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August 22, 2024

Lanxess Memphis, TN

The following is a summary of findings from the August 2024 quarterly vibration survey at your facility. *Note that the pre-crusher drive end bearing could not be checked because of the guard in place. Guard needs to be modified to allow for sensor placement on crusher bearings.* Please let us know if there are any questions or comments.

QualiTest® uses a four-step rating system for defects.

<u>Class I</u>: Defect is present, but effect on reliability is not clear; no immediate action is required. Continue to normally monitor.

<u>Class II</u>: Defect (s) present that may cause problem in long term (2-6 months). Repair during normal maintenance scheduling. Continue to monitor.

<u>Class III</u>: Defect (s) present that may cause failure in short term (less than 2 months). This should be addressed as soon as practical, with a high maintenance priority. Increase monitoring frequency.

<u>Class IV</u>: Defect (s) present that makes continued reliability unpredictable, and possibility of secondary damage is high. Repairs should be made ASAP. An unscheduled shutdown should be considered for repairs

Hi-Speed Industrial Service tests and inspects industrial machinery and equipment and makes recommendations concerning maintenance and repairs based on its experience in the field of industrial repair and maintenance. The information contained herein is provided as an opinion only, not as a guaranty or warranty of the matters discussed herein.

Machine Summary Table

Date Collected												
Month	5 8 1 9 11 4 8											
Day	3	18	10	22	16	22	21					
Year	22	22	23	23	23	24	24					
Item	Condition											
Refrigeration Compressor A						NR						
Refrigeration Compressor B			NR	NR	NR	NR	NR					
East Cooling Tower Pump				NR	NR							
Middle Cooling Tower Pump	NR		NR			NR	NR					
West Cooling Tower Pump		NR										
West Neutralization Pump	NR	NR	NR	NR	NR		NR					
East Neutralization Pump						NR						
KOH Feed Pump												
Peroxide Feed Pump						NR						
Crystallizer Recirc Pump												
Slurry Transfer Pump												
Quench Tank Pump												
Centrifuge Feed Pump												
Caro's Acid Pump												
Scrubber Circulation Pump												
Dust Collector Blower	NA											
Quench Tank Blower												
Vent Scrubber Blower	NA											
Hold Tank Agitator	NA											
Crystallizer Agitator	NA					NR	NR					
Pre-Crusher	NA											
Grinder	NA											
Brine Tank Pump	NR	NR	NR									
Two Stage Water Pump												

Database:	oxone.rbm						
Station:	MEMPHIS OXON	Ξ					

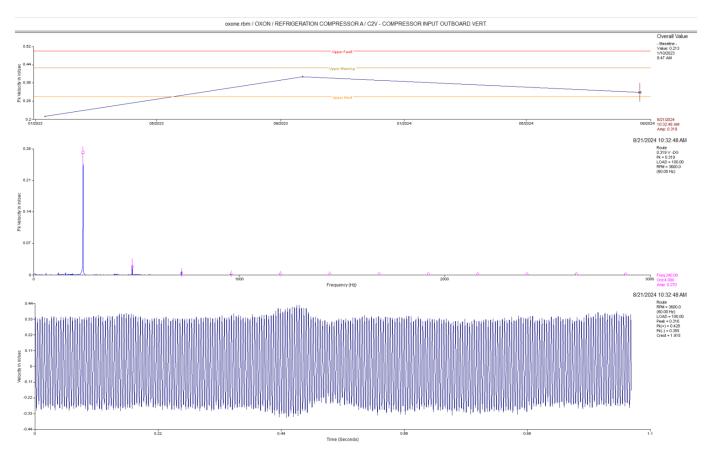
REFGCOMPA - REFRIGERATION COMPRESSOR A (21-Aug-24) MOH .067 In/Sec .477 G-s MOW .045 In/Sec .261 G-s MOA .029 In/Sec .141 G-s MIH .055 In/Sec .781 G-s MIH .029 In/Sec .180 G-s MIH .029 In/Sec .180 G-s MIN .032 In/Sec .180 G-s CIH .034 In/Sec .297 G-s CIH .034 In/Sec .209 G-s CIA .052 In/Sec .800 G-s CIA .052 In/Sec .209 G-s C2A .104 In/Sec .225 G-s C3A .127 In/Sec .234 G-s C3A .127 In/Sec .234 G-s C4V .065 In/Sec .205 G-s C4A .166 In/Sec .205 G-s C4A .106 In/Sec .205 G-s 11 .196 In/Sec .480 G-s 12 .003 In/Sec .480 G-s 13 .134 In/Sec .904 G-s 14 .068 In/Sec .178 G-s 12 .007 In/Sec	MEASUREMEN	I POINT	OVERALL LEVEL	HFD / VHFD
MOH .067 In/Sec .477 C-s MOV .045 In/Sec .261 G-s MOA .029 In/Sec .141 G-s MIH .055 In/Sec .781 G-s MIV .032 In/Sec .180 G-s MIA .029 In/Sec .180 G-s MIA .021 In/Sec .180 G-s C1W .027 In/Sec .209 G-s C1H .034 In/Sec .209 G-s C2H .039 In/Sec .168 G-s C2V .319 In/Sec .168 G-s C3W .288 In/Sec .396 G-s C3V .284 In/Sec .396 G-s C4V .065 In/Sec .178 G-s C4H .052 In/Sec .49 G-s C4V .065 In/Sec .162 G-s 11 .106 In/Sec .162 G-s 12 .103 In/Sec .904 G-s 14 .059 In/Sec	REFGCOMPA	- REFRIGERATIO	N COMPRESSOR A (21	-Aug-24)
MOV .045 In/Sec .261 G-s MOA .029 In/Sec .141 G-s MIH .055 In/Sec .180 G-s MIV .032 In/Sec .180 G-s MIA .029 In/Sec .188 G-s C1H .034 In/Sec .297 G-s C1H .034 In/Sec .297 G-s C1A .052 In/Sec .140 G-s C1A .052 In/Sec .209 G-s C2H .039 In/Sec .580 G-s C2A .104 In/Sec .125 G-s C3H .065 In/Sec .396 G-s C3X .288 In/Sec .213 G-s C4H .052 In/Sec .849 G-s C4V .065 In/Sec .178 G-s C4A .166 In/Sec .275 C-s 11 .196 In/Sec .1620 G-s 12 .103 In/Sec .752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec<			OVERALL LEVEL	1-20 kHZ
MOV .045 In/Sec .261 G-s MOA .029 In/Sec .141 G-s MIH .055 In/Sec .180 G-s MIV .032 In/Sec .180 G-s MIA .029 In/Sec .188 G-s C1H .034 In/Sec .297 G-s C1H .034 In/Sec .297 G-s C1A .052 In/Sec .140 G-s C1A .052 In/Sec .209 G-s C2H .039 In/Sec .580 G-s C2A .104 In/Sec .125 G-s C3H .065 In/Sec .396 G-s C3X .288 In/Sec .213 G-s C4H .052 In/Sec .849 G-s C4V .065 In/Sec .178 G-s C4A .166 In/Sec .275 C-s 11 .196 In/Sec .1620 G-s 12 .103 In/Sec .752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec<	MOH		.067 In/Sec	.477 G-s
MIH .055 fn/Sec .781 G-s MIV .032 In/Sec .180 G-s MIA .029 In/Sec .188 G-s C1H .034 In/Sec .297 G-s C1V .027 In/Sec .140 G-s C1A .052 In/Sec .209 G-s C2H .039 In/Sec .168 G-s C2A .104 In/Sec .152 G-s C3H .065 In/Sec .396 G-s C3A .127 In/Sec .178 G-s C3A .127 In/Sec .178 G-s C4H .052 In/Sec .178 G-s C4A .166 In/Sec .178 G-s C4A .166 In/Sec .162 G-s 11 .196 In/Sec .162 G-s 12 .103 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .059 In/Sec .480 G-s 7371-05 WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEV	MOV		.045 In/Sec	261 G-s
MIH .055 fn/Sec .781 G-s MIV .032 In/Sec .180 G-s MIA .029 In/Sec .188 G-s C1H .034 In/Sec .297 G-s C1V .027 In/Sec .140 G-s C1A .052 In/Sec .209 G-s C2H .039 In/Sec .168 G-s C2A .104 In/Sec .152 G-s C3H .065 In/Sec .396 G-s C3A .127 In/Sec .178 G-s C3A .127 In/Sec .178 G-s C4H .052 In/Sec .178 G-s C4A .166 In/Sec .178 G-s C4A .166 In/Sec .162 G-s 11 .196 In/Sec .162 G-s 12 .103 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .059 In/Sec .480 G-s 7371-05 WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEV	MOA		.029 In/Sec	.141 G-s
MIV .032 In/Sec .180 G-s MIA .029 In/Sec .188 G-s CIH .034 In/Sec .297 G-s CIV .027 In/Sec .140 G-s CIA .052 In/Sec .209 G-s C2H .039 In/Sec .580 G-s C2V .319 In/Sec .168 G-s C2A .104 In/Sec .125 G-s C3H .065 In/Sec .396 G-s C3X .288 In/Sec .234 G-s C3A .127 In/Sec .849 G-s C4H .052 In/Sec .178 G-s C4H .055 In/Sec .178 G-s C4A .166 In/Sec .1620 G-s C4A .166 In/Sec .1620 G-s 12 .103 In/Sec .752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 15 .031 In/Sec .752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .134 G-s 12 .071 In/Sec<	MIH		.055 In/Sec	.781 G-s
C1H .034 In/Sec .297 G-s C1V .027 In/Sec .140 G-s C1A .052 In/Sec .209 G-s C2H .039 In/Sec .560 G-s C2V .319 In/Sec .168 G-s C2A .104 In/Sec .125 G-s C3H .065 In/Sec .396 G-s C3V .288 In/Sec .234 G-s C3A .127 In/Sec .250 G-s C4H .052 In/Sec .178 G-s C4W .065 In/Sec .160 G-s 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec .752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 14 .059 In/Sec .248 G-s 14 .059 In/Sec .248 G-s 14 .059 In/Sec .248 G-s 12 .071 In/Sec .341 G-s 13 .059 In/Sec .248 G-s <	MIV		.032 In/Sec	.180 G-s
C1H .034 In/Sec .297 G-s C1V .027 In/Sec .140 G-s C1A .052 In/Sec .209 G-s C2H .039 In/Sec .560 G-s C2V .319 In/Sec .168 G-s C2A .104 In/Sec .125 G-s C3H .065 In/Sec .396 G-s C3V .288 In/Sec .234 G-s C3A .127 In/Sec .250 G-s C4H .052 In/Sec .178 G-s C4W .065 In/Sec .160 G-s 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec .752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 14 .059 In/Sec .248 G-s 14 .059 In/Sec .248 G-s 14 .059 In/Sec .248 G-s 12 .071 In/Sec .341 G-s 13 .059 In/Sec .248 G-s <	MIA		.029 In/Sec	.188 G-s
C1V .027 In/Sec .140 C-s C1A .052 In/Sec .209 C-s C2H .039 In/Sec .168 C-s C2V .319 In/Sec .168 C-s C2A .104 In/Sec .125 C-s C3H .065 In/Sec .396 C-s C3H .065 In/Sec .396 C-s C3A .127 In/Sec .234 C-s C3A .127 In/Sec .250 C-s C4H .052 In/Sec .178 C-s C4A .166 In/Sec .205 G-s C4A .166 In/Sec .205 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec .752 C-s 13 .134 In/Sec .904 C-s 14 .059 In/Sec .1.341 G-s C4A .059 In/Sec .1.341 G-s C4A .059 In/Sec .1.341 G-s 14 .059 In/Sec 1.879 G-s 13 .059 In/Sec 1.879 G-s 14 .059 In/Sec 1.879 G-s 13 .059 In/Sec 1.879 G-s 14 .058 In/Sec 1.879 G-s 15 .073 In/Sec .722 G-s 16 .071 In/Sec 1.879 G-s 17 .071 In/Sec 1.778 G-s 18 .059 In/Sec 1.879 G-s 19 .071 In/Sec 1.879 G-s 10 .073 In/Sec .722 G-s 13 .059 In/Sec .1879 G-s 14 .068 In/Sec 1.879 G-s 15 .073 In/Sec .722 G-s 16 .073 In/Sec .722 G-s 17 .071 In/Sec 1.879 G-s 18 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .071 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec .1870 G-s 23 .079 In/Sec .1870 G-s 23 .079 In/Sec .1925 G-s 24 .026 In/Sec 1.925 G-s 25 .073 In/Sec .1925 G-s 26 .033 In/Sec .082 G-s 27 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .100 G-s 24 .046 In/Sec .100 G-s 25 .043 In/Sec .100 G-s 26 .043 In/Sec .100 G-s 27 .046 In/Sec .102 G-s	C1H		034 Tn/Sec	297 G-s
CIA .032 In/Sec .200 G-s C2H .039 In/Sec .580 G-s C2V .319 In/Sec .168 G-s C2A .104 In/Sec .125 G-s C3H .065 In/Sec .396 G-s C3N .288 In/Sec .234 G-s C3A .127 In/Sec .250 G-s C4H .052 In/Sec .049 G-s C4A .166 In/Sec .178 G-s C4A .166 In/Sec .160 G-s C4A .166 In/Sec .620 G-s C4A .166 In/Sec .1620 G-s 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec .904 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ .11 .059 In/Sec 1.341 G-s .341 G-s 12 .071 In/Sec .1341 G-s 13 .059 In/Sec .248 G-s 14 .068 In/Sec .1879 G-s 12 .071 In/Sec <td>C1V</td> <td></td> <td>.027 In/Sec</td> <td>.140 G-s</td>	C1V		.027 In/Sec	.140 G-s
C2H .039 In/Sec .580 G-s C2V .319 In/Sec .168 G-s C2A .104 In/Sec .125 G-s C3H .065 In/Sec .324 G-s C3V .288 In/Sec .234 G-s C3A .127 In/Sec .260 G-s C3A .127 In/Sec .260 G-s C4H .052 In/Sec .178 G-s C4A .166 In/Sec .178 G-s C4A .166 In/Sec .205 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec .620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ .060 In/Sec 11 .060 In/Sec 1.879 G-s 12 .071 In/Sec .800 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec .1879 G-s 12 .073 In/	C1A		.052 In/Sec	.209 G-s
C2V .319 In/Sec .168 G-s C2A .104 In/Sec .125 G-s C3H .065 In/Sec .396 G-s C3V .288 In/Sec .234 G-s C3A .127 In/Sec .250 G-s C4H .052 In/Sec .178 G-s C4H .052 In/Sec .178 G-s C4A .166 In/Sec .205 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.341 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 15 .073 In/Sec .722 G	С2н			.580 G-s
C2A .104 In/Sec .125 G-s C3H .065 In/Sec .396 G-s C3V .288 In/Sec .234 G-s C3A .127 In/Sec .249 G-s C4H .052 In/Sec .849 G-s C4V .065 In/Sec .178 G-s C4A .166 In/Sec .205 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec 1.840 G-s 7371-05 WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ .060 In/Sec 1.341 G-s 11 .060 In/Sec 1.341 G-s .071 In/Sec 1.78 G-s 12 .071 In/Sec 1.879 G-s .088 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s .020 G-s .073 In/Sec .226 G-s 14 .068 In/Sec .122 G-s .073 In/Sec .226 G-s .073 In/Sec .226 G-s <tr< td=""><td>C2V</td><td></td><td></td><td></td></tr<>	C2V			
C3V .288 In/Sec .234 G-s C3A .127 In/Sec .250 G-s C4H .052 In/Sec .849 G-s C4V .065 In/Sec .178 G-s C4A .166 In/Sec .205 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s X2 - EAST NEUTRALIZATION PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .071 In/Sec 8.00 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec .1092 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .033 In/Sec .082 G-s 23 .043 In/Sec .051 G-s 74 .033 In/Sec .051 G-s 75 .043 In/Sec .051 G-s 71 .038 In/Sec .051 G-s 71 .043 In/Sec .051 G-s	C2A		.104 In/Sec	.125 G-s
C3V .288 In/Sec .234 G-s C3A .127 In/Sec .250 G-s C4H .052 In/Sec .849 G-s C4V .065 In/Sec .178 G-s C4A .166 In/Sec .205 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s X2 - EAST NEUTRALIZATION PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .071 In/Sec 8.00 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec .1092 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .033 In/Sec .082 G-s 23 .043 In/Sec .051 G-s 74 .033 In/Sec .051 G-s 75 .043 In/Sec .051 G-s 71 .038 In/Sec .051 G-s 71 .043 In/Sec .051 G-s	СЗН		.065 In/Sec	.396 G-s
C3A .127 In/Sec .250 G-s C4H .052 In/Sec .849 G-s C4V .065 In/Sec .178 G-s C4A .166 In/Sec .205 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .059 In/Sec 1.341 G-s 12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 1.248 G-s 14 .060 In/Sec 1.879 G-s 13 .059 In/Sec 1.879 G-s 14 .068 In/Sec 1.879 G-s 15 .073 In/Sec .222 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 1 11 .068 In/Sec 1.879 G-s 21 .069 In/Sec <	C3V		.288 In/Sec	.234 G-s
C4V .065 In/Sec .178 G-s C4A .166 In/Sec .205 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .059 In/Sec 1.341 G-s 12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 15 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 14 .068 In/Sec 1.879 G-s 15 .073 In/Sec .800 G-s 16 .073 In/Sec .800 G-s 12 .069 In/Sec .1870 G-s 21 .069 In/Sec .1925 G-s 23 .079 In/Sec .925 G-s 23 .079 In/Sec .933 G-s<			.127 In/Sec	.250 G-s
C4V .065 In/Sec .178 G-s C4A .166 In/Sec .205 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .059 In/Sec 1.341 G-s 12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 15 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 14 .068 In/Sec 1.879 G-s 15 .073 In/Sec .800 G-s 16 .073 In/Sec .800 G-s 12 .069 In/Sec .1870 G-s 21 .069 In/Sec .1925 G-s 23 .079 In/Sec .925 G-s 23 .079 In/Sec .933 G-s<			052 In/Sec	849 G-s
C4A .166 In/Sec .205 G-s 7371-07 - EAST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.341 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 14 .068 In/Sec 1.879 G-s 14 .071 In/Sec .800 G-s 15 .068 In/Sec 1.879 G-s 14 .068 In/Sec 1.879 G-s 15 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ .069 In/Sec 11 .083 In/Sec .187 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec	-		065 In/Sec	178 G-s
OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 14 .068 In/Sec 1.879 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .007 In/Sec 1.925 G-s 23 .079 In/Sec 1.925 G-s 24 .069 In/Sec 1.925 G-s 257-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ <td></td> <td></td> <td></td> <td></td>				
OVERALL LEVEL 1-20 kHZ 11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 14 .068 In/Sec 1.879 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .007 In/Sec 1.925 G-s 23 .079 In/Sec 1.925 G-s 24 .069 In/Sec 1.925 G-s 257-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ <td>7371-07</td> <td>- EAST COOLING</td> <td>TOWER PUMP (21</td> <td>-Aug-24)</td>	7371-07	- EAST COOLING	TOWER PUMP (21	-Aug-24)
11 .196 In/Sec 1.620 G-s 12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.341 G-s 12 .071 In/Sec 1.341 G-s 12 .071 In/Sec 1.378 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 15 .073 In/Sec .800 G-s 16 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHz 11 .088 In/Sec 1.925 G-s 21 .069 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHz				
12 .103 In/Sec 2.752 G-s 13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.341 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 15 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 1.925 G-s 23 .079 In/Sec 3.53 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ	11		.196 In/Sec	1.620 G-s
13 .134 In/Sec .904 G-s 14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) 0VERALL LEVEL 1-20 kHZ 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 14 .068 In/Sec 1.879 G-s 14 .068 In/Sec 1.879 G-s X2 - EAST NEUTRALIZATION PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s <td></td> <td></td> <td>.103 In/Sec</td> <td>2.752 G-s</td>			.103 In/Sec	2.752 G-s
14 .059 In/Sec .480 G-s 7371-05 - WEST COOLING TOWER PUMP (21-Aug-24) 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.341 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s 14 .068 In/Sec 1.879 G-s X2 - EAST NEUTRALIZATION PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ .033 In/Sec .033 In/Sec .08				
OVERALL LEVEL 1-20 kHz 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s X2 - EAST NEUTRALIZATION PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ .033 In/Sec .082 G-s 2	-		.059 In/Sec	.480 G-s
OVERALL LEVEL 1-20 kHz 11 .060 In/Sec 1.341 G-s 12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s X2 - EAST NEUTRALIZATION PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ .033 In/Sec .082 G-s 2	7371-05	- WEST COOLING	TOWER PUMP (21	-Aug-24)
12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s X2 - EAST NEUTRALIZATION PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s			OVERALL LEVEL	1-20 kHZ
12 .071 In/Sec 1.778 G-s 13 .059 In/Sec 2.248 G-s 14 .068 In/Sec 1.879 G-s X2 - EAST NEUTRALIZATION PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	11		.060 In/Sec	1.341 G-s
14 .068 In/Sec 1.879 G-s X2 - EAST NEUTRALIZATION PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	12		.071 In/Sec	1.778 G-s
14 .068 In/Sec 1.879 G-s X2 - EAST NEUTRALIZATION PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	13		.059 In/Sec	2.248 G-s
OVERALL LEVEL 1-20 kHZ 11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	14		.068 In/Sec	1.879 G-s
11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	X 2	- EAST NEUTRAL	IZATION PUMP (21	-Aug-24)
11 .107 In/Sec .800 G-s 12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s			OVERALL LEVEL	1-20 kHZ
12 .073 In/Sec .722 G-s 362-13 - KOH FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	11		.107 In/Sec	.800 G-s
OVERALL LEVEL 1-20 kHZ 11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	12		.073 In/Sec	.722 G-s
11 .088 In/Sec 2.187 G-s 21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	362-13	- KOH FEED PUM	IP (21	-Aug-24)
21 .069 In/Sec 1.925 G-s 23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s			OVERALL LEVEL	1-20 kHZ
23 .079 In/Sec .353 G-s 71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	11			2.187 G-s
71 .138 In/Sec 2.804 G-s 72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	21		.069 In/Sec	
72 .125 In/Sec 1.912 G-s 357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	23		.079 In/Sec	.353 G-s
357-13 - PEROXIDE FEED PUMP (21-Aug-24) OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	71		.138 In/Sec	2.804 G-s
OVERALL LEVEL 1-20 kHZ 11 .033 In/Sec .082 G-s 21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s	72		.125 In/Sec	1.912 G-s
11.033 In/Sec.082 G-s21.038 In/Sec.100 G-s23.043 In/Sec.051 G-s71.068 In/Sec.112 G-s	357-13	- PEROXIDE FEE	D PUMP (21	-Aug-24)
21 .038 In/Sec .100 G-s 23 .043 In/Sec .051 G-s 71 .068 In/Sec .112 G-s			OVERALL LEVEL	1-20 kHZ
23.043 In/Sec.051 G-s71.068 In/Sec.112 G-s	11			.082 G-s
71 .068 In/Sec .112 G-s	21		.038 In/Sec	.100 G-s
•				
72 .062 In/Sec .029 G-s	71		-	.112 G-s
	72		.062 In/Sec	.029 G-s

363-06	- CRYSTALLIZER RECIRC PUMP (21-Aug-24)
	OVERALL LEVEL 1-20 kHZ
11	.015 In/Sec .296 G-s
21	.014 In/Sec .540 G-s .014 In/Sec .042 G-s
23	
71	.032 In/Sec .071 G-s
72 81	.024 In/Sec .021 G-s .025 In/Sec .092 G-s
91	.025 III/Sec .092 G-S
363-07A	- SLURRY TRANSFER PUMP (21-Aug-24)
	OVERALL LEVEL 1-20 kHZ
11	.079 In/Sec 1.501 G-s
21	.116 In/Sec 1.273 G-s
23 71	.183 In/Sec .402 G-s .174 In/Sec .327 G-s
71	.1/4 In/Sec .32/ G-s .542 In/Sec .059 G-s
106-01	- PUMP, #2 QUENCH TANK (21-Aug-24)
	OVERALL LEVEL 1-20 kHZ
11	.045 In/Sec .637 G-s
21	.053 In/Sec .531 G-s .122 In/Sec .112 G-s
23 71	
71	.618 In/Sec .773 G-s .251 In/Sec .551 G-s
72	.251 11/560 .551 6-5
363-13	- CENTRIFUGE FEED PUMP (21-Aug-24)
	OVERALL LEVEL 1-20 kHZ
11	.139 In/Sec .492 G-s
21	.090 In/Sec .407 G-s
23 71	.080 In/Sec .045 G-s .060 In/Sec .539 G-s
71	.060 In/Sec .539 G-s .129 In/Sec .178 G-s
12	.129 IN/Sec .178 G-S
360-05	- CARO'S ACID PUMP (21-Aug-24)
	OVERALL LEVEL 1-20 kHz
11	.055 In/Sec .510 G-s
21 23	.061 In/Sec .674 G-s .062 In/Sec .178 G-s
23 71	.115 In/Sec .178 G-S
72	.114 In/Sec .108 G-s
363-18	- AGITATOR, HOLD TANK (21-Aug-24)
11	OVERALL LEVEL 1-20 kHZ .117 In/Sec .527 G-s
21	.158 In/Sec .853 G-s
23	.127 In/Sec .099 G-s
31	.123 In/Sec 1.460 G-s
32	.066 In/Sec .448 G-s
106-08	- BLOWER, QUENCH TANK (21-Aug-24)
100-00	- BLOWER, QUENCH TANK (21-Aug-24) OVERALL LEVEL 1-20 kHz
11	.541 In/Sec .691 G-s
12	.804 In/Sec .183 G-s
13	.280 In/Sec .127 G-s
21	.135 In/Sec .779 G-s
22	.767 In/Sec .338 G-s
23	.579 In/Sec .076 G-s
71	.356 In/Sec 2.178 G-s
81	
DC BLOWER	.461 In/Sec 1.253 G-s
	- BLOWER, DUST COLLECTOR (21-Aug-24)
	- BLOWER, DUST COLLECTOR (21-Aug-24) OVERALL LEVEL 1-20 kHZ
11	- BLOWER, DUST COLLECTOR (21-Aug-24) OVERALL LEVEL 1-20 kHZ .055 In/Sec 1.440 G-s
11 12	- BLOWER, DUST COLLECTOR (21-Aug-24) OVERALL LEVEL 1-20 kHZ .055 In/Sec 1.440 G-s .067 In/Sec .214 G-s
11 12 13	- BLOWER, DUST COLLECTOR (21-Aug-24) OVERALL LEVEL 1-20 kHZ .055 In/Sec 1.440 G-s .067 In/Sec .214 G-s .064 In/Sec .468 G-s
11 12 13 21	- BLOWER, DUST COLLECTOR (21-Aug-24) OVERALL LEVEL 1-20 kHZ .055 In/Sec 1.440 G-s .067 In/Sec .214 G-s .064 In/Sec .468 G-s .062 In/Sec 1.309 G-s
11 12 13 21 22	- BLOWER, DUST COLLECTOR (21-Aug-24) OVERALL LEVEL 1-20 kHZ .055 In/Sec 1.440 G-s .067 In/Sec .214 G-s .064 In/Sec .468 G-s .062 In/Sec 1.309 G-s .057 In/Sec .226 G-s
11 12 13 21 22 23	- BLOWER, DUST COLLECTOR (21-Aug-24) OVERALL LEVEL 1-20 kHZ .055 In/Sec 1.440 G-s .067 In/Sec .214 G-s .064 In/Sec .468 G-s .062 In/Sec 1.309 G-s .057 In/Sec .226 G-s .057 In/Sec .256 G-s
11 12 13 21 22	- BLOWER, DUST COLLECTOR (21-Aug-24) OVERALL LEVEL 1-20 kHZ .055 In/Sec 1.440 G-s .067 In/Sec .214 G-s .064 In/Sec .468 G-s .062 In/Sec 1.309 G-s .057 In/Sec .226 G-s

VNTSCRBBI	LW -	BLOWER,	VENT S	SCRUBBER		(21-Aug-24)	
				OVERAL	L LEVEL	1-20 kH	Z
11				.115 :	In/Sec	1.055 G	-s
12				.083 :	In/Sec	.481 G	-s
13				.088 :	In/Sec	.416 G 1.279 G	-s
21							
22				.095	In/Sec	.315 G	-s
23				.050 : .070 :	In/Sec	.595 G .919 G	-s
71				.070	In/Sec	.919 G	-s
81	L			.154	In/Sec	2.228 G	-s
370-03	_	COTNDED	OVONE			(21-Aug-24)	
570-05	_	GRINDER,	ONONE			1-20 kH	
11	1					.104 G	
71				123	In/Sec	.965 G	- 9
, <u>-</u>	-			.125 .	, 566	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
366-41	-	SCRUBBEI	R CIRCU	JLATION PU	MP	(21-Aug-24)	
							Z
11	L			.192	In/Sec	1-20 kH 3.455 G	-s
21	L			.162	In/Sec	3.228 G	-s
23	3			.145 :	In/Sec	.997 G	-s
71	L			.246	In/Sec	.997 G 1.106 G	-s
81	L			.370	In/Sec	.435 G	-s
7368-03	-	PRECRUSE	IER OXC			(21-Aug-24)	
						1-20 kH	
23				.128 :	In/Sec	.061 G	-s
11				.295 :	In/Sec	.255 G .591 G	-s
21							
22						.103 G	
81	L			.139 :	In/Sec	.298 G	-s
110 04		DDTNE E		(D		(21-Aug-24)	
110-04	-	DRINE TA	ANK PUN				
11	1			.097 :	L LEVEL	. 1-20 kH .453 G	
21				.086		.453 G	
23				.030 .	In/Sec	.199 G	
71				100	In/Sec	305 0	-5
72				.147	In/Sec	.305 G .114 G	-s
, <u>-</u>	-				,		-
2STAGEWTH	а –	TWO STAG	E WATE	R PUMP		(21-Aug-24)	
						1-20 kH	
11	L					.608 G	
21	L				In/Sec	.604 G	
23	3				In/Sec	.102 G	
71	L			.129	In/Sec	2.102 G	-s
72	2			.085	In/Sec	.546 G	-s
Clarificatio				lts:			
Acc		G-s	PK				
Vel	>	In/Sec	PK				

Vibration Analysis

Refrigeration Compressor A CLASS I



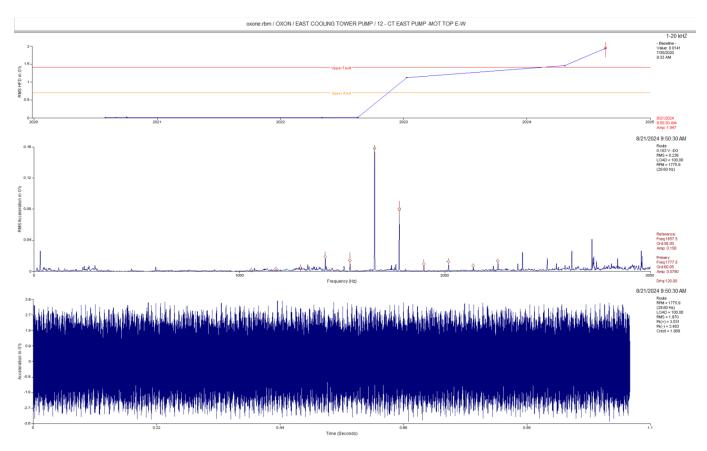
Observation:

Spectral data above shows a peak at 240 HZ which is 4 x rpm. This is most likely vane pass of the compressor. Overall amplitude at the highest vibration point decreased slightly since last collection in September 2023.

Recommendation:

The 4 x rpm vibration that can be seen in the outboard end of the compressor in the vertical direction appears to be excited by the very high vibration in the inlet piping of the compressor. The piping vibration is over 1 ips and is highest in the vertical direction. It is unclear if this is a resonance in the piping or if the vibration is being influenced by some type of flow turbulence.

East Cooling Tower Pump MOTOR CLASS I

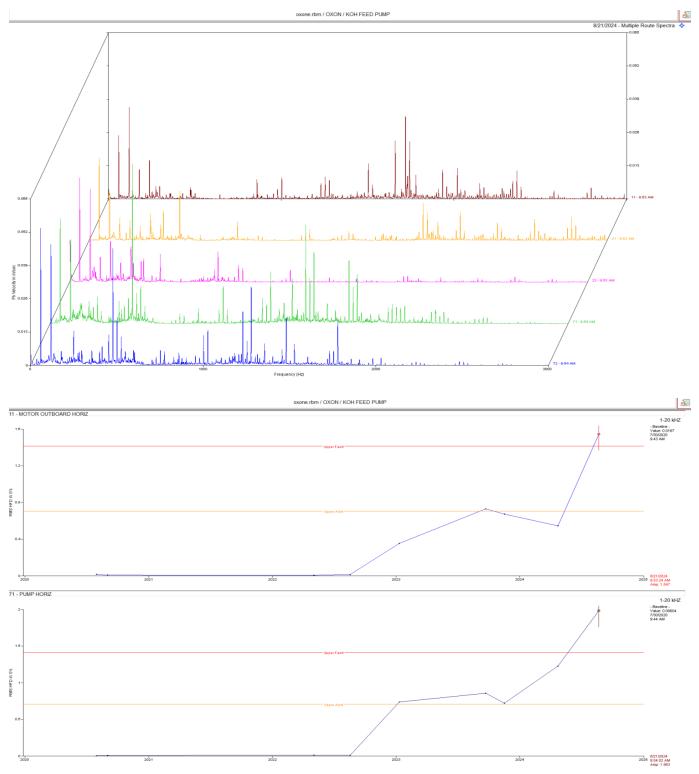


Observation:

Motor data shows a peak at 56 orders of rpm with 120 HZ. sidebands.

Recommendation:

Motor data shows an increase in high frequency amplitude. The 120 HZ. sidebands are electrical related as well. Motor may have an air gap issue or rotor issue. We will continue to monitor this closely.



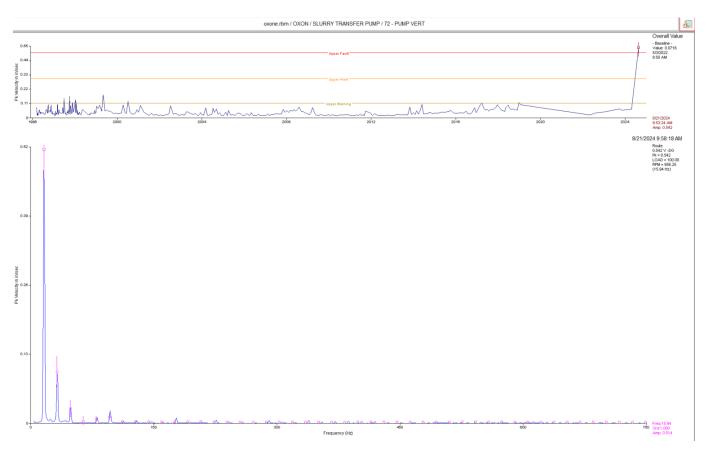
Observation:

Multi-spectral waterfall of the motor and pump shows non-synchronous peaks. Trend also shows an increase in high frequency amplitude in G's.

Recommendation:

Motor/Pump data shows some signs of bearing degradation. Motor and Pump will likely need attention in the next few months.

Slurry Transfer Pump CLASS III



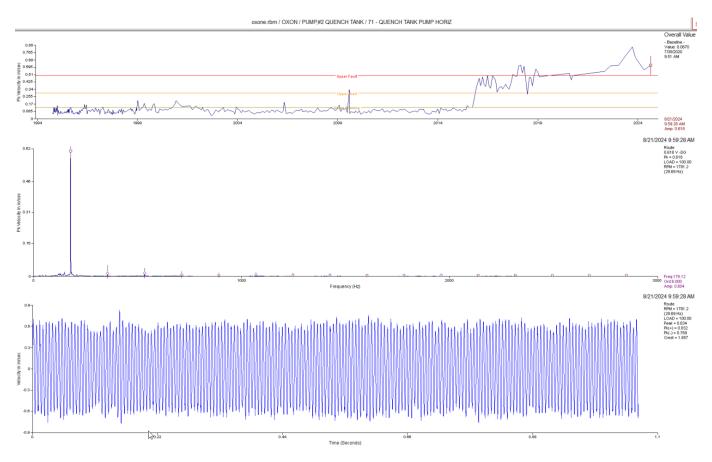
Observation:

Pump vertical trend data shows a significant increase in overall vibration amplitude. Spectral data shows a dominant 1 x rpm vibration.

Recommendation:

Pump base appears to be loose. Inspect pump base soon. Ensure all fasteners are tight and no soft base/foot exists. **Motor also has signs of bearing defects/wear. Inspect motor soon**.

Quench Tank Pump CLASS II



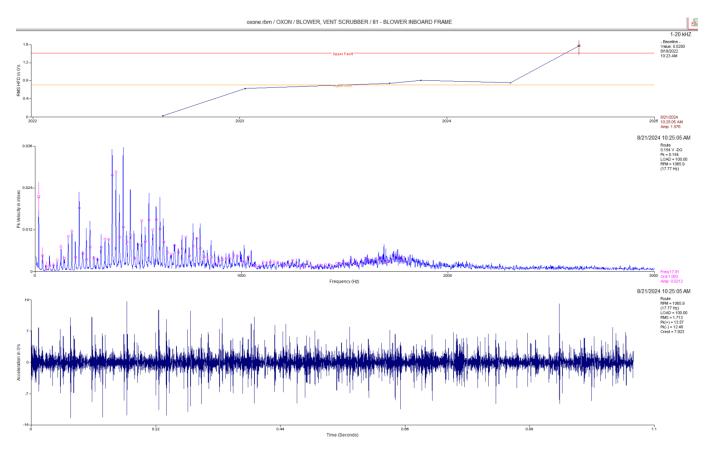
Observation:

Pump horizontal data shows a dominant vibration at 6 x rpm. Trend data shows an increase in overall vibration.

Recommendation:

If impeller has 6 vanes, then this vibration is pump vane pass and may be caused by internal pump/impeller issue or pump flow issue. Ensure pump is operating within the proper flow parameters and inspect pump/impeller as scheduling allows.

Vent Scrubber Blower CLASS II



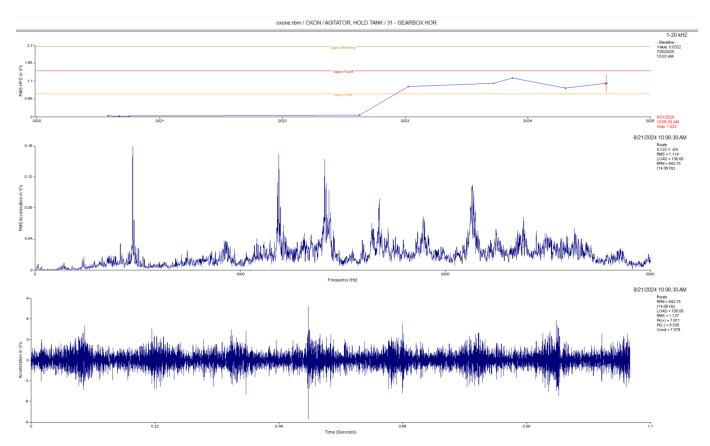
Observation:

Inboard blower data shows synchronous peaks associated bearing fit looseness/wear. Waveform data shows sharp impacting with high crest factor.

Recommendation:

Drive end blower bearing appears to have fit looseness wear. Blower needs attention as soon as scheduling allows.

Hold Tank Agitator CLASS II



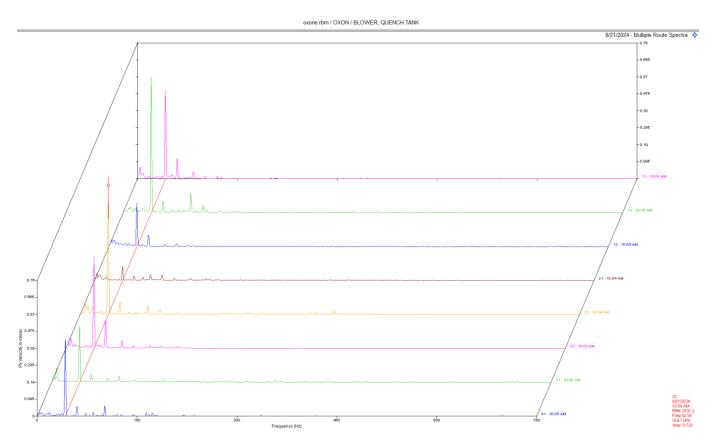
Observation:

Gearbox input side data shows random noise floor with non-synchronous and synchronous peaks associated with bearing and gear frequencies .

Recommendation:

Gearbox data is showing signs of defects and wear being apparent. Gearbox may need a fluid change and an oil analysis to help confirm severity of wear.

Quench Tank Blower CLASS II



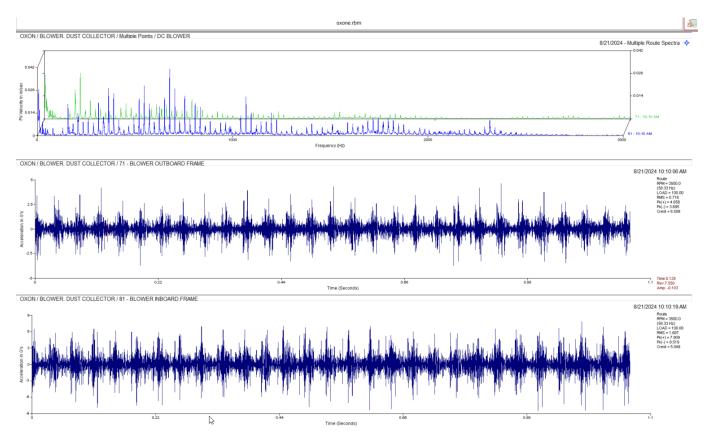
Observation:

Multipoint spectra shows a high vibration throughout the blower and motor. This peak appears to be 1 x blower rpm.

Recommendation:

Data suggests imbalance of the blower or possible sheave issue. Inspect blower wheel for buildup and or damage. Ensure sheaves are in good shape and properly aligned. Check all fasteners and ensure belts are also in good shape.

Dust Collector Blower CLASS III



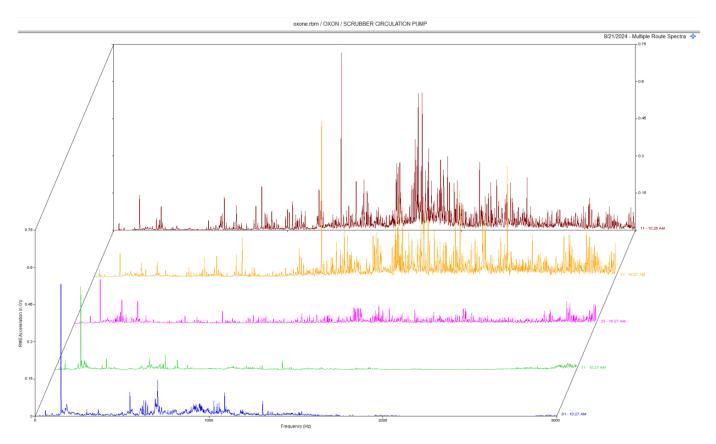
Observation:

Multipoint spectra of the blower show excessive vibration in the blower bearings. Peaks in blower spectra are mostly synchronous which indicate excessive blower shaft and or bearing fit wear. Waveform data shows 8 g's (outboard) and 15 g's (inboard) peak to peak with signs of impacting and pulsing.

Recommendation:

Data indicates defects/wear in the blower bearings and or blower shaft. The blower is very noisy as well and will need attention very soon.

Scrubber Circulation Pump CLASS III



Observation:

Multi-point spectral waterfall shows high amplitude acceleration and non-synchronous peaks in motor spectra.

Recommendation:

Motor bearings are showing signs of defect/wear. We are monitoring this closely. Motor should be replaced at next down time.

As always, it has been a pleasure to serve the Lanxess Oxone Memphis Plant. If there are any comments or questions, do not hesitate to contact us.

Sincerely,

Kevin W. Maxwell

ISO Certified Vibration Analyst, Category III



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