



# **CONFLOW Technologies Inc**



# **P-NET** Systems



**AND THE  
FERTILIZER INDUSTRY**

# **What the Customer Requested:**



- Increased Throughput
- Less Labour Intensive Process
- Compatible with Existing Excel Database
- Manual Backup System
- Ease of Expansion

# Areas of Discussion



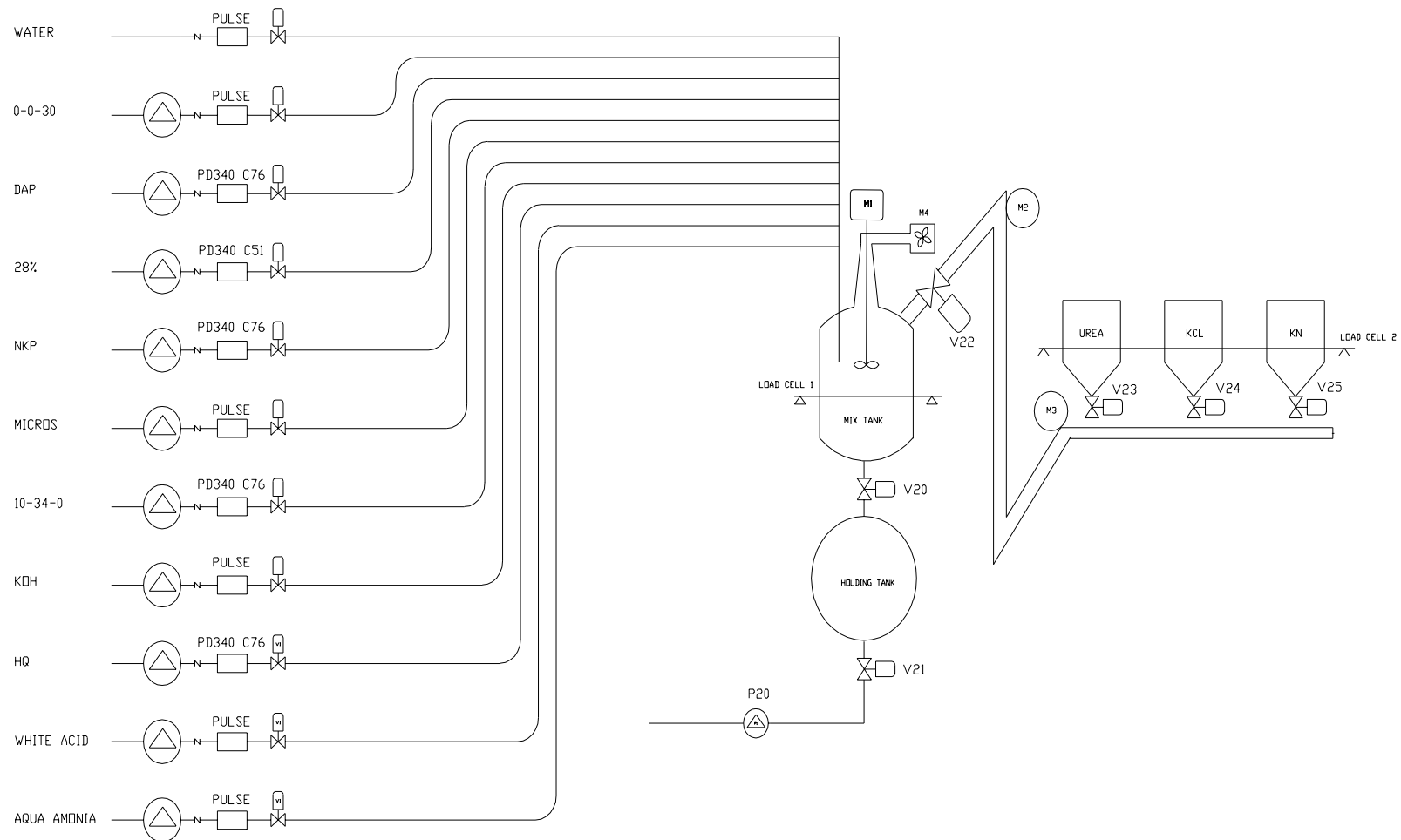
- The Production of Fertilizer

# System Development



- Layout of the Process

# The Physical Layout

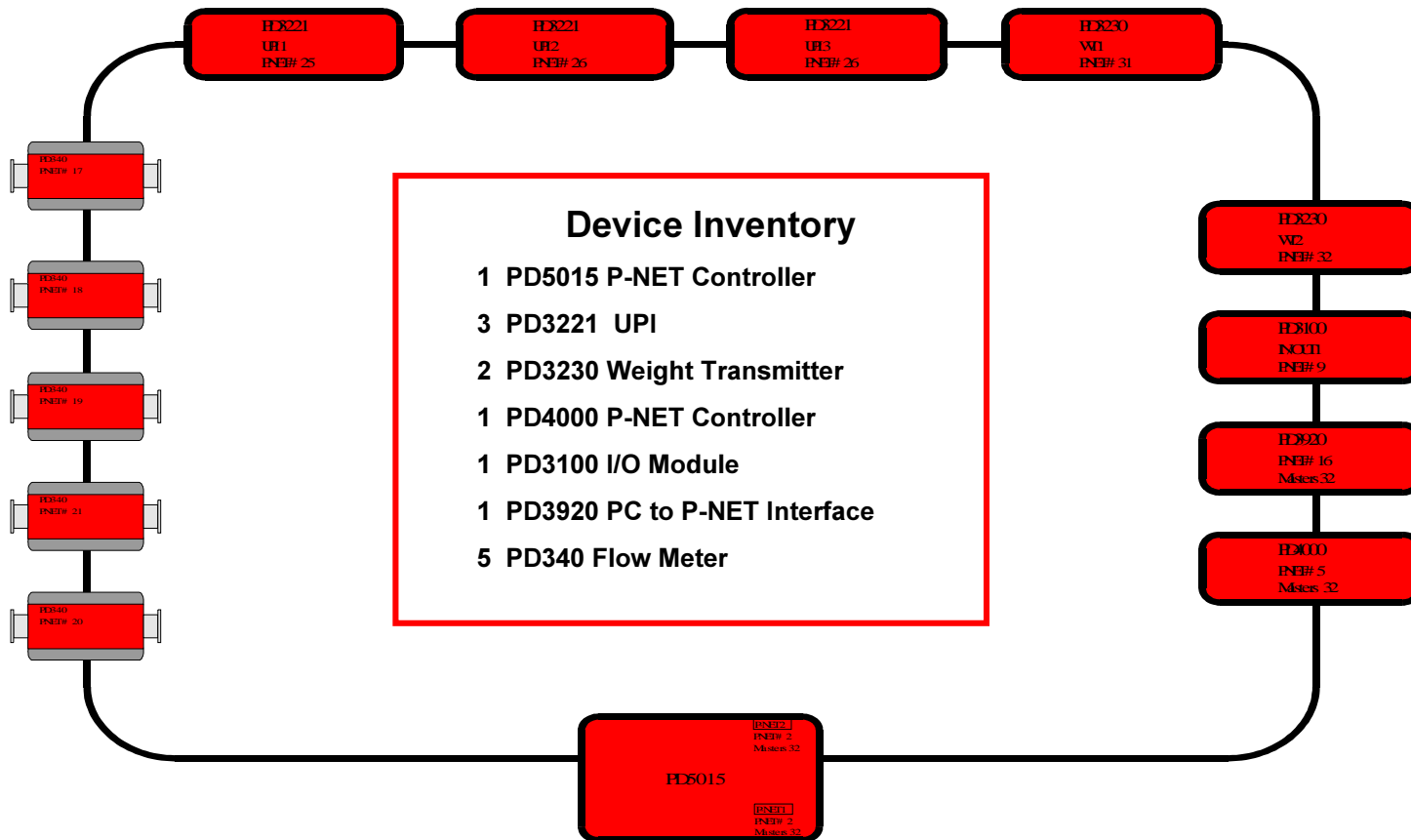


# System Development



- Layout of the Process
- Layout of the P-NET System

# P-NET Layout for Production





# System Development

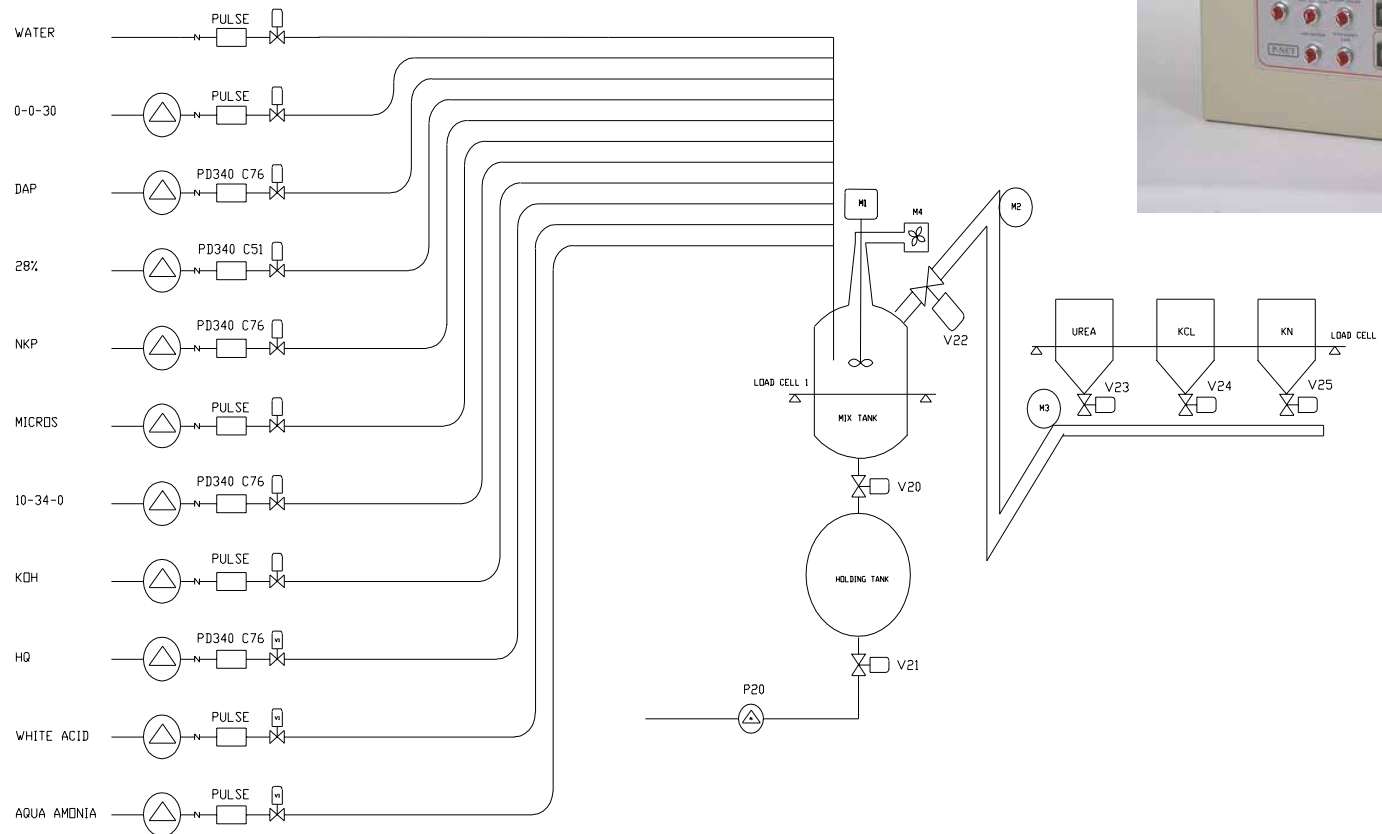


- Layout of the Process
- Layout of the P-NET system
- Manual Operation

# Manual Operation



# Manual Operation



# System Development



- Layout of the Process
- Layout of the P-NET system
- Manual Operation
- The Semi-Automatic System

# The Main Control





# Material Index Screen

**Alpine Plant Foods Corp.**

Time : 09:45:45  
Date : 01:03:00

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## Manuel Batchina

1.....	Spare1	8.....	10-34-0
2.....	0-0-30	9.....	KOH
3.....	Micros	10.....	White Acid
4.....	Con_1	11.....	Water
5.....	20%	12.....	Bin_1
6.....	Aqua Amonia	13.....	Bin_2
7.....	HQ	14.....	Bin_3
			0



# Manual Batching Screen

Alpine Plant Foods Corp.

Time : 09:48:29

Date : 01:03:00

1393\_

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Manuel Batching

MCode

Material

Setpoint

11

Water

1393.0



# Current Activity Screen

Material	Current Ovr	Activity Setpoint	ACC
1. Spare1	0000000000000000	410,0	410,0
2. 9-8-30	0000000000000000	950,0	410,0
4. Micros	0000000000000000	27,0	27,0
4. COM_1	0000000000000000	0,0	0,0
4. 28%	0000000000000000	0,0	0,0
10. Aqua Amonia	0000000000000000	0,0	0,0
10. H2O	0000000000000000	0,0	0,0
10. 19-34-0	0000000000000000	412,0	440,0
10. KOH	0000000000000000	141,0	140,0
10. White Acid	0000000000000000	141,0	140,0
11. Water	1000000000000000	174,0	174,0
14. Bin_3	1000000000000000	171,0	171,0



# System Development



- Layout of the Process
- Layout of the P-NET system
- Manual Operation
- The Semi-Automatic System
- The Automatic System

# The Automatic System

Microsoft Excel window showing two spreadsheets: CFORMULA99.xls and RecipeTrans.xls.

**CFORMULA99.xls**

	A	B	C	D	E	F	G
1		%	Sp.Gr.		9-18-9w		liters
2							
3	HQ	54.7	1.64	WATER	378	378	378
4	W.Acid	55	1.6	W.ACID	1800	2778	1125
5	KOH	38	1.46	KOH	1303	4080	832
6	AQUA	23.5	0.92	AQUA	702	4783	763
7	10-34-0	34	1.43	WATER	0	4783	
8	*10-34-0	10.2		UREA	717	5500	
11	FORMULA	8946					
12	DATE	05/17/93	6-24-6				Liters
13	SIL0 #	32					
14				WATER	891	891	891
15				HQ	354	1845	582
16				W.ACID	378	2223	236
17				KOH	868	4827	535
18				APP	1735	3353	1213
19				AQUA	651	5478	708
20				MICROS	22	5500	
21				WATER	0	5500	
22							
23							
24							
25							
26				WATER	1519	1519	1519
27				ACID	818	2338	511
28				KOH	1184	3522	811
29				WATER	0	3522	
30				UREA	978	4500	
31							
32							
33							
34				WATER	766	766	766
35				HQ	563	1329	343

**RecipeTrans.xls**

	A	B	C	D	E
1					
20	6-24-6 C	HQ		7	602
21	6-24-6 C	W. ACID		10	245
22	6-24-6 C	KOH		9	560
23	6-24-6 C	WAIT TIME		101	25
24	6-24-6 C	AGITATOR		50	
25	6-24-6 C	WAIT PROT		100	
26	6-24-6 C	WATER		11	645
27	6-24-6 C	APP		8	1222
28	6-24-6 C	MICRO		3	22
29	6-24-6 C	WAIT TIME		101	20
30	6-24-6 C	AQUA AMM		6	967
31	6-24-6 C	WAIT PROT		100	
32	6-24-6 C	WATER CHECK		102	5550
33	6-24-6 C	WAIT TIME		101	5
34	6-24-6 C	AGITATOR		50	
1443					
1444					
1445					
1446					
1447					
1448					

Microsoft Excel window showing a data table for batch processing.

START BATCHING

# of BATCHES

Present Batch

Material	Mcode	SetPoint
HQ	7	600
W. ACID	10	512
KOH	9	592
WAIT TIME	101	25
AGITATOR	50	
WAIT PROT	100	
WATER	11	476
APP	8	1239
MICRO	3	27
WAIT TIME	101	2
AQUA AMM	6	805
WAIT PROT	100	
WATER CHE	102	5550
WAIT TIME	101	5
AGITATOR	50	

# The Automatic System

Microsoft Excel

File Edit View Insert Format  
Tools Data Window Help

A25

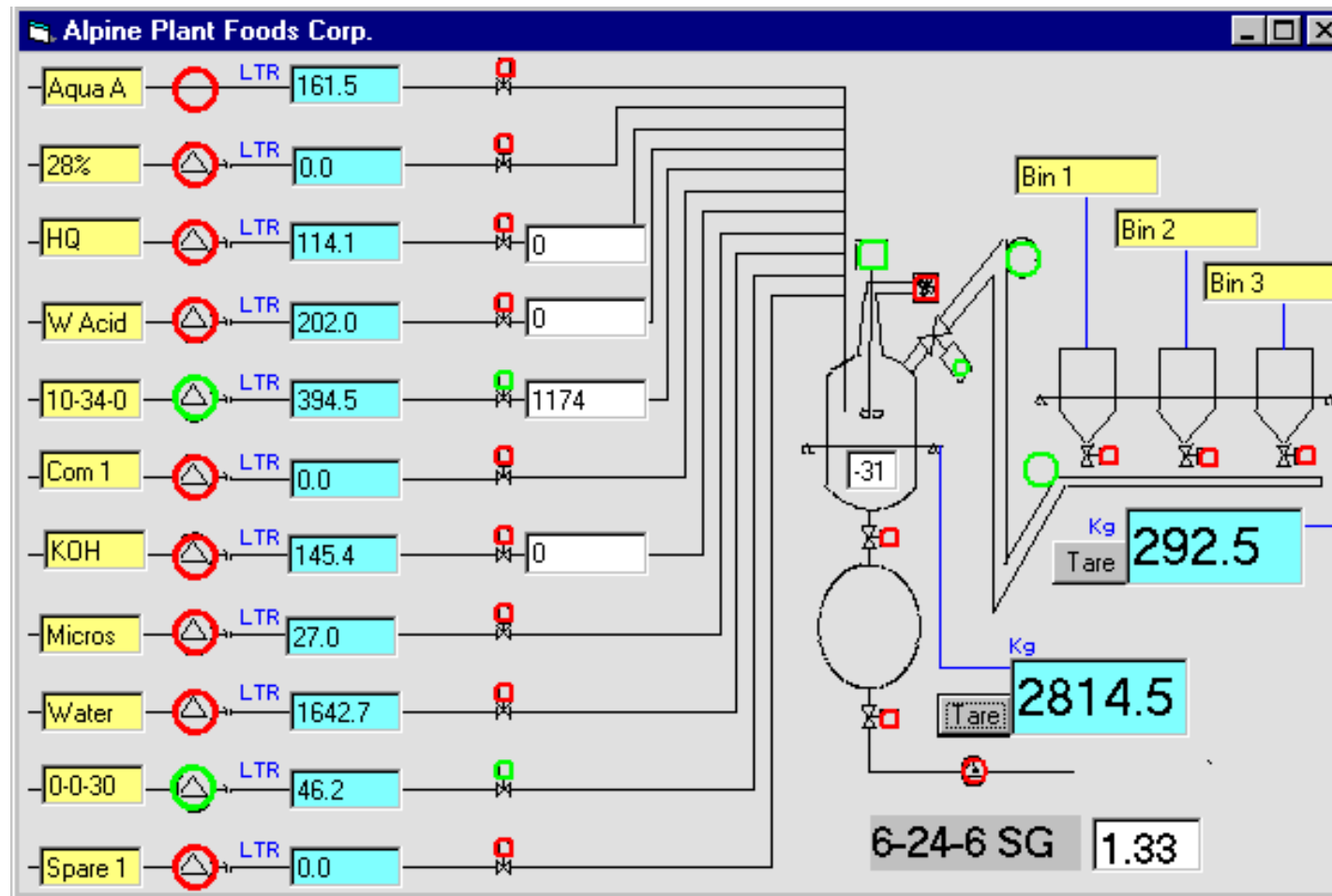
START BATCHING

# of BATCHES **25**

Present Batch **1**

Material	Mcode	SetPoint	Status
HQ	7	600	Started
W. ACID	10	512	Started
KOH	9	592	Started
WAIT TIME	101	25	3
AGITATOR	50		
WAIT PROT	100		
WATER	11	476	
APP	8	1239	
MICRO	3	27	
WAIT TIME	101	2	
AQUA AMM	6	805	
WAIT PROT	100		
WATER CHE	102	5550	
WAIT TIME	101	5	
AGITATOR	50		

Start Microsoft Excel

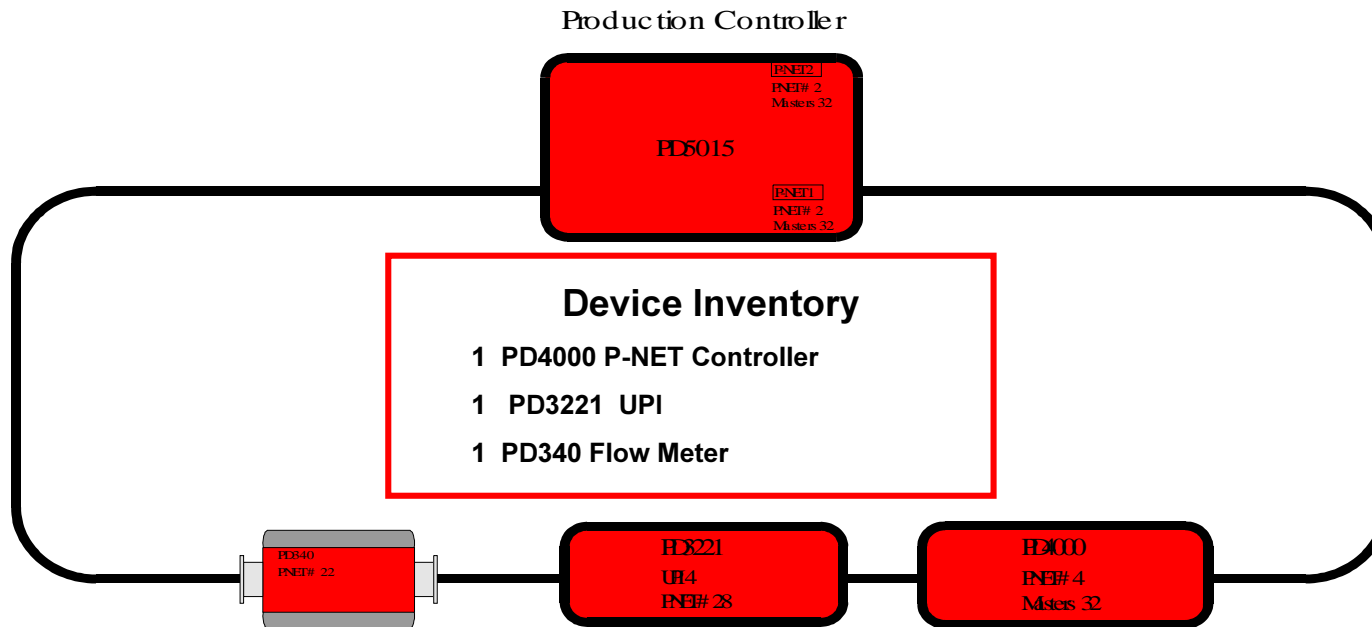


# Areas of Discussion

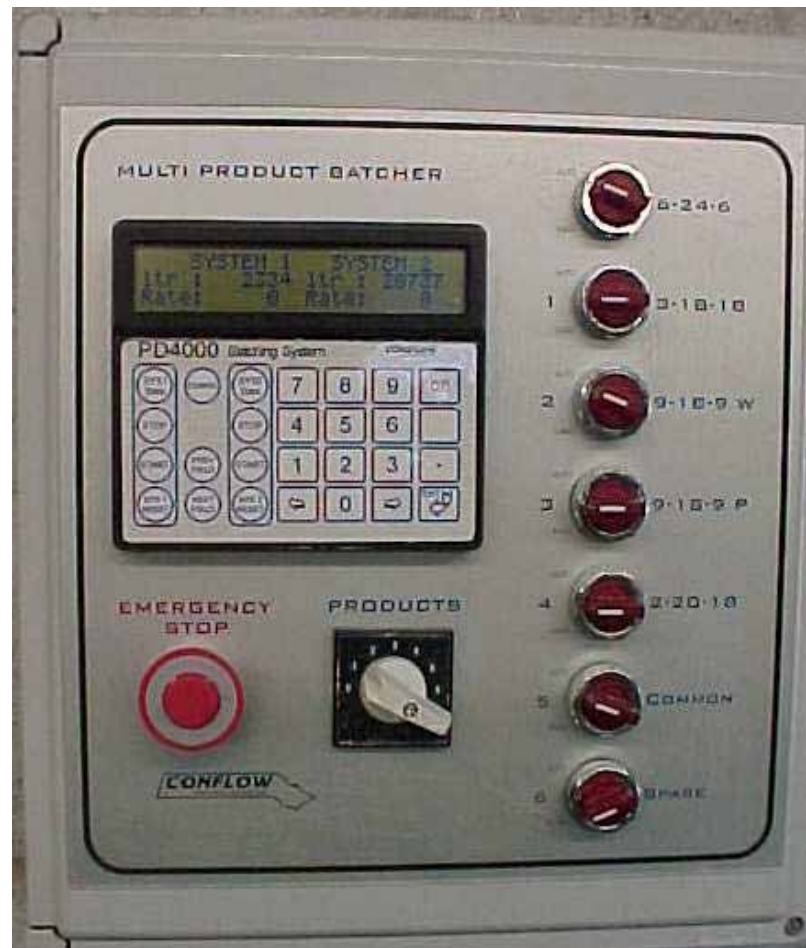


- The Production of Fertilizer
- The Loadout System

# P-NET Layout for Loadout



# Loadout System



# Tanker Loading



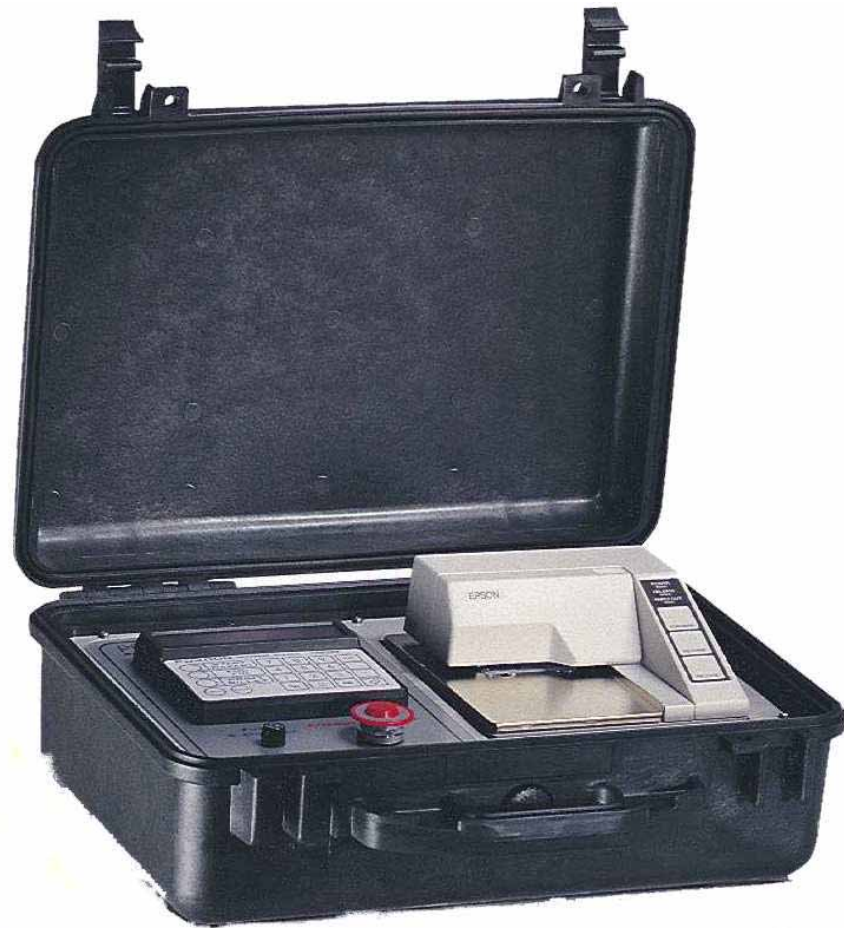
# Areas of Discussion



- The Production of Fertilizer
- The Loading of Trucks
- The Point of Sale



# The Legal-for-Trade System



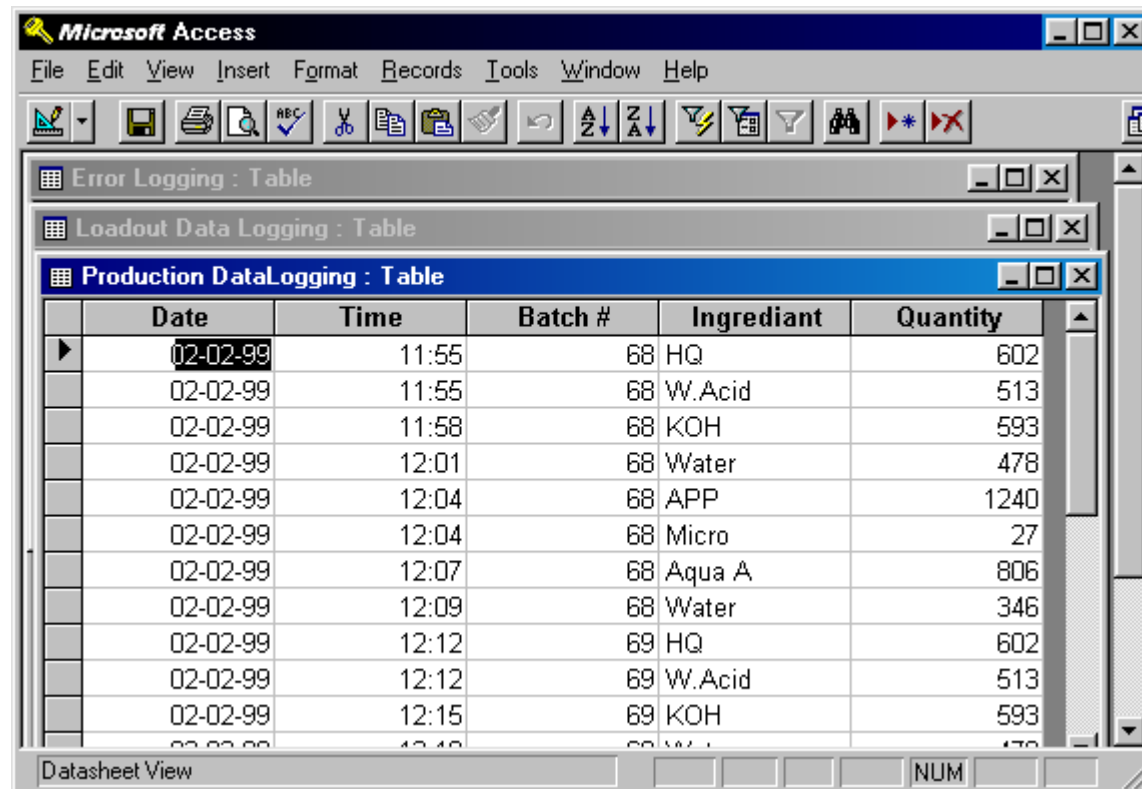
# Areas of Discussion



- The Production of Fertilizer
- The Loading of Trucks
- The Point of Sale
- Future Systems

# Future Systems

## ■ Data Logging

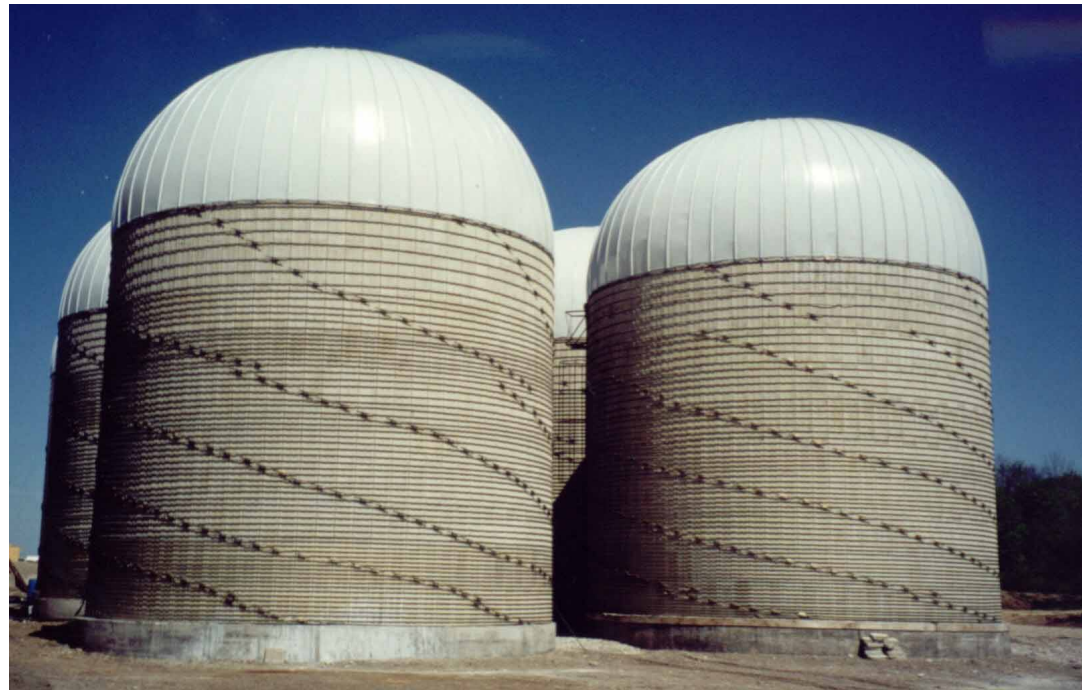


The screenshot shows the Microsoft Access interface with a table named 'Production DataLogging : Table' open in Datasheet View. The table contains the following data:

Date	Time	Batch #	Ingredient	Quantity
02-02-99	11:55	68	HQ	602
02-02-99	11:55	68	W.Acid	513
02-02-99	11:58	68	KOH	593
02-02-99	12:01	68	Water	478
02-02-99	12:04	68	APP	1240
02-02-99	12:04	68	Micro	27
02-02-99	12:07	68	Aqua A	806
02-02-99	12:09	68	Water	346
02-02-99	12:12	69	HQ	602
02-02-99	12:12	69	W.Acid	513
02-02-99	12:15	69	KOH	593
02-02-99	12:18	69	W.Acid	478

# Future Systems

- Data Logging
- Silo Inventory



# **What the Customer Received:**



- ✓ Increased Throughput
- ✓ Less Labour Intensive Process
- ✓ Compatible with Existing Excel Database
- ✓ Manual Backup System
- ✓ Ease of Expansion

# The Legal-for-Trade System

