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EVALUATION OF NOISE
ASSOCIATED WITH GEOTHERMAL
DEVELOPMENT ACTIVITIES

Draft Report
for the Period
31 July 1979 - 30 April 1982

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VOLUME II

1.0 DATA SHEETS FOR NOISE ASSOCIATED WITH
GEOTHERMAL DEVELOPMENT ACTIVITIES

DATA SHEET #1

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Caterpillar Tractor D8 Model H
open exhaust stack, engine exposed

Reference:

Marshall Long/Acoustics

Date of Measurement:

August, 1979

Distance to Source:

50 feet

Description/Location:

Canyon 8 Landfill, Los Angeles, CA

1. Uphill (9% grade)

2. Downhill

Hz	1	2	3	4
A	87	91		
C	95	95		
Linear				
50				
63 63	93	92		
80				
100				
125 125	90	86		
160				
200				
250 250	82	81		
315				
400				
500 500	82	84		
630				
800				
1000 1000	82	86		
1250				
1600				
2000 2000	79	86		
2500				
3150				
4000 4000	78	81		
5000				
6300				
8000 8000	70	70		
10,000				

DATE SHEET #2

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Caterpillar Tractor D8 Model H
muffled exhaust stack & partially
protected engine

Reference:

Marshall Long/Acoustics

Date of Measurement:

August, 1979

Distance to Source:

50 feet

Description/Location:

Canyon 8 Landfill Los Angeles, CA

1. Unhill (9% grade)

2. Downhill

Hz	1	2	3	4
A	83	83		
C	92	87		
Linear				
50				
63 63	92	84		
80				
100				
125 125	77	80		
160				
200				
250 250	76	76		
315				
400				
500 500	80	79		
630				
800				
1000 1000	78	79		
1250				
1600				
2000 2000	75	76		
2500				
3150				
4000 4000	70	70		
5000				
6300				
8000 8000	65	70		
10,000				

DATA SHEET #3

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Caterpillar Tractor D8 Model K

Reference:

Marshall Long/Acoustics

Date of Measurement:

August, 1979

Distance to Source:

50 Feet

Description/Location:

Canyon 8 Landfill Los Angeles, CA

1. Uphill (9% grade)
2. Downhill

Hz		1	2	3	4
A		79	80		
C		88	87		
Linear					
50					
63	63	81	78		
80					
100					
125	125	85	84		
160					
200					
250	250	80	79		
315					
400					
500	500	76	78		
630					
800					
1000	1000	74	76		
1250					
1600					
2000	2000	68	69		
2500					
3150					
4000	4000	61	63		
5000					
6300					
8000	8000	57	57		
10,000					

DATA SHEET #4

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Caterpillar Scraper Model 657

Reference:

Marshall Long/Acoustics

Date of Measurement:

August, 1979

Distance to Source:

50 Feet

Description/Location:

Canyon 8 Landfill Los Angeles, CA

1. Uphill (9% grade)
2. Downhill

Hz	1	2	3	4
A	82	81		
C	90	88		
Linear				
50				
63 63	89	79		
80				
100				
125 125	78	80		
160				
200				
250 250	82	85		
315				
400				
500 500	81	79		
630				
800				
1000 1000	74	75		
1250				
1600				
2000 2000	72	70		
2500				
3150				
4000 4000	67	64		
5000				
6300				
8000 8000	65	57		
10,000				

DATA SHEET #5

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Diesel generators (3) for electric rig

Reference:

M. Long (this study)

Date of Measurement:

November 2, 1979

Distance to Source:

50 feet from air intake end of generator.
Approximately 300 feet from blooie silencer
(shielded from view)

Description/Location:

Union Oil GDC #12 - Measurement made during
drilling with air and venting (170,000#/hr)
through a blooie silencer. Measurement
position was such that diesel generators
dominated.

Hz	1	2	3	4
A	86			
C	95			
Linear				
50				
63 63	94			
80				
100				
125 125	90			
160				
200				
250 250	84			
315				
400				
500 500	85			
630				
800				
1000 1000	81			
1250				
1600				
2000 2000	75			
2500				
3150				
4000 4000	70			
5000				
6300				
8000 8000	61			
10,000				

DATA SHEET #6

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Diesel generators (3) powering electric rig

Reference:

M. Long (this study)

Date of Measurement:

November 2, 1979

Distance to Source:

50 feet

Description/Location:

Union Oil GDC #2 - Rig lowering pipe. The generators were the only significant source present. (1) 50 feet from air intake end (2) 50 feet from enclosed end with doors open. Generators were housed in an enclosure such that the cooling fan air entered through the radiator and the exhaust gases vented vertically through the muffler on top of the enclosure. The access doors were on the end of the enclosure opposite the air intake.

Hz	1	2	3	4
A	85	79		
C	94	89		
Linear				
50				
63 63	89	87		
80				
100				
125 125	92	84		
160				
200				
250 250	87	80		
315				
400				
500 500	81	78		
630				
800				
1000 1000	82	76		
1250				
1600				
2000 2000	74	70		
2500				
3150				
4000 4000	69	63		
5000				
6300				
8000 8000	61	57		
10,000				

DATA SHEET #7

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Mud Drilling

Reference:

M. Long (This study)

Date of Measurement:

August 8, 1979

Distance to Source:

140 feet

Description/Location:

Geysers - NCPA drill site at Cobb Valley
Slinger & Associates drill rig pulling pipe

Hz	1	2	3	4
A	71			
C				
Linear				
50				
63 63	79			
80				
100				
125 125	79			
160				
200				
250 250	75			
315				
400				
500 500	69			
630				
800				
1000 1000	68			
1250				
1600				
2000 2000	63			
2500				
3150				
4000 4000	52			
5000				
6300				
8000 8000	40			
10,000				

DATA SHEET #8

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Mud drilling operation, Republic
Drilling Company

Reference:

Salton Sea Anomaly
Master Environmental Impact Report and
Magma Power Plant #3 EIR
Prepared by WESTEC Services, San Diego,
California May, 1981

Date of Measurement:

January, 1981

Distance to Source:

100 Feet

Description/Location:

3 locations measured & averaged,
corrected to 100 feet. Rig powered by
3 ea. Caterpillar D 379, drilling depth
8350 Feet.

Hz	1	2	3	4
A	77			
C	87			
Linear				
50				
63 63	80			
80				
100				
125 125	85			
160				
200				
250 250	78			
315				
400				
500 500	73			
630				
800				
1000 1000	73			
1250				
1600				
2000 2000	70			
2500				
3150				
4000 4000	63			
5000				
6300				
8000 8000	55			
10,000				

DATA SHEET #9

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Drilling Rig

Reference:

M. Long (unpublished)

Date of Measurement:

5/29/79

Distance to Source:

- (1) 200 feet
- (2) 68 feet
- (3) 86 feet

Description/Location:

Geysers, Aminoil Well, Davis Estate
 (1) above rig
 (3) measurements on side of drilling
 opposite diesel engines.

Hz	1	2	3	4
A	82	73	81	
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #10

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Drilling Rig

Reference:

M. Long (unpublished)

Date of Measurement:

Distance to Source:

- 1) 55 Feet
- 2) 95 Feet

Description/Location:

Geyzers: Big Chief Drill Rig at the
Big Chief Mine, Test hole.

Hz	1	2	3	4
A	76	74		
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #11

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Drilling Rig

Reference:

Fraser-Smith, 1977. "The effect of Drilling a Geothermal Well on the Behavior and Reproduction of Sage Grouse", prepared for Republic Geothermal, Inc., by Environs, Los Altos, California

Date of Measurement:

Distance to Source:

600 feet

Description/Location:

Long Valley, rotary drill rig.

Hz	1	2	3	4
A	62			
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #12

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Mud Drilling

Reference:

P. Leitner/ Ecoview EIR

Union Oil Co. - Unit 17
Development Area, Lake County, CA
December 15, 1977

Date of Measurement:

Distance to Source:

50 feet

Description/Location:

Diesel engines, pumps and other mechanical equipment

Hz	1	2	3	4
A	85			
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #13

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Mud Drilling

Reference:

P. Leitner, Data referenced in Draft EIR -
Wild Cat Geothermal Prospect. Occidental
Geothermal & Republic Geothermal
prepared by Gennis and Associates, June, 1979

Date of Measurement:

1979

Distance to Source:

650 feet

Description/Location:

Geysers, Republic Bouscal Well #1.

Hz	1	2	3	4
A	54			
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #14

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Mud drilling

Reference:

Heber Geothermal Demonstration Project EIR,
Imperial County Planning Department #170-77.
VTN Consolidated, Inc.

Date of Measurement:

1972

Distance to Source:

200 feet

Description/Location:

Heber, Chevron's Nowlin Partnership #1 well

Hz	1	2	3	4
A	66			
C	71			
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #15

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Drilling with air, bleed air muffled
No steam discharge

Reference:

Charles Salter, Long Ridge geothermal
leasehold.
Final environmental impact report,
Environmental Impact Planning Corp,
August, 1977

Date of Measurement:

Not shown

Distance to Source:

Not shown - assumed to be 100 feet from
test.

Description/Location:

Geysers, Aminoil USA - Well not given -
Spectrum is average of two directions
at the same distance from the source.

Hz	1	2	3	4
A	80			
C				
Linear				
50				
63 63	93			
80				
100				
125 125	86			
160				
200				
250 250	80			
315				
400				
500 500	77			
630				
800				
1000 1000	75			
1250				
1600				
2000 2000	69			
2500				
3150				
4000 4000	61			
5000				
6300				
8000 8000	53			
10,000				

DATA SHEET #16

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Air Drilling Compressor

Reference:

M. Long (unpublished)

Date of Measurement:

December 6, 1975

Distance to Source:

40 Feet

Description/Location:

Geysers
Shell drill site
compressor at idle

Hz	1	2	3	4
A	85			
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #17

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Air Drilling (without steam)

Reference:

P. Leitner/Scoview EIR
Union Oil Co. - Unit 17
Development Area, Lake County, CA
December 15, 1977

Date of Measurement:

Distance to Source:

50 feet

Description/Location:

Several diesel powered compressor units present. Compressed air exhausted through a blooie line and cyclonic muffler silencer

Hz	1	2	3	4
A	88			
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #18

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Air Drilling

Reference:

Lake County Air Pollution Control District
Final environmental impact report
McCulloch Oil Corporation - Cobb Valey
geothermal leasehold
Prepared by Gennis and Associates, Engineers

Date of Measurement:

(1,2) 5/4/76
(3) 5/14/76
(4) 5/18/76

Distance to Source:

(1) 50 feet
(2) 510 feet
(3) 50 feet
(4) 50 feet

Description/Location:

Geysers, McCulloch Oil Company
Francisco Leasehold
(1,2,4) Two compressors operating
(3) One compressor operating

Note: Range of values shown

Hz	1	2	3	4
A	96/98	62/65	80/82	82/86
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #19

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Drilling with air while venting through a blooie silencer

Reference:

M. Long (this study)

Date of Measurement:

November 2, 1979

Distance to Source:

150 feet from blooie silencer and 100 feet from compressors. Average 150 feet to center of drill rig.

Description/Location:

Union GDC #12 - Well capacity 170000#/hour - steam venting between a 11-3/4" casing liner and a 4" drill pipe into a cylindrical blooie silencer without water injection. Air drilling occurring simultaneously. Data taken at 90° to silencer exit.

Hz	1	2	3	4
A	83			
C	88			
Linear				
50				
63 63	81			
80				
100				
125 125	83			
160				
200				
250 250	76			
315				
400				
500 500	82			
630				
800				
1000 1000	78			
1250				
1600				
2000 2000	79			
2500				
3150				
4000 4000	79			
5000				
6300				
8000 8000	71			
10,000				

DATA SHEET #20

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Drilling with air while venting through
a blooie silencer

Reference:

M. Long (this study)

Date of Measurement:

November 2, 1979

Distance to Source:

50 Feet from Blooie Silencer and Air
Compressors

Description/Location:

Union Oil GDC #12 - well capacity 170,000#/hr
Steam venting (1) between a 11-3/4" casing
liner and a 4" drill pipe, (2) between a 16"
liner and a 4" drill pipe, through a cylin-
drical blooie muffler without water injection.
Air drilling occurring simultaneously. Data
taken at 120° to silencer exit.

Hz	1	2	3	4
A	92	96		
C	98			
Linear				
50				
63 63	93			
80				
100				
125 125	93			
160				
200				
250 250	83			
315				
400				
500 500	88			
630				
800				
1000 1000	85			
1250				
1600				
2000 2000	81			
2500				
3150				
4000 4000	77			
5000				
6300				
8000 8000	71			
10,000				

DATA SHEET #21

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(through "new drilling muffler")

Reference:

L. E. Capuano, Santa Rosa, Aminoil USA,
Inter office communication, June 4, 1975

Date of Measurement:

May 24, 1975

Distance to Source:

(1,2) 50 feet
(3) 70 feet

Description/Location:

Geysers, Aminoil, CA-956 #2 production
estimated at 170,000 lbs/hr of steam
flowing through muffler
(1,3) with water flowing through muffler
(2) without water through muffler

Hz	1	2	3	4
A	103	108	90	
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #22

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(through "new drilling muffler")

Reference:

L. E. Capuano, Santa Rosa, Aminoil USA,
Interoffice communication, June 4, 1975

Date of Measurement:

5/23/75

Distance to Source:

- (1) 50 feet
- (2) 70 feet

Description/Location:

Geysers, Aminoil
Estimated steam production 160000 lb/hr
through muffler on CA-956 No. 2, CA 956
No. 1 being tested.
Weather: Clear, hot, slight breeze 4-6 mph
east to west

Hz	1	2	3	4
A	114	103		
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #23

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Air Drilling (with steam)

Reference:

P. Leitner/ Ecoview EIR
Union Oil Co. - Unit 17
Development Area, Lake County, CA
December 15, 1977

Date of Measurement:

Distance to Source:

50 Feet

Description/Location:

Steam Exhausted through blooie line to
cyclonic separator/muffler with water
injection

Hz	1	2	3	4
A	90			
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #24

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Blooie Lines & Mufflers

Reference:

R. F. Buhl - Technical memo to Olin
Whitescarver, September 12, 1974 from
Research Department, Union Oil Company,
Brea, California

Date of Measurement:

- (1) September, 1974 (4) June, 1982
(2) September, 1974
(3) June, 1972

Distance to Source:

- (1) 25 Feet (4) 22 Feet
(2) 25 Feet
(3) 22 Feet

Description/Location:

- (1) Blooie line muffler (samples), 200,000
#/hr steam, with water
(2) Blooie line muffler (samples), 200,000
#/hr steam, no water
(3) Blooie line, 199,000#/hr steam, water
no muffler
(4) Blooie line, 199,000 #/hr steam, no
water, no muffler

Hz	1	2	3	4
A	83	93		
C	84	96	118	121
Linear				
50				
63 63	92	96	111	117
80				
100				
125 125	92	98	115	117
160				
200				
250 250	88	97	110	119
315				
400				
500 500	80	94	111	104
630				
800				
1000 1000	78	90	113	104
1250				
1600				
2000 2000	76	86	111	105
2500				
3150				
4000 4000	72	81	104	98
5000				
6300				
8000 8000	60	68	103	86
10,000				

DATA SHEET #24 Con't

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Reference:

Date of Measurement:

- (1) May, 1972
- (2) May, 1972

Distance to Source:

- (1) 20 Feet
- (2) 25 Feet

Description/Location:

- (1) Blooie line - 75 - 100,000# steam, no water, no muffler
- (2) Blooie line - 100,000# steam, no water, no muffler

Hz	1	2	3	4
A	109	114		
C				
Linear				
50				
63 63	107	106		
80				
100				
125 125	107	109		
160				
200				
250 250	109	102		
315				
400				
500 500	104	107		
630				
800				
1000 1000	104	103		
1250				
1600				
2000 2000	105	107		
2500				
3150				
4000 4000	98	107		
5000				
6300				
8000 8000	86	98		
10,000				

DATA SHEET #25

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(Venting during drilling with and without
water injection)

Reference:

M. Long, Draft EIR for the proposed
McCulloch Geothermal Corporation
Combs Geothermal Project - prepared
by Atlantis Scientific

Date of Measurement:

Distance to Source:

100 feet

Description/Location:

Geysers, Aminoil, flow 160,000 lbs/hr
used separator silencer
(1) Without water injection
(2) With water injection

Hz	1	2	3	4
A	108	97		
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #26

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(drilling with steam & shell muffler)

Reference:

M. Long (unpublished)

Date of Measurement:

December 6, 1975

Distance to Source:

100 feet

Description/Location:

Geysers - Shell drill site with shell muffler fed through a blooie line.
Steam @ 160,000#/Hr through a 3-4" bypass line with valve partially open. Water injection (150 ga/min est) 100 feet upstream of silencer. Diesel engines at 100 feet. Noise from engines and muffler about equal.

Hz	1	2	3	4
A	80			
C	97			
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #27

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

Union Oil Data, unreferenced report, copy provided by Olin Whitescarver

Date of Measurement:

3/2/72

Distance to Source:

- (1) 40 feet
- (2) approximately 1,000 feet

Description/Location:

Geysers, Union Oil well - Ottoboni Federal #1
Blowing wide open thru 10" valve to atmosphere, 150-175,000#/hr. (2) approximately 1000 feet - upwind - foggy.

Hz	1	2	3	4
A	119	74		
C	118	78		
Linear	118	84		
50				
63 63	89	63		
80				
100				
125 125	96	67		
160				
200				
250 250	106	74		
315				
400				
500 500	109	76		
630				
800				
1000 1000	116	78		
1250				
1600				
2000 2000	111	70		
2500				
3150				
4000 4000	106	62		
5000				
6300				
8000 8000	108	42		
10,000				

DATA SHEET #28

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(Open Well)

Reference:

R. F. Buhl, Union Oil
Technical Memorandum
Research Department, Brea, California
September 12, 1974
Memo: Coor 74-165M

Date of Measurement:

2/2/72

Distance to Source:

50 Feet

Description/Location:

Geysers, Union Oil Well OTT. Fed #1

Hz	1	2	3	4
A	119			
C				
Linear				
50				
63 63	89			
80				
100				
125 125	96			
160				
200				
250 250	106			
315				
400				
500 500	109			
630				
800				
1000 1000	116			
1250				
1600				
2000 2000	111			
2500				
3150				
4000 4000	106			
5000				
6300				
8000 8000	109			
10,000				

DATA SHEET #29

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge (Unsilenced)

Reference:

R. C. Bush

"An Overview of PGandE's Audible Noise
Measurement Program at the Geysers"
Geothermal Environmental Seminar-'76
Lake County, California Oct. 27-29, 1976

Date of Measurement:

1/6/76

Distance to Source:

100 Feet

Description/Location:

Unsilenced Steam Well discharge, vertical
plume, stable flow @ 100,000 #/Hr

Hz	1	2	3	4
A	108			
C				
Linear				
50				
63 63	91			
80				
100				
125 125	94			
160				
200				
250 250	95			
315				
400				
500 500	100			
630				
800				
1000 1000	103			
1250				
1600				
2000 2000	103			
2500				
3150				
4000 4000	102			
5000				
6300				
8000 8000	99			
10,000				

DATA SHEET #30

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

Measurement by Ron C. Bush, PG & E -
referenced in Long Ridge geothermal
leasehold, Final Environmental Impact
Report, Environmental Impact Planning Corp.,
August, 1977, Noise Section by Charles
Salter Associates

Date of Measurement:

1/6/76

Distance to Source:

100 feet

Description/Location:

Geysers, Aminoil Well 1862 #1

- (1) Unsilenced steam well - fully opened
(up to 125 dBA was measured when
partially open)
- (2) Steam bleed with 1" orifice

Hz	1	2	3	4
A	110	55		
C	112	65		
Linear				
50				
63 63	91	55		
80				
100				
125 125	94	59		
160				
200				
250 250	95	60		
315				
400				
500 500	89	58		
630				
800				
1000 1000	91	59		
1250				
1600				
2000 2000	94	50		
2500				
3150				
4000 4000	96			
5000				
6300				
8000 8000	93			
10,000				

DATA SHEET #31

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

Fluid Kinetics Corporation, Ventura, CA

Date of Measurement:

11/25/75

Distance to Source:

100 feet

Description/Location:

Geysers, Union Oil Well, Flow 150,000 lbs/hr

Hz	1	2	3	4
A	113			
C				
Linear				
50				
63 63	91			
80				
100				
125 125	96			
160				
200				
250 250	100			
315				
400				
500 500	102			
630				
800				
1000 1000	106			
1250				
1600				
2000 2000	108			
2500				
3150				
4000 4000	105			
5000				
6300				
8000 8000	100			
10,000				

DATA SHEET #32

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

M. Long (unpublished)

Date of Measurement:

August 17, 1978

Distance to Source:

40 feet

Description/Location:

Geysers Aminoil PDC #1
3" line discharging to air horizontally
1) 180° from exit
2) 90° from exit
3) 45° from exit

Hz	1	2	3	4
A	84	89	94	
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #33

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge (free venting)

Reference:

P. Leitner/ Ecoview EIR
Union Oil Co. - Unit 17
Development Area, Lake County, CA
December 15, 1977

Date of Measurement:

Distance to Source:

50 feet

Description/Location:

Full discharge from an unmuffled steam
well - range of values

Hz	1	2	3	4
A	114	125		
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #34

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

Lake County Air Pollution Control District
Final environmental impact report
McCulloch Oil Corporation, Cobb Valley
geothermal leasehold
Prepared by Gennis and Associates Engineers

Date of Measurement:

6/24/76

Distance to Source:

- (1) 25 feet
- (2) 50 feet
- (3) 100 feet
- (4) 150 feet

Description/Location:

Geysers, McCulloch's Francisco Leasehold
(1,2,3,4) 6" Orifice, 4" Choke

Hz	1	2	3	4
A	103	94	91	85
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #35

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(production testing)

Reference:

Lake County Air Pollution Control District
Final environmental impact report McCulloch
Oil Corporation, Cobb Valley geothermal
leasehold
Prepared by Gennis and Associates, engineers

Date of Measurement:

6/22/76

Distance to Source:

- (1) 25 Feet
- (2) 50 Feet
- (3) 100 Feet
- (4) 150 Feet

Description/Location:

Geysers, McCulloch's Francisco leasehold
(1,2,3,4) 3" Orifice, 3" Choke

Hz	1	2	3	4
A	107	101	95	91
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #36

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

Lake County Air Pollution Control District
Final environmental impact report McCulloch
Oil Corporation - Cobb Valley geothermal
leasehold
Prepared by Gennis and Associates, engineers

Date of Measurement:

6/23/76

Distance to Source:

- (1) 25 feet
- (2) 50 feet
- (3) 100 feet
- (4) 150 feet

Description/Location:

McCulloch's Francisco Leasehold
(1,2,3,4) 4" Orifice, 4" Choke

Hz	1	2	3	4
A	118	107	103	101
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #37

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(with and without muffler)

Reference:

Union Oil data, unreferenced report, copy
provided by Olin Whitescarver

Date of Measurement:

3/15/72

Distance to Source:

- (1) 10 feet
- (2) 50 feet
- (3) 10 feet

Description/Location:

Geysers, Union Oil Well, DX-1 - Full open
through 10" valve at 100,000#/hr flow₂
volume, well head pressure 50-100#/in²

- (1) At 10 feet, no muffler
- (2) At 50 feet, no muffler
- (3) At 10 feet, with Delta P multiple per-
forated exhaust tube type muffler.

Hz	1	2	3	4
A	130	117	101	
C				
Linear				
50				
63 63	94	88	92	
80				
100				
125 125	103	96	100	
160				
200				
250 250	111	98	99	
315				
400				
500 500	123	112	100	
630				
800				
1000 1000	125	113	99	
1250				
1600				
2000 2000	122	110	98	
2500				
3150				
4000 4000	122	106	95	
5000				
6300				
8000 8000	116	102	89	
10,000				

DATA SHEET #38

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(with and without muffler)

Reference:

Union Oil data, unreferenced report copy
provided by Olin Whitescarver.

Date of Measurement:

5/16/72

Distance to Source:

- (1) 25 feet
- (2) 25 feet
- (3) 20 feet

Description/Location:

Geysers Union Oil well, Ottoboni-State #8 to
atmosphere at 25 feet

- (1) Approximately 160,000#/hr - no muffler
- (2) Approximately 250,000#/hr - no muffler
- (3) At 20 feet, 153,000#/hr, GDC-77-12,
Kittell muffler 7223-VLR-30

Hz	1	2	3	4
A	135	135	86	
C				
Linear				
50				
63 63	104	103	95	
80				
100				
125 125	116	108	94	
160				
200				
250 250	120	118	90	
315				
400				
500 500	120	124	88	
630				
800				
1000 1000	130	128	88	
1250				
1600				
2000 2000	132	131	89	
2500				
3150				
4000 4000	128	127	84	
5000				
6300				
8000 8000	121	120	74	
10,000				

DATA SHEET #39

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge (with and without muffler)

Reference:

Union Oil data, report unreferenced, copy provided by Olin Whitescarver

Date of Measurement:

6/12/72

6/13/72

Distance to Source:

"Distance unknown, probably about 40 feet".

Description/Location:

Geysers, Union Oil well - Happy Jack #3
with and without Delta-P SMV muffler.
Well head valve 1/4 open.

(1) No muffler - 140,000#/hr

(2) With muffler - 152,000#/hr

Hz	1	2	3	4
A	113	96		
C				
Linear				
50				
63 63	89	84		
80				
100				
125 125	101	84		
160				
200				
250 250	104	83		
315				
400				
500 500	107	81		
630				
800				
1000 1000	108	84		
1250				
1600				
2000 2000	106	91		
2500				
3150				
4000 4000	104	91		
5000				
6300				
8000 8000	100	90		
10,000				

DATA SHEET #40

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge (with and without muffler)

Reference:

Union Oil data, report unreferenced, copy provided by Olin Whitescarver.

Date of Measurement:

6/12/72

6/13/72

Distance to Source:

"Distance unknown, probably about 40 feet"

Description/Location:

Geysers, Union Oil well - Happy Jack #3 with and without Delta-P SMV muffler.

Well head valve full open.

(1) No muffler - 205,000#/hr

(2) With muffler - 218,000#/hr

Hz	1	2	3	4
A	116	99		
C				
Linear				
50				
63 63	96	89		
80				
100				
125 125	105	90		
160				
200				
250 250	108	88		
315				
400				
500 500	111	86		
630				
800				
1000 1000	112	87		
1250				
1600				
2000 2000	110	92		
2500				
3150				
4000 4000	104	95		
5000				
6300				
8000 8000	96	93		
10,000				

DATA SHEET #41

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

(1) Open Well

(2) Rock Muffler

(3) Long Conical Muffler

(4) Short Conical Muffler W/Center Torpedo

Reference:

R. F. Buhl, Union Oil

Technical Memorandum

Research Department, Brea, California

September 12, 1974

Memo: Coor 74-165M

Date of Measurement:

9/5/74 and 9/6/74

Distance to Source:

50 Feet

Description/Location:

Geysers, Union Oil Well GDC72-30

(1) 270,000 Lb/Hr.

(2) 150,000 Lb/Hr.

(3) 170,000 Lb/Hr.

(4) 270,000 Lb/Hr.

Footnote to Table: "The discharge device is more significant than the (flow) rate".

Hz	1	2	3	4
A	118	89	116	114
C				
Linear				
50				
63 63	96	84	111	103
80				
100				
125 125	100	82	111	105
160				
200				
250 250	104	80	109	104
315				
400				
500 500	110	76	111	108
630				
800				
1000 1000	112	84	110	108
1250				
1600				
2000 2000	112	83	108	109
2500				
3150				
4000 4000	108	79	105	106
5000				
6300				
8000 8000	98	68	107	107
10,000				

DATA SHEET #42

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
 (1) Open Well
 (2) Rock Muffler
 (3) Long Conical Muffler
 (4) Short Conical Muffler

Reference:

R. F. Buhl
 "Noise Control Needs in the Developing
 Energy Technologies"

Date of Measurement:

Distance to Source:

100 feet SW

Description/Location:

Geysers Union Oil
 (1) 270,000 lb/hr
 (2) 150,000 lb/hr
 (3) 170,000 lb/hr
 (4) 270,000 lb/hr

Hz	1	2	3	4
A	122	84	118	119
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #43

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

(1) Open Well

(2) Rock Muffler

(3) Long Conical Muffler

(4) Short Conical Muffler with center torpe-

Reference: do

R. F. Buhl

"Noise Control Needs in the Developing
Energy Technologies"

Date of Measurement:

Distance to Source:

50 feet N. E.

Description/Location:

Geysers, Union Oil

(1) 270,000 lb/hr

(2) 150,000 lb/hr

(3) 170,000 lb/hr

(4) 270,000 lb/hr

Hz	1	2	3	4
A	117	92	114	116
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #44

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(portable rock muffler)

Reference:

R. R. Illingworth, California Department
of Health, Office of Noise Control

Date of Measurement:

1976

Distance to Source:

100 feet

Description/Location:

Geysers, Aminoil USA and Gas Company

(1) McKinley #8

(2) Abel #1

This well equipped with a portable rock
muffler which consisted essentially of
a trailer filled with crushed rocks.

Hz	1	2	3	4
A	97	97		
C				
Linear				
50				
63 63	90	97		
80				
100				
125 125	90	92		
160				
200				
250 250	92	85		
315				
400				
500 500	90	86		
630				
800				
1000 1000	87	89		
1250				
1600				
2000 2000	94	94		
2500				
3150				
4000 4000	83	83		
5000				
6300				
8000 8000	66	68		
10,000				

DATA SHEET #45

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

R. C. Bush, PG&E
Pacific Gas & Electric Company, San Francisco

Date of Measurement:

6/27/74

Distance to Source:

90 feet

Description/Location:

Geysers, Happy Jack #8
Muffled steam well exhausting through
silencer. Several small diameter bleed
lines exhausting

Hz	1	2	3	4
A	84			
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #46

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(with and without muffler)

Reference:

Harry Ebbeson, Air Pollution Control District
Quoted in the Environmental Impact Report
for Ford Flat Geothermal steam area, Atlantis
Scientific, July, 1976

Date of Measurement:

10/24/75

Distance to Source:

(1,2) 50 feet
(3,4) 600 feet

Description/Location:

Geyzers, Aminoil, McKinley #8 Steam Well
(1,3) Without muffler
(2,4) With muffler
Steam flow 190,000#/hour

Hz	1	2	3	4
A	133	114	99	89
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

Note: Effects of shielding and directivity may be included in the 600 ft measurement

DATA SHEET #47

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge (Thru portable muffler)

(1) Octave Band

(2) 1/3 Octave Band

Reference:

P. Leitner/Ecoview EIR

Union Oil Co - Unit 17

Development Area, Lake County, CA

December 15, 1977

Date of Measurement:

August 11, 1977

Distance to Source:

50 Feet

Description/Location:

Horner #1 venting thru large portable
muffler, measured at 30° from long axis
of muffler.

Temperature: 90°F

Wind: 0-7 mph NNW

RH: 17%

Time: 1415

Hz	1	2	3	4
A	100			
C				
Linear	101			
50		79		
63 63	85	81		
80		78		
100		78		
125 125	82	76		
160		76		
200		72		
250 250	82	77		
315		78		
400		74		
500 500	79	71		
630		74		
800		83		
1000 1000	88	84		
1250		83		
1600		82		
2000 2000	90	86		
2500		87		
3150		88		
4000 4000	95	90		
5000		91		
6300		91		
8000 8000	96	91		
10,000		89		

DATA SHEET #48

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(well cleanout through cyclonic muffler)

Reference:

P. Leitner/ Ecoview EIR
Union Oil Co. - Unit 17
Development Area, Lake County, Ca
December 15, 1979

Date of Measurement:

Distance to Source:

50 Feet

Description/Location:

Well cleanout and production testing of
a typical well venting through a cyclonic
muffler - no specification of water injection

Hz	1	2	3	4
A	90			
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #49

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

M. Long (unpublished)

Date of Measurement:

5/29/75

Distance to Source: Distance from steam exit

- (1) 28 feet
- (2) 50 feet
- (3) 93 feet
- (4) 247 feet

Description/Location:

Geysers, Aminoil Well CA-956 #1 - Steam venting from a 3° taper conical diffuser pipe diameter was 10" at the entrance and 36" at the exit of the cone.

- (1) 90° from exit
- (2) 60° from exit
- (3) 180° from exit
- (4) 180° from exit

Static pressure 462 psi, flow rate 160000#/hr.

Hz	1	2	3	4
A	124	128	100	95
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #50

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

Measurement by Ron C. Bush, PG & E -
referenced in Long Ridge geothermal lease-
hold, Final Environmental Impact Report,
Environmental Impact Planning Corp.,
August, 1977, Noise Section by Charles
Salter Associates

Date of Measurement:

1/6/76

Distance to Source:

100 feet

Description/Location:

Geysers, Aminoil Well 1862 #1

- (1) Unsilenced steam well - fully opened
(up to 125 dBA was measured when
partially open)
- (2) Steam bleed with 1" orifice, rock
muffler

Hz	1	2	3	4
A	110	55		
C	112	65		
Linear				
50				
63 63	91	55		
80				
100				
125 125	94	59		
160				
200				
250 250	95	60		
315				
400				
500 500	89	58		
630				
800				
1000 1000	91	59		
1250				
1600				
2000 2000	69	50		
2500				
3150				
4000 4000	61			
5000				
6300				
8000 8000	53			
10,000				

DATA SHEET #51

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge (small bleed)

Reference:

Union Oil Company
LLL/GRIPS Geothermal Noise Work
Copy by Olin D. Whitescarver

Date of Measurement:

Distance to Source:

5 feet

Description/Location:

Geysers

- (1) Unmuffled 1/4" bleed
- (2) Unmuffled 1" bleed
- (3) Commercial muffler 1" bleed
- (4) Rock muffler 1" bleed

Hz	1	2	3	4
A	102	118	85	70
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #52

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge (1/2" line-exhaust thru rock
muffler, measurement made
on 5 wells)

Reference:

R. C. Bush

"An Overview of PGandE's Audible Noise
Measurement Program at the Geysers"
Geothermal Environmental Seminar-'76
Lake County, California Oct. 27-29, 1976

Date of Measurement:

12/2/75

Distance to Source:

50 Feet (1) and (2)

Description/Location:

Completed-idle steam wells, small diameter
(1/2") bleed line exhausting thru rock
muffler - (range of levels given)

Hz	1	2	3	4
A	67	82		
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge (1-2" line-exhaust thru
muffler)

(Measurements made on 2 wells)

Reference:

R. C. Bush

"An Overview of PGandE's Audible Noise
Measurement Program at the Geysers"
Geothermal Environmental Seminar-'76
Lake County, California Oct.27-29, 1976

Date of Measurement:

6/10/76

Distance to Source:

50 Feet (1) and (2)

Description/Location:

Completed-idle steam wells large diameter
(1-2") bleed lines exhaust thru muffler.

Hz	1	2	3	4
A	83	97		
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #54

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

K. Johnson
Union Oil Data
Data supplied by Olin Whitescarver

Date of Measurement:

Not Shown

Distance to Source:

- (1) 5 Feet
- (2) 20 Feet
- (3) 40 Feet

Description/Location:

Geysers, Union Oil Well, Thermal 13
Unmuffled 1/4" vent on well head

Hz	1	2	3	4
A	102	79	75	
C	100	77	73	
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #55

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge - Standby Well

Reference:

P. Leitner/Ecoview EIR

Union Oil Co. - Unit 17
 Development Area, Lake County, CA
 December 15, 1977

Date of Measurement:

August 4, 1977
 1815 Hours

Distance to Source:

50 Feet

Description/Location:

Union Well Site DxS 17-4-standby well
 venting a small amount of steam through
 a cylindrical rock muffler (previously
 venting well at plants 7 and 8 is now
 shut off)

Hz	1	2	3	4
A	73			
C				
Linear	76			
50		42		
63 63	52	49		
80		49		
100		45		
125 125	55	49		
160		53		
200		54		
250 250	59	57		
315		50		
400		47		
500 500	53	45		
630		49		
800		56		
1000 1000	66	59		
1250		64		
1600		63		
2000 2000	69	63		
2500		65		
3150		65		
4000 4000	72	70		
5000		65		
6300		61		
8000 8000	70	65		
10,000		69		

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Standby well at 50 feet + blowoff at 1.1 mile

- 1) octave band
- 2) 1/3 Octave band

Reference:

P. Leitner/Ecoview EIR

Union Oil Co. - Unit 17

Development Area, Lake County, Ca
December 15, 1977Date of Measurement:August 4, 1977
1650 HoursDistance to Source:50 feet to standby well
1.1 mile to plant 7 and 8 (230°M)Description/Location:

Union Wellsite DXS 17-4

Two sources present

- (a) small amount of steam continuously vented through a cylindrical rock muffler

- (b) Well blowoff at plant 7 and 8
1.1 mile away

Temperature: 83°F

Wind: 5-10 mph from west (260°)

RH: 29%

(Measurement downwind of both sources)

Hz	1	2	3	4
A	78			
C				
Linear	75			
50		45		
63 63	57	52		
80		55		
100		60		
125 125	63	58		
160		58		
200		59		
250 250	64	60		
315		57		
400		58		
500 500	62	56		
630		57		
800		58		
1000 1000	66	58		
1250		64		
1600		65		
2000 2000	68	59		
2500		63		
3150		64		
4000 4000	69	65		
5000		64		
6300		64		
8000 8000	69	64		
10,000		65		

DATA SHEET #57

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(well bleed)

Reference:

M. Long (unpublished)

Date of Measurement:

8/27/75

Distance to Source:

(1,2) 25 feet
(3) 37 feet

Description/Location:

Geysers, Aminoil, Abel #1, distances
measured from the well head.

Hz	1	2	3	4
A	86	78	80	
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #58

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
1/4" vent

Reference:

Sam Timmons, Union Oil Internal Memo to file
August 31, 1978

Date of Measurement:

8/28/78

Distance to Source:

15 feet

Description/Location:

Geysers, Union Oil Well, Sulpher Bank #6
(1) Open 1/4" vent
(2) Homemade Muffler
(3) 1/4" Rock Muffler
(4) Background

Hz	1	2	3	4
A	89	72	50	45
C	88	71	61	59
Linear	92	73	65	65
50				
63 63	60	58	53	51
80				
100				
125 125	58	54	54	51
160				
200				
250 250	59	51	47	42
315				
400				
500 500	59	55	46	40
630				
800				
1000 1000	66	63	47	42
1250				
1600				
2000 2000	75	67	39	34
2500				
3150				
4000 4000	82	67	37	30
5000				
6300				
8000 8000	88	66	37	
10,000				

DATA SHEET #59

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
1/4" vent

Reference:

Sam Timmons, Union Oil Internal Memo to file,
August 31, 1978

Date of Measurement:

6/2/78

Distance to Source:

15 feet

Description/Location:

Geysers, Union Oil Well - Happy Jack I

- (1) Open 1/4" vent
- (2) Factory unit (muffler)
- (3) Homemade muffler
- (4) Background

Hz	1	2	3	4
A	91	82	75	55
C	90	80	76	65
Linear	94	84	77	68
50				
63 63	66	61	64	63
80				
100				
125 125	63	64	64	58
160				
200				
250 250	64	59	56	53
315				
400				
500 500	70	55	60	49
630				
800	71	57	62	50
1000 1000				
1250				
1600				
2000 2000	75	65	65	49
2500				
3150				
4000 4000	85	77	70	41
5000				
6300				
8000 8000	90	82	70	30
10,000				

DATA SHEET #60

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge (well bleed)

Reference:

R. F. Buhl, Union Oil Technical Memorandum
 Research Department, Brea, California
 September 12, 1974
 Memo: Coor 74-165M

Date of Measurement:Distance to Source:

- (1) 5 feet
- (2) 5 feet
- (3) 2 feet

Description/Location:

Geysers, Union Oil Wells

- (1) Ott-Fed 1 - 5' from rock filled ditch.
Sound fluctuates; values measured are maxima
- (2) Sulfur Bank 18 - 5' from rock pit.
Separation bleeds nearby probably raise the sound level here.
- (3) GDC - Thermal 14 - 2' from edge of pit.

Hz	1	2	3	4
A	65	73	69	
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #61

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(Open Bleeds)

Reference:

R. F. Buhl, Union Oil
Technical Memorandum
Research Department, Brea, California
September 12, 1974
Memo: Coor 74-165M

Date of Measurement:

Distance to Source:

- (1) 5 Feet
- (2) 15 Feet

Description/Location:

Geysers, Union Oil Well - Lakoma Fame 13

- (1) 5' from open hole at inlet end of rock filled ditch
- (2) 15' from center of line to rock ditch

Hz	1	2	3	4
A	86	70		
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

Note: "The measurement point was at the muffler ditch, the noisiest place, sound at the well head was less. Lakoma Fame 13 was loud because the muffler ditch had an hole which had formed somehow".

DATA SHEET #62

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

K. Johnson
Union Oil Data
Copy supplied by Olin Whitescarver

Date of Measurement:

Not Shown

Distance to Source:

- (1) 5 Feet
- (2) 20 Feet
- (3) 40 Feet

Description/Location:

Geysers, Union Oil Well
Thermal 14
Rock Muffler vent off separator

Hz	1	2	3	4
A	69	66	64	
C	74	71	70	
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #63

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge

Reference:

Bush, PG&E
Pacific Gas & Electric Company, San Fransico,
California

Date of Measurement:

6/27/74

Distance to Source:

- (1) 45 feet
- (2) 180 feet
- (3) 45 feet

Description/Location:

- Geysers, Aminoil
- (1,2) Sulphur Bank #3 - Main valve closed
Bleed line exhausting freely
 - (3) Sulphur Bank #13 - Main valve closed
bleed equipped with silencer,
exhausting freely.

Hz	1	2	3	4
A	89 92	73 75	59 62	
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #64

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Pipeline

Reference:

M. Long (unpublished)

Date of Measurement:

1975

Distance to Source:

5-10 feet

Description/Location:

Geysers, PG&E, Geothermal plant Unit 11
18" pipe wrapped with absorptive blanket
and cladding.

Hz	1	2	3	4
A	60			
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #65

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Pipeline
(Downstream of 2.8" orifice plate)

Reference:

T R Norris, P. E. Wayne, B. McDonald
Analysis and Design for Vibration and
Noise Control Aminoil USA, Unit 13
Blowdown, Santa Rosa, California

Date of Measurement:

May 22, 1979

Distance to Source:

All measurements taken 10' from center of
pipe. Distances downstream from orifice
plate. (1) 30 feet (2) 130 feet (3) 280 feet
(4) 1500 feet

Description/Location:

Geysers, Aminoil, West side portions of Unit
13 blowdown, only well CA 956-2 open with
2.8" orifice place in pipeline G.

Hz	1	2	3	4
A	117	83	80	57
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #66

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Drag Valve
(Steam Discharge- Noise measured at
drag valve)

Reference:

R. F. Buhl, Union Oil
Technical Memorandum
Research Department, Brea, California
September 12, 1974
Memo: Coor 74-165M

Date of Measurement:

September 6, 1974

Distance to Source:

25 Feet

Description/Location:

Geysers, Union Oil Plants 9 & 10
Relief Loads
(1) 1/4 Load-Down 7 MW, 128# line pressure
(2) 1/2 Load-Down 14 MW, 130# line pressure
(3) Full Load-Down 27 MW, 145# line pressure
(4) Background Valve closed

Hz	1	2	3	4
A	95	97	101	83
C				
Linear				
50				
63 63	89	97	104	81
80				
100				
125 125	85	88	94	81
160				
200				
250 250	99	93	95	79
315				
400				
500 500	94	92	93	73
630				
800				
1000 1000	91	91	94	76
1250				
1600				
2000 2000	88	91	94	79
2500				
3150				
4000 4000	87	88	91	76
5000				
6300				
8000 8000	86	89	91	70
10,000				

Note: Data overlap with 100 foot measurements attributed to shifting wind & steam cloud.

DATA SHEET #67

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Drag Valve

Reference:

M. Long (This Study)

Date of Measurement:

November 2, 1979

Distance to Source:

25 feet

Description/Location:

Union Oil Plant 5 & 6 - Drag valve at input to rock muffler. Plant 5 venting during regularly scheduled outage for maintenance. At least 1 million #/hr flow.

Hz	1	2	3	4
A	86			
C	86			
Linear				
50				
63 63	63			
80				
100				
125 125	62			
160				
200				
250 250	64			
315				
400				
500 500	69			
630				
800				
1000 1000	79			
1250				
1600				
2000 2000	82			
2500				
3150				
4000 4000	80			
5000				
6300				
8000 8000	68			
10,000				

DATA SHEET #68

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Valve

Reference:

T.R. Norris, P. E. Wayne, B. McDonald,
Analysis and Design for Vibration and
Noise Control. Aminoil USA, Unit 13
Blowdown, Santa Rosa, California

Date of Measurement:

May 22, 1979

Distance to Source:

200 Feet

Description/Location:

Geysers, Aminoil USA - Unit 13 Blowdown
West side portion. 12" valve noise during
pressurization test measured on top of
cooling tower. Line pressure about 20 psig,
flow about 150,000lb/hr.

Hz	1	2	3	4
A	99			
C				
Linear				
50				
63 63	81			
80				
100				
125 125				
160				
200				
250 250	90			
315				
400				
500 500	93			
630				
800				
1000 1000	95			
1250				
1600				
2000 2000	92			
2500				
3150				
4000 4000	91			
5000				
6300				
8000 8000	86			
10,000				

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Drag valves

Reference:

Union Oil Company
Geothermal Division
Data supplied by Warren Smith and Peter Fraser.

Date of Measurement:

12/7/76

Distance to Source:

(1,2) 270 feet (scaled from map included with data)

Description/Location:

Geysers, Union Oil, Units 9&10,
(1) venting 800,000 lb/hr
(2) background is normal plant noise without venting

Hz	1	2	3	4
A	82	64		
C				
Linear				
50				
63 63	76	74		
80				
100				
125 125	70	72		
160				
200				
250 250	65	67		
315				
400				
500 500	72	62		
630				
800				
1000 1000	75	63		
1250				
1600				
2000 2000	77	62		
2500				
3150				
4000 4000	77	58		
5000				
6300				
8000 8000	67	52		
10,000				

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Turbine Generator Building
(Interior)

Reference:

M. Long/Sociotechnical Systems EIR,
NCPA/Resource Funding LTD.,
Cobb Valley Geothermal Project

Date of Measurement:

August 18, 1978

Distance to Source:

30 feet to centerline of Turbines

Description/Location:

Geysers Plant 11 -
Measurement taken on the floor of the
Turbine room between the two turbines and
30 feet from the centerline of the turbine
shaft. Microphone height 4 feet.

Hz	1	2	3	4
A	91			
C				
Linear				
50				
63 63	86			
80				
100				
125 125	86			
160				
200				
250 250	86			
315				
400				
500 500	88			
630				
800				
1000 1000	87			
1250				
1600				
2000 2000	84			
2500				
3150				
4000 4000	79			
5000				
6300				
8000 8000	65			
10,000				

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Turbine/Generator Building
(interior)

Reference:

M. Long (unpublished)

Date of Measurement:

August 18, 1978

Distance to Source:

20 Feet

Description/Location:

Geysers - Unit 11
Condensor room below the main turbine
floor. Principal source was the large
condensers.

Hz	1	2	3	4
A	96			
C				
Linear				
50				
63 63	88			
80				
100				
125 125	90			
160				
200				
250 250	90			
315				
400				
500 500	91			
630				
800				
1000 1000	94			
1250				
1600				
2000 2000	89			
2500				
3150				
4000 4000	84			
5000				
6300				
8000 8000	71			
10,000				

DATA SHEET #72

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Turbine Generator
(Interior)

Reference:

R. Webb, PG&E, San Francisco, CA
"Practical Application of Noise Reduction
Techniques", proceedings of the 2nd
Instrument Society of American Conference
February 27-March 1, 1973

Date of Measurement:

Distance to Source:

10 feet

Description/Location:

Geysers, Typical Unit, Plant load:

- (1) 20%
- (2) 50%
- (3) 100%

Point of measurement - 10 feet from the
turbine axial centerline near the end
of the turbine farthest from the generator
The point was close to the corner of the
turbine housing.

Hz		1	2	3	4
A		110	97	96	
C					
Linear					
50					
63	63				
80					
100					
125	125				
160					
200					
250	250				
315					
400					
500	500				
630					
800					
1000	1000				
1250					
1600					
2000	2000				
2500					
3150					
4000	4000				
5000					
6300					
8000	8000				
10,000					

DATA SHEET #73

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Turbine-Generator
(Interior)

Reference:

R. Webb, PG&E, San Francisco, California,
"Practical Application of Noise Reduction
Techniques", proceedings of the 2nd
Instrument Society of American Conference,
February 27-March 1, 1973

Date of Measurement:

Distance to Source:

17 feet

Description/Location:

Geyers, typical Geyser unit - Plant Load:

- (1) 20%
- (2) 50%
- (3) 100%

Point of measurement, 17 feet from the tur-
bine generator axial centerline and near the
longitudinal center of the generators. The
point was approximately equidistant from
the side of the generator and the building
wall.

Hz	1	2	3	4
A	100	94	92	
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #74

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Turbine/Generator Building (interior)

Reference:

R. C. Bush

"An Overview of PGandE's Audible Noise
Measurement Program at the Geysers"
Geothermal Environmental Seminar-'76
Lake County, California, Oct.27-29, 1976

Date of Measurement:

Distance to Source:

Random (1) and (2)
3-5 Feet (3) and (4)

Description/Location:

Typical Power Plant

(1) and (2) Random locations on turbine
generator floor

(3) and (4) Around turbine/Generator Unit
inside building

Hz	1	2	3	4
A	90	94	92	94
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #75

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Turbine Generator
(Interior)

Reference:

R. Webb, PG&E
San Francisco, California
"Practical Appreciation of Noise Reduction
Techniques", proceedings of the 2nd Instru-
ment Society of American Conference
February 27 - March 1, 1973

Date of Measurement:

Distance to Source:

10 feet

Description/Location:

Geysers, Typical Unit, Plant load

(1) 20%

(2) 50%

(3) 100%

Point of measurements - 10 feet from the
turbine axial centerline near the longi-
tudinal center of the turbine. This point
was quite close to the turbine housing and
the exhaust piping.

Hz	1	2	3	4
A	121	103	101	
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #76

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Jet Ejector

Reference:

R. Bush, Pacific Gas & Electric Co.
Geysers-Unit 17
Notice of Intention, May 1978

Date of Measurement:

March 9, 1978

Distance to Source:

10 feet

Description/Location:

- 1) Unit 7
- 2) Unit 11
- 3) Unit 10

Noise above 500 Hz attributed to steam ejector. Other noise was affected by the presence of the cooling tower and turbine/generator building in each case.

Hz	1	2	3	4
A	90	85	85	
C				
Linear	92	88	88	
50	81	77	77	
63 63	81	79	76	
80	78	80	75	
100	76	77	73	
125 125	76	77	75	
160	76	76	74	
200	77	73	75	
250 250	77	73	75	
315	73	74	71	
400	75	73	72	
500 500	76	73	72	
630	76	72	71	
800	76	72	69	
1000 1000	75	73	70	
1250	76	72	71	
1600	77	72	71	
2000 2000	78	74	71	
2500	80	76	71	
3150	81	76	72	
4000 4000	83	76	74	
5000	81	74	74	
6300	78	71	74	
8000 8000	74	66	71	
10,000				

DATA SHEET #77

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Jet Gas Ejector

Reference:

R. C. Bush

"An Overview of PG and E's Audible Noise
Measurement Program at the Geysers"
Geothermal Environmental Seminar-'76
Lake County, California, Oct.27-29,1976

Date of Measurement:

Distance to Source:

10 Feet (1)

3 Feet (2)

Description/Location:

Typical Power Plant

Hz	1	2	3	4
A	88	93		
C				
Linear				
50				
63 63	82			
80				
100				
125 125	80			
160				
200				
250 250	80			
315				
400				
500 500	81			
630				
800				
1000 1000	83			
1250				
1600				
2000 2000	85			
2500				
3150				
4000 4000	87			
5000				
6300				
8000 8000	82			
10,000				

DATA SHEET #78

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Jet Gas Ejector

Reference:

Correspondence from R. C. Bush, PG&E to D.N. Keast, BBN, Sept. 19, 1977. "Noise Control Needs in the Developing Energy Technologies" D. N. Keast, Bolt Beranek and Newman, Inc. Cambridge, Massachusetts

Date of Measurement:

Unknown

Distance to Source:

- (1) 5 feet
- (2) 10 feet

Description/Location:

Geysers, Union Oil

- (1) Unit 5, microphone height 5 feet, load unknown
- (2) Unit 8 load 41 MW, microphone height 5 feet.

Hz	1	2	3	4
A	91	88		
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #79

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Jet Gas Ejector (SJGE)

Reference:

R. Webb, PG&E San Francisco, California

Date of Measurement:

Unknown

Distance to Source:

Description/Location:

Geysers, Typical Geyser Units
 (1) Initial levels without treatment
 (2) Measured levels after treatment
 Measurements taken below ϵ at SJGEs,
 5' off ground load = 20 MW
 Treatment 3" (8 lb/ft³) Mineral Wool +
 1 lb/ft² lead.

Hz	1	2	3	4
A	113	89		
C				
Linear				
50				
63 63				
80				
100				
125 125	86	80		
160				
200				
250 250	91	81		
315				
400				
500 500	95	83		
630				
800				
1000 1000	100	84		
1250				
1600				
2000 2000	103	84		
2500				
3150				
4000 4000	106	79		
5000				
6300				
8000 8000	110	78		
10,000				

DATA SHEET #80

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Turbine/Generator Building (exterior)

Reference:

R. Bush, Pacific Gas & Electric Company
Geyers Unit 17
Notice of Intention, May, 1978

Date of Measurement:

March 9, 1978

Distance to Source:

20 Feet

Description/Location:

Geyers -

- 1) Units 7 and 8 - Data show 4 prominent peaks at the frequencies 60, 120, 360 and 600 Hz. The 60 Hz peak originates from the 3600 rpm rotational speed. The 120, 360 and 600 Hz tones originate from the main power transformer about 60 feet away.
- 2) Unit 11 shows the 60 Hz peak as well.

Hz	1	2	3	4
A	71	79		
C				
Linear	81	86		
50	69	71		
63 63	78	81		
80	71	69		
100	70	73		
125 125	74	72		
160	65	72		
200	65	70		
250 250	64	67		
315	67	69		
400	72	72		
500 500	63	72		
630	66	68		
800	59	68		
1000 1000	59	69		
1250	61	68		
1600	58	69		
2000 2000	57	69		
2500	55	68		
3150	54	68		
4000 4000	53	66		
5000	51	65		
6300	48	62		
8000 8000	44	55		
10,000				

DATA SHEET #81

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Turbine/Generator Building
(exterior)

Reference:

M. Long (unpublished)

Date of Measurement:

August 18, 1978

Distance to Source:

60 Feet

Description/Location:

Geysers - Unit 11
Measurement made near the center of the
Turbine building in a location well shielded
from other sources

Hz	1	2	3	4
A	81			
C				
Linear				
50				
63 63	71			
80				
100				
125 125	80			
160				
200				
250 250	75			
315				
400				
500 500	73			
630				
800				
1000 1000	75			
1250				
1600				
2000 2000	74			
2500				
3150				
4000 4000	74			
5000				
6300				
8000 8000	66			
10,000				

DATA SHEET #82

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Turbine/Generator Building
(exterior)

Reference:

R. C. Bush

"An Overview of PGandE's Audible Noise
Measurement Program at the Geysers"
Geothermal Environmental Seminar-'76
Lake County, California Oct. 27-29, 1976

Date of Measurement:

Distance to Source:

25 feet

Description/Location:

Typical Power Plant

Hz	1	2	3	4
A	73			
C				
Linear				
50				
63 63	73			
80				
100				
125 125	73			
160				
200				
250 250	70			
315				
400				
500 500	70			
630				
800				
1000 1000	66			
1250				
1600				
2000 2000	66			
2500				
3150				
4000 4000	63			
5000				
6300				
8000 8000	57			
10,000				

DATA SHEET #83

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Turbine Building

Reference:

M. Long (unpublished)

Date of Measurement:

1975

Distance to Source:

25 feet

Description/Location:

Geyser, PG&E Geothermal Power Plant #11
Noise from turbine building only. Measure-
ment locations was shielded by turbine
building from the cooling tower

Hz	1	2	3	4
A	72			
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #84

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Power Plant - Normal Operation at Full Load

Reference:

R. C. Bush

"An Overview of PGandE's Audible Noise
Measurement Program at the Geysers"
Geothermal Envirnomental Seminar-'76
Lake County, California Oct.27-29,1976

Date of Measurement:

Distance to Source:

20 Feet (1)
70 Feet (2)
500 Feet (3)

Description/Location:

Typical Power Plant
(1,2) At plant fence line, distances
are to noise producing surfaces
(3) Total Plant Noise

*Error shown as ± 5 dB

Hz	1	2	3	4
A	83	67	65*	
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #85

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Cooling Tower

Reference:

R. Bush, Pacific Gas and Electric
Geysers Unit 17
"Notice of Intention"
May, 1978

Date of Measurement:

March 9, 1978

Distance to Source:

20 feet

Description/Location:

- 1) Cooling tower - Units 7 and 8
- 2) Cooling tower - Unit 11
- 3) Cooling Tower - Units 9 and 10

Hz	1	2	3	4
A	81	83	83	
C				
Linear	88	89	89	
50	78	78	79	
63 63	77	77	80	
80	74	77	77	
100	73	77	74	
125 125	75	79	75	
160	76	81	76	
200	74	79	75	
250 250	76	75	73	
315	70	73	70	
400	69	73	70	
500 500	72	73	70	
630	72	70	71	
800	68	70	68	
1000 1000	67	70	68	
1250	68	70	69	
1600	68	70	70	
2000 2000	68	71	70	
2500	68	71	70	
3150	70	73	73	
4000 4000	71	74	74	
5000	72	75	74	
6300	73	75	75	
8000 8000	71	73	73	
10,000				

DATA SHEET #86

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Cooling Tower

Reference:

R. C. Bush

"An Overview of PGandE's Audible Noise
Measurement Program at the Geysers"
Geothermal Environmental Seminar-'76
Lake County, California, Oct.27-29, 1976

Date of Measurement:

Distance to Source:

10 Feet (1)

5 Feet (2)

Description/Location:

Typical Power Plant

Hz	1	2	3	4
A	81	85		
C				
Linear				
50				
63 63	80			
80				
100				
125 125	81			
160				
200				
250 250	81			
315				
400				
500 500	76			
630				
800				
1000 1000	73			
1250				
1600				
2000 2000	73			
2500				
3150				
4000 4000	74			
5000				
6300				
8000 8000	77			
10,000				

DATA SHEET #87

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Cooling Tower

Reference:

M. Long (unpublished)

Date of Measurement:

August 18, 1978

Distance to Source:

50 Feet

Description/Location:

Geysers - Unit 11
Measurement made near the center of the
cooling tower, 50 feet from the edge on
the long axis.

Hz	1	2	3	4
A	79			
C				
Linear				
50				
63 63	75			
80				
100				
125 125	73			
160				
200				
250 250	75			
315				
400				
500 500	67			
630				
800				
1000 1000	66			
1250				
1600				
2000 2000	63			
2500				
3150				
4000 4000	65			
5000				
6300				
8000 8000	67			
10,000				

DATA SHEET #88

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Cooling Tower

Reference:

M. Long (unpublished)

Date of Measurement:

1975

Distance to Source:

- (1) 80 feet
- (2) 50 feet
- (3) 100 feet

Description/Location:

Geysers, PG&E Geothermal Plant, unit 11
Principal source was the cooling tower.

Hz	1	2	3	4
A	75	78	76	
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #89

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Cooling Tower

Reference:

M. Long

Date of Measurement:

1975

Distance to Source:

(1) 100 feet

(2) 80 feet

Description/Location:

Geysers, PG&E Geothermal Plant, unit 7&8

(1) machine noise dominates

Hz	1	2	3	4
A	64	75		
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #90

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Power Plant Transformer

Reference:

M. Long (unpublished)

Date of Measurement:

August 18, 1979

Distance to Source:

32 Feet to center of transformer

20 Feet to nearest surface

Description/Location:

Geysers Unit 11

Noise measured 20 feet from the edge
of the center cooling fin on the
centerline of the transformer

Hz	1	2	3	4
A	83			
C				
Linear				
50				
63 63	75			
80				
100				
125 125	70			
160				
200				
250 250	85			
315				
400				
500 500	86			
630				
800				
1000 1000	67			
1250				
1600				
2000 2000	60			
2500				
3150				
4000 4000	55			
5000				
6300				
8000 8000	46			
10,000				

DATA SHEET #91

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Transformer

Reference:

M. Long (unpublished)

Date of Measurement:

1975

Distance to Source:

- (1) 100 feet
- (2) 30 feet

Description/Location:

Geyzers, PG&E Geothermal Plant
 (1) Unit 11
 (2) Unit 7&8

Hz	1	2	3	4
A	63	69		
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

DATA SHEET #92

GEOTHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(through rock muffler)

Reference:

Union Oil Company
Geothermal Division
data supplied by Warren Smith and Peter
Fraser.

Date of Measurement:

12/7/76

Distance to Source:

(1,2) 100 feet east (away from plant)
(3,4) 100 feet west (towards plant)

Description/Location:

Geysers - Union Oil Company
Rock muffler. Test pipeline 10 - Plant 9&10-
800,000#/hr
(1,3) venting through rock muffler
(2,4) background from plant without venting

Hz	1	2	3	4
A	70	64	69	69
C				
Linear				
50				
63 63	75	69	75	74
80				
100				
125 125	73	65	74	72
160				
200				
250 250	67	58	70	67
315				
400				
500 500	62	59	65	62
630				
800				
1000 1000	66	59	65	63
1250				
1600				
2000 2000	61	60	63	62
2500				
3150				
4000 4000	53	50	61	58
5000				
6300				
8000 8000	37	37	56	52
10,000				

DATA SHEET #93

GEOHERMAL NOISE MEASUREMENT RECORD

Source:

Steam Discharge
(through rock muffler)

Reference:

Union Oil Company
Geothermal Division
data supplied by Warren Smith and Peter
Fraser.

Date of Measurement:

12/7/76

Distance to Source:

(1,2) 25 feet west (towards plant)
(3,4) 25 feet east (away from plant)

Description/Location:

Geysers, Union Oil Rock Muffler.
Test on pipeline 10 - plant 9 & 10 -
800,000#/hr.
(1,3) venting through rock muffler
(2,4) background from plant without venting

Hz	1	2	3	4
A	67	62	72	67
C				
Linear				
50				
63 63				
80				
100				
125 125				
160				
200				
250 250				
315				
400				
500 500				
630				
800				
1000 1000				
1250				
1600				
2000 2000				
2500				
3150				
4000 4000				
5000				
6300				
8000 8000				
10,000				

2.0 GEOTHERMAL WELL DRILLING NOISE LEVELS
FROM MARSHALL LONG/ACOUSTICS
LONG TERM NOISE MONITORING PROGRAM

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

1. Company: Union Oil Company of California
Union Geothermal Division
2. Well Name: DX63
3. Location: The Geysers, Sonoma, County, California
4. Drilling Company and Rig Number: Loffland Bros #50
5. Dates: 11 December 1981 - 4 February 1982
6. Measurements Conducted by: Marshall Long/Acoustics, Inc.
Santa Monica, California 90404
7. Acoustic Data:
 - Calculated Hourly (dBA):
 - a. Equivalent Continuous Sound Level, L_{eq}
 - b. Maximum Sound Pressure Level, L_{mx}
 - c. Average Sound Pressure Level, L_{av}
 - d. Minimum Sound Pressure Level, L_{mn}
 - e. Standard Deviation of Sound Pressure, L_{sd}
 - f. Sound Pressure Level Exceeded 0.1% of the Time, $L(.1)$
 - g. Sound Pressure Level Exceeded 1% of the Time, $L(1)$
 - h. Sound Pressure Level Exceeded 5% of the Time, $L(5)$
 - i. Sound Pressure Level Exceeded 10% of the Time, $L(10)$
 - j. Sound Pressure Level Exceeded 33% of the Time, $L(33)$
 - k. Sound Pressure Level Exceeded 50% of the Time, $L(50)$
 - l. Sound Pressure Level Exceeded 99% of the Time, $L(99)$
 - Calculated Daily(dBA):
 - a. Day-Night Noise Level, L_{dn}
 - b. Community Noise Equivalent Level, CNEL
 - c. Twenty-Four Hour Equivalent Continuous Noise Level,
24-Hour L_{eq}

8. Distances From Monitoring Truck to Major Noise Sources:

- a. Wellhead - 120 feet
- b. Three D398 Caterpillar Engines, Turbocharged, with Kittell Hospital Mufflers, Operating 1 or 2 at a Time, 850 BHP, 1200 RPM, Supplying Electric Power to 2 Mud Pumps (1000 HP Each) and the Draw Works (2 Motors, 1000 HP Each)-145 Feet.
- c. Three D398 Caterpillar Engines Supplying Power to the Air Compressors-180 Feet.
- d. Sump Pump-145 Feet.
- e. Blooie Silencer-120 Feet.

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/1/81 Location: Union Oil Company Well #1 to DX 63 The Geysers Co.
 24 Hour Leq: 64.6 CNEL: 64.8 Ldn: 64.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	44.5	69.8	32.9	27.1	5	68	55	42	38	33	31	23	27	
0100	48.1	66.2	38.6	26.1	8.4	64	60	54	51	41	36	29	27	
0200	47.6	63.1	41.8	28.1	7	61	58	53	51	45	41	32	29	
0300	33.9	47.4	31.6	25.1	3.9	46	42	39	37	32	30	27	26	
0400	33.2	55.1	29.7	25.1	3.8	51	44	36	34	30	28	26	25	
0500	34.1	40.6	33.8	30.0	1.4	40	37	36	35	34	33	32	21	
0600	50.5	71.5	42.7	31.2	7.5	69	61	56	54	45	40	24	32	1
0700	46.4	64.8	42.7	34.2	4.6	62	57	52	49	43	41	37	35	
0800	67.2	82.3	60.1	35.2	11	79	75	72	71	67	63	41	36	
0900	72.8	94.8	67.2	44.2	8	86	83	79	75	70	67	55	46	
1000	70.9	78.1	66.8	37.2	9.2	77	76	75	74	72	69	60	32	
1100	57.3	78.1	61.6	36.2	9.3	77	75	72	71	67	64	48	38	
1200	57.9	78.9	63.3	42.1	7	76	74	73	72	68	65	55	45	
1300	63.7	79.4	60.7	38.2	8.9	73	76	72	70	66	62	46	40	
1400	70.8	75.3	68	40	6	83	79	75	73	71	69	61	44	
1500	64	78.1	51.9	35.2	10.7	76	74	72	70	57	49	38	36	
1600	53.2	75.7	43.9	34.2	6.6	74	65	58	53	44	41	38	35	
1700	54.1	74.8	43.2	35.2	7.2	74	67	60	54	42	40	37	36	
1800	52.8	71.6	44.6	35.2	6.9	70	65	57	54	46	42	37	36	
1900	46	63.9	43.6	35.1	3.8	62	54	49	47	45	44	38	36	
2000	44.3	65.4	39.8	34.1	4	63	58	46	44	39	38	36	35	
2100	44.7	64.1	40.1	35.2	3.8	62	53	47	42	40	39	37	36	
2200	43	62.5	39.6	34.2	3.3	61	55	45	43	39	38	36	35	
2300	49	65.4	42.8	34.2	6.2	63	60	56	52	44	40	37	35	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/12/81 Location: _____
 24 Hour Leq: 64.2 CNEL: 67.1 Ldn: 67.1

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	52.4	66.2	48.4	36.2	5.8	65	61	58	56	50	48	40	37	
0100	51.9	65.3	46.9	36.2	6	64	62	58	56	48	45	40	38	
0200	54.9	70.8	51.6	40	5	67	64	60	58	53	51	45	42	
0300	61	77.4	56	40.2	6.6	74	70	67	65	59	55	47	43	
0400	60.6	75.1	55.8	38	7.2	72	70	66	64	59	56	44	39	
0500	58.6	78.4	57.8	38.2	7.7	74	69	64	62	55	50	42	39	
0600	54.4	82.3	56.7	40.2	8	79	74	71	69	60	56	45	41	2
0700	67	80.1	65.7	62	2.3	78	75	71	69	66	65	63	62	
0800	58.8	80.1	65.7	56.2	4.7	80	78	74	72	67	64	60	57	
0900	71.6	89.7	68.7	57	5	86	80	76	74	70	67	62	59	
1000	66.4	80.9	64.2	50.3	4	78	74	71	69	65	63	59	55	
1100	66.9	83.7	68.2	57.3	3.6	81	77	74	72	69	68	63	60	
1200	65.3	76.6	63.7	53.3	3.7	74	72	69	68	65	63	58	56	
1300	63.2	76.6	62	55.3	2.9	74	69	67	66	62	61	53	57	
1400	62.5	77.7	61	54.3	3.1	75	70	67	65	61	60	57	55	
1500	65.8	84.2	63	54.1	3.9	81	76	70	68	63	62	58	55	
1600	65.8	82.6	63.3	52.3	4.5	77	73	71	69	65	63	57	54	
1700	58.4	81.1	54.3	38.2	5.5	74	68	63	60	56	54	46	42	
1800	54.7	68.8	51.5	35.2	5.2	66	63	60	58	53	51	44	40	
1900	52.3	63.9	49.9	37.2	4.5	63	60	57	55	51	49	44	40	
2000	50.4	62.7	48.2	36.2	4.4	60	58	55	53	50	48	42	38	
2100	51.8	64.5	43.7	35.1	5.2	63	60	57	55	51	48	41	37	
2200	45.2	55.1	43.5	35.2	3.6	53	52	49	48	45	43	39	37	
2300	45.0	57.9	43.7	35.2	3.4	56	52	49	48	45	43	39	37	

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/13/81 Location: _____
 24 Hour Leq: 65.1 CNEL: 69.4 Ldn: 68.9

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	49.1	67.8	47.4	37.2	3.6	62	55	53	52	48	47	42	39	
0100	47.1	57.7	45.6	37.2	3.5	56	53	51	50	47	45	41	39	
0200	49.2	64.4	44.8	35	5.4	62	55	55	52	46	43	38	37	
0300	54.5	70.1	48.9	35.2	7	68	64	60	58	52	48	36	38	
0400	57.9	73.1	52.4	35.2	7.1	7.1	68	64	61	55	52	42	38	
0500	64.5	80.4	59.4	40	6.8	79	74	70	68	62	59	50	44	
0600	65.2	80.4	59.8	40	8.9	79	75	71	69	63	59	50	45	
0700	66.3	87	63.3	48.1	4.6	82	75	71	63	64	63	57	53	
0800	64.8	80.8	62.2	49.3	4.3	79	73	69	68	63	61	57	52	
0900	63.4	80.8	61	50.3	4	75	72	68	66	62	60	56	55	
1000	62.7	76.7	60.9	54.3	3.5	74	71	67	65	61	60	57	55	
1100	65.5	82.5	62.8	50.3	4.3	79	74	70	68	64	62	57	55	
1200	67.4	81.9	64.1	49.3	5.3	79	76	72	71	66	63	57	54	
1300	69.9	82.7	67.5	55.3	4.5	80	77	75	73	69	67	61	58	
1400	66.8	81.5	64.8	54.1	3.9	77	74	71	70	66	64	60	56	
1500	66.4	81.9	64.4	52.1	4.1	78	73	71	69	66	64	59	55	
1600	66.7	77.1	65.5	53.1	3.2	76	73	70	69	65	65	61	57	
1700	67.2	87.9	66.8	54.3	3.1	80	75	72	70	68	66	63	59	
1800	66.3	82.4	65.5	60.3	2.2	75	72	69	68	66	65	63	61	
1900	67.8	78.7	66.8	59.3	2.9	76	74	70	69	68	67	62	61	
2000	63.4	71.8	63.1	59.3	1.5	70	67	66	64	63	62	61	60	
2100	62.8	72.2	62.6	59.3	1	69	65	64	63	63	62	61	60	
2200	64.1	78.7	63.5	59.3	1.9	74	70	68	69	63	63	61	60	
2300	64.2	79.6	63.6	60.2	1.7	77	69	66	65	63	63	62	61	

Date: 12/14/81 Location: _____
 24 Hour Leq: 70.5 CNEL: 76 Ldn: 75.2

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	63.5	78.4	63.5	60.1	1.1	75	66	64	64	63	63	62	61	
0100	63.6	78.3	63.4	60.3	1	72	66	64	64	63	63	62	61	
0200	64.7	79.4	63.9	60	1.9	76	72	67	65	63	63	62	61	
0300	65.5	77	64.6	60.3	2.3	74	72	70	68	64	63	62	61	
0400	67.9	79.7	66.9	61.3	2.8	77	74	71	70	68	66	63	62	
0500	64.7	76.3	64.2	61.3	1.7	74	71	68	66	64	63	63	62	
0600	65.7	80.5	64.6	61.2	2.4	77	73	70	68	64	63	62	62	
0700	66	79.8	65.4	62	1.8	77	73	68	67	65	64	63	62	
0800	73.2	79.7	71.3	64.4	4	79	78	77	77	72	70	66	65	
0900	71.2	87.4	70.7	67.4	1.8	82	77	74	72	71	70	69	68	3
1000	71	87.1	70	62.3	2.8	84	76	74	73	71	70	66	63	
1100	66.5	81.6	65.4	61.3	2.5	77	73	71	69	65	64	63	62	
1200	67.6	79.7	66.5	62.2	2.6	77	75	72	70	66	65	64	63	
1300	68.7	84.6	67	62.1	3.3	78	75	73	72	67	66	63	63	
1400	68.2	80.3	66.3	61.3	3.4	77	76	73	72	66	65	63	62	
1500	68.7	79.5	67.5	61.3	2.9	77	75	72	71	68	67	64	62	4
1600	67.4	84.3	66.5	62.3	2.2	79	74	71	69	66	66	64	63	5
1700	68.8	77.2	68.4	63.1	1.8	75	72	71	70	69	68	65	64	6
1800	74.8	84.7	70.9	61.3	5.7	83	82	81	79	73	70	64	63	
1900	72.3	87.7	71.2	67.1	2.4	85	80	75	73	71	70	68	67	
2000	70.3	84.8	68.4	63.1	3.3	83	79	75	73	68	67	65	64	
2100	77.3	88.5	73.5	65.1	5.2	88	86	84	82	74	72	67	66	
2200	70.7	87.1	68.6	63.1	3	86	81	73	72	68	67	65	64	
2300	73.9	87.1	72	64.3	3.5	85	83	79	76	72	71	67	66	

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/15/81 Location: _____
 24 Hour Leq: 71.9 CNEL: 79.1 Ldn: 79

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	72.8	80.1	72.1	64.3	2.5	79	77	75	75	73	72	68	66	
0100	74.6	83.3	73.7	64.4	2.9	81	79	78	77	75	74	69	66	
0200	73.2	82.3	72.3	64.4	2.9	80	78	77	76	73	72	68	66	
0300	73.1	82.4	72	63.4	3	81	79	77	76	73	71	68	66	7
0400	72.8	84.2	71.7	64.4	2.9	82	79	76	75	72	71	67	65	8
0500	70.4	81.5	69.4	64.1	2.6	79	77	74	72	70	69	65	64	
0600	76.8	92.4	71.2	63.7	5.9	91	89	82	79	73	70	65	64	
0700	74.7	88.3	71.8	64.4	5	86	83	80	78	74	72	65	65	
0800	79.7	92	75.9	64.1	6.3	91	89	84	82	79	77	65	64	
0900	72.1	82.2	70.2	64.3	3.3	80	78	76	75	72	70	67	64	
1000	69.9	82.9	69.2	64.4	2.1	79	74	72	71	70	69	66	65	
1100	68.9	83.5	67.8	64.4	2.3	82	78	71	70	68	67	65	64	
1200	70.1	80.4	69.6	65	1.8	78	74	72	71	70	69	67	66	9
1300	66.3	86.7	65.1	62.3	2.5	79	73	70	68	65	64	62	62	10
1400	66.2	83.3	64.7	62.1	2.6	80	75	70	67	64	63	62	62	11
1500	65.7	82.9	64.4	61.3	2.2	80	75	68	66	64	64	62	61	
1600	65.1	81.2	64.5	62.3	1.4	79	71	66	65	64	64	63	63	
1700	66.3	80.9	64.6	62.3	1.7	78	73	67	65	64	64	63	63	
1800	66.2	78.1	65.8	63.3	1.6	75	71	69	68	65	65	64	63	12
1900	69.8	86.2	69	63.2	2.7	78	74	72	71	70	70	64	63	13
2000	64	79.9	62.3	62.1	2.6	75	73	69	66	62	61	61	60	
2100	63.4	87.6	62.1	60	2.1	79	70	66	64	61	61	60	60	14
2200	63.4	76.1	62.6	60	2.1	73	70	67	65	62	62	61	60	
2300	63.2	75.2	62.5	60	1.9	74	70	66	64	62	62	61	60	

Date: 12/16/81 Location: _____
 24 Hour Leq: 74 CNEL: 79.3 Ldn: 78.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	62.3	72.5	62.1	60.3	1.8	70	65	63	62	62	62	61	60	
0100	63.6	77.7	62.8	60.1	2.1	74	70	67	65	62	62	61	60	
0200	64.4	82.6	62.8	59.3	2.7	80	72	68	66	62	61	60	60	
0300	63.1	78.9	62.1	59.1	2.2	75	70	67	64	61	61	60	59	
0400	73.7	86.9	66.6	59.3	3.4	86	85	81	75	66	63	61	60	15
0500	71.7	84.7	67.9	60.3	5.1	83	82	78	74	69	65	62	61	
0600	67.3	85.9	64.6	60	3.8	83	77	71	69	65	62	61	60	16
0700	70	83.7	68.7	63.4	2.8	82	78	74	72	69	68	65	64	17
0800	73.1	81.8	72.5	64.4	2.6	80	77	75	75	73	73	68	65	
0900	73.5	83.8	71.5	63	4.7	80	77	76	75	74	74	69	63	
1000	74.3	93.5	70.5	62.3	5.3	90	83	77	76	74	67	64	63	
1100	75.7	82.1	73.5	62.3	5.3	80	79	73	73	71	76	64	63	
1200	75.2	82.2	71.5	61.3	6.7	80	79	78	78	77	75	63	61	
1300	74.1	80.7	71.6	61	5.1	79	78	77	76	75	74	63	62	
1400	74.5	81.6	72.3	63.4	4.7	80	78	77	77	75	74	65	64	
1500	75.8	83.6	74.1	64.4	4.4	82	79	78	78	77	76	66	65	
1600	75.7	83.5	74.8	63.4	5.1	81	79	78	78	77	77	65	64	
1700	76.3	83.5	74.7	64.8	4.4	82	80	79	78	77	76	66	65	
1800	76.2	82.1	75.2	64.4	3.3	80	79	79	78	76	76	69	65	
1900	74.4	82.7	73.1	64	3.8	80	79	78	77	75	74	66	65	
2000	76.5	83.5	75.9	71.4	2.1	82	81	79	78	77	75	73	72	
2100	74.9	81.5	73	64	4.6	80	79	78	78	75	74	65	64	
2200	77.1	81	76.8	70.4	1.5	80	79	78	78	77	77	74	72	
2300	75.4	80.9	73.7	64.4	4.5	80	79	78	78	76	75	66	65	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/17/81 Location: _____
 24 Hour Leq: 72.7 CNEL: 80.8 Ldn: 80.7

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	75.6	83.6	73.8	65.2	4.2	81	80	79	78	77	73	66	65	18
0100	74.8	81.2	73.2	65.4	3.9	79	79	78	77	76	74	67	66	
0200	70.8	82	69.9	65.4	2.6	79	76	74	72	71	70	66	66	
0300	77	84.9	74.7	65.7	4.9	82	81	80	80	79	74	69	66	
0400	76	81.9	74.3	65.4	4.3	81	80	79	79	77	75	67	66	
0500	76.9	85.6	74.3	64.4	5.3	82	82	81	80	77	75	67	65	
0600	76.3	85.1	73.4	66.1	5.2	84	81	80	80	78	70	67	66	
0700	76.8	85.7	73.5	64.4	5.5	85	83	82	81	77	70	67	66	
0800	68.9	86.1	67.3	64.4	2.6	82	78	73	69	66	66	65	65	
0900	69.5	83.9	68.9	65.4	1.9	78	75	72	71	69	68	66	66	
1000	69	81.6	68.3	62.3	2.2	77	74	72	71	68	68	65	64	
1100	69.6	76.7	69	61.2	2.5	74	72	71	71	70	69	65	62	
1200	69.8	75.7	69.3	61.3	2.2	74	72	71	71	70	69	65	62	
1300	71.1	88.3	70.7	68.4	1	84	74	72	71	71	70	69	69	
1400	70.9	86.3	70.3	64.4	2.3	79	74	72	72	71	71	66	65	
1500	71.8	83.9	71.4	65.4	1.6	80	76	74	73	71	71	70	66	
1600	69.8	79.3	69.4	64.2	1.8	75	71	71	70	70	70	66	65	
1700	70.9	83.6	70.4	64.4	2.1	81	75	72	72	71	70	66	65	
1800	70.3	83.8	69.7	63.4	2.3	78	73	72	71	71	70	65	64	
1900	69.2	80	68.6	64.2	2.3	76	73	72	71	70	68	65	64	
2000	70.1	78.3	69.3	64.4	2.5	76	75	73	72	70	69	65	65	
2100	69.8	81.7	68	64.4	2.5	78	75	73	72	68	66	65	65	
2200	67.5	81.6	66.7	60.3	2.3	77	74	71	69	67	66	63	62	
2300	66.6	81	65.3	61.3	2.7	77	74	71	69	65	64	63	62	

Date: 12/18/81 Location: _____

 24 Hour Leq: 76.4

 CNEL: 80.1

 Ldn: 79.4

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	66.6	83.3	65.1	59.3	3.1	79	74	71	69	65	64	62	61	19
0100	65.2	78	64.4	60.3	2.1	76	73	68	66	64	63	62	61	
0200	66.3	77.2	65.6	60.3	2	75	72	70	68	65	65	63	62	
0300	70.7	94.4	67.7	61.3	3.9	88	79	75	73	68	66	63	62	
0400	72	86.1	70.1	63	3.7	83	80	76	75	71	69	65	64	
0500	74.3	87.2	72.6	67.2	3.4	85	82	78	77	74	71	68	68	20
0600	73.5	82.5	72.4	65.4	3	80	78	76	76	74	73	68	67	
0700	76.6	87.7	75.8	66.4	2.5	85	82	79	78	76	75	73	68	
0800	76.8	93.8	75	65.4	3.9	91	83	79	78	77	76	69	66	
0900	76.9	92.9	75.4	69.3	3.3	88	84	81	79	77	75	71	70	
1000	79	90.2	77.8	68.1	3.1	88	85	83	81	79	77	74	70	
1100	79.2	93	78.1	68.4	3.1	88	85	82	81	79	78	73	69	
1200	79.4	94.0	78.8	69.2	2.1	89	85	82	81	79	78	76	73	
1300	78.8	87.6	78.4	74.4	1.5	86	83	81	80	78	78	76	75	
1400	78.4	83.6	77.9	68.1	2.3	82	81	80	79	79	78	75	69	
1500	77.5	85	76.7	66.4	2.9	83	81	80	79	78	77	71	67	
1600	77.2	88.4	76.6	66.3	2.5	84	80	79	78	77	77	74	67	
1700	78.1	84.2	77.7	73.4	1.7	82	81	80	79	78	78	75	74	
1800	77.6	86.2	76.9	66.4	2.6	85	82	79	79	78	77	74	68	
1900	77.9	91.3	77	66.1	2.9	86	83	80	79	78	77	73	67	
2000	77.8	85.5	77.2	67	2.5	83	82	80	79	78	77	74	69	
2100	77.6	92.8	75.6	67.1	4.3	90	84	81	80	78	75	69	68	
2200	72.3	85.9	70.1	63.4	3.9	83	81	77	75	71	69	65	64	21
2300	70.4	89	67.9	62.3	3.7	87	79	75	73	68	66	64	63	22

Date: 12/19/81 Location: _____
 24 Hour Leq: 75.5 CNEL: 79.4 Ldn: 78.9

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	72.1	89	68.6	62.3	4.6	86	82	77	75	69	67	64	63	
0100	67.5	84.7	65.7	61.3	3.2	80	76	72	70	65	64	63	62	23
0200	68.7	86.5	66.5	62.3	3.5	83	77	74	71	66	65	63	62	
0300	69.1	84.2	67.7	62.3	3	81	77	73	71	69	67	64	63	24
0400	71.5	84.5	70.1	65.1	3.1	82	79	75	74	71	69	68	65	
0500	73.7	86.7	71.9	65.4	3.5	84	81	79	77	72	71	67	66	
0600	73	87.3	71.1	65	3.5	85	82	78	75	72	70	67	65	
0700	75.6	88.9	74.3	65.4	3.2	86	82	79	78	75	74	70	67	
0800	77	88.1	75.3	65.4	4.1	86	83	81	79	77	76	69	66	
0900	74.9	86	73.2	65.4	3.9	83	81	78	78	76	73	68	66	
1000	74.2	87.4	71.8	64.4	4.4	85	81	78	77	74	70	66	65	
1100	77.5	93	75.7	64.4	4.2	89	84	81	79	77	76	68	65	
1200	77.4	92.2	76	67.3	3.4	88	84	80	79	77	76	71	68	
1300	80.4	94.6	78.9	71.4	3.1	91	88	85	83	79	78	75	73	
1400	79.1	90.8	77.1	65.1	4.3	89	86	83	82	78	77	70	67	
1500	79.8	92.8	78.4	67.4	3.5	90	86	84	82	79	78	73	70	
1600	73.8	86.4	71.6	59.3	4.5	85	81	78	77	73	71	65	61	
1700	73.7	84.7	72.4	60.3	3.6	80	78	76	76	74	73	67	63	
1800	75.1	85.5	73.3	64.4	4.2	83	80	78	78	76	74	67	65	
1900	76.9	85.2	75.6	66	3.7	84	82	80	79	77	76	68	66	
2000	75.2	87.3	73.5	65.4	3.9	85	81	79	78	76	74	68	66	
2100	74.6	85.4	73.3	65.1	3.2	84	81	78	77	74	73	68	67	
2200	70.2	83.3	68.3	62.3	3.5	81	78	75	73	69	67	64	63	25
2300	69.8	83.7	67.6	61.2	4	81	78	74	73	68	66	63	62	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/20/81 Location: _____
 24 Hour Leq: 71.6 CNEL: 75.7 Ldn: 75.6

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	67.2	79.2	66	61.3	2.8	77	74	71	70	66	65	62	62	
0100	65.9	80.4	64.3	60.3	2.4	77	73	69	67	64	63	62	61	
0200	65.9	77.1	64.9	61.3	2.5	75	73	70	68	65	64	62	61	26
0300	69.1	79.3	67.9	61.3	3.2	76	74	72	71	70	67	63	62	
0400	67.9	82.5	66.6	63.2	2.8	80	75	71	71	66	65	64	63	
0500	69.1	79.7	67.7	63.3	3.3	76	74	73	72	69	66	64	63	
0600	71.7	78.4	71.3	64.2	2.2	76	74	73	73	72	72	66	65	
0700	72.5	75.5	72.2	65.2	1.9	74	74	73	73	73	72	70	65	
0800	74.1	81.1	74	71.4	.9	79	77	75	75	74	73	73	72	
0900	76.3	84	76.1	70.4	1.3	81	79	77	77	76	76	74	71	
1000	73.5	90	71.5	65.4	3.8	88	79	76	76	74	70	67	60	
1100	74.8	85.4	73.9	66.2	3.1	83	80	77	76	75	74	68	67	
1200	76.8	88	76	67.1	2.6	86	82	79	78	76	76	71	68	
1300	76.1	86.8	75.7	66.4	2.8	84	81	78	77	76	76	70	67	
1400	69.6	84.7	68.6	64.4	2.3	81	78	73	71	68	68	60	65	27
1500	71.3	82.4	70.5	66.4	2.4	79	76	74	73	72	71	69	67	28
1600	70.9	79.8	70.6	67.2	1.3	77	75	73	72	71	70	69	68	29
1700	71.4	85.5	70.8	61.3	1.9	82	77	74	72	71	70	69	62	30
1800	64.2	79.3	62.2	60.1	2.6	77	74	68	65	62	61	61	60	31
1900	63.9	79.3	62.8	60.3	2.2	77	73	66	65	62	62	61	60	
2000	65.9	84.5	64	60.2	3	82	74	69	67	64	63	61	60	
2100	64.8	81.1	63.7	60.1	2.5	76	71	68	67	64	63	61	60	
2200	67	86	65.4	60	3.1	81	74	71	69	66	64	62	61	
2300	65.8	81	64.5	60.7	2.8	77	74	69	68	65	63	61	61	32

OCEANVIEW WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/21/81 Location: _____
 24 Hour Leq: 67.1 CNEL: 74.9 Ldn: 74.9

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	67.6	80.7	66.4	62.3	2.7	78	75	72	70	66	65	63	63	33
0100	68	79.3	67.3	62	2.2	77	74	71	69	68	67	64	63	34
0200	72.8	79.2	72.6	69	.9	75	74	74	73	73	72	71	70	35
0300	72.1	82.7	71.9	68.4	1	78	75	73	72	72	71	70	70	36
0400	71.5	84.6	71.3	68.4	.9	79	74	72	72	71	71	70	69	
0500	65.3	76.4	60.7	54.3	5.5	75	72	71	71	59	58	56	55	
0600	60.4	79.1	58.3	53.3	3.4	74	70	65	63	58	57	55	54	
0700	66.6	82.5	63.2	55.1	4.8	79	76	72	70	64	62	58	56	37
0800	69.7	86	66.1	57.3	5	83	79	75	73	67	65	60	58	
0900	69.5	86.6	66	59.3	4.8	83	79	75	73	67	64	61	60	
1000	63.2	76.6	62.8	59.3	1.4	73	68	65	64	63	62	61	60	
1100	64.5	79.3	63.3	59.3	2.7	75	72	69	67	62	62	60	60	
1200	63.8	79.6	62.7	59.3	2.5	74	72	68	66	62	61	60	60	
1300	61.9	74.2	61.1	59.2	1.9	73	70	64	62	61	60	59	59	
1400	70.7	100.1	62.7	59	4.2	92	80	71	67	62	61	59	59	
1500	62.1	74.6	61.4	58.3	1.9	72	69	65	63	61	60	60	59	
1600	61.8	80.5	60.9	58.3	1.7	78	67	63	62	61	60	58	59	
1700	63.5	80.3	62.3	59.1	2.4	76	72	67	64	62	61	60	59	
1800	61.6	74.5	60.8	59	1.2	72	65	62	61	60	60	59	59	
1900	62.6	75.1	61.6	59.1	2.2	74	71	66	63	61	61	60	59	
2000	61.8	73.2	61.3	59.1	1.4	72	68	63	62	61	61	60	59	
2100	63.4	75.9	62.7	59.3	2	73	70	67	65	62	62	60	60	
2200	62	73.8	61.8	59.2	1	70	64	63	62	62	61	60	60	
2300	62.6	78.9	62	59.3	1.5	74	70	63	63	62	61	60	60	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/22/81 Location: _____
 24 Hour Leq: 72.9 CNEL: 76.7 Ldn: 75.7

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	62.7	74.3	62.1	60.3	1.5	73	70	64	62	62	61	61	60	
0100	61.9	72.4	61.8	60.3	1.6	70	63	62	62	61	61	61	60	
0200	64	79.3	62.8	60.3	2.5	76	72	68	66	62	61	61	60	
0300	64.1	85.1	62.9	60.3	2.2	79	71	67	65	62	62	61	61	
0400	63.6	80.6	62.7	60.3	2	76	71	67	64	62	62	61	61	
0500	64.6	86.5	63.1	60.2	2.7	78	72	69	66	62	62	61	61	
0600	61.9	73.1	61.7	60.1	1.7	70	64	62	62	61	61	61	60	
0700	63.4	83.2	62	60	2.2	79	72	66	63	61	61	60	60	
0800	64.3	85.1	62.5	59.3	2.8	79	73	69	66	62	61	60	60	38
0900	66.5	82.5	64.2	60.1	3.4	80	77	71	68	64	63	61	60	
1000	70.2	79.8	68.9	62.2	3.6	77	75	73	72	71	70	63	62	-
1100	71.1	76.4	70.9	65.4	1.2	74	73	72	72	71	71	69	66	
1200	75.1	84.2	73.5	67.4	3.3	82	81	80	79	79	71	70	70	
1300	78.9	84.7	78.6	71	1.5	83	81	80	80	79	78	77	72	39
1400	79.1	88.4	77.7	72	3.5	87	85	83	82	79	78	73	72	
1500	72.5	85	71.6	65.4	2.8	82	78	74	73	72	72	66	66	
1600	73.8	82	73.2	65.4	2.5	81	78	75	75	74	73	68	66	
1700	73.6	89.1	72.7	64	3.2	80	77	75	74	74	73	65	64	
1800	72.4	81.1	70.4	63.4	4.1	79	76	75	75	74	72	65	64	
1900	74.2	80.2	73.6	65.1	2.6	78	77	76	75	74	74	60	65	
2000	76.4	83.0	75.9	65.4	2.2	79	78	78	78	77	76	73	66	
2100	76.9	81.4	76.1	65.4	3	81	79	78	78	77	77	74	66	
2200	70.6	87.3	69.2	63.3	3.4	82	75	72	72	71	71	64	63	
2300	73.3	78.2	72.9	64.4	2	78	76	75	75	73	72	71	66	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/23/91 Location: _____

24 Hour Leq: 72.4

CNEL: 80.4

Ldn: 78.5

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	73.7	79.7	73.4	65.4	1.7	76	75	74	74	74	73	73	66	
0100	73.9	84.5	73.5	66	2	81	77	75	74	74	73	72	66	
0200	72.8	78	71.8	66.4	2.9	76	75	75	75	74	73	67	67	
0300	74.4	79.2	73.6	66.4	2.9	78	77	76	76	75	74	67	67	
0400	75.7	78.9	75.6	73.1	.7	78	77	76	76	75	75	74	74	
0500	76.1	79.8	76	73.4	.8	78	78	77	77	76	75	75	74	
0600	75.7	84.1	75	66.4	2.9	81	78	77	77	76	75	68	67	
0700	76	79.7	75.8	71.4	1	79	78	77	77	76	75	74	72	
0800	76.1	79.3	75.9	73	1.1	78	78	77	77	76	76	74	73	
0900	70	80.9	68.5	63.4	3.4	79	75	73	73	71	66	64	64	
1000	68	84.1	66.7	63.3	2.8	81	76	71	70	67	65	64	63	40
1100	66.4	81.9	65.5	62.3	2.3	78	73	70	69	65	64	63	63	
1200	65.7	84.9	64.6	62	2.2	79	74	69	66	64	64	63	62	
1300	67.4	89.9	65.5	62	2.9	83	76	71	69	65	64	63	62	41
1400	66.1	73.7	65.7	62.3	1.7	72	70	68	67	67	65	63	63	42
1500	69.1	80.1	68.9	67	1.2	78	73	70	70	69	68	67	67	
1600	68.8	78.9	68.5	66.4	1.3	75	73	70	70	69	68	67	67	
1700	69.7	75.3	69.6	67.4	.7	74	71	70	70	69	69	68	68	
1800	68.9	78.3	68.4	65.4	1.9	75	72	71	70	69	68	66	65	
1900	68.9	74.9	68.7	65.4	1.5	74	72	70	70	69	68	66	66	
2000	70.6	75.4	70.1	66.4	1.9	74	74	73	73	70	69	68	67	
2100	72.2	78.1	72	70.4	.7	76	74	73	73	72	71	71	71	
2200	73.3	86.4	73	68.1	1.5	80	76	75	74	73	73	70	69	
2300	70.9	78.3	70	64.1	3	76	74	73	73	71	70	64	64	

Date: 12/24/81 Location: _____
 24 Hour Leq: 71.4 CNEL: 77.4 Ldn: 76.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	69.1	81	68.3	63.4	2.5	76	74	72	71	69	68	64	64	
0100	69	84.6	68	64	2.7	79	75	72	71	69	68	64	60	
0200	67	83.5	65.9	63.4	2.4	78	74	71	69	65	64	64	60	43
0300	66.1	82.5	64.9	62.3	2.5	79	73	70	68	64	63	63	62	
0400	65.6	88.1	64.1	62	2.2	81	73	69	66	63	63	63	62	44
0500	65.3	85.2	64.5	62.3	1.9	77	72	68	66	64	64	63	62	
0600	69.7	85.4	68.4	63.3	3.2	81	75	73	72	70	68	64	62	
0700	71.1	75.7	70.8	64.4	1.7	75	73	72	72	71	71	69	65	
0800	71.1	78.4	70.7	65	1.9	75	74	72	72	71	71	66	65	
0900	71.5	77.9	71.1	65	1.8	76	74	73	72	71	71	69	65	
1000	70.7	79.9	69.2	63.4	3.8	76	74	73	73	72	69	64	64	
1100	70.6	79.3	70.1	64.1	2.2	77	73	72	71	71	70	65	64	
1200	71.2	79	70.9	64.4	1.7	77	73	72	72	71	71	69	65	
1300	72.6	79	72.3	66.2	1.4	77	75	74	73	72	72	70	69	
1400	73.3	81	73	69.4	1.4	80	76	74	74	73	73	70	70	
1500	70.8	73.5	70.7	69.4	0	72	71	71	71	70	70	70	70	
1600	70.7	81.5	70.5	65.1	1.4	79	73	71	71	70	70	69	65	
1700	70.3	84.5	70.1	68.4	.8	79	73	71	70	70	70	69	69	
1800	68.9	80.8	68.3	63.4	2.3	77	73	70	70	69	69	64	64	
1900	75.1	78.9	74.4	64.3	2.8	77	76	76	76	76	75	69	65	
2000	75.9	80.5	75.5	69.4	.9	78	77	76	76	76	76	74	71	
2100	71.8	77.9	71.9	69.3	1.7	76	76	75	74	71	70	70	69	
2200	75.2	82	75.1	72.4	.8	80	76	76	76	75	75	74	73	
2300	72.2	77.1	71.8	69.4	1.7	76	75	75	75	71	71	70	70	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/25/81 Location: _____
 24 Hour Leq: 72.4 CNEL: 79.3 Ldn: 79

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	72.4	89.7	72	69.4	1.5	81	76	74	73	72	71	70	70	45
0100	73.5	77.6	73.4	71.4	1.5	76	74	74	73	73	73	73	72	
0200	73.3	80.3	73.2	71.2	.8	78	75	74	74	73	73	72	71	
0300	73.5	82.3	73.4	71.2	.8	80	76	74	74	73	73	72	71	
0400	72.8	80.4	72.3	65	2.3	79	75	74	73	73	73	69	65	
0500	70.7	79.1	70.5	68.4	1.2	76	74	73	71	70	70	69	69	
0600	73.6	79.8	73.5	71.4	.7	77	75	74	74	73	73	73	72	
0700	73.1	77.6	73.1	72	.4	75	74	73	73	73	73	72	72	
0800	71.9	79.8	71.4	65.4	2.1	78	76	73	73	72	71	69	66	
0900	70.4	76	70.3	68.3	.7	74	72	71	71	70	70	69	68	
1000	70.2	90.7	69.7	64.4	1.6	79	75	71	71	70	69	68	65	
1100	70.4	80.5	70.1	68.4	1.3	76	73	73	72	69	69	69	68	
1200	73.1	84.7	72.8	70.3	1.4	82	78	75	73	73	72	71	70	
1300	72.5	77.1	72.3	69.4	1.1	76	74	73	73	73	72	70	70	
1400	71.8	81.3	70.6	65.4	3	80	78	74	74	71	70	66	66	
1500	71.2	75.4	71.1	69.3	.7	74	73	72	72	71	71	70	69	
1600	71.4	82	71	64.4	1.8	80	74	73	72	71	71	69	65	
1700	72.3	77.9	72.2	70.1	.7	74	74	73	73	72	72	71	70	
1800	73.3	81.7	72.7	64.4	2.3	80	76	74	74	73	73	69	65	
1900	74.2	87.2	73.8	68.4	1.6	84	77	75	75	74	74	72	69	
2000	73	75.9	72.8	70	1.1	75	75	74	74	73	72	71	70	
2100	72.1	80.6	71.8	65.2	1.8	79	74	73	73	72	72	70	65	
2200	72.5	75.7	72.4	70.2	.8	74	74	73	73	72	72	71	70	
2300	71.5	80	70.7	64.4	2.7	78	74	73	73	72	71	65	65	

Date: 12/26/81 Location: _____

 24 Hour Leq: 69.7 CNEL: 77.6 Ldn: 77.5

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	72.9	81.1	72.7	69.4	1.1	78	75	74	74	73	72	71	70	
0100	74.9	85.7	73.5	70.2	1.8	81	79	77	76	73	72	72	70	
0200	73.8	81.8	71.9	65.4	4.2	80	79	78	77	74	71	66	66	
0300	70.4	82.3	70.1	66.4	1.3	79	75	71	71	70	70	69	66	
0400	70.5	74.9	70.8	68.4	77	73	72	71	71	70	70	69	69	
0500	70.6	78.8	70.1	65.4	1.7	77	76	74	71	70	69	68	66	
0600	69.5	82.9	69.2	63.4	1.4	79	73	71	70	69	69	68	64	
0700	68.7	75.3	68.5	63.4	1.3	72	71	70	68	69	68	65	64	
0800	71.7	81.8	71.1	63.4	2.4	81	75	73	73	72	72	68	64	
0900	71.6	79.3	70.4	63.4	3.4	78	77	74	73	72	71	65	64	
1000	65.8	84.9	64.8	61.3	2.3	79	73	69	68	64	64	62	62	
1100	68.4	83.2	67.1	61.3	3.1	79	75	72	70	68	66	63	62	46
1200	67.4	80.7	66.1	61.3	2.9	77	74	71	70	66	65	63	62	
1300	66.2	79.3	65	61.3	2.7	77	74	71	68	65	64	62	62	
1400	66.4	82.9	64.9	61.3	2.9	79	74	71	68	65	63	62	61	
1500	66.6	83.8	65.2	61.3	2.9	78	74	71	69	65	64	62	62	47
1600	67.7	85.3	65.6	61.3	3.2	83	77	72	69	65	64	62	62	
1700	66.8	75.1	66.2	61.3	2.1	73	71	69	68	67	66	63	62	
1800	67.7	84.7	67.1	64	1.8	80	73	70	69	67	66	65	64	48
1900	68.3	82.9	67.6	64.4	2.1	79	75	71	70	67	66	65	65	49
2000	68.3	81.2	67.7	65	1.9	78	75	71	70	67	67	66	65	
2100	67.8	76.9	67.4	64.4	1.6	75	73	71	69	67	66	66	65	50
2200	68.2	81.9	67.3	64.4	1.9	79	74	71	70	67	67	66	65	
2300	68.3	81.8	67.6	64.4	2	79	74	71	70	67	67	66	65	51

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/27/81 Location: _____
 24 Hour Leq: 69.1 CNEL: 75.3 Ldn: 75.1

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	68.6	79.9	67.9	64.4	2.1	78	75	72	70	67	67	66	65	
0100	69.8	86.7	68.7	65.4	2.3	83	77	73	71	68	67	66	66	52
0200	69.6	83.7	68.9	65.4	2.1	80	77	71	70	70	68	67	66	53
0300	67.7	82.7	67.5	65.4	1.1	76	72	69	68	67	67	66	66	
0400	67.9	82.1	67.5	64.4	1.3	78	73	70	68	67	67	66	66	54
0500	67.9	82.9	67.5	66.1	1.4	78	74	70	68	67	67	66	66	
0600	69.9	82.4	69.2	66.4	2.1	80	76	73	71	69	68	67	67	55
0700	68.6	80.8	68.3	66.3	1.3	78	72	71	70	68	68	67	66	
0800	72.1	96.1	69.2	65.4	2.9	92	81	73	71	70	68	66	66	56
0900	69.3	85.5	66.4	66.1	2.2	82	76	72	71	68	67	66	66	
1000	68.8	85.1	68.3	66.3	1.7	79	75	71	70	68	67	67	66	57
1100	69.3	79.3	68.8	66.4	1.8	78	74	71	70	69	68	66	66	58
1200	67.7	83.9	67	65	1.7	80	74	70	68	66	6	65	65	
1300	68.2	88.4	67.4	65.1	1.8	81	74	71	69	67	66	66	65	
1400	68.9	84.7	68.2	65.4	1.8	81	75	71	69	68	67	66	66	59
1500	73.1	81.2	72.1	67.4	3	76	75	75	75	74	73	68	67	
1600	69.4	83.1	68.4	65.1	2.5	79	75	73	72	69	67	66	65	
1700	68	79.8	67.3	65.4	1.9	77	74	71	70	66	66	66	65	60
1800	67.1	76.9	66.9	65.4	1.1	72	69	68	68	67	66	65	65	61
1900	66.6	81.3	66.3	65.1	1.2	76	72	68	66	66	66	65	65	
2000	69.8	86.2	68	65.2	2.9	84	79	74	71	67	66	65	65	
2100	68.2	83.7	67.5	65	2	80	74	71	70	67	66	65	65	
2200	68	83.6	67.1	65.1	2.1	81	76	70	68	66	66	65	65	62
2300	66.7	75.1	66.5	65.1	1	70	68	68	68	67	66	65	65	63

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/28/82 Location: _____
 24 Hour Leq: 65.9 CNEL: 72.3 Ldn: 72

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	66.6	76.8	66.2	62.3	1.5	74	72	68	67	66	65	65	63	
0100	63.3	77.2	63.2	61.3	.5	67	64	63	63	63	63	62	62	
0200	63	66.9	62.9	61.3	.2	65	64	63	63	63	62	62	62	
0300	64.4	82.8	64.1	62.3	1.5	78	70	67	65	63	63	63	62	
0400	67.7	87.1	66.1	62.3	2.9	79	76	72	70	66	65	63	63	64
0500	66.4	78.4	65.7	63.2	2.2	75	71	69	69	66	64	63	63	
0600	66.8	84.8	65.7	63.3	2.3	82	73	69	69	65	64	63	63	65
0700	65.1	81.1	64.5	63.2	1.6	75	72	67	65	64	64	63	63	66
0800	65.5	82.2	64.5	62.3	2.3	77	73	70	68	63	63	63	62	
0900	68	88.1	65.7	61.3	3.4	82	77	73	70	65	64	62	62	67
1000	65.2	77.8	64.4	61.1	2.1	75	71	68	68	64	63	62	62	
1100	66.4	82.7	65.1	61.1	2.9	79	74	70	68	65	63	62	61	68
1200														
1300	Acoustic Equipment Check													
1400														69
1500	66.1	83.8	64.4	61.3	2.5	80	75	69	67	64	63	62	62	
1600	67.7	78.7	67.2	62.3	2	76	72	70	69	68	67	64	63	
1700	67.8	75.1	67.6	63.1	1.1	73	71	69	69	67	67	66	65	
1800	66.6	77.7	66.3	63	1.3	73	70	68	68	66	66	64	63	
1900	66.2	81	65.1	59.3	2.8	78	72	69	68	66	65	61	60	
2000	65.6	78.3	64.2	59.3	3	77	73	69	68	65	63	61	60	70
2100	64.2	88.8	62.5	59.3	2.6	78	72	68	65	62	61	60	60	
2200	64.8	82.9	63.1	59.3	3	79	73	69	67	63	62	60	60	
2300	64.9	76.4	63.5	59.3	2.0	75	73	69	67	63	62	60	60	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/29/81 Location: _____
 24 Hour Leq: 71.7 CNEL: 77.7 Ldn: 77.5

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	65.2	77.5	64	60.1	2.8	76	73	69	67	64	63	61	60	71
0100	65.9	84.3	64.2	59.3	3.1	80	73	70	68	64	63	61	60	
0200	69.4	87.3	66.5	59.3	4.2	82	79	75	72	67	65	61	60	
0300	70.6	86.3	68.6	63.4	3.1	85	80	75	72	68	67	66	65	
0400	72.1	85.6	70.3	63.1	3	84	79	76	74	71	70	67	64	
0500	74.3	87.6	72.6	67.4	3.3	86	83	79	77	73	71	69	68	
0600	74	91.7	71.9	65.4	3.7	88	82	78	77	73	71	67	66	
0700	75.4	90	73.3	65.4	3.8	88	83	80	78	74	72	68	66	72
0800	76.7	89.3	74.3	66.2	3.9	90	85	81	79	75	73	69	67	
0900	75.4	89.7	72.9	66.2	4.1	88	84	80	78	74	72	68	67	
1000	72.4	88.8	70.5	65.4	3.9	84	81	77	75	71	69	67	66	
1100	69.3	79.3	68.7	65	2.1	78	75	73	71	68	68	66	66	
1200	69.3	77.4	69	65.4	1.2	76	73	71	70	69	68	67	66	
1300	71.4	87.1	70.4	67.2	2.3	83	78	75	73	70	69	68	68	73
1400	69.2	78.7	69	64.4	1	74	72	70	70	69	69	68	66	
1500	70.2	79.7	70	67.3	.8	77	73	71	71	70	69	69	68	
1600	68.7	72.5	68.6	66.4	.6	71	70	69	69	68	68	67	67	
1700	68.7	87.3	68.4	66.4	1	78	71	69	69	68	68	67	67	
1800	71.1	84.9	70.5	67.1	2.1	78	74	73	73	72	70	68	67	
1900	71.9	77.1	71.7	68.4	1	75	73	73	72	72	71	70	69	
2000	70	78.6	69.6	66	1.8	76	72	71	71	70	70	67	66	
2100	70	83.7	69.4	66.4	1.8	81	76	71	71	69	68	67	67	74
2200	69.5	85.2	69	66.4	1.5	82	75	71	70	68	68	67	67	
2300	68.8	81.2	68.6	66.4	1	78	73	70	69	68	68	67	67	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/30/81 Location: _____
 24 Hour Leq: 70.6 CNEL: 76.5 Ldn: 76.2

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	68.6	82.9	68.3	66.3	1.1	77	73	70	69	68	68	67	66	75
0100	68.8	77.2	68.7	67.3	.6	74	71	69	69	68	68	68	67	
0200	69.1	78	69	67.3	.6	74	72	69	69	69	68	68	67	
0300	69.1	78.9	69	67.4	.6	74	71	69	69	69	68	68	68	
0400	69.1	75.3	69	67.4	.6	73	71	69	69	69	68	68	68	
0500	69.3	79	69.2	68	.6	74	71	70	69	69	69	68	68	
0600	69.6	78.7	69.5	68.2	.6	74	72	70	70	69	69	68	68	
0700	69.6	81.5	69.3	67.4	1.2	76	74	71	71	69	69	68	68	76
0800	69.6	85.1	69.4	67.4	1.1	78	71	71	70	69	69	68	68	
0900	70.6	84.8	70.1	68.2	1.6	81	77	73	71	69	69	69	68	
1000	70.6	85.5	70	68.4	1.5	82	77	72	71	69	69	69	68	77
1100	69.5	76.9	69.4	68.4	.4	73	71	70	69	69	69	69	68	
1200	69.4	74	69.3	67.4	.8	72	71	71	70	69	69	68	68	77
1300	75.9	77	71.7	68.4	1.3	76	74	73	73	72	71	69	68	
1400	72	77.5	71.7	67.4	1.4	76	75	74	73	72	71	69	68	
1500	71.5	78.7	70.9	67.4	2.1	76	75	74	74	71	70	68	68	
1600	70.9	77	70.5	67.1	1.8	76	73	73	72	71	70	69	67	
1700	72.6	75	72.5	69.3	1	74	74	74	73	73	72	71	70	
1800	72.9	77.4	72.3	69.4	1	76	75	74	74	73	72	71	70	
1900	71.3	78.9	70.7	68.4	2	76	74	74	73	71	69	69	68	
2000	71.8	75	71.7	68.4	.8	74	73	73	72	72	71	70	69	
2100	71.3	77.1	71.2	69.4	.6	74	73	72	72	71	71	70	69	
2200	71.7	76.1	71.6	69	.7	74	73	72	72	71	71	70	69	
2300	69.7	76.9	69.2	66	1.9	75	73	72	72	69	68	67	66	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 12/31/81 Location: _____
 24 Hour Leq: 72.3 CNEL: 76 Ldn: 75.5

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	69.7	81.5	69.2	67	1.7	70	75	72	71	69	68	67	67	79
0100	68.7	84.1	68	61.3	2.2	79	74	71	70	68	68	65	62	
0200	64.5	80.8	63.5	60.3	2.9	76	71	69	67	63	62	61	61	
0300	64.4	78.2	63.6	60.3	2.1	75	72	68	66	63	63	62	61	
0400	64.3	80.9	63.3	60.3	2.3	74	72	68	66	63	62	61	61	80
0500	63.8	75.3	63.1	60.3	1.9	72	71	67	65	62	62	61	61	
0600	66.7	84.4	64.3	60.3	3.3	81	77	71	68	63	63	61	61	
0700	67.4	84.2	65.5	61	3.4	79	76	72	70	66	64	62	61	
0800	69.1	83.2	68.5	62	1.0	80	74	71	70	68	68	66	63	
0900	70.5	87.3	70.2	66	1.3	80	74	71	71	70	70	69	66	
1000	71.8	90.6	70.9	65.4	2	85	78	74	72	71	70	69	67	
1100	72.4	90.1	71.2	66.4	2.5	86	80	76	74	71	70	69	67	
1200	74.4	91.5	71.8	60.3	4	88	84	80	77	72	70	68	62	
1300	76.1	93.8	71.8	61.3	5.6	91	85	81	79	79	71	64	62	
1400	79.6	92.5	76.2	64.4	6.1	80	86	84	83	80	78	67	66	
1500	77.1	93.1	74.7	66.2	4.2	89	84	82	80	76	74	69	67	
1600	72.2	88.9	70.5	64.2	3.2	85	80	78	75	71	69	67	65	
1700	71.4	90.1	69.6	66	2.7	87	80	75	73	69	68	67	66	
1800	71.5	78.1	71.1	67.4	1.9	75	73	73	73	72	72	68	68	
1900	71.3	79.8	71.1	67.4	1.1	77	73	72	72	71	71	69	68	
2000	72.5	80.5	72.4	69.4	.9	78	75	73	73	72	72	71	70	
2100	72.8	76.6	72.7	71	.5	76	74	73	73	72	72	72	71	
2200	70.8	84.9	70.1	66.4	2.3	79	74	73	72	71	71	67	67	
2300	67.7	72.7	67.6	66.3	1.5	71	69	68	68	67	67	67	66	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/1/82 Location: _____
 24 Hour Leq: 70.5 CNEL: 76.6 Ldn: 76.4

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	67	74.4	66.1	64	1.2	71	69	67	67	67	65	64	64	f1
0100	67.4	73.2	66.4	63.4	1.1	71	69	68	67	67	66	65	64	
0200	69.4	71.9	68.8	66.4	.4	71	70	69	69	69	68	68	67	
0300	72.4	75.3	71.5	68.4	.4	74	72	72	72	71	71	71	69	
0400	72.2	78.5	71.4	70.2	.3	76	72	71	71	71	71	70	70	
0500	71.2	73.9	70.2	67.4	1.4	72	72	71	71	71	71	68	68	
0600	69	71.3	68.7	67.4	.2	70	69	69	69	68	68	68	68	
0700	68.8	75.2	68.4	66.1	.7	72	69	69	69	68	68	67	66	
0800	69.4	75.2	68.5	66.1	1.2	73	71	69	69	69	69	66	66	
0900	70.4	78.4	69.4	66.2	2.1	75	73	73	72	69	68	67	66	
1000	73.1	79.7	72.7	70.4	.5	77	73	73	73	72	72	72	71	
1100	72.4	78.2	71.6	69.4	.6	76	74	72	72	71	71	70	70	
1200	72	75.3	71.2	68	.8	74	73	72	72	71	71	69	68	
1300	72	79.3	71.3	69	.9	77	74	72	72	71	71	70	69	
1400	72.4	82.2	71.5	68.4	1.3	79	77	74	73	71	71	70	69	
1500	74.8	92.4	73.1	68.1	2.5	87	81	78	76	73	72	70	69	
1600	70.8	83.3	69.5	65.1	2.3	81	76	73	72	70	69	66	66	
1700	68.9	82.1	67.4	62.3	2.3	80	76	71	70	67	66	65	64	
1800	66.6	74.6	65.8	63.4	1.1	73	70	67	67	65	65	64	64	
1900	66.7	78.6	65.6	63.4	1.7	76	73	69	67	65	65	64	64	
2000	64.4	76.4	63.8	61.1	1.4	72	67	65	65	64	64	61	61	
2100	67.9	78.3	68	64	1.9	76	72	70	69	68	68	64	64	
2200	69.4	83.8	67.5	62	2	80	77	73	71	67	66	65	62	
2300	67.5	79.4	65.3	63.3	1.9	77	73	70	68	66	65	64	64	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/2/82 Location: _____
 24 Hour Leq: 66.5 CNEL: 73 Ldn: 72.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	66.3	72.9	65.5	63.4	1	71	69	67	66	65	65	64	64	82
0100	65.5	77.8	64.7	63.1	1.1	71	67	66	65	65	65	62	62	
0200	65.5	70.2	65	63.4	.5	69	67	66	65	65	64	64	64	
0300	67	79.3	65.8	61.3	1.9	78	73	69	67	66	65	64	62	
0400	65.3	71.2	64.9	63.4	.4	69	67	65	65	64	64	64	64	
0500	66.9	78.5	65.5	64	1.8	76	74	70	66	65	65	64	64	
0600	66.2	78.7	64.9	61.3	2.1	77	72	69	66	65	64	62	62	
0700	65.7	70.4	64.9	61.3	.8	68	67	65	65	65	65	63	62	
0800	66.4	71.8	65.5	64.4	.4	70	67	66	66	65	65	65	64	
0900	66	76.7	65	61.3	.9	71	67	65	65	65	65	63	62	
1000	66	69.7	65.2	63.4	.2	68	66	65	65	65	65	64	64	
1100	66.7	77.7	65.7	64.4	.7	75	68	66	66	65	65	65	64	
1200	65.2	76.1	64.1	61.3	1.5	71	68	66	66	64	63	62	62	
1300	67	76.7	66.5	65	.9	75	70	68	67	66	66	65	65	
1400	67	80.4	66.6	65.4	.6	75	69	67	67	66	66	66	65	
1500	66.7	70.9	66.3	63.2	.7	69	68	67	66	66	66	65	62	
1600	66.5	79.2	66.3	65	.3	73	67	66	66	66	66	65	65	
1700	69.7	72.3	68.7	65.4	1.2	71	69	69	69	69	69	66	66	
1800	65.6	76.4	64.5	62.3	1.7	72	70	67	66	64	63	63	62	
1900	68.2	85.7	66.1	62.3	2.7	81	76	70	68	67	65	63	63	83
2000	65.9	82.3	64.6	62.3	1.8	79	71	68	66	64	63	63	63	
2100	65.8	83.8	64.4	62.3	1.7	78	71	67	66	64	63	63	63	84
2200	66.1	86.2	64.7	62.3	1.5	78	72	68	66	64	64	63	63	
2300	67.8	83.4	66	62.3	2.6	81	75	70	68	66	65	63	62	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 11/3/82 Location: _____
 24 Hour Leq: 76.1 CNEL: 83.2 Ldn: 82.7

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	68.2	77	67.1	62.3	2.3	72	70	70	69	68	67	63	83	85
0100	69.6	79.3	68.1	62.3	2.9	76	72	71	71	69	69	63	63	
0200	69.4	79.3	67.9	64	2.7	75	72	72	71	69	68	64	64	
0300	68	74.3	66.7	64	2.3	73	72	71	70	67	65	64	64	
0400	69.3	82.7	68	63.4	2.5	78	72	71	71	69	67	64	63	
0500	70	84.5	69	65.4	1.8	78	72	71	71	70	68	66	66	
0600	70.4	82.5	69.2	65.4	2.1	77	73	72	72	70	68	66	66	
0700	70	73.4	69.4	65.4	1.1	72	71	70	70	69	69	67	66	
0800	70.9	79.1	70.2	67.4	1	77	74	72	71	70	70	69	68	
0900	70.4	79.7	69.7	65.4	1.1	76	73	71	70	70	69	68	66	
1000	70.9	79.3	69.9	66.4	1	77	73	71	70	70	69	68	67	
1100	70.6	75.9	70	67.4	1.7	74	72	71	70	70	70	69	68	
1200	71.1	82.5	70.3	66.4	1.3	80	75	72	71	70	70	68	67	
1300	71.8	82	70.9	68.1	1.4	79	76	74	72	71	70	69	68	
1400	73.9	88.7	72.2	68.4	2.5	84	81	77	75	72	71	70	69	
1500	76.2	91.6	73.8	67.1	3.4	88	84	80	78	74	72	70	69	
1600	77.1	89.6	75	69.3	3.3	87	84	81	79	75	74	71	70	
1700	76.6	89.1	74.1	67.4	3.5	87	84	81	79	75	73	70	68	
1800	78	94.8	74.9	68.2	3.9	91	87	82	80	75	74	70	69	
1900	77.5	90.1	75	68.4	3.6	88	85	82	80	75	74	71	69	
2000	79.4	93.2	75.8	68.4	4.4	92	87	84	82	77	74	71	69	
2100	81.3	95	78.2	69.4	4.3	93	89	86	84	79	77	72	71	
2200	82.6	97	79.4	68.4	4.6	93	90	87	85	81	79	73	71	
2300	81.8	94.3	78.7	68.4	4.5	92	89	86	85	80	78	73	71	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/4/82

Location: _____

24 Hour Leq: 75.9

CNEL: 85

Ldn: 85

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	80.7	93.1	77.5	69.4	4.3	92	88	85	84	79	76	72	70	K
0100	79.2	94.8	76.2	68	4.1	93	87	83	81	77	75	71	70	
0200	84.1	97	80.9	70	4.8	95	91	88	87	83	80	74	71	
0300	81.3	91.8	78.8	71.1	3.9	90	88	85	84	80	78	73	71	
0400	78.3	87.3	76.3	69.4	3.3	86	84	82	81	77	75	72	71	
0500	75.3	83.9	74.2	70.4	2	82	80	78	77	74	73	72	71	
0600	74	79.8	73.4	71.2	1	78	76	75	74	73	73	72	71	
0700	74.2	78.9	73.4	71.4	.3	78	75	74	74	73	73	72	72	
0800	73.9	78.6	73.2	70.4	.8	77	75	74	74	73	73	72	72	
0900	72.3	76.4	71.3	66.2	2.2	75	74	73	73	72	72	67	67	
1000	68.8	85.8	67.6	65.4	1	80	70	68	68	67	67	66	66	
1100	68.1	78.8	67.4	64.4	.6	73	69	68	68	67	67	66	66	
1200	68.7	77.4	67.9	62	1.5	72	70	69	69	68	68	66	63	
1300	69	72.1	68.7	67.1	.3	70	69	69	69	68	68	68	67	
1400	69.6	70.7	69	67.4	.3	70	70	69	69	69	69	68	68	
1500	68.6	78.3	67.7	63.4	2	76	72	69	69	68	68	64	64	
1600	72	92.6	70.5	64.2	2.1	81	72	72	71	71	71	66	66	
1700	72.4	84.1	71.4	70.4	.5	78	73	72	71	71	71	71	70	
1800	72	77.4	70.9	68.4	1.1	76	75	72	71	71	71	69	69	
1900	71.2	79.3	70.8	68.4	.8	77	74	71	71	70	70	70	68	
2000	71.6	74.6	70.8	67.4	.8	73	72	71	71	71	71	69	68	
2100	71.3	79.2	70.4	67.4	1.4	76	74	73	72	70	70	69	68	
2200	71.3	78.5	70.4	64.4	1.5	76	74	73	72	70	70	69	66	
2300	70.7	73.9	69.9	68.4	.7	72	72	71	70	70	69	69	68	

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 11/5/82 Location: _____
 24 Hour Leq: 70.7 CNEL: 77 Ldn: 76.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	70.5	74.2	69.7	68.2	.6	72	71	71	70	69	69	69	68	
0100	70.3	79.1	69.4	68.2	.6	76	71	70	69	69	69	68	68	
0200	72.4	77.8	70.9	65.4	2.4	74	74	73	73	73	71	67	66	
0300	69.7	70.5	69	67.4	.2	69	69	69	69	69	69	68	68	
0400	70.3	71.3	69.4	68	.4	70	70	70	70	69	69	68	68	
0500	69.5	79.3	68.4	65.4	1.7	75	72	70	70	69	69	66	65	
0600	70.5	70.8	69.5	68.4	.3	70	70	69	69	69	69	69	68	
0700	71.9	75.5	70.5	68.4	1.9	75	74	73	73	69	69	69	68	
0800	70.7	86.7	69.7	68.4	.9	77	73	71	70	69	69	69	68	
0900	70.3	80.2	69.3	65.8	1.1	78	74	70	69	69	69	68	68	
1000	70.6	80.7	69.7	68.4	.6	78	71	70	70	69	69	69	69	
1100	70.6	82.8	69.6	65.4	1.1	80	74	70	70	69	69	69	66	
1200	71.3	81.1	70.5	64.1	2.2	78	74	72	72	72	70	68	64	
1300	72.7	81	72.5	71.4	.6	77	75	73	72	72	72	72	71	
1400	72.6	79.9	72.2	68.4	1	77	75	73	72	72	72	70	69	
1500	72.5	80.9	71.7	68.4	1.6	78	76	73	73	72	72	69	69	
1600	70.8	83.9	69.8	66.4	1.8	90	75	73	71	70	70	67	67	
1700	70.2	87.9	69.4	68	1.2	78	74	71	70	69	69	68	68	
1800	69.9	72.1	69.1	67.4	.3	71	70	69	69	69	69	68	68	
1900	70.5	78.4	69.7	67.4	.8	75	73	71	70	69	69	69	68	
2000	68.1	81.2	66.9	64.4	1.8	78	71	69	69	67	66	65	64	
2100	69.5	85.1	67.3	64.4	2.9	82	77	73	71	67	65	65	64	
2200	69.8	87	67.6	64.2	3	83	77	73	71	67	66	65	64	27
2300	69.2	83	67.7	64.1	2.3	80	76	71	70	69	66	65	64	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/6/82 Location: _____
 24 Hour Leq: 71.5 CNEL: 76.8 Ldn: 76.5

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	67.4	81.5	66.3	64.4	1.5	78	71	69	68	66	65	65	64	
0100	67.3	78.4	66.5	65	1.3	76	72	69	67	66	66	65	65	
0200	67.9	80.8	67	64.4	1.6	77	73	70	69	66	65	65	65	
0300	67.5	77.4	66.8	64.4	1.3	74	72	69	67	66	66	65	65	88
0400	69.8	89.5	67.7	64.4	2.5	84	77	73	70	67	66	65	65	
0500	69.9	78.5	68.6	64.4	2.3	76	73	72	71	70	67	66	65	
0600	70.4	84.2	69	65.1	2.4	78	75	73	72	70	68	66	65	
0700	70.8	81.8	69.1	64.4	2.8	79	76	74	73	69	68	66	65	
0800	69.9	84.4	68.6	65.3	2.1	80	76	72	71	68	67	66	65	
0900	71.5	80.1	70.9	69.2	.7	77	73	72	71	71	70	70	69	
1000	70.9	76.6	70.2	65.4	1.1	75	73	71	71	70	70	69	66	
1100	71	76.3	70.3	68.4	.9	75	73	72	71	70	70	69	69	
1200	71.7	82.8	71	68.4	1.3	78	75	73	72	71	70	69	69	
1300	74.3	80.9	73.5	69.4	1.1	78	76	74	74	74	73	72	70	
1400	75	80.3	74.2	69.4	1	79	78	76	75	74	74	73	70	
1500	74.7	98.5	71.7	66.4	2.5	94	81	76	74	71	71	70	67	
1600	71.7	83.9	70.7	68.2	1.6	81	77	74	72	70	70	69	68	
1700	71.6	79.9	70.7	68.3	1.4	78	75	73	72	70	70	69	69	
1800	72.1	82.9	71.2	66.4	1.7	80	77	74	73	71	70	69	67	
1900	72	78.9	71.3	68.4	1.1	77	74	73	72	71	71	70	69	
2000	72.7	76.7	72.2	71	.5	75	74	73	72	72	72	71	71	
2100	72	77.7	71.4	69.4	1	76	74	72	72	72	71	70	69	
2200	72.2	75.3	71.7	69.2	.7	74	73	72	72	72	71	70	69	
2300	70.7	76.7	70.3	66.4	.7	74	72	71	71	70	70	69	67	

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/7/82 Location: _____
 24 Hour Leq: 71.5 CNEL: 78.3 Ldn: 78.1

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	70.7	80	70	66.2	1.2	76	73	71	71	70	70	68	66	
0100	70.7	77.8	69.9	66.2	1.1	76	74	71	71	70	69	68	67	
0200	70.4	73.4	69.6	68.1	.5	72	71	70	70	69	69	69	68	
0300	73.1	77.7	72.6	69	.7	75	74	73	73	72	72	71	70	
0400	74.1	77.8	73.1	68.4	1.8	77	76	75	75	74	72	70	69	
0500	70.7	77.7	70	67	1.5	76	74	72	71	70	70	68	67	
0600	72.9	80.2	71.6	66.4	2.4	77	76	75	75	71	70	68	67	
0700	73.5	82.8	72.1	68.1	2.5	79	76	75	75	74	71	69	68	89
0800	71.7	82.7	70.7	67.4	1.5	79	76	73	72	71	70	69	68	
0900	71.5	92.5	70.1	67.4	1.7	85	77	72	71	70	69	68	63	
1000	70.7	81.4	69.9	67.2	1.3	78	74	72	71	70	69	68	67	90
1100	70.4	76.6	69.5	68.1	.7	74	72	70	70	69	69	68	68	
1200	71.9	96.9	70.8	68.4	1.7	84	77	74	72	70	70	69	69	
1300	71.7	90.5	70.7	68.1	1.6	83	77	73	72	70	70	69	68	
1400	70.9	80.1	70.2	68.4	.8	77	73	71	71	70	70	69	69	
1500	70.6	75.9	69.7	68.3	.6	74	72	70	70	69	69	69	68	
1600	70.5	78.1	70.1	68.4	.5	75	71	70	70	70	70	69	69	
1700	71.4	82.7	70.8	69.1	1	79	74	72	71	70	70	70	69	
1800	72	80.1	71.2	69.2	.9	76	73	72	72	71	71	70	69	
1900	71.6	83.8	70.8	69	1.2	81	75	72	71	71	70	69	69	91
2000	70.9	77.1	70.2	68.4	.8	75	73	71	71	70	70	69	69	
2100	70.8	76	70.4	68.4	.5	73	72	71	71	70	70	69	69	
2200	70.8	77.9	70.4	68.4	.6	74	72	71	71	70	70	69	69	
2300	71	77.7	70.9	69	.8	76	73	72	71	70	70	69	69	92

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/8/82 Location: _____
 24 Hour Leq: 73.2 CNEL: 78.9 Ldn: 78.7

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	71.8	87.1	70.8	69.3	1.5	84	77	73	72	70	70	69	69	93
0100	71.8	86.2	71	69.3	1.2	81	76	72	71	71	70	69	69	94
0200	72.3	77	71.4	70.3	.4	75	73	72	72	71	71	70	70	
0300	72.5	75.9	71.7	70.4	.5	75	73	72	72	71	71	71	70	
0400	72.5	80.4	71.7	70.4	.4	75	73	72	72	71	71	71	70	
0500	72.5	79.8	71.7	70.3	.4	74	73	72	72	71	71	71	70	
0600	72.5	75.8	71.8	70.4	.4	74	73	72	72	71	71	71	70	
0700	72.9	82.7	72.1	70.4	.8	77	74	73	73	72	72	71	71	
0800	72.8	82.2	72	70.4	1	78	75	73	73	72	71	71	70	
0900	72	83.3	71.2	67.3	1.3	79	75	74	72	71	71	70	68	
1000	74.9	82.9	73.6	67.2	2.6	82	79	77	76	75	73	70	68	
1100	76.5	83	75.7	73.4	1.1	82	79	77	77	75	75	74	74	
1200	76.4	88	75.6	73.4	1	84	80	77	76	75	75	74	74	95
1300	75.1	85.4	75.1	73.3	.8	80	77	76	76	75	75	74	73	
1400	75.9	85.4	75.2	73.2	1	83	78	77	76	75	75	74	73	96
1500	73.3	82.1	72.4	69.1	1.7	78	75	74	74	73	72	70	69	
1600	72.8	81.7	71.9	69.3	1.7	79	77	75	74	72	71	70	69	
1700	73.8	82.2	72.8	67.3	1.8	80	78	76	75	73	72	70	68	
1800	73.6	83.3	72.5	67.2	2.2	80	78	76	75	73	72	69	68	
1900	72.8	85.6	71.4	66.4	2.4	81	78	76	74	72	71	68	67	
2000	71.1	83.6	69.8	65.4	2.1	81	77	73	72	70	69	67	66	97
2100	71	81.4	69.7	66.1	2.2	79	77	74	72	70	69	67	66	
2200	71.6	83.4	70.2	66	2.4	80	77	75	73	70	69	67	66	98
2300	69.2	82.1	68.2	65.4	1.5	77	73	71	70	68	67	66	66	

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 11/9/82 Location: _____
 24 Hour Leq: 74 CNEL: 78.7 Ldn: 78.2

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	68.1	74.8	67.3	64.1	1.1	72	70	69	68	67	67	66	64	99
0100	68.4	83.2	67	64.2	2.1	80	75	71	69	67	66	65	64	
0200	70.9	85.7	69.3	63.4	2.6	82	77	73	72	70	69	66	65	150
0300	70.8	79.3	69.7	64.4	1.9	76	75	73	72	70	69	67	65	
0400	69.8	80.8	68.9	64.4	1.5	77	75	71	70	69	68	67	65	101
0500	69.9	78.6	69.1	64	1.3	76	73	70	70	69	69	68	64	
0600	69.6	85.6	68.7	64.1	1.6	78	74	70	69	69	68	66	64	
0700	70	78.6	69.1	64.1	1.3	77	72	70	70	69	69	68	64	
0800	73.6	77.2	72.7	67.4	2.4	76	75	74	74	74	74	69	68	
0900	75.1	79.3	74.7	73.3	.5	78	76	75	75	74	74	74	73	
1000	75.8	77.2	75.1	74.4	.3	76	76	75	75	75	75	74	74	
1100	76.2	81.5	75.9	73.4	1.1	81	80	77	76	75	75	74	74	
1200	75.6	79.3	74.7	73.1	1	78	77	76	75	75	74	73	73	
1300	76.5	78.4	75.7	74.4	.5	77	77	76	76	75	75	75	75	
1400	76.2	90.1	75.1	71.4	1.4	85	79	76	76	75	75	73	71	
1500	76.1	97.8	73.4	71.4	2.5	93	86	76	75	73	72	71	71	
1600	76.3	94.9	74.2	70.4	2.4	90	86	78	76	74	73	71	71	
1700	74.7	77.2	73.8	72.4	.7	76	76	75	74	73	73	73	73	
1800	74.6	77.6	73.7	72.4	.7	77	76	75	74	73	73	73	73	
1900	74.2	80.5	73.4	70.4	.9	77	76	74	74	73	73	72	71	
2000	74.5	77.2	73.6	72.4	.6	76	75	75	74	73	73	73	72	
2100	74.6	80.9	73.8	72.4	.7	78	76	75	74	73	73	72	72	
2200	73.7	77.5	72.8	70.4	1.2	76	76	74	74	73	72	71	71	
2300	73.7	79.3	72.8	70.4	1.2	76	75	74	74	73	73	71	71	

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/10/82 Location: _____
 24 Hour Leq: 73.7 CNEL: 80.2 Ldn: 79.9

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	73.9	74.9	73.1	71.2	.4	74	74	73	73	73	73	72	71	102
0100	73.9	89	73.1	72	.7	85	74	73	73	73	73	72	72	
0200	73.4	77.7	72.8	70.4	.5	75	73	73	73	73	72	72	71	
0300	73.6	80.1	73	72.1	.3	77	73	73	73	73	73	72	72	
0400	73.3	75.2	72.4	70.1	.9	74	73	73	73	73	72	71	70	
0500	71.6	73.9	71	70.1	.1	72	71	71	71	71	71	70	70	
0600	71.4	74.7	70.8	67.4	.7	73	73	71	71	71	70	70	68	
0700	73.2	85.3	72.6	71.4	.9	81	76	73	73	72	72	71	71	
0800	72.8	80.5	71.9	70.4	.7	77	75	72	72	71	71	71	71	103
0900	73.1	80.9	72.2	71.2	1.2	80	79	73	72	72	71	71	71	
1000	73.1	80.1	72.2	71.3	1.1	78	77	75	72	72	71	71	71	
1100	73.6	80.6	73	71.2	1.1	78	76	75	74	73	72	71	71	
1200	72.5	79.2	71.9	71.1	.3	74	72	72	72	72	71	71	71	
1300	72.6	78.7	71.8	70.4	.7	77	75	72	72	71	71	71	70	
1400	73.8	85.7	72.9	70.4	1.5	81	76	75	74	73	73	71	70	104
1500	74.7	79.1	74.3	73.2	.6	77	76	75	75	74	74	73	73	
1600	74.8	89.7	73.8	70.4	1.2	86	76	75	74	74	73	72	71	
1700	74.7	79.3	74.3	73.2	.5	77	76	75	75	74	74	73	73	
1800	73.7	77.5	73	71.2	1.1	76	75	74	74	73	73	71	71	
1900	74.7	82.9	74.2	73.1	.5	79	76	75	74	74	74	73	73	
2000	74.6	77.2	73.9	71.2	.7	76	75	75	74	74	73	73	71	
2100	74.7	81.8	74	72.4	.5	77	76	75	74	74	73	73	73	
2200	74.5	77.2	74	73.3	.1	76	75	74	74	74	74	73	73	
2300	74.5	80.4	73.8	71.4	.6	77	75	74	74	74	73	73	71	

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/11/82 Location: _____
 24 Hour Leq: 73.4 CNEL: 79.6 Ldn: 79.4

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	74	74.4	73.2	71.4	.4	74	73	73	73	73	73	72	72	
0100	73.8	80.8	73	70.4	.5	76	74	73	73	73	73	72	71	
0200	73.5	74.3	72.9	71.4	.3	73	73	73	73	73	72	72	72	
0300	73.5	74.5	73	71.4	.3	74	73	73	73	73	72	72	72	
0400	72.3	76.2	71.4	67.1	1.5	75	74	73	73	72	72	68	67	
0500	71.2	88.6	70.5	67.3	1	84	73	71	71	70	70	69	68	
0600	71.5	75.4	70.9	69.4	.5	74	73	72	71	71	70	70	70	
0700	73.1	76.7	72.6	71.1	.7	75	75	74	73	72	72	71	71	
0800	73.2	79.5	72.6	67.1	1.3	76	75	74	73	73	72	71	68	
0900	75.1	77.9	74.7	71.4	.8	77	76	76	75	74	74	74	72	
1000	74.3	78.3	73.9	71.4	1.1	77	76	75	75	74	74	72	72	
1100	73.5	79.4	73.1	71.4	.7	76	75	74	74	73	72	72	72	105
1200	74	84	73.3	71.3	1.1	80	76	75	74	73	73	72	71	
1300	73.7	86.3	72.9	71.1	1.2	82	78	74	73	73	72	71	71	
1400	73.8	88.4	73.1	71.4	1.2	84	77	74	74	73	72	72	71	106
1500	72.9	87.1	72.6	71.4	.7	82	75	73	73	72	72	72	71	
1600	74.2	88	73.4	71.4	1.5	84	79	76	75	73	72	72	72	107
1700	73.6	86.9	73.1	72	1.1	84	78	75	74	72	72	72	72	
1800	73.8	80.7	73.2	71.4	.7	78	75	74	74	73	73	72	72	108
1900	73.5	85.2	73	71.4	1	82	77	74	74	73	72	72	72	
2000	73.3	85.2	72.8	71.4	1.1	82	78	74	73	72	72	72	71	109
2100	72.6	75.5	72.2	71.4	.5	74	73	73	72	72	72	71	71	110
2200	73.1	74.7	72.4	70.4	.7	74	73	73	73	72	72	71	71	
2300	72.7	74.9	71.7	71	0	73	73	72	71	71	71	71	71	

Date: 11/12/82 Location: _____
 24 Hour Leq: 71.7 CNEL: 77.2 Ldn: 76.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	71.9	82	70.4	66.4	2	77	73	73	72	72	69	68	67	
0100	69.5	79.2	68.7	64.4	1.7	76	72	72	72	68	68	67	65	111
0200	69.3	78.9	68.4	64.4	1.6	77	73	71	70	68	68	66	65	112
0300	66.8	69.6	66	63.4	.9	69	68	67	67	66	65	65	64	
0400	66.3	68.5	65.5	64	.4	67	67	66	66	65	65	64	64	
0500	66.3	70.3	65.6	64.1	.4	67	66	66	66	65	65	65	64	
0600	69.8	84.9	68	64.4	2.6	81	77	73	71	68	67	65	64	
0700	69.7	89.6	68	64.4	2	85	77	71	69	68	67	66	65	113
0800	69.7	82.4	68.3	65.4	1.4	77	72	71	70	69	68	67	66	114
0900	70.6	85.5	69.4	65.3	2	81	76	72	71	70	69	67	66	115
1000	72.8	85.1	71.7	68.1	1.8	82	77	75	74	72	71	69	68	
1100	71.9	80.8	70.7	65.4	2.5	78	76	74	73	72	71	67	66	116
1200	72.6	74.4	71.9	71	.3	74	73	72	72	72	71	71	71	
1300	72.8	85	71.8	70.4	.9	81	76	73	72	71	71	71	70	
1400	73	86	71.8	70.3	1.4	83	79	73	72	71	71	70	70	
1500	73.5	91.4	72.8	70.1	1.6	88	77	74	74	72	71	71	70	
1600	73.4	84.6	72.5	70.1	1.4	81	76	74	74	73	72	71	70	
1700	73.6	84.5	72.8	70.4	.9	78	74	74	73	73	72	71	71	
1800	72.6	77.9	71.9	70.4	.5	76	74	72	72	72	71	71	71	117
1900	72.7	81.4	71.9	70.2	.9	78	75	73	73	72	71	71	70	
2000	72.9	82.8	72.1	70.1	1.2	80	76	73	73	72	71	70	70	118
2100	72.8	81.1	71.9	70.3	.8	77	74	73	73	72	71	71	70	
2200	72.6	79.9	71.7	70.2	.7	76	74	73	72	71	71	71	70	
2300	72.7	83.2	71.7	70.3	.9	80	75	73	72	71	71	71	70	

Date: 1/13/82 Location: _____
 24 Hour Leq: 70.6 CNEL: 77.5 Ldn: 77.2

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	72.3	88.2	71.2	63.3	2.1	81	74	73	72	71	71	70	63	119
0100	66.7	84.5	65.4	63.1	1.7	80	71	68	67	65	65	64	63	
0200	68.4	85.5	66.6	63.1	2.3	82	77	70	69	66	66	64	64	120
0300	68.2	87.1	66.5	63.4	2.1	82	75	70	69	66	66	64	64	
0400	69.5	84.9	67.8	64	2.6	81	77	72	70	68	67	65	64	
0500	71.8	86.1	70.5	63.4	2.6	81	76	73	72	71	71	66	64	
0600	71.7	86.6	70.1	64.1	2.7	83	77	74	73	71	70	66	65	
0700	68.6	88.6	66.5	61.3	3	80	75	72	70	67	65	63	62	
0800	69.1	80.3	67.9	62.1	2.2	77	73	71	70	68	67	65	63	
0900	73	86.2	71.1	64.4	3.3	81	79	76	75	72	70	67	65	
1000	72.8	84.8	71.4	64.4	2.7	80	78	75	74	72	71	67	65	121
1100	71.1	78.1	70	67	1.9	76	74	73	73	70	69	68	67	122
1200	69.2	77.6	68.5	66.1	1	73	71	70	69	68	68	67	66	
1300	70	81.5	69.1	63.4	1.5	78	73	71	70	69	69	67	64	
1400	69.3	74.7	68.4	63.3	1.7	72	70	70	70	69	68	64	63	123
1500	68.8	71.2	68.1	62.1	1.2	70	70	69	69	68	68	67	63	
1600	66.8	74.9	66	62.3	1.3	73	70	67	67	66	66	64	63	
1700	65.5	76.5	64.7	62	1.2	74	69	66	65	65	64	63	62	124
1800	66.1	85.2	64.3	61	2.7	79	72	69	68	64	63	61	61	
1900	65.9	82.9	63.8	60.3	2.7	79	74	69	68	63	62	61	61	
2000	74.7	96.6	64.7	60.3	4.9	94	88	73	70	64	62	61	61	
2100	73.6	96	65.1	60.3	4.5	94	85	73	70	64	63	61	61	125
2200	73.7	95	65.7	60.3	5.1	92	87	75	72	65	63	61	61	
2300	70.6	90.2	64.6	60	4.5	88	82	74	70	64	62	61	60	126

Date: 1/14/82 Location:

 24 Hour Leq: 74.5 CNEL: 79 Ldn: 78.9

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	70.8	94.8	64.2	60.1	4.3	90	82	72	69	64	62	61	60	127
0100	74.5	95.2	70.1	60.3	4.7	91	85	76	73	71	71	63	61	
0200	75.9	96.9	72	70.5	2.7	94	87	75	73	71	71	71	70	
0300	72.6	94.6	71.5	70.4	.9	81	75	73	72	71	71	71	70	
0400	72.5	81.1	71.6	69.1	1.1	77	75	73	72	71	71	70	69	
0500	67.1	81	63.8	59.3	4.4	78	74	72	70	62	61	60	60	
0600	70	81	67.2	59.3	5.2	77	74	72	72	72	67	61	60	
0700	69.8	82.7	67.1	61.3	4.7	78	75	72	72	72	60	62	61	
0800	66.1	83.3	64.4	61.2	2.4	79	73	68	66	64	63	62	61	128
0900	70	89	68.9	64.2	2	81	75	71	70	69	69	66	64	
1000	71	85.3	70.4	67.4	1.2	81	75	72	71	70	70	69	68	
1100	70.5	78.2	67.9	60.3	4.4	77	76	74	74	70	63	61	61	
1200	84.4	91.7	81	71.4	5.4	90	89	88	87	85	79	74	72	
1300	81.4	90.9	71.2	60.2	9.9	90	89	87	86	76	66	61	60	129
1400	67.3	80.4	66.1	60.3	2.2	78	73	69	67	66	66	63	61	
1500	69.3	79.1	68.3	66.1	1.3	76	73	71	69	68	67	67	66	
1600	73.3	81.6	72	67.4	2.3	80	78	76	75	72	71	69	68	
1700	71.1	78.1	70.2	66.3	1.3	77	75	72	71	70	70	69	67	
1800	70.5	77.8	69.7	66.4	1	75	72	71	70	70	69	68	67	
1900	69.2	79.9	68	65.3	2.1	77	74	72	71	68	67	66	65	
2000	66.2	69.1	65.5	60.3	1.8	68	67	67	67	66	66	62	61	130
2100	63.6	76.6	62.8	61	1.2	76	67	64	64	63	62	61	61	
2200	62.8	70.9	62.3	60.3	.6	60	64	63	63	62	62	61	61	
2300	64.6	77.1	63.3	60.3	2.1	74	71	67	66	63	62	61	61	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/15/82 Location: _____
 24 Hour Leq: 69.9 CNEL: 74.8 Ldn: 74.6

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	65.5	80.7	63.9	60.3	2.5	76	73	69	67	63	63	62	61	131
0100	64.4	78.9	63.3	59.3	1.7	73	70	65	64	63	63	61	60	132
0200	65.6	84.4	63.6	60	2.7	78	73	69	67	63	62	61	60	133
0300	64.9	81.3	63.3	60.3	2.3	77	72	68	66	62	62	61	61	
0400	65.2	77.2	63.7	60.3	2.5	74	72	69	67	63	62	61	61	
0500	68.3	81	65.9	60.3	3.4	79	76	72	70	66	64	62	61	
0600	66	83	63.9	59.3	2.9	73	74	70	68	64	62	61	60	
0700	67.9	83.6	65.9	61.3	3	80	74	71	70	66	65	62	61	
0800	70	87.2	68.4	62.3	2.6	82	76	71	70	69	68	64	63	134
0900	70.9	76.9	70.1	65.2	1.5	76	74	72	71	70	70	67	66	
1000	70.8	85.9	70	64.4	1.7	83	74	71	71	70	70	67	65	
1100	71.8	75.4	71	68.4	.9	74	73	72	71	71	71	69	68	
1200	75.2	104.1	71.2	65	2.8	97	80	76	73	71	70	68	66	
1300	71.5	85.7	70.7	51.2	2	85	76	72	71	71	70	69	66	135
1400	74.8	86.2	72.7	67.3	3.6	85	83	80	78	72	71	69	68	
1500	74.5	83.5	73.3	66.4	2.7	82	82	80	75	73	72	70	67	
1600	68.3	84.1	67.4	63.4	2.4	79	74	70	69	68	67	64	62	136
1700	67.3	80.4	66.3	62.3	2.5	77	74	70	69	66	65	63	62	
1800	65.8	84.7	65	62.3	1.9	76	73	68	66	64	64	63	63	
1900	64.2	71.2	64.1	62.3	.5	68	66	65	64	64	64	63	63	
2000	65.8	81.3	65.2	62.3	1.7	76	73	68	66	65	64	63	63	
2100	69	84.3	68.1	63.4	2.3	81	76	72	71	68	67	66	64	137
2200	68.9	86.3	68.3	65.3	1.7	80	75	70	70	68	67	66	65	
2300	72.3	74.3	72.2	70	.7	74	73	73	73	72	72	71	70	138

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 11/16/82 Location: _____
 24 Hour Leq: 70.9 CNEL: 77.9 Ldn: 77.6

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	72	74.8	72	71.2	.2	73	72	72	72	72	71	71	71	139
0100	71.9	73.5	71.8	70.4	0	72	72	72	72	71	71	71	71	
0200	71.8	78.4	71.7	70.4	.2	76	73	72	72	71	71	71	71	
0300	71.6	79.2	71.5	70.4	0	75	72	71	71	71	71	71	71	
0400	71.7	77.4	71.6	69.4	.2	75	72	72	72	71	71	71	70	
0500	70.9	76.6	70.8	69.4	.5	73	72	72	71	70	70	70	69	
0600	71.6	78.3	71.4	68.4	.8	76	73	72	72	71	71	69	69	
0700	71.8	86.4	71.3	68.4	1.7	81	78	74	72	71	71	69	69	140
0800	70.7	83.8	70.5	68.4	1.2	79	75	72	71	70	70	69	69	
0900	68.8	82.1	68.3	64.4	2	76	72	70	70	69	69	65	65	141
1000	70.5	80.1	70.2	67	1.3	77	74	71	71	70	70	68	67	
1100	71.7	75.8	71.5	68.4	1.3	75	73	73	73	72	71	69	69	
1200	66.8	74.2	65.8	63	2.6	73	73	72	71	65	64	64	63	
1300	64.7	72.1	64.6	62.3	.7	70	67	65	65	64	64	63	63	
1400	65.4	79	65.1	62.3	1	75	70	66	65	65	64	64	63	
1500	69.4	84.5	68.2	63.3	3.2	78	74	72	72	70	68	64	63	
1600	71.8	81.9	71.3	68.4	1.8	78	76	73	73	72	71	69	68	142
1700	72.5	83.1	72.4	71	.9	79	76	73	73	72	72	71	71	143
1800	72	79.7	71.9	70.1	.8	78	75	73	72	72	71	71	70	
1900	72.2	92.4	71.7	70.1	1.1	85	76	73	72	71	71	71	70	
2000	71.8	84.3	71.5	69.4	1	79	76	73	72	71	71	70	70	
2100	70.7	80.6	70.6	68.2	.8	77	72	71	71	70	70	69	68	
2200	70	73.8	70	67.4	.6	72	71	71	70	70	69	69	68	
2300	70.1	74.5	69.9	67.2	1.3	73	73	72	71	70	69	68	67	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 11/17/82

Location: _____

24 Hour Leq: 72.6

CNEL: 78.2

Ldn: 77.9

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	70.9	77.3	70.6	67.2	1.3	75	73	72	72	71	70	68	67	144
0100	71.3	77.1	71.2	68.4	.8	76	74	72	72	71	71	70	69	
0200	71.6	82.9	71.4	68.4	1.	78	74	72	72	71	71	69	69	
0300	72.3	86.9	72	69	1.2	83	75	73	72	72	72	70	69	
0400	71.8	79.7	71.6	69.4	1.1	78	75	73	72	72	71	70	69	
0500	71.8	80.4	71.7	70	.6	78	74	72	72	71	71	71	70	
0600	72.3	80	72	70.4	1.2	79	78	74	73	72	71	71	70	
0700	73.4	79	73.3	71.1	.7	76	74	74	74	73	73	72	71	STEAM
0800	73.1	80.7	72.9	70.3	.9	77	74	74	74	73	73	71	71	
0900	73.5	87	73.3	71	1	83	76	74	74	73	73	72	71	
1000	72.2	80.2	72.1	69.4	1	78	76	73	73	72	71	71	70	
1100	73	78.8	72.9	69.4	1	78	75	74	73	73	73	71	70	
1200	73.2	77.4	72.9	68.4	1.6	77	76	75	74	73	73	70	69	
1300	75.3	79.6	75.2	72.4	.8	79	76	76	76	75	75	74	74	
1400	76.4	82.1	76	72	1.8	81	80	79	78	76	76	73	72	
1500	72.7	77.9	72.5	69.4	1.1	76	74	74	73	73	72	71	70	
1600	72.6	81.2	72.4	69.4	1	79	75	73	73	72	72	71	70	
1700	72	78.7	71.9	69.2	.9	77	75	73	73	72	71	70	70	
1800	72.8	82.1	72.6	69.4	1.2	79	75	74	73	73	72	71	70	
1900	73.4	84.1	72.9	69.4	1.8	82	79	76	75	73	72	71	70	
2000	74.5	85.3	73.3	67.2	2.9	84	81	79	77	74	72	70	69	145
2100	69.1	84.5	68	65.2	2.5	81	76	73	71	67	67	66	65	
2200	67.5	81	67	64.4	1.5	76	74	70	68	66	66	66	65	
2300	67.2	83.1	66.8	65.2	1.3	77	73	69	67	66	66	66	65	

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/18/82 Location: _____
 24 Hour Leq: 73.4 CNEL: 79.1 Ldn: 78.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	67.9	78.8	67.3	65.1	1.8	76	74	71	69	66	66	66	65	
0100	70	83.9	68.9	65.4	2.8	81	76	73	72	70	69	66	65	
0200	73.1	87	71.9	68.4	2.6	85	81	77	74	72	71	69	69	146
0300	72	77.8	71.9	69.4	.9	77	74	73	73	72	71	70	70	147
0400	73.1	85.1	72.8	69.4	1.1	81	76	74	74	73	72	71	70	148
0500	72.7	76.7	72.5	69.2	.8	75	74	73	73	72	72	71	70	
0600	72.4	77.3	72.3	68.4	.9	75	74	73	73	72	72	71	69	
0700	72.4	83	72.2	68.4	1.2	77	75	73	73	72	72	70	69	
0800	73.5	84.6	73.2	69	1.4	81	76	75	74	73	73	71	69	
0900	73.3	81.3	73.1	68.4	1.4	78	75	74	74	73	73	71	69	
1000	70	96.8	72.7	68.2	1.9	94	77	75	74	73	72	70	69	
1100	72.9	82.5	72.6	68.4	1.5	78	75	74	74	73	72	70	69	STEAM
1200	74.7	82.2	74.2	62.3	2.1	80	78	77	76	75	74	71	69	
1300	77.3	95	76.1	68.4	2.9	91	84	79	79	77	76	71	69	
1400	75.7	80.9	75.2	67.4	2.3	79	78	78	77	76	75	71	69	
1500	75.6	87.2	74.9	68	2.6	80	79	78	78	76	75	70	69	
1600	73.5	82.4	73.1	68.2	1.9	79	77	75	75	74	73	70	68	STEAM
1700	73.3	85.2	73	68.4	1.7	79	76	75	74	74	73	70	69	
1800	72.9	81.7	72.7	68.4	1.3	79	76	74	74	73	72	70	70	
1900	72.4	79.7	72.2	68	1.2	78	74	73	73	72	72	70	68	
2000	72.6	76.3	72.3	67.4	1.4	75	74	74	73	73	72	70	68	
2100	73.3	76.8	73.1	69	1	75	75	74	74	73	73	71	69	
2200	73.3	76	73.1	69	.9	75	74	74	74	73	73	72	69	
2300	72.5	75.2	72.3	68	1.2	74	74	73	73	72	72	70	69	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 11/19/82 Location: _____
 24 Hour Leq: 71.1 CNEL: 77.9 Ldn: 77.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	72	75.7	71.8	67.4	1.2	75	74	73	73	72	71	70	68	149
0100	71.6	78	71.5	67.2	1	76	73	72	72	71	71	70	68	
0200	71.7	76.4	71.6	69.3	.5	74	73	72	72	71	71	70	70	
0300	71.1	76.9	70.9	67	1	74	73	72	71	71	71	69	68	
0400	71.3	79.2	71.1	68.4	.8	77	73	72	72	71	71	70	69	
0500	72	83.1	71.3	67.4	2.1	81	78	75	74	71	70	69	68	150
0600	71.4	87.2	69.2	64.4	3.9	86	81	75	73	70	68	66	65	
0700	72	82.2	71.3	68.3	2.1	81	79	75	74	71	70	69	68	
0800	68.7	80.2	68.6	66.4	1	74	72	70	68	68	68	67	67	
0900	68.8	74.7	68.6	66.4	1	73	71	70	70	68	68	67	67	151
1000	69.8	75.7	69.6	65	1.4	73	72	71	71	70	70	67	68	
1100	70.1	87	68.8	66	1.9	86	76	71	70	68	68	67	66	
1200	71	85	69.6	63.4	3	83	78	75	73	70	68	66	65	152
1300	71.7	86.4	70.8	65.4	2.3	83	78	75	73	71	70	68	66	
1400	71.9	81.1	71.4	66.4	1.7	79	76	74	73	72	71	69	67	153
1500	72	83.6	71.6	67	1.9	80	75	74	73	72	71	68	68	
1600	71.4	77.1	71.2	67.4	1	75	74	73	72	71	71	69	68	
1700	71.1	78.6	70.9	67.4	1.4	76	74	72	72	71	70	69	68	
1800	70.9	73.4	70.7	68.4	.8	73	72	72	71	71	70	69	68	
1900	70.5	77.1	70.8	67.4	1	76	73	71	71	70	70	69	68	
2000	70.8	77.1	70.7	67.4	.7	74	72	71	71	71	70	69	68	
2100	70.4	77.7	70.2	65.4	1	74	72	71	71	70	70	68	66	
2200	70.8	78.1	70.6	66.4	1.2	77	72	72	71	71	71	68	67	
2300	71.4	77	71.3	68.4	.7	76	74	72	72	71	71	70	69	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/20/82 Location: _____
 24 Hour Leq: 73.5 CNEL: 80.4 Ldn: 79.9

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	70.2	80.4	70.1	67.2	.9	73	71	71	71	70	70	68	67	154
0100	70.2	79.1	70.7	67.2	1	77	73	71	70	70	70	69	68	
0200	69.6	75.1	69.4	67	.9	74	72	71	70	69	69	68	67	
0300	69.5	73.6	69.4	67	.8	73	71	70	70	69	69	68	67	
0400	68.4	73.3	68.3	64.4	.4	70	70	69	69	68	68	66	65	
0500	70.2	73.9	70.1	67.4	.5	72	71	70	70	70	70	69	68	STEAM
0600	70	77.1	69.9	68	.6	72	71	70	70	70	69	69	68	
0700	69.9	71.7	69.9	68.4	.4	71	71	70	70	70	69	69	68	
0800	68.7	71.1	68.6	65.3	.9	70	70	70	69	69	68	67	66	
0900	68.5	72.7	68.4	65.4	.8	71	70	69	69	68	68	67	66	
1000	69	72.5	69	66.4	.6	71	70	69	69	69	69	68	67	
1100	71	74.3	70.9	68.2	.9	73	72	72	71	71	71	69	68	
1200	71.6	74.3	71.6	68.4	.4	73	72	72	72	71	71	71	70	
1300	72.1	77.5	72	68.4	.7	76	73	73	72	72	72	70	69	
1400	72.7	79.2	72.6	69.4	.9	78	74	73	73	73	72	71	70	
1500	73.8	78.2	73.7	71.3	.8	76	75	75	74	73	73	72	72	
1600	73.3	80.3	73	68.4	1.6	78	77	75	74	73	73	70	69	155
1700	72.2	81.5	71.4	67.4	2.3	80	78	75	74	72	70	68	68	
1800	75	84.5	73.5	67.3	3.2	84	83	79	78	73	73	69	68	
1900	75.7	80.5	75.6	73.4	.7	78	77	76	75	75	75	74	74	
2000	76.5	80	76.2	74.1	1	87	78	77	77	76	76	75	74	
2100	78.3	83	76.2	68.4	4.1	87	86	84	83	77	76	70	68	156
2200	79.1	85.1	78.7	73.4	1.7	84	83	82	80	79	78	76	75	
2300	77.4	81.4	77.3	71.4	0.8	81	79	78	78	77	77	76	75	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/21/82 Location: _____
 24 Hour Leq: 74.9 CNEL: 81.5 Ldn: 81.2

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	75.9	81.4	74.8	69.3	3.1	79	79	78	78	77	75	71	69	157
0100	73.3	85.3	72.9	69.4	1.5	82	78	75	74	73	72	71	70	
0200	74.5	82.6	74.3	71.2	1.2	81	79	76	75	74	74	73	72	158
0300	73.7	79.5	73.6	71	.7	78	75	74	74	73	73	72	71	
0400	74	81.7	73.8	71.2	.9	80	77	75	74	74	73	72	72	
0500	73.6	76	73.5	71	.5	75	74	74	74	73	73	72	72	
0600	73.2	81.5	73	68.4	1	80	76	74	73	73	72	72	71	
0700	71.2	79.7	71	68.4	1.1	78	74	72	72	71	70	69	69	
0800	71.3	74.1	71.3	68.1	.6	73	72	72	72	71	71	70	70	
0900	72.1	82.1	71.9	70	1	81	76	73	72	71	71	71	70	
1000	74	85.1	73.6	70.4	1.5	84	80	75	74	73	73	72	71	
1100	74.5	78	74.3	72	.8	77	76	75	75	74	74	72	72	
1200	75.1	87.8	74.8	72.4	1.1	86	79	75	75	75	74	73	73	
1300	75	81.2	74.9	73.3	.6	70	78	75	75	75	74	74	74	
1400	75.6	87.2	75.3	73.2	1	86	79	76	75	75	75	74	73	
1500	75.5	79.6	75.4	73.4	.7	79	78	76	76	75	75	74	74	
1600	76.1	88.7	75.7	73.4	1.5	87	80	78	77	75	75	74	74	
1700	76.2	86.3	75.3	73.4	1.3	86	79	78	77	75	75	74	74	
1800	76.2	85.3	76.1	74.4	.7	84	79	76	76	76	76	75	75	
1900	75.9	80.2	75.9	74.3	.5	79	77	76	76	76	75	75	74	
2000	75.7	82.6	75.6	73.4	.9	81	79	77	76	75	75	74	74	JTEAM
2100	76	83.2	75.7	74.2	1.1	82	80	77	76	75	75	74	74	
2200	76.3	77.9	76.2	74.4	.3	77	77	76	76	76	76	75	75	
2300	76.9	84.1	76.6	74.2	1.1	83	81	78	77	77	76	75	74	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/22/82 Location: _____
 24 Hour Leq: 81.7 CNEL: 85.8 Ldn: 84.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	75.3	84.5	75.2	73.4	.6	79	78	76	75	75	75	74	74	159
0100	75.5	87	75.3	73	1	84	80	76	76	75	75	74	73	STEAM
0200	76.3	84.6	76.1	72	.9	82	77	77	77	76	76	75	74	STEAM
0300	76.6	78.5	76.5	74.4	.4	78	77	77	77	76	76	75	75	
0400	76.6	80.2	76.3	73.9	1.1	88	81	77	76	76	76	75	74	
0500	75.9	77.8	75.9	74.2	.4	77	77	76	76	76	75	75	74	
0600	76.1	83.9	76	73.2	.9	82	78	77	77	76	76	74	74	
0700	76.5	79.2	76.3	73	.4	78	77	77	76	76	76	75	74	STEAM
0800	77.1	82.9	76.9	74.4	1.1	82	81	79	78	77	76	75	75	
0900	77.9	81	77.6	75.3	1	86	81	78	78	77	77	76	76	
1000	78.1	79.7	78	75.4	.6	79	79	78	78	78	78	77	76	
1100	78.9	84.8	78.3	72.4	2	88	84	82	80	78	76	76	74	
1200	77	84.4	76.7	73.4	.2	82	80	78	78	77	76	75	74	160
1300	77.3	87.1	76.8	73.4	1.8	85	82	80	79	77	76	75	74	
1400	84.9	88.4	83.3	75.2	4.4	87	87	87	87	86	86	76	75	
1500	86.4	94.7	86.3	83.5	.8	91	90	87	96	86	86	85	85	
1600	86.1	88.8	86	83.5	.5	88	87	86	86	86	86	85	84	
1700	86.1	88.8	86.1	83.5	.6	88	87	87	86	86	86	85	84	161
1800	83.9	90.4	81.1	71.4	5.6	89	87	86	86	85	85	74	73	
1900	87.4	95.7	87	81.4	1.6	95	92	89	89	87	86	85	83	
2000	85.4	88.5	85.2	76.4	1.5	88	87	86	86	85	85	84	78	
2100	77.1	89	76.9	73.4	1.2	84	81	79	78	77	76	75	74	162
2200	77.7	88.1	77.5	74.4	1.2	83	81	79	79	78	77	76	75	
2300	79.1	84.4	78.8	73.4	1.4	82	81	81	80	79	78	77	74	163

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 11/23/82 Location: _____
 24 Hour Leq: 82.2 CNEL: 89.1 Ldn: 88.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	81	83.7	80.9	79	.6	83	82	82	81	81	80	80	79	164
0100	81.5	85.2	81.4	79.2	.6	83	83	82	82	81	81	80	79	
0200	81.7	86.2	81.6	78.4	.6	84	83	82	82	81	81	80	79	
0300	81.4	84.3	81.3	79.5	.5	83	82	82	82	81	81	80	80	165
0400	82.1	84.3	82	79.5	.4	83	83	82	82	82	82	81	81	
0500	82.2	85.5	82.1	79	.7	84	84	83	83	82	82	81	80	
0600	82.1	83.7	82	79	.5	83	83	82	82	82	82	81	80	
0700	82.9	85.9	82.8	80.5	.8	85	85	84	84	83	82	81	81	
0800	82.8	85.2	82.8	80.5	.6	84	84	83	83	83	82	82	81	
0900	83.1	87.7	83	80.5	.9	86	85	84	84	83	82	82	81	
1000	81.7	85.5	81.4	78.4	1.5	84	84	83	83	82	81	79	79	
1100	80.6	86	80.5	88.4	.9	84	83	82	81	80	80	79	79	
1200	81	84.9	80.8	78	.9	84	83	82	82	81	80	79	79	
1300	81.6	94.3	81.1	78.3	1.5	93	88	83	82	81	80	79	79	
1400	81.8	76.5	81.6	79.3	.8	84	83	83	83	81	81	80	80	
1500	81.2	86.3	81	75.4	1.1	84	83	82	82	81	81	79	76	
1600	82.1	85	82	78.4	.7	84	83	83	82	82	82	81	80	
1700	81.7	101.7	81.2	76.4	1.5	93	86	82	82	81	81	79	77	
1800	82.2	84.2	82.1	80.5	.4	83	83	82	82	82	82	81	81	
1900	82.4	83.6	82.3	79.5	.4	83	83	82	82	82	82	81	80	
2000	82.3	86.1	82.1	77.4	1	85	83	83	83	82	82	80	78	
2100	82.6	84.4	82.5	79.5	.7	84	83	83	83	82	82	81	80	
2200	84.5	89.2	84.4	81.5	.7	88	86	85	85	84	84	83	82	
2300	84.6	86.5	84.5	81.5	.6	86	86	85	85	84	84	83	82	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 11/24/82 Location: _____
 24 Hour Leq: 89.9 CNEL: 94.6 Ldn: 94.6

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	85.9	92.7	85.3	82.5	.6	91	87	86	86	86	85	85	84	166
0100	86.5	88.9	86.4	84.5	.5	88	87	87	87	86	86	85	85	
0200	87.3	90	87.2	84.5	.7	89	89	88	88	87	87	86	85	
0300	88.3	90.9	88.2	85.5	.8	90	90	89	89	88	88	87	86	
0400	89.3	94.5	89.2	86.1	.8	93	91	90	90	89	89	88	87	
0500	90.1	92.6	90	87.5	.8	92	91	91	91	90	90	88	88	
0600	90.5	93.1	90.4	87.5	.7	92	92	91	91	90	90	89	88	
0700	90.4	93.6	90	81	2	93	92	92	91	91	90	87	83	
0800	90.8	93.3	90.6	86.5	1.2	95	93	92	92	91	90	89	87	167
0900	88.6	93.3	88.2	82.5	1.7	93	91	90	90	89	88	85	83	
1000	90.7	98.5	89.3	83.3	3.2	97	97	96	93	90	88	85	83	
1100	97.3	100.3	97.2	95.2	.7	99	99	98	98	97	97	96	95	
1200	97	99.2	96.9	95.2	.6	98	98	97	97	97	96	96	95	PROBABLE STEAM LEAK
1300	95.5	105.2	90.2	68.4	10.2	104	98	97	97	96	96	74	71	
1400	74.4	83.2	74.2	67.2	1.2	79	77	75	75	74	74	73	70	168
1500	74.8	79.6	74.7	71.4	.7	78	76	75	75	75	74	73	73	ON VENT
1600	75	79.2	75	73	.6	77	76	75	75	75	75	74	73	
1700	79.6	84.7	78	72.4	3.6	84	84	83	83	81	76	74	73	
1800	75.6	79.9	75.5	72.4	.8	78	77	76	76	75	75	74	73	
1900	75.4	86	75.2	72.1	1	80	77	76	76	75	75	74	73	
2000	75	78.9	74.9	71.4	.9	78	77	76	76	75	74	73	72	
2100	73.9	77.4	73.7	68.4	1.5	76	76	75	75	74	74	71	69	
2200	73.4	78	73	68.1	1.7	77	76	75	75	74	73	70	69	
2300	73	78.7	72.7	68.2	1.4	77	76	75	74	73	72	70	69	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/25/82 Location: _____
 24 Hour Leq: 83.8 CNEL: 86.3 Ldn: 86

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L ₁	L ₁	L ₅	L ₁₀	L ₃₃	L ₅₀	L ₉₀	L ₉₉	Notes
0000	71.9	80.9	71.5	66.4	1.7	77	76	74	73	72	71	69	68	169
0100	73.6	80	73.2	66.4	1.8	78	77	76	75	74	73	70	68	
0200	73.5	80.6	72.9	66.4	2.1	80	78	76	75	73	72	70	68	
0300	74.2	80	73.3	66.1	1.8	79	77	76	75	74	74	71	68	
0400	74.3	81.4	74.7	67.4	.9	77	76	75	75	75	74	74	70	
0500	72	78.9	71.5	65.4	2	78	76	74	74	72	71	69	67	
0600	71.8	81.3	71.1	64.4	2.4	79	77	75	74	71	71	68	66	
0700	73.1	81.7	72.3	64.1	2.6	79	78	76	75	73	72	69	66	
0800	73.2	81.2	72.5	64.4	2.3	79	77	76	75	73	72	69	67	
0900	71.9	80.1	70.9	62.3	2.9	79	77	75	74	72	70	67	64	
1000	90.6	102.7	84.9	64.9	9.8	101	95	94	93	92	91	70	56	
1100	89.5	93.3	89.3	85.5	1	92	81	91	90	89	89	88	87	
1200	89.2	92.6	89	85.2	1	92	91	90	90	89	89	87	86	
1300	88.4	92.1	88.2	83.5	1	91	90	90	89	88	88	86	85	170
1400	89.4	103.3	88.7	85.1	1.6	102	92	90	89	89	88	87	86	
1500	84	91.8	81.9	76.1	3.9	90	89	88	88	80	79	78	77	
1600	79.2	87.2	79	76.3	1.1	84	82	80	80	79	78	77	77	
1700	79.6	85.4	79.5	77	.7	84	81	80	80	79	79	78	77	
1800	79.2	88.9	79.1	76.2	.9	85	82	80	79	79	79	78	77	
1900	80	88.4	79.9	77	1.1	86	83	81	81	80	79	78	77	171
2000	81.1	94.4	80.7	76.4	1.4	90	86	83	81	81	80	79	78	
2100	81.3	93.7	80.9	78	1.3	92	86	82	81	81	80	79	78	
2200	82	96.1	81.1	75.4	2.2	94	89	85	83	81	80	79	77	
2300	80.8	95.6	80.5	78	1.3	92	85	83	81	80	80	79	78	

GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/26/82 Location: _____
 24 Hour Leq: 80.6 CNEL: 87.4 Ldn: 87.4

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	81.4	95.2	80.9	78.1	1.5	93	87	83	82	81	80	79	79	172
0100	83.2	92.9	81.5	74.4	3.3	92	91	89	87	81	80	78	75	
0200	81.6	91.7	81.2	78	1.5	90	88	83	82	81	81	80	79	
0300	81.5	91.2	81.2	78.4	1.3	90	86	83	82	81	80	80	79	
0400	82.6	94	81.5	78.1	2.1	93	91	83	82	81	82	79	73	
0500	80.7	94.4	80.6	78.4	.6	83	82	81	81	80	80	79	79	
0600	82.8	93.2	81.1	78.1	2.8	92	91	90	81	80	80	79	78	
0700	81.1	93.3	80.3	76.4	2	92	89	83	82	80	79	79	78	
0800	79.5	83.4	79.4	77	.5	82	80	80	80	79	79	78	78	
0900	80.3	89.1	80.1	78.2	.9	87	83	81	81	80	80	79	78	
1000	79.9	85.1	79.7	74.4	.9	83	81	81	80	80	79	79	76	
1100	81.4	94.4	80.3	75.4	2.5	89	88	87	84	80	79	78	76	
1200	86.8	101.1	82.1	75.4	5.2	99	96	94	91	80	79	78	76	
1300	83.2	99.5	80.6	77.2	3.1	98	95	87	86	80	79	78	77	
1400	78.6	83	78.5	76	.8	81	80	79	79	78	78	77	76	173
1500	78.3	84.5	78.2	76.4	.6	82	80	79	78	78	78	77	77	
1600	75.8	80.6	75.3	70.4	2	79	79	78	78	76	75	72	71	174
1700	74.8	81.7	74.7	73	.6	79	77	75	75	74	74	74	73	
1800	75.7	87.9	75.4	73.4	1.1	83	80	77	76	75	75	74	74	175
1900	74.9	83.2	74.8	73.4	.6	80	77	75	75	74	74	74	73	
2000	74.9	80	74.8	73.2	.5	78	76	75	75	74	74	74	73	
2100	74.5	78	74.4	73.2	.4	77	76	75	74	74	74	73	73	176
2200	74.7	81.6	74.6	73	.6	79	77	75	75	74	74	74	73	
2300	74	81.6	73.6	66.4	2.2	79	76	75	74	74	74	68	67	177

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 11/27/82 Location: _____
 24 Hour Leq: 69.7 CNEL: 75.6 Ldn: 75.1

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	68.1	77.6	67.9	66.4	.9	73	71	70	69	67	67	67	67	178
0100	67.9	80.1	67.7	66.8	1.1	77	73	69	68	67	67	67	67	
0200	67.6	83.9	67.4	66.4	.7	79	70	68	67	67	67	67	67	
0300	68.7	81.1	68.2	66.4	1.7	78	74	71	70	67	67	67	67	
0400	68.5	77.3	68.2	66.4	1.2	75	72	70	69	68	67	67	67	
0500	69.3	71.9	69.2	68.4	.3	71	70	69	69	69	69	69	68	
0600	69	71.9	69	68.1	0	71	70	69	69	69	69	68	68	
0700	68.9	71.2	68.8	67.1	.3	70	70	69	69	68	68	68	68	
0800	69.7	77.7	69.5	67.2	1	75	72	71	70	69	69	68	67	179
0900	66.9	75.9	65.4	57.3	3.7	73	71	69	69	68	67	60	60	
1000	63	82.1	62	58.1	2	76	71	65	63	62	61	60	59	180
1100	63.2	76.9	62.2	58.3	2.2	75	72	66	69	62	61	60	59	
1200	61.9	78.3	61.3	58.2	1.6	74	68	63	62	61	60	60	59	
1300	65.1	82.7	62.7	59	3.3	80	74	70	67	62	61	60	59	
1400	69.4	83.2	65.9	58.3	5.3	81	76	74	73	67	63	60	60	181
1500	74.4	80.8	74.3	71.4	.7	78	76	75	75	74	74	73	72	182
1600	73.1	80	65.3	71.9	3.6	78	76	75	75	74	73	60	65	183
1700	68.4	84.6	67.5	64.4	2.2	80	75	72	70	67	66	65	65	
1800	71.4	78.9	70.4	64.4	3.1	77	75	74	73	72	71	66	65	184
1900	71.9	82.2	70.7	65.2	3.3	79	76	74	74	73	72	60	60	
2000	74.3	85.6	74	70.4	1.3	83	78	76	75	74	73	72	71	
2100	71.2	79.2	70.2	65.4	2.7	77	75	74	74	70	68	67	66	185
2200	68.5	86.7	67.7	64.4	1.7	83	75	70	68	67	67	66	65	
2300	67.2	69.4	67.2	65.3	.4	68	68	67	67	67	67	66	66	

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 11/28/82 Location: _____
 24 Hour Leq: 69.7 CNEL: 75 Ldn: 74.5

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	66.3	69.3	66.2	64.3	.5	68	67	67	66	66	66	65	64	186
0100	66	69.9	66	64.3	.4	69	67	66	66	66	66	65	64	
0200	68.2	79.2	67.7	64.4	1.8	77	74	71	70	67	67	66	65	
0300	67.5	78.3	67.2	64.4	1.3	75	70	69	69	67	66	65	65	
0400	67.9	81.2	67.5	64.4	1.6	76	72	70	69	67	66	65	65	
0500	66.3	70	66.2	64.1	.4	69	67	67	66	66	66	65	64	
0600	66.7	82.6	66.4	64.2	1.1	75	72	67	66	66	66	65	64	
0700	66.3	70.4	66.3	65	.2	67	67	66	66	66	66	65	65	
0800	67.4	79.2	67.1	65.4	1.4	76	73	70	68	66	66	66	66	
0900	71.6	82	70.3	66.1	3.3	79	76	74	74	73	69	66	66	187
1000	72.9	82.6	72.7	67.2	1.4	79	74	74	73	73	73	71	67	188
1100	72.3	83.3	72.1	70.3	1	79	75	74	73	72	71	71	70	
1200	72.8	84.7	72.5	70.4	1.2	81	77	74	73	72	72	71	71	189
1300	72.5	85.5	72.3	70.4	.9	81	75	73	73	72	72	71	70	
1400	69.5	82.6	67.1	61.3	4.7	77	75	73	72	71	64	62	61	190
1500	65.6	81.7	64.3	61.3	2.4	78	74	69	67	64	63	62	61	
1600	66	83.2	64.8	62.3	2.3	80	74	70	66	64	64	63	63	
1700	67.3	88.6	65.6	62	2.8	82	76	72	69	65	64	63	62	
1800	69.1	80.5	67.7	61.3	3.4	78	75	73	71	69	68	63	62	
1900	71.9	80.9	70.9	66	2.0	78	76	74	74	73	70	67	66	
2000	70.8	77.5	70.3	68.3	1.9	77	75	74	73	69	69	63	63	
2100	72.7	79.7	72.5	67.4	1.3	77	74	74	73	73	72	70	68	
2200	69.7	78.1	69.3	66.2	2	74	72	72	71	70	69	66	66	191
2300	67.4	74.9	67.1	65.4	1.2	73	71	70	69	66	66	66	66	192

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/29/82 Location: _____
 24 Hour Leq: 70.6 CNEL: 77.5 Ldn: 77.1

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	66.5	71.2	66.5	65.4	.1	68	67	67	66	66	66	66	65	193
0100	66.4	76	66.3	65	.4	72	67	67	66	66	6	65	65	
0200	66.3	73	66.2	65.2	.3	68	67	67	66	66	66	65	65	
0300	66.2	68.5	66.2	65.2	0	67	66	66	66	66	66	65	65	
0400	67	70.7	66.9	65.4	.6	69	68	68	67	67	66	66	65	
0500	67.5	75.2	67.3	65.4	.8	74	71	68	68	67	67	66	66	
0600	68.4	82	68	66	1.5	75	73	71	70	67	67	66	66	
0700	67.7	80.6	67.5	66.4	1	76	72	69	68	67	67	67	66	
0800	68.2	77.5	68	66.4	1	74	72	70	69	68	67	67	67	194
0900	67.9	78.6	67.7	66.3	1	74	71	69	69	67	67	67	66	
1000	67.6	74.2	67.5	66.2	.6	72	70	68	68	67	67	67	66	
1100	67.3	70.4	67.2	66	.4	69	68	68	67	67	67	66	66	
1200	67.6	74.5	67.5	66	.6	72	70	68	68	67	67	67	66	
1300	67.2	72.5	67.1	65.4	.6	71	69	68	67	67	67	66	66	
1400	67.4	87	67.2	65.4	.9	78	70	68	67	67	67	66	66	
1500	71.1	80.9	70.6	65.4	1.9	79	76	73	72	71	70	68	66	
1600	71.1	91.2	70.6	68.4	1.3	86	75	72	71	70	70	69	69	
1700	72.2	76.2	72	69.1	1.4	75	73	73	73	72	72	69	69	
1800	72.8	76.9	72.8	71.4	.3	75	73	73	73	72	72	72	72	
1900	73.2	81.4	73.1	71.4	.7	77	75	74	73	73	73	72	72	
2000	73.1	78.1	73	71.4	.5	76	74	73	73	73	73	72	72	
2100	73.5	89.4	73.3	71.4	.9	82	77	74	74	73	73	72	72	195
2200	73.6	86.6	73.4	71.4	.9	80	77	74	74	73	73	72	72	
2300	79.6	86.3	76.8	71.4	.9	79	78	77	77	77	76	76	73	

GEOHERMAL WELL DRILLING DAILY NOISE LEVELS (dBA)

Date: 1/30/82 Location: _____
 24 Hour Leq: 79.9 CNEL: 86.9 Ldn: 86.8

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	75.7	79.5	75.7	73.4	.5	77	76	76	76	76	75	74	74	196
0100	74.9	79.8	74.9	73.4	.4	77	76	75	75	75	74	74	73	
0200	74.8	83.2	74.7	73	.6	79	76	75	75	74	74	74	73	
0300	74.5	82.6	74.4	72.4	.7	79	76	75	75	74	74	73	73	
0400	73.8	79.7	73.7	70.4	.7	76	75	74	74	74	73	73	72	
0500	72.8	79.7	72.6	70.4	.9	78	75	74	74	72	72	71	71	197
0600	75.3	77.8	75	71.3	1.4	77	76	76	76	76	75	72	71	198
0700	74.8	85.7	74.2	71.2	2.1	83	77	77	76	76	73	72	71	
0800	71.8	82.2	71.6	64.9	1.1	80	76	73	72	71	71	70	70	199
0900	72.5	82.8	72.1	69.4	1.7	81	77	75	74	72	71	70	70	200
1000	71.6	83.9	71.3	68.4	1.4	79	77	73	72	71	70	69	69	
1100	74.2	96	72.7	69.4	1.9	94	81	74	73	72	72	71	70	
1200	72.9	85.7	72.1	67.4	2.2	81	78	75	74	72	72	69	68	201
1300	70.8	84.3	69.8	63.4	2.8	82	77	74	72	71	70	65	64	
1400	77.7	83.7	76.9	67.4	2.6	82	81	80	80	77	77	72	71	
1500	78.7	84.6	78.6	75.4	.7	81	80	79	79	78	78	77	76	202
1600	78.9	84.1	78.7	76.4	.8	81	80	80	79	79	78	77	77	
1700	79.9	82	79.8	77.4	.7	81	81	81	80	80	79	78	78	
1800	88.7	99	85.8	74.2	6	98	92	91	91	90	89	77	75	
1900	77.3	82.1	77.1	73	1.1	81	79	78	78	77	77	75	74	
2000	76.9	82	76.7	72	1.2	80	79	78	78	77	76	75	73	
2100	77.3	82	77.1	73.4	.9	80	79	79	78	77	77	75	74	
2200	86.9	93.1	83.5	74.1	6.2	92	92	91	90	88	87	76	75	
2300	85.4	90	85	81.2	1.7	88	88	87	87	85	84	83	81	

Date: 11/31/82 Location: _____
 24 Hour Leq: 81.5 CNEL: 86.6 Ldn: 86.2

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	82.3	90.1	82.2	80	.6	85	83	83	83	82	82	81	80	
0100	80.7	85.1	80.4	76.4	1.5	83	82	82	82	81	80	77	77	
0200	78.8	87.2	78.7	77.2	.6	83	80	79	79	78	78	78	77	203
0300	78.5	81.3	78.4	77.2	.4	80	79	79	78	78	78	78	77	
0400	78.5	80.2	78.4	77	.5	79	79	79	79	78	78	77	77	
0500	78.7	84.2	78.6	76.4	.5	80	79	79	79	78	78	78	77	
0600	78.5	84.7	78.3	76.4	.9	83	81	80	79	78	78	77	77	
0700	78.9	87.1	78.3	76.4	.8	85	80	79	79	79	78	77	77	
0800	79.6	83.2	79.5	77.4	.7	82	81	80	80	79	78	78	78	204
0900	80.7	87	80.5	76.4	1.2	86	84	83	81	80	80	79	77	
1000	81.3	90.3	80.5	77.4	2	89	88	86	81	80	80	79	78	
1100	82.6	91.5	81.7	75.1	2.6	90	88	87	86	82	80	79	76	
1200	83.6	95.2	81.9	77.4	2.3	94	93	84	83	82	81	80	78	
1300	83.2	94.3	82.2	79.4	2.1	99	92	85	83	82	81	80	80	
1400	84.8	95.8	84.1	79.5	2.1	95	88	87	86	85	84	81	80	
1500	83.4	87.8	82.6	75.4	2.3	87	86	86	85	84	83	78	76	
1600	81.7	97	81.5	76.4	1.4	86	86	83	82	81	81	80	77	205
1700	82.2	89	81.8	78.4	1.6	88	86	85	84	82	81	80	79	
1800	85.3	89.6	85	79.5	1.8	88	87	87	86	86	85	81	80	
1900	86.2	94	85.7	75.1	2.5	92	89	87	87	86	86	85	76	
2000	76.1	80	75.3	69.4	1.0	79	78	77	77	76	76	73	70	206
2100	75.5	80.3	74.6	69.7	3	79	78	77	77	76	76	69	69	
2200	76.5	80.4	76.2	67.2	2	79	78	78	77	77	76	73	69	
2300	76.9	79.6	76.7	72.4	1.1	79	78	78	78	77	76	75	73	

Date: 2/1/82 Location: 24 Hour Leq: 85.9 CNEL: 91.6 Ldn: 91.5

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	77.2	82.5	77	72.4	1.1	80	79	78	78	77	77	75	74	207
0100	77.5	80.9	77.3	71.4	1	80	79	78	78	77	77	76	74	
0200	77.5	81.5	77.3	71.4	1.1	80	79	78	79	77	77	75	74	
0300	90.6	103.5	88.7	73.4	4.4	102	100	92	91	90	89	79	75	
0400	88.4	91.2	88.2	85.2	1.2	90	90	90	89	89	88	86	85	208
0500	87.1	90.2	87	84.5	.9	89	89	88	88	87	86	85	85	
0600	74.7	89.5	72	69.4	2.9	88	86	76	73	71	71	70	70	209
0700	71.3	77.1	71.3	69.3	.5	75	73	72	71	71	71	70	70	
0800	90.7	97.6	86.2	70.2	.9	97	96	93	93	91	91	71	70	210
0900	91.2	97.7	90.6	85.5	2	97	96	95	92	91	90	88	87	
1000	90.5	97	89.8	84	2.3	96	96	95	92	90	89	87	86	
1100	78.5	92.7	73.4	70	4.3	91	90	87	75	72	72	71	70	
1200	88.7	97.7	84.9	70.3	7.2	97	93	91	91	90	89	74	71	211
1300	89.4	92.9	89	82.4	1.6	92	91	91	90	90	89	86	84	212
1400	87.1	89.6	87	83.5	.8	89	88	88	88	87	87	85	84	
1500	81.6	87.8	81.4	78.4	1.1	87	85	83	82	81	81	80	79	213
1600	81.9	87.3	81.7	78.4	1	85	83	83	82	82	81	80	79	
1700	80.9	83.7	80.7	77.4	.9	82	82	82	81	81	81	79	78	214
1800	80.2	84.4	79.8	77.3	1.4	92	86	81	81	79	79	78	77	
1900	80.4	84.2	80.1	77.4	1.3	92	85	81	81	80	79	78	78	
2000	80.5	85.8	80.4	78	1.7	83	82	81	81	80	80	79	79	
2100	80.7	83.1	80.6	78.4	1.6	82	82	81	81	80	80	79	79	
2200	80.4	84.9	80.3	78.2	.6	83	81	81	81	80	80	79	78	
2300	81.2	88	81	79.1	.9	87	84	82	82	81	80	80	79	

Date: 2/2/82 Location: _____
 24 Hour Leq: 83.5 CNEL: 90.4 Ldn: 90.4

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	83.3	95.1	83	78.4	1.3	90	85	84	84	83	83	81	79	215
0100	81	90.4	80.8	78.4	.9	88	85	82	81	81	80	79	79	
0200	81.7	92.6	81.5	79.2	.9	90	85	82	82	81	81	80	79	
0300	86.1	93	85.5	80.5	2.2	91	89	88	88	87	85	82	81	
0400	86.8	89.8	86.7	83.5	.9	89	88	88	87	87	86	85	84	
0500	86.8	89.4	86.7	83.5	.8	89	88	88	87	87	87	85	84	
0600	87.1	93.7	87	83.3	.8	89	88	88	88	87	87	85	84	
0700	87.9	91.2	87.7	84.5	.9	90	89	89	88	88	87	86	85	
0800	87.9	91	87.7	84.5	.8	90	89	89	88	88	87	86	85	
0900	81.6	95.1	78.2	69.1	4.7	92	89	88	87	77	76	74	71	
1000	76.6	82.6	75.9	67.4	2.4	81	80	79	78	77	76	72	69	
1100	76	88.7	74.9	68	2.9	87	83	78	78	76	75	71	69	216
1200	75	85.1	74.1	67.1	2.8	80	79	78	77	75	74	70	68	
1300	89.8	100.3	84.4	67.4	8.6	98	97	94	92	90	90	72	69	
1400	86.7	92.9	81.8	70.4	7.1	92	91	91	90	89	77	74	72	
1500	69.5	81.1	69.2	66.3	1.1	79	74	70	70	69	69	68	67	217
1600	68.9	73.8	68.8	66.2	.7	72	70	69	69	69	68	68	67	
1700	70	77.8	69.8	68.1	.8	75	72	71	70	70	69	69	68	
1800	71.3	84.4	70.5	67.2	2.2	82	78	75	73	70	69	68	67	
1900	72.8	82.3	71.8	67	2.7	80	78	76	75	73	71	68	67	218
2000	69.9	76.1	69.3	65.4	2	75	75	74	72	69	68	67	66	
2100	69.8	75.7	69.6	66.4	1.2	74	73	72	71	69	69	68	67	
2200	69.2	72.6	69.1	67.4	.5	72	71	70	69	69	69	68	67	
2300	68.9	72.4	68.8	66.4	.4	70	70	69	69	69	68	68	67	

Date: 2/3/82 Location: _____
 24 Hour Leq: 68.3 CNEL: 75.3 Ldn: 75.1

Hour Start	Leq	Lmx	Lav	Lmn	Lsd	L.1	L1	L5	L10	L33	L50	L90	L99	Notes
0000	69.3	71.7	69.2	66.4	.6	71	70	70	70	69	69	68	67	219
0100	69.6	72.7	69.5	67.3	.8	72	71	70	70	69	69	68	67	220
0200	69.2	72.6	69.1	66.2	.9	71	71	70	70	69	69	67	67	
0300	68.8	72	68.8	66.3	.7	71	70	69	69	69	68	67	67	
0400	68.4	71.2	68.3	66.4	.6	70	69	69	69	68	68	67	67	
0500	68.2	72	68.1	66	.5	69	69	69	68	68	68	67	66	
0600	69.1	76.3	68.8	65.4	1.3	75	73	71	70	69	68	67	66	
0700	71.7	80.6	70.9	66.4	2.4	79	77	75	74	71	70	68	67	
0800	70.7	82.4	69.6	65.4	2.8	80	76	75	73	70	68	66	66	
0900	68.3	77.8	67.7	64.4	2	76	74	71	70	67	67	65	65	
1000	68.8	89.6	66.5	61.3	2.4	88	74	70	68	66	66	64	62	
1100	66.5	75.7	66.3	62	1.3	74	69	68	68	66	66	64	63	
1200	66.2	77.3	65.8	62	1.5	74	70	68	67	66	65	63	62	
1300	66.1	77.8	64.8	54.1	3.3	76	73	70	68	66	64	60	55	
1400	66.8	79.6	66.3	61.3	1.7	77	72	69	68	66	66	64	62	
1500	65.5	82.5	63.3	53.3	4.3	80	72	68	67	65	65	56	55	
1600	63.4	81	61.7	55.3	3.2	77	72	67	65	62	61	58	56	
1700	69.9	86.1	68.2	60.3	3.3	81	77	74	72	69	67	65	62	
1800	66.3	68.7	66.2	61.3	.9	68	67	67	67	66	66	65	62	
1900	66.7	71.1	66.5	62.3	1.2	69	68	68	68	67	66	65	63	
2000	67.7	70.5	67.5	61.3	.9	70	69	68	68	68	67	66	64	
2100	68.1	71.3	68	64.2	.9	70	70	69	69	68	68	66	65	
2200	68.4	72.1	68.3	64.1	.9	71	70	69	69	68	68	67	65	
2300	68.6	74.2	68.5	63.1	1.1	73	71	70	69	68	68	67	65	

NOTES FROM GEOTHERMAL WELL DRILLING DAILY NOISE LEVELS
UNION OIL COMPANY OF CALIFORNIA WELL SITE DX 63

1. Rigging Up
2. Rigging Up
3. Drill Rat Hole
4. Spud Well
5. POH (Pulling Out of Hole) Lay Down Spud Tools
6. RIH (Running in Hole), Drilling On
7. POH Change Out Tools
8. RIH Reaming Hole
9. Cease Drilling - Circulating Mud
10. POH
11. Rig to Run 22", Casing
12. RIH with Cementing Tools
13. Cement Casing
14. Rigging Up to Drill Deeper
15. RIH, Drill Out Shoe
16. POH, Check Drill String
17. RIH, Drilling Ahead
18. Drilling Ahead
19. Break Out Kelley Assembly
20. RIH, Drilling Ahead
21. Circulate Hole for Deviation Survey
22. POH
23. Rig Up Welex and Log Hole
24. RIH, Reaming Hole
25. POH, Breakout Reaming Tools & Change to New Reamer
26. RIH, Reaming Hole
27. Wiper Run - Cleanout Hole
28. Circulate Well
29. POH
30. Rig to Run Casing

31. Running Casing
32. Rig Out Casing Crew
33. RIH with Cement Tools
34. Cement Casing
35. POH
36. Wait on Cement
37. Rig Up for Drilling Ahead
38. RIH and Test Equipment
39. Drill Ahead - Depth 1525'
40. POH Change Drill Assembly
41. RIH "Turbo" Drill
42. Turbo Drilling
43. POH Lay Down Turbo
44. RIH Drilling Ahead
45. Drilling Ahead
46. POH Change Drill Assembly
47. RIH Turbo Drill
48. Work Over "Fish" with Turbo Drill
49. POH
50. Waiting on Fishing Tools
51. Make Up Fishing Tools
52. RIH Engage Fish
53. POH Slowly with Fish
54. Break Out Fish
55. RIH with Magnet
56. POH Slowly - Retrieved Broken Iron
57. RIH Work Over Fish
58. POH Slowly
59. RIH Turbo Drill
60. POH Lay Down Turbo

61. Wait on Fishing Tools
62. RIH Worked Over Fish
63. POH Wait on Fishing Tools
64. RIH Work Out Fish
65. POH Slowly
66. Lay Down Fish
67. RIH with Magnet
68. POH Slowly, Retrived Fish
69. RIH Turbo Drill
70. POH Layout Turbo Assembly
71. RIH Reaming Hole
72. POH
73. RIH Turbo Drill
74. POH Repair Turbo Drill
75. RIH with Magnet
76. POH
77. RIH with Turbo Drill
78. Drilling Ahead
79. POH
80. RIH
81. Drilling Ahead
82. Drilling Ahead
83. POH Check Drill Assembly
84. RIH
85. Drilling Ahead
86. Drilling Ahead
87. POH
88. RIH Drill Ahead
89. POH Gauge Tools
90. RIH Clean Out Hole

91. POH Unplug Drill Pipe
92. RIH
93. RIH
94. Circulating to Fill Hole
95. POH
96. RIH
97. POH Change Drill Assembly
98. RIH Cemented Well
99. Waiting on Cement
100. RIH Work on Cement
101. Drilling Ahead
102. Drilling Ahead
103. Circulating
104. Drilling Ahead
105. Circulating, Flow Check
106. POH
107. RIH
108. Set Cement Plug
109. POH
110. Condition Mud, Wait on Cement
111. RIH
112. Wait on Cementers
113. RIH and Tag Cement Top
114. Circulating
115. POH
116. RIH, Condition Mud
117. Circulate Hole Clean
118. POH
119. Rig to Run Casing
120. Run 11-3/4" Casing

121. RIH
122. Circulate, Condition Mud
123. Cement Casing
124. Circulate Out Mud, Change Out Tools
125. POH
126. RIH, Set Tool, POH
127. POH, Laydown Tools
128. RIH, Change Tools
129. Drill on Cement
130. Test Equipment, Work on Rig
131. POH
132. Test Blowout Equipment
133. RIH
134. Check Out Cement
135. Drill Ahead
136. POH
137. RIH
138. Drill Ahead
139. Drilling
140. POH
141. Rig Up for Air Drilling
142. RIH
143. RIH, Blowing Well Dry
144. Drilling Ahead
145. POH
146. RIH
147. Circulate Well Dry
148. Drilling Ahead
149. Drilling Ahead
150. POH

151. Check Equipment
152. RIH
153. Drilling Ahead
154. Drilling Ahead
155. POH
156. RIH
157. RIH
158. Drilling Ahead
159. Drilling Ahead
160. POH
161. Repairs
162. RIH
163. Work Pipe @ 7256 Feet to Clear Tight Spot
164. Work Pipe
165. Drilling Ahead
166. Drilling Ahead
167. POH
168. Change Out Equipment
169. Change Out Equipment
170. RIH
171. Drilling Ahead
172. Drilling Ahead
173. POH
174. Kill Live Well
175. POH
176. RIH, Set Plug
177. POH
178. Rigging for Cement
179. Cement Well
180. Waiting on Cement

181. RIH
182. Circulate
183. POH
184. RIH, Check Cement, POH
185. Wait on Cementers
186. Wait on Cement
187. RIH, Touch Cement Top
188. Circulate Hole Clean, POH
189. Rig to Run Casing
190. Running Casing, Set Well Head
191. Cement Casing
192. Wait on Cement
193. Wait on Cement
194. Rigging Up for Drill Ahead
195. RIH
196. Check Out Cement
197. Blow Well Dry
198. Drill Out Plug
199. POH
200. RIH, Blow Well Dry
201. POH
202. Change Drill Equipment
203. RIH
204. Drilling Ahead
205. POH
206. Rig Up Well Test Equipment
207. Set In Blow-Out Equipment
208. Blow Well Clean
209. Close In Well
210. Flow Test Well as Producer

- 211. Close in Well Test
- 212. Rig Out Test Equipment
- 213. RIH
- 214. POH, Lay Down Drill Pipe
- 215. Lay Down Drill Pipe
- 216. Install New Vent Line
- 217. Remove Blow-Out Equipment
- 218. Dress Out Equipment
- 219. Release Drill Rig
- 220. Tear Out Drill Rig