

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

CONTENTS

<u>1.1</u>	<u>PROJECT OVERVIEW</u>	2
<u>1.2</u>	<u>BLOCK FLOW DIAGRAM</u>	3
<u>1.3</u>	<u>PIPING & INSTRUMENTATION DIAGRAMS</u>	4
<u>1.4</u>	<u>EQUIPMENT LIST</u>	6
<u>1.5</u>	<u>EQUIPMENT DATASHEETS</u>	7
<u>1.6</u>	<u>EQUIPMENT LAYOUT AND PIPING</u>	8
	<u>1.6.1 Piping Layout</u>	10
	<u>1.6.2 Piping Isometrics</u>	11
<u>1.7</u>	<u>PIPING DESIGN BASIS – LINE LIST</u>	13
<u>1.8</u>	<u>TIE-POINT LIST</u>	14
<u>1.9</u>	<u>SAFETY DEVICE LIST</u>	15
<u>1.10</u>	<u>CIVIL & STRUCTURAL</u>	16
<u>1.11</u>	<u>INSTRUMENTATION</u>	18
<u>1.11.1</u>	<u>INSTRUMENTATION LIST</u>	19
<u>1.11.2</u>	<u>INSTRUMENTATION SPEC-SHEETS</u>	20

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.1 PROJECT OVERVIEW

The purpose of this project is to complete installation of a new Cetyl Alcohol distillation column. The new column, its structure and major process tie-ins have been completed south of the existing Stearyl column.

The main scope includes, but is not limited to:

- 1) Installation of all the connected equipment of the system
 - a. Boiling water condenser (50-E-7357)
 - b. Cold water condenser (50-E-7358)
 - c. Reboiler (50-E-7356)
 - d. Ejector condenser (50-E-7355)
 - e. Distillate receiver (50-C-1210)
 - f. Vapor-liquid separator (50-C-1121)
 - g. Product pump (50-G-319)
 - h. Pot pump (50-G-318)
 - i. SOBO injection pump (50-G-8993)
 - j. Ejector system (73-H-8590 / 8591 / 8592)
- 2) Fabrication and Installation of all the connected piping and tracing per provided isometric drawings.
- 3) Installation of primary pipe supports

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.2 Block Flow Diagram

This section describes the general process and scope of work. Piping & Instrumentation Diagram shall be followed for detailed work scope.

Item No	Drawing No.	Description	Production area
1.	SAC-T-BFD-1001	Block Flow Diagram – Cetyl Still	Distillation

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.3 PIPING & INSTRUMENTATION DIAGRAMS

The following P&IDs are used in this section: All the listed Demo-P&ID is only for reference purpose for understanding.

Item No.	Temp. Drawing No.	R.R.I. No.	Description	Production Area
1.3.1 DEMOLITION P&ID:				
1.	DEMO-T-429-PI-1003	CN-17038	SOBO INJECTION PUMPS	DISTILLATION
2.	DEMO-T-429-PI-1004	CN-S5090	SOBO INJECTION SYSTEM	DISTILLATION
3.	DEMO-T-429-PI-1007	CN-S342	LIGHT CUT STILL ESTER DISTILLATION	DISTILLATION
4.	DEMO-T-429-PI-1014	C-1038029	NITROGEN / AIR TO STERYL STILL	DISTILLATION
5.	DEMO-T-429-PI-1015	C-480847	DISTILLATION ALCOHOL TANKS	DISTILLATION

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

Item No.	Temp. Drawing No.	R.R.I. No.	Description	Production Area
1.3.2 CONSTRUCTION P&ID:				
1.	SAC-T-429-PI-1001	CN-S182	CETYL ALCOHOL STILL	DISTILLATION
2.	SAC-T-429-PI-1002	CN-S1072	ALCOHOL EJECTOR SYSTEM	DISTILLATION
3.	SAC-T-429-PI-1003	CN-17038	SOBO INJECTION PUMPS	DISTILLATION
4.	SAC-T-429-PI-1004	CN-S5090	SOBO INJECTION SYSTEM	DISTILLATION
5.	SAC-T-429-PI-1005	C-450429	ESTER BOTTOMS COOLER 1 OF 3	DISTILLATION
6.	SAC-T-429-PI-1006	CN-17183	STEARYL ALCOHOL STILL	DISTILLATION
7.	SAC-T-429-PI-1007	CN-S342	LIGHT CUT STILL ESTER DISTILLATION	DISTILLATION
8.	SAC-T-429-PI-1008	CN-S1137	MIDDLE ALCOHOL STILL	DISTILLATION
9.	SAC-T-429-PI-1009	C-344452	DOWTHERM PURGE COLLECTION	DISTILLATION
10.	SAC-T-429-PI-1010-	C-344402	DOWTHERM DISTRIBUTION	DISTILLATION
11.	SAC-T-429-PI-1011	C-12458	NITROGEN DISTRIBUTION	DISTILLATION
12.	SAC-T-429-PI-1012	C-318503	150# STEAM SUPPLY	DISTILLATION
13.	SAC-T-429-PI-1013-	C-318515	PROCESS COOLING WATER SYSTEM	DISTILLATION
14.	SAC-T-429-PI-1014	C-1038029	NITROGEN / AIR TO STEARYL STILL	DISTILLATION
15.	SAC-T-429-PI-1015	C-480847	DISTILLATION ALCOHOL TANKS	DISTILLATION
16.	SAC-T-429-PI-1020	-	CETYL ALCOHOL STILL	DISTILLATION
17.	SAC-T-429-PI-1021	C-753090	COMPRESSED AIR	HFA / DISTILLATION

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.4 EQUIPMENT LIST

Below table lists the new equipment to be installed at the project location. R.R.I. will provide all of the equipment listed.

Sl. No.	Equipment Tag	Description	Empty Weight (lb.)	Remark
1.	50-C-317	CETYL ALOCHOL STILL COLUMN	104730	Fire Proofing from the bottom of the column to seam which is 16'6". Above Seam Insulate the column. 3" insulation above fire proofing
2.	50-E-7357	CETYL BOILING WATER CONDENSER	11500	2 1/2" insulation
3.	50-C-1210	DISTILLATE RECEIVER	1340	3" insulation, Equipment shall be steam traced
4.	50-E-7358	CETYL COLD WATER CONDENSER	750	2" insulation, <i>Note-1</i>
5.	50-C-1121	V/L SEPERATOR	600	2" insulation, <i>Note-1</i>
6.	50-E-7356	CETYL ALCOHOL REBOILER	2893	3" insulation
7.	73-H-8590	CETYL EJECTOR STAGE-1	570	2" insulation
8.	73-H-8591	CETYL EJECTOR STAGE-2	570	2" insulation
9.	73-H-8592	CETYL EJECTOR STAGE-3	570	2" insulation
10.	50-E-7355	CETYL ALCOHOL EJECTOR CONDENSOR	1400	2" insulation
11.	50-G-318	CETYL ALCOHOL COLUMN BOTTOMS PUMP	800	Equipment shall be steam traced
12.	50-G-319	CETYL ALCOHOL COLUMN PRODUCT PUMP	800	Equipment shall be steam traced
13.	50-G-8993	CETYL REFLUX SOBO INJECTION PUMP	200	2" insulation

Note -1: Bottom of the equipment shall be coil traced and inter connecting lines between the equipment shall have 3 tracer. Insulation of the equipment is under the scope of insulation contractor. Construction contractor shall co-ordinate with insulation contractor

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.5 EQUIPMENT DATASHEETS

The following tabulated equipment datasheets are attached for this project.

Sl. No.	Equipment Tag	Description
1.	50-C-317	CETYL ALOCHOL STILL COLUMN
2.	50-E-7357	CETYL BOILING WATER CONDENSER
3.	50-C-1210	DISTILLATE RECEIVER
4.	50-E-7358	CETYL COLD WATER CONDENSER
5.	50-C-1121	V/L SEPERATOR
6.	50-E-7356	CETYL ALCOHOL REBOILER
7.	73-H-8590	CETYL EJECTOR STAGE -1
8.	73-H-8591	CETYL EJECTOR STAGE-2
9.	73-H-8592	CETYL EJECTOR STAGE-3
10.	50-E-7355	CETYL ALCOHOL EJECTOR CONDENSOR
11.	50-G-318	CETYL ALCOHOL COLUMN BOTTOMS PUMP
12.	50-G-319	CETYL ALCOHOL COLUMN PRODUCT PUMP
13.	50-G-8993	CETYL REFLUX SOBO INJECTION PUMP

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.6 EQUIPMENT LAYOUT AND PIPING

Equipment General Arrangement:

The GA Drawings depict the location of the various equipment and pumps.

Item No.	Drawing No.	Title	Remark
1.0	SAC-T-429-GA-1001 R0	GENERAL ARRANGEMENT DRAWING	PLAN AT EL 0'-0" & PLAN AT EL 15'-9"
2.0	SAC-T-429-GA-1002 R0	GENERAL ARRANGEMENT DRAWING	PLAN AT EL 25'-6" & PLAN AT EL 35'-0"
3.0	SAC-T-429-GA-1003 R0	GENERAL ARRANGEMENT DRAWING	PLAN AT EL 46'-9"; PLAN AT EL 63'-8"; and PLAN AT EL. 72'-1 1/2" & 83'10 31/32"
4.0	SAC-T-429-GA-1004 R0	GENERAL ARRANGEMENT DRAWING	SECTION LOOKING WEST

Piping:

- Piping will be routed as per P&ID, line list, 3D model, and attached Piping Layout & Isometrics. Vendor to route new lines from the flanged tie-in point connections already completed.
 - **Vendor is responsible for field verifying isometrics prior to fabrication.**
- Piping will be traced and insulated per line list.
- Piping will be supported per attached piping layout, Isometrics, piping support MTOs, and project field walk.
 - All field routed lines and steam tracing will be suitably routed and supported as per good engineering practice.
 - Supports shall be taken from existing steel or floor
- Fabrication, Installation, cleaning, testing and inspection of piping shall follow R.R.I.'s Piping DCS and specifics outlined in the Line List.

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

- Sizes, dimensions of Control valves, Actuated ON-OFF Valves, Flow Elements, Flow meters, Restricted Orifice plates, Strainers, Steam traps, PRVs, Safety valves have been assumed. Contractor to consider Piping BOM for connected flanges, reducers, gaskets, bolts for above items to match sizes and dimensions as per vendor drawings. Contractor to fabricate the piping spools adjacent to these items after verification of dimensions on the vendor drawings.
- All piping having welded connection shall have Butt welds irrespective of any welds described in applicable DCS or depicted in Isometrics. Contractor shall adopt only butt weld pipe fittings.
- Weld-O-lets / reducing TEEs shall be used for branch connections than stub-ins, irrespective of any connections described in applicable DCS or depicted in Isometrics. Contractor shall verify the branch connections before fabrication.

Piping section has the following sub-sections:

1.6.1 Piping layout

1.6.2 Piping isometrics

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.6.1 Piping Layout

Item No.	Drawing No.	Title
1	SAC-T-429-PP-1010 R1	PIPING LAYOUT DRAWING PLAN AT EL 0'-0" TO 15'-9"
2	SAC-T-429-PP-1011 R1	PIPING LAYOUT DRAWING PLAN AT EL 15'-9" TO 25'-6"
3	SAC-T-429-PP-1012 R1	PIPING LAYOUT DRAWING PLAN AT EL 25'-6" TO 46'-9"
4	SAC-T-429-PP-1013 R1	PIPING LAYOUT DRAWING PLAN AT EL 46'-9" TO 72'-6 1/2"
5	SAC-T-429-PP-1014 R1	PIPING LAYOUT DRAWING PLAN AT EL 72'-6 1/2" TO ABOVE
6	SAC-T-429-PP-1015 R1	PIPING LAYOUT DRAWING PLAN AT EL 0'-0" TO 15'-9" (FOR PIPE RACK)
7	SAC-T-429-PP-1016 R1	PIPING LAYOUT DRAWING PLAN AT EL 15'-9" TO 25'-6" (FOR PIPE RACK)
8	SAC-T-429-PP-1017 R1	PIPING LAYOUT DRAWING SECTION FROM WEST SIDE
9	SAC-T-429-PP-1018 R1	PIPING LAYOUT DRAWING SECTION FROM NORTH SIDE

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.6.2 Piping Isometrics

All piping having welded connection shall have Butt welds irrespective of any welds described in applicable DCS or depicted in Isometrics. Contractor shall adopt only butt weld pipe fittings.

Weld-O-lets / reducing TEEs shall be used for branch connections than stub-ins, irrespective of any connections described in applicable DCS or depicted in Isometrics. Contractor shall verify the branch connections before fabrication

Contractor shall **field verify** the isometrics before fabrication of the piping. If an alternate routing is recommended or required, contractor shall notify R.R.I. with field instruction form prior to work commencing.

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.7 PIPING DESIGN BASIS – LINE LIST

Design and Construction Specifications (DCS)

The following DCS's are used on this project:

- ALCG
- ALCF
- DOWA
- NITA
- CTWA
- STME
- SBH
- CAGA
- HTWA

Copies of these specs can be found in Section 12 of the Plant Standards and Requirements binder, or shall be requested from the project manager in the form of RFI.

Additional details are included in the line list.

Line List

The Piping Line List follows in this section.

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.8 TIE-POINT LIST

All tie-ins must be done during the spring 2019 turnaround.

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.9 SAFETY DEVICE LIST – N/A

1.10 CIVIL & STRUCTURAL

The column structure, pipe racks, secondary supports for non-field routed lines, and foundation work have or will be installed by others. Primary pipe supports will be fabricated by others, but installation falls under this proposal. Any additional civil and structural work shall be brought to the project manager for scope amendment.

- 1.10.1 The major scope of civil & structural works consists of:
- Pipe supports for field-routed lines and tracing
 - Drilling holes in equipment supports provided by others
 - Pipe supports in addition to those installed or supplied by others
- 1.10.2 The above scope is not exhaustive, and contractor shall visit the site and get familiarised with the scope of work in detail for the requirement of civil and structural work.
- 1.10.3 All the civil drawings provided are for reference only, all dimensions and elevations shown on the plans shall be verified by the contractor prior to construction or fabrication.
- 1.10.4 All work shall be in compliance with the latest California building code, California fire code, and all applicable local, state, and federal laws and regulations.
- 1.10.5 The contractor shall be responsible for coordinating the project documents with conditions at the site, and shall verify existing dimensions, elevations, and conditions. Any discrepancies shall be reported to the engineer and shall be resolved before proceeding with the work. Any deviation, substitution or alteration to the design shall be subject to review by the engineer and approval by project manager.
- 1.10.6 Contractor shall also refer to the electrical grounding drawing before the start of construction.
- 1.10.7 Any additional required Pipe support or channel Square and Rectangular tubular steel members shall conform to ASTM A500, Grade B. Circular pipe members shall be ASTM A53, Grade B. W shapes, Structural Tees (WT) shall conform to ASTM A992. American Standard Channels (C), Miscellaneous Channels (MC), angles (L) and Plates shall conform to ASTM A36.
- 1.10.8 Paint un-galvanized steel with one shop coat of zinc chromate primer or equal. Field connections and damaged paint shall be repaired to the satisfaction of the owner (R.R.I.).

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		

1.10.9 All building and utility information shall be verified and/or revised as necessary by the contractor in the field.

	Really Refining Inc	Rev	R0
	Rocking Chair	Date	Dec, 2020
	PC Package		