

DOW CHEMICAL LAD
SOLVENTS / EDC 1
NOISE SURVEY

AN EXTENSIVE AREA NOISE SURVEY WAS COMPLETED IN THE SOLVENTS / EDC 1 PLANT IN 1990. THE BRUEL & KJAER PRECISION SOUND LEVEL METER, TYPE 2232, WAS USED TO CONDUCT THE STUDY OF NOISE LEVEL PROBLEMS IN OUR BLOCK. THE METER WAS SET IN THE SLOW RESPONSE MODE USING THE "A" WEIGHTING NETWORK.

A FOCAL POINT OF THE SURVEY WAS TO INCLUDE HEAVY EQUIPMENT, HAND TOOLS, AND POWER TOOLS, AS THESE SOURCES PRODUCE VERY HIGH LEVELS OF NOISE. THIS PROVED TO BE AN IMPORTANT PART OF THE SURVEY SINCE 9 OF THE 18 READINGS OVER 100 dB (A) PROVED TO BE FROM THESE SOURCES.

ALSO INCLUDED IN THE SURVEY ARE READINGS FROM MOST OF THE PUMP'S AND ALL OF THE COMPRESSOR AREA'S LOCATED IN THE BLOCK.

ALL OF THE READINGS GATHERED ARE LISTED IN ORDER OF SOUND LEVEL IN DECIBELS AND PLOT PLANS ARE USED TO SHOW SPECIFIC HIGH NOISE AREAS.

ALL HIGH NOISE AREA'S WERE CHECKED FOR PROPER WARNING SIGNS AND ANY THAT WERE MISSING OR NONLEGIBLE WERE REPAIRED OR REPLACED. ALSO, SEVERAL NEW AREA'S WERE INCLUDED IN THE SURVEY. THESE INCLUDE BOTH NEW PIECES OF EQUIPMENT (SUCH AS THE FIN-FAN EXCHANGERS) AND AREA'S WHICH WERE NEGLECTED IN THE PAST OR BROUGHT TO OUR ATTENTION BY OPERATIONS AND TECHNICAL PERSONNEL.

IT MUST BE NOTED THAT HIGH NOISE AREA'S ARE COMMUNICATED TO ALL DOW AND CONTRACT PERSONNEL ONCE A YEAR DURING THE INDUSTRIAL HYGIENE REVIEW. ALSO, THEY ARE INSTRUCTED IN THE PROPER SELECTION, FIT, AND USE OF HEARING PROTECTION AT THE SAME TIME. NEW EMPLOYEES ARE NOTIFIED OF HIGH NOISE AREA'S AND PROPER HEARING PROTECTION SELECTION, FIT, AND USE WHEN THEY ARE INDOCTRINATED INTO THE BLOCK. IN ADDITION, ALL EMPLOYEES ASSIGNED TO THE PLANT FOR A MINIMUM OF 1 YEAR HAVE AN AUDIOGRAM DONE DURING THEIR ANNUAL PHYSICALS. THIS HELPS ALERT THOSE EMPLOYEES WHO HAVE INCURRED NOISE INDUCED HEARING LOSS TO BE ESPECIALLY AWARE OF HIGH NOISE AREAS.

OF SPECIAL INTEREST IS THE EXTENSIVE WORK DONE IN THE AIR COMPRESSOR AREA IN THE PLANT TO CONTROL POTENTIAL NOISE EXPOSURE LEVELS. THIS WORK, COMPLETED IN THE 1st QUARTER OF 1990, CONSIDERABLY REDUCED NOISE LEVELS IN THE NEW "DRIER SKID" AREA. SEVERAL SOURCES IN THIS AREA EXCEEDED 100 dB(A) PREVIOUS TO THIS PROJECT. ALL SOURCES NOW ARE 90 dB(A) OR LESS.

THRESHOLD LIMIT VALUES *

CONTINUOUS NOISE		IMPULSE / IMPACT NOISE	
DURATION PER DAY HOURS	SOUND LEVEL dB (A)	SOUND LEVEL dB (A)	NUMBER PER DAY PERMITTED
8	85	120	10000
4	90**	130	1000
		140***	100

- * ALL TIME FRAMES AND CORRESPONDING SOUND LEVELS ARE IN REFERENCE TO AN UNPROTECTED EAR.
- ** NO EXPOSURE TO CONTINUOUS NOISE IN EXCESS OF 90 dB (A) IS PERMITTED WITHOUT HEARING PROTECTION.
- *** NO EXPOSURE TO IMPULSE / IMPACT NOISE IN EXCESS OF 140 dB (A) IS PERMITTED WITHOUT HEARING PROTECTION.

PROCESS EQUIPMENT	SOUND LEVEL dB(A)
P-53 A	88
C-14 A BOTTOMS CONTROL VALVE	88
P-1 C/K	88
P-102 A/B	88
K-40 A WEST	87
K-40 B WEST	87
P-101 A/B	87
P-201 A	87
C-14 B OVERHEAD CONTROL VALVE	87
E-621 BOTTOM DECK	87
P-67 C	87
P-510 A/B	86
K-520 GROUND LEVEL	86
P-100 AE/BE	86
P-8 E/F	86
P-13 G/H	86
E-620 TOP DECK	80
P-58 A	86
P-71 AB/BB	85
E-540 GROUND LEVEL	85
R-1 D C/L2 CONTROL VALVE	85
P-122 A/B	85
P-47	84
E-1 C DUMP CONTROL VALVE OPENING/CLOSING	84
P-6 C/D	84
E-550 GROUND LEVEL	84
R-1 C INLET	84
C-81	84
P-13 E/F	83
P-220 A/B	83
P-7 A/B	82
P-4 A/B	82
C-1 C REFLUX CONTROL VALVE	82
D-2 C LEVEL CONTROL VALVE	82
D-1 C TO T-3 C FORWARD FLOW CONTROL VALVE	82
P-5 C/D	81
P-2 C/D	81
P-360 A/B	81
R-1 C TO D-1 C	81
E-620 BOTTOM DECK	80
P-71 AE/BE	80
P-3 C/D	80
WS-40	80
P-342E	79
AF-40	79

HAND TOOLS (IMPACT NOISE)	SOUND LEVEL dB(A)
HAMMER (ON METAL)	116
HAMMER (ON STEEL CHISEL)	106
HAMMER (DRIVING NAIL)	103
HAMMER (ON WOOD CHISEL)	95

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POWER TOOLS	SOUND LEVEL dB(A)
SIDE GRINDER (FIBER DISC ON METAL)	110
PIPE GRINDER	108
CIRCULAR SAW (CUTTING WOOD)	107
PIPE CUTTER, LG. (FAST SPEED)	95
PIPE CUTTER, SM.	95
PIPE CUTTER, LG. (MED. SPEED)	90
PIPE CUTTER, LG. (SLOW SPEED)	85

HEAVY EQUIPMENT AND MACHINERY	SOUND LEVEL dB(A)
CHERRY PICKER (FULL THROTTLE)	108
PORTABLE AIR COMPRESSOR (DOORS OPEN)	102
WELDING MACHINE (FULL THROTTLE)	101
CHERRY PICKER (IDLE)	96
WELDING MACHINE (IDLE)	96
PORTABLE AIR COMPRESSOR (DOORS CLOSED)	90
TOWMOTOR	90
CLB MANLIFT	90

MISCELLANEOUS ITEMS	SOUND LEVEL dB(A)
PLANT INTERCOM AT 15'	115
BATE ONE PAGE	96
SMOKE ALARM	95
ACCL LAB VENT HOOD	90
PANEL 2 ALARM (SOLVENTS)	82
REDUNDANT LEVEL ALARM (SOLVENTS)	82
RADIOLAB VENT HOOD	80
COMPUTER ROOM (SOLVENTS)	75
MAINTENANCE SHOP (ECHO)	72
PARKING LOT (SOLVENTS)	66
NEW CONTROL ROOM	53

DRIER ON/OFF	BEFORE PROJECT dB(A)	AFTER PROJECT dB(A)
NE SIDE	97	84
SE SIDE	92	79
E SIDE	84	80
SW SIDE	104	82
NW SIDE (FILTER BLEED)	112	90
N SIDE	104	84