TRAINING PROGRAM
PRODUCTION SHIFT SUPERVISOR

The Calvert Distilling Co.
Louisville, Kentucky

INTRODUCTION

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

The material in this book has been prepared to furnish training aids during a period of observation and study of distillery operations. Successful completion of this program will result in a general understanding of the operational procedures and problems in this area. It will also serve as a basic training course for the position of Production Shift Supervisor.

Walt Thuente – Home 778 3412

PHASE I:

This is an orientation period of five days' duration. It consists of the Plant Operations Manual for Laboratory operators. If you have completed the manual, a one day review of this material will suffice.

PHASE II:

This phase consists of 55 to 75 days (depending upon prior work experience in Quality, Control, and Utilities) observation and study of Production operations.

The schedule for this period is:

Phase II-A	Grain Unloading, Milling, and Cooking
Phase II-B	Yeasting and Fermentation
Phase II-C	Distillation and Wine Room
Phase II-D	Utilities
Phase II-E	Foods and Feeds
Phase II-F	Bacteriology
Phase II-G	Power House
Phase II-H	Chemical Control
Phase II-I	Quality Control

All of these operations are closely related in the production of a quality product, and the fact that each contributes significantly to this production goal should be the basis of your approach to this program.

In the event you have had previous actual work experience in the Control Lab, the Quality Lab, or Utilities, it will not be necessary to spend the specified time on these sections of the program. One day should be spent under the supervision of the Department Head involved in review and completion of the pertinent section in this book.

Joe Blair - 447-8314
Jim Woner - 267-7793
Don Hylton - 772-0424
Jewell Kahn - 239-5683
Jae Kelly - 944-9469
Jan Talley - 897-1069
Dr. Calvin - 366-1386
John Straub - 448-3341
D. Borgess - 935-5422
Ramdallar - 425-6579
Brown - 454-6422
Bob Cook - 451-0663
Ed Foote - 1-828-2459
Jo Keefer - 447-8176
Fred Way - 447-8543
Walt Thornton - 778-3412

Calling in Personnel - check with operator(s) to ① what craft is needed ② How badly you need him.

Call in using cards(overtime) in phone booth outside maint. office. Ensure top name is taken from card.

Richard Hamman 964-2983

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: I — TRAINEE: Robin P. Goble

DAY: 1 — DATE: 6-20-67

TYPE OF OPERATION: Unloading and Milling — SHIFT: 7 - 3

TIME

One Hour — The trainee will be asked to read the Grain Unloading and Milling section in Plant Operations and indicate below any items on which further information is desired:

① Is malt cleaned as corn & rye? yes - but no cyclone

② Is the dust from both receivers discarded and only the mill dust utilized? yes, but only flour of corn & rye

The trainee will be interviewed by the Production Superintendent who will answer the above questions and introduce him to the Production Planner.

The trainee will then be shown the Unloading and Milling operations by the Production Planner, who will also discuss the material in the corresponding section of the Plant Operations booklet.

NAMES OF OPERATORS INTRODUCED:

Tony Lucchese (Weigh Master)

Archie Barnes (Unloader)

THE TRAINEE WILL LIST PIECES OF EQUIPMENT WHICH WERE SHOWN:

① Grain Car and Scales
② Pneumatic Airveyor
③ Unloading Receiver
④ Dust Collectors
⑤ Magnetic Separator
⑥ Redler conveyer
⑦ Cleaner (Scalperator)
⑧ Storage Bins
⑨ Reclaiming Receivers
⑩ Weighing (Drop) Scales
⑪ Hammer Mills
⑫ Unloading Exhauster
⑬ Vickers Feeder
⑭ Cyclone Dust Collectors

For the remainder of the day, the trainee will observe this operation and study the operating procedures.

This section in Plant Operations has been completed and discussed and the information is understood.

J Kelly (Production Planner)

Robin P. Goble (Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: I — TRAINEE: Robin P. Goble

DAY: 2 — DATE: 6-20-67

TYPE OF OPERATION: Cooking — SHIFT: 7-3

TIME

One Hour The trainee will read the section on Cooking in the Plant Operations and indicate below items on which further information is desired:

ONCE IN FERMENTATIONS THERE CAN BE BACK-PUMPING — SO, GENERALLY SPEAKING, NOTHING CAN BE DONE.

① Why not use acid for conversion? - outlawed

② What can be done if ① you get poor convergence ② an incorrect set (ie. Balling, pH, etc.)?

② Where does production H_2O originate? - well

The trainee will be shown the Cooking operations by the Production Planner.

① Why not vacuum cool from 145°F to 70°F? — Because you lose your effective vacuum pressure with low temperatures.

NAMES OF OPERATORS INTRODUCED:

Myron Patton and Jim Bowman
(Cooker)

THE TRAINEE WILL LIST PIECES OF EQUIPMENT WHICH WERE SHOWN:

① Clorinated (carbon filtered) well water tanks
② Control panel
③ Pre-Slurry tank
④ Batch cookers
⑤ Vacuum cooler system
⑥ Malt slurry tank
⑦ Drop tub
⑧ Ensinger water coolers
⑨ Yeast mash tank
⑩ Thin stillage tank
⑪ Various chutes from mills

For the remainder of the day, the trainee will observe this operation and study the operating procedures.

This section in Plant Operations has been completed and discussed and the information is understood.

J. Kelly
(Production Planner)

Robin P. Goble
(Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: 1 TRAINEE: Robin P. Goble

DAY: 3 DATE: 6-20-67

TYPE OF OPERATION: Yeasting and Fermentation SHIFT: 7-3

TIME

One Hour The trainee will read the sections on Yeasting and Fermentation in the Plant Operations and indicate items on which further information is desired:

1. WHAT IS PRE-MALT AND ITS USE? It aids in keep the cook mash from becoming too pasty-like.
2. IS THE YEAST MASH COOLED BEFORE THE LACTIC IS ADDED? yes, to 130°F then held @ 122°F until soured
3. IS THE YEAST MASH AERATED? NO

The trainee will be shown the Yeasting and Fermentation operations by the Production Planner.

4. IS STEAM SHOT DIRECTLY INTO THE MASH? yes

NAMES OF OPERATORS INTRODUCED: 5. IS ANY STILLAGE USED IN YEAST MASH? NO

Joe Medley (Banjo) (Yeast Tender) Sam Howell (Fermenters)

THE TRAINEE WILL LIST PIECES OF EQUIPMENT WHICH WERE SHOWN:

1. CONTROL PANELS
2. LACTIC PROPAGATORS
3. DONA TUBS
4. YEAST TUBS
5. COLOR CODED LINES
6. FERMENTERS
7. STILLAGE (THIN) TANKS
8. EXHAUST (CO_2) DUCTS
9. External coolers
10. Agitators
11. BEER WELLS

For the remainder of the day, the trainee will observe this operation and study the operating procedures.

This section in Plant Operations has been completed and discussed and the information is understood.

(Production Planner) Robin P. Goble (Trainee)

Lock #24 - 25-9-15
#28 - 35-37-2
#3 - 16-4-22

uniform Lock - 35-37-2
#24 Deck - 25-9-15

Bin Capacities

Dry Feet	Rye Bin #1	Corn Bin #2 & #3	Malt Bins #4 & #5
2	255(000)#	124(000)#	75(000)#
3	243	119	72
4	231	112	69
5	220	108	65
6	209	102	62
7	197	97	59
8	185	91	55
9	174	86	52
10	163	80	48
11	152	75	45
12	140	69	41
13	129	63	38
14	117	58	35
15	106	52	31
16	95	46	28
17	83	41	24
18	71	35	21

Cone → 28,000

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: I TRAINEE: Robin P Goble

DAY: 4 DATE: 6-21-67

TYPE OF OPERATION: Distillation & Wine Room SHIFT: 7-3

TIME

One Hour The trainee will read the sections on Distillation in the Plant Operations and indicate below items on which further information is desired:

SEE CHARTS ① What is the boiling point of H_2O 212°F in the various stills? — E. Alcohol ? -178°F

② Do we sale our Fusel oil? yes

The trainee will be shown the Distillation operations by the Distiller.

NAMES OF OPERATORS INTRODUCED:

John Straub and Joe Thomas (Still Operator) Dick Owen (Wine Room Operator)

THE TRAINEE WILL LIST PIECES OF EQUIPMENT WHICH WERE SHOWN:

① De-Ionized H_2O Tanks
② Control Panel
③ Gin Kettle
④ Beer Stills 36, 42, & 48
⑤ Retifying Column
⑥ Purifying Column
⑦ Concentration Column
⑧ Oil Stripping Column
⑨ Fusel Oil Column
⑩ Various holding and production tanks.
⑪ Doubler & Condenser

For the remainder of the day, the trainee will observe this operation and study the operating procedures.

This section in Plant Operations has been completed and discussed and the information is understood.

(Distiller) Robin P. Goble (Trainee)

Reclaiming Receiver Cap

#1 17,360# Rye
#2 17,360# Corn
#3 10,540# Malt
#4 10,540# Malt

750
200
156,000

1. Train Car Cap 80,000 – 120,000 #
   1430 – 2145 Bu.
2. Time it takes to Unload Train Car 3½ Hrs for Corn
   5 Hrs for Malt & Rye
3. Speed of Unloading 550 Bu/Hr
4. Bin (whole) Cap 12,760 Bu
   Receiver Bin Cap 1,000 Bu
   TOTAL 13,760 Bu.
5. Scales on track Cap. 200,000 #
6. Unloading Receiver 750 Bu Cap
7. Storage Bin #1 5000 Bu. Cap (Concrete)
   Storage Bin #4 2400 " " "
   Storage Bin #2 2400 " " "
   Storage Bin #3 2400 " " "
   Storage Bin #5 2400 " " "
8. #1 Mill RATES

		ACT	MAX
	Rye	200	200 Bu/Hr
	Corn	300	300 "
#2 Mill	Rye	200	200 "
	Corn	300	300 "
#3 Mill	Malt	50	60 "
#4 Mill	Malt	50	60 "

780
200
156,000

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

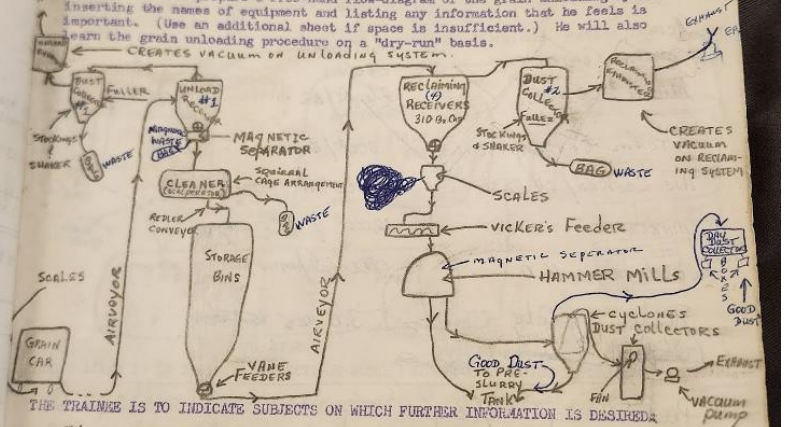
PHASE: II-A TRAINEE: Robin P. Goble

DAY: 1 DATE: 6-21-67

TYPE OF OPERATION: Grain Unloading

The trainee obtains at the beginning of Phase II a copy of the Production Operating Procedures from the Production Office.

The trainee will prepare a free-hand flow-diagram of the grain unloading system inserting the names of equipment and listing any information that he feels is important. (Use an additional sheet if space is insufficient.) He will also learn the grain unloading procedure on a "dry-run" basis.



THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Blueprints of the various cleaning equipment.
Does Malt have an unloading dust collector? yes (but no cyclone (small) collector)
Bin #1 in Rye, Bins #2 & #3 Corn, Bins #4 & #5 are Malt
(one common grain collector)
(split bin)

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of grain-unloading flow diagram.

(Production Planner)

Robin P. Goble
(Trainee)

Well H_2O pumps - 1000 GPM
63° Well H_2O Tank - Cap. 10,190 gals

BATCH

Rated Cap Cooker	13,000 gal
Time Through "	2.0 Hrs
Actual Mash Content	10,000gal
Grain Content	300Bu
Mash Conc.	26 gal (H_2O + Slurry)/Bu
Steam Consumption	300#/Bu
Ave. Cooked/24 Hrs.	5,000 Bu
Max Steam Rate	20,000# of 90# steam
Condenser H_2O	800 gal/min
Pumping Cycle (Slurry to Wood)	3.0 Hrs

Pre-Slurry 700 gal Cap.
Malt Slurry 1400 gal. Cap.
Drop Tub 15,000 gal. Cap.
(N+S) Pumps From Cookers To Drop Tub 1000 GPM
Backset Pump 50 GPM
(N+S) Pumps From Drop Tub to Coolers 150GPM
Cooler booster (E+W) pumps 150 GPM

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

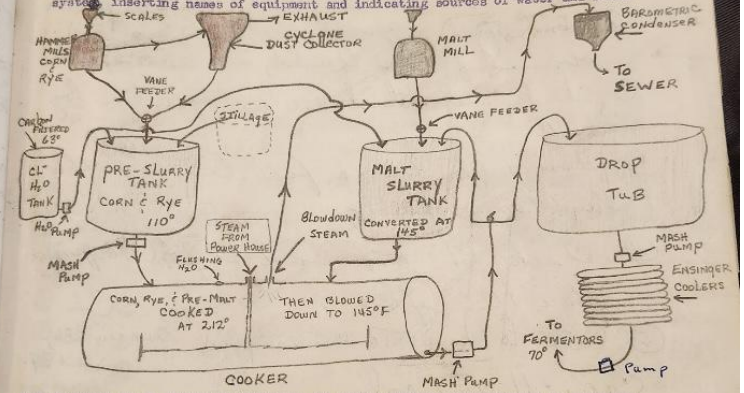
PHASE: II-A TRAINEE: Robin P. Goble

DAY: 2 DATE: 6-22-67

TYPE OF OPERATION: Milling and Cooking

RECLAIMING RECEIVER

The trainee will prepare a free-hand flow-diagram of the milling and cooking system, inserting names of equipment and indicating sources of water and steam.



THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① cyclone Dust collectors ② Dust filters

③ Mills (#1 Receiver's (Rye) can cross to #2 receiver scale and on to #2 mill

(#1 Bin) Rye is fed to #1 Reclaiming Receiver, (#2 & #3 Bin) corn to #2 R.R.,

(#4 Bin) Malt to #3 RR, and (#5 Bin) Malt

to #4 Reclaiming Receiver. All use Robin P. Goble (Trainee)

same Dust collecter.

Also #2 Receiver (Corn) can cross to #1 mill after going through

#2 Receivers scale.

DISCUSSION MEETING

One-half hour review of milling and cooking flow-diagram.

One-half hour discussion of milling and cooking shutdown procedures.

J. Kelly (Production Planner)

Robin P. Goble (Trainee)

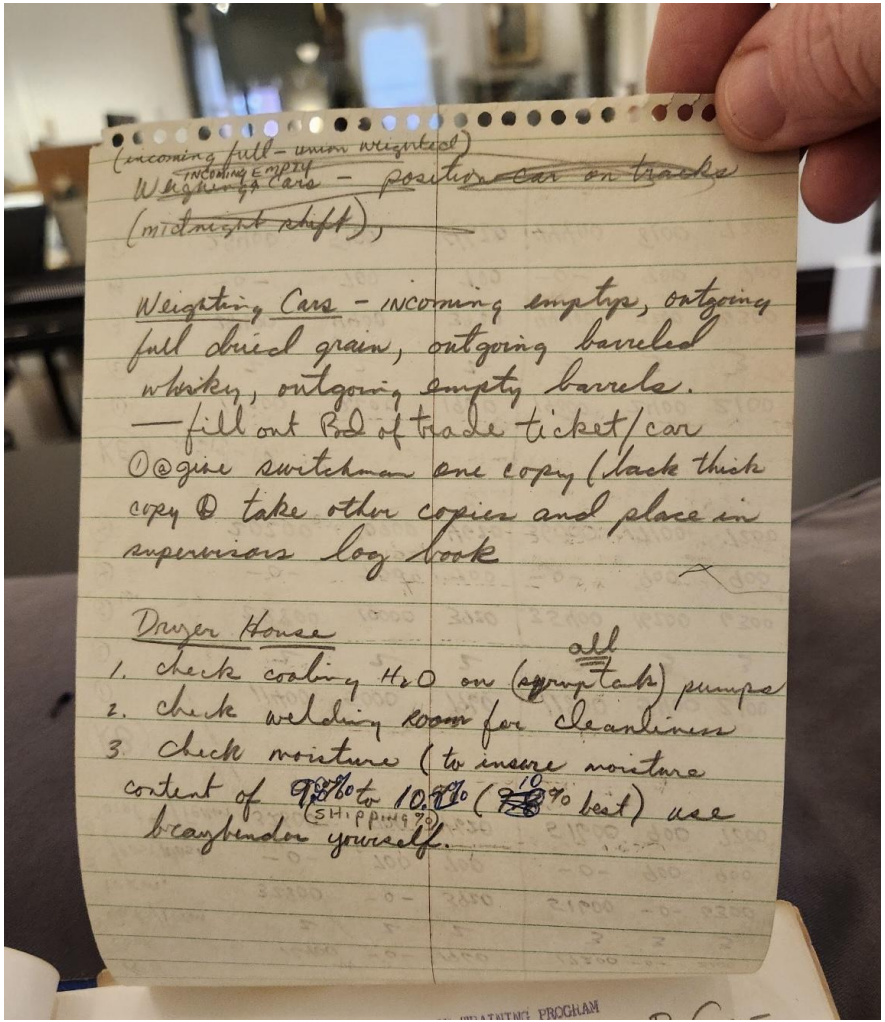
De Dorized Tanks #16 and #17 (ps)

1. Once full approval of H_2O obtained from (a) Quality and (b) Control Lab
2. Check and initial H_2O in operators log book.
3. Insure you have a full tank (BOTH TANKS) for the day (7:00 am) operation
4. Check Cl^- once each shift (1.00 ppm) before (0.0) after
5. Call to have Tanks sampled. Quality 286, 287

Cap. 11,057 gals.

64 gal/in

Water treatment call 264


(incoming full - unwm weighted)
Weighing Cars (INCOMING EMPTY) - position car on tracks (midnight shift),

Weighing Cars - incoming empties, outgoing full dried grain, outgoing barreled whiskey, outgoing empty barrels.
— fill out Bd of trade ticket/car
① @ give switchman one copy (black thick copy ④ take other copies and place in supervisors log book

Dryer House
1. check cooling H₂O on (all pumps)
2. check welding room for cleanliness
3. check moisture (to insure moisture content of 9% to 10% (10% best) (SHIPPING %) use beaubender yourself.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-A
TRAINEE: Robin P Goble
DAY: 3
DATE: 6-23-67

TYPE OF OPERATION: Milling and Cooking

The trainee will learn the Milling and Cooking procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Normal shut-down
2. Emergency shut-down due to:
   a. Electrical failure
   b. Steam failure
   c. Air failure

1 NORMAL SHUTDOWN
① Stop the SCALES (SHUT OFF GRAIN supply)
⑥ clean the mills
⑤ clean the pre-slurry AND MALT slurry TANKS
⑦ Empty cookers (when ready)
④ Prepare to clean up
⑨ LOAD GRAIN Receivers
⑧ SHUT OFF H_2O, STEAM, AIR & STILLAGE
⑩ TAKE down & clean (AIR DAY) GRAIN CHUTES.
⑫ check fermenters fill spouts to INSURE system flushed out
⑪ SHUT OFF All system pumps except FOR clean up use.
⑬ ELECTRICAL FAILURE - ① cut off
⑭ PUT All lines ON steam. steam to cookers ② shut down entire system ③ call power house
ⓑ Steam failure - ① Shut down immediately ② call power house
ⓒ Air failure - ① Shut down ② cut off steam to cookers
③ check inst or call power house (go to manual control)
↓ Compressor out

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Robin P Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of Milling and Cooking procedure.

One-half hour discussion of Milling and Cooking start-up and operational abnormalities.

(Production Planner)

Robin P Goble
(Trainee)

Take these level chart readings with a grain of salt

South Cooker Capacities

Chart Reading	Gallons
64	1,000
74	2,000
86	3,000
94	4,000
103	5,000
114	6,000
122	7,000
131	8,000
138	9,000
148	10,000
156	11,000
168	12,000
183	13,000

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-A TRAINEE: Robin P. Goble

DAY: 4 DATE: 6-23-67

TYPE OF OPERATION: Milling and Cooking

The trainee will learn the Milling and Cooking procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Cooker start-up
2. Operational abnormalities
   a. Improper level in precooker
   b. Mill failure
   c. Insufficient water
   d. Vacuum failure
   e. Agitator failure

COOKER START UP

1/ (a) Close drain valves (b) turn OFF sterilizing steam (c) start mills & check operation (d) Build up H_2O level in pre-slurry and malt slurry tanks. (e) START steam to cookers (f) START pumps (g) START Stillage to pre-slurry (h) START Agitators. (i) check mash flow, levels, & temperatures. (j) check & coolers.

2/ (a) Improper level in pre-slurry - (1) Improper grain, H_2O, or stillage flow (2) Discharge from pre-slurry tank plugged.

(b) Mill FAILURE - (1) Shut off mill (2) call electrician

(c) INSUFFICIENT H_2O (1) STOP operations up to cookers (2) check (2) valves, lines, tanks, & source.

(d) Vacuum failure (1) check for leaks in cooking (2) check Level of barometric H_2O (city) supply. + Sources

(e) Agitator failure (1) call electrician (2) THIN OUT MASH.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of Milling and Cooking start-up and operational abnormalities.

One-half hour discussion of caustic clean-up and preperation of yeast mash.

J Kelly
(Production Planner)

Robin P. Goble
(Trainee)

PHASE: II-A

DAY: 5

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Caustic Cleanup — February, 1967

① Stillage System – As soon as stillage for the last cook has been drawn, back-flush system and put on steam

② Pre-Slurry Tank – As soon as last is completed, remove meal chutes to pre-slurry and clean thoroughly – air dry. Clean pre-slurry thoroughly.

③ When the pre-slurry tank is empted, draw 600 gallons caustic from dryer house and heat to 190°F cautiously – before dropping to cooker.

~~(300 gals to each cooker)~~

④ Fill one batch cooker with approx. 9,000 gals. of H_2O. Heat H_2O while filling. When H_2O has been drawn, add 600 gals of caustic from pre-slurry tank, continue heating caustic solution to 212°F – Cooker dome must be full when temp. is reached. If not, add more H_2O.

⑤ When cooker reaches 212°F, shut off all barometric condenser H_2O; open blow down valve wide, in order to flush the system with caustic. Also open

DISCUSSION MEETING

half hour review of caustic clean-up and preparation of yeast mash.

half hour discussion of Yeasting and Fermentation flow-diagram.

PHASE: II-A
DAY: 5
TYPE OF OPERAT

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(5) vent lines and flush to the sewer
(6) When above operations are completed, transfer the caustic solution to the remaining cooker using the "dry malting system". Do not open the malt slurry drop valve ~~tank~~ until a caustic level has been maintained in the malt slurry tanks.
7. Heat caustic solution in 2nd cooker to 212°F - repeating step #5.
8. Pump sufficient caustic solution to heer wells ~~for use on stills~~, use by-pass line to heer wells. Pump remaining caustic solution to fermenter room sewer through drop tub and wash coolers
9. As each cooker is emptied of caustic, fill cooker to capacity with H.O. Heat H2O to 212°F. While cooker is under pressure, open blow down valve to flush caustic from the barometric vent line; also flush cooker vent line to sewer
(10) Transfer H2O to remaining cooker, using the "dry malting system". Do not open the malt slurry drop valve until a level has been maintained

(11) Heat hot flush in second cooker to 212°F — repeating step #9.

(12) Pump hot flush to fermenter room sewer, through drop tub and mash cooler.

(13) In connection with batch-cooker clean up, flush all drop tub pumps, mash cooler, booster pumps, and mash cooker pump, while pumping final hot flush H2O.

(14) Put the entire ~~system~~ batch cooking system on steam after the final hot flush. Crack the barometric condenser valve and vent line open to insure proper steaming. Open drain petcocks in kettle instruments for steaming.

PRODUCTION SHIFT SUPERVISOR TRAINEE

TRAINEE: Robin P. Stoble

DATE: 6-23-67

PHASE: II-A

DAY: 5

TYPE OF OPERATION: Milling and Cooking

The trainee will learn the Milling and Cooking procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Caustic clean-up 1/ See Attached sheets

2. Preparation of yeast mash 2/ Preparation of yeast mash - ① Insure masher has been steamed at least one hour. ② Turn steam down and close drain valve. ③ Start agitator ④ Fill with H_2O (897 gals) or 60 D.I. ⑤ Open malt chute & rye chute ⑥ Start mills and conveyors ⑦ 1600 lbs malt ⑧ 1600 lbs rye ⑨ Hold for 15 min @ 145°F ⑩ Pump to yeast Room ⑪ Fill masher to operating line with H_2O, add 5# caustic, heat to Boiling, pump to sewer, flush with H_2O, put entire system on steam.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Is a hot flush sent to beer well & stills following the caustic? NOT ① exactly beerwells are hosed out ② Beer stills (36", 42", 48") have acid flush following caustic, then are boiled out using wash H_2O.

Robin P. Stoble
(Trainee)

DISCUSSION MEETING

One-half hour review of caustic clean-up and preparation of yeast mash.

One-half hour discussion of Yeasting and Fermentation flow-diagram.

J. Kelly
(Production Planner)

Robin P. Stoble
(Trainee)

TIME TO SET

STEEL 5 HRS

WOOD 3 HRS

1 HR DROP
1 HR SPRAY
2 HRS STEAM (AT LEAST ONE)

BEER WELL DROPS

① CAN DROP A WOOD FERM WHEN 9S DRY INCHES SHOW IN BEERWELL.

② IN ORDER TO DROP A STEEL FERM THE BEER WELL SHOULD BE NEARLY EMPTY (AGITATOR BLADE SHOWING)

③ PCO ESTIMATES ARE DERIVED FROM BEERWELL DRY IN CHART (STILL OPERATORS DESK) DIVIDED BY RATE — WHICH GIVES YOU TIME TO DISTILL.

PHASE: II-A

TYPE OF OPERATION: Milling

Within five days after havi
milling, and cooking, the
sequence the step by step
Production Superintendent,

OPERATION SELECTED:

SEE IN

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-A TRAINEE: Robin P. Goble

TYPE OF OPERATION: Milling and Cooking DATE: 6-23-67

Within five days after having completed the training on grain unloading, milling, and cooking, the trainee will be asked to list below in proper sequence the step by step procedure in the operation designated by the Production Superintendent, such as caustic clean-up, cooker start-up, etc.

OPERATION SELECTED: Caustic Clean-up.

See Insert on preceding page.

95

Wood Tank

7DI = 25,833 wg

Steel Tank

19DI = 40,827 wg

Approved: _____
(Production Superintendent)

Pump From Yeast Masher to Y.R. 125 GPM

Dona Tub #7 447 gal. cap.

Dona Tub #8 270 gal. cap.

Yeast Tub #1, #2, #3, #4, #5, #6 2673.5 gal. cap.

Yeast Mash Pump (To Fermentors) 200 GPM

Autoclave (Y.R. Basement) 30psi with 90# steam.

Fermenter #5 (steel) 44,038 gal cap

pump on Ferm #5 (cooler) 125 GPM

Fermenter #9, #10, #11, #12, #6, #7, #8 > same as above

pump on Ferm #9, #10, #11, #12, #6, #7, #8

Ferm #1, 2, 3, 4, 13, 14, 15, 16 (wood) ~~28,859~~ gal. cap.

Beer Well #1 48,007 gal. cap. (378 g/in)

Beer Well #2 " " "

Beer Well Pump #1 180 GPM

" " " #2 120 GPM

" " " #3 150 GPM

Cooling H_2O Surge Tank 1550 gal. cap.

~~East~~ pumps for " " 250 GPM

West Pump for " " 800 GPM

Stillage tank - 8,418 gal

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-B

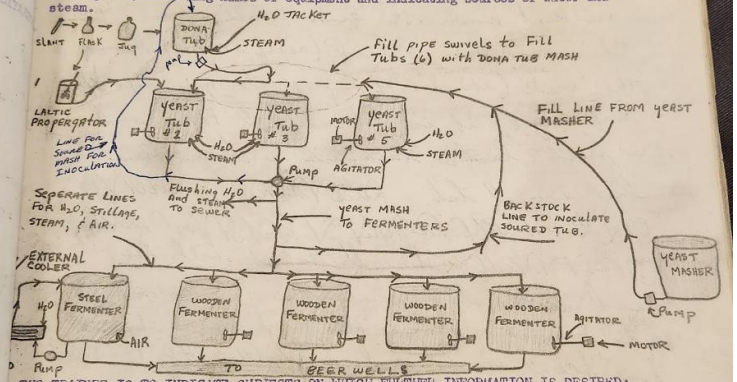
DAY: 6

TRAINEE: Robin P Goble

DATE: 6-26-67

TYPE OF OPERATION: Yeasting and Fermentation

The trainee will prepare a free-hand flow-diagram of the yeasting and fermentation system, inserting names of equipment and indicating sources of water and steam.



THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① CAN A sweet yeast mash STILL BE bottled AS SOUR MASH bourbon? yes IF 25% STILLAGE IS USED

② IS WORKING YEAST TUB AERATED? NO However, Donas are agitated until yeast begins working.

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of yeasting and fermentation flow-diagrams.

One-half hour discussion of yeasting procedures.

J. Keller
(Production Planner)

Robin P. Goble
(Trainee)

06.20 ~~1420~~ (chart + ~~log~~) drop sheet

(1.) Install Steel Fermenter Charts

@ ~~paste~~ H_2O on 4 day beer @ 88°F – control @ 88°F until 48 Hrs old Sat 74°P – then take H_2O off – then let it go until drop.

② control 3 day beer @ 90°F Sat 76°F for 48 Hrs (start controling @ approx 24 Hours)

2. Wood ferm to West BW to 36"
3 Steel " " East " " to 48"

3 DAY BEER MON, TUE, WED

		3 day	4 day.
1-4 wood – 4	wood set –	70°	68°
5-12 steel – 8	steel set –	78°	74°
13-16 wood – 4			
16			

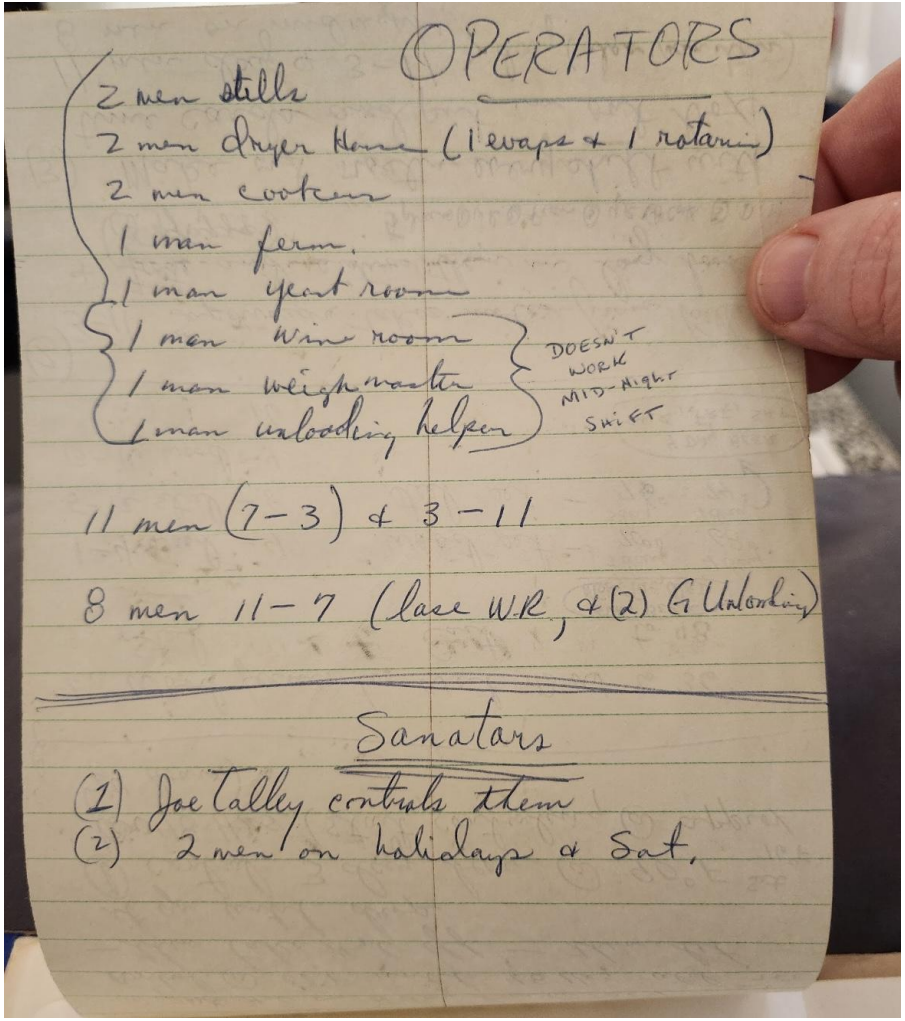
4 DAY BEER THUR, FRI, SAT

(2) 3-11 Supervisor takes notes from Kelly & Foote and enters them in log books (~~8 AM~~ 3PM)

5 places ① VR ② Press ③ yc ④ Cook ⑤ D.H

(3) Make out roster every shift with time cards and put in out box

1 / men day & 3-11 > day (also janitors)
8 men on midnight



OPERATORS

2 men stills
2 men dryer House (1 evaps & 1 rotarie)
2 men cookers
1 man ferm.
1 man yeast room
1 man Wine room
1 man weighmaster
1 man unloading helper

DOESN'T WORK MID-NIGHT SHIFT

11 men (7-3) & 3-11

8 men 11-7 (last W.R, & (2) G Unloading)

Sanatars

(1) Joe Talley controls them
(2) 2 men on holidays & Sat.

lactic backstock is drawn on Monday (after first tub is soured) into dona flasks which are kept under the sink in the Yeast Room. These backstock is used (as) if needed) during the week (example: if a propagator goes out). If not used, it is discarded Friday and a fresh lactic backstock is drawn from the last soured tub. ~~(This backstock will be used as the "starting" lactic for Monday yeast wash.~~ This backstock will be used as the "starting" lactic for Monday yeast wash - since all tubs on hand have been soured and held @ 140°F - 160°F

Initial Ferm Drop schedule on the basis of the fermenter being old enough to be dropped.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-B

DAY: 7

TRAINEE: Robin P. Goble

DATE: 6-26-67

TYPE OF OPERATION: Yeasting and Fermentation

The trainee will learn the Yeasting procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Filling of yeast tub
2. Emptying of yeast tub
3. Cooling yeast tub
4. Sterilizing yeast tub

1/ TAKE TUB OFF STEAM. Pump PREPARED MASH FROM YEAST MASHER AFTER SETTING FILL SPOUT OVER DESIRED Tub. Flush LINE and put YEAST MASHER and LINE on STEAM. Cool mash in TUB to 130°F add LACTIC And hold until SOURED AT 122°F. (BACKSTOCK for NEXT SOURING.) PASTEURIZE @ 190°F for ½ HOUR. Cool to inoculating temperature (86°F) then Add 1/4 YEAST from DOWN tub OR from A WORKING tub — IF BACKSTOCKING when pumped from YEAST MACHER HOLD @ 145°F for 30 MIN. PRIOR to PASTEURIZATION, HOLD @ 150°F.

(See next page) AS REQUIRED

5. Preparation of yeast mash from uncooked slurry

2/ After one-half of FIRST COOK is pumped to fermenter, SHUT OFF MASH Flow from COOKERS pumped TOGETHER open yeast valve to fermenter FILL LINE, open yeast drop VALVE, START pumping UNTIL one-half of yeast Tub is pumped to FERMENTER. Close Drop valve, Flush LINE and turn off pump. Close yeast valve to fermenter FILL LINE. Then REOPEN MASH LINE and continue pumping COOK. PLACE LINE ON STM.

3/ INSURE AGITATOR is RUNNING, open cooling water valve to jacket.

4/ COVER YEAST tub with TARP, TURN ON STEAM TO STEAM SPARGER. STEAM FOR AT LEAST ONE HOUR. REMOVE COVER and DRAIN CONDENSATE.

5/ IN YEAST MASHER — AFTER STERILIZING for at least ONE HOUR, close DRAIN, START AGITATOR. Fill 897 gals H_2O, DROP 1500# MALT and 1600# RYE. Hold for 15 min @ 145°F, then pump to YEAST Tub. (REHEAT) MASH to 145°F and hold for 30 MIN, cool to 130°F to Add LACTIC, hold @ 122°F UNTIL SOURED. (5 HRS)

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① TIMES OF ① 150°F Holding (AS NEEDED) (TIL READY TO PASTEURIZE) ② PASTEURIZATION, (½ HR) ③ SOURING (4-5 HRS)

④ WORKING YEAST (1ST DROP 16 HRS) (2ND DROP 20 HRS) ⑤ STERILIZATION (1 HR)

② DESIRED Acids, pH's, & balling OF YEAST AND LACTIC.

(SEE NOTE SHEET - BACK OF BOOK)

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of yeasting procedure.

One-half hour discussion of dona procedures.

J Kelber
(Production Planner)

Robin P. Goble
(Trainee)

KE Feb 5, 1966

GRIND CORN #2 mill using #16 SCREEN
" RYE #1 " " #8 " when RYE is
GROUND, GRIND ON #1 mill also, using #8 SCREEN
GRIND MALT ON #3 & #4 MILLS using #12 SCREEN

Wooden / Cook			Steel / Cook	
CORN	14,200 Lbs (71 DROPS) 200# DROP	—	14,800	(74 DROPS)
RYE	2,200 Lbs (11 DROPS) " "	—	2,400	(12 DROPS)
MALT	1960 Lbs (98 DROPS) 20# DROP	—	2,100	(105 DROPS)
2 Cooks / Ferm		—	3 Cooks / Ferm	
USE 5900 GALS H_2O --- 393 ON INTERGATOR		—	6300 gal H_2O --- 421 "	
USE 1700 GAL STILLAGE --- 177 " "		—	1830 gal still. --- 191 "	

① If COOK ballings lower than 13.8 - Reduce H_2O
② Sub H_2O for stillage and adjust pH with CITRIC
③. Add 5 drops of pre-malt with enough H_2O to cover agitator in Malt S. Tank - Subtract this malt from total to be used.
④ Heat 212°F using 15,000 lbs/HR STM - PRE-HEAT 128°F
⑤ Hold @ 212°F for 30 MINS. BABBLE IN STEAM to MAINTAIN THIS TEMP.
⑥ Cool to 145°F & add Conversion malt (dry system)

Wooden Ferm	Steel Ferm
① Use 3100 gal stillage / ferm	① Use 4900 gal still. / ferm.
② 680 bushels	② 1065 bushels
③ Set @ 7 DRY INCHES.	③ Set @ 21 DRY INCHES
④ 1 DRY INCH = 146.8 gals	④ SEE CONTROL LAB CHART

YEAST MASH KE

1600 lbs RYE --- 8 DROPS
1500 lbs MALT --- 75 DROPS
USE 897 gal H_2O (60 DRY INCHES IN MALT S. TANK)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-B TRAINEE: Robin P Goble

DAY: 8 DATE: 6-26-67

TYPE OF OPERATION: Yeasting and Fermentation

The trainee will learn the Yeasting procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Filling dona tub — 1/ Pump 300 gal of soured MASH (yeast Tub @ 150°F) to DONA Tub and PASTEURIZE (190°F) FOR ½ HOUR.
2. Inoculation of dona — 2/ Cool from 190°F To 86°F And add two DONA jugs. Hold For 24 Hours.
3. Cooling dona tub
4. Inoculation of yeast tub from dona (AGITATOR)
5. Sterilizing dona tub — 3/ open cooling H_2O valve to DONA tub jacket

4/ INSURE INOCULATING temperature IS 86°F, OPEN DROP VALVE ON DONA Tub, PLACE FILLER IN desired POSITION, START pump, START Agitator.

5/ Cover tub with TARP, place filler IN yeast ROOM OVER SEWER SPOUT, open DROP VALVE OF DONA TUB, TURN ON STEAM TO SPARGER AND hold FOR AT least ONE Hour.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① INOCULATION OF DONA Jugs — ONCE a week from Dona Flasks

② PASTUERIZE 192°F — STERILIZE @ 212°F

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of dona procedures.

One-half hour discussion of fermentation procedures.

(Production Planner)

Robin P. Goble
(Trainee)

STILL HOUSE TANKS

(PRODUCT & BOIL OUT (TO) → SH)

SPIRITS	36"	48"	42"	OSC	Doub
#8	#3	#3	#3	#12	#8 (PRODUCT)
#9	#10	#10	#10	#13	(BOIL-OUT TO ANY TANK)
#11	#12	#12	#12		

SH #8 IS THE (WHISTLE) OVER FLOW TANK

FOR ① GIN (PRODUCT & TAILS) ② SPIRITS ③ DOUBLE

OSC → WR

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-B TRAINEE: Robin P. Goble

DAY: 9 DATE: 6-26-67

TYPE OF OPERATION: Yeasting and Fermentation

The trainee will learn the Fermentation procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Dropping a fermenter (finished beer) to beer well 1# Turn on agitator (wooden) (Stainless steel) Take a drop sample, open drop valve from fermenter to beer well selected. Flush out fermenter and line.
2. Putting a fermenter and heat exchanger on sterilizing steam
3. Taking a sterilized fermenter off steam for filling 2# Open condensate drains on fermenter and heat exchanger, ① close manhead or ② cover with tarp, close CO_2 exhaust line, open steam valve - sterilize for one hour. Pump on cooler is turned off during sterilization.
4. Filling a fermenter

3# Turn off steam, close condensate drain (Let drain then -) open ① manhead or ② remove tarp, open CO_2 exhaust line, let cool to atmospheric temperature.

4# Place fill spout over desired fermenter, insure yeast room valve closed, open mash valve (in fermenter room balcony). Insure valves open on ensinger coolers, drop tub. Start drop tub pump, start mash cooler booster pump. Adjust rate of flow and temperature on Cooker Room panel board.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① Cooling System - steel (external coolers), wood (no coolers, set 6°F lower)

② What is the H_2O to grain ratio in ⓐ cooking 2.6:1

ⓑ fermenting 3.8:1 ⓒ yeast mash 1.6:1

(gallon of H_2O to Bu. of grain) Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of fermentation procedures.

One-half hour discussion of vacuum gin still flow-diagram.

J. Kelley
(Production Planner)

Robin P. Goble
(Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-B TRAINEE: Robin P. Goble

TYPE OF OPERATION: Yeasting and Fermentation DATE: 6-26-67

Within five days after having completed the training on yeasting and fermentation, the trainee will be asked to list below in proper sequence the step by step procedure in the operation designated by the Production Superintendent, such as filling yeast tub, sterilizing dona tub, dropping a fermenter, etc.

OPERATION SELECTED: Filling yeast Tub (sterilization to sterilization)

Take tub off steam, place filler over tub to be filled. Pump prepared mash from yeast masher, reheat mash to 145°F and hold for 30 minutes. Allow to cool to ~~130~~ 136°F and add lactic (propagator or backstocking) and hold at 122°F until soured 4½ to 5½ hours, pH 4.0, Acid 11 to 13. Backstock to Lactic Dona Jugs for Backup souring. After souring hold at 150°F until ready to pasteurize, pasteurize at 190°F for one hour. Cool to inoculating temperature of 80°F, then add yeast from Dona Tub or by backstocking from a working tub. When Tub works out (yeast count desired, ~~A-1~~, ~~A-5~~, and balling) and fermenter is ready — drop to fermenter. Two drops per yeast tub. When tub is empty flush with H_2O, add tarp and steam for at least one hour. Remove steam, remove tarp, and drain condensate.

~~Back~~ Backstock from Lactic propagator #1 To Lactic Propagator #2

Approved: _____
(Production Superintendent)

Gin Charge Pump - 100 GPM

Gin Recycle pump - 2000 GAL/MIN

Dist H_2O Pump - 100 GPM

① Wine Room Tanks 10 & 11 are gin tanks

② Wine Room Tanks 12 & 13 are gin heads and tails tanks.

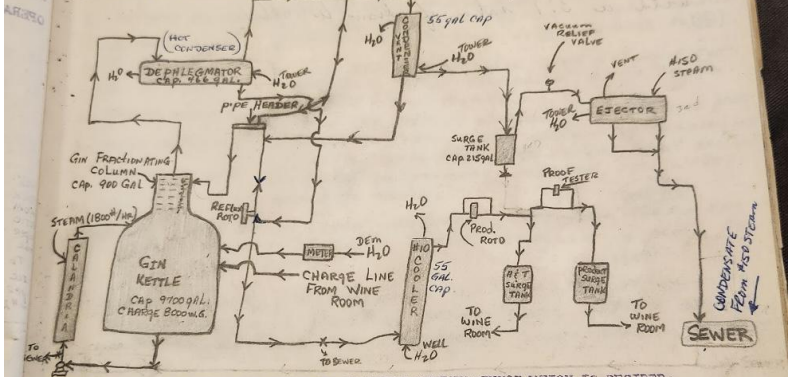
PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C TRAINEE: Robin P Goble

DAY: 10 DATE: 6-27-67

TYPE OF OPERATION: Distillation

The trainee will prepare a free-hand flow-diagram of the gin still, inserting the names of equipment and indicating sources of water and steam.



THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

1. Dephlegator - A PRE-CONDONSER
2. Reflux Roto - MEASURES FLOW OF liquid
3. Ejector - CREATES VACUUM ON SYSTEM. GETS RID OF NON-Condensible GASES.
4. Calandria - A PRE-heater

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of gin still flow-diagram.

One-half hour discussion of gin still procedures.

(Distiller)

Robin P. Goble
(Trainee)

Gin

Charge - 8,000 pg. of 100°P KSV
@ 24" vacuum gives 85% Recovery

170°P to 174°P product draw

with a 3:1 ratio of draw to reflux

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C TRAINEE: Robin P. Goble

DAY: 11 DATE: 6-27-67

TYPE OF OPERATION: Distillation

The trainee will learn the Gin Still procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Emergency shut-down: 1// (A) OPEN REFLUX VALVE (WIDE OPEN), CLOSE PRODUCT VALVE, TURN OFF STEAM. REFLUX WILL STOP AUTOMATICALLY. (B) SAME AS (A), (C) SAME AS (A), (D) SAME AS (A).
   a. Water failure
   b. Electric failure
   c. Steam failure
   d. Air failure
2. Cutting product to tails: 2// TURN OFF PRODUCT VALVE, OPEN HOT VALVE, CUT REFLUX TO 1" ON FLOWRATOR, RAISE STEAM TO 2500 – 3000 pounds.
3. Normal shut-down: 3// TURN OFF REFLUX when gin tails go to 70 PROOF, TURN OFF STEAM, BREAK VACUUM BY TURNING OFF EJECTOR STEAM (150#) AND WATER, BREAK VACUUM IN KETTLE ON PRESSURE CONTROLLER, OPEN BASE DRAIN to SEWER.
4. Charging gin kettle
5. Start-up

4// Close BASE DRAIN, open inlet from WINE ROOM, DRAW 8000 lbs REQUIRED AMOUNT OF WATER, START RECIRCULATING PUMP, ADD GIN INGREDIANTS.

5// (CONT. from 4//) RECIRCULATE COLD WITH 24" (3840) VACUUM FOR TWO HOURS, ADD 1800 # OF STEAM UNTIL REFLUX STARTS, HOLD ON REFLUX FOR TWO HOURS, START DRAWING PRODUCT.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Why do you have a 24" vacuum on the 2 Hr cold recirculation? As a time saving procedure - A vacuum for steam distillation is desired and time is needed for vacuum build-up - So with vacuum established, distillation can proceed without slowdown.

Robin P. Goble (Trainee)

DISCUSSION MEETING

One-half hour review of gin still operations.

One-half hour discussion of the spirits still flow-diagram.

(Distiller)

Robin P. Goble (Trainee)

KSF

1. Boilout - 3Hrs
2. Load up - 4Hrs
3. "Clean" To SH - 5Hrs
4. (THEN TO WR.)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C

TRAINEE: Robin P. Goble

TYPE OF OPERATION: Distillation

DATE: 6-27-67

Within five days after having completed the training on the Gin Still, the trainee will be asked to list below in proper sequence the step by step procedure in the operation designated by the Production Superintendent, such as normal shut-down, charging gin kettle, etc.

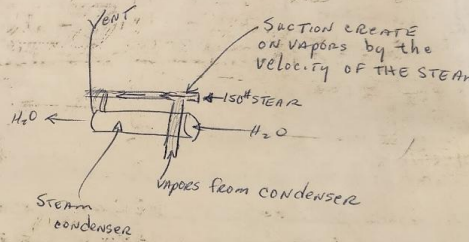
OPERATION SELECTED: Charging Gin Kettle

1. Close Base Drain
2. Open Inlet From Wine Room & charge with KSF
3. Draw Required Amount of Water (cut to 100pf)
4. Start Recirculating pump
5. Add Gin Ingredients.

Approved: J. Kahn
(Production Superintendent)

① 48" Beer Still Condenser – 495 gal. cap.
② 55 Plate – 7364 gal cap
③ 55 Plate product – 22,810 pg/24 Hrs
④ 77 Plate – Cap. 22,810 pg/24 Hrs
⑤ Spirits Cooler #3 – Cap. 64 gals
⑥ Spirits Cooler #5 – Cap. 134 gals
⑦ Whiskey Cooler #4 – Cap. 207 gals

CONDENSERS AND ejectors CREATE VACUUM ON DISTILLATION SYSTEM.



⑧ Hds Stripping Col – Cap. 2474 gals
⑨ Fusel Oil DECANTER – 176 gal. cap.
⑩ Hds Conc. Col – Cap. 1757 gals
⑪ OSC – Cap 12,063.7 pg/24 Hrs
⑫ 77 col D.L H_2O pump – 90 GPM
⑬ 55 col D.L H_2O pump – 50 GPM

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

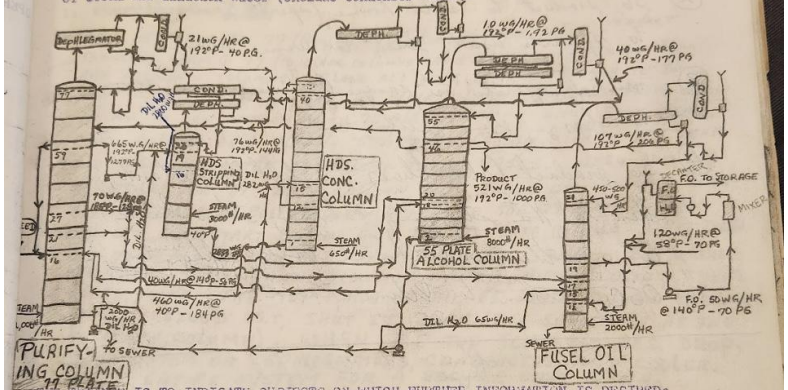
PHASE: II-G TRAINEE: Robin P. Goble

DAY: 12 DATE: 6-28-67

TYPE OF OPERATION: Distillation

KSV

The trainee will prepare a free-hand flow-diagram of the spirits unit, inserting names of columns and equipment and indicating control points and sources of steam and dilution water (exclude condenser water).



THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

KSV - White Spirits KESN (WHISKEY) - Double IN 125°P OUT 135°P

KSF - Favored Spirits KEIN - Absorbtive 150° From 36"

IS THE DRAW LIQUID FROM A DEPHLEGMATOR LESS CONC.?

—YES, BECAUSE HIGH BOILING LIQUIDS (H_2O) CONDENSE FIRST.

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of the spirits unit flow-diagram.

One-half hour discussion of the spirits unit normal shut-down procedure.

(Distiller)

Robin P. Goble
(Trainee)

7-20-67

Flow

1. 48" product to doubler @ 125°P then to Wine Room @ 135°P
2. 36" product to still house (spirits tank), then to spirits unit, then to wine room
3. neutral spirits is pumped from wine room to charge Air kettle.
4. 36" product (absorbtine) to still house tank, then to Hd. stripping column, then back to another still house tank, then to OSC, then to Wine Room.

Types

1. Bourbon Whisky – 48" → doubler
2. Flavored/Neutral Spirits – 36" → spirits unit
3. absorbtine Whisky (CORN) Lighter – (36" OR 48") → Hd SC → OSC

most rejected whisky is run through the spirits unit.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C

DAY: 13

TRAINEE: Robin P Goble

DATE: 6-29-67

TYPE OF OPERATION: Distillation

The trainee will learn the spirits unit procedure step by step for the following operation and must be able to perform this on a "dry-run" basis.

1. Normal shut-down KSV

Turn off feed to 77 (Purifying) Column. Close main Product transfer from ① 77 (to other columns) and ② from 55 (to Wine Room and Associate columns). Close all side draws. Switch to Draw from "Boil out" line on the 77 plate column. Boil out Fusel oil Column, in conjunction with 77 plate column. Shut down Heads Conc. Column and Heads Stripping Column. Turn off steam and dilution water and close their bases. When top temperature on 77 plate column and Fusel oil column indicate they are boiled out(212°F), Close the 77 plate column boil out and start boiling out the 55 plate column. Shut down the 77 plate column and the Fusel oil column by turning off their steam and dilution water, and closing their bases. When the top plate of the 55 plate column indicates it is boiled out, shut it down (the same way as the 77 plate column). When the top temperatures drop, close water on dephlegmators, condensers, and cooler. Check entire system for a secure shut down.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① KSF and ② Kettle-Column units

See Blue prints (prod. office)

Robin P Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of the spirits unit normal shut-down procedure.

One-half hour discussion of the spirits unit emergency shut-down procedure.

(Distiller)

Robin P. Goble
(Trainee)

De-Ion H_2O Tank #16 and #17

Cap 64 gal/inch

Total 11,057 gals/tank

SEE Following page

(A) 48" Beer Still

1. feed rate — (70 gpm) 4200 gph
2. feed plate — #10
3. Beer heater - (if in use) Reflux to #1 (wine) plate
4. Steam — 8,125 #/Hr
5. Product reflux - 50-100 wg/Hr to #3 wine plate
6. O.S.C. overhead - approx 175 wg/hr to #1 wine plate
7. Beer Still Product °P — 130°? (125°P)
8. Double Product Proof — 130°? (135°P)
9. Double Operation - Continuous feed from beer still and Continuous draw off from doubler. Maintain doubler approx 1/3 full. The lenght of ea. double run is 48 Hr. Cut doubler to tails @ 100°P.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C TRAINEE: Robin P Goble

DAY: 14 DATE: 6-29-67

TYPE OF OPERATION: Distillation

The trainee will learn the spirits unit procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Emergency shut-down: KSV

a. Electrical failure
b. Steam failure
c. Air failure
d. Water failure

* When the safety devices in the columns are activated, the columns will automatically shut down.

(a) Attempt to restart all motors, if they do not start - ① Close main feed and ② turn off steam to columns. ③ Close column bases and ④ product transfer and side drain valves ⑤ Turn off dilution water ⑥ Check system for a secure shut down.

(b) Same as [(a)] ① through ⑥

(c) Same as [(a)] except - all steam valves should be closed and all water lines should be open.

(d) Same as [(a)] ① through ⑥

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① Reflux shut down - open system

② Air (what does it do?) - operates control panels, aids in closing valves

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of spirits unit emergency shut-down procedure.

One-half hour discussion of boil-out and change-over from spirits to whiskey on the spirits unit.

(Distiller)

Robin P. Goble
(Trainee)

Ⓐ CONT.

ABSORPTIVE WHISKEY

OSC (use without the HSC)

① Feed rate – 300 wg/hr of 98 beer still product @ 130°P to plate #15

② Top temp – 184°F

③ Base temp – 221°-222°F

④ 17th plate temp – 175°-177°F

⑤ Reflux – 750 wg/hr to plate #32

⑥ Reflux to 48" BS from overhead – approx 175 wg/hr @ 157°P to 48" BS wine plate #1

⑦ Steam – 4,000 lbs/hr

⑧ Base pressure – 3.5 lbs/sq in

⑨ F.O. draw to S.H. tank – 18 wg/hr @ 140°P from plate #17

⑩ Dil H_2O to top plate – approx 150 gal/hr of demin. H_2O.

⑪ Base proof – 0°

When using the HSC the only difference in the 48" Beer Still figures given on the preceding page is that – to the HSC overhead – approx 168 wg/hr to 1st wine plate (see #⑥ above)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C TRAINEE: Robin P Goble

DAY: 15 DATE: 6-29-67

TYPE OF OPERATION: Distillation

The trainee will learn the spirits unit procedure step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Shut-down KSV
2. Boil-out BOTH SHUT-DOWN AND BOIL-OUT PROCEDURES ARE DESCRIBED IN DETAIL UNDER NORMAL SHUT-DOWN PROCEDURE ON PHASE II-C, DAY 13

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① KSF and ② Kettle-Column Units

③ Flavored Spirits Multi-UNIT DISTILLATION-less Hds Strip Col.

④ Spirits or Whiskey - Similar to Gin Kettle WITH AN ADDITIONAL RECTIFICATION column.

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of the spirits unit shut-down and boil-out procedures.

One half-hour discussion of the spirits unit start-up and operational abnormalities.

(Distiller)

Robin P. Goble
(Trainee)

ABSORBTIVE WHISKEY

using OSC AND HSC

12-1-67

OSC

① feed rate - 300 wg/hr of 36" BS product plus cooling reject @ 150°P to plate # 15

② Top temp - 187°F

③ Base temp - 214°F

④ Base pressure - 3 lbs/sq in.

⑤ Steam rate - 3250 lbs/hr

⑥ Hds draw to S.H. tank from overhead - 5 wg/hr @ 159°P

⑦ Base proof - 0°P

⑧ Dil H_2O to top plate - Sufficient demineralized H_2O to maintain the base proff of 13°-15°

Hds S C

① Feed - Base of OSC was fed to top of column.

② Top temp - 189°F

③ Base temp - 216°F

④ Base pressure - 1.6 lbs/sq in

⑤ Steam rate - 3000 lbs/hr to draw 42 wg/hr overhead

⑥ Base proof - 40°

⑦ Reflux to 48° BS from overhead - approx 168 wg/hr at 150°P to 48" BS wine plate # 1

⑧ Hds draw - 42 wg/hr (37 wg/hr to product and 5 wg/hr to storage)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C

TRAINEE: Robin P Goble

DAY: 16

DATE: 6-30-67

TYPE OF OPERATION: Distillation

The trainee will learn the spirits unit procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Start-up KSV

2. Continuous operational abnormalities listed in the operating procedure.

START UP

1. Set valves and pumps for desired operation. Turn on H_2O to proper condensers and coolers. Slowly, turn on warm-up steam on all columns. As columns heat to desired temp., turn off warm-up steam and turn on main steam. When temp is up, open the bases. During (and after) start up keep a close check on pressure bottles. Turn on Pumps and start H_2O flow and Feed. Open side draws and Reflux. When column is loaded, start main product transfer. Also start return goods to the 77 plate column.

2. ⓐ High Proof at Feed Plate - Check dilution H_2O Pump and valve. Try to increase H_2O flow. If impossible, shut down.

ⓑ Low Steam Flow - Increase steam, if possible; if not, then decrease everything proportionally. If steam flow is still too low, shut down.

ⓒ Low Base Pressure - If alcohol is blowing out the top of the column, shut off feed and steam until pressure bottle is refilled.

ⓓ High Temp. on Top Plate - If alcohol is blowing out of the top, follows steps in ⓒ above. If feed is off, then correct. If impossible, shut down.

ⓐ through ⓓ hold true for all the different columns.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① Pressure bottles — prevents cave-in of columns and blow-out of column

② Base Level Function - Keeps steam from going out base of column

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of spirits unit operations.

One-half hour discussion of whiskey unit operations.

(Distiller)

Robin P. Goble
(Trainee)

Re-Run Kettle 14,039 gal. cap.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C

TRAINEE: Robin P. Hobbs

TYPE OF OPERATION: Distillation

DATE: 6-30-67

Within five days after having completed the training on the spirits unit, the trainee will be asked to list below in proper sequence the step by step procedure in the operation designated by the Production Superintendent, such as normal shut-down, boil-out, start-up, etc.

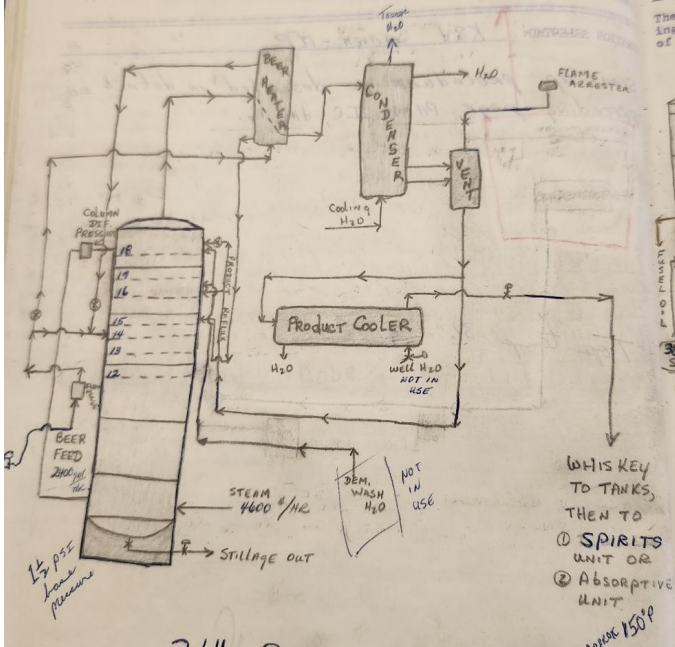
OPERATION SELECTED: KSV START-UP

START-UP PROCEDURE IS DESCRIBED IN DETAIL ON PRECEDING PAGE, PHASE IIC, DAY 16.

Top temp 36" 190°F

Approved: J. Kahn
(Production Superintendent)

SPIRITS (KSF - KSV) - 192° - 194° P
BOURBON (KE - KB) - BELOW 160° P
GIN (KGC) - 173° - 174° P
NOTHING DISTILLED BETWEEN 160° - 190° P



36" BEER STILL

PHASE: II-C
DAY: 17
TYPE OF OPERATION: D

The trainee will pre
ing names of columns
of steam and dilutio

THE TRAINEE IS
① WEIR
② De-m
also re
③ Flame
④ TRC -
⑤ Steam

One-half ho
One-half h
procedure

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C

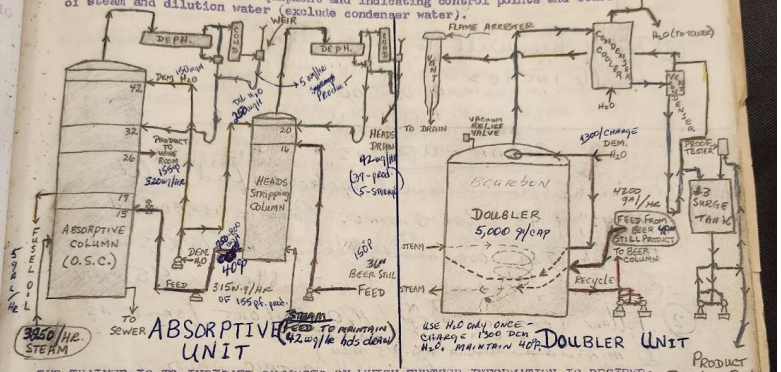
DAY: 17

TRAINEE: Robin P. Goble

DATE: 6-30-67

TYPE OF OPERATION: Distillation

The trainee will prepare a free-hand flow-diagram of the whiskey unit, inserting names of columns and equipment and indicating control points and sources of steam and dilution water (exclude condenser water).



ABSORPTIVE UNIT

DOUBLER UNIT

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① WEIR METERS - measures flow, VENTS GASES

② Demineralized H_2O - does not lend itself to the product also reduces scale deposit

③ Flame Arrester - (VENTS NON-Condens. And prevents FIRE by limiting O_2 INTAKE)

④ TRC - MEASURES FLOW

⑤ Steam Feed on OSC ? - 4000#/hr

Robin P. Goble (Trainee)

DISCUSSION MEETING

Doub - more stm used - lower the proof of product -
② less stm - higher proof

One-half hour review of the whiskey unit flow-diagram.

One-half hour discussion of whiskey unit emergency and boil-out shutdown procedure.

(Distiller)

Robin P. Goble (Trainee)

Beer Well

① gals/IN = 374.64

② Cap - 48,007 gals

③ Top of Beer Well to lip of lid is 16 INCHES

CLEAN-UP

① Caustic from Beerwell to each feed inlet (96", 42", & 48") for 5 mins. Caustic is boiled Through the overhead, through reflux systems, condensors, & coolers To. Doubler. 45 MIN

② Follow Caustic WITH H_2O Boilout (SAME AS ① minimum time of 45 MIN)

③ Following Step ②, 16# CITRIC ACID ~~[illegible]~~ (top of still) for 30 mins then to doubler - hold in still min. of 30 mins.

④ 2nd H_2O Boil-out ; STEP ②

⑤ ~~Hold level @ 40~~ Pump solution of the still to the doubler and drain after each step

⑥ Change Demister each week, treat with caustic 12 Hrs, hose off, treat with CITRIC acid 12 Hrs, Hose off, hang up to dry

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C TRAINEE: Robin P. Goble

DAY: 18 DATE: 7-3-67

TYPE OF OPERATION: Distillation

The trainee will learn the whiskey unit procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Normal shut-down
2. Emergency shut-down
   a. Electrical failure
   b. Steam failure
   c. Air failure
   d. Water
3. Boil-out

1.// BEER STILL - SWITCH FROM PRODUCT TO BOIL-OUT TANK. SUBSTITUTE WATER FOR BEER. TURN OFF pump REFLUX AND BOIL-OUT Alcohol IN column. When Alcohol IS BOILED-OUT, THE STILL IS "CLEAN". TURN OFF WATER AND STEAM to THE column AND THE CONDENSER WATER. CHECK FOR SECURE SHUT-DOWN. DOUBLER - CUT OVER TO STILL HOUSE TANK. TURN STEAM AND Alcohol FEED OFF. Pump OUT DOUBLER TO STORAGE TANK. TURN OFF CONDENSER

2.// (a) TRY to RE-START MOTORS, IF NOT POSSIBLE, THEN H_2O. TURN OFF FEED AND STEAM AND CLOSE THE BASE OF column. (b) SAME AS [(a)]. (c) SAME AS [(A)]. (d) SAME AS [(a)].

3.// BOIL-OUT - Included IN 1.// (NORMAL SHUT-DOWN).

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

(1) Beer Heater - pre-heater (by-passed)

(2) Is Absorbtive Unit - bourbon making? yes

(3) Condenser - Cooler - combines function, since there is no product cooler

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of whiskey unit normal emergency and boil-out shut-down procedures.

One-half hour discussion of Doubler start-up.

(Distiller)

Robin P. Goble
(Trainee)

Wine Room

① High Wine Tank #1 5519.7 gals. cap.
② " " " #2 11,991.9 " "
③ " " " #3, #4, #5, #6, #7, #8 14,534.5 gal
④ " " " #9 7691.7 gal. cap.
⑤ " " " #10 5007.5 " "
⑥ " " " #11 " " "
⑦ " " " #12, #13, #14, #15, #16
and #17 — 3016.61 gal. cap.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C TRAINEE: Robin P. Goble

DAY: 19 DATE: 7-3-67

TYPE OF OPERATION: Distillation

The trainee will learn the Whiskey unit procedure step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Start-up BEER STILL - Turn on H_2O to condenser and open the base of the column. Slowly turn on steam. When column is hot, start (feed H_2O and/or) beer to still. Set pump reflux and lines for desired proof. Direct product flow to proper storage tank.

DOUBLER - Turn on H_2O to condenser and close the base. Add charge H_2O to 20" level. Start alcohol to kettle. Start steam to coils so that when kettle reaches the desired level (30"), vapors will be given off. Direct product to proper storage tanks, adjust steam for desired proof.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

VENT System - flame arrester, vacuum ejector, etc. with meters, vent condenser

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of whiskey unit start-up.

One-half hour discussion of wine room flow-diagram.

(Distiller)

Robin P. Goble
(Trainee)

□ TANKS

○ pumps

X CHECK VALVES

WINE ROOM OPERATIONS

1. FROM PUMP "A" TO: TANKS 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, AND 17.
   CISTERN ROOM 18, 19, 20, 21, 22, 23, AND 24.
2. FROM PUMP "B" TO: TANKS 2 THROUGH 17
   CISTERN ROOM 18 THROUGH 24
3. FROM PUMP "C" TO: TANKS 1, 10, 11
4. FROM PUMP "D" TO: TANKS 1, 10, 11, 12, & 13
5. FROM PUMP "E" TO: TANK 1
6. FROM PUMP "F" TO: 6, 7, 8, 9, 14, 16, & 17
7. FROM PUMP "G" TO: FILTERS 1 & 2, TANKS 1, 2, 10, 11
8. FROM PUMP "H" TO: FILTERS 1 & 2, TANKS 1, 2, 10, 11

HEADER #2 TO GIN KETTLE

HEADER #3 TO STILL HOUSE TANKS

NOTE: TANKS LABELED BY THEIR NUMBER AND ROOM DESIGNATION I.E., "A" OR "B"

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C

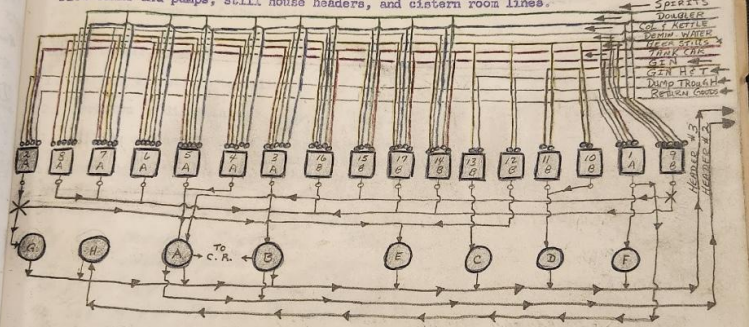
DAY: 20

TRAINEE: Robin P. Goble

DATE: 7-3-67

TYPE OF OPERATION: Wine Room

The trainee will prepare a free-hand diagram of the Wine Room tanks, listing tank numbers and indicating the still product or distillate code that can be collected in the various tanks. Also, indicate the main flow, including flow-tanks and pumps, still house headers, and cistern room lines.



* SEE OPPOSITE PAGE

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Is the absorbtive product carried on the col & kettle line? yes

Robin P Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of Wine Room flow-diagram.

One-half hour discussion of Wine Room procedures, distillation cut-over, and actual yield sheet.

(Distiller)

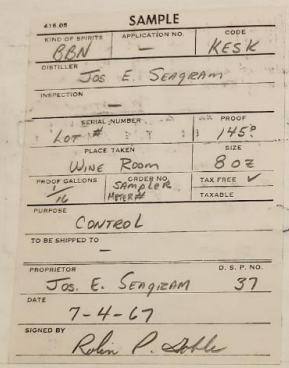
Robin P Goble
(Trainee)

DRY INCH CUTOVER

Spirits TCO - 10" D. I.

OSC TCO - 26 D I

Doubler TCO - Can go to 10 DI if necessary but usually PCO is under 26 DI.



415.05 SAMPLE

KIND OF SPIRITS	APPLICATION NO.	CODE
BBN	—	KESK

DISTILLER: Jos E Seagram

INSPECTION: —

SERIAL NUMBER	PROOF
Lot #	145°

PLACE TAKEN	SIZE
Wine Room	8 oz

PROOF GALLONS	ORDER NO.	
1/16	Sampler Meter #	TAX FREE ✓ / TAXABLE

PURPOSE: Control

TO BE SHIPPED TO: —

PROPRIETOR	D. S. P. NO.
Jos. E. Seagram	37

DATE: 7-4-67

SIGNED BY: Robin P. Stable

FILL RATES

OSC - 7 DI/HR SMALL TANK;

Doub - 4DI/HR Big TANK;

Spirits - 8 DI/HR Big TANK; 10-12" SMALL TANK

26 TO 27 Hours TO FILL A Big TANK.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C TRAINEE: Robin P Goble

DAY: 21 DATE: 7-4-67

TYPE OF OPERATION: Wine Room

Product in Manu

The trainee will learn the Wind Room procedures, the distillation cut-over procedure, and the preparation of the actual yield sheet.

The trainee will actually take a distillation cut-over and determine the yield at the request of the distiller.

The trainee must know the following procedures and will be checked out on one of these:

1. Cutting all stills to boil-out PCO 5 Fermenters = 2 Lot
2. Aeration of distillates
3. Filling out sample cards and sample bottle stickers
4. Sampling of distillates.

DISTILLATION CUT-OVER - APPROX FIVE FERMENTERS ARE DISTILLED EACH DAY. AT THE END OF THE WORKING DAY (2400), THE PRODUCT IS CHANGED TO A DIFFERENT RECEIVING TANK.

YIELD CALULATION - PROOF AND GAUGE RECEIVING TANK USED PRIOR TO CUT-OVER. THE AMOUNT OF ALCOHOL IN TANK (PROOF GALLONS) DIVIDED BY THE NUMBER OF BUSHELS OF GRAIN IN THE FERMENTERS, THAT WERE DISTILLED TO THAT TANK, EQUALS THE ACTUAL YIELD. PF gal / Bus = yd.

1/ SEE NORMAL SHUT-DOWN PROCEDURE
2/ AIR MIXING PRIOR TO PROOFING
3/ SEE "SAMPLE" ATTACHED- OPPOSITE PAGE
4/ SEE NEXT PAGE PHASE IIC

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

DISTILLATION CUT-OVER - designated by the Production Planner

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of Wine Room procedures, distillation cut-over, and actual yield sheet.

One-half hour discussion of distillery water flow-diagram.

(Distiller)

Robin P. Goble
(Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C

TRAINEE: Robin P. Goble

TYPE OF OPERATION: Wine Room

DATE: 7-4-67

Within five days after having completed the whiskey unit portion of the Distillation training and Wine Room training, the trainee will be asked to list below in proper sequence the step by step procedure in the operation designated by the Production Superintendent, such as start-up, sampling, etc.

OPERATION SELECTED: Sampling

① Turn Air to Tank on.

② When sampler is full, position sample bottle, Turn sampler handle and hold bottle under the line until the sampler is empty.

③ Turn Sampler valve off and turn air to tank off.

④ Record on sample sticker, the number on the sampling meter.

⑤ Record in log book

Approved: _____ (Production Superintendent)

* H_2O goes through stills to evaporators to sewer.

question: Does all well H_2O go to sewers? yes If not, what is tower H_2O composed of? CITY ONLY

① (CITY) Tower H_2O – goes to condensers, (still house) Lophlegmators, dryer house, jet ejectors, beer heater. also air conditioners

② (untreated) City H_2O – goes to bara. cond. only.

③ Well H_2O – (process mash H_2O) yeast room cooling, spirits coolers #3, #4, + #5, Bara cond., Cl^- tanks, carbon filter tanks, pre slurry tank, dryer house. tops off fermenters. Cools mash (sweet), fermenters, and stillage, product coolers, gin cooler.

question: Is dem.$^{\text{d}}$ (CITY H_2O) H_2O fed to top of stills, and barreling - blending operations? yes

④ Treated city H_2O to boiler

⑤ Precipitated city or well H_2O is used in cooking as needed – depending of solids (CaCO$_3$)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-D

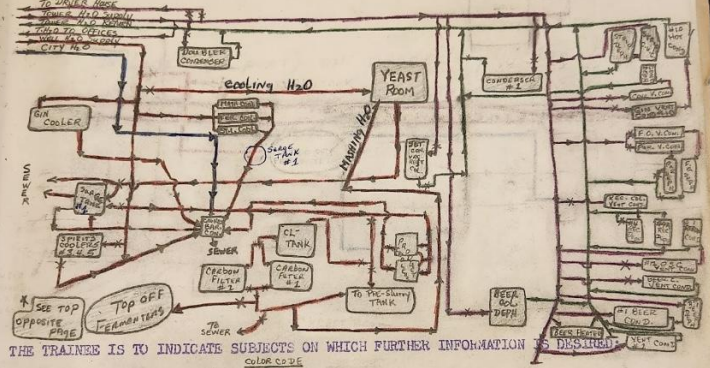
TRAINEE: Robin P Goble

DAY: 22

DATE: 7-5-67

TYPE OF TRAINING: Utilities (Water)

The trainee will prepare a free-hand flow-diagram of the distillery water system, including the well water system, the tower water system, and the city water system.



THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

COLOR CODE

① Tower H_2O Supply - PURPLE
② Tower H_2O Return - GREEN
~~③ Well H_2O Supply - RED~~
④ City H_2O Supply - BLUE
⑤ all well H_2O eventually goes to sewer? yes

VALVE —X—

SEE OPPOSITE PAGE *

Robin P Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of the well water system.

One-half hour discussion of the tower water system.

One-half hour discussion of the city water system.

(Distiller)

Robin P. Goble
(Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-D TRAINEE: Robin P. Goble

DAY: 23 DATE: 7-6-67

TYPE OF TRAINING: Utilities (Water)

The trainee will prepare a free-hand flow-diagram of the tower water system and the city water system.

INCluded (IN PART) ON PRECEDING PAGE.
(SEE NOTES OPPOSITE PRECEDING PAGE)

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① What H_2O cools mash, fermentors, and stillage? WELL H_2O

② BLUEPRINTS OF SYSTEM NONE IN EXISTENCE

③ What H_2O is used for barreling & blending? DEMINERALIZE (DEIONIZED) CITY H_2O

Robin P. Goble
(Trainee)

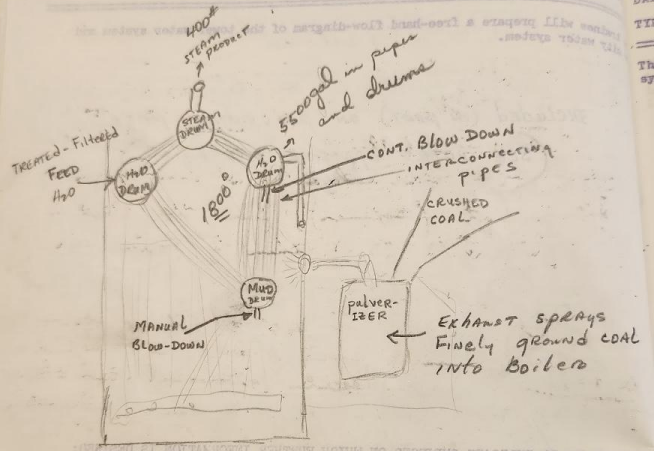
DISCUSSION MEETING

One-half hour review of tower and city water system.

One-half hour discussion of Distillery Steam flow system.

(Distiller)

Robin P. Goble
(Trainee)



STEAM BOILER

production uses

1. boiler H_2O — 150 gal/min ?
2. demineralize H_2O — 50 gal/MIN ?
3. Tower H_2O - 98% Recovery
4. Boiler H_2O - 50% Recovery

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-D TRAINEE: ROBIN P. GOBLE

DAY: 24 DATE: 7-6-67

TYPE OF TRAINING: Utilities (Steam)

The trainee will prepare a free-hand flow-diagram of the distillery steam system. Include the 14#, 90#, and 150# steam systems.

PLANT USE — 400# from boilers is reduced to ① 10#, ② 90#, ③ 150#

① STILLS (14# decr. 10# = 14# TO STILLS) ② COOKERS (EVAP) ③ EVAP + GIN EJECTERS (STEAM EJECTED)

Boiler H_2O — city H_2O is filtered, adjunct added, mixed in tank with soda ash and lime, pumped to heater (softener), from there H_2O is filtered (3 filters), then to boilers via feed H_2O pumps.

ELECTRICITY — Steam is fed at 400# to turbine which runs generator which product D.C. which runs into an exciter (alternator) which changes the D.C. into A.C. then to various transformers where the output is reduced for plant use.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

BLUEPRINTS OF SYSTEM - NONE EXIST -

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of distillery system flow-diagram.

(Distiller)

Robin P. Goble
(Trainee)

Stillage Pumps to Dryer House - 120 GPM

Recycle Pump From Presses to Screens - 200 GPM

Condensate from 1A & 1B go to High condensate tank where some steam vapor is recovered to the 10# steam system, the rest (most) of the condensate then goes to the Low condensate tank and then back to the boilers.

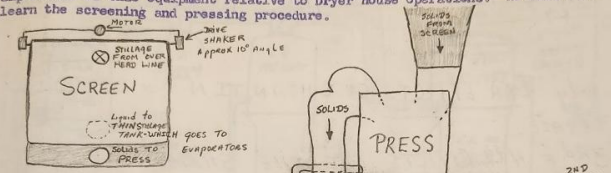
PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-E TRAINEE: Robin P. Goble

DAY: 25 DATE: 7-7-67

TYPE OF OPERATION: Screening and Pressing

The trainee will prepare a free-hand flow-diagram of one screen and one press, indicating the flow of liquids and solids. Below the flow-diagram explain the importance of this equipment relative to Dryer House operations. He will also learn the screening and pressing procedure.



THIS EQUIPMENT SEPERATES solids IN SUSPENION FROM Liquid (THIN STILLAGE). IT IS IMPORTANT BECAUSE IT REMOVES A GREAT QUANITY OF WATER THAT would OTHERWISE go to the ROTARY DRYERS. Which IN TURN, would RAISE OUR OPERATING COSTS AND REDUCE EFFICIENCY.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Thinning of Stillage from the stills (on tanks)? yes- SCREEN between TANKS

Do we still have a return (FROM PRESSES) stillage line to the thin stillage tank (for production use) NO.

Robin P Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of screening and pressing flow-diagram.

E.S. Foote
(F & F Supervisor)

Robin P. Goble
(Trainee)

EVAPORATOR CLEAN-UP (SHUT-DOWN) & (BOIL-OUT)

1. Cut condensate to sewer when stills go off beer.

2. When syrup is cut off from rotaries, fill the syrup tank. When the syrup tank is full go on water and fill the stillage tank. When the stillage tank is full, cut to sewer.

3. Flush evaporators with water until product is clear water, about 1½ to 2 hours.

4. Boil at least five hours using 1500 gallons of caustic from outside underground caustic tank and 1 bucket of Lumite CX. Boil out with effects 2, 3 & 4 on single pass using no vacuum. Get all effects over 200°F.

5. At end of five hour boil-out flush caustic through the lines up to presses and through the line to syrup tank and to sewer funnel.

6. Turn vacuum back on and flush evaporators with cold water (no steam to 1A, 1AA, or 1B) until just before shift change.

7. Turn off all pumps including waste condensate pumps and syrup pumps, all motors and packing water (except syrup tank agitator.)

8. Turn off steam and water to ejectors.

9. Close 40# steam reducer valve to 1A and 1AA in sub-basement.

10. Close condenser water valve in sub-basement.

11. Close hand shut-off valve to 1B.

12. Turn instruments off.

Louisville, Kentucky
May 17, 1967

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-E TRAINEE: Robin P. Goble

DAY: 27 DATE: 7-7-67

TYPE OF OPERATION: Evaporation

The trainee will learn the Evaporator procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Normal shut-down
2. Emergency shut-down:
   a. Electrical failure
   b. Steam failure
   c. Air failure
   d. Water failure

1/ Hold the level in both stillage and syrup tanks as low as possible. Produce syrup as long as possible. When syrup becomes thin, cut to the stillage tank. When stillage tank is full, flush evaporators with H_2O to sewer for two hours and follow normal boil-out procedure. Flush to sewer for two hours.

2/ (a) Turn off steam and add water.

(b) Notify stills to ① shut down or ② back up to outside tank. Add H_2O to evaps. Check with power house.

(c) Try to operate without insts., if impossible, shut-down.

(d) Turn off steam, pump thin stillage until syrup runs out, then return stillage to tank and drain evaps.

1. See attached procedure

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

① Why add water in a elec. failure? Keep tubes clean

② Water failure (why stop) - no vacuum

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of the evaporator normal and emergency shut-down procedures.

One-half hour discussion of evaporation theory.

E. S. Foote
(F & F Supervisor)

Robin P. Goble
(Trainee)

2/11

Syrup too thin - decrease feed, increase steam

Syrup too thick - Add H_2O to feed in Final effects, increase feed, decrease steam.

Time example Evap Shut-Down

0600 OFF BEER
0900 START FILLING STILLAGE TANK (THIN)
0900 - 1100 HOT FLUSH
1100 - 1130 Add CAUSTIC
1130 - 1630 - RECIRCULATE CAUSTIC @ 200°F
1630 - 1730 Hot flush 15" Vacuum
1730 - 1830 Cold flush
1830 - 1900 drain all effects.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-E TRAINEE: ROBIN P. GOBLE

DAY: 28 DATE: 7-7-67

TYPE OF OPERATION: Evaporation

The trainee will learn the Evaporator procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Start-up.
2. Operational abnormalities listed in procedure.
3. Caustic boil-out.

START-UP - SET VALVES PROPERLY, CLOSE MANHEADS, TURN PRESS H_2O ON. FILL 1A AND 1B WITH H_2O To top tube sheet. START ALL PUMPS, TURN ON STEAM (Slowly), START CONDENSATE PUMP, TURN TOWER H_2O ON. RECIRCULATE H_2O IN EFFECTS. WHEN EFFECT ATTAIN PROPER TEMPS., (250°F FOR 1A) TURN ON VACUUM. WHEN EFFECTS "LINE OUT", GO ON STILLAGE AND DRAIN TO SEWER. WHEN STILLAGE STARTS INTO SEWER, CUT BACK TO STILLAGE TANK, UNTIL IT BECOMES SYRUP.

CAUSTIC BOIL-OUT - RECIRCULATE CAUSTIC AS long AS possible. FILL INSIDE CAUSTIC TANKS (1000 gal). PUMP CAUSTIC TO effects AND RECIRCULATE FOR 5 HRS AT TEMPS. between 200°-250°F. Pump to syrup tank AND RECIRCULATE through syrup lines. Flush to sewer. TURN OFF All MOTORS, pumps, STEAM, tower H_2O, AND AIR (CHARTS).

3/ SEE ATTACHED procedure opposite page II-E DAY 27

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Where is CAUSTIC MIXED? TANK outside DRYER house. Outside Chemical company charges TANK for us.

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of the Evaporator start-up, operational abnormalities, and caustic boil-out procedures.

One-half hour discussion of rotary drying and loading flow-diagram.

E. L. Foote
(Lecturer)

Robin P. Goble
(Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-E

TRAINEE: Robin P. Goble

TYPE OF OPERATION: Evaporation

DATE: 7-7-67

Within five days after having completed the training on screening and pressing and the Evaporator, the trainee will be asked to list below in proper sequence the step by step procedure in the operation designated by the Production Superintendent, such as normal shut-down, emergency shut-down, caustic boil-out, etc.

OPERATION SELECTED: Normal Shut-Down

Hold level in syrup and stillage tanks as long as possible. Produce syrup as long as possible. When syrup becomes thin, cut to stillage tank. When stillage tank is full, flush evaporators to sewer for two hours. Follow Normal Boil-out, flush to sewer for two hours.

See insert opposite page
Phase II E, Day 27

Approved: J. Kahn
(Production Superintendent)

IN ALL THREE ROTARIES

MAX. TEMP. - 650°F

Shipping % should be between 9% and 10% - optimum is 9.4%

ReCycle grain is applied to Wet grain in the Rotary (Vicker-type) Feed Conveyor (at a ratio of 1:8) in order to prevent the wet grain from coating the heat exchanging tubes (by initially reduces the moisture of the wet grain).

Method of Loading Bag Car

(600 BAG)

IN EACH END OF THE CAR

① 4 ROWS, 6 HIGH, 6 ACROSS

② 3 ROWS, 7 HIGH, 6 ACROSS

③ 60 BAGS IN DOORWAY

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-E

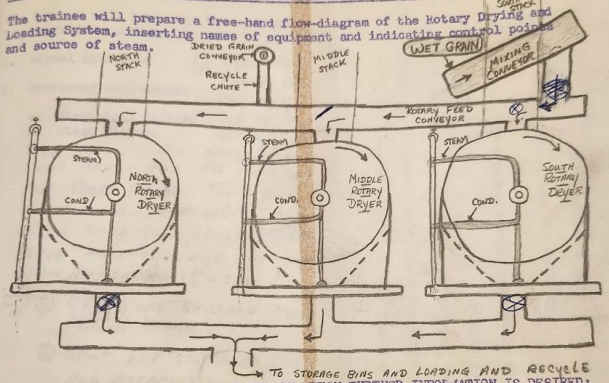
DAY: 29

TRAINEE: Robin P. Goble

DATE: 7-10-67

TYPE OF OPERATION: Drying and Loading

The trainee will prepare a free-hand flow-diagram of the Rotary Drying and Loading System, inserting names of equipment and indicating control points and source of steam.



THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

1. Moisture content of wet fed grain: ? 57%
2. Moisture content of grain after recycle added: ? 31%

Robin P. Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of Rotary Drying and Loading flow-diagram.

One-half hour discussion of Rotary-Dryer normal and emergency shut-down procedures.

One-half hour discussion of Drying theory.

E. S. Foote
(F & F Supervisor)

Robin P. Goble
(Trainee)

5-17-67

EVAPORATOR CLEAN [illegible]

ROTARY CLEAN-UP (SHUT-DOWN)

1. When stills go off beer cut off syrup to rotaries and flush lines. *See #2 below on evaporator clean-up. PHASE II E DAY 27
2. When stillage stops and water comes through to screens, cut stillage line to sewer.
3. Stop screens and presses and hose them down.
4. Stop recycle.
5. When rotaries have baked out (about 4 hours) cut off steam.
6. When pressure drops close condensate valve and open bleed valves.
7. Stop rotary when it is cool enough.
8. Leave elevator and bin screws in operation for any bin that has high moisture content.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-E

DAY: 30

TRAINEE: Robin P Goble

TYPE OF OPERATION: Drying

DATE: 7-10-67

The trainee will learn the Rotary Dryer procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Normal shut-down

1/ When press cake stops, turn off press and syrup flow. Flush out syrup line. When stillage line to screens becomes H_2O, allow H_2O to flush screens for 2 or 3 minutes. Cut stillage line to sewer. Stop screens, stop dried grain recycle, and continue to operate rotaries until grain has all run out. Keep steam on and bake rotaries for four hours. Turn off steam. When pressure drops off, close condensate valve, and open bleed valves on end of rotaries. When rotation ceases, (cooled) remove inspection plates and open damper. Leave elevators and bin screens in operation for any bin which contains wet grain.

2. Emergency shut-downs:

a. Electrical failure
b. Steam failure

2/ @ Shut off stillage from thick stillage tank and call for Phillip Morris.

ⓑ Shut off stillage, turn off syrup, presses, screens, and rotaries.

1/ See attached procedure

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Robin P Goble
(Trainee)

DISCUSSION MEETING

One-half hour review of Rotary-Dryer normal and emergency shut-down procedures.

One-half hour discussion of Rotary-Dryer start-up and operational abnormalities.

Robin P Goble
(Trainee)

E S Foote
(F & F Supervisor)

Dried Grain Bin (Cap)

Cone – 30,000#

½ full 53,440#

full 112,000#

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-E

DAY: 32

TRAINEE: Robin P. Goble

DATE: 7-10-67

TYPE OF OPERATION: Drying

The trainee will learn the Rotary Dryer procedures step by step for the following operations and must be able to perform these on a "dry-run" basis.

1. Start-up

2. Continuous operational abnormalities listed in procedure

1/ Turn on Wet Grain, Rotary Feed & Mixing conveyors. Start Rotaries, Vane Feeders, Rotary product conveyors, Recycle elevator, and ball-busting mill. Put 80 Drops of Recycle into South Rotary through the transfer system. Turn on presses and Screens. Turn on stillage and syrup tanks,

2/ (a) Screens are Running over - decrease feed (b) clean screens with caustic

(b) Grain is Blowing from Rotaries Stacks - decrease flow to rotaries, close damper in stacks

(c) Screen making alot of noise - call maint, have frame tighten.

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Robin P. Goble
(Trainee)

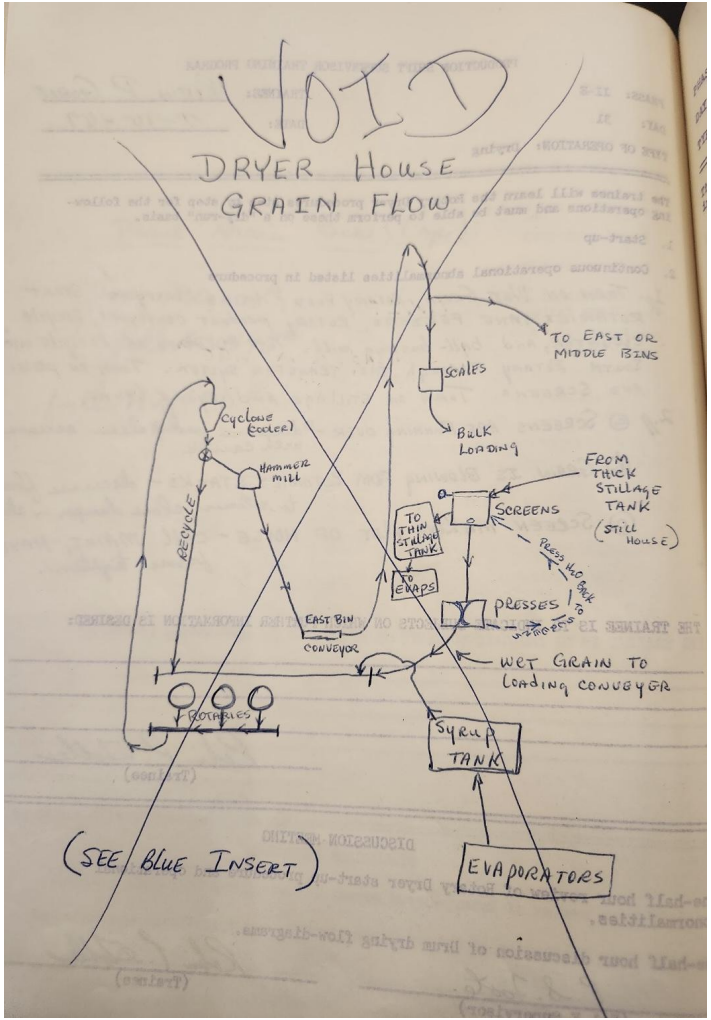
DISCUSSION MEETING

One-half hour review of Rotary Dryer start-up procedure and operational abnormalities.

One-half hour discussion of Drum drying flow-diagrams.

E. S. Foote
(F & F Supervisor)

Robin P. Goble
(Trainee)


VOID
DRYER HOUSE
GRAIN FLOW
TO EAST OR MIDDLE BINS
SCALES
BULK LOADING
FROM THICK STILLAGE TANK (STILL HOUSE)
SCREENS
Cyclone (cooler)
HAMMER MILL
RECYCLE
TO THIN STILLAGE TANK
TO EVAPS
PRESS H2O BACK TO EVAPS
PRESSES
EAST BIN CONVEYOR
WET GRAIN TO Loading CONVEYER
ROTARIES
SYRUP TANK
(SEE BLUE INSERT)
EVAPORATORS

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-E

DAY: 32

TRAINEE: Robin P. Goble

DATE: 7-10-67

TYPE OF OPERATION: Drying (Drum Dryers)

The trainee will prepare a free-hand flow-diagram of the Drum Drying equipment, including airveyor system, cyclone, entrainment separator, and flakes.

OMIT

(No Longer in use.)

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

_____

_____

_____

_____

(Trainee)

DISCUSSION MEETING

One-half hour review on Drum Dryer flow-diagrams.

One-half hour discussion on Drum Dryer normal and emergency shut-down procedures.

E. L. Foote
(F & F Supervisor)

Robin P. Goble
(Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-E

DAY: 33

TRAINEE: Robin P Goble

DATE: 7-10-67

TYPE OF OPERATION: Drying (Drum Dryers)

The trainee will learn the Drum Dryer procedures step by step for the following operation and must be able to perform these on a "dry-run" basis.

1. Normal shut-down
2. Emergency shut-down
   a. Electrical failure
   b. Steam failure

OMIT

(NO LONGER IN USE)

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

_____

_____

_____

_____
(Trainee)

DISCUSSION MEETING

One-half hour review on Drum Dryer normal and emergency shutdown procedure.

One-half hour discussion on loading, Foods and Feed yield analysis, product inventory, and cut-over procedures.

One-half hour discussion of Foods and Feeds reports, including switching orders, dried grain shipments, and track reports.

Robin P. Goble
(Trainee)

_____
(F & F Supervisor)

Post Indicator Valves

① Distillery – E of RR N end scale

② Dryer House (South) – S. of entrance across drive

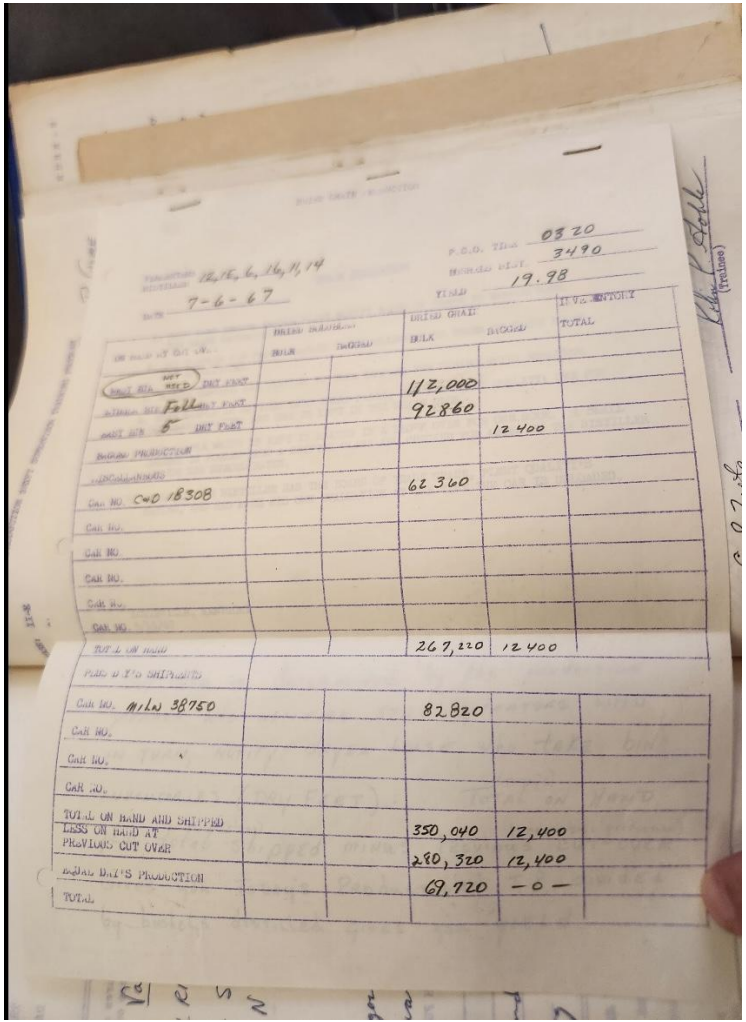
③ Dryer House (North) – N of Drum Dryer Room E of RR

Warehouses

PIV's found by going to the Right and Rear of the warehouses

all others

PIV's will be found by leaving Building and looking @ in front or ② to the left



7-6-67

P.O.D. TIME 0320
HOURLY RATE 3490
YIELD 19.98

	DRIED MATERIAL		DRIED CHAR		TOTAL
	BULK	BAGGED	BULK	BAGGED	
DAILY DRY FEED			112,000		
DAILY DRY FEED			92860		
DAILY DRY FEED				12 400	
DAILY PRODUCTION					
UNCOMMITTED					
CAR NO. CWO 18308			62 360		
CAR NO.					
CAR NO.					
CAR NO.					
CAR NO.					
CAR NO.					
TOTAL ON HAND			267,220	12 400	
PLUS A P'S SHIPMENTS					
CAR NO. MILW 38750			82820		
CAR NO.					
CAR NO.					
CAR NO.					
TOTAL ON HAND AND SHIPPED			350,040	12,400	
LESS ON HAND AT PREVIOUS CUT OVER			280,320	12,400	
DAILY DAY'S PRODUCTION			69,720	-0-	
TOTAL					

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

ASH: II-E

AT: 34

TRAINEE: Robin P. Goble

DATE: 7-10-67

TION OF TRAINING: Foods and Feeds Yield Analysis

The trainee will be shown the Foods and Feeds inventory and cut-over proce-dures and the yield sheet preparation by the Foods and Feeds Supervisor.

The trainee will then list below the procedure followed step by step in the inventory, cut-over, and yield sheet preparation.

$$\text{yield} = \frac{\text{days production}}{\text{Bushels Dist}}$$

attached example:

$$\frac{69{,}720}{3490} = 19.98\%$$

THE TRAINEE IS TO INDICATE SUBJECTS ON WHICH FURTHER INFORMATION IS DESIRED:

Robin P. Goble
(Trainee)

The Foods and Feeds daily yield procedure and preparation has been discussed and the information is understood.

Robin P. Goble
(Trainee)

C. S. Foote
(F & F Supervisor)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-F

DAY: 35

TRAINEE: Robin P. Goble

DATE: 7-11-67

TYPE OF TRAINING: Bacteriology

1. The trainee will, under the guidance of the Bacteriologist, conduct a bacteriological survey of the Seventh Street Distillery. Samples should be obtained from various suggested points throughout the Cooking, Yeasting, and Fermenting areas. Each of these samples should be used to inoculate various media.

2. Explain below the principal duties and responsibilities of the Plant Bacteriologist.

Bacteriologist Follows plant operations through bacterial assay in the areas of ① H_2O ② Grains ③ yeast ④ Cooking ⑤ fermentation ⑥ Equipment He maintains a monthy bacteriological survey of ① through ⑥.

Responsible for various experiments conducted at the Louisville plant. He reports conditions under which the experiment was conducted, the results, and conclusions.

In conducting bacterial assays, the bacteriologist corralates his data with that of the plant product quality ratings.

L. D. Peruzzi
(Bacteriologist)

Robin P. Goble
(Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-F

DAY: 36

TRAINEE: Robin P. Goble

DATE: 7-11-67

TYPE OF TRAINING: Bacteriology

The trainee will discuss the items listed below with the Bacteriologist:

1. Uses and value of specially prepared dehydrated cultures.
2. Proper use of autoclave.
3. Direct and indirect effects of microbiological activity on the quality of distillates produced.

The trainee will prepare a dehydrated culture media.

1/ Dehydrated cultures are used to grow and determine the presence of micro-organisms in the various samples taken throughout the plant.

2/ The autoclave is used to sterilize various containers, growth solutions (DIMALT), and prepared dehydrated cultures, Alka. glassware.

3/. Any number of bacteriological activities can effect the quality of the product (adversly) Strict control (through cleanliness, temp, pH, acid, dilution) is maintain throughout the entire production cycle to insure the absence of undesirable bacteria.

Robin P. Goble
(Trainee)

(Bacteriologist)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-F

DAY: 37

TRAINEE: Robin P Goble

TYPE OF TRAINING: Bacteriology

DATE: 7-11-67

The trainee will read the results of the survey conducted on the first day and enter his interpretations below:

Sample taken from carbon Filter tanks #1 and #2.

One ml. Samples were inoculated on Petri dishes and poured with PC Agar. Incubated at 30°C for three days.

Colonies were enumerated and each plate contained approx. Twenty colonies.

The colonies were the ones typically found in water.

This was considered a normal plate count of the carbon Filtered water.

Robin P Goble
(Trainee)

C. A. Perusich
(Bacteriologist)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-G

DAY: 38

TRAINEE: Robin P Goble

DATE: 7-6-67

TYPE OF TRAINING: Power House

BOILERS

The steam generating boilers of the Louisville Plant are composed of two Vogt water-tube boilers, each rated at 69,000 pounds per hour at 400 p.s.i. pressure. Both boilers have a water heating surface of 7,280 square feet. Coal is pulverized by two No. 5 Atrita Riley pulverizers, using Riley drum type feeders and driven by 125 H.P. motors. The water fed to these boilers is treated by hot lime-soda process.

The trainee will observe the following equipment in operation and study available operating procedures and equipment descriptions in the Power House. Also, refer to material and drawings in your Plant Operations Manual.

1. Two Vogt water tube boilers; two pre-heaters.
2. Two Riley pulverizers with 125 H.P. motor.
3. Coal elevator and (bunker conveyor and crusher) ~~BASEMENT~~
4. Copes feed water valves; safety valves; blowdown valves.
5. Three feed water pumps; one water heater tank (SOFENER TANK)
6. Two forced draft fans, two induced fans.
7. Automatic control panel board.
8. Two make up water pumps and tank. BASEMENT
9. Three Permutit filter tanks and pump. BASEMENT

WHERE ARE the PRODUCTION (DISTILLERY) STEAM CONTROL VALVES AND HOW ARE THEY OPERATED?

— automatic pressure reducing valves in the power house — (PSI)

flow (pounds/hr) in control in the distillery.

C F Gordon — (Utilities Superintendent)

Robin P Goble — (Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-G

DAYS: 39 and 40

TYPE OF TRAINING: Power House

TRAINEE: Robin P. Goble

DATE: 7-6-67

OPERATION

The trainee will observe and study the operations outlined. The Utilities Superintendent will discuss and further explain these subjects.

1. Getting up steam - Check operation of:

   a. Dampers, pulverizers
   b. Blow off valves
   c. Fill to normal water level About ½
   d. Check safety valves
   e. Start fire, bring pressure up slowly oil start

2. Handling Boilers in Service

   a. Firing

      (1) Start boiler by steam and oil fuel injected into boiler, fired with torch.
      (2) As boiler heats, coal mill started. Coal increased, oil decreased. Heat until 400# steam is reached, then go on automatic feed.
      (3) Largest flexible demand is operation of cookers. 90#
      (4) In emergency mill breakdown, oil is injected at once.

   b. Water level control

      (1) Water column tank feeds water to boiler drum, at 240°. Diamond Bi Color glass shows level in boiler. When level too low or high, warning whistle blows. Operator must check at once. → Tubes can go in a hurry if H_2O supply in tubes & drums is not maintained in boiler.
      (2) Copes feed water regulator controls water flow to boilers. Regulator is large thermostatic type which contracts and expands as water level rises and lowers in drum, compensated by steam flow demand.
      (3) Yarway Mud drum valves. (See sketch 3) When opened pulls solids out of drum to sewer.

   c. Feed Water Pumps - Feed water pumps are started by inducing steam into pump. After warming, trip switch, and pump will operate to boilers, one pump for each boiler. Standby Electric pump, all controls on main panel board.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-C

DAYS: 39 and 40

TYPE OF TRAINING: Power House

TRAINEE: Robin P. Goble

DATE: 7-6-67

OPERATION (Continued)

d. Feed Water Treatment

(1) To charge feed water with chemicals, add K-gel to tanks with water. The K-gel added to feed water prevents foaming and priming.
(2) Adjunct is added to feed water at drum to reduce scale.
(3) Permutit hot lime soda system into service. Charge with lime, soda, in mixing tank, according to need. This mixture enters feed water on way to water heater.
(4) Three Permutet filters are put in operation to reduce carry over of hot lime soda process.
(5) Return condensate tank collects condensate from plant steam lines, feeds into heater, used back into feed water system.

List below any items from the above material on which you wish to request additional information during your discussions with the Utilities Superintendent.

① Is the return condensate re-treated? NO
② K-gel - prevents priming (foaming)
③ Adjunct - acts as a cleaner
④ Lime - reduces hardness
⑤ Soda Ash - reduces hardness
⑥ (②) Through (⑤) All used in Feed H_2O treatment

(Utilities Superintendent)

Robin P. Goble
(Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-G
DAY: 41
TRAINEE: Robin P Goble
DATE: 7-6-67
TYPE OF TRAINING: Power House

WATER SYSTEM - SUPPLY

The trainee will study the material below, as well as flow-diagrams and other descriptive material in the Power House. A tour to the Ranney Well and the water tower and discussion of the operations involved will supplement this material.

The water used at this plant can be classified into two systems: water purchased and well water. There are three types of water: city, tower, and ranney water.

1. City Water

   a. Supplied by 20 inch City main, four take off points to the Plant
   b. Two of these points supply the fire system. This system only used in emergencies.
   c. Third take off point is the supply point for city water used in the plant.
   d. Fourth take off point is connected to the Ranney well system for emergency use.
   e. City water uses: main plant areas; drinking water; boiler feed water; make up tower water.

City 11 20 Hardness
150 ppm treat down to hardness 20 ppm
Tower (IN to out 10° difference) (60°-90° cooling system outline)

2. Tower Water - water that is pumped from the tower basin. Water after use in plant processes is returned to the tower.

   a. Equipment: Main Cooling Tower. Capacity of ~~10,000~~ 5,000 g.p.m.; ~~Ten~~ 5 cells each with 10' induced draft fans, driven by 2 speed motors.
   b. Tower Basin capacity ~~65,511~~ 33,000 cu. ft. or ~~491,355~~ 246,000 gallons.
   c. Four 3,000 g.p.m. union pumps, driven by 150 H.P. motor.
   d. Tower water is chlorinated to reduce algae formation by use of Wallace and Tillman Chlorinator.
   e. Tower water uses: for cooling processes in Distillery and Dryer House; air conditioning units.

3. Ranney Water - Ranney well water supplied from the Ranney well, which is equipped with three turbine pumps at 1,450 g.p.m., driven by 100 H.P. motors.

   a. Well is about 80' deep to surfaces of water.
   b. Water ~~can be~~ treated with ~~caslon or~~ chlorine. → ? NOT used
   c. Water uses: in Distillery, Dryer House, cookers; auxiliary line for feed water; gland water to feed water pumps; Ash Silo system; precipitator unit.

(Utilities Superintendent)

Robin P. Goble
(Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-G

DAY: 42

TRAINEE: Robin P. Goble

DATE: 7-6-67

TYPE OF TRAINING: Power House

WATER TREATMENT AND GENERATORS

The trainee will observe the Water Treatment equipment and Generators and study the operating procedures and equipment descriptions available in the Power House.

1. Demineralizer Unit (De Ionizing Unit) upstairs power house office

   a. Purpose: to process pure water for use in Distillery, Cistern Room, and Blending.
   b. Equipment: two Zeo Karb H units; one mixing tank; one De acidite unit; one Carbon unit; one acid receiver unit.
   c. Operation: USES - Column, brazeling, blending, Regange RINSE, reach

      (1) Raw city water is used, filtered in Power House first through carbon filter.
      (2) Metallic ions in water is replaced by hydrogen ions from Ca^{++}, Mg^{++}, Na^{+} Zeo-Karb unit, forming acids like the anions present. → HCl, H_2SO_4, Silicon Acid (CATION UNIT)
      (3) Water then goes through the De acidite unit where acids are absorbed. ← ANION UNIT
      (4) Final Carbon unit clears up odor.
      (5) Dumping of acid, type: procedure.

2. Water Precipitator — USE - Reduces hardness for cooking

   a. Principle of operation: Raw water (well mostly) and chemicals enter inlet flume from the chemical mixing flume. The water flows from here into sludge filter section of the Precipitator. As water rises, its velocity decreases. Sludge particles will be carried upward until speed of flow is not enough to carry them higher. This forms the "sludge blanket" which acts as a filter. As water rises through this blanket, it becomes effectively treated. well H_2O normal Hardness 900ppm
   b. Equipment, materials used:

      (1) Three feeders for chemicals; Main basin for precipitator action; pumps to discharge.
      (2) Alum, Soda ash, and Lime, are main chemicals used in cold water solution. → Keeps filtering blanket together

   c. Operation

      (1) Continuous operation.
      (2) Samples taken every hour for pH, hardness, alkalinity.
      (3) Controls at feeders must be accurate.
      (4) Must maintain good blanket for maximum efficiency. with alum
      (5) Keep carry over to a minimum.
      ~~(6) Chlorine treatment.~~

PRODUCTION SHIFT SUPERVISON TRAINING PROGRAM

PHASE: II-G

DAY: 42

TRAINEE: Robin P Goble

TYPE OF TRAINING: Power House

DATE: 7-6-67

WATER TREATMENT AND GENERATORS (Continued)

3. Two type generators: Westinghouse and Elliott

a. Westinghouse - 937 KVa, 480 Volts. 1132 amps, 3,600 R.P.M. EXC Amps 98, EXC Volts 125, 750 KWH.
b. Elliott turbo - 1,250 KVa, 1,505 Amps, P.F. 80%, 1,000 K.W., 100 amps, 125 Volts. 1,000 KWH.
c. Equipment

(1) Hydraulic system and main governor
(2) Overspeed mechanism
(3) Alternator and Exciter

d. Operation USES - Supplement CITY power

(1) Start up, circulate oil 15 minutes.
(2) Steam slowly into turbine, idle 20 minutes.
(3) Generator gets to 3,600 R.P.M., will produce maximum KWH.
(4) Synchronize generators. Flow from both generators going in same direction.
(5) Overspeed trip is spring loaded device built into shaft of generator. Steam to generator on automatic when trip goes back into shaft.
(6) Normal oil temperature is 130° - 150°, balance of generator is air cooled.

4. Auxiliary equipment

a. Transformers
b. Circuit Breakers, Main Panel Control
c. Sharples Centrifuge
d. Pressure reducing valves, relief safety valves.

(Utilities Superintendent)

Robin P. Goble
(Trainee)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-H

DAY: 43

TRAINEE: Robin P Coole

TYPE OF TRAINING: Control Laboratory

DATE: 7-11-67

The trainee will accompany the sampler to secure samples for analysis. These will include:

1. Meal samples
2. Cook samples
3. Still base samples from the stills that are in operation
4. Fermenter samples
   a. Set
   b. 24 hour
   c. 48 hour
   d. Drop
5. Dryer House
   a. Each bin
   b. Flake production } NOT IN USE
   c. Light grain production }

The trainee will assist the beer chemist in running the samples.

List for each type grain, the limits for each type sieve.

Sieve	Min - Max Corn	Min - Max Rye	Min - Max Malt
12	0-12	0-14	0-4
20	NOT MEASURED		
60	N.M. -35	N.M. -35	N.M. -35
T60	0-5	0-10	0-15
TOTAL	100%	100%	100%

Indicate the normal range for results on cook samples for the following tests:

1. Balling 12.0 - 15.5
2. pH 5.2 - 5.6

Note: Follow standard lab procedures for all analyses.

SEE NOTE PAGE: BACK OF BOOK (for ALL NORMAL RANGES USED IN BEER LAB.)

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-H

DAY: 44

TRAINEE: Robin P. Goodle

TYPE OF TRAINING: Control Laboratory

DATE: 7-11-67

Assist the bacteriological chemist in:

1. Preparing Dimalt media for yeast starters and dona tubs.
2. Preparing media for lactic cultures.
3. Sterilizing above media.
4. Making cell counts and determining viability on yeast cultures and yeast tubs.
5. Run balling, acid and pH on fresh yeast mash, finished lactic mash, and finished yeast.

List below all steps involved in preparation and growth of yeast.

1. PREPARE (commercial) DIMALT solution by diluting WITH TAP H_2O TO proper balling. (21° Balling)
2. DISTRIBUTE IN Flasks AND DONA jugs (Test Tubes) AS REQUIRED
3. Plug vessels with STERILE COTTON AND SEAL OVER WITH ALttt Foil
4. STERILIZE IN AUTOCLAVE
5. Cool to Room temp. AND STORE IN INCUBATOR for 6 HRS,
6. TRANSFER YEAST SLANT INTO TEST Tubes CONTAINING 10 mL. DIMALT solution.
7. INCUBATE for 20-24 hours AT 86°F.
8. TRANSFER CONTENTS OF TEST Tubes (using PROPER PROCEDURE) to 500mL erlenmeyer flasks CONTAINING 200 ml OF DIMALT solution.
9. INCUBATE for 20-24 hrs AT 86°F.
10. TRANSFER 10ml OF THE ABOVE "STARTER flasks" to CORRESPONDING erlenmeyer Flasks AND REPEAT STEP 9 IN ORDER TO MAINTAIN CULTURE.
11. TRANSFER THE "worked flasks" to DONA jugs AND INCUBATE 20-24 hrs at 86°F UNTIL balling drops to 7-8. Deliver to YEAST Room for USE IN INOCULATING DONA Tubs AND YEAST Tabs.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-H

DAY: 45

TRAINEE: Robin P. Goble

TYPE OF TRAINING: Control Laboratory

DATE: 7-11-67

Assist the boiler water chemist in running the following tests:

1. Phenolphthalein alkalinity
2. Methyl purple alkalinity
3. Hardness
4. Phosphate
5. Solids
6. pH
7. Free chlorine
8. Chlorides

Procedures posted on bulletin board inside beer Lab in the Control Lab.

PRODUCTION SHIFT SUPERVISOR TRAINING PROGRAM

PHASE: II-H

DAY: 46

TRAINER: Robin P Goble

TYPE OF TRAINING: Control Laboratory

DATE: 7-11-67

Assist the high wine chemist in analyzing finished distillates for:

1. Proof
2. Acids
3. Esters
4. Aldehydes
5. Fusel Oil
6. Aromatics

1. hydrometer

2. To 50mL sample, add several drops of pheno. indicator and titrate with .05N NaOH to faint pink

— Acids = Mls. of NaOH x N x $\frac{60}{1000}$ x $\frac{100000}{50}$ x $\frac{100}{pf}$

3. ESTERS - Prepare a mixture of 5ml of 2M hydroxylamine - hydrochloride and 5ml of 3.5N NaOH. Pipette into a 25x200 mm TT 4ml of mixture, 2ml 4N HCl, 2ml sample, in an addition π, pipette 2ml sample, 4ml mixture. See OFFICIAL ANALYTICAL METHODS, PROCEDURE NO. 22-6

4. Aldehydes - Procedure 24-10.

5. Fusel Oil - Procedure 22-9

6. Aromatics - Procedure 22-11