LIST of NTES EXCEL PROGRAM

Doc. No.	LS - NEP - 100
Date	2015. 11. 1.
Rev.	0
Sheet No.	1 of 13

Area : **Data File**

File Name	Description		Remarks
fluidproperties	includes	**Fluid Properties**	
materials ASTM	includes	**Allowable Stress Values for ASTM / ASME Material**	
materials common	includes	**Information such as Specific Gravity, Thermal Conductivity, Modulus of Elasticity, etc**	
materials JIS	includes	**Allowable Stress Values for JIS Materials**	
materials KS	includes	**Allowable Stress Values for KS Materials**	
materials standard design	includes	**Data of Pipe, Structural Steel, etc**	
combustion data	includes	**Combustion Constants**	
air pollutant data	includes	**Combustion Constants of Air Pollutants**	
estimate Fabrication Cost	includes	**Fabrication Cost**	
estimate Material Cost	includes	**Material Cost**	
estimate Process Cost	includes	**Process Cost**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM

Doc. No.	LS - NEP - 100
Date	2015. 11. 1.
Rev.	0
Sheet No.	2 of 13

Area : **Basic**

File Name	Description		Remarks
cal. dew point	calculates	**Water / Sulfuric Acid / Hydrochloric Acid Dew Points**	
Calculator	calculates	**Unit Conversion, Fluid Properties, Simple Processes and so on**	
FP gas mixture	calculates	**Properties of Gas Mixture**	
heat transfer HTC	calculates	**Various Heat Transfer Coefficients**	
HMB FWH	calculates	**Heat and Mass Balance for Feedwater Heater**	
LMTD correction factor 'F'	calculates	**LMTD Correction Factor using Analytic Formulas**	
psychrometrics basic	calculates	**Thermodynamic Properties of Moist Air based on ASHRAE**	
psychrometrics process	calculates	**Processes involving Moist Air based on ASHRAE**	
steam table IAPWS-IF97	calculates	**Properties of Water and Steam using IAPWS - IF97 Formulation**	
VBA functions	presents	**some VBA used in NTES Softwares**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM

Doc. No.	LS - NEP - 100
Date	2015. 11. 1.
Rev.	0
Sheet No.	3 of 13

Area : **Vessel**

File Name		Description	Remarks
Data Sheet			
data sheet Blowdown Tank	sizes	**Blowdown Tank**	
data sheet Flash Tank	sizes	**Flash Tank**	
data sheet Orifice	sizes	**Orifice**	
data sheet Pipe Distributor	sizes	**Pipe Distributor such as Header and Manifold**	
data sheet SD +Cyclone +Demister	sizes	**Cyclone + Demister**	
data sheet SD Internals	sizes	**Steam Drum Internals**	
data sheet Silencer	sizes	**Steam Vent Silencer**	
data sheet Steam Drum	sizes	**Steam Drum**	
data sheet Vacuum Breaker	sizes	**Vacuum Breaker**	
data sheet VSL H	produces	**Data Sheet of Vessel, Horizontal Type**	
data sheet VSL V	produces	**Data Sheet of Vessel, Vertical Type**	
Calculation			
calculation BWC boiler	calculates	**Boiler Water Circulation**	
cal. hold-up volume & retention time VSL	calculates	**Hold-up Volume & Retention Time for Vessel**	
cal. Hydraulics in Piping	calculates	**Typical Hydraulics in Piping**	
cal. Noise	calculates	**Noise of Vent discharged to Atmosphere**	
cal. Thermal Expansion HE	calculates	**Thermal Expansion for S&T Type H/E**	
cal. Thermal Expansion PV	calculates	**Thermal Expansion for Vessel and Typical Equipment**	
TC Gas Duct insu	calculates	**Wall Temperatures of Duct to determine Insulation Thickness**	
TC VSL H insu	calculates	**Wall Temperatures of Horizontal Vessel to determine Insulation Thickness**	
TC VSL V insu	calculates	**Wall Temperatures of Vertical Vessel to determine Insulation Thickness**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM

Doc. No.	LS - NEP - 100
Date	2015. 11. 1.
Rev.	0
Sheet No.	4 of 13

Area : **Heat Exchanger**

File Name	Description			Remarks
Thermal Design				
TD HE ACHE	Thermal Design	of	**Air Cooled Heat Exchanger**	
TD HE COHE	Thermal Design	of	**Coil immersed in Tank**	
TD HE FWH	Thermal Design	of	**Feedwater Heater**	
TD HE S&T	Thermal Design	of	**Shell & Tube Type H/E**	
TD HE SSC	Thermal Design	of	**Steam Surface Condenser**	
TD HE SWHB	Thermal Design	of	**S&T Type Waste Heat Boiler**	
TD HE THE	Thermal Design	of	**Tubular H/E such as Economizer, Gas Air Heater**	
Calculation				
cal. U-tube	calculates		**Lengths of U-tubes to be installed**	
Data Sheet				
data sheet By-pass Damper WHB	calculates		**Performance of Gas By-pass Damper**	
data sheet PGDS SWHB	produces		**Performance Guarantee Data Sheet**	
data sheet PSV HE S&T	produces		**PSV Data Sheet**	
sizing vent pipe FWH	sizes		**Vent Pipe for Fedwater Heater**	
EOM				
O&M FWH	produces		**Operation and Maintenace Manual for Feedwater Heater**	
O&M S&T	produces		**Operation and Maintenace Manual for Shell & Tube Type H/E**	
O&M THE air	produces		**Operation and Maintenace Manual for Tubular H/E for Air Service**	
Process Flow Diagram				
pfd form trans.	produces		**Typical Process Flow Diagram around H/E**	
PTC				
PTC FWH	produces		**Performance Test Procedure for Feedwater Heater**	
PTC single phase HE	produces		**Performance Test Procedure for single phase HE**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM

Doc. No.	LS - NEP - 100
Date	2015. 11. 1.
Rev.	0
Sheet No.	5 of 13

Area : **Loading Data**

File Name	Description	Remarks
LD Box	calculates **Loading Data** for **Box Type Equpment**	
LD DEA	calculates **Loading Data** for **Deaerator**	
LD Leg	calculates **Loading Data** for **Vessel with Legs**	
LD Lug	calculates **Loading Data** for **Vessel with Lugs**	
LD Pipe Support	calculates **Loading Data** for **Pipe Support**	
LD Stack	calculates **Loading Data** for **Stack**	
LD Table Chamber + WHB	calculates **Loading Data** for **Combined Two Equipments**	
LD Table	produces **Table** for **Various Equipments**	
LD VSL & HE	calculates **Loading Data** for **Vessel and S&T Type Heat Exchanger**	

Notes

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2.
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5.

File Name	Description	Remarks
Strength Calculation		
MD Boiler ASME WT	Strength Calculation of **Water Tube Type Boiler**	
MD ECO ASME Sec. I	Strength Calculation of **Economizer based on ASME Sec. I**	
MD ECO ASME Sec. VIII	Strength Calculation of **Economizer based on ASME Sec. VIII**	
MD HE TEMA ASME Sec. I	Strength Calculation of **S&T Type H/E based on ASME Sec. I**	
MD HE TEMA ASME Sec. VIII	Strength Calculation of **S&T Type H/E based on ASME Sec. VIII**	
MD PV ASME Sec. I	Strength Calculation of **Pressure Vessel based on ASME Sec. I**	
MD PV ASME Sec. VIII	Strength Calculation of **Pressure Vessel based on ASME Sec. VIII**	
MD HE TS & Gusset	Strength Calculation of **Tubesheet and Gusset for S&T Type H/E**	
MD Stack	Strength Calculation of **Steel Stack based on ASME STS-1**	
Nozzle Load allowable	calculates **Allowable Nozzle Loads based on some Guides**	
Vibration and Noise		
cal. FIV THE & HRSG	calculates **Flow Induced Vibration and Acoustic Noise for Tubular Type H/E and HRSG**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM

Doc. No.	LS - NEP - 100
Date	2015. 11. 1.
Rev.	0
Sheet No.	7 of 13

Area : **HRSG**

File Name			Description	Remarks
Thermal Design				
TD HRSG FC	Thermal Design	of	**Forced Circulation Type**	
TD HRSG FC Rect. Fin	Thermal Design	of	**Forced Circulation Type with Rectangular Fin**	
TD HRSG NC	Thermal Design	of	**Natural Circulation Type**	
TD HRSG NC 2P	Thermal Design	of	**Natural Circulation Type, Dual Pressure**	
TD HRSG NC SF	Thermal Design	of	**Natural Circulation Type, Supplementary Fired**	
Data Sheet				
data sheet De-SH	calculates		**Process for De-superheater**	
data sheet Performance	produces		**Performance Data Sheet**	
data sheet PGDS	produces		**Performance Guarantee Data Sheet**	
data sheet PSV	produces		**PSV Data Sheet**	
Process Flow Diagram				
setting HRSG FC Press. & Temp.	produces		**Diagram of Design Pressure and Temperature of FC HRSG and its components**	
setting HRSG NC Press. & Temp.	produces		**Diagram of Design Pressure and Temperature of NC HRSG and its components**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM

Doc. No.	LS - NEP - 100
Date	2015. 11. 1.
Rev.	0
Sheet No.	8 of 13

Area : **Boiler**

File Name	Description			Remarks
Thermal Design				
TD Boiler F&ST	Thermal Design	of	**Fire and Smoke Tube Boiler**	
TD Boiler WT	Thermal Design	of	**Water Tube Boiler**	
Calculation				
cal. Boiler Performance ASME PTC 4-2008	calculates		**Boiler Performance based on ASME PTC 4-2008**	
cal. Boiler Performance B&W	calculates		**Boiler Performance based on B&W Calculation Sheet.**	
cal. FD Fan boiler	calculates		**Boiler FD Fan Capacity**	
cal. Line Sizing	sizes		**Boiler Pipe Line based on Fluid Velocity**	
cal. Stack Dispersion	calculates		**Stack Dispersion**	
cal. Venturi	sizes		**Venturi Meter for Combustion Air Flowrate**	
cal. Volume & Retention Time	calculates		**Volume & Retention Time for Steam Drum**	
Start-up & Shut-down				
PCD boiler start-up & shut-down	produces		**Procedure of Boiler Start-up & Shut-down**	
SEQ boiler start-up & shut-down	produces		**Sequence of Boiler Start-up & Shut-down**	
Data Sheet				
data sheet De-SH boiler	calculates		**Process for De-superheater**	
data sheet Design Report boiler	produces		**Design Report of Boiler**	
data sheet ECO boiler	produces		**Economizer Data Sheet**	
data sheet F&BV boiler	sizes		**Flash and Blowdown Vessels**	
data sheet Otk boiler	sizes		**Fuel Oil Tank**	
data sheet PDS boiler	produces		**Performance Data Sheet**	
data sheet PGDS boiler	produces		**Performance Guarantee Data Sheet**	
data sheet PSV boiler	produces		**PSV Data Sheet**	
data sheet SGA boiler	produces		**Outline of Boiler**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM	Doc. No.	LS - NEP - 100
	Date	2015. 11. 1.
	Rev.	0
Area : Boiler	Sheet No.	9 of 13

File Name	Description		Remarks
Process Flow Diagram			
pfd Blowdown System	calculates	**Process of Blowdown System**	
pfd Letdown System	calculates	**Process of Letdown System**	
Process			
list PD Instrument	produces	**Process Data Sheet for Instruments**	
list Set Point	produces	**List of Set Points**	
setting Boiler Press. & Temp.	produces	**Diagram of Design Pressure and Temperature of Boiler and its components**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM

	Doc. No.	LS - NEP - 100
	Date	2015. 11. 1.
	Rev.	0
Area : **Deaerator**	Sheet No.	**10** of 13

File Name	Description	Remarks
Thermal Design		
TD Deaerator	Thermal Design of **Deaerator with Separate Storage Tank**	
TD Deaerator IST	Thermal Design of **Deaerator with Integral Storage Tank**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM

Doc. No.	LS - NEP - 100
Date	2015. 11. 1.
Rev.	0
Sheet No.	11 of 13

Area : **Estimate**

File Name	Description	Remarks
EST HE S&T	Estimate of **Shell & Tube Type Heat Exchanger**	
EST PV	Estimate of **Pressure Vessel**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM

Doc. No.	LS - NEP - 100
Date	2015. 11. 1.
Rev.	0
Sheet No.	12 of 13

Area : **Thermal Oxidizer**

File Name	Description	Remarks
Thermal Design		
TD Incinerator	Thermal Design of **Incinerator**	
TD Thermal Oxidizer	Thermal Design of **Thermal Oxidizer**	

Notes

1.
2.
3.
4.
5.

LIST of NTES EXCEL PROGRAM

Doc. No.	LS - NEP - 100
Date	2015. 11. 1.
Rev.	0
Sheet No.	13 of 13

Area : **Fired Heater**

File Name	Description	Remarks
Thermal Design		
FH direct	Thermal Design of **Fired Heater, Direct Type**	
FH indirect	Thermal Design of **Fired Heater, Inirect Type**	
FH indirect boiler	Thermal Design of **Fired Heater, Inirect Type, Boiling in Shell Side**	

Notes

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