6) One NEMA 12 operator interface station (80PV1), c/w:

- One AB PanelView 1000 (color, touch screen, ControlNet communication);
- Appropriate screens to control the following equipment:
  - Existing stack storage conveyor;
  - Destacker c/w conveyor (section #15);
  - Auto-dewiring c/w conveyor (section #16);
  - Manual dewiring conveyor (section #10);
  - Existing Inclined Belt Conveyor;
  - Hydraulic power unit (section #60).
- One AB Panel Builder 32 programming software;
- One E-stop zone of the system;
- One MCR (E-stop) reset pushbutton of the system.

Note: The installation of 80PVI pushbutton station will be client responsibility.

7) One Hydraulic Power Unit (60HPU1):

Please see section 3.3.1 of the operation and service manual for more details regarding the HPU.

Note: The 60HPU1 hydraulic power unit will be supplied separately by ADCL and is to be installed below the dewiring machine in the basement - its exact location and installation is the client's responsibility.

8) Other:

- Wiring between ADCL supplied electrical components and locally mounted junction boxes, unless specified otherwise.

4.2.1.2 Control Specifications and Components:

- Voltage and Pressure

Motor Voltage	480 Vac
Control Voltage	120 Vac
Dry and Clean Compressed Air Supply Pressure (by client)	80 PSI
Hydraulic Operating Pressure (by ADCL)	1500 PSI

- Pneumatic Components

Directional Solenoid Valves	MAC
Filters and Regulators	Master Pneumatics
Rigid Tubing Fittings	Swagelok (stainless steel)
Flexible Tube Fittings	Legris
Hose Fittings	Parker (stainless steel)

- Hydraulic Components

Directional Solenoid Valves	Vickers
Proportional Valves	Vickers
Cartridge Control Valves	Sun
Pumps	Vickers
Filters	Pall
Rigid Tubing Fittings	Swagelok (stainless steel)
Hose Fittings	Parker (stainless steel)

4.2.1.3 Control Documentation

All the control drawings made by ADCL will be in the 11" x 17" format, drawn with AutoCAD version 2011. Microsoft "WORD" and "EXCEL" will also be used for reports, listings and other documents. The following is a list of the control documents to be supplied:

- Functional description;
- Logic flow diagrams of the automatic sequence;
- PLC program (on CD format after start-up);
- Touch screen configurations & program (on CD format after start-up);
- NewPage will be responsible of electrical drawings;
- Pneumatic schematics;
- Hydraulic schematics.

4.2.2 Provided by others (client)

This section is used to establish control items to be supplied by the client.

4.2.2.1 Controls Hardware/Software

The following are the major control components excluded from the ADCL scope of supply. These are to be supplied and installed by the client:

1) Motor Control Center c/w:

- **All required variable frequency drives (as per ADCL motor list);**
- **All required motor control and wiring schematics.**

2) Other:

- All properly functioning devices and their interconnections associated to the existing stack storage conveyor c/w one loading position and Inclined Belt Conveyor (as per original supply by ADCL);
- All field wiring (cables, trays, conduits, etc) between and/or for: control panels, pushbutton stations, motor starters, VFD'S, junction boxes and safety instruments (where applicable).

4.2.2.2 Control Documentation

The following documentation is also to be supplied by the client:

- Wiring interconnection details for all cables supplied and installed by the client between and/or for: control panels, pushbutton stations, motor starters, VFD'S, junction boxes and safety instruments (as applicable).

4.3 DESIGN SPECIFICATIONS

The system will be designed to handle and manually dewire Kraft bales.

4.3.1 Bale Specifications

The system is designed to handle bales of the following actual dimensions:

- **For Kraft**

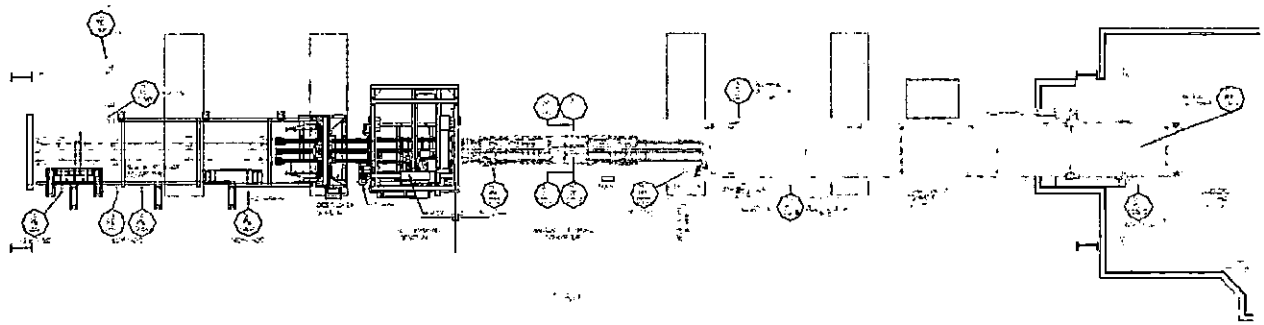
Bale Length	Bale Width	Bale Height	Stack Height	Bale Weight
14-22"	14-22"	14-18"	7 max (max 126 inches high of bales)	550# max

Note: In the event a stack of bales is unstable on the existing stack storage conveyor, the destacker or its conveyor, or in the transition between these two conveyors, **it will be the operator's responsibility to refrain from loading the maximum stack height, refrain from loading damaged bales and/or load bales in an orientation that offers stability.** It is also imperative that the **operator load bale stacks within +/- 3" from the centreline of the stack storage conveyor,** for the bales to be processed by the system.

Imp: If bales length is more than 22, this will be test on field on start-up to

DEFINITION OF THE OPERATING ZONES

The system will operated in two zones. The first zone will have all equipments without Pulper Conveyor. The second zone will have only the Pulper Conveyor.



4.3.2 The Dewiring Zone

The Dewiring zone will consist of:

- Stack Storage Conveyor
- Section # 10: Manual Dewiring Conveyor
- Section # 11: Manual Wire Cutter c/w Tool Balancer
- Section # 15: Destacker c/w Conveyor
- Section # 16: Auto-Dewiring Machine

The operation of this zone will be described in section 4.5.1 of this document.

4.3.3 The Feed Zone

The Feed zone will consist of:

- The Inclined Belt Conveyor

The operation of this zone will be described in section 4.5.2 of this document.

4.4 SYSTEM OVERVIEW

The Pulper Feed System is designed to handle and deliver bales within the design limitations described in section 4.3. Its functions and operations are divided according to the operating zones described in section 4.4.

4.4.1 The Dewiring Zone

The dewiring zone comprises of equipment described in section 4.4. The normal automatic mode of operation of its related equipment is described below.

Note: This zone will not run in the automatic mode if the Hydraulic Power Unit is not running.

4.4.1.1 Stack Loading Area and Stack Storage Conveyor

In this area the clamp truck will load the bale stacks, a maximum of six high, onto the existing stack storage conveyor. Loading is to occur from the side only. The maximum stack loading on stack storage conveyor is 8 stacks of 6 kraft bales. The maximum weight loading on the conveyor is 26400 LBS, at 70 FPM.

Note: **ADCL strongly recommends client to install safety gates around the stack storage conveyor that can be opened for loading only. This, to contain falling bales in the event a stack topples.**

In side loading area two photocells will be installed. One photocell is to inform the system that a clamp truck is present and ready to load, and the second one closer to stack storage means that clamp truck is loading the Stack Storage Conveyor.

When the existing stack storage conveyor has a "pocket" available to load a new stack, detected visibly by the operator and via the absence of bales in front of 2 photocells, the clamp truck operator must approach the stack storage conveyor in order to trigger the first photocell.

- First, the red light will flash to confirm that the clamp truck has been detected in the loading position and wait to load bales.
- When the system is ready to receive bales from the clamp truck the green light will turn is ok to set bales on Stack Storage Conveyor.
- The horn will turn on if the bales are too high or premature stop on loading are.
- Once given the proper audible signal, the operator is to place the stack squarely on the stack storage conveyor **within +/- 3" of its centreline** (otherwise the bales may not clear the Destacker clamps when conveyed into it).

- The horn will be continuous on if the clamp truck is loading premature or the stack is too high.

- Note, it is the clamp truck **operator's responsibility** to ensure that the **stack** loaded into the system is **stable, well positioned** on the conveyor and that it consists of **bales that are within the design limitations of the system**. If any of these conditions are not met, **failure of the system and dangerous situations (i.e. falling bales) may ensue.**
- Once the stack is stable and well positioned and the clamps are opened, the operator is to reverse the truck and leave the loading area. The absence of the truck in the two photocells zone, will enable the stack storage conveyor to begin its sequence.

The existing stack storage conveyor is to be surrounded by **safety fences** supplied the client. These safety fences must contain any stack toppling from the conveyor. At the stack loading area, a **painted zone** (to be done by the client) must keep any pedestrian out of potential danger should a bale or stack fall.

The existing stack storage conveyor accumulates stacks of bales or delivers one stack to the Destacker Conveyor (section # 15) upon it's request. The sequence is as follows:

- When a new stack is received at the loading area, it moves forward towards to clear loading area. It will hold this position until a new stack is to be received or until the Destacker Conveyor requests a new stack.
- When the Destacker is empty, the stack storage conveyor runs forward (towards the Destacker) until a stack transfers over to the Destacker Conveyor. This is detected by a photocell or a run-out timer on the forward command after detection of the leading edge of the stack by a photocell. At this point, the stack storage conveyor stops and reverses (towards the loading areas) until one stack is detected at the photocell after loading area.
- The stack storage conveyor is then stopped and restarts in forward (towards the Destacker) until the photocell is clear.
- The stack storage conveyor is then ready to either receive a new stack or deliver another stack to the Destacker. A run out timer will stop this conveyor, in both directions, should no stack be present on it.
- Should a clamp truck present itself in the first photocell, the red light turn will turn on and flash then the stack storage conveyor reverses (towards the loading station) until the last stack on it is detected by a photocell near the loading area – this is done in order to create a roughly constant gap between stacks and enable efficient loading of the conveyor.

Note the the Destacker Conveyor had priority over the clamp truck.

4.7.1.2 Manual Controls for Operator and/or Maintenance Intervention:

The Manual Dewiring Conveyor can be jogged forward/reverse and raised/lowered from operator interface 10PBS1 if in manual mode. A spring centered three-position selector switch enables these actions from this station.

The Manual Dewiring Conveyor can be jogged forward/reverse and raised/lowered from the system's graphic operator interface on 80PV1 if in manual mode. Please see section # 4.9 for more details.

4.7.2 Destacker c/w Conveyor (section # 15)

Mechanical assembly drawing # DA06-D3-33329.

4.7.2.1 Hardware Description:

No.	Component	Description	Characteristics
1	Photocell (2)	• Destacker Conveyor bale present at outfeed (E15YS1) • Destacker second bale present in clamps (E15YS2)	2 inputs: 120Vac, digital
2	Proximity Switch (1)	Destacker stack plate switch (E15ZS1)	1 input: 120Vac, digital
3	Motor (1)	Destacker Conveyor motor (15M1)	• Motor: 460Vac / 3phase / 60Hz • VFD: Reversible, one analog output speed reference: 4- 20 Ma, 2 outputs: 120Vac isolated, I input: 120Vac, isolated
	(3)	• Destacker up/down position (E15ZT1) • Destacker North clamp position (E15ZT2) • Destacker South clamp position	3 inputs: 4-20Ma, analog

4.7 MECHANICAL EQUIPMENT SECTIONS AND RELATED CONTROLS

The system supplied will be divided into various mechanical sections, each having their own related control elements and/or features. The following section list these according to the ADCL mechanical section number, as they appear on the mechanical general layout drawing listed above in section 4.3.

4.7.1 Manual Dewiring Conveyor (section # 10)

Mechanical assembly drawing # DA06-D3-33633.

4.7.1.1 Hardware Description:

No.	Component	Description	Characteristics
1	Motor (1)	Manual Dewiring Conveyor motor (E10M1)	• Motor: 460Vac / 3phase / 60Hz • VFD: Reversible, one analog output speed reference: 4- 20 Ma, 2 outputs: 120Vac isolated, I input: 120Vac, isolated
2	Photocell (2)	Bale at entry of the manual dewiring conveyor (E10ZS1)	2 inputs: 120Vac, digital
3	Proximity Switch (2)	• Manual dewiring conveyor down (E10ZSL1) • Manual dewiring conveyor up (E10ZSH1)	2 inputs: 120Vac, digital
4	Pneumatic Air Bag (1) c/w Solenoid Valve (1)	• Manual dewiring conveyor raise (E10EV1A) • Manual dewiring conveyor lower (E10EV1B)	2 outputs: 120Vac, digital

To re-arm the zone's MCR relay, all emergency stop pushbuttons and safety switches must be reset. In this system, both zones have their power reset pushbutton, which will be located on the 80PV1 interface.

Not installed now:

1. Two safety door switches are installed as part of this system. These are distributed as follows:
2. One safety door switch for each of the two dewiring area handrail entrances.

If the Inclined Belt Fork Truck is present the Inclined Belt Conveyor will stop immediately to allow loading. Everytime that Fork Truck is present on loop, the Belt Conveyor will run for a period of time to clear the space for next loading Wetlap.

Note: This area runs in automatic mode without the use of the Hydraulic Power Unit

4.5 INTERLOCKS BETWEEN ADCL AND NEWPAGE

See Dwg # PD19877-18 for Inputs from Deltav to PLC and Dwg # PD19877-26 for Outputs from Deltav to PLC.

4.6 SAFETY & EMERGENCY STOP PROCEDURES

New emergency stop devices are part of this project; these are distributed as follows:

1. Two E-stop mushroom type pushbuttons on 10PBS1 at the manual dewiring area.
2. Two E-stop mushroom type pushbuttons on 80PV1 at the dewiring area.
3. Two E-stop mushroom type pushbuttons on 15PBS1 at the destacker station.
4. Two E-stop mushroom type pushbuttons on 13PBS1 at the manual dewiring area

These emergency stops are to be activated in case of an **emergency only.**

Activation of any of the above will drop the appropriate zone's MCR relay and alarm the operator via the 80PV1 interface that an emergency stop or a safety switch has been activated.

All of the zone's motor starters and/or VFD control power will be hardwired through a normally open contact of the zone's MCR relay. Thus, dropping of the zone MCR relay will disable all motors.

Any motion controlling PLC output module for a zone will have the power cut in case of an emergency stop. To achieve this, the power to each individual PLC output module will be fed through a normally open contact of the appropriate zone's MCR relay. Therefore, dropping a zone's MCR relay will cut power to all hydraulic and pneumatic solenoid valves in the system. Note, however, that 4-20mA inputs/outputs and the 24Vdc inputs signals in this system will not be de-energi upon an emergency stop.

4.4.1.2 Dewiring

All of the Automatic Dewiring Equipment will be non-operational. Only the conveyor and the infeed and outfeed photocell will be operational.

The intent of this section is to allow the bales to accumulate and hold up waiting on availability of the manual dewiring section. The Automatic dewire conveyor will work with the destacker conveyor to set proper bale spacing, approximatgely 2-4 inches.

4.4.1.3 Manual Dewiring

Batch mode – the operator will set the number of bales per batch on the HMI. With input from the operator the system will cycle a batch of bales from the Manual Dewiring Conveyor to the Inclined Belt Conveyor (assuming Inclined Belt Conveyor has room to receive it). Once the Manual Dewiring Conveyor is empty, a new batch will start from upstream (Stack Storage, Destacker, and Dewiring Conveyor). The system will stop after the set number of bales has been passed the destacker. The conveyor will then lower to allow wires to be removed.
Note: The Manual Dewiring Conveyor will stay lowered until the operator gives a command to cycle a new batch.

Single Bale Mode – the Manual Conveyor will lower and cycle one bale at the time to the Inclined Belt Conveyor. When the Manual Dewiring Conveyor is empty it will be available to receive other bales from the upstream conveyor. This allow operator to control one bale at the time to the Inclined Belt Conveyor.

4.4.2 The Feed Zone

The feed zone is only the Inclined Belt Conveyor.

If the Manual Dewiring Conveyor is run in Batch Mode, the Inclined Belt Conveyor will run reverse to keep having large voids on the conveyor. If a bale is not at the index photo when the cycle batch input is received the Inclined Belt Conveyor should reverse to the index photocell before accepting bales from the Manual Dewiring Conveyor.

Dewired bales are transferred from the Manual Dewiring Conveyor to the existing Inclined Belt Conveyor, which runs them into the Pulper. An existing manual loading station exists on this conveyor.

- When the stack storage conveyor is ready, the system will give the operator a green light confirming that a new stack can be loaded onto the stack storage conveyor.

4.5.1.2 Destacker c/w Conveyor

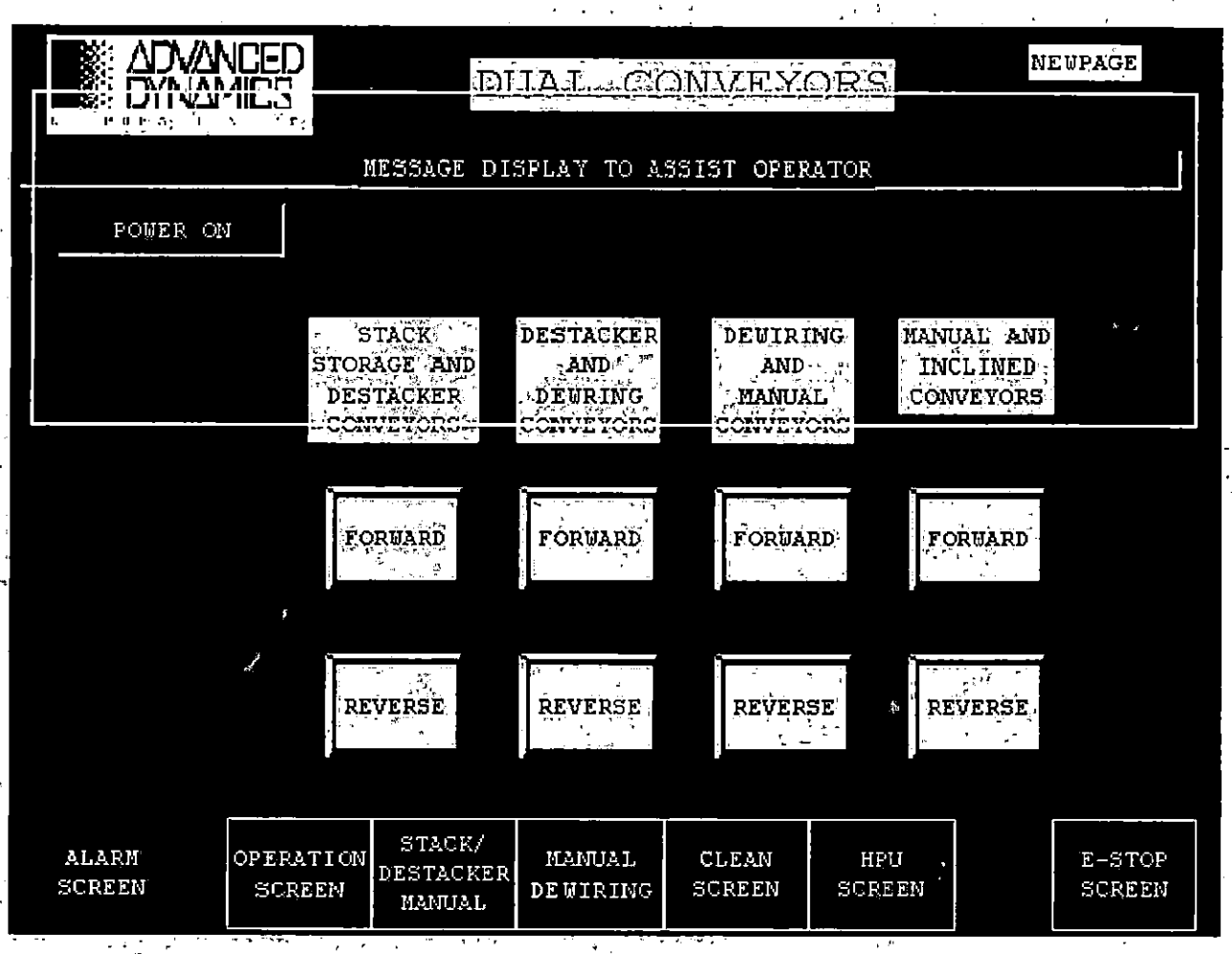
A bale stack transfer from the stack storage conveyor to the Destacker Conveyor (section # 15) is allowed when the Destacker is either empty with its clamps opened and in the down position or timed with the exit of the last bale of the previous stack, such that the single bale ends up transferred to the Dewiring Machine (section # 16) prior to the new stack arriving at the Destacker (for time cycle optimization). In the normal stack transfer sequence:

- A stack travels forward from the stack storage conveyor until it reaches the stack clamping position, which is detected by a mechanical spring-loaded plate - this position detection is not affected by paper flaps or other contaminants.
- When the stack is in place, the Destacker clamps and raises the stack that is on the Destacker Conveyor. The clamping and vertical position feedbacks are obtained via an LVDT in this system.
- Once the stack is raised, the Destacker clamp assembly shifts sideways to align the edge of the bottom bale of the lifted stack to the Dewiring machine's pass-line.
- The Destacker then lowers the stack of bales onto its conveyor.
- The Destacker clamps then open and rise to the second bale level, clamp the second bale and lift the remaining bales, leaving one bale only on the conveyor. Should no bale be detected at the second bale level position, the clamps stay open and the last bale is conveyed to the Dewiring Machine.
- The clamps then lower to the down position and the Destacker is now ready for the next incoming stack.

Due to the variety of bales, the Destacker clamps will travel to different positions in height depending on what input was given by the operator regarding the types of bales which are being processed. **The size of bales will be set by operator on the 80HMI. It is essential that this information be correct (by the operator) in order to ensure proper functioning of the equipment - thus minimising the risk of falling stacks/bales in this station.**

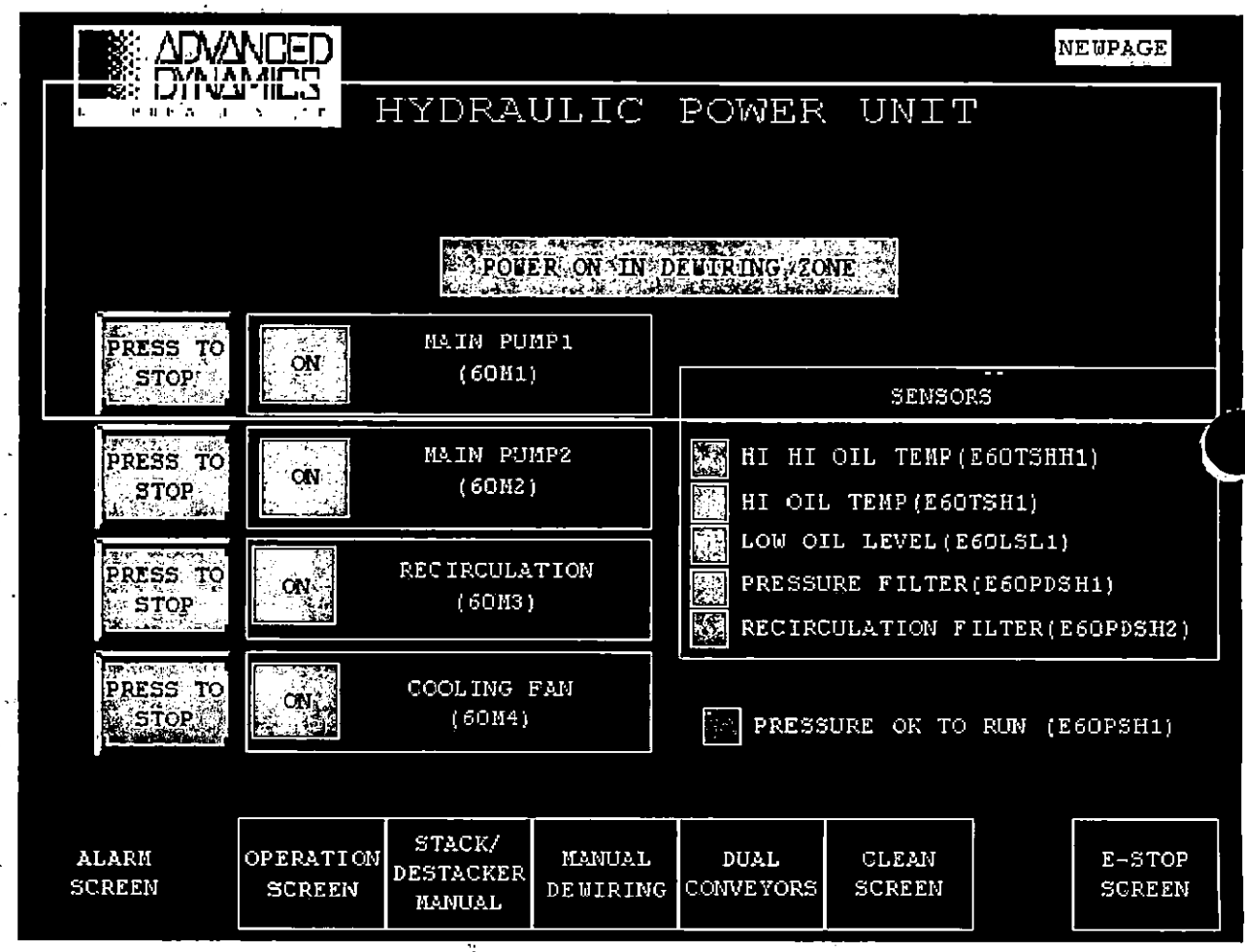
4.8.6 DUAL CONVEYORS

This screen lets the operator, if the zone operation mode is manual, run two conveyors together as the stack and destacker conveyors, destacker and dewiring conveyors, dewiring and manual conveyors manual and inclined conveyors.



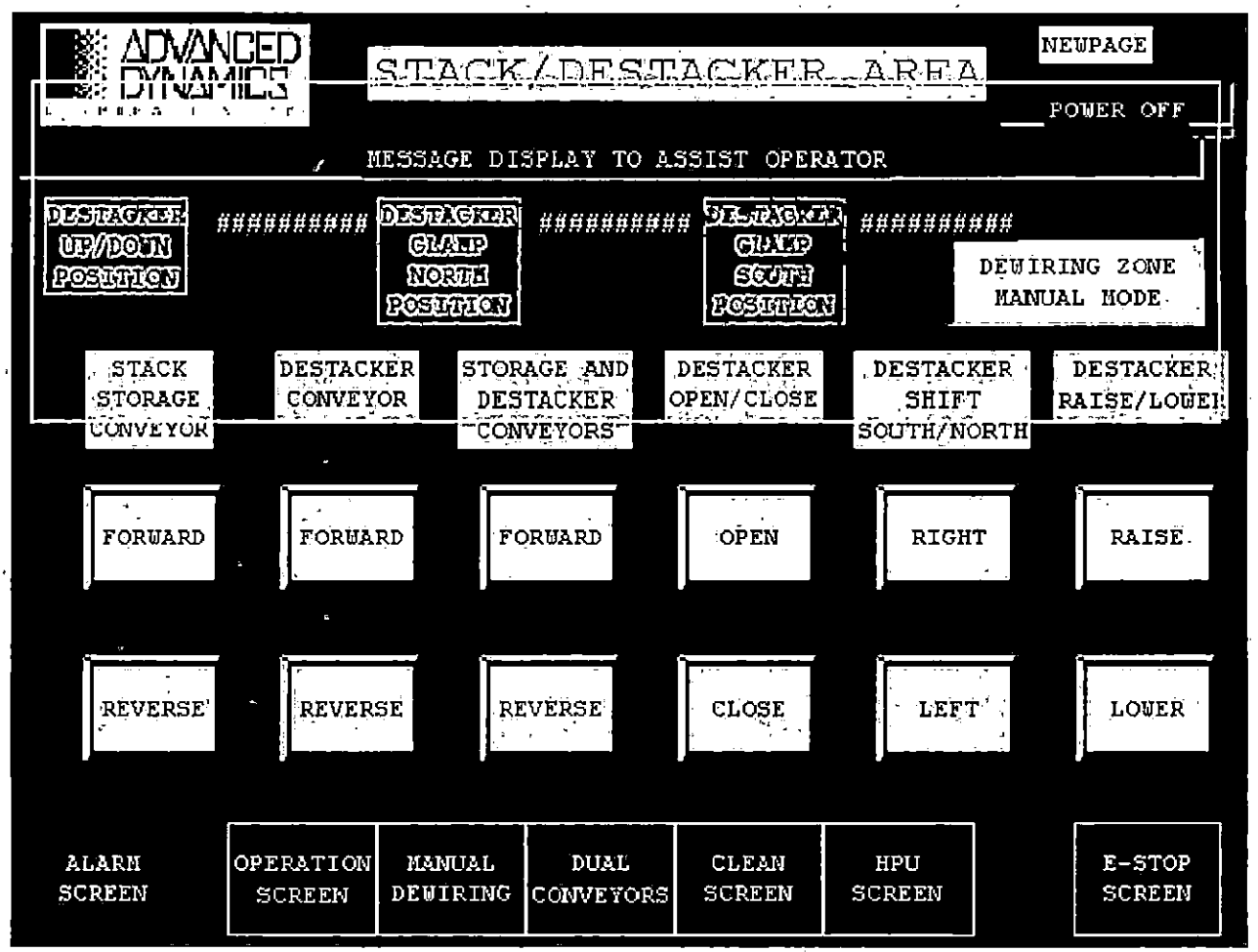
4.8.7 HYDRAULIC POWER UNIT

This screen displays the hydraulic power unit motors and sensors status and manual mode starting of the hydraulic power unit motors



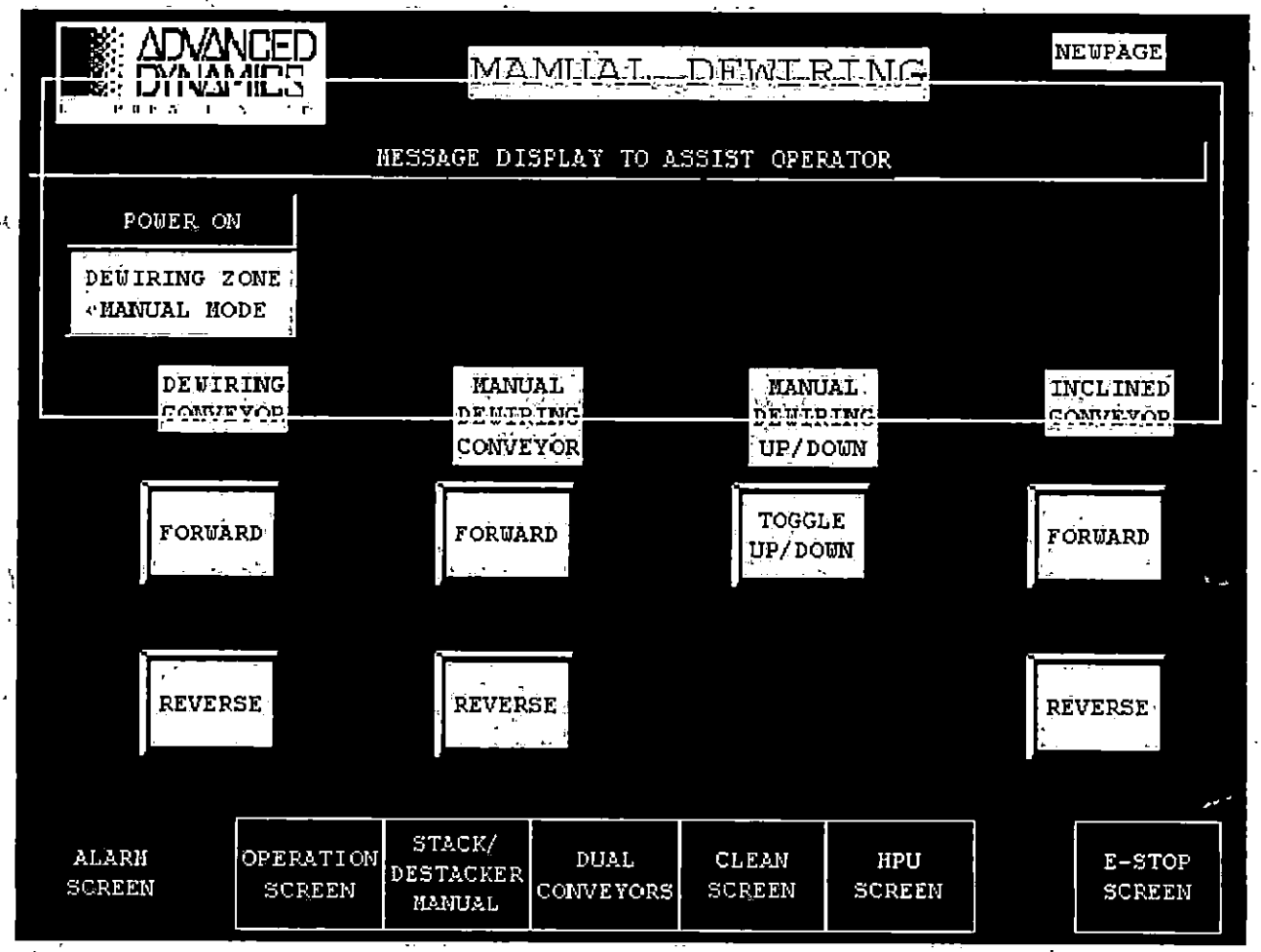
4.8.4 STACK/DESTACKER AREA

This screen lets the operator, if the zone operation mode is manual, run the stack storage, the destacker. It allows the operator to move the destacker clamps up, down, left, right and to open and close the clamps and stack storage conveyor forward and reverse.



4.8.5 MANUAL DEWIRING

This screen lets the operator, if the zone operation mode is manual, run the dewiring conveyor, the manual dewiring conveyor, and inclined conveyor. It allows the operator to move the manual dewiring conveyor up, down.



NewPage – Luke, Maryland

Pulper Feed System c/w Manual Dewiring

FUNCTIONAL DESCRIPTION

Document # ZA00-B8- 80285

PREPARED BY: Claude Lamoureux, Controls Designer

CHECKED BY: Eric Landry, Service Manager

APPROVED BY: Eric Landry, Service Manager

Revision Index

No.	Date	By	Checked	Approved	Comments
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01					
02					
03					

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GENERAL

The system consists of an automated set of various equipment that will receive stacks of Kraft bales from an existing conveyor, process them, and then deliver individual bales without wires to the existing Inclined Belt Conveyor.

The following document is to be used as a guideline to understand the philosophy of operation, related controls, as well as each party's responsibilities, with respect to the above system.

4.1 VOCABULARY

The abbreviations used in the following document relate to the following:

1. **ADCL:** Advanced Dynamics Corporation Limited.
2. **ECR:** Electrical control room.
3. **VFD:** Variable frequency drive.
4. **FVR:** Full voltage reversing (motor starter).
5. **FVNR:** Full voltage non-reversing (motor starter).
6. **PLC:** Programmable logic controller.
7. **RVDT:** Rotational variable displacement transducer.
8. **LVDT:** Linear variable displacement transducer.
9. **MCR:** Master control relay. This relay enables electrical operation of equipment in dedicated zones. (It is related to the emergency stop circuitry.)
10. **HPU:** Hydraulic power unit.
11. **FPM:** Feet per minute.
12. **AB:** Allen-Bradley.
13. **I/O:** Input/output.
14. **C/W:** Complete with.
15. **N/A:** Not applicable.

4.7.3 Auto-Dewiring Machine (section # 16)

Mechanical assembly drawing # GC00-D3-33477.

4.7.3.1 Hardware Description:

No.	Component	Description	Characteristics
1	NOT FUCTIONING Proximity Switch (15)	Auto dewiring top detector wire detection (E16ZS2), 24Vdc Auto dewiring pass-line side wire detection (E16ZS3), 24Vdc Auto dewiring opposite pass-line side wire detection (E16ZS4), 24Vdc Auto dewiring transversal wire detection (E16ZS5), 24Vdc Auto dewiring longitudinal carriage knife retracted (E16ZS6) Auto dewiring transversal carriage knife retracted (E16ZS7) Auto dewiring bale switch (E16ZS8) Auto dewiring top carriage wire detector up (E16ZS9) Auto dewiring pass-line side wire detector retracted (E16ZS10) Auto dewiring opposite pass-line side wire detector retracted (E16ZS11) Auto dewiring transversal wire detector retracted (E16ZS13) Auto dewiring top carriage wire detector up (E16ZSH1) Auto dewiring bale lifter down (E16ZSL1) Auto dewiring coiler stripper plate down (E16ZSL2) Auto dewiring top carriage wire detector down (E16ZSL3)	15 inputs: 11x 120Vac & 4x 24Vdc, digital

		(E15ZT3)	

4.7.2.2 Manual Controls for Operator and/or Maintenance Intervention :

The Destacker Conveyor can be jogged forward/reverse, the Destacker can be raised/lowered, the Destacker clamps can be open/closed and shifted North/South from operator interface 15PBS1 if in manual mode. A spring centered three-position selector switch enables these actions from this station.

The Destacker c/w Conveyor can also be controlled from the system's graphic operator interface on 80PV1 if in manual mode. Please see section # 4.9 for more details.

2	Photocell (2)	Auto dewiring bale at outfeed (E16ZS1) Auto dewiring bale present infeed (E16ZS12)	2 inputs: 120Vac, digital
3	Motors (5)	NOT FUCTIONING One motor drives the top carriage X axis (16M1) NOT FUCTIONING One motor drives the top carriage Y axis (16M2) One motor drives dewiring conveyor NOT FUCTIONING (16M3)One motor drives longitudinal carriage (16M4) NOT FUCTIONING One motor drives transversal carriage (16M5)	• 5 Motors: 460Vac / 3phase / 60Hz • 5 VFD's: Reversible, one analog output speed reference: 4- 20 Ma, 2 outputs: 120Vac isolated, I input: 120Vac, isolated
4	NOT FUCTIONING Hydraulic cylinders (4) c/w Solenoid Valves (4)	Auto dewiring bale lifter pre-position extend (E16EV8A) Auto dewiring bale lifter pre-position lower (E16EV8B) Auto dewiring longitudinal wire cutter close (E16EV10) Auto dewiring transversal wire cutter close (E16EV12) Auto dewiring top carriage raise stripper plate (E16EV15A) Auto dewiring top carriage lower stripper plate (16EV15B)	6 outputs: 120Vac, digital
5	NOT FUCTIONING Hydraulic motor (1) c/w Solenoid (2) and Proportional (1)	Auto dewiring top carriage coiler rotate forward (looking up) (E16EV13A) Auto dewiring top carriage coiler rotate reverse (looking up) (E16EV13B) Auto dewiring top carriage coiler in fast	3 outputs: 120Vac, digital 1 output: 4-20mA, analog

	Valves	speed (E16EV14) Auto Dewiring top carriage coiler proportional pressure. (E16PV1)	
6	NOT FUCTIONING Pneumatic Cylinders (7) c/w Solenoid Valves (7)	Auto dewiring bale lifter final approach raise (E16EV1A) Auto dewiring bale lifter final approach lower (E16EV1B) Auto dewiring extend opp. pass-line side wire detector (E16EV2) Auto dewiring longitudinal wire cutter engage (E16EV3) Auto dewiring transversal wire detector extend (E16EV4) Auto dewiring transversal wire cutter engage (E16EV5) Auto dewiring top carriage lower top detector (E16EV6) Auto dewiring extend pass-line side wire detector (E16EV7)	8 outputs: 120Vac, digital
7	NOT FUCTIONING Linear Transducers (4)	Dewiring Machine Coiler Carriage Longitudinal Position (E16ZT1) Dewiring Machine Coiler Carriage Transversal Position (E16ZT2) Dewiring Machine Longitudinal Knife Carriage Position (E16ZT3) Dewiring Machine Transversal Knife Carriage Position (E16ZT4)	4 inputs: 4-20mA, analog

4.7.3.2 Manual Controls for Operator and/or Maintenance Intervention:

The conveyor will move forward and reverse.

4.7.4 Hydraulic Power Unit (section # 60)

Hydraulic assembly drawing # ZB00-B7-33579.

4.7.4.1 Hardware Description

No.	Component	Description	Characteristics
1	Motors (3)	Hydraulic Power Unit Main Pump #1 motor (60M1) Hydraulic Power Unit Main Pump #2 motor (60M2) Hydraulic Power Unit Recirculation Pump motor (60M3) Hydraulic Power Unit Cooling Fan motor (60M4)	• 3 Motors: 460Vac / 3phase / 60Hz • 3 Starters: Non-reversing, 1 input each: 120Vac isolated, 1 output each: 120Vac, isolated
2	Monitoring switches (6)	E60LSLL1: oil level ok to run E60TSH1: cooling temperature reached (at 120 degrees Fahrenheit, to start cooling fan) E60TSHH1: temperature ok to run (stopped if it reaches 140 degrees Fahrenheit) E60PDSH1: pressure filter not clogged E60PDSH2: recirculation filter not clogged E60PSH1: pressure ok to run	6 inputs: 120Vac, digital

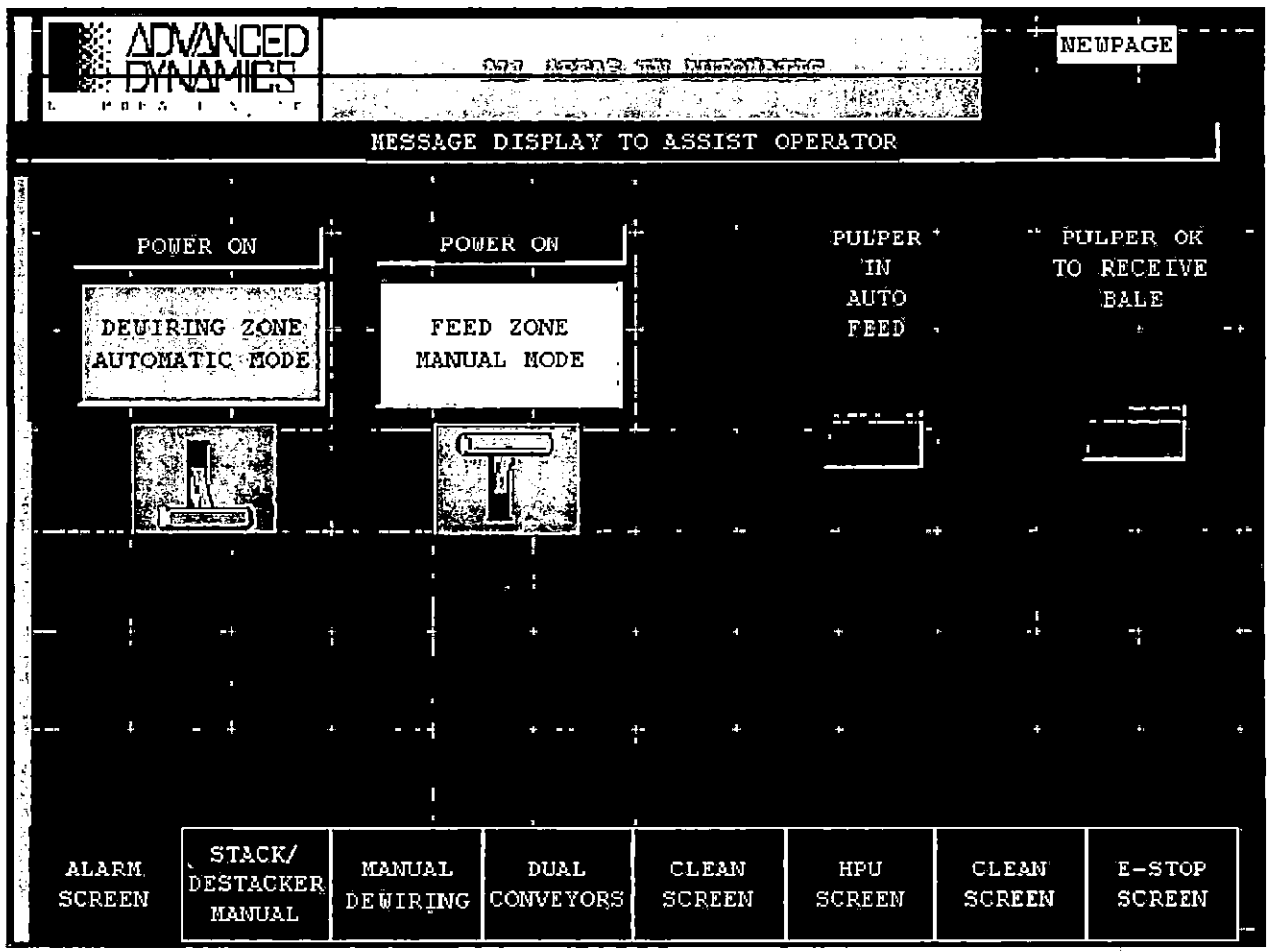
4.7.4.2 Manual Controls for Operator and/or Maintenance Intervention:

The power unit can be monitored, started and stopped from the graphic operator interface on 80PV1 if in manual mode. Please see section # 4.9 for more details.

4.8 TOUCH SCREENS

The following screens are to monitor, control and verify the Pulper Feed System. The Allen Bradley PanelView 1000 Color touch screen communicates via a ControlNet to the ADCL PLC.

OPERATION PAGE



4.8.1 Clean Screen

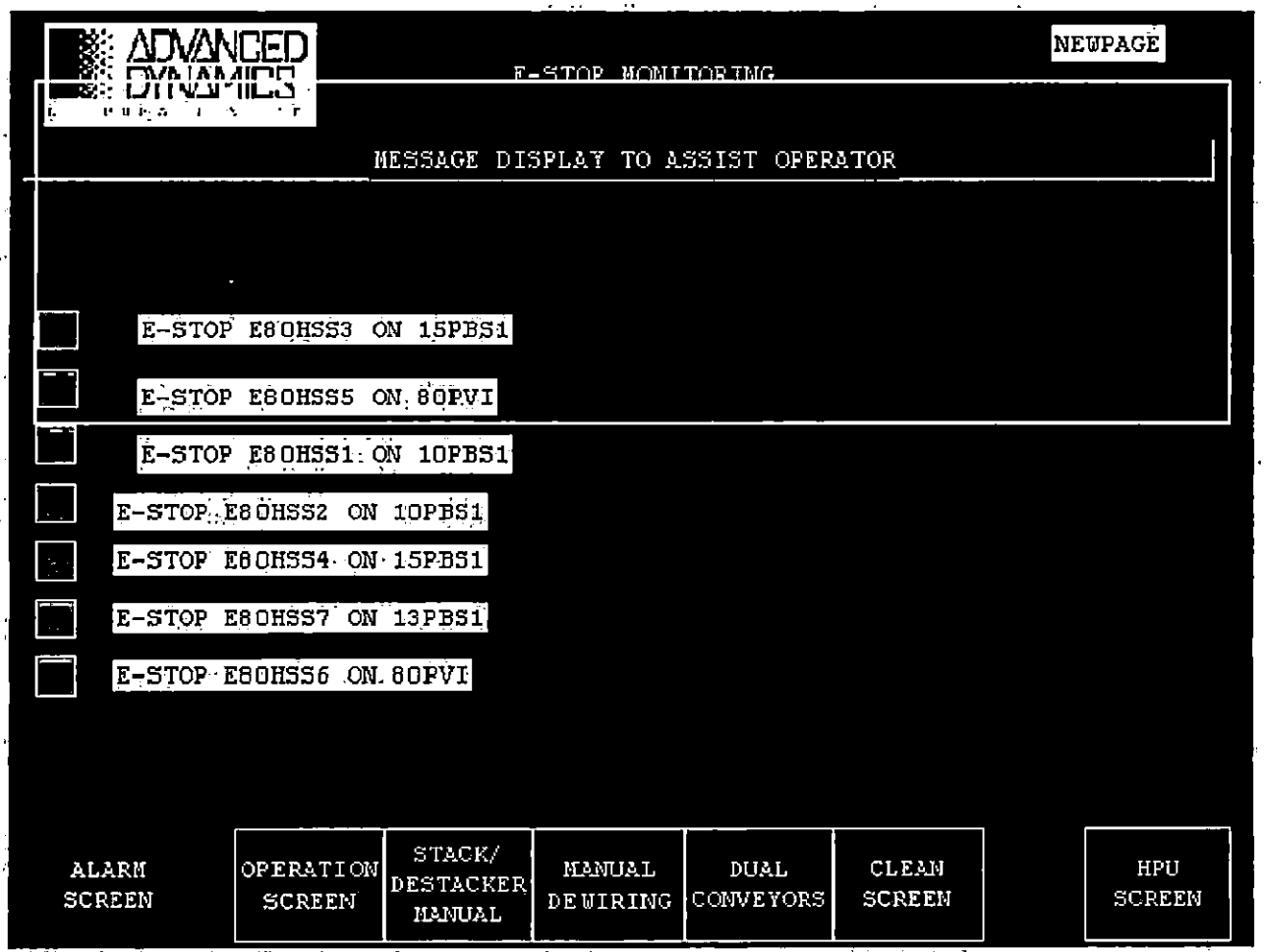
This screen let the operator 20 seconds to clean the screen after that PLC change the screen to Main Screen.

YOU HAVE ## SECONDS
LEFT TO
CLEAN THE SCREEN

ADVANCED DYNAMICS
CORPORATION LTD

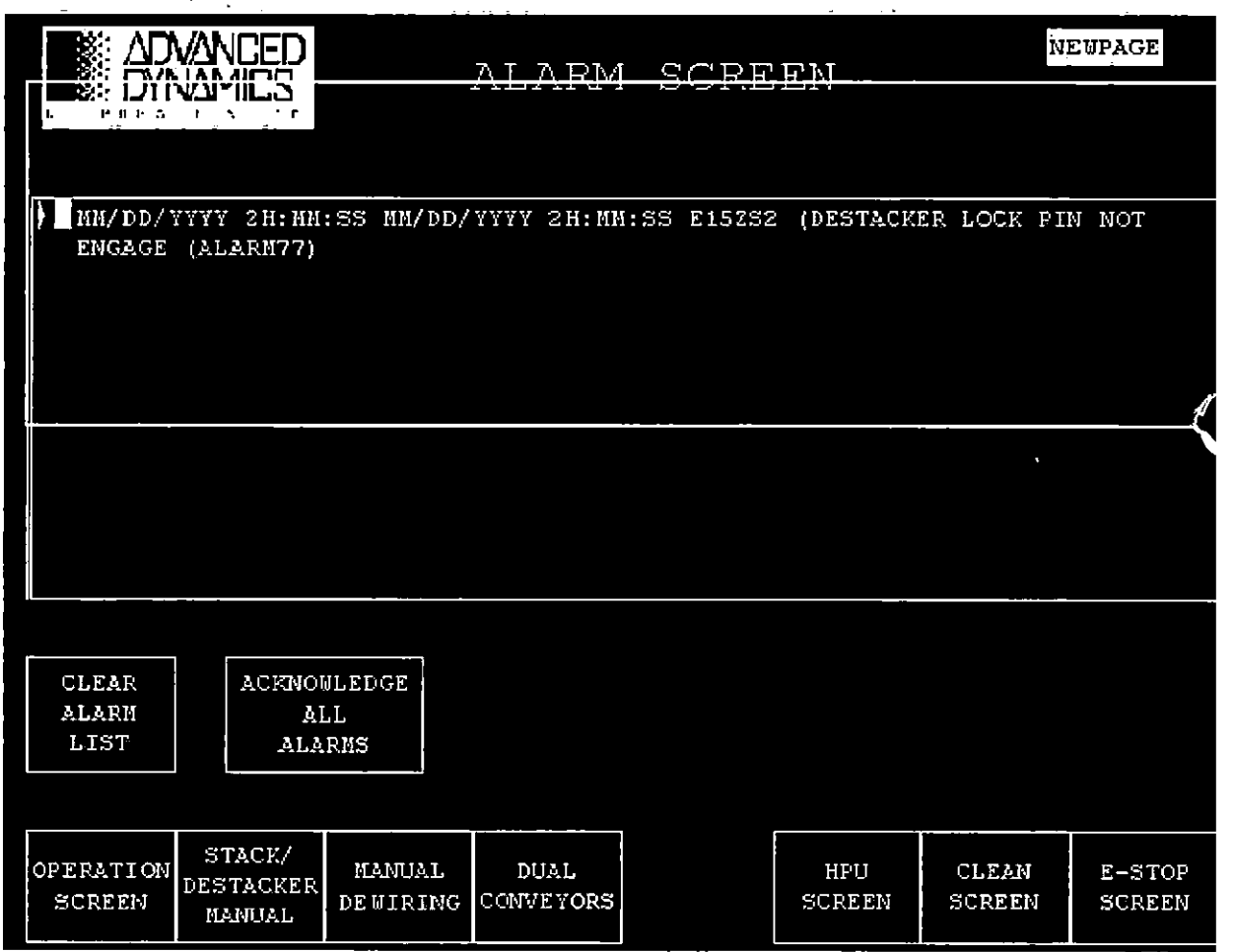
4.8.2 E-Stop Monitoring Screen

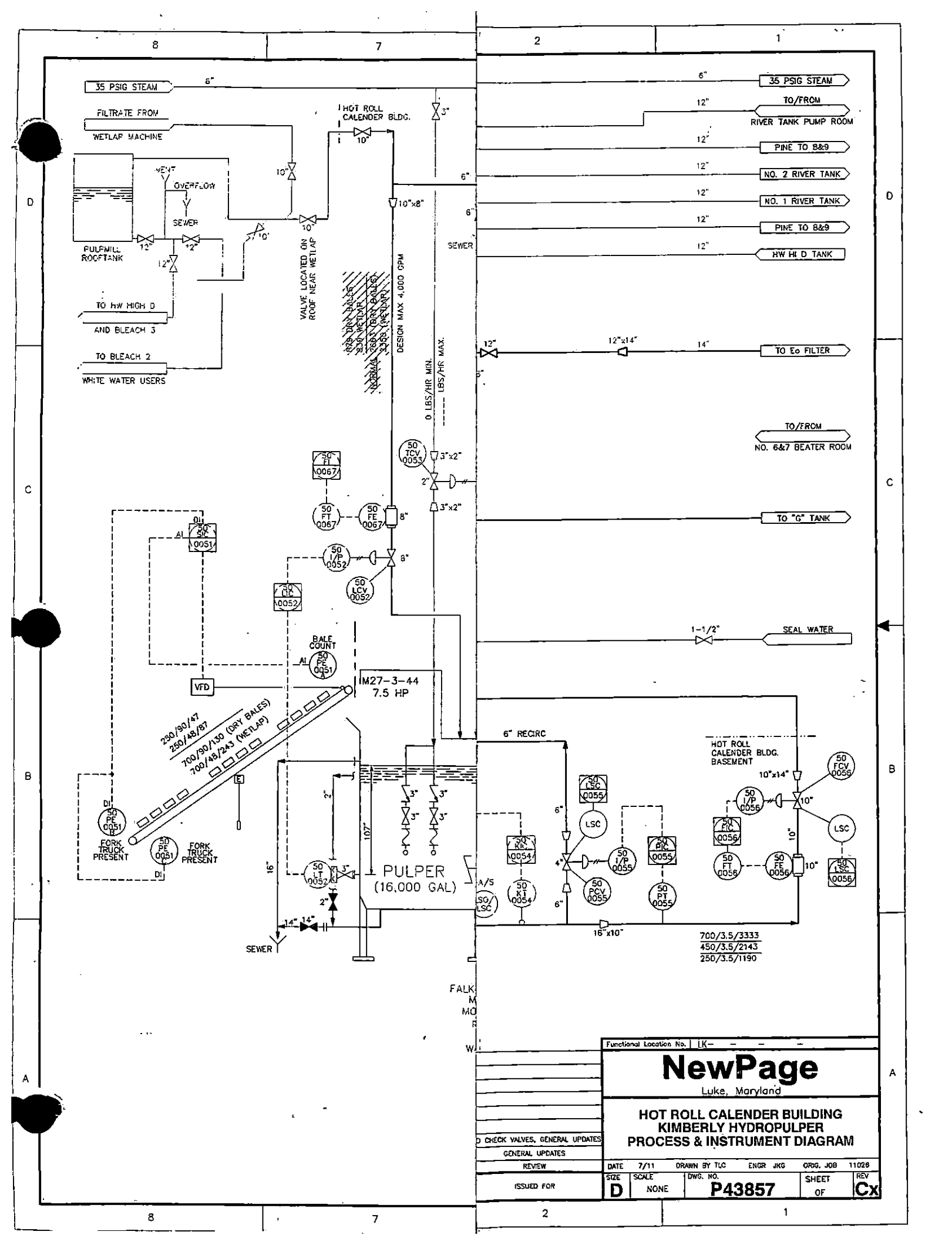
This screen displays the status of all the emergency stop pushbutton and all of the safety door switches on the system. If all devices are in the normal operating state the green "No Emergency stop" banner will be displayed. If any of the devices is triggered or activated, the color in the box will turn red.



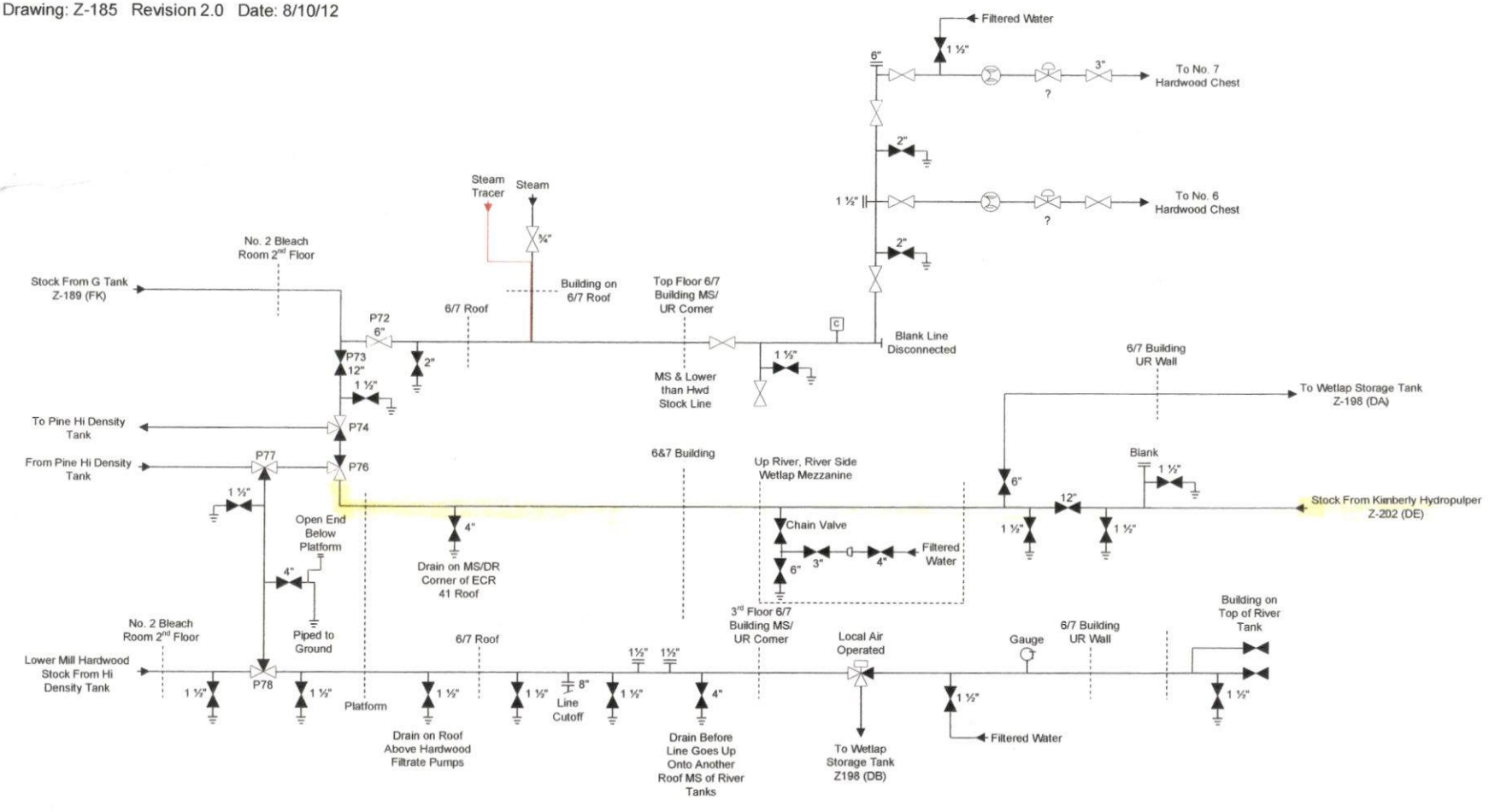
4.8.3 Alarm Screen

This screen will display all alarms that occurred. Once the cause of the alarm is resolved, the operator will press the "CLEAR IN PLC" button to tell the PLC that the alarm has been cleared. If the condition is still present the alarm will re-appear.




35 PSIG STEAM
6"
FILTRATE FROM
WETLAP MACHINE
HOT ROLL
CALENDER BLDG.
3"
10"
VENT
OVERFLOW
SEWER
10"
10"
10"x8"
6"
12"
12"
12"
PULPMILL
ROOFTANK
VALVE LOCATED ON
ROOF NEAR WETLAP
DESIGN MAX 4,000 GPM
0 LBS/HR MIN.
LBS/HR MAX.
TO HW HIGH D
AND BLEACH 3
TO BLEACH 2
WHITE WATER USERS
50 FT 0067
50 FE 0067
50 TCV 0055
3"x2"
2"
3"x2"
8"
50 I/P 0052
50 LCV 0052
50 LIC 0052
50 SIC 0051
AI
DI
BALE
COUNT
50 PE 0051 A
VFD
M27-3-44
7.5 HP
250/90/47
250/48/87
700/90/130 (DRY BALES)
700/48/243 (WETLAP)
50 PE 0051 B
FORK
TRUCK
PRESENT
50 PE 0051
FORK
TRUCK
PRESENT
50 LT 0052
3"
2"
14"
14"
SEWER
16"
107"
2"
3"
3"
3"
3"
PULPER
(16,000 GAL)
6" RECIRC
50 LSC 0055
6"
LSC
4"
50 I/P 0055
50 PCV 0055
6"
50 PIC 0055
50 PT 0055
50 KIT 0054
50 KI 0054
A/S
SG/LSC
16"x10"
700/3.5/3333
450/3.5/2143
250/3.5/1190
HOT ROLL
CALENDER BLDG.
BASEMENT
10"x14"
50 FCV 0056
50 I/P 0056
10"
50 FIC 0056
LSC
50 FT 0056
50 FE 0056
10"
50 LSC 0056
6" 35 PSIG STEAM
12" TO/FROM
RIVER TANK PUMP ROOM
12" PINE TO 8&9
12" NO. 2 RIVER TANK
12" NO. 1 RIVER TANK
12" PINE TO 8&9
12" HW HI D TANK
12" 12"x14" 14" TO Eo FILTER
TO/FROM
NO. 6&7 BEATER ROOM
TO "G" TANK
1-1/2" SEAL WATER
FALK
M
MO
W
Functional Location No. LK- - - -
NewPage
Luke, Maryland
HOT ROLL CALENDER BUILDING
KIMBERLY HYDROPULPER
PROCESS & INSTRUMENT DIAGRAM
D CHECK VALVES, GENERAL UPDATES
GENERAL UPDATES
REVIEW
ISSUED FOR
DATE 7/11 DRAWN BY TLC ENGR JKG ORG. JOB 11026
SIZE D SCALE NONE DWG. NO. P43857 SHEET OF REV Cx

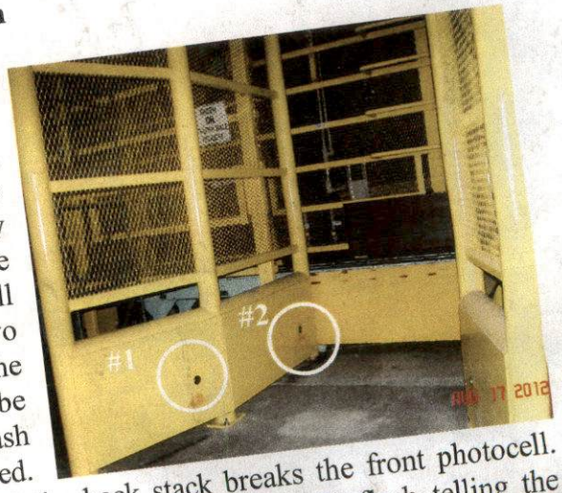
Stock Lines to Lower Mill
Drawing: Z-185 Revision 2.0 Date: 8/10/12



GENERAL DESCRIPTION – DESTACKING/DEWIRING

This manual is provided to familiarize operating personnel with the functional design of the destacking and dewiring areas before the Kimberly Hydropulper. In this section stacks of bales of purchased pulp are loaded, destacked, and then fed to a section of conveyor in which an operator manually dewires the bales so that they can be fed to the Kimberly Hydropulper.

1. Stack Storage Conveyor System

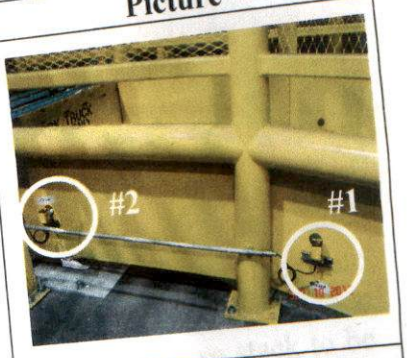
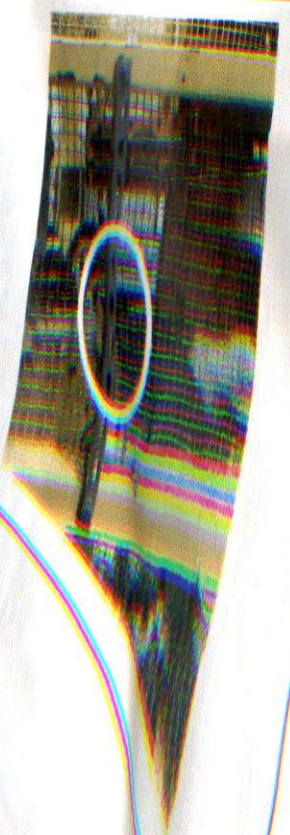


Both sides as well as the back end of the conveyor are surrounded with safety fences to prevent unstable stacks from falling on a person near the conveyor. There are two gates to allow access for cleanup. The only operational access for the conveyor is the loading zone which is on the down river - mill side end of the conveyor. Here, there are two photocells, the first photocell will alert the system that there is a stack waiting to be loaded, at this point a red light will flash confirming that the clamp truck is sensed. The conveyor then will run in reverse until the back stack breaks the front photocell. When this happens the conveyor will stop and the green light will flash telling the operator that the conveyor is ready to be loaded. After the truck backs out of the loading area the conveyor will move forward until the front stack breaks a photocell at the front of the conveyor. The second photocell in the loading zone tells the system that the conveyor is being loaded, if this photocell senses a truck before the conveyor is ready to be loaded a horn will sound. There is also a photocell to sense when the stack is too tall. The horn will sound if this photocell is broken.

Name	Breaker	Location	Info
Storage Conveyor	M27-4-44	Operating Floor	Interlock: Estop, Destacker, Fork truck

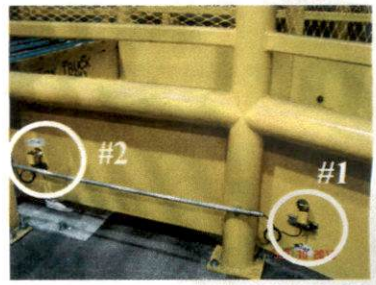
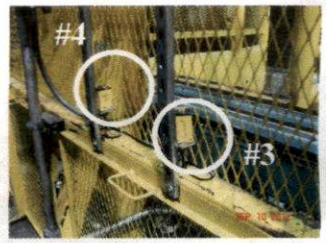
2. Stack Storage Conveyor System – Photocells

The following information is to help identify photocells and their function.

Identification	Purpose	Picture
1. 50Z69A	System "sees" truck, light flashes red, green light signals conveyor can be loaded	
2. 50Z69B	If clamp truck enters prematurely the horn will sound	
3. 50Z69C	Gives permission to clamp truck to put bales on Storage Conveyor	
4. 50Z69D	Bale will stop at this point to remove a gap	
5. 69F3R	Horn will sound when bale is too high	
6. 50Z70A	Indicates if belt is full or bales are transferring to clamp	

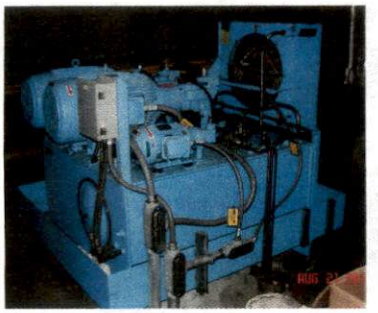
2. Stack Storage Conveyor System – Photocells

The following information is to help identify photocells and their function.

Identification	Purpose	Picture
1. 50Z69A	System "sees" truck, light flashes red, green light signals conveyor can be loaded	
2. 50Z69B	If clamp truck enters prematurely the horn will sound	
3. 50Z69C	Gives permission to clamp truck to put bales on Storage Conveyor	
4. 50Z69D	Bale will stop at this point to remove a gap	
5. 69F3R	Horn will sound when bale is too high	
6. 50Z70A	Indicates if belt is full or bales are transferring to clamp	

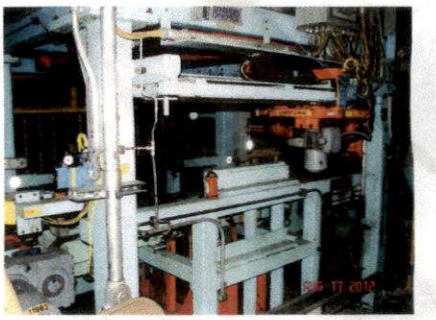
3. Destacker, Destacker Conveyor, and Hydraulic Power Unit

Stacks of bales, coming from the Storage Conveyor, will move forward on the Destacker Conveyor until the stack triggers a spring-loaded plate. The clamp will then close around the bottom bale, lift the stack, center the stack on the conveyor, and sits the stack back down. Then while there are at least two bales, registered by a photocell, the clamp will move up to the position of the second bale from the bottom and lift all of the stack but the bottom bale. If there is room on the Auto Dewiring Conveyor the Destacker Conveyor will then move forward allowing room for the remaining stack to be set down. This process will then be repeated until storage is full or the stack is exhausted. When a stack is completely destacked the next stack will move forward from the storage conveyor. The Hydraulic Power Unit will provide the power needed to operate the Destacker clamp.



Name	Breaker	Location	Info
Destacker Conveyor	M27-4-33	Operating Floor	Interlock: Estop Storage Conveyor, *Auto Dewiring* Conveyor
Hydraulic Pump 1	M27-4-37	Operating Floor	
Hydraulic Pump 2	M27-4-39	Operating Floor	
Hydraulic Recirc Pump	M27-4-40	Operating Floor	
Hydraulic Unit Cooling Fan	M27-4-41	Operating Floor	

4. Automatic Dewiring Conveyor



Single bales will move onto the Automatic Dewiring Conveyor from the Destacker Conveyor. The conveyor stores a total of two bales. A batch of four bales will move onto the Manual Dewiring Conveyor when the operator is finished dewiring the bales and calls for the next batch to move forward. All other equipment is non-operational.

Name	Breaker	Location	Info
Automatic Dewiring Conveyor	M27-4-34	Operating Floor	Interlock: Estop, Destacker, Manual Dewiring Conveyor

5. Manual Dewiring Conveyor

The Manual Dewiring Conveyor will receive bales from the Automatic Dewiring Conveyor and Destacker Conveyor in batches. The batch is set to four bales. If less than four bales are batched onto the conveyor, i.e. during a shutdown sequence, the operator will need to run the conveyor by switching to manual and then back to automatic. If the Manual Dewiring Conveyor is switched from Automatic Mode to Manual Mode and then back to Automatic, the computer will prompt the operator to confirm the number of bales on the conveyor. Once the batch of bales is on the conveyor it will stop and lower allowing the operator to cut the wires. After the wires are cut and removed the operator signals that the batch can be fed by pressing "ALL BALES DEWIRED" push button on the Touch Screen Console. The conveyor will then raise and unload onto the Incline Conveyor. After the Manual Dewiring Conveyor is completely unloaded, it will be fed another batch. Please note: When the lanyard or E-stop is pressed for the Destacking/Dewiring System, the Manual Dewiring Conveyor will stay in position. If the Manual Dewiring Conveyor is in mid-motion, it will go to the final position. Example: If going from the down position to the up position, the conveyor will end in the up position and vise versa.

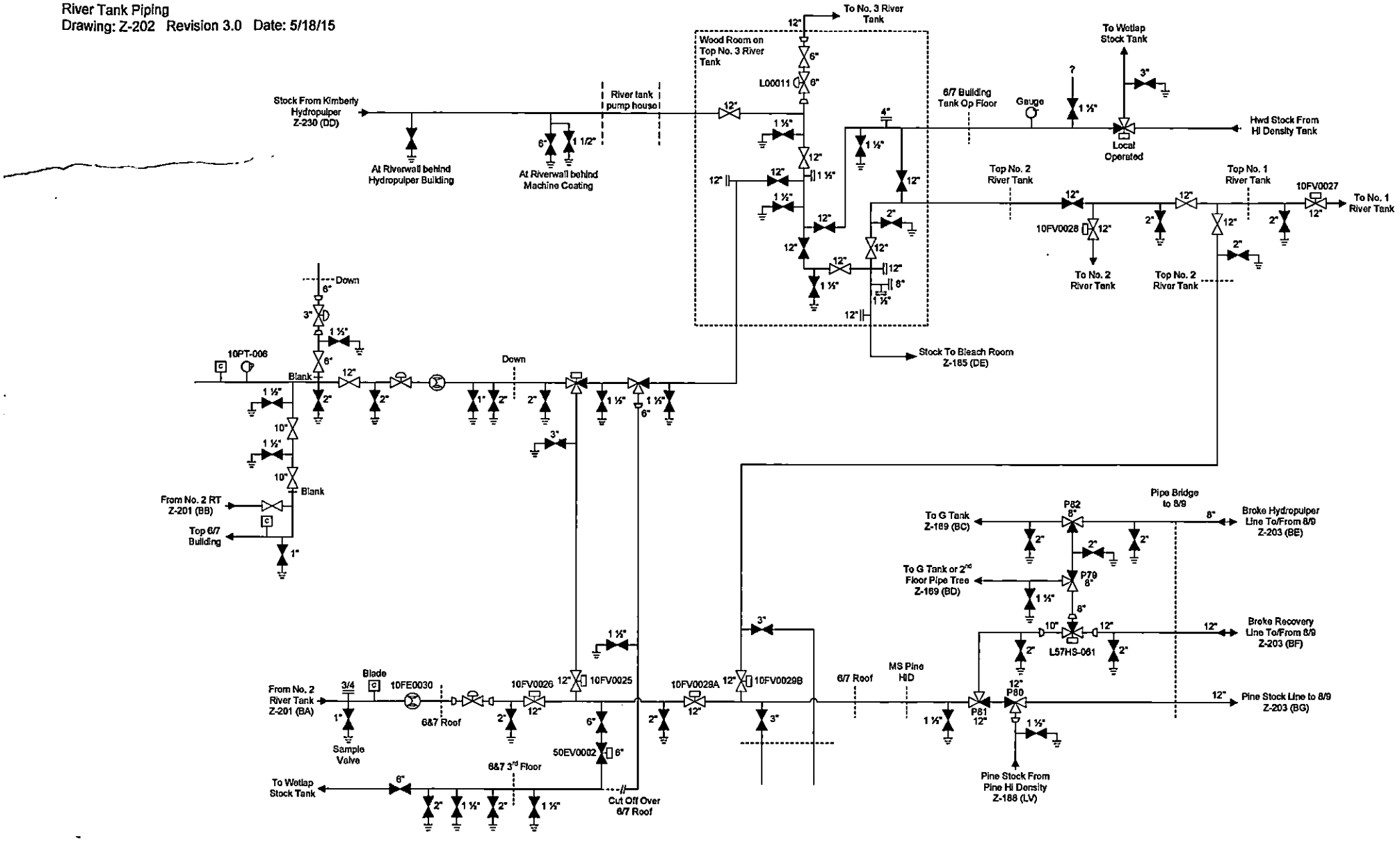
Name	Breaker	Location	Info
Manual Dewiring Conveyor	M27-4-30	Operating Floor	Interlock: Estop, Auto Dewiring Conveyor, Incline Conveyor

6. Wire Chomper

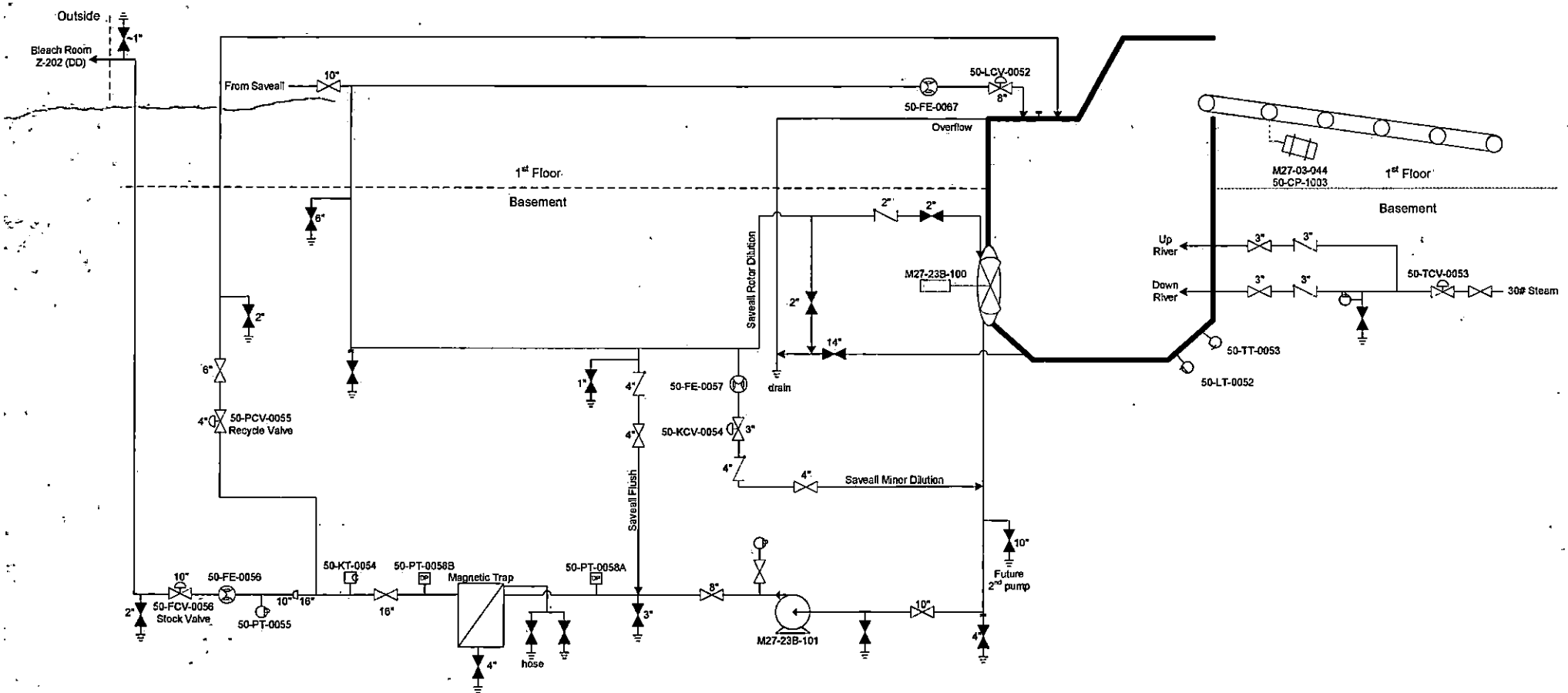
The Wire Chomper assists in the disposal of wires removed from bales. During operation, the operator must turn the motor on and the Chomper will run continuously. The wires will be fed into the front and then chewed up and deposited into the hopper below. Pressing into the face of the chomping unit will trigger the "E-stop" and as well as pressing the "E-stop" button. The E-stop for the Wire Chomper and the Destacking/Dewiring equipment are separate. When finished using the Wire Chomper, it is important to shutoff the motor. However, if the manual dewiring conveyor is not in operation for 20 minutes the motor for the Chomper will shut down.

Name	Breaker	Location	Info
Wire Chomper	M27-4-46	Operating Floor	Interlock: Estop

River Tank Piping
Drawing: Z-202 Revision 3.0 Date: 5/18/15



Kimberly Hydropulper System
Drawing: Z-230 Revision 2.0 Date: 8/9/12



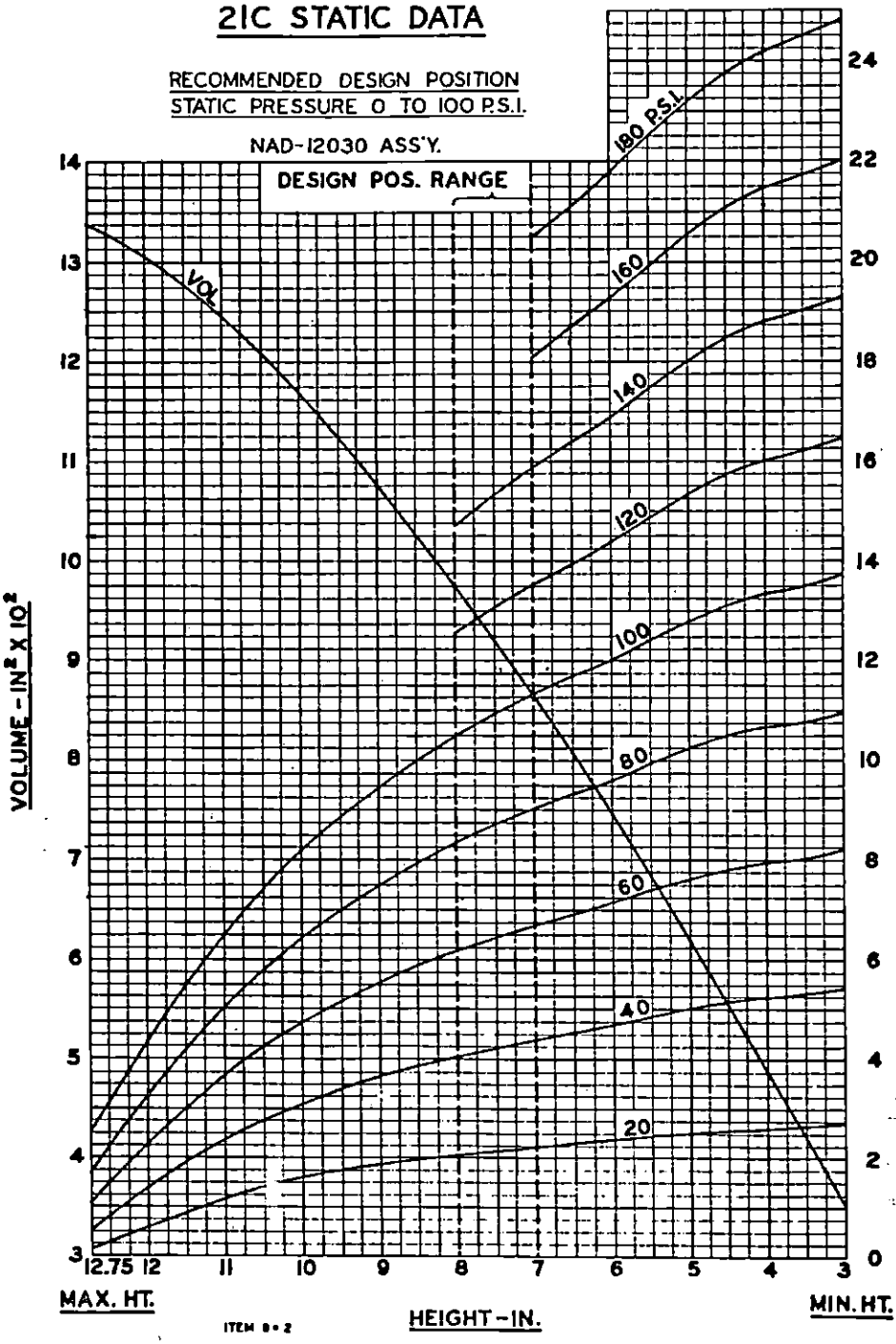
NO. 21C

AIRIDE
AIRMOUNT
AIRSTROKE

21C STATIC DATA

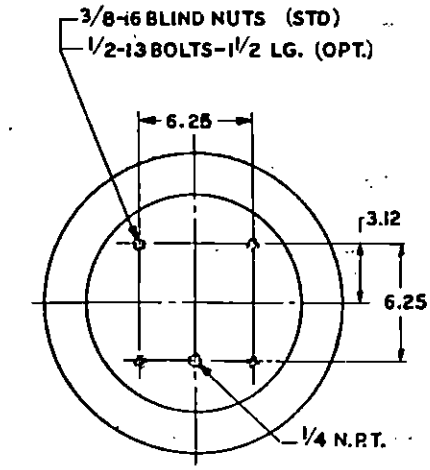
RECOMMENDED DESIGN POSITION
STATIC PRESSURE 0 TO 100 P.S.I.

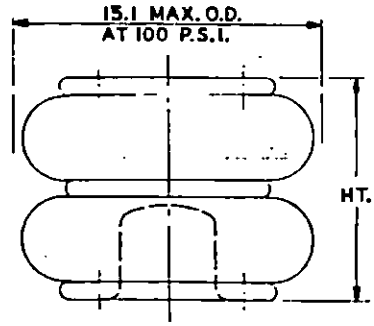
NAD-12030 ASS'Y.



ITEM 8-2

EXAMPLE OF DYNAMIC CHARACTERISTICS	
DESIGN HEIGHT	7.50 IN.
VOLUME	921 IN.³
PRESSURE	60 P.S.I.
EFFECTIVE AREA	107 IN.²
LOAD	6450 LBS.
RATE	1866 LBS./IN.
FREQUENCY	101 C.P.M.





REFERENCE DATA	
ASSEMBLY	NAD-12030
PART	NAD-11898
ASSEMBLY WEIGHT	20.3 LBS.
TANK VALVE	OPTIONAL
INTERNAL BUMPER	OPTIONAL