From:	Robert Alexander
To:	Elizabeth Rorie
Subject:	FW: Potential Applicability of Section 316(b) of the Clean Water Act
Date:	Monday, May 16, 2016 6:44:40 AM
Attachments:	image001.png

For distribution.
Thanks

Bob Alexander
NPDES Permit Writer
Division of Water Resources
TN Dept. of Environment and Conservation
615-532-0659 office
615-519-7787 cell
Robert.alexander@tn.gov

We accept and encourage electronic document submittals.

From: Mike Yoder [mailto:Mike.Yoder@viskase.com]
Sent: Friday, May 13, 2016 10:12 AM
To: Vojin Janjic; Robert Alexander; Jim McAdoo; Valerie McFall
Cc: Pat Glarrow; Mike Rasmussen; David Wasil
Subject: Potential Applicability of Section 316(b) of the Clean Water Act

***** This is an EXTERNAL email. Please exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email - STS-Security. *****

Mr. Janjic, and et.al:

After an internal review of Viskase Companies, Inc. Loudon Facility, please find attached our submittal regarding potential applicability of Section 316(b) of the Clean Water Act.

We look forward to your reply.

Best Regards,

VISKASE®
Casing Solutions Worldwide®

Michael Yoder
Plant Environmental Coordinator
Viskase Companies Inc.,
106 Blair Bend Drive
Loudon TN 37774
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Casing Solutions Worldwide®

May 11, 2016

Mr. Vojin Janjic
Manager, Water Based Systems
Tennessee Department of Environment and Conservation
Division of Water Resources
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Ave., 11th Floor
Nashville, Tennessee 37243

RE: Potential Applicability of Section 316(b) of the Clean Water Act

Mr. Janjic:

First, thank you for the discussions and communications that Division of Water Resources (Division) staff have taken the time to provide to Viskase Companies, Inc.'s (Viskase) personnel regarding the potential application of the Clean Water Act Section 316(b) regulations to Viskase's cooling water intake structure at its facility located at 106 Blair Bend Drive in Loudon, Tennessee (Facility). Viskase provides this letter in the spirit of cooperation that has permeated our communications to date. This letter provides Viskase's analysis and conclusions regarding the potential applicability of the 316(b) regulations.

I. FEDERAL AND STATE REGULATION OF COOLING WATER INTAKE STRUCTURES

The Clean Water Act provides:

> (b) Cooling Water Intake Structures
>
> Any standard established pursuant to section 1311 of this title or section 1316 of this title and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.

33 U.S.C. § 1326(b) (Clean Water Act Section 316(b)).

The United States Environmental Protection Agency (EPA) promulgated a Final Rule entitled, "National Pollutant Discharge Elimination System--Final Regulations To Establish Requirements for Cooling Water Intake Structures at Existing Facilities and Amend Requirements at Phase I Facilities," on August 15, 2014. 79 Fed. Reg. 48,300 (Aug. 15, 2014). The rule was effective October 14, 2014. *Id.* According to EPA, "This final rule applies to existing facilities that use cooling water intake structures to withdraw water from waters of the United States and have or require an NPDES (National Pollutant Discharge Elimination System) permit issued under section 402 of the CWA (Clean Water Act)." *Id.* The regulations are codified at 40 C.F.R. Parts 122 and 125, Subpart J.

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The regulations potentially applicable to Viskase are contained in 40 C.F.R. Part 125, Subpart J, "Requirements Applicable to Cooling Water Intake Structures for Existing Facilities Under Section 316(b) of the Clean Water Act." The requirements for facilities subject to these regulations are to be established and implemented through National Pollutant Discharge Elimination System (NPDES) permits. 40 C.F.R. § 125.90(a). In Tennessee, the Division issues NPDES permits under authority of the Tennessee Water Quality Control Act and Section 402 of the Clean Water Act.

II. EXISTING FACILITY

Only "existing facilities" as defined in Subpart J are subject to the regulations. "*Existing facility* means any facility that commenced construction as described in 40 CFR 122.29(b)(4) on or before January 17, 2002 . . . and any modification of, or any addition of a unit at such a facility." 40 C.F.R. § 125.92(k). Viskase's Facility is an existing facility under Subpart J. However, the analysis to determine whether the Facility is subject to the Subpart J requirements does not end there.

III. APPLICABILITY OF SUBPART J TO EXISTING FACILITIES

An existing facility is subject to the Subpart J requirements at 40 C.F.R. Sections 125.94 through 125.99 only if it satisfies three criteria:

> (1) The facility is a point source;
> (2) The facility uses or proposes to use one or more cooling water intake structures with a cumulative design intake flow (DIF) of greater than 2 million gallons per day (mgd) to withdraw water from waters of the United States; and
> (3) Twenty-five percent or more of the water the facility withdraws on an actual intake flow basis is used exclusively for cooling purposes.

40 C.F.R. § 125.91(a).

However, if a facility has a water intake structure in which water is withdrawn for the purpose of cooling, but does not meet all of the three applicability requirements, then that facility "must meet requirements under section 316(b) of the CWA established by the Director on a case-by-case, best professional judgment (BPJ) basis." *Id.* § 125.90(b). In Tennessee, the Division administers an EPA-approved NPDES program and makes BPJ decisions in lieu of EPA or an EPA Director. *See id.* § 122.2 (definitions of "Director" and "State Director").

IV. VISKASE'S LOUDON FACILITY

Viskase's Facility has an intake structure and withdraws water from the Tennessee River/Watts Bar Lake (River Mile: 591.8, Latitude: 35.74, Longitude -84.326194, NAD 83). The Facility withdraws water from the river and uses it in the manufacturing process to extrude and produce cellulose casing. The specifics of the extrusion process are confidential. The withdrawn water is used as process/wash water, boiler water to produce steam, cooling and condensing water, and vacuum water. In most cases the water is recirculated or recycled before it is sent from the Facility for treatment as wastewater.

The Facility does not operate under an active NPDES Permit for discharge of process wastewater, as it does not discharge treated wastewater returning to the Tennessee River. The Facility has an active Industrial User Permit issued by Loudon Utilities. Viskase transfers industrial wastewater into the Loudon Utilities (POTW) sewer system for treatment. However, the Facility does operate

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under an active Tennessee Multi-Sector Permit (TMSP) for Industrial Activities (Permit No. TNR056751) covering storm water discharges with its most recent Notice of Coverage Issuance date June 9, 2015. Viskase has three storm water outfalls on the property and complies with applicable TMSP Sector Y requirements.

V. APPLICABILITY CRITERIA APPLIED TO VISKASE'S LOUDON FACILITY

When the applicability requirements set forth at 40 C.F.R. § 125.91(a) are applied to Viskase's Facility, the Facility is not subject to the Subpart J requirements set forth in Sections 125.94 through 125.99. The rationale for this conclusion follows and also is supported by the material contained in Appendices A and B.

A. Criterion 1: Point Source.

The first criterion is whether "[t]he facility is a point source." 40 C.F.R. § 125.91(a)(1). Viskase's Facility is a point source with a single intake structure withdrawing water from Tennessee River/Watts Bar Lake to be used within the manufacturing process to extrude and produce cellulose casing.

B. Criterion 2: Minimum Design Intake Flow.

The second criterion is whether "[t]he facility uses or proposes to use one or more cooling water intake structures with a cumulative design intake flow (DIF) of greater than 2 million gallons per day (mgd) to withdraw water from waters of the United States." 40 C.F.R. § 125.91(a)(2). The 316(b) regulations define the term "design intake flow" as follows:

> *Design intake flow* (DIF) means the value assigned during the cooling water intake design to the maximum instantaneous rate of flow of water the cooling water intake structure is capable of withdrawing from a source waterbody. The facility's DIF may be adjusted to reflect permanent changes to the maximum capabilities of the cooling water intake system to withdraw cooling water, including pumps permanently removed from service, flow limit devices, and physical limitations of the piping. DIF does not include values associated with emergency and fire suppression capacity or redundant pumps (i.e., back-up pumps).

Id. § 125.92(g). Because Viskases's Facility is not capable of withdrawing two million gallons of water per day, it does not satisfy the second criterion.

EPA provided helpful guidance in its August 15, 2014 Final Rule with respect to considering design intake flow.

> *EPA determines the cooling water flow at a facility in two ways. The first is based on the DIF, which reflects the maximum intake flow the facility is capable of withdrawing. While this normally is limited by the capacity of the cooling water intake pumps, other parts of the cooling water intake system could impose physical limitations on the maximum intake flow the facility is capable of withdrawing. The second method for determining cooling water flow is based on the AIF, which reflects the actual volume of water withdrawn by the facility. EPA has defined AIF to be the average water withdrawn each year over the preceding three years. Both of these methods are used in today's rule.*

79 Fed. Reg. at 48,308 (2nd col.). Though applicability is based on design intake flow, EPA acknowledges the importance of flexibility in regulating cooling water intake structures.

> *EPA acknowledges that there may be circumstances where flexibility in the application of the rule may be called for and the rule so provides. For example, some low flow facilities that withdraw a small proportion of the mean annual flow of a river may warrant special consideration by the Director. As an illustration, if a facility withdraws less than 50 mgd AIF, withdraws less than 5 percent of mean annual flow of the river on which it is located (if on a river or stream), and is not co-located with other facilities with CWISs such that it contributes to a larger share of mean annual flow, the Director may determine that the facility is a candidate for consideration under the de minimis provisions contained at § 125.94(c)(11). In the case of facilities on lakes and reservoirs, co-location would be better determined by multiple CWIS facilities on the same waterbody, rather than distance.*
>
> *In either case, the flexibilities contained in the rule for the Director to consider the site- specific characteristics of each intake structure within the national standard provide a useful mechanism for facilities with lower intake flows and low impacts to be considered.*
>
> *EPA is continuing to base applicability on DIF as opposed to AIF for several reasons. In contrast to AIF, DIF is a fixed value based on the design of the facility's operating system and the capacity of the circulating and other water intake pumps. This provides clarity because the DIF does not vary with facility operations, except in limited circumstances, such as when a facility undergoes major modifications.*

Id. at 48,309 (1st & 2nd cols.).

The materials contained in Appendix A to this letter support Viskase's conclusion that the Facility does not satisfy the second criterion. More specifically, Appendix A contains the following information.

1. A brief summary of the water system equipment processes and process limitations that prevent the actual flow from reaching design intake flow. The intake structure pumps feed water to the plant and through process steps of a mix tank, clarifiers, sand filters, and into a clearwell. From there the filtered water is used in the manufacturing process. The limiting component of the water system equipment is the mix tank, which has a sustained flow capability of below 1379 gpm. At greater than 1380 gpm (1.987 MMgal/day) flow, the mix tank overflows and will flow into the building, resulting in unacceptable operational issues.

2. A three-year trend showing the monthly average actual intake flow. As this data shows, the actual flow into the plant over the previous three years has not been above or equal to 2.0 million gallons per day.

3. Viskase's three year average intake flow compared to the one day low in ten years that TVA reported flow for the Tennessee River/Watts Bar Lake along the section of river on which the Facility is located. This ratio comparison demonstrates that the Facility is well below 0.5% of the 1Q10 value as reported by TVA. At the back of Appendix A is a copy of the email from Bob Alexander detailing the 1Q10 value.

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C. Criterion 3: Percentage of Water Withdrawn Used Exclusively for Cooling Purposes.

The third criterion is whether "[t]wenty-five percent or more of the water the facility withdraws on an actual intake flow basis is used exclusively for cooling purposes." 40 C.F.R. § 125.91(a)(3). The 316(b) regulations define the term "actual intake flow" as follows:

> *Actual intake flow* (AIF) means the average volume of water withdrawn on an annual basis by the cooling water intake structures over the past three years. . . . Actual intake flow is measured at a location within the *cooling water intake structure* that the Director deems appropriate. The calculation of actual intake flow includes days of zero flow. AIF does not include flows associated with emergency and fire suppression capacity.

Id. § 125.92(a). The definition of the term "cooling water" is important as well.

> *Cooling water* means water used for contact or non-contact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content. The intended use of the cooling water is to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility's premises. Cooling water obtained from a public water system, reclaimed water from wastewater treatment facilities or desalination plants, treated effluent from a manufacturing facility, or cooling water that is used in a manufacturing process either before or after it is used for cooling as process water, is not considered cooling water for the purposes of calculating the percentage of a facility's intake flow that is used for cooling purposes in § 125.91(a)(3).

Id. § 125.92(e).

EPA, in its Preamble to the August 15, 2014 final rule, addressed the importance of reusing water:

> *EPA is adopting provisions that promote the reuse of water from certain sources for cooling and that ensure that the rule does not discourage the reuse of cooling water for other uses such as process water.*

79 Fed. Reg. at 48,305 (3rd col.). EPA continued:

> *In addition, the definition of cooling water at § 125.92 provides that cooling water obtained from a public water system, reclaimed water from wastewater treatment facilities or desalination plants, treated effluent from a manufacturing facility, or cooling water that is used in a manufacturing process either before or after it is used for cooling as process water is not considered cooling water for the purposes of calculating the percentage of a facility's intake flow that is used for cooling purposes. Therefore, water used for both cooling and non-cooling purposes does not count toward the 25 percent threshold.*

Id. at 48,305 (3rd col.) & 48,306 (1st col.).

The information attached to this letter demonstrates that the plant recirculates a large quantity of the water withdrawn for purposes similar to those described above in the regulations and the Preamble. The recirculating of water for heat conservation and reuse is abundant in the manufacturing processes used by Viskase. Appendix B contains a process flow diagram for both winter and summer seasons. Also enclosed is an overview balance showing single pass, once use flows solely used for cooling; these flows also are identified within the process flow diagrams. The percentage of water intake used for cooling not recovered or reused in the process during the

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winter is 2.87%, and in summer is 15.72%. When determining the balance, inline flow meters were used, and where not available, a calibrated strap on ultrasonic flow meter was used. The extrusion process is to some degree temperature dependent; thus, during the summer months more cooling is needed, though considerably less is required in winter. For this reason, the flows for these two seasons are shown to depict a high and low use for cooling. These flows are consistent with normal operations at current plant conditions. Potential future heat recovery and reuse projects requiring capital expenditures will improve these results.

D. Conclusions Regarding the Three Applicability Criteria.

Viskase has analyzed the three applicability criteria and concluded that the Facility satisfies the first criterion: the Facility is a point source. However, the Facility does not satisfy either of the second or third applicability criteria. First, the annual and daily intake flow is below the required two million gallons per day threshold; and second, the percentage of intake water used for cooling is below the required twenty-five percent threshold. Therefore, because the Facility does not meet all three of the applicability criteria, the Subpart J requirements at 40 C.F.R. Sections 125.94 through 125.99 do not apply to the Facility.

VI. BEST PROFESSIONAL JUDGMENT

Although the Facility is not subject to regulation under Subpart J because it fails to meet all three of the applicability requirements, the Facility is subject to the Division's best professional judgment with respect to its cooling water intake structure. Subpart J regulations provide:

> Cooling water intake structures not subject to requirements under §§ 125.94 through 125.99 or subparts I or N of this part must meet requirements under section 316(b) of the CWA established by the Director on a case-by-case, best professional judgment (BPJ) basis.

Id. § 125.90(b).

The Division recently exercised its best professional judgment during the permitting of Kimberly-Clark Corporation's manufacturing facility near Viskase, which also discharges to the Tennessee River/Watts Bar Lake. *See* NPDES Permit Number TN0064653, issued March 11, 2016, Pages R-7 through R-13. Data and factors similar to those present at Kimberly-Clark apply to the Viskase Facility: the intake design flow is a very small percentage of the 1Q10 flow of the stream, the Facility uses a small percentage of its intake flow exclusively for cooling purposes, and the design intake flow is a small percentage of the mean annual flow of the stream. The Division should conclude in its exercise of its best professional judgment that the Viskase Facility is best technology available for 316(b) purposes.

VII. CONCLUSIONS AND REQUEST

Viskase has concluded that based on its analysis of the applicability criteria at 40 C.F.R. § 125.91(a) that the Facility is not subject to the Subpart J requirements at 40 C.F.R. Sections 125.94 through 125.99. However, the Facility is subject to 316(b) requirements established by the Division on a case-by-case, best professional judgment (BPJ) basis. *See* 40 C.F.R.§ 125.90(b). Based on the discussion in Section VI above, Viskase requests that the Division (1) conclude that the location, design, construction, and capacity of the Facility's existing cooling water intake structure is the best technology available to minimize adverse environmental impacts, and (2) impose no new requirements on the Facility.

Viskase requests that the Division consider the information and analysis in this letter and the attached appendices and reach a determination that first, the Facility is not subject to the Subpart J requirements at 40 C.F.R. Sections 125.94 through 125.99 because the Facility does not meet all three of the applicability criteria at 40 C.F.R. § 125.91(a); and second, the Facility's existing cooling water intake structure is best technology available in the Division's best professional judgment. Viskase respectfully requests a written response from the Division on these two matters within sixty calendar days of receipt of this letter.

If you have any questions or need additional information, please contact Michael Yoder at (865) 458-2071, Extension 252.

Sincerely,

P. J. Glarrow
Plant Manager

PG/my

cc: Robert Alexander- TDEC Division of Water Resources, NPDES Permit Writer
Mike Rasmussen-Viskase Companies, Inc. - Darien, IL
Myron Nicholson- Viskase Companies, Inc. - Darien, IL
Michael Schenker- Viskase Companies, Inc. - Darien, IL
Michael Yoder- Viskase Companies, Inc. - Loudon, TN
Michael K. Stagg- Waller Lansden Dortch & Davis, LLP - Nashville, TN

APPENDIX A:

a). Water System Equipment description:

River intake Systems:
The plant is supplied river water from the intake structure to the plant by four pumps. The intake structure has a stationary main bar screen followed by a stationary fine screen through which the water flows to pump suctions. The operation of one pump is sufficient at any given time to achieve necessary flow for plant operations. The supply flow capacities of these pumps vary, with the strongest pump capable of supplying 1600gpm (plate designation).

PLC and Control Valve:
Flow into the plant is controlled by a Metso control valve. The valve is in between the river pump house and the raw water mix tank to clarifiers. The valve is controlled by a PLC whose primary function is to maintain water level in the plant clearwell at a controlled set point. It secondarily maintains water levels in the sand filters. A maximum intake flow can be set for the system manually. For typical operation, intake flow varies between 800gpm in colder months and 1200gpm in warmer months.

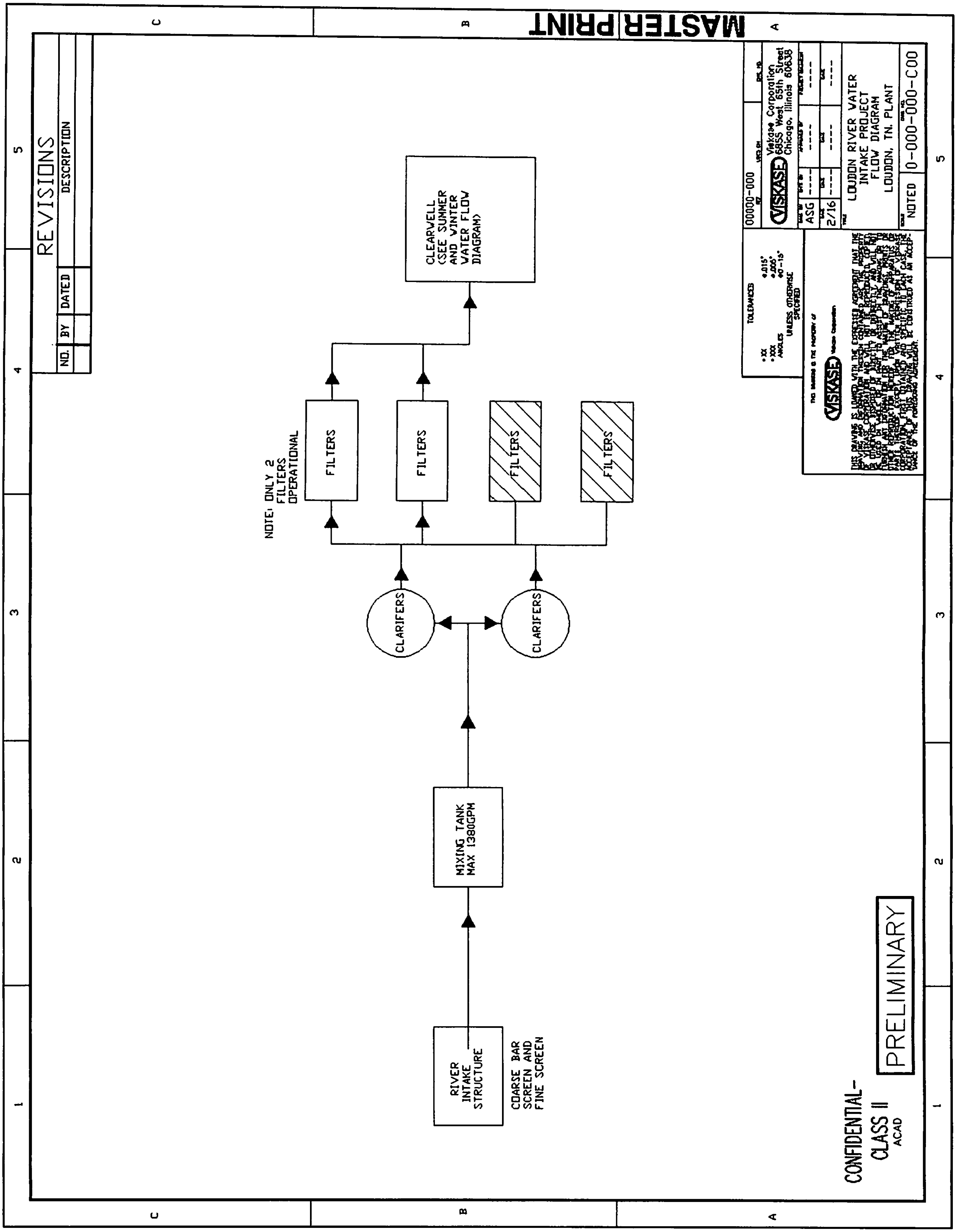
Mix Tank and Water Clarifiers
The two installed clarifiers are designed to supply combined 1000gpm clarified water, with a maximum of 1700gpm. Prior to water flowing into clarifier is a Mix Tank, where clarifier treatment chemical is introduced. A modification to the Mix Tank inlet piping in past has limited its capacity. In a manual override of the logic control system, overflowing of the clarifier Mix Tank is observed at an intake flow rate of 1380gpm (1.987MM gal/day), limiting the capacity of the plant to process water in excess of this amount. A manual reading of a flow totalizer into the clarifiers yields the amount of water clarified daily and on a monthly basis. This data is recorded.

Raw Water (EV-1):
The Raw Water (EV-1) pump supplies raw river water to plant processes. This pump is fed by a leg off the supply to the water treatment plant clarifiers. According to the pump's spec sheet it has the capacity to handle 1200gpm of river water. 25+ years ago this pump furnished raw water to vacuum condenser systems, but due to piping and process modifications to recover water and heat this pump only services two minimal flow process locations within the plant. In operation, the pump is used nowhere near its full capacity. Actual flow from this pump ranges from 60-100gpm on a normal and sometime intermittent basis.

Water Sand Filters:
The plant has positions for 4 total sand filters. One has never been installed, one filter is out of service (in disrepair) and two filters are online. The throughput capacity of these filters is: 1500gpm each for a combined 3000gpm. If the third sand filter were to be put back into operation, then there would be larger capacity than what is demanded for operations.

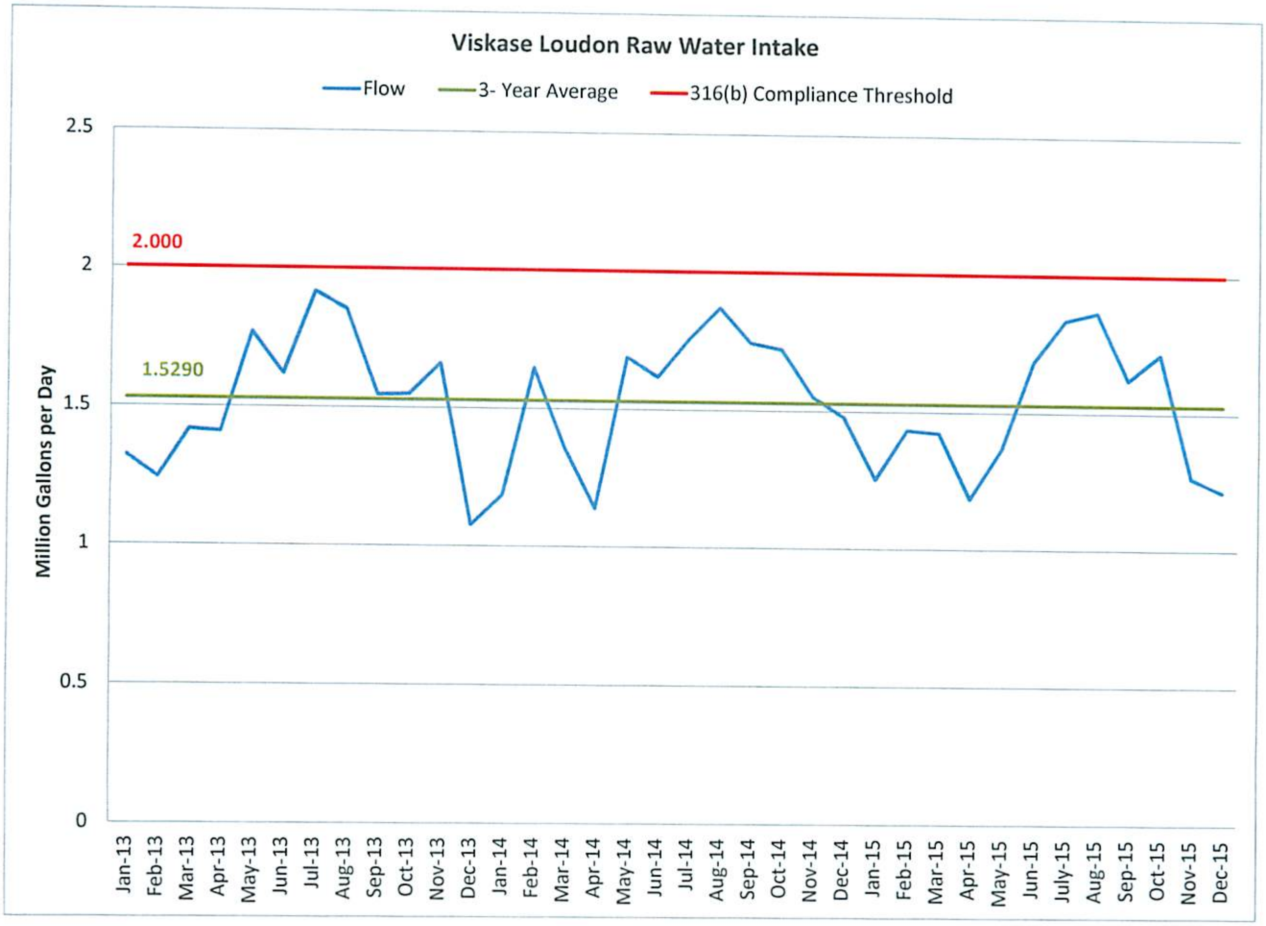
Process Limitation:
Despite pumping capacities aforementioned, the process equipment used in the intake of water to the Viskase plant is limited by the throughput available at the Mix Tank prior to the Clarifiers. Max capable flow sustained to the Mix Tank is below 1379gpm. If the flow is greater than or equal to 1380gpm, the Mix Tank will overflow entering into building negatively affecting other operational systems.

Enclosed is a process flow drawing depicting water flows described above.



MASTER PRINT
REVISIONS
NO.
BY
DATED
DESCRIPTION
RIVER INTAKE STRUCTURE
COARSE BAR SCREEN AND FINE SCREEN
MIXING TANK MAX 1380GPM
CLARIFERS
CLARIFERS
FILTERS
FILTERS
FILTERS
FILTERS
NOTE: ONLY 2 FILTERS OPERATIONAL
CLEARWELL (SEE SUMMER AND WINTER WATER FLOW DIAGRAM)
Viskase Corporation 6855 West 65th Street Chicago, Illinois 60638
00000-000
ASG
2/16
LOUDON RIVER WATER INTAKE PROJECT FLOW DIAGRAM LOUDON, TN. PLANT
NOTED
0-000-000-C00
PRELIMINARY
CONFIDENTIAL- CLASS II
ACAD

b.) Three (3) Year Trend of water intake:



c.)Viskase Three (3) Year average intake flow compared to 1 day low in 10 year flow (1Q10 at Fort Loudoun post-ROS) as reported by TVA:

As per attached email from Bob Alexander dated 2/9/2016, 1Q10 flow at Fort Loudon ROS would be approximated at 1200cfs. Using this as the base value for comparison, please see below:

1200cfs	TVA 1Q10YR Low	
1200	cfs	
538596	gal/min	
775578240	gal/day	
775.58	Mmgal/day	
1.529	Mmgal/day	Viskase three (3) year average
0.1971	%	

Mike Yoder

From: Robert Alexander <Robert.Alexander@tn.gov>
Sent: Tuesday, February 09, 2016 1:28 PM
To: Mike Yoder
Subject: FW: 1Q10 at Loudon, TN = ?

fyi

Bob Alexander
NPDES Permit Writer
Division of Water Resources
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We accept and encourage electronic document submittals.

From: Montgomery, Colleen Rice [mailto:crmontgomery@tva.gov]
Sent: Wednesday, December 16, 2015 9:36 AM
To: Robert Alexander
Subject: RE: 1Q10 at Loudon, TN = ?

Bob,

Sorry for the delay! Crazy week for me. My thoughts on the 1Q10 at Fort Loudoun post-ROS are that it should be lower than the 2350 cfs you quoted because that number was from flows between 1942 and 1955 according to that USGS WRIR reference. We definitely operate the dam differently now than we did then. Post-ROS, we did have our most recent operations change, with a change in springtime reservoir fill timing. We now do a partial fill in late March to early April and then delay the last 2 feet of fill until May. This could possibly cause generally lower springtime flows out of Ft Loudoun during the 2 fill periods.

If you actually look at data, there were several days in 2004 where the daily releases were zero, but we were holding back water for a flood at that time, so that sort of skews the data low, and of course there would have been lots of local inflows at that time, too, so the Loudoun plant would have had some flow past it because of significant runoff in that time in 2004, I would think. If you throw out 2004 and do a 1Q10 calc on the remaining post-ROS years, I come up with a value slightly less than 1200 cfs, which is in line with the WBH minimum flow of 1200 cfs that you noted from the ROS EIS table, because there would also be contributions from the Clinch River to Watts Bar.

That's my take on it. I hope it helps.

Regards,

Colleen

From: Robert Alexander [mailto:Robert.Alexander@tn.gov]
Sent: Thursday, December 10, 2015 2:00 PM
To: Montgomery, Colleen Rice
Subject: 1Q10 at Loudon, TN = ?

TVA External Message. Please use caution when opening.

Hello, Colleen,
I'm working on the permit for Kimberly-Clark at Loudon and am curious about the flow rate there. Was thinking the flow from Ft. Loudon might be a useful indicator.

For their last permit, and for the Town of Loudon's wastewater plant, we used:
Low Flow: 1Q10 = 1518 MGD (2350 CFS) Low Flow Reference: USGS Water-Resource Investigation Report 95-4293 Station #03520000

In looking at the 2004 EIS for River Opns, Appx A-6, Table A-03 "Minimum Flows", etc, it lists all the mainstem projects except Ft. Loudon. The table shows the Watts Bar minimum flow at 1200 cfs.

I can use the 2350 cfs, since we've relied on that in the past – but wondered about your thoughts...

Bob Alexander
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Robert.alexander@tn.gov

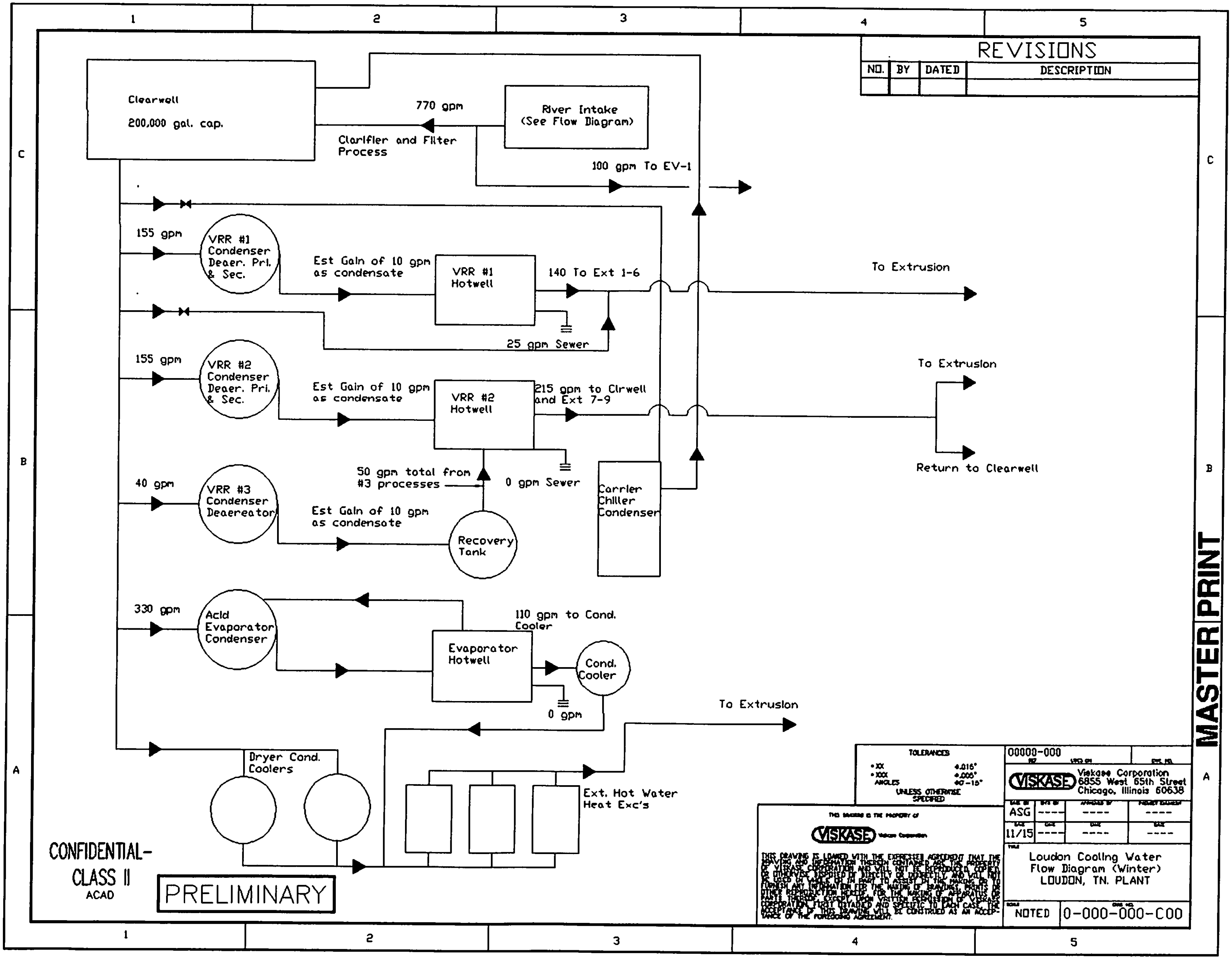
APPENDIX B:

Water use for cooling and process reuse:

The following values correspond to normal plant operations when analysis was being performed to determine flow rates at various points in process. These values do change as process demand changes, but are representative for processes during the winter and summer seasons.

	Winter (gpm)	Summer (gpm)
River Water Intake (EV-1 and Clarifier)	870	1140
VRR #1 Inlet to condenser	155	220
VRR #2 Inlet to condenser	155	220
VRR #3 Inlet to condenser	40	50
Volume Into Hotwell #1	165	230
Pumpout #1 Hotwell	140	140
To Sewer #1	25	90
Volume Into Hotwell #2	215	290
Pumpout #2 Hotwell	215	200
To Sewer #2 Hotwell	0	90
Into Acid Evaporator Condenser	330	330
From Evaporator Hotwell To Condensate Cooler	110	110
To Acid Hotwell Drain	220	220
Water Picked Up as Condensate	30	30
Water Into Cooling Systems	680	820
Cooling Water Recovered for Further Use Outside Cooling System	325	310
Water Reused in Multiple Pass Cooling System	330	330
Cooling Water Lost on First Pass to Sewer	25	180
Total Water Used For Single Pass, Single Use Cooling	2.87 %	15.79 %

Winter Season:



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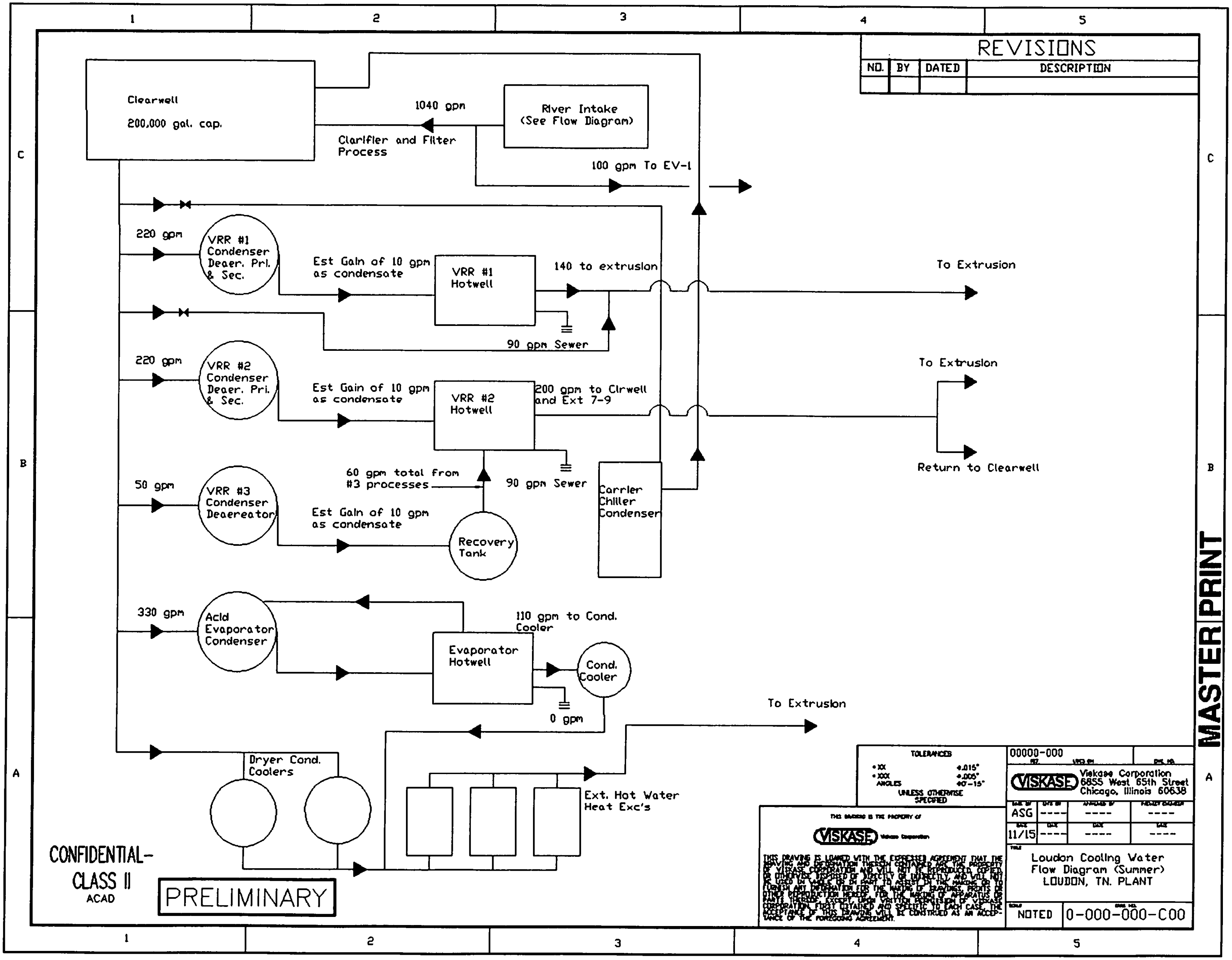
Summer Season:



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