



Kirkwood Mountain Resort

Snowmaking Noise Management Program

2007-2008

Mitigation Measure 4.9 (b)

KMR will implement the Snowmaking Noise Management Program, which was adopted when the snowmaking project was approved. This incorporates several features, including restrictions on the type of nozzle, shielding of nozzles and acceptable time of operation.

History

Kirkwood's snowmaking system was installed in 1996 and began operating in November of 1997. The snowmaking system currently utilizes two pumps in Caples Lake, two booster pumps at the Pump House under Chair 1, five 1500 cfm compressors at Mountain Utilities, four fan guns, and forty-seven air/water guns.

Snowmaking air and water pipes were installed underground on Hayflat on Chair 1, Buckboard on Chair 11, Race Course and Lower Zachary on Chair 5, all of Lift 8 and areas surrounding Red Cliffs Lodge. Snowmaking air and water pipe is above ground on Upper Zachary's on Chair 6. A total of fifty-five acres of terrain has snowmaking coverage.

In 2007, KMR ran both of its pumps for a total of 767 hours on 26 days between the dates of November 11th and December 22nd. No more snowmaking was needed after December 22nd.

This season's snowmaking resulted in over 20 million gallons of water being used to create snow.

KMR received a total of 469 inches of snow for the 07/08 ski season.

Noise

Both Alpine and Amador Counties have established a maximum noise standard of 65 dBA Ldn at property lines for residential use. Pursuant to the Alpine County Use Permit allowing snowmaking activities at Kirkwood, within Alpine County, snowmaking is considered a temporary activity. As such, noise levels associated with snowmaking activities are permitted to exceed acceptable noise levels due to the fact that the noise levels would only temporarily exceed noise thresholds. Typically that threshold is 65 dB.

Amador County Planning Department made the finding that snowmaking is a consistent use of the land for a ski resort operation, and therefore, snowmaking activities do not require a use permit.

Therefore, Kirkwood's snowmaking activities are allowed to exceed the noise standards in Table 10.1 and Table 10.2. Snowmaking activities shall

comply with all mitigation measures identified in the Snowmaking Final EIR and Addendum (1995 and 1996).

Noise Mitigation Measures

Kirkwood snowmaking activities operate near dwellings and will expose residents and visitors to noise levels that surpass county standards. This impact is somewhat mitigated by the fact that the winter visitors will expect some noise associated with ski area operations, and the source of the noise is transient in nature.

To help reduce noise levels near buildings/residences Kirkwood Mountain Resort intends to continue utilizing fan guns and HKD tower guns in those locations as those apparatus have the lowest operating noise levels.

Table 10.3 Noise Levels From Different Snowmaking Nozzles

Snowmaking Nozzle	Quantity	Noise Level
Ratnik (rarely used)	22	84 dBA @ 100'
York Air/Water Gun*	6	81 dBA @ 100'
HKD *	21	65 dBA @ 150'
SMI Fan Guns *	4	60 dBA @ 100'

* High efficiency guns

Kirkwood Mountain Resort also tries to aim guns away from residences to minimize noise. At times, wind direction can interfere with this process.

Kirkwood Mountain Resort's compressors are setup near Mountain Utilities Powerhouse far away from visitor and permanent residences.

Noise Monitoring

During snowmaking activities, Kirkwood Mountain Resort performed noise monitoring at various locations throughout Kirkwood on November 30, 2007 and December 10, 2007. Results of these tests are attached.

Feedback

Kirkwood Mountain Resort continues to mitigate issues related to its snowmaking operations and welcomes any input to help achieve this goal.

Suggestions can be sent to:

Dave Myers
Vice President Mountain Operations
Kirkwood Mountain Resort
P.O. Box 1
Kirkwood, CA 95646

**TABLE 10.1
EXISTING NOISE STANDARDS OF COUNTY CODES**

County	Land Use	Criteria
ALPINE COUNTY(1)	Urban Residential and Residential, less than 5-acre density	60 dB(A) max. Ldn
	Residential, more than 5-acre density	55 dB(A) max. Ldn
	Institutional (INS) and Planned Development (CD, TD)	65 dB(A) max. Ldn
	Commercial Recreational (CR)	70 dB(A) max. Ldn
AMADOR COUNTY	Residential, low density	60 Ldn or CNEL (dB)
	Residential, multi-family	65 Ldn or CNEL (dB)
	Transient lodging (motels/hotels)	65 Ldn or CNEL (dB)
	Schools, libraries, churches, hospitals, nursing homes	70 Ldn or CNEL (dB)
	Playgrounds, neighborhood parks	70 Ldn or CNEL (dB)
	office buildings, business commercial and professional	70 Ldn or CNEL (dB)
EL DORADO COUNTY	Transient lodging	60 Ldn or CNEL (dB)
	Churches, Meeting halls, Hospitals	60 Ldn or CNEL (dB)
	Playgrounds	70 Ldn or CNEL (dB)
	Residential	60 Ldn or CNEL (dB)

Notes to Table 10.1:

(1) Applies to outdoor activity areas, not interior spaces.

TABLE 10.2
NOISE STANDARDS FOR SPECIFIC LAND USES/ACTIVITIES

Land Use/Activity	Noise Level Criteria (Ldn/CNEL, dB)
Residential, single-family (SF) and duplex	60
Residential, excluding SF and duplex	65
Commercial	70
Playgrounds; Neighborhood Parks	70
Schools, Libraries, Churches	70

Notes to Table 10.2

(1) Compressors associated with snowmaking may create exterior noise levels as great as 74.5 dB Leq (up to 80.9 dB Ldn) within 150 feet of the compression location. Snow gun noise levels may reach 96.6 dB Ldn at future condominiums at the base of lift 5 (as discussed in the Final Environmental Impact Report for Kirkwood Water Rights and Snowmaking Project, 1995).

Snow Making Noise Levels - November 30th, 2007

Time	Location	Noise Level	Distance from Equipment	Gun Location	Equipment Used
<i>The Lodge/Plaza:</i>					
12:00AM	Lodge Lobby	54.4	1000 Feet	Chair 5,	Rangers,
12:00AM	Lodge Carport	70.8	1000 Feet	Lower Zak's Run	MV8's, &
12:00AM	Outside Mountain Club	72.9	1000 Feet		Ratniks
	Off the Wall Bar Inside		1000 Feet		
12:00AM	Off the Wall Bar Sundeck	77.8	1000 Feet		
12:00AM	VIP Parking Lot	59.2	1000 Feet		
<i>Sun Meadows:</i>					
	Bub's Pub Inside		1000 Feet		
12:00AM	Bub's Pub Porch	71.4	1000 Feet		
12:00AM	Parking Garage	65.9	1000 Feet		
	Patrol Locker Room		1000 Feet		
12:00AM	Plaza	73.4	1000 Feet		
<i>Redcliff Lodge:</i>					
	General Store Inside		1500 Feet		
12:00AM	General Store Outside	71.9	1500 Feet		
	Mt Ops Office Inside		1500 Feet		
	Mt Ops Office Outside		1500 Feet		
<i>Redcliff's Housing:</i>					
	Plaza				
	Helipad				
<i>Pumphouse:</i>					
	Inside Pumphouse (1 Pump)				
	Inside Pumphouse Office (1 Pump)				
12:00AM	Inside Pumphouse (2 Pumps)	90.6			
12:00AM	Inside Pumphouse Office (2 Pumps)	63.4			
	Outside Pumphouse				
<i>Whiskey Towers:</i>					
	Sundeck				
<i>The Meadows:</i>					
7:30 PM	Front Entrance	41.3	2000 Feet		
<i>Edelweiss:</i>					
8:00 PM	Parking Lot	39.2	2500 Feet		
<i>Lost Cabin:</i>					
7:30 PM	Lost Cabin Parking Lot	43.7	1500 Feet		
<i>Base Camp:</i>					
7:00 PM	Base Camp Road	43.8	1000 Feet		

Snow Making Noise Levels - December 10th, 2007

Time	Location	Noise Level	Distance from Equipment	Gun Location	Equipment Used
<i>The Lodge/Plaza:</i>					
3:15 PM	Lodge Lobby	57.8	1500 Feet	Chair 11	Ratniks &
	Lodge Carport		1500 Feet	& Chair 5	Rangers
3:15 PM	Outside Mountain Club	74.5	1500 Feet		w/ Lift Running
	Off the Wall Bar Inside		1500 Feet	Runs:	
	Off the Wall Bar Sundeck		1500 Feet	Buckboard &	
	VIP Parking Lot		1500 Feet	Willow Patch	
<i>Sun Meadows:</i>					
	Bub's Pub Inside		1500 Feet		
3:20 PM	Bub's Pub Porch	62.7	1500 Feet		
	Parking Garage		1500 Feet		
	Patrol Locker Room		1500 Feet		
	Plaza		1500 Feet		
<i>Redcliff Lodge:</i>					
3:30 PM	General Store Inside	67.2	2000 Feet		
3:30 PM	General Store Outside	61	2000 Feet		
	Mt Ops Office Inside		2000 Feet		
	Mt Ops Office Outside		2000 Feet		
<i>Redcliff's Housing:</i>					
6:00 PM	Plaza	83.3			
6:00 PM	Helipad	77.5			
<i>Pumphouse:</i>					
3:45 PM	Inside Pumphouse (1 Pump)	87.3			
3:45 PM	Inside Pumphouse Office (1 Pump)	64.6			
6:00 PM	Inside Pumphouse (2 Pumps)	91.9			
6:00 PM	Inside Pumphouse Office (2 Pumps)	64.2			
6:00 PM	Outside Pumphouse	75.9			
<i>Whiskey Towers:</i>					
3:30 PM	Sundeck	62.2			
<i>The Meadows:</i>					
	Front Entrance		2500 Feet		
<i>Edelweiss:</i>					
	Parking Lot		3000 Feet		
<i>Lost Cabin:</i>					
	Lost Cabin Parking Lot		2000 Feet		
<i>Base Camp:</i>					
	Base Camp Road		1500 Feet		

June 2, 2008

Nathan Lishman
Planner
Amador County
810 Court Street
Jackson, CA 95642



Subject: Mitigation Measure 4.2v (COA 50)

Mitigation Measures

4.2 v(COA 50): Conduct street sweeping twice a year

The annual spring street sweeping was conducted on May 21 and 22, 2008. Copies of invoices and photos are attached.

Please give me a call at (209)258-7418 if you need any additional information and have any questions.

Thank you,

A handwritten signature in black ink, appearing to read "Michael J. Richter".

Michael J. Richter
Director, Planning and Environmental Affairs

Desert Commercial Sweeping
 5620 Madras St
 Carson City NV 89704

Phone : (775) 841-0985

Fax : (775) 841-7566
 INVOICE

Date : 05/28/08
 Due Date: 06/27/08

No. : 15901
 Page: 1

Ship To/Remarks

Kirkwood Mountain Resorts
 PO Box 1
 Kirkwood CA 95646-

FOB	Terms NET 30	Your#	Our#	Rep.
Description Item Number	Measure	Quantity	Unit Price	Extended
Power Sweeping Service				
Date-05/21/08				
Ticket #32100	Hour	13.0	134.0000	1742.00
Driver Overtime	Hour	5.0	26.0000	130.00
Date-05/22/08				
Ticket #32049	Hour	12.5	134.0000	1675.00
Driver Overtime	Hour	4.5	26.0000	117.00

Sub-Total : 3664.00
 Tax : 0.00
 Total : 3664.00
 :

Net To Pay: 3664.00

TICKET NO. 32100

Desert Commercial Sweeping, Inc.

5620 Madras Street • Carson City, NV 89704 • (775) 841-0985

TO: KIRK WOOD

DATE 5/21 2008

ADDRESS: _____

CITY: _____

<u>13</u> HRS. POWER SWEEPING AT \$ <u>134</u>	<u>1742</u> 00	
PER HR. PORTAL TO PORTAL - 4 HR. MINIMUM:		
<u>TIMBER CREEK 15 MIN</u>		
<u>PALASADRES DR 40 MIN</u>		
<u>7:30 AM</u>	<u>130</u>	
<u>5 HOURS OPLOT</u>		
<u>2 HOURS TRAVEL</u>	<u>1872</u>	<u>00</u>
P.O. #:		
JOB:		
OPERATOR: <u>BJP</u>		

DELINQUENT IF NOT PAID WITHIN 30 DAYS OF THE DATE OF BILLING. A LATE PAYMENT OF 1% PER MONTH WILL BE MADE ON ALL DELINQUENT BILLS.

IN THE EVENT EITHER CONTRACTOR OR SUBCONTRACTOR INSTITUTES SUIT IN COURT AGAINST THE OTHER PARTY, OR AGAINST THE SURETY OF SUCH PARTY, IN CONNECTION WITH ANY DISPUTE OR MATTER ARISING UNDER THIS AGREEMENT, THE PARTY WHICH PREVAILS IN THAT SUIT SHALL BE ENTITLED TO RECOVER FROM THE OTHER ITS ATTORNEY FEES IN REASONABLE AMOUNT, WHICH SHALL BE DETERMINED BY THE COURT AND INCLUDED IN THE JUDGEMENT IN SAID SUIT.

Signature _____

TICKET NO. 32049

Desert Commercial Sweeping, Inc.

5620 Madras Street • Carson City, NV 89704 • (775) 841-0985

TO: KIRK WOOD

DATE 5/22 2008

ADDRESS: _____

CITY: _____

<u>12 1/2</u> HRS. POWER SWEEPING AT \$ <u>134</u>	<u>1675</u> 00	
PER HR. PORTAL TO PORTAL - 4 HR. MINIMUM:		
<u>7 AM TO 5:30 PM</u>		
<u>4 1/2 HOURS OPLOT</u>	<u>117</u>	<u>00</u>
<u>2 HOURS TRAVEL</u>	<u>1792</u>	<u>00</u>
P.O. #:		
JOB:		
OPERATOR: <u>BJP</u>		

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Signature _____

Area		Time Sweeping	
Kirkwood Inn		40 min.	
Sun Meadows		35 min	
Meadow Stone Lodge		5 min	
Lost Cabin		20 min	
The Meadows		30 min	
The Sentinels		20 min	
Juniper Ridge		20 min	
East Meadows		2.50 hrs	
KMA		3 hrs	

June 2, 2008

Nathan Lishman
Planner
Amador County
810 Court Street
Jackson, CA 95642



Subject: Mitigation Measure 4.3.1 (h) COA's 56 and 75)

Mitigation Measures

4.3.1 h (COA 56 Amador County and 75 Alpine County): KMR will assist in educating Kirkwood residents and visitors about fishing regulations at Kirkwood Lake and, with permission of the Forest Service, post such regulations at angler access points to the lake.

Kirkwood Mountain Resort (KMR) has posted the regulations at the Kirkwood Inn, The Lodge and the General Store.

Laminated copies have been given to the USFS for posting at Kirkwood Lake.

Please give me a call at (209) 258-7418 if you need any additional information and have any questions.

Thank you,

A handwritten signature in blue ink that reads "Michael Richter".

Michael Richter
Director, Planning and Environmental Affairs