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Department of Energy

Richland Operations Office
P.O. Box 550
Richland, Washington 99352

SEP 19 1994

94-LWB-052

Mr. Douglas R. Sherwood
Hanford Project Manager
U.S. Environmental Protection Agency
712 Swift Boulevard, Suite 5
Richland, Washington 99352

Dear Mr. Sherwood:

REQUEST FOR CONCURRENCE REGARDING USE OF LIQUID EFFLUENT RETENTION FACILITY (LERF) FOR TREATMENT

Enclosed for the U. S. Environmental Protection Agency (EPA) concurrence is the proposal for using the Liquid Effluent Retention Facility (LERF) for Resource Conservation and Recovery Act (RCRA) treatment.

In support of the 200 Area Effluent Treatment Facility (ETF) startup, we have recognized the merits of continuing to utilize the LERF as a RCRA treatment unit in the overall 242-A Evaporator process condensate treatment system. A detailed evaluation of the benefits of using LERF in this capacity has been prepared and is contained in the attachment, along with the regulatory considerations for supporting this position. This evaluation shows that the continued use of the LERF in the ETF system constitutes treatment in accordance with the RCRA definition and, therefore, justifies the position that LERF should be allowed to accept waste under the provisions of 40 Code of Federal Regulations (CFR) 268.4.

Concurrence from EPA, with the position that the use of LERF to provide "flow and pH equalization" constitutes RCRA treatment, is requested. Upon concurrence with this position, the LERF will be allowed to accept waste under the provisions of 40 CFR 268.4 and will be used as a permanent part of the ETF system. In addition, concurrence with this position will initiate efforts to delete Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) Milestones M-26-03 and M-26-04 associated with the LERF cleanout and closure, in accordance with the Tri-Party Agreement procedure. Therefore concurrence from EPA is needed by September 30, 1994, to support this effort.

This effort directly supports the <u>Cost and Management Efficiency Initiative</u> that was signed by the Tri-Party Agreement signatories in January 1994. Specifically, these efforts satisfy the commitments of cost reduction, and regulatory reform, and represent major progress in support of the $1 billion cost reduction goal. Cost savings are initially estimated at nearly $2 million per evaporator campaign.

Should you have any questions regarding this matter, please feel free to call me or Ms. Anna Beard of my staff on (509) 376-7472.

Sincerely,

June M. Hennig, Director
Waste Management Division

Enclosure: LERF Proposal

cc: A. J. DiLiberto, WHC
S. D. Godfrey, WHC
M. A. Selby, Ecology
A. B. Stone, Ecology
T. B. Veneziano, WHC

Attachment

PROPOSED USE OF LERF FOR TREATMENT

1.0 SUMMARY

After being shutdown for nearly five years, the 242-A Evaporator resumed operations in April 1994 to continue its mission to relieve the critical shortage of Double-Shell Tank (DST) space and to meet Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement) commitments. The process condensate waste stream from the 242-A Evaporator, designated a hazardous and dangerous waste, has been rerouted from a soil column disposal site to the Liquid Effluent Retention Facility (LERF), located in the 200 East Area. Current plans are to discharge the process condensate to the LERF until the 200 Area Effluent Treatment Facility (ETF) comes on line in June 1995. At that time, the LERF is to be cleaned out and closed under Resource and Conservation Recovery Act (RCRA) requirements and the process condensate is to be routed directly to the ETF.

Efforts to bring the new ETF on line have recognized the merits of continuing to utilize the LERF as a permanent treatment unit in the overall process condensate treatment system. This system, called the ETF treatment system, consists of the 242-A Evaporator, the LERF, and the ETF. A detailed evaluation of the benefits of using LERF in this capacity is contained below, along with the regulatory requirements for allowing such an action. This evaluation shows that the continued use of the LERF in the ETF system provides treatment in accordance with the RCRA definition. The treatment benefits, combined with the cost and efficiency benefits, constitute a significant benefit for the Hanford site and justify the position that LERF will be performing RCRA treatment and should, therefore, be allowed to accept waste under the provisions of 40 CFR 268.4.

Upon concurrence with the position that LERF is performing RCRA treatment, the M-26 Tri-Party Agreement milestones associated with LERF will be deleted and the LERF will become a permanent part of the ETF system. Significant cost savings and site benefits will result from these actions.

2.0 INTRODUCTION

In April 1989, the 242-A Evaporator was shutdown to complete major life extension upgrades and to address dangerous waste concerns associated with the process condensate waste stream being discharged to the 216-A-37-1 Crib. Upon determination that the this waste stream contained regulated wastes, as defined in Washington Administrative Code (WAC) 173-303-070 and its federal counterpart in RCRA (40 CFR 261), it was designated a dangerous and hazardous waste and efforts were initiated to provide treatment capabilities for this waste stream.

An engineering study was performed to determine appropriate methods for treating the 242-A Evaporator process condensate (PC) for eventual discharge to a Washington State approved land disposal site. Through the application of

All Known and Reasonable Technology (AKART), the ETF was designed and approved as the facility for treating the PC. The ETF is planned for startup in June of 1995.

In order to meet Tri-Party Agreement commitments and to relieve the critical shortage of Double-Shell Tank space, operation of the 242-A Evaporator is required prior to completion of the ETF. Because of these critical needs related to the Hanford cleanup mission, temporary storage of the PC in the LERF was approved under the Tri-Party Agreement. The LERF consists of two primary basins and one spare basin, each having a capacity of 6.5 million gallons (Mgal), which will allow for approximately 18 months of evaporator operations (13 Mgal).

In April 1994, after being shutdown for almost five years, the 242-A Evaporator resumed operations to support critical cleanup activities. The PC from the first processing campaign was discharged to the LERF for temporary storage while awaiting startup of the ETF. The next 242-A Evaporator campaign is scheduled to begin in September 1994 and should result in nearly filling one of the three LERF storage basins. Subsequent 242-A Evaporator campaigns are planned for Fiscal Year 1995. Each campaign will be approximately three months in duration followed by a down time of approximately three months duration.

Construction of the LERF began in May 1990 as a facility expansion under RCRA interim status. The LERF is classified as a surface impoundment for mixed-waste storage and is being permitted under WAC 173-303-806, as part of the 242-A Evaporator permit milestone contained in the Tri-Party Agreement. In fact, current direction from the Washington State Department of Ecology is to combine the 242-A Evaporator, the LERF, and the ETF into a single combined RCRA Part B Permit Application, since all three facilities working together constitute a treatment system.

The current plan for LERF is to temporarily store the PC until the ETF comes on line, then reroute the PC from the 242-A Evaporator directly to the ETF and clean out the LERF by sending the stored PC to the ETF. In addition, once the LERF is cleaned out per applicable regulatory requirements, its future use would be limited to non-regulated streams. The LERF was planned for use as a surface impoundment for 3 to 5 years, however, the design life of the LERF is estimated at 20 years or greater.

The following discussion reviews the regulatory and technical considerations associated with gaining regulatory concurrence that would allow continued use of the LERF. Information is presented which will show that the continued use of the LERF will enhance the overall treatment capability of the ETF while meeting the regulatory definition of treatment. Because of the significant benefits to the restoration and remediation of the Hanford Site, DOE-RL is seeking concurrence from the regulators that LERF will be performing RCRA treatment and should be allowed to accept waste under the provisions of 40 CFR 268.4. This concurrence will initiate action to incorporate the LERF as a permanent part of the ETF system.

3.0 REGULATORY CONSIDERATIONS

Under RCRA, storage of hazardous wastes in surface impoundments such as LERF is considered disposal and is, therefore, prohibited under the Land Disposal Restrictions (LDR) unless applicable treatment standards are met. However, treatment of hazardous wastes in surface impoundments is allowed if they are performing treatment per the provisions of 40 CFR 268.4.

Treatment as defined in RCRA is divided into two parts. The first part of the definition includes as treatment "any method...or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste..." The second part of the definition requires that treatment change the hazardous waste "so as to neutralize such waste,...or so as to render such waste non-hazardous, or less hazardous; ...or amenable for recovery, amenable for storage, or reduced in volume." (40 CFR 260.10).

Current efforts focus on obtaining concurrence that "flow and pH equalization" in LERF constitute RCRA treatment in accordance with the provisions of 40 CFR 268.4.

The following sections explain more thoroughly how flow and pH equalization in the LERF meets the two-part definition of treatment. Other advantages to continued use of the LERF are also provided.

4.0 TREATMENT EVALUATION

4.1 ETF Operation Without Using LERF for Treatment

The current plan for treating the 242-A Evaporator process condensate involves bypassing the LERF and pumping the PC directly to the ETF. The PC is received into a 100,000 gallon surge tank at the ETF where the pH is adjusted to a slightly acidic pH before moving on through the ETF for further processing. The surge tank also provides flow equalization for the downstream treatment units. The pH adjustment is accomplished by two pH sensors and two pH controllers under changing volume conditions. The first pH sensor measures the pH of the incoming PC and uses a proportional feed forward controller to meter sulfuric acid into the surge tank. The second pH sensor measures the pH at the outlet of the surge tank and uses a proportional-integral feed back controller to meter sulfuric acid or sodium hydroxide into the surge tank to further adjust the pH of the PC. This system is set to control the pH at the outlet of the surge tank between 6 and 6.5. If the pH gets outside the range of 4.0 to 7.0, the outlet of the surge tank is recycled back into the surge tank where additional chemicals are added and the contents are held up until the pH is within the desired range for further treatment in the ETF. Control of the surge tank pH within a very tight range is essential to the proper operation of the ETF treatment units downstream of the surge tank.

Historical data indicates that the pH of the PC fluctuates between 8 and 11 and the Ammonia concentration fluctuates between 0.001 and 0.1 moles per liter. These fluctuations are highly dependent upon the type and degree of concentration of the waste being processed through the 242-A Evaporator.

Similar variations in the chemical nature of the PC are expected to continue into the future because the 242-A Evaporator process is essentially unchanged from previous operations, with the exception that it no longer uses the Ion-Exchange Column for treating the PC, unless deemed necessary for achieving the higher level of radionuclide decontamination.

The bases for measuring the performance of the pH control system are the amount of chemicals used to maintain the desired pH setpoint and the amount of secondary waste generated in the process. Because the PC is generally basic, optimal control would involve only the required addition of sulfuric acid to reach the desired pH range. This type of control would most easily be achieved in a batch system where a series of pH measurements and calculated sulfuric acid additions were performed to slowly approach the desired pH range, without overshooting the range. In a continuous system, optimal control can only be approached during steady-state conditions in which the pH and all flows into and out of the system are constant. For a given pH or flow change, the control dynamics of the system involve a gradual response of the system to adjust the sulfuric acid flow to achieve the desired pH range. It would not be an instant adjustment and may, in fact, involve some overshoot of the pH range, which would possibly require recycle back to the surge tank and/or the addition of sodium hydroxide to the system. Control in a continuous system is further complicated by the logarithmic scale of the pH function and the extremely sharp response of pH to chemical additions close to the desired setpoint range (pH 6 to 6.5). This is especially true when using the concentrated chemicals required by ETF chemical systems. Any recycle or addition of sodium hydroxide to the system would therefore represent inefficiencies in the treatment system and would result in excess chemical usage and additional secondary waste generation (as sodium sulfate), not to mention the negative impacts to plant operations due to flow interruptions and/or pH swings.

4.2 <u>ETF Operation Using LERF for Treatment</u>

The proposed operation of the ETF involves the use of the LERF as a separate treatment unit in the overall ETF system. In this context, the "ETF system" consists of the 242-A Evaporator, the LERF, and the ETF. Process condensate from the 242-A Evaporator would be discharged directly to the LERF instead of being discharged into the ETF surge tank. The PC would be accumulated in the LERF for being later pumped to the ETF surge tank for pH adjustment and further treatment downstream in the ETF.

The treatment function provided by the LERF would include both "flow equalization" and "pH equalization." This treatment using LERF is necessary to ensure the most efficient operation of the ETF. First, the pH fluctuations in the PC will be dampened in the LERF. Mixing will occur over the time it takes to fill a basin through such mechanisms as; 1) filling-induced currents, and 2) diffusion in response to concentration and temperature gradients. Although the LERF will not provide complete mixing of the PC, the mixing it does provide will significantly reduce pH fluctuations in the stream being fed to the surge tank. Consequently, the PC will be "chemically altered" within LERF itself, which meets the first part of the treatment definition under RCRA. Secondly, the PC flow from the 242-A Evaporator fluctuates slightly during routine operations, but to a much greater extent during startup, shutdown, or upset conditions. These fluctuations in flow would be completely dampened by the LERF, such that flow into the surge tank could be maintained constant at all times during operation of the ETF. Constant flow is especially critical for the pH adjustment process occurring in the surge tank.

The combination of pH and flow variations without the use of LERF are sure to result in upsets to the pH adjustment process being carried out in the surge tank. These upsets will cause occasional recycle conditions in which the ETF and the 242-A Evaporator will require shutdown and restart. This will result in the generation of additional waste. With the addition of LERF to the ETF system, this generation of additional waste will be significantly reduced due to the decoupling of the two treatment facilities. In this arrangement, LERF itself will "reduce the amount of waste generated" by the ETF system, thus meeting the second part of the "treatment" definition under RCRA.

Flow and concentration equalization are essential for adequate pH control and are well established principles for the design of pH control systems. Although it is possible to design around these principles, the resulting control systems lack the simplicity and the assurance of adequate pH control. Flow and concentration equalization of the stream being discharged to the pH control system is strongly recommended by the experts. The larger the fluctuations in these two parameters, the more difficult the pH control effort. The current design of the ETF attempts to design around flow and pH equalization with a more complicated control system. This may be adequate during steady-state conditions, but, does not account for the fluctuations that occur during startup, shutdown, or other transient conditions (i.e. equipment malfunctions, etc).

4.3 Treatment Benefits Provided by LERF

Continuing to use the LERF as a treatment unit in the overall ETF system will enhance the system by providing the primary treatment benefits listed below:

1) Chemical Adjustment - LERF will chemically adjust the 242-A Evaporator process condensate stream by equalization of the pH. The mixing provided by the LERF, will result in fewer and smaller fluctuations in the pH of the PC being sent to the ETF surge tank. This will cause the pH control system in the ETF surge tank to operate more efficiently.

2) Flow Equalization - LERF will equalize the PC flow from the 242-A Evaporator to the ETF surge tank. By holding up the PC in the LERF and delivering a constant flow from the LERF to the ETF surge tank, the pH control system in the ETF surge tank will operate more efficiently.

3) Waste Reduction - Because the LERF will provide flow and pH equalization of the PC, the pH control system in the ETF surge tank will only need to adjust for very minor fluctuations in flow and pH. This will result in fewer upset/recycle conditions and will directly reduce the overall generation of waste in the ETF system.

To quantify the treatment benefits provided by the continued use of the LERF in the ETF system, a model was developed for the surge tank pH control system using the commercial software package "Speedup." The model was initially set up identical to the actual control system, using both the feed forward and feed back control strategy, however, this control approach produced very unstable results. The model was simplified by eliminating the feed forward controller and using only the feed back controller for adjusting the pH of the surge tank contents. In reality, the feed forward controller at the ETF will not be bypassed, but will be operated in a "detuned" mode to minimize its tendency to overcorrect. The following is a list of the modeling cases run, with the graphical results contained in Attachment 2:

Case 1 - No LERF, 25 Kgal Surge Tank Volume

Case 2 - No LERF, 75 Kgal Surge Tank Volume

Case 3 - 3 Mgal LERF Volume, 25 Kgal Surge Tank Volume

In comparing Cases 1 and 2, it is evident that the surge tank volume does not impact the pH control as long as the system does not recycle. Although the surge tank has a capacity of slightly greater than 100 Kgal, the volume in the tank at any time can vary. Because the model cannot easily take into account variations in both pH and volume, two volume control points (25 Kgal and 75 Kgal) were chosen to analyze the effects of surge tank volume on pH adjustment sensitivity.

In the event of an upset condition where the surge tank outlet is recycled back into the surge tank, the surge tank must have some reserve capacity to allow time for the system to recover without shutting down the ETF system. These recovery times and the extra surge tank capacity needed depend on the extent of the upset condition, as shown in the attached figures. In both these cases it can be seen that for a given pH fluctuation, the surge tank outlet pH always exceeds 7.0, making it necessary to recycle the stream. In addition, the response curves show a rather significant overshoot of the pH control system trying to recover. These responses are indicative of the extreme sensitivity of the pH adjustment and point out the need for taking a simple, conservative approach to pH control. For both cases, approximately 5100 gallons of sulfuric acid were used to adjust the pH of 1.3 Mgal of process condensate waste. Cases 1 and 2 assumed complete mixing in the surge tank.

In comparing Case 3 to the above cases, it is seen that the pH of the outlet from LERF was significantly dampened by the large holdup volume and that this produced a very smooth, controlled response in the sulfuric acid addition, resulting in almost no pH fluctuation of the outlet of the surge tank. In addition, the amount of sulfuric acid used to adjust the pH of the same volume of process condensate was only about 700 gallons. Similar to the previous cases, LERF and the surge tank were assumed to be well mixed.

Overall, the treatment benefits from using LERF are significant enough to justify the position that LERF will be providing RCRA treatment and should be allowed to accept waste under the provisions of 40 CFR 268.4. It is recognized that the treatment benefits may not be exactly as the modeling results indicate because of the simplifying assumptions used in the model. The assumption of complete mixing in the surge tank and in the LERF tend to under estimate the pH fluctuations at the respective outlets from the LERF and the surge tank. Also, filling time, holdup time, and temperature and concentration gradients in the LERF can influence the degree of mixing. However, it is clear that the LERF will definitely dampen the pH and flow fluctuations in the PC stream, resulting in more efficient pH control in the surge tank. If addition of the LERF to the ETF system is the sole cause of these effects, then it is clear that the LERF is performing a treatment function in and of itself, in accordance with the RCRA definition for treatment.

4.4 Additional Benefits Provided by LERF

Aside from the specific treatment benefits (i.e. flow and pH equalization) provided by LERF, the following is a list and brief description of the additional benefits gained from incorporating the LERF as a permanent part of the ETF system:

1) Improved Operational Efficiency - Decoupling of the 242-A Evaporator and the ETF, with the addition of the large volume holdup capacity of the LERF, will allow the two facilities to operate almost completely independent of each other. This decoupling means that the problems in one facility will not impact the other facility, thus resulting in each facility having a greater total operating efficiency (TOE).

2) Increased Operational Flexibility - In addition to increased TOE, the decoupling of the two facilities also has the effect of providing more operating flexibility. The increased flexibility will be experienced in operating schedules, downtime schedules, and in processing campaigns. Not only will the facilities be able to choose their own operating and downtime schedules, but will also be able to handle minor upset conditions or similar plant problems more easily. Without the need to shutdown the other facility, the facility experiencing minor problems can often continue to operate under revised processing conditions while efforts are pursued to correct the problem. In addition, facility startup and shutdown becomes much simpler due to the decoupling of the facilities.

3) Reduced Labor Costs - Because of the improved TOE and the increased operating flexibility, labor costs associated with the 242-A Evaporator and the ETF will be reduced. By operating more efficiently, both facilities will require fewer total staff, less overtime, and less idle time.

   A rough cost of idling the 242-A Evaporator can be calculated by dividing the total number of work days (260) into the annual cost of direct and support personnel associated with the facility ($20 million). Hence, the daily cost is almost $77,000. Conversations with experienced operations personnel indicate that over a period of 42 days (the time it takes the 242-A Evaporator to process 3 million gallons at 50 gpm), the

ETF would likely experience two days of down time. Therefore, the projected cost of idleness without the benefit of the LERF is estimated to be $154,000 per campaign.

4) Cost Savings From Reduced Chemical Usage - With the primary treatment benefit of improved pH control in the ETF surge tank, the amount of sulfuric acid and sodium hydroxide required to operate the ETF will be reduced, thus resulting in the side benefit of reducing the annual operating cost of the ETF system.

The cost savings realized in treating the amount of PC produced in a typical campaign (3 million gallons) can be calculated from the following information:

* It takes 5100 gallons of acid without LERF and 700 gallons with LERF to treat 1.3 million gallons of PC.

* It costs about $9300 to fill the 7500 gallon ETF acid tank with 92 wt % sulfuric acid of density 1.82 g/cc.

* It costs about $7000 to fill the 5000 gallon ETF base tank with 50 wt % sodium hydroxide of density 1.52 g/cc.

Therefore, the cost of sulfuric acid saved is:

$$(5100-700\ \text{Gal})(\$9300/7500\ \text{Gal})(3\ \text{E+6}/1.3\ \text{E+6}) = \$12,600$$

The cost of sodium hydroxide saved can be calculated by multiplying the volumetric ratio of base to acid by the dollar ratio of base to acid by the cost of sulfuric acid. The volumetric ratio is:

$$\frac{(1.82\ \text{g/cc acid})(92\%)(1\ \text{mole}/98\ \text{g})(2\ \text{moles base}/1\ \text{mole acid})}{(1.52\ \text{g/cc base})(50\%)(1\ \text{mole}/40\ \text{g})} = 1.80$$

Therefore, the cost of sodium hydroxide saved is:

$$\frac{(\$7000/5000\ \text{Gal})(1.80)(\$12,600)}{(\$9300/7500\ \text{Gal})} = \$25,600$$

Hence, a total of $38,000 per campaign can be saved in chemical costs if the LERF is employed.

5) Cost Savings From Waste Minimization - With the primary treatment benefit of reduced surge tank recycle and the resulting reduction in the generation of additional waste, the ETF will need to dispose of less secondary waste, thus resulting in the side benefit of further reducing the annual operating cost of the ETF.

The cost savings realized from reduced secondary waste production in treating 3 million gallons of PC can be calculated from the following information. Assuming the secondary waste has a bulk density of 1g/cc:

(3 E+6/1.3 E+6)(5100 - 700 Gal acid)(3.78 Gal/L)(1820 g/L)(.93) X

(1 mole/98 g acid)(142 g/mole sodium sulfate)(1cc/g sodium sulfate) X

(1 L/1000 cc)(1 Gal/3.78 L)(1 drum/50 gal) = 498 drums

Or: (498 drums)(50 Gal/drum)(1 cu.ft./7.48 Gal) = 3329 cu.ft.

The cost of storing and disposing of mixed waste is approximately $500 per cubic foot (analytical costs not included), so the savings is:

($3329 cu.ft.)($500/cu.ft.) = $1.67 million

5.0 CONCLUSIONS AND RECOMMENDATIONS

From the above evaluation, it is concluded that:

1) Making the LERF a permanent part of the ETF system results in the primary treatment benefits of:

   a) Chemically adjusting the PC waste stream by the method of pH equalization,

   b) Improving the pH control in the ETF surge tank by the method of flow equalization, and

   c) Reducing the generation of waste in the ETF system by the combined methods of pH and flow equalization.

2) The additional benefits from continuing use of the LERF in the ETF system are waste reduction, more efficient facility operations, increased operational flexibility, and significant cost savings associated with these and other benefits.

3) The primary treatment benefits provided by the LERF itself, using the treatment methods of flow and pH equalization, meet the treatment definition under RCRA. This provides adequate justification for regulatory concurrence with the position that LERF is providing RCRA treatment and should be allowed to accept waste under the provisions of 40 CFR 268.4.

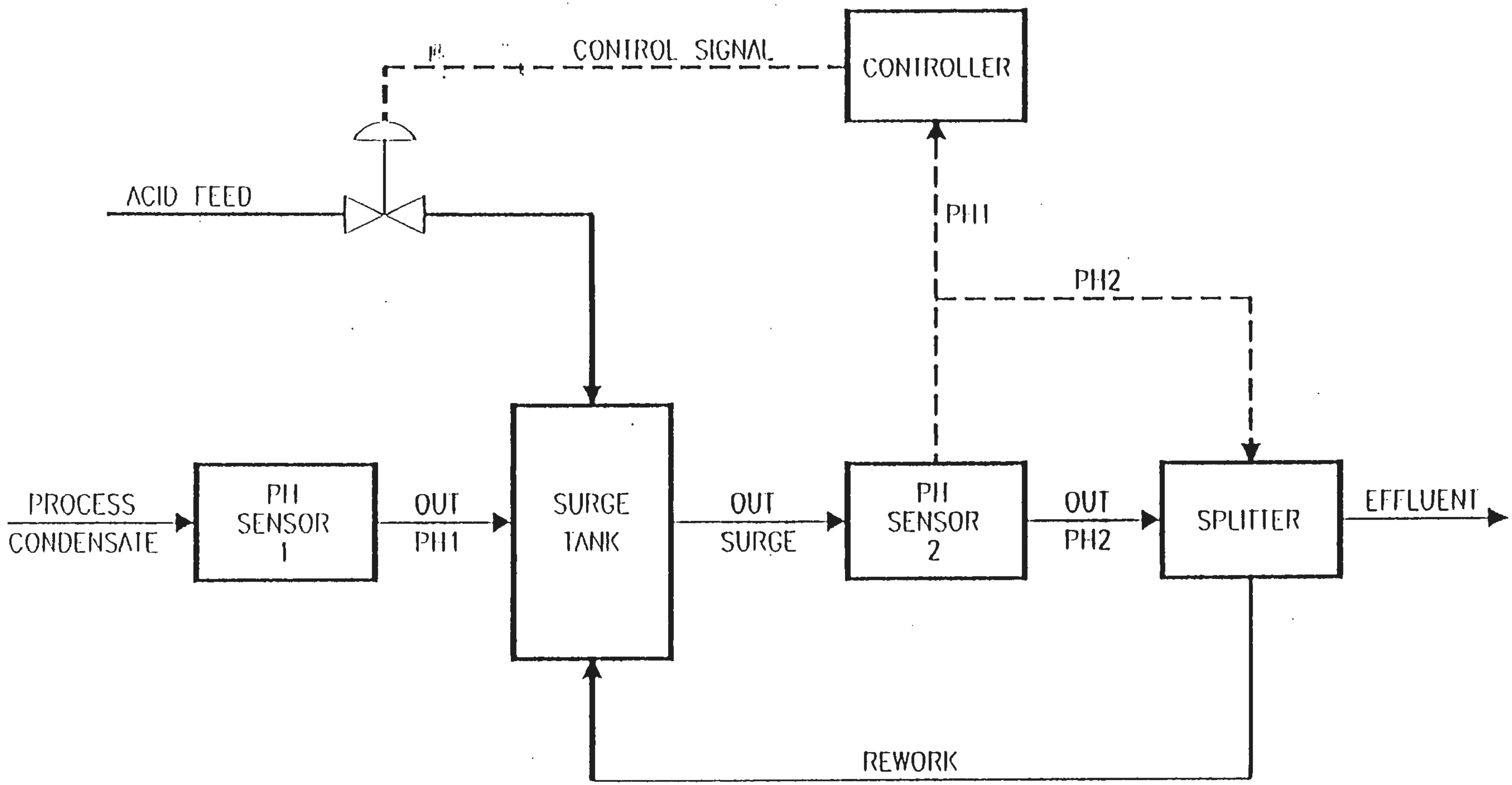
Concurrence is, therefore, requested with the position that the use of LERF to provide "flow and pH equalization" constitutes RCRA treatment. Upon regulatory concurrence with this position, the LERF will be allowed to accept waste under the provisions of 40 CFR 268.4 and will be used as a permanent part of the ETF system. In addition, concurrence with this position will initiate efforts to delete the M-26 Tri-Party Agreement Milestones associated with the LERF, in accordance with the Tri-Party Agreement.

The above efforts directly support the Cost and Management Efficiency Initiative that was signed by the Tri-Party Agreement signatories in January 1994. The following statement from that publication summarizes its objectives:

> "In keeping with President Clinton's 'reinventing government' policy and to assure that public funding is made available for Hanford cleanup, the USDOE Richland Operations Office (RL) with full support from its Tri-Party Agreement signatories, will pro-actively pursue and implement a major restructuring of the business acumen of the Hanford site. This initiative is expected to result in productivity gains, improved products and services, and cost savings."

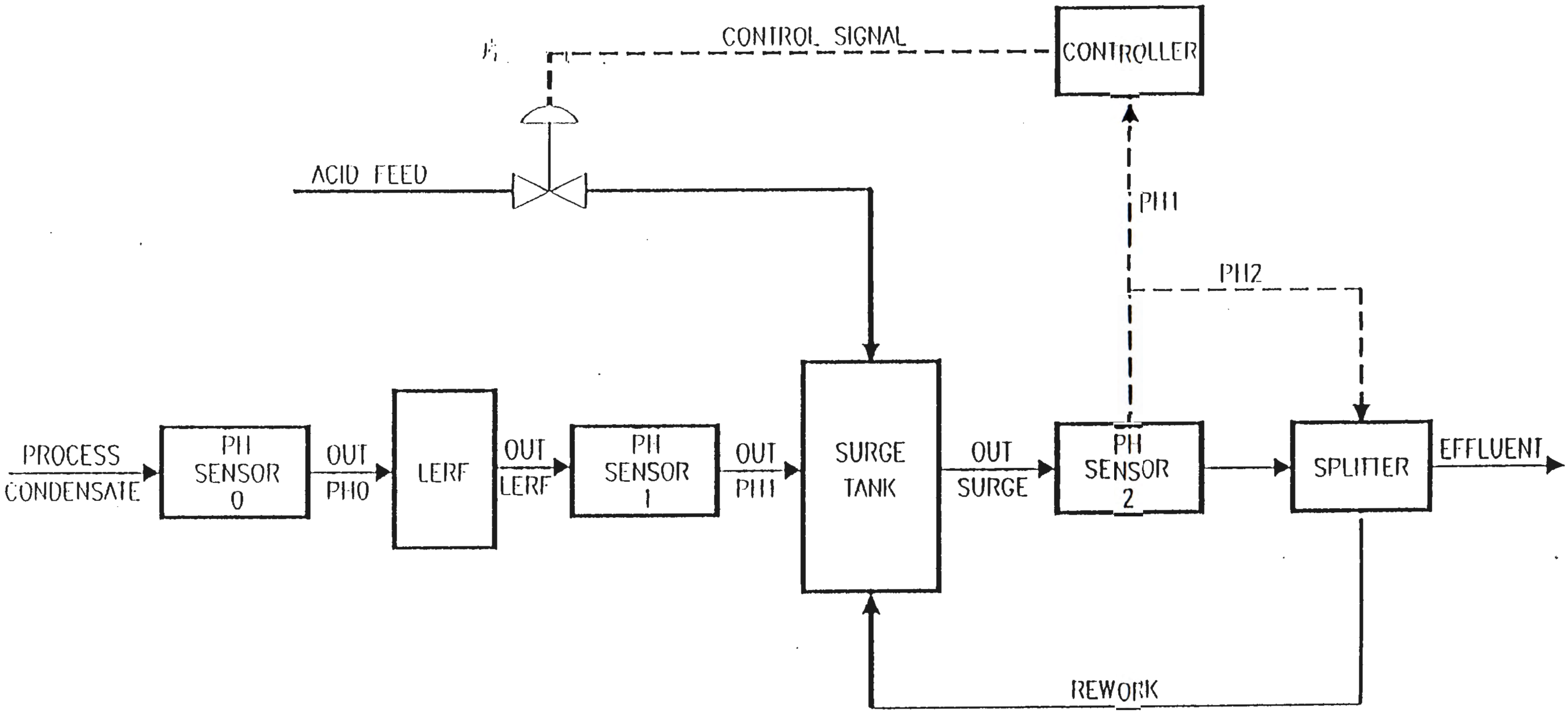
Specifically, the efforts being pursued to use the LERF for RCRA treatment satisfy the commitments of cost reduction, and regulatory reform, and represent major progress in support of the $1 billion cost reduction goal.

FIGURE 1. FLOW DIAGRAM WITHOUT LERF



CKA1/LWI/7-15-91-2

FIGURE 2. FLOW DIAGRAM WITH LERF



CKA2/LWI/7-15-94-2

FIGURE 3. 25,000 GALLON SURGE TANK

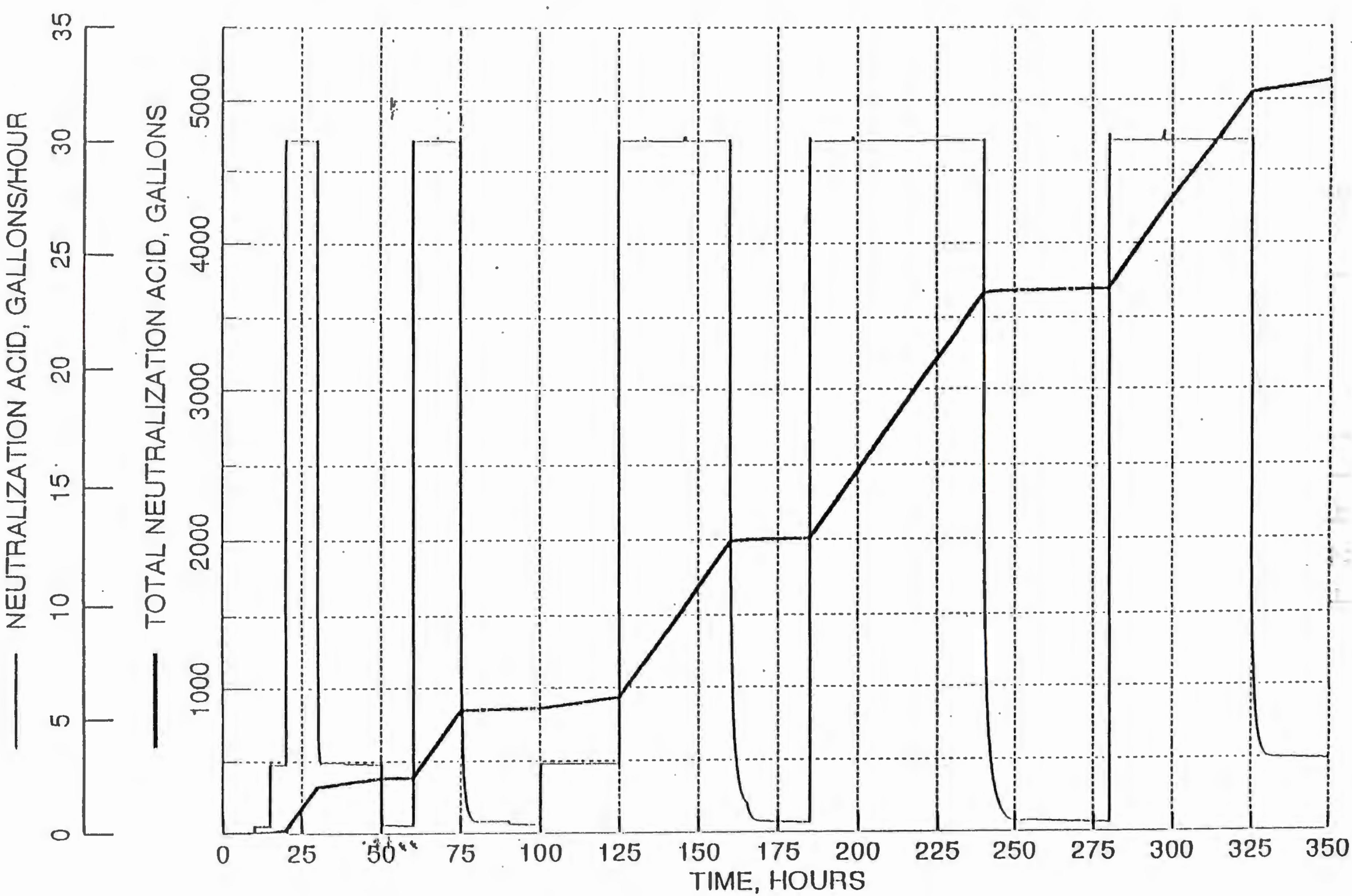


FIGURE 4. 25,000 GALLON SURGE TANK

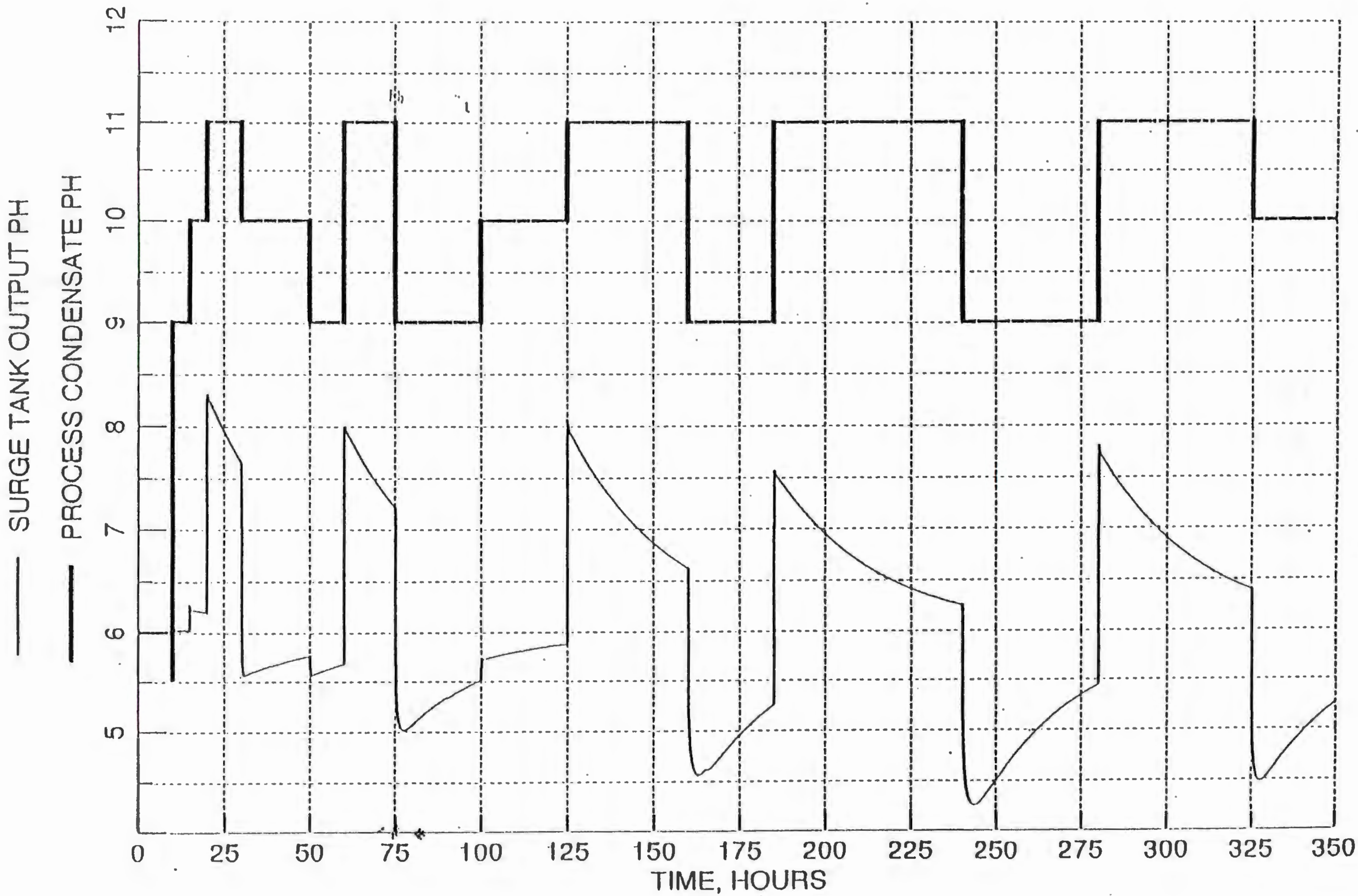


FIGURE 5. 25,000 GALLON SURGE TANK

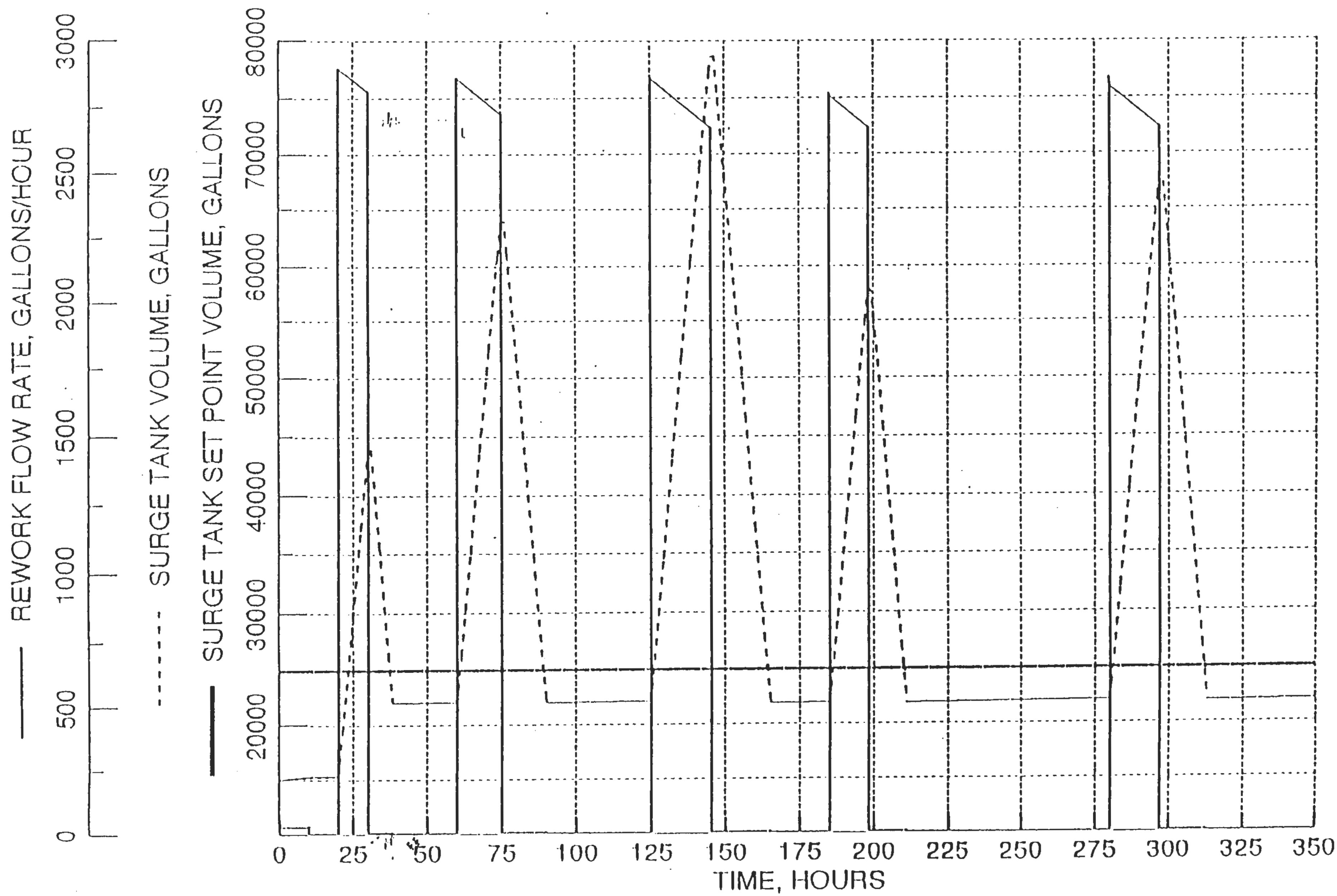


FIGURE 6. 75,000 GALLON SURGE TANK

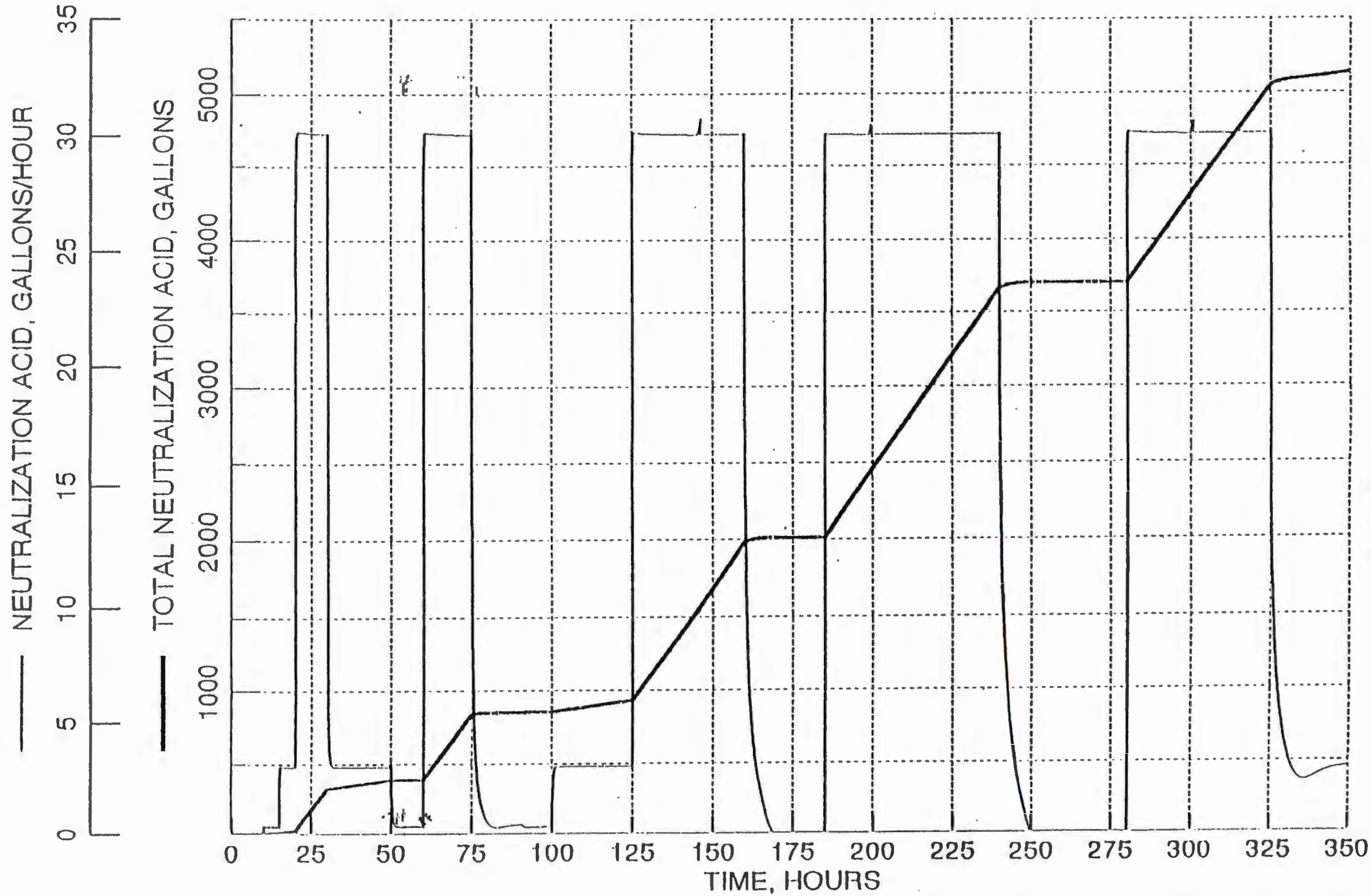


FIGURE 7. 75,000 GALLON SURGE TANK

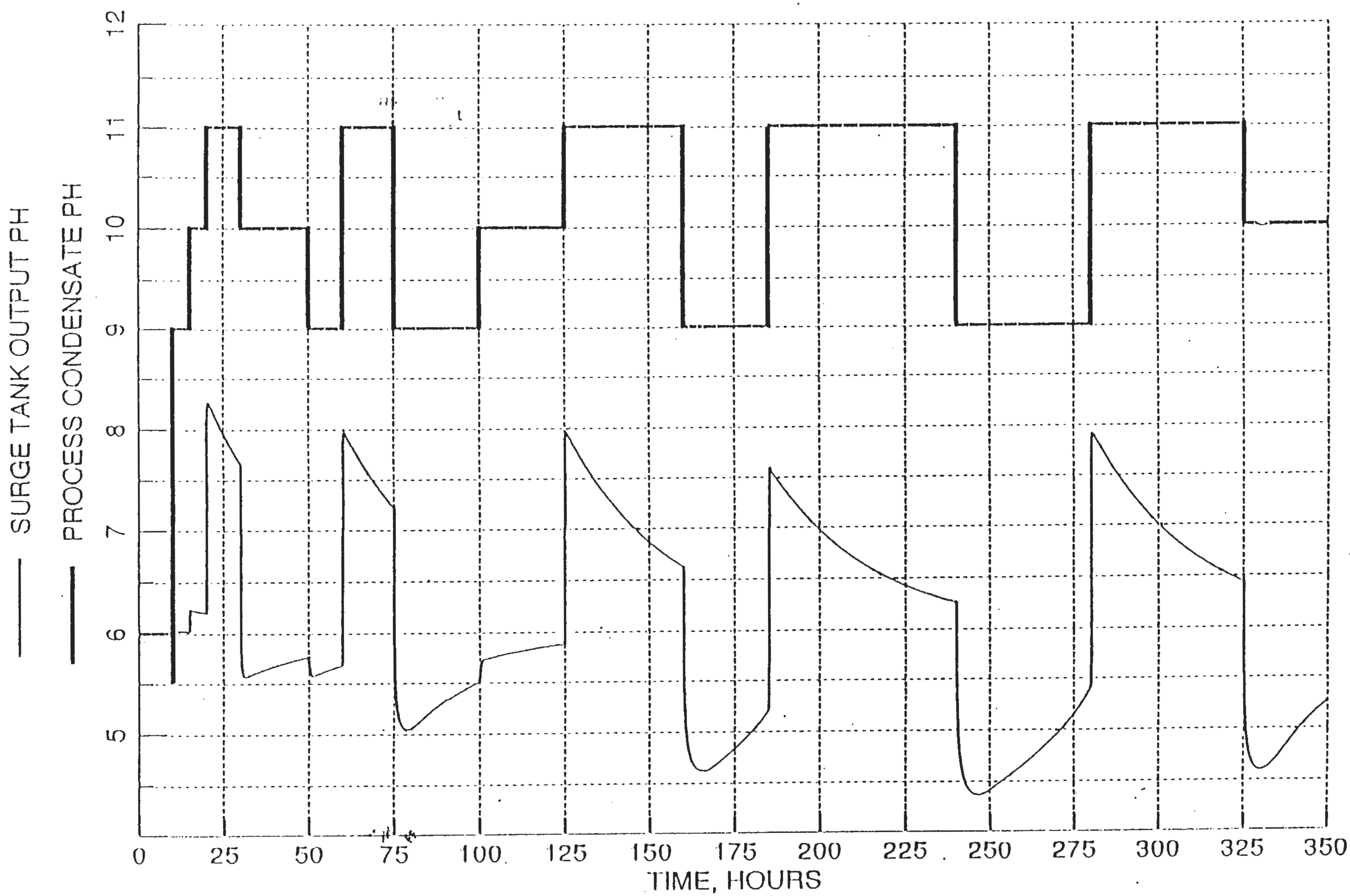


FIGURE 8. 75,000 GALLON SURGE TANK

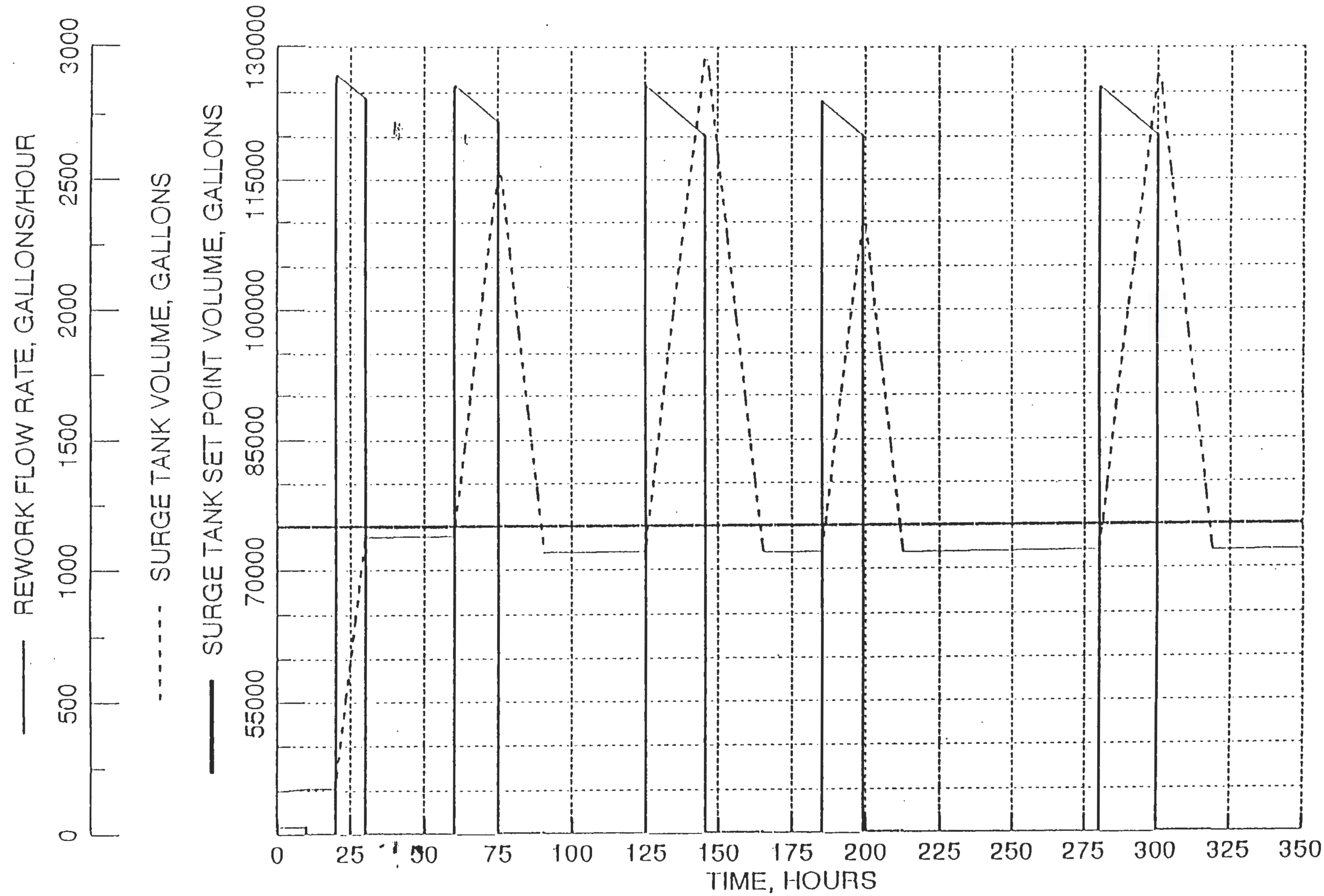


FIGURE 9. 3 MILLION GALLONS LERF

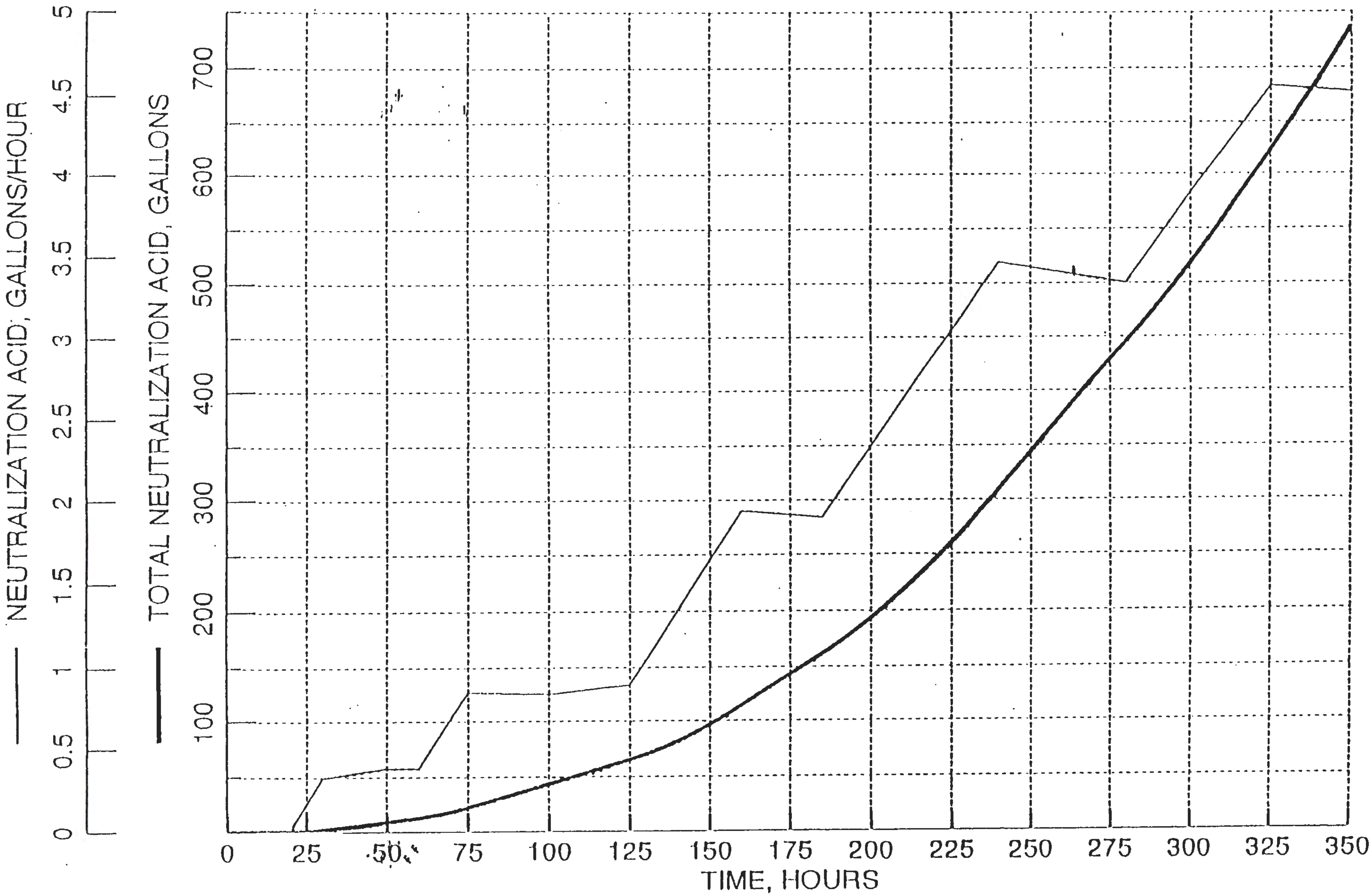


FIGURE 10. 3 MILLION GALLONS LERF

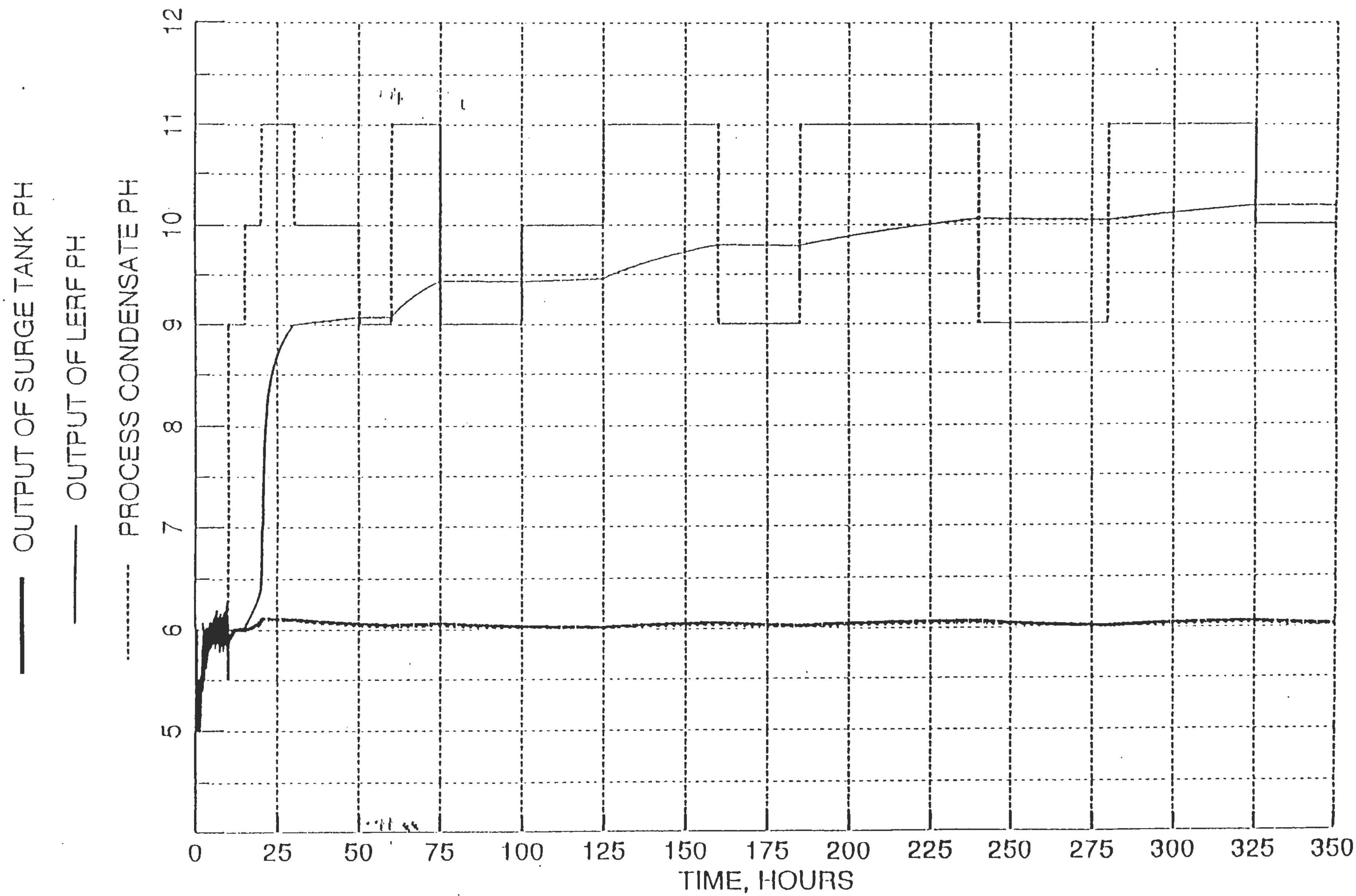
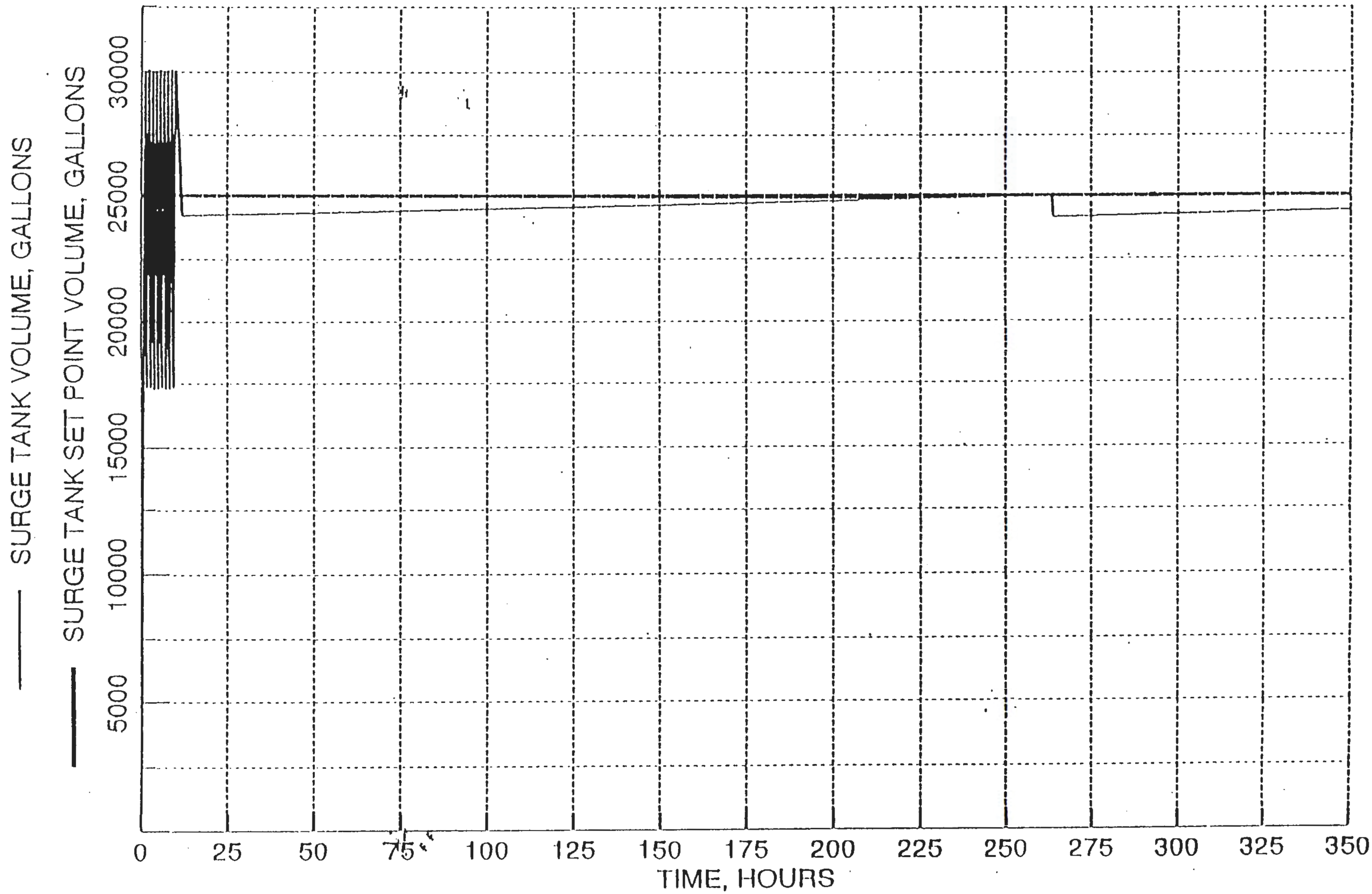


FIGURE 11. 3 MILLION GALLONS LERF



CORRESPONDENCE DISTRIBUTION COVERSHEET

Author	Addressee	Correspondence No.
J. M. Hennig, RL	D. R. Sherwood, EPA	Incoming: 9406074 Xref: 9453506D

Subject: REQUEST FOR CONCURRENCE REGARDING USE OF LIQUID EFFLUENT RETENTION FACILITY (LERF) FOR TREATMENT

INTERNAL DISTRIBUTION

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		A. J. DiLiberto	R3-46	X
		W. T. Dixon	H6-21	
		D. L. Flyckt	T7-38	X
		S. D. Godfrey	B2-35	X
		R. R. Harloff	S3-31	
		D. W. Lindsey	L6-04	X
		H. E. McGuire (Sr. Staff)	B3-63	
		S. R Moreno	B3-06	
		R. E. Traister	B3-63	
		T. B. Veneziano (Assignee)	H6-10	
		B. F. Weaver	T7-38	X
		J. D. Williams	H6-28	
		B. D. Williamson	B3-15	
		EPIC	H6-08	X

*Note: Attachment to this letter is the same as external letter 9453506D.

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