液晶电视 (1 台 WHG CCR, 1 台水泥线 CCR)

11. Sinoma-ec will provide gas flow meter at the inlet hot gas duct 2 AQC , 3 SP WHGII ,and STS require Sinoma-ec supply instrument for 1 AQC , 2 SP WHGI(STS pay)

Sinoma-ec 将在二期的 2 个 AQC, 3 个 SP 锅炉烟气进口阀提供烟气流量计, 对于一期的 1 个 AQC, 2 个 SP 锅炉烟气进口阀 STS 要求 Sinoma-ec 提供烟气流量计 (STS 支付设备费用)

12. About the installation of speed detector , Sinoma-ec worry about the distance between sensor and transmitter. Sinoma-ec and STS will check first and discuss later.

关于安装速度探测器, Sinoma-ec 担心传感器和转换器间距过大。双方将首先检查传输距离, 将来再作讨论。

13. According to the last annex , Sinoma-ec will supply 1,600 X2 kVA transformer but when recheck the load again Sinoma-ec confirm that can reduce size of transformer to 1,250 X2 kVA (V46Q01 , V46Q03).

根据上一会议纪要, Sinoma-ec 将提供 1600x2KVA 变压器, 本次会议经重新检查荷载 Sinoma 确认变压器可减小至 1250x2 KVA(V46Q01, V46Q03)

14. STS require to adopt PID control routes, Sinoma-ec agrees to add according to necessary.

STS 要求采用 PID 控制回路, Sinoma-ec 同意根据需要加设此回路。

Automation

1. As for the water quality analysis instruments, based on the attachment provided by STS.

水质分析仪表以泰方提供的表格为准。

3. Water System

1. The circulating water supply header at the outlet of the circulating cooling water pump shall be arranged as near as possible to the pump side in order not to influence the existing drain ditch.

循环冷却水泵出口处的循环水给水母管尽量靠近水泵一侧, 不影响路边现有排水管沟;

2. Sinoma-ec will add one pure water tank and two pure water pumps as the backup water for the chemical water workshop.

在给水处理车间增设一座清水箱和两台清水泵作为化学水车间补水用;

3. The newly-added pure water pump in the chemical water workshop shall be located inside the lab(breaking through the existing wall of the water treatment room) and partition the existing lab to separate Laboratory room into Chemical storage and utility room.

化学水车间新增软化水泵布置在现有化验室内 (与现有水处理间打通), 并在现有化验室内新隔出一间药品库;

4. in order to ensure the water amount used for the warming up of system and boilers, change the existing one pure water tank to two units of tanks with each the same volume being 100m³

为了保证起机、暖炉期间软化水的需量，软化水箱由一座 100m³ 改为两座 100m³。

5. Architecture & Structure

1. For T/G building Phase II, for the northern side, there should be not windows on the up floor due to the closed position to the living area, remain low floor window.

二期主车间，由于距附近居民住处过近，故在车间北侧上部不设置窗户，下部窗户保留。

6. Others

General

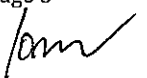
- SINOMA-EC explain that the WHG system for TS5, TS46, TL56 and LP have the 90% RF. WHG system normally need to stop 2-3 months every 10 year for major overhaul with maintenance cost about 30% of investment cost. The life time of WHG system is more than 20 years.
- From F2008T001-012-HB04, The dimension of generator will be revised. The dimension of turbine is correct.
- SINOMA-EC will submit the construction drawing with engineer approval signature within 15 July 2008.
- SINOMA-EC shall consider if the temperature of wet-bulb lower than the designed condition, the K_{wt} should be some % plus due to the decreasing of turbine outlet temperature than the power generated will increase (see table below).

P.S. Other suppliers have also used this +/- concept to correct the actual power.

Wet-bulb temp. (C)	24	25	26	27	28	29	30	31	32
K_{wt} : power generation factor (%)	+?	+?	+?	+?	0	-2.02	-4.06	-6.12	-8.37

Water supply

- TS inform SINOMA-EC to design the control system to control pump by using level control for both Phase I and Phase II (the cable need supplied by STS). According to Appendix2



SINOMA-EC

AQC4

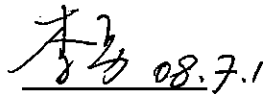
- SINOMA-EC will inform TS the dust conveyor system of AQC4 later.

AQC6

- SINOMA-EC shall design the ground floor of AQC the same level as around area.

Appendix1-WHG Online Water Analysis

Appendix2- System Diagram



Mr. LI YONG

SINOMA-EC's Engineering Manager



Mr. Ekalak Wacharayingyong

STS's WHG Project Manager



WHG. Water Analysis

Description			Scale Range	
			Min (4mA)	Max (20mA)
S0	Inlet Water Treatment	Turbidity	0	100
S1	Outlet Water Treatment	pH	0	14
		Conductivity	0 us/cm	2500 us/cm
		Turbidity	0	100
S2	Cooling Tower	Conductivity	0 us/cm	2000 us/cm
		Turbidity	0	100
		pH	-2	14
S3	Outlet RO	Conductivity	0 us/cm	2000 us/cm
		pH	-2	14
		Turbidity		
S4	Outlet De-Aerator	DO	0 ppm	20 ppm
S5	To SP. Boiler	Conductivity	0 us/cm	1000 us/cm
		pH	-2	14
		Turbidity		
S6	To AGC. Boiler	Conductivity	0 us/cm	1000 us/cm
		pH	-2	14
		Turbidity		

8

10m

Appendix2

In case TS6 shutdown maintenance.

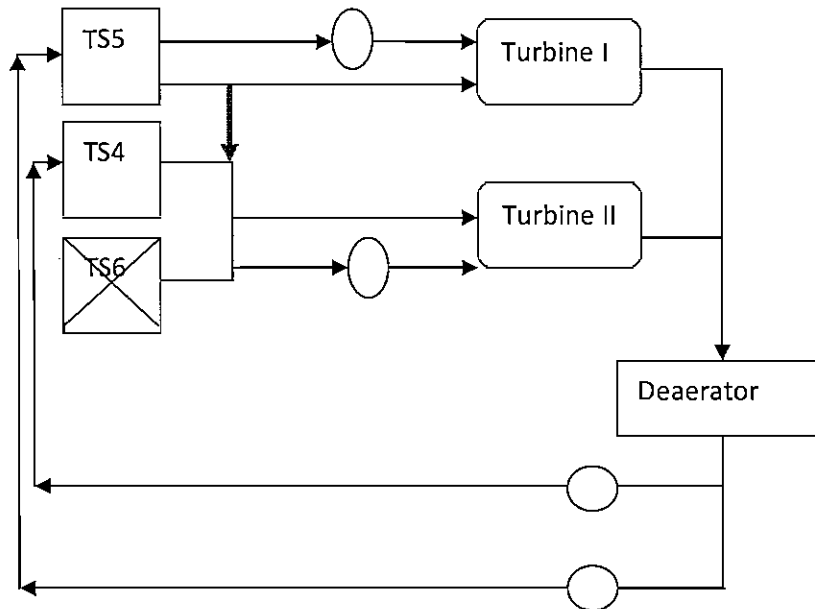


Diagram 1

In case TS4 shutdown maintenance.

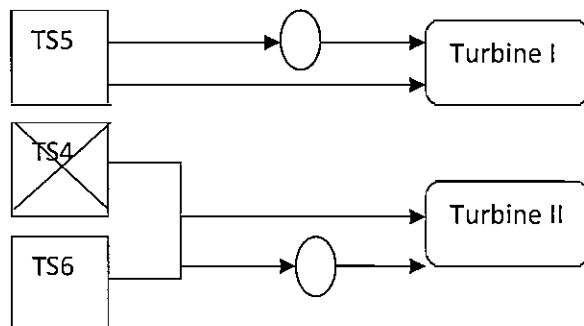


Diagram 2

Water supply diagram

