6754 R-023-204 .15

URANYL NITRATE HEXAHYDRATE NEUTRALIZATION PROJECT

03/23/95

DOE-0734-95
DOE-FN EPAS
15
LETTER

6754

Department of Energy
Fernald Environmental Management Project
P. O. Box 398705
Cincinnati, Ohio 45239-8705
(513) 648-3155

MAR 23 1995

DOE-0734-95

Mr. James A. Saric, Remedial Project Director
U.S. Environmental Protection Agency
Region V - 5HRE-8J
77 W. Jackson Boulevard
Chicago, Illinois 60604-3590

Mr. Tom Schneider, Project Manager
Ohio Environmental Protection Agency
401 East 5th Street
Dayton, Ohio 45402-2911

Dear Mr. Saric and Mr. Schneider:

URANYL NITRATE HEXAHYDRATE NEUTRALIZATION PROJECT

Reference: Letter, Jack R. Craig to James A. Saric and Tom Schneider, "Revised Schedule for Uranyl Nitrate Hexahydrate Neutralization Project," dated February 10, 1995

As discussed in the referenced letter, an alternative plan has been developed to accelerate Uranyl Nitrate Hexahydrate (UNH) Neutralization Project operations at Fernald. Enclosure 1 provides a revised schedule that shows neutralization and filtering of UNH will be completed by November 27, 1995. This is four months sooner then the previous planned completion date provided by the referenced letter. Enclosure 2 provides a block flow diagram of the major project operation activities.

The changes to operations include the following:

- A change to the sequence of tank processing;
- Blending of UNH contents from two tanks for several batches;
- Concurrent tank processing once tank F1-25 has been modified to serve as a dilution\neutralization tank;
- Elimination of most temporary recylce piping installations due to installation of bottom discharges to the UNH storage tanks; and
- Other changes (a complete list is provided in Enclosure 3).

Recycled and Recyclable

Please note that the accelerated plan addresses the recent decision to begin in situ neutralization of six UNH storage tanks (F1-1, F1-2, F1-302, F1-303, F1-308, and SW CD Blend).

If you have any questions, please contact Chris White at (513) 648-3172.

Sincerely,

Jack R. Craig
Director

FN:White

Enclosures: As Stated

cc w/encs:

K. H. Chaney, EM-423/QO
D. R. Kozlowski, EM-423/QO
J. P. Hamric, DOE-OH
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R. D. George, FERMCO/52-2
R. Heck, FERMCO/76
D. Ofte, FERMCO/1
T. Patton, FERMCO/65-2
AR Coordinator, FERMCO

cc w/o encs:

J. Thiesing, FERMCO
M. Yates, FERMCO/9

ATTACHMENT 1

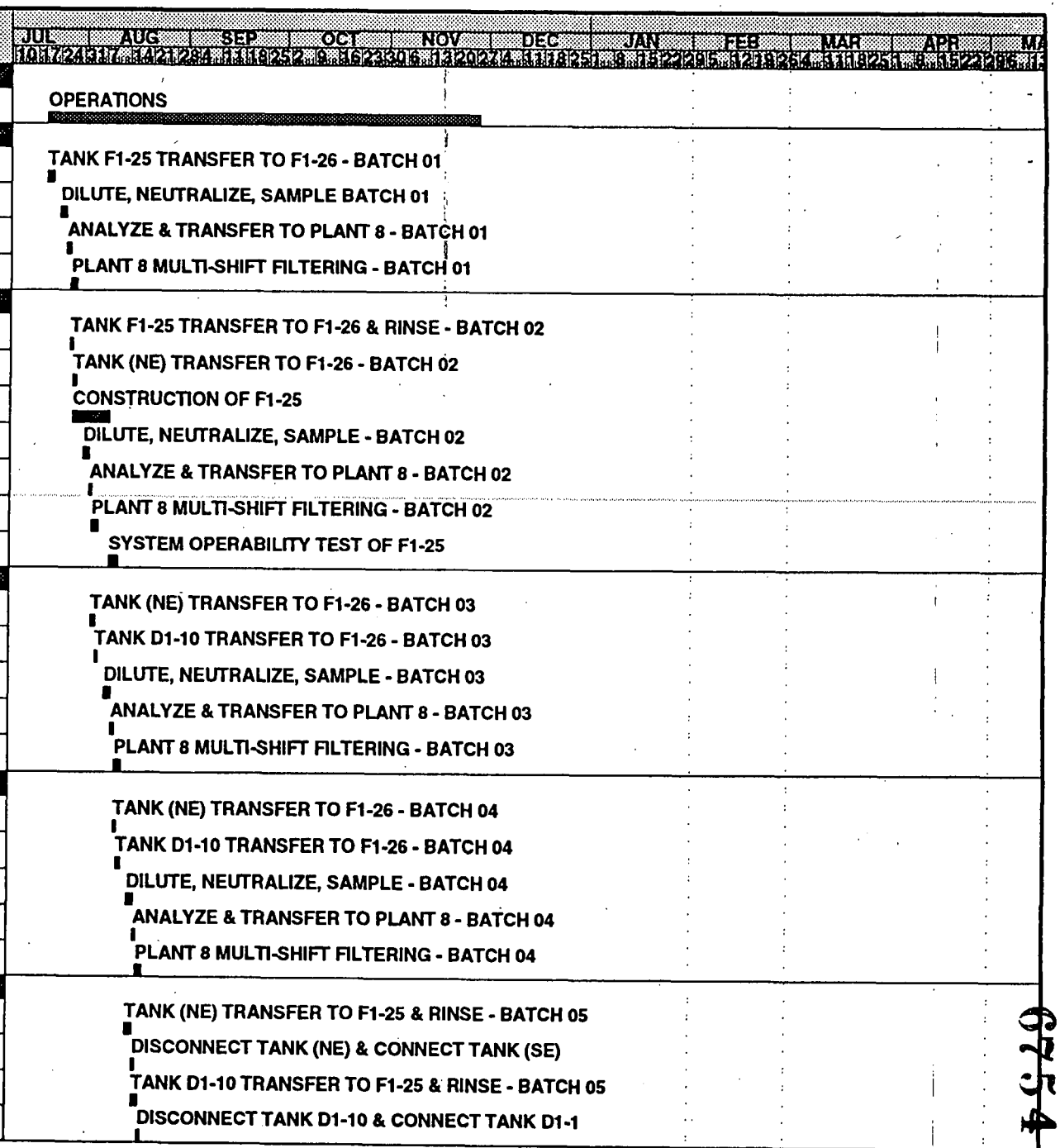
ASSUMPTIONS TO ACCELERATED UNH PROJECT SCHEDULE
MARCH 1995

1. All activities based on 5-day work week with holidays.

2. All activities prior to the startup of operations on July 20, 1995 are assumed to be as presented on the previous schedule issued on January 20, 1995 and; therefore, are not shown on the attached schedule.

3. Operational changes to accelerate processing are based on Attachment 3 information.

Activity ID	Original duration	Early start	Early finish	Late start	Late finish	Activity
HAMMOCK						
HAMMOCK	89*	20JUL95	27NOV95	20JUL95	27NOV95	OPERATIONS
BATCH 01						
7UNHN01005	2	20JUL95*	21JUL95	20JUL95*	21JUL95	TANK F1-25 TRANSFER TO F1-26 - BATCH 01
7UNHN01010	2	24JUL95	25JUL95	24JUL95	25JUL95	DILUTE, NEUTRALIZE, SAMPLE BATCH 01
7UNHN01015	1	26JUL95	26JUL95	26JUL95	26JUL95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 01
7UNHN01020	2	27JUL95	28JUL95	28AUG95	29AUG95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 01
BATCH 02						
7UNHN02005	1	27JUL95	27JUL95	27JUL95	27JUL95	TANK F1-25 TRANSFER TO F1-26 & RINSE - BATCH 02
7UNHN02030	1	28JUL95	28JUL95	28JUL95	28JUL95	TANK (NE) TRANSFER TO F1-26 - BATCH 02
CONST01	7	28JUL95	07AUG95	31JUL95	08AUG95	CONSTRUCTION OF F1-25
7UNHN02020	2	31JUL95	01AUG95	31JUL95	01AUG95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 02
7UNHN02040	1	02AUG95	02AUG95	02AUG95	02AUG95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 02
7UNHN02055	2	03AUG95	04AUG95	07AUG95	08AUG95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 02
SOT01	3	08AUG95	10AUG95	09AUG95	11AUG95	SYSTEM OPERABILITY TEST OF F1-25
BATCH 03						
7UNHN03010	1	03AUG95	03AUG95	03AUG95	03AUG95	TANK (NE) TRANSFER TO F1-26 - BATCH 03
7UNHN03005	1	04AUG95	04AUG95	04AUG95	04AUG95	TANK D1-10 TRANSFER TO F1-26 - BATCH 03
7UNHN03015	2	07AUG95	08AUG95	07AUG95	08AUG95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 03
7UNHN03020	1	09AUG95	09AUG95	09AUG95	09AUG95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 03
7UNHN03050	2	10AUG95	11AUG95	15AUG95	16AUG95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 03
BATCH 04						
7UNHN04005	1	10AUG95	10AUG95	10AUG95	10AUG95	TANK (NE) TRANSFER TO F1-26 - BATCH 04
7UNHN04000	1	11AUG95	11AUG95	11AUG95	11AUG95	TANK D1-10 TRANSFER TO F1-26 - BATCH 04
7UNHN04010	2	14AUG95	15AUG95	15AUG95	16AUG95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 04
7UNHN04015	1	16AUG95	16AUG95	17AUG95	17AUG95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 04
7UNHN04020	2	17AUG95	18AUG95	22AUG95	23AUG95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 04
BATCH 05						
7UNHN05000	2	14AUG95	15AUG95	14AUG95	15AUG95	TANK (NE) TRANSFER TO F1-25 & RINSE - BATCH 05
7UNHN05015	1	16AUG95	16AUG95	24AUG95	24AUG95	DISCONNECT TANK (NE) & CONNECT TANK (SE)
7UNHN05005	2	16AUG95	17AUG95	16AUG95	17AUG95	TANK D1-10 TRANSFER TO F1-25 & RINSE - BATCH 05
7UNHN05020	1	18AUG95	18AUG95	25AUG95	25AUG95	DISCONNECT TANK D1-10 & CONNECT TANK D1-1



Project Start 20OCT94
Project Finish 27NOV95
Data Date 31FEB95
Plot Date 16MAR95

Early Bar
Progress Bar
Critical Activity

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Sheet 1 of 6

FERMCO
ACCELERATED SCHEDULE
DETAIL OPERATION SCHEDULE

PREPARED BY WCC 16MAR95-0845

Date	Revision	Checked	Approved

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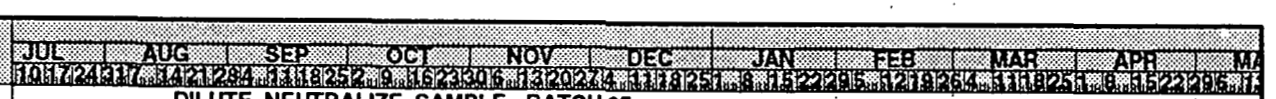
Activity ID	Original duration	Early start	Early finish	Late start	Late finish	Activity
7UNHN05010	2	18AUG95	21AUG95	22AUG95	23AUG95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 05
7UNHN05025	1	22AUG95	22AUG95	24AUG95	24AUG95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 05
7UNHN05030	2	23AUG95	24AUG95	28AUG95	29AUG95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 05
BATCH 06, 07						
7UNHN06000	2	18AUG95	21AUG95	18AUG95	21AUG95	TANK F1-2 TRANSFER TO F1-26 & RINSE-BATCH 06,07
7UNHN06005	1	22AUG95	22AUG95	22AUG95	22AUG95	DISCONNECT TANK F1-2 & CONNECT F1-1
7UNHN07000	2	23AUG95	24AUG95	23AUG95	24AUG95	TANK F1-1 TRANSFER TO F1-26 - BATCH 06, 07
7UNHN07003	1	25AUG95	25AUG95	29AUG95	29AUG95	TRANSFER TO PLANT 8 - BATCH 06, 07
7UNHN07005	2	28AUG95	29AUG95	30AUG95	31AUG95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 06,07
BATCH 08						
7UNHN08010	1	25AUG95	25AUG95	25AUG95	25AUG95	TANK (SE) TRANSFER TO F1-25- BATCH 08
7UNHN08110	2	28AUG95	29AUG95	28AUG95	29AUG95	TANK D1-1 TRANSFER TO F1-25 & RINSE - BATCH 08
7UNHN08115	1	30AUG95	30AUG95	05SEP95	05SEP95	DISCONNECT TANK D1-1 & START PUMP J-105 MOVE
7UNHN08020	2	30AUG95	31AUG95	30AUG95	31AUG95	DILUTE, NEUTRALIZE, SAMPLE -BATCH 08
7UNHN08030	1	01SEP95	01SEP95	01SEP95	01SEP95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 08
7UNHN08035	2	05SEP95	06SEP95	05SEP95	06SEP95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 08
BATCH 09						
7UNHNJ0510	5	31AUG95	07SEP95	06SEP95	12SEP95	MOVE PUMP J-105(FROM TANK D1-1 TO TANK F1-301)
7UNHN09005	1	30AUG95	30AUG95	31AUG95	31AUG95	TANK (SE) TRANSFER TO F1-26 - BATCH 09
7UNHN09115	1	31AUG95	31AUG95	01SEP95	01SEP95	TANK F3E-220 TRANSFER TO F1-26 - BATCH 09
7UNHN09020	2	01SEP95	05SEP95	05SEP95	06SEP95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 09
7UNHN09025	1	07SEP95	07SEP95	07SEP95	07SEP95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 09
7UNHN09030	2	08SEP95	11SEP95	08SEP95	11SEP95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 09
BATCH 10						
7UNHN10005	1	05SEP95	05SEP95	07SEP95	07SEP95	TANK (SE) TRANSFER TO F1-25 - BATCH 10
7UNHN10015	2	06SEP95	07SEP95	08SEP95	11SEP95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 10
7UNHN10030	1	12SEP95	12SEP95	12SEP95	12SEP95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 10
7UNHN10035	2	13SEP95	14SEP95	14SEP95	15SEP95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 10
BATCH 11						
7UNHN11005	1	08SEP95	08SEP95	12SEP95	12SEP95	TANK (SW) TRANSFER TO F1-26 - BATCH 11
7UNHN11010	2	11SEP95	12SEP95	14SEP95	15SEP95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 11
7UNHN11015	1	15SEP95	15SEP95	18SEP95	18SEP95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 11



Project Start	20OCT94	Early Bar
Project Finish	27NOV95	Progress Bar
Data Date	21FEB95	Critical Activity
Plot Date	16MAR95	

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ACCELERATED SCHEDULE

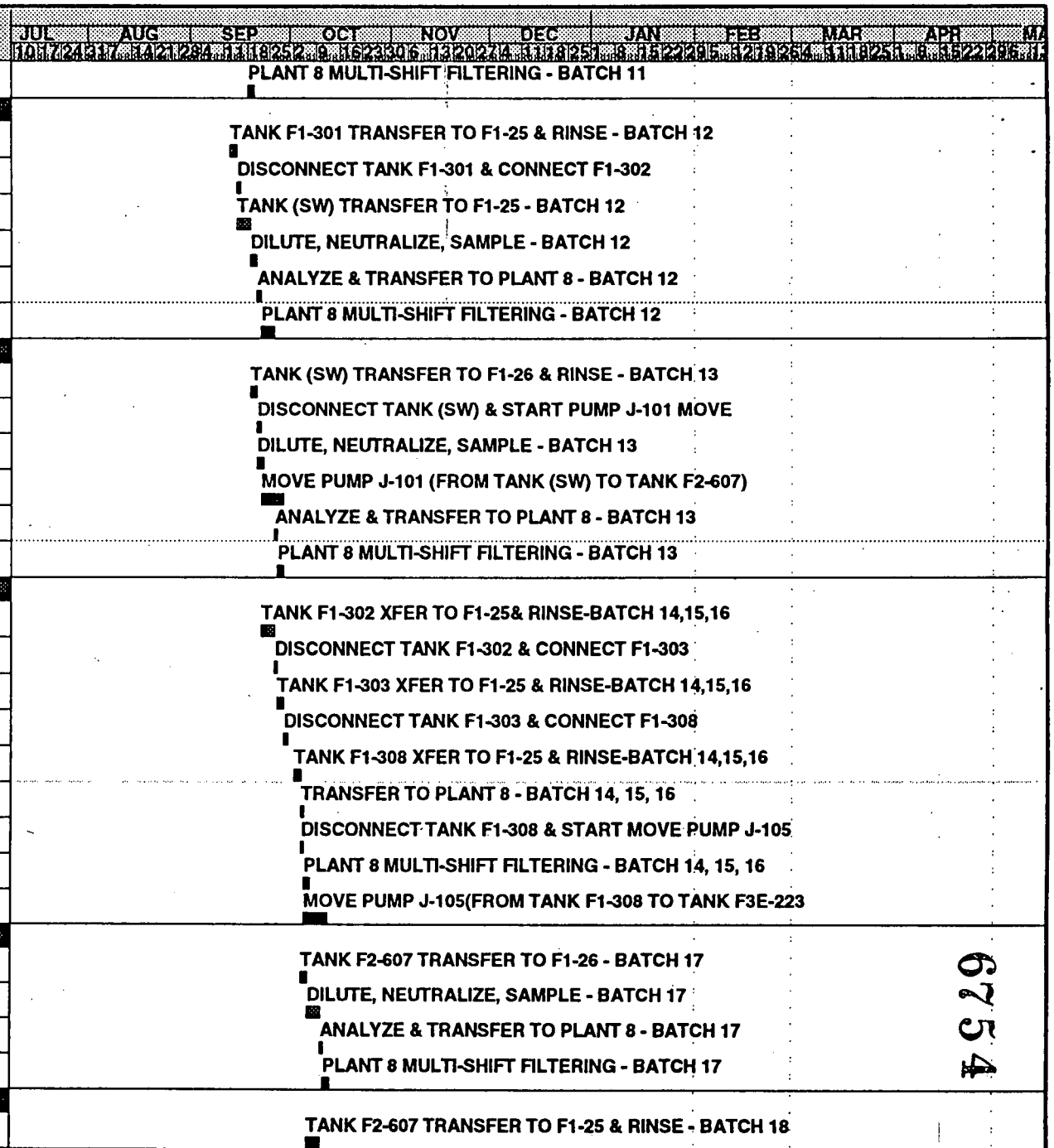
DETAIL OPERATION SCHEDULE

PREPARED BY WCC 16MAR95-0945

Date	Revision	Checked	Approved

6754

Activity ID	Original duration	Early start	Early finish	Late start	Late finish	Activity
7UNHN11020	2	18SEP95	19SEP95	19SEP95	20SEP95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 11
BATCH 12						
7UNHN12017	2	13SEP95	14SEP95	13SEP95	14SEP95	TANK F1-301 TRANSFER TO F1-25 & RINSE - BATCH 12
7UNHN12125	1	15SEP95	15SEP95	21SEP95	21SEP95	DISCONNECT TANK F1-301 & CONNECT F1-302
7UNHN12005	2	15SEP95	18SEP95	15SEP95	18SEP95	TANK (SW) TRANSFER TO F1-25 - BATCH 12
7UNHN12015	2	19SEP95	20SEP95	19SEP95	20SEP95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 12
7UNHN12025	1	21SEP95	21SEP95	21SEP95	21SEP95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 12
7UNHN12030	2	22SEP95	25SEP95	28SEP95	29SEP95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 12
BATCH 13						
7UNHN13005	2	19SEP95	20SEP95	20SEP95	21SEP95	TANK (SW) TRANSFER TO F1-26 & RINSE - BATCH 13
7UNHN13015	1	21SEP95	21SEP95	26SEP95	26SEP95	DISCONNECT TANK (SW) & START PUMP J-101 MOVE
7UNHN13020	2	21SEP95	22SEP95	28SEP95	29SEP95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 13
7UNHNJ0110	5	22SEP95	28SEP95	27SEP95	03OCT95	MOVE PUMP J-101 (FROM TANK (SW) TO TANK F2-607)
7UNHN13030	1	26SEP95	26SEP95	02OCT95	02OCT95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 13
7UNHN13035	2	27SEP95	28SEP95	03OCT95	04OCT95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 13
BATCH 14, 15, 16						
7UNHN14010	2	22SEP95	25SEP95	22SEP95	25SEP95	TANK F1-302 XFER TO F1-25& RINSE-BATCH 14,15,16
7UNHN14020	1	26SEP95	26SEP95	26SEP95	26SEP95	DISCONNECT TANK F1-302 & CONNECT F1-303
7UNHN14015	2	27SEP95	28SEP95	27SEP95	28SEP95	TANK F1-303 XFER TO F1-25 & RINSE-BATCH 14,15,16
7UNHN14030	1	29SEP95	29SEP95	29SEP95	29SEP95	DISCONNECT TANK F1-303 & CONNECT F1-308
7UNHN14033	2	02OCT95	03OCT95	02OCT95	03OCT95	TANK F1-308 XFER TO F1-25 & RINSE-BATCH 14,15,16
7UNHN14035	1	04OCT95	04OCT95	05OCT95	05OCT95	TRANSFER TO PLANT 8 - BATCH 14, 15, 16
7UNHN14037	1	04OCT95	04OCT95	05OCT95	05OCT95	DISCONNECT TANK F1-308 & START MOVE PUMP J-105
7UNHN14040	2	05OCT95	06OCT95	06OCT95	09OCT95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 14, 15, 16
7UNHNJ0520	5	05OCT95	11OCT95	06OCT95	12OCT95	MOVE PUMP J-105(FROM TANK F1-308 TO TANK F3E-223
BATCH 17						
7UNHN17005	2	04OCT95	05OCT95	04OCT95	05OCT95	TANK F2-607 TRANSFER TO F1-26 - BATCH 17
7UNHN17010	2	06OCT95	09OCT95	06OCT95	09OCT95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 17
7UNHN17015	1	10OCT95	10OCT95	10OCT95	10OCT95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 17
7UNHN17020	2	11OCT95	12OCT95	11OCT95	12OCT95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 17
BATCH 18						
7UNHN18005	2	06OCT95	09OCT95	09OCT95	10OCT95	TANK F2-607 TRANSFER TO F1-25 & RINSE - BATCH 18



Project Start	20OCT94	Early Bar
Project Finish	27NOV95	Progress Bar
Data Date	21FEB95	Critical Activity
Plot Date	16MAR95	

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ACCELERATED SCHEDULE

DETAIL OPERATION SCHEDULE

PREPARED BY WCC 16MAR95-0945

Date	Revision	Checked	Approved

6754

Activity ID	Original duration	Early start	Early finish	Late start	Late finish	
7UNHN18015	1	10OCT95	10OCT95	11OCT95	11OCT95	DISCONNECT TANK F2-607 & CONNECT F2-608
7UNHN18020	2	10OCT95	11OCT95	11OCT95	12OCT95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 18
7UNHN18025	1	13OCT95	13OCT95	13OCT95	13OCT95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 18
7UNHN18030	2	16OCT95	17OCT95	16OCT95	17OCT95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 18
BATCH 19						
7UNHN19005	1	11OCT95	11OCT95	12OCT95	12OCT95	TANK F2-608 TRANSFER TO F1-26 - BATCH 19
7UNHN19010	1	12OCT95	12OCT95	13OCT95	13OCT95	TANK F3E-223 TRANSFER TO F1-26 - BATCH 19
7UNHN19015	2	13OCT95	16OCT95	16OCT95	17OCT95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 19
7UNHN19020	1	18OCT95	18OCT95	18OCT95	18OCT95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 19
7UNHN19025	2	19OCT95	20OCT95	19OCT95	20OCT95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 19
BATCH 20						
7UNHN20000	2	16OCT95	17OCT95	16OCT95	17OCT95	TANK F2-608 TRANSFER TO F1-25 & RINSE - BATCH 20
7UNHN20005	1	18OCT95	18OCT95	18OCT95	18OCT95	TANK F3E-223 TRANSFER TO F1-25 - BATCH 20
7UNHN20010	1	18OCT95	18OCT95	19OCT95	19OCT95	DISCONNECT TANK F2-608 & CONNECT F2-605
7UNHN20015	2	19OCT95	20OCT95	19OCT95	20OCT95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 20
7UNHN20020	1	23OCT95	23OCT95	23OCT95	23OCT95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 20
7UNHN20025	2	24OCT95	25OCT95	24OCT95	25OCT95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 20
BATCH 21						
7UNHN21005	1	19OCT95	19OCT95	20OCT95	20OCT95	TANK F2-605 TRANSFER TO F1-26 - BATCH 21
7UNHN21010	1	20OCT95	20OCT95	23OCT95	23OCT95	TANK F3E-223 TRANSFER TO F1-26 - BATCH 21
7UNHN21015	2	23OCT95	24OCT95	24OCT95	25OCT95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 21
7UNHN21020	1	26OCT95	26OCT95	26OCT95	26OCT95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 21
7UNHN21025	2	27OCT95	30OCT95	30OCT95	31OCT95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 21
BATCH 22						
7UNHN22000	1	24OCT95	24OCT95	25OCT95	25OCT95	TANK F2-605 TRANSFER TO F1-25 - BATCH 22
7UNHN22005	1	25OCT95	25OCT95	26OCT95	26OCT95	TANK F3E-223 TRANSFER TO F1-25 - BATCH 22
7UNHN22010	2	26OCT95	27OCT95	30OCT95	31OCT95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 22
7UNHN22015	1	31OCT95	31OCT95	01NOV95	01NOV95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 22
7UNHN22020	2	01NOV95	02NOV95	02NOV95	03NOV95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 22
BATCH 23						
7UNHN23000	2	27OCT95	30OCT95	27OCT95	30OCT95	TANK F2-605 TRANSFER TO F1-26 & RINSE - BATCH 23
7UNHN23010	1	31OCT95	31OCT95	02NOV95	02NOV95	DISCONNECT TANK F2-605 & CONNECT 606

Project Start	20OCT94	Early Bar
Project Finish	27NOV96	Progress Bar
Data Date	21FEB96	Critical Activity
Plot Date	16MAR96	

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ACCELERATED SCHEDULE

DETAIL OPERATION SCHEDULE

PREPARED BY WCC 16MAR96-0846

Date	Revision	Checked	Approved

6754

Activity ID	Original duration	Early start	Early finish	Late start	Late finish	
7UNHN23005	2	31OCT95	01NOV95	31OCT95	01NOV95	TANK F3E-223 TRANSFER TO F1-26 - BATCH 23
7UNHN23015	2	02NOV95	03NOV95	02NOV95	03NOV95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 23
7UNHN23020	1	06NOV95	06NOV95	06NOV95	06NOV95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 23
7UNHN23025	2	07NOV95	08NOV95	07NOV95	08NOV95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 23
BATCH 24						
7UNHN24005	1	01NOV95	01NOV95	03NOV95	03NOV95	TANK F2-606 TRANSFER TO F1-25 - BATCH 24
7UNHN24010	1	02NOV95	02NOV95	06NOV95	06NOV95	TANK F3E-223 TRANSFER TO F1-25 - BATCH 24
7UNHN24015	2	03NOV95	06NOV95	07NOV95	08NOV95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 24
7UNHN24020	1	09NOV95	09NOV95	09NOV95	09NOV95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 24
7UNHN24025	2	13NOV95	14NOV95	14NOV95	15NOV95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 24
BATCH 25						
7UNHN25000	1	07NOV95	07NOV95	08NOV95	08NOV95	TANK F2-606 TRANSFER TO F1-26 - BATCH 25
7UNHN25005	1	08NOV95	08NOV95	09NOV95	09NOV95	TANK F3E-223 TRANSFER TO F1-26 - BATCH 25
7UNHN25010	2	09NOV95	13NOV95	14NOV95	15NOV95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 25
7UNHN25015	1	15NOV95	15NOV95	16NOV95	16NOV95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 25
7UNHN25020	2	16NOV95	17NOV95	17NOV95	20NOV95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 25
BATCH 26						
7UNHN26000	2	13NOV95	14NOV95	13NOV95	14NOV95	TANK F2-606 TRANSFER TO F1-25 & RINSE - BATCH 26
7UNHN26010	1	15NOV95	15NOV95	22NOV95	22NOV95	DISCONNECT TANK F2-606 - BATCH 26
7UNHN26005	2	15NOV95	16NOV95	15NOV95	16NOV95	TANK F3E-223 TRANSFER TO F1-25& RINSE - BATCH 26
7UNHN26015	1	17NOV95	17NOV95	27NOV95	27NOV95	DISCONNECT TANK F3E-223 - BATCH 26
7UNHN26020	2	17NOV95	20NOV95	17NOV95	20NOV95	DILUTE, NEUTRALIZE, SAMPLE - BATCH 26
7UNHN26025	1	21NOV95	21NOV95	21NOV95	21NOV95	ANALYZE & TRANSFER TO PLANT 8 - BATCH 26
7UNHN26030	2	22NOV95	27NOV95	22NOV95	27NOV95	PLANT 8 MULTI-SHIFT FILTERING - BATCH 26

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Project Start	20OCT94	Early Bar
Project Finish	27NOV96	Progress Bar
Data Date	21FEB96	Critical Activity
Plot Date	16MAR96	

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FERMCO

ACCELERATED SCHEDULE

DETAIL OPERATION SCHEDULE

PREPARED BY WCC 16MAR96-0845

Date	Revision	Checked	Approved

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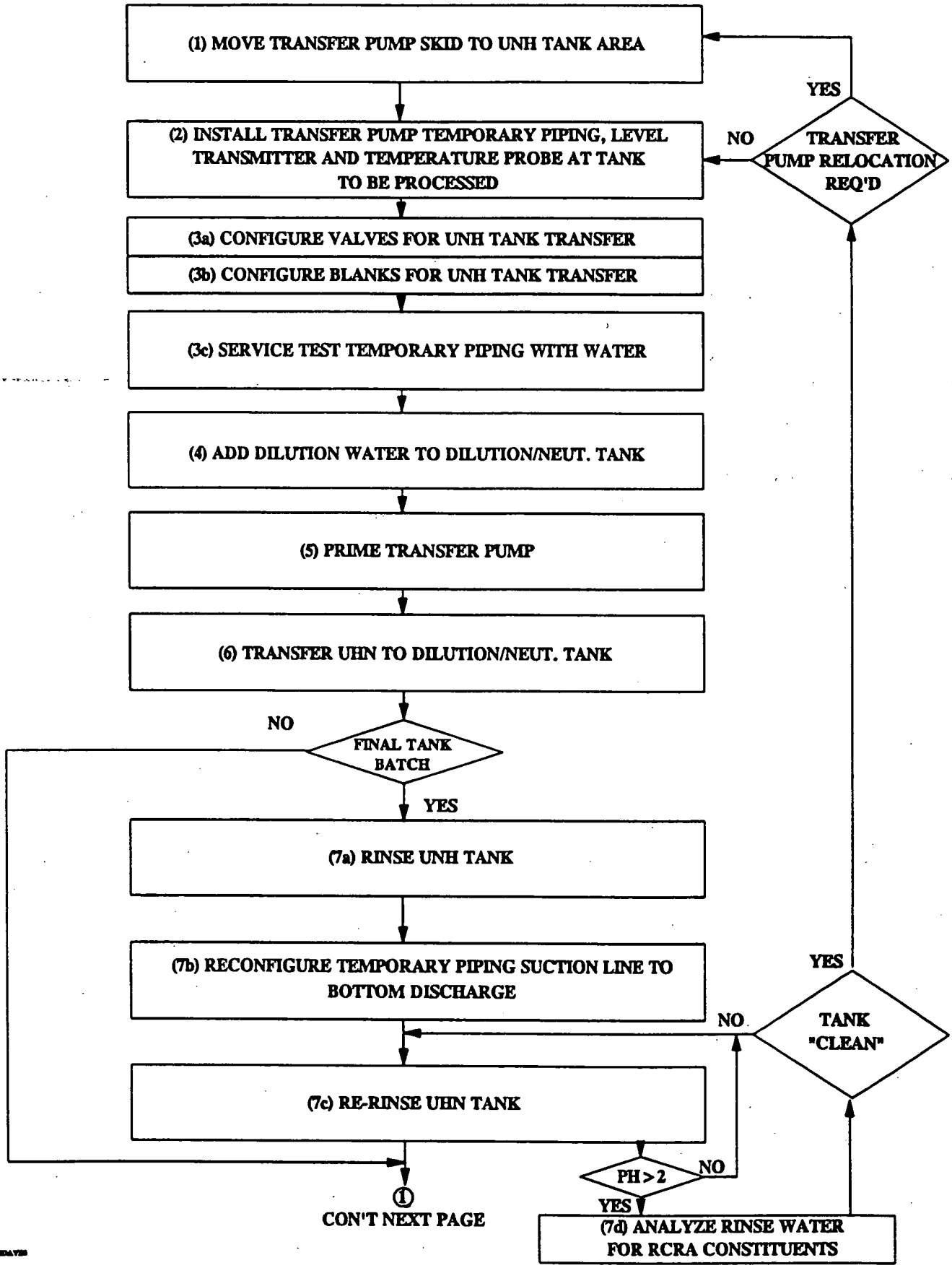
ATTACHMENT 2

CURRENT BLOCK FLOW DIAGRAM OF MAJOR PROJECT OPERATION ACTIVITIES



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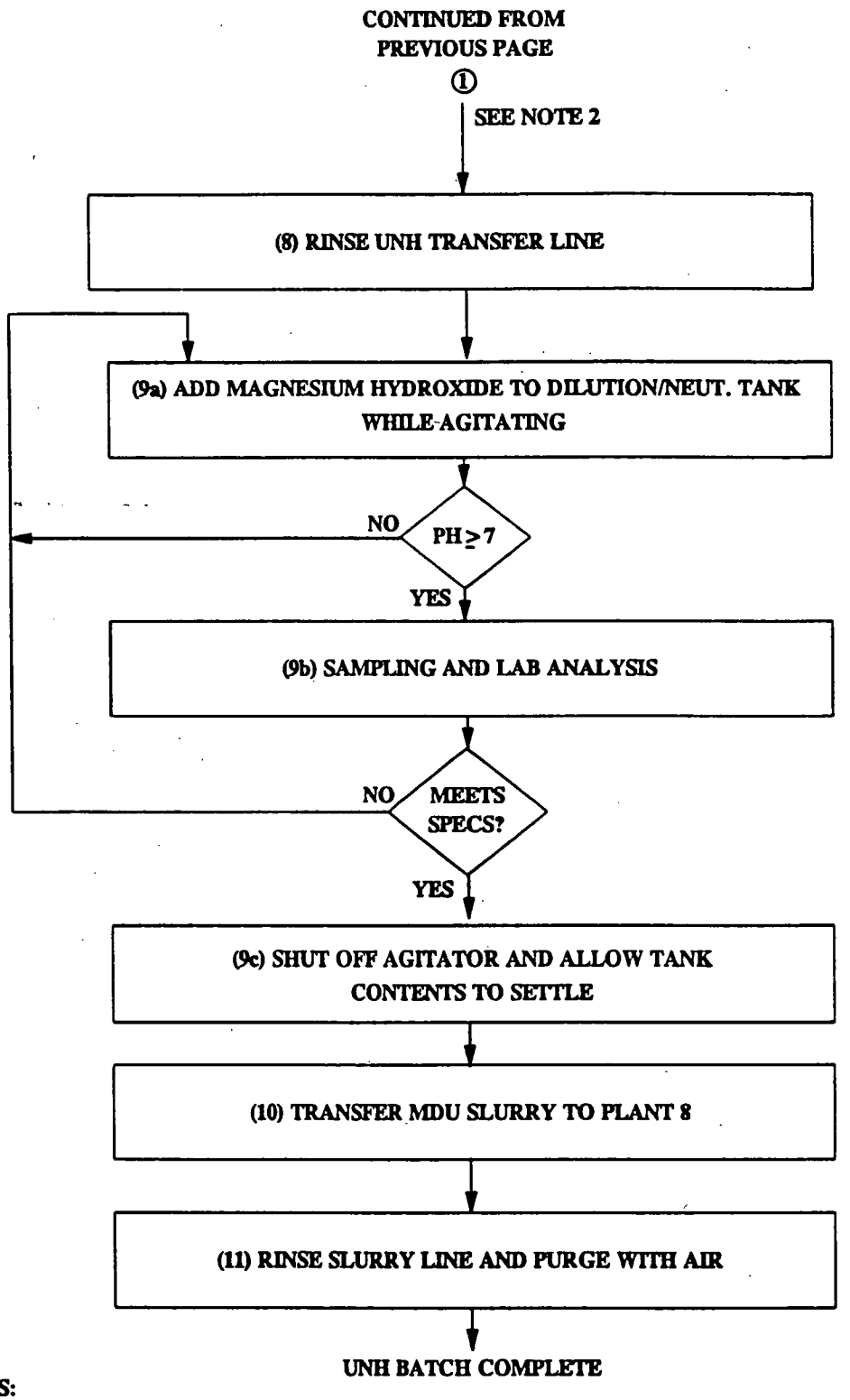

NOTES:

1. (#) = STEP NUMBER
2. PROCESSING OF A BATCH WILL CONTINUE ASSUMING THAT RINSE WATER IS "CLEAN". IF ANALYSIS INDICATES NOT "CLEAN", A DECISION WILL BE MADE TO RE-RINSE TANK THE FOLLOWING DAY OR CONTINUE WITH PUMP AND/OR TEMPORARY PIPING RELOCATION AND RE-RINSE TANK AT A LATER TIME.

ATTACHMENT 3

FIGURE 8 - SUMMARY OF PROPOSED SCHEDULE REDUCTION MEASURES
(Reference Figure 1)

CURRENT PROCESSING ACTIVITY	PROPOSED OPERATING TIME SCHEDULE REDUCTION
Step 1 - Move Transfer Pump Skid to UNH Tank	
• A schedule of tank processing was agreed to with Ohio EPA. The purpose was to address perceived critical leaking tanks first. This requires the transferred pumps to be relocated a total of five times.	• Recent repairs to leaks has lessened this concern. Therefore, process all tanks in a given area before moving transfer pump to next area. This will reduce pump movements to four. Also, the transfer pump will be kept in one location during processing of all tanks in a given area. Because of other changes detailed below, only minimal additional hose will be needed to allow the pump to remain in one location in each of these areas. This will further reduce the number of pump movements to three (See Proposed Batch Sheet - Figure 6 attached).
Step 2 - Install Transfer Pump Temporary Piping, Level Transmitters, and Temperature Probes at Tank to be Processed	
• Suction piping consists of a dip tube to suction tank contents from the top of each tank, hard piping to route and adequately support the pipeline across the top of the tank and existing pipe racks etc., and then mostly flexible hosing combined with hard piping as necessary to route the piping to the transfer pump.	• Bottom discharge piping will be installed on all tanks prior to startup. While this is a time consuming process, it can be achieved while scheduled ongoing pump, and piping inspections and changes are being performed. Therefore, when processing begins, the schedule will be significantly reduced because suction dip tubes will no longer be required and therefore the need for and use of hard piping will be minimized, if not essentially eliminated. Most, if not all, temporary piping hookups will be provided by hoses laid on or near ground level.
• A recycle pipe line is provided to agitate tanks in order to help loosen up solids in the bottom of each tank so that they can be removed by the suction dip tube. The recycle pipeline consists of a dip tube plus similar piping as described above for the suction piping.	• With change to bottom discharge, solids will be more easily removed. Therefore, recycle piping can be eliminated - a reduction in temporary piping installation effort of essentially one-half!
• Hookup of top suction and recycle piping requires a significant quantity of hose, pipe, and fittings.	• Decision to eliminate recycle piping will make available sufficient hose, pipe fittings, and electric heat tracing to allow setup of suction piping on the next scheduled tank to begin while two tanks are hooked up for processing. This will allow a "leap-frogging" of the temporary piping systems. Also, as soon as the temporary piping to a small tank is installed by maintenance, an operations crew will immediately transfer the tank to the second (standby) dilution/neutralization tank, and rinse the tank. This will allow the maintenance crew to begin as rapidly as possible to disconnect the piping and continue with the "leap-frogging" of the temporary piping (i.e., the maintenance crew will continuously move piping with minimal, if any down time).
Steps 3 thru 14 - Processing of a Batch	
• One batch will be completely processed before a second batch is prepared for processing.	• Parallel processing will occur through use of both Dilution/Neutralization Tanks F1-25 and F1-26. This, when combined with other changes noted below, will allow operation steps to occur in parallel; significantly reducing schedule time. Staff will be increased at Plant 2/3 and 8, as necessary, to allow operating steps to occur concurrently.

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• Operations personnel will need to become proficient on all steps of operation.	• Plant 2/3 operations personnel will be divided between two groups. One group will focus on the UNH transfer operation and rinsing of empty storage tanks (Steps 3-8). The second group will perform the dilution/neutralization operation and transfer of MDU slurry to Plant 9 (Steps 9-11). Therefore, each group will only need to become proficient on their half of processing. This should make each group more efficient.
Step 3a and 3b - Configure Valves and Blanks for UNH Tank Transfer	
• Current operating scheme has three locations where blanks must be installed and removed on numerous batches. Operation must stop while maintenance installs these blanks and then operations must service test their installation (Step 3b) each time they are installed or removed.	• Two new valves will be installed in the pipeline header system as shown schematically on Figure 4. This will allow for use of either dilution/neutralization Tank F1-25 or Tank F1-26 as required. Note - the Plant 2/3 area tanks will be processed first after which a permanent blind flange will be installed at the header takeoff from the Plant 2/3 area.
Step 3c - Service Test Temporary Piping with Water	
• Service Testing would be required on both the suction and discharge piping. As each of the two piping lines have dip tubes, a blank would need to be installed at the connection of each dip tube in order to perform the service testing. The blanks would need to be removed again before processing begins. This will leave one joint in each line untested.	• Decision to use bottom tank discharges will eliminate need to install blanks, test, and then subsequently removed blanks before operation.
Step 4 - Add Dilution Water to Dilution/Neutralization Tank	
• Processing requires that the normality of the nitric acid be reduced to less than 1. The current processing scheme calls for water to be returned from Plant 8 (filtrate water) to achieve this dilution.	• Dilution water will be provided by leaving decant supernatant from previous neutralized batch in dilution/neutralization tank. Need for filtrate return effort will be eliminated.
• Current processing allows only one tank to be processed at a time. Therefore, on the smaller tanks (1500-3000 gallons ±), significant quantities of water are added to get the dilution/neutralization tank up to a minimum level for the agitator to work properly. After neutralizing, this excess water will be transferred to Plant 8.	• Operations will be revised to have a large tank hooked up each time a small tank is processed. Sufficient volume of a large tank will be added to "top off" each batch. This will reduce need for excessive dilution water.
• Makeup water is heated by steam injection to raise batch temperature to 50°F.	• The heating of makeup water will be deleted because makeup water will no longer be required. Dilution water will be provided from previous batch decant supernatant. Remains of previous batch will already be at or above 50°F.
Step 5 - Prime Transfer Pump	
• Because of the top suction of pump intake from each tank, water must be injected into the piping in order to set up the proper inverted siphon arrangement to initiate tank transfer.	• Taking suction off bottom of tanks will essentially eliminate this step as priming with UNH will occur by gravity automatically when pump suction valving is opened.
Step 6 - Transfer UNH to Dilution/Neutralization Tank	
• One tank is planned to be processed at a time. When tank is transferred, a batch is ready to be processed.	• All batches will be made up of material from two tanks. Because of the two tanks per batch, additional time will be needed to perform the second transfer (Note - rinse time remains same). However, by splitting operations into two groups, thereby allowing transfers to occur independently of processing, actual schedule time will be significantly reduced.

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Step 7a - Rinse UNH Tank	
• After suctioning most of tank contents (i.e., top dip tube will allow a heel to exist in the bottom of each tank) a rinse/dilution of the remaining contents is required to make sure the pH of the remaining contents is greater than pH 2 and, because workers may be exposed to this water in the succeeding processing step, preferable closer to a neutral pH.	• Use of bottom discharges will eliminate the heel from existing in each tank and will, therefore, allow rinsing to occur more quickly.
Step 7b - Reconfigure Temporary Piping Suction Line to Bottom Discharge	
• Maintenance must relocate suction piping to the bottom of each tank after Step 7a is completed in order to adequately flush out the lower portion of the tank and associated piping.	• Preparing all tank for bottom discharge prior to startup will eliminate the need to perform this step during operations.
Step 7c - Rerinse UNH Tank	
• After the pump suction is moved from top to bottom, tank must be re-rinsed to flush bottom piping.	• This repeat rinse is eliminated. Besides saving schedule time, this change will reduce quantity of wastewater generated.
Step 8: Rinse UNH Transfer Line **Step 9a:** Add Magnesium Hydroxide to Dilution/Neutralization Tank while Agitating **Step 9b:** Sampling and Lab Analysis **Step 9c:** Shut Off Agitator and Allow Tank Contents to Settle	
• Only one tank is currently planned to be processed at a time. Therefore, other operations will be shut down while these operations are being performed.	• Parallel processing will allow one operations crew to perform steps 3 thru 8 while a second crew is performing steps 9 thru 11. The net effect will allow significant schedule reduction.
Step 10 - Transfer MDU Slurry to Plant 8	
• Because only one tank will be processed at a time, much of the volume from each small tank batch transferred to Plant 8 will be liquid containing minimal solids.	• Mixing of a quantity of material from a large tank to make a "full" tank of UNH will eliminate extra water addition need. Also, OK liquor tank currently requires significant dilution water to get uranium level < 100 g/l. By blending OK tank with NFS tanks, this extra dilution water need will be eliminated.
• Current processing assumes that all solution produced in a batch will be removed prior to beginning a subsequent batch.	• Only decanted solids layer will be pumped to Plant 8. Recanted supernatant left will become dilution water for next batch. This will reduce pumping time to Plant 8 and will subsequently reduce processing time in Plant 8.
Step 11 - Rinse Slurry Line and Purge with Air	
• No change this step.	• No change this step.

Plant 8 Processing	
• A batch approximately 5,000 to 18,000 gallons - (see current batch sheet Figure 2, Total column) will be processed one shift a day for 2 to 6 days (estimated rate = 3,000 gal. per shift).	• Leaving some decant water from each batch as makeup for next batch will reduce the loading to Plant 8 to less than 12,000 gallons per batch. Additional staff will be used in Plant 8 to expedite the MDU slurry filtering. Instead of taking 3 to 6 days of single shift work to process a bach in a given week, sufficient staff will be made available to process a batch in 2 days of double shift work. Note - this may not actually require a significant increase in staff as steps are underway to divert existing wastewater away from Plant 8 to the AWWT. This is expected to reduce the existing Plant 8 wastewater workload a sufficient amount to compensate for most of this additional UNH loading. In addition, processing in Plant 8 will occur on the second and third shifts. This will effectively make the Plant 8 processing occur on one day of schedule time as the first two shifts of MDU slurry filtering will occur ont he same day as the first shift transfer takes place.
Post Plant 8 Processing	
• All water produced from filter operation will need to be sent to the 500,000 gallon high nitrate holding tank and subsequently be bled into the BDN system at approximately 5 gal/minute.	• By reducing the amount of water processed through Plant 8 by using decant supernatant for next tank makeup water, less water will be produced which must be placed in the high nitrate wastewater treatment system (i.e., each gallon of water processed through Plant 8 causes approximately 1-1/2 ± gallons of wastewater to be produced because of additional water added for precoating, seal water lubrication, etc).

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