

TH75E Unit #T75 Full Noise Survey

17 May 2000

Oakfield, Wisconsin

Site Description

This full noise survey was conducted between 0900 and 1315 on 17 May 2000 at a municipal water project in Oakfield, Wisconsin. The altitude is approximately 2,500 feet above sea level. The drill site was in a flat, open, farm field. The nearest road was over 150' away (Figure 1). There was no external noise, which could have contributed to noise levels in the survey. There were several vehicles (running occasionally) positioned around the drill rig.

Environmental Conditions

During the entire survey, winds were from the southeast at speeds around 10 miles per hour. Temperatures started in the mid 60°s F and rose to the mid 70°s F during the course of the survey with 35% humidity. The background noise level taken with the SLM before drilling operations was less than 75.0 dBA.

Site Equipment

The drill surveyed was unit T75 based out of Milwaukee, Wisconsin. The rig is mounted on a 1989 International tandem diesel carrier. Ancillary equipment included an International pipe truck, air powered, diaphragm type water pump, flatbed equipment trailer and a Ford F-350 driller's pick-up truck.

Technical Approach

Layne Christensen Safety Coordinator, Mike Thurlow, conducted this survey. During the survey, the drill crew wore the noise dosimeters for approximately four hours while performing routine drilling operations. For this time, there were no shut downs or work stoppages. This survey would constitute an "average" time frame of drilling on a TH75E RC drill rig.

Audio Dosimetry Results

Dosimetry of personnel on this TH75E RC drill rig showed exposure averages above the OSHA/MSHA action levels of 85 dBA TWA₈ and the 50% dose. The tables on the following pages outline specific dosimetry results.

Instantaneous Sound Level Measurement Results

Instantaneous SLM results for the TH75E RC drill rig at Oakfield showed noise levels above 85 dBA up to fifty feet (50') away from the rig during drilling operations. These levels were dependent upon the direction of the rig. The front of the rig showed the lowest levels beginning at ~ 95 dBA. The noise levels at the left side of the drill produced levels of ~ 109 dBA due to the close proximity of the engine and generator.

Conclusion

The dosimetry data, 85 dBA line and instantaneous SLM readings taken during this survey are within other historical surveys conducted.

Equipment List	
Instrument	Serial Number
Quest Model 215 SLM	M2050070
Quest CA12 Acoustical Calibrator	6100450
DuPont Mk1 Personal Dosimeter	14901
DuPont Mk2 Personal Dosimeter	14905
DuPont AC-1 Acoustical Calibrator	01149

Calibration Records						
Serial Number	Pre-Cal			Post-Cal		
	94dBA	114dBA	124dBA	94dBA	114dBA	124dBA
14905 (driller)	93.9	113.9	123.9	93.9	113.9	123.9
14901 (helper)	94.0	113.5	123.7	93.7	113.6	123.6
M2050070	110 dBA @ 1,000 Hz			110 dBA @ 1,000 Hz		

Noise Dosimeter Survey Results						
	Survey Dose %	anticipated Dose ₈ %	survey dBA _{avg}	anticipated ¹ TWA ₈	dBA _{max}	Time (hrs:min)
14905 – driller	196.6	390.0	99.3	94.9	123.9	4:17
14901 - helper	166.7	330.0	97.9	93.7	122.7	4:17

¹ based on survey dose% in equation $TWA_8 = 16.61 \log_{10} (D\%/100) + 90$

Instantaneous SLM Readings				
Distance from Rig in feet	SLM Readings in dBA from Position			
	Front	Rear	Left	Right
0	99.0	95.0	102.0	109.0
5	97.0	93.0	100.0	106.0
10	96.0	91.0	98.0	102.0
15	95.0	90.0	97.0	100.0
20	92.0	90.0	95.0	98.0
25	91.0	88.0	94.0	96.0
30	89.0	87.0	92.0	90.0
35	86.0	86.0	91.0	87.0
40	84.0	85.0	90.0	86.0
45	82.0	85.0	88.0	84.0
50	80.0	-	85.0	83.0

Misc. Instantaneous SLM Readings	
Operator's Station	95.0 dBA

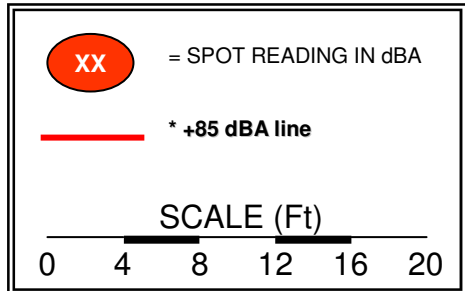
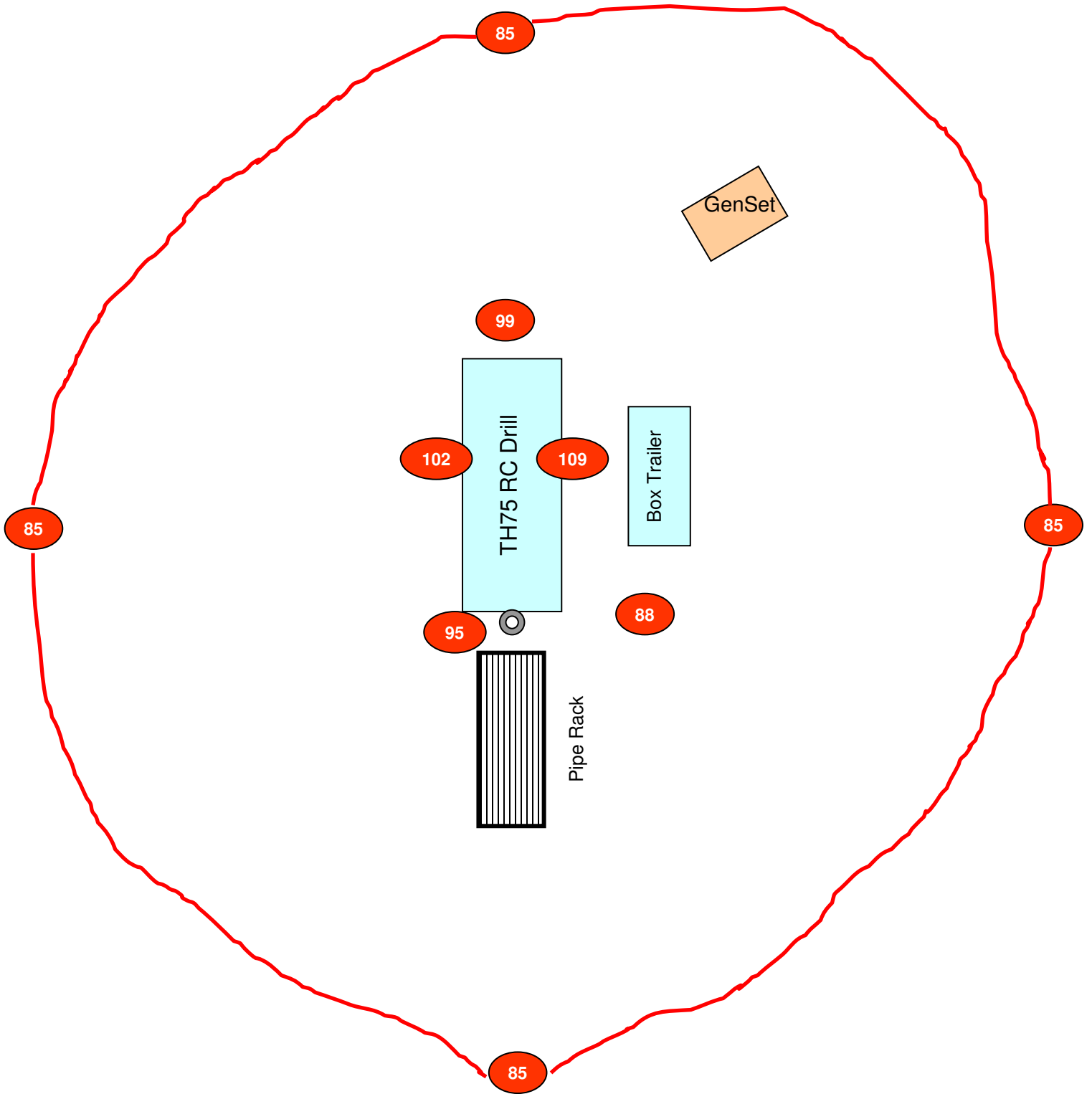


Figure 1 Oakfield TH75E #T75
 17 May 2000