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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
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July 13, 1999

G. Milton Thayn
7730 E. Hwy 6
Price, Utah 84501

David and Robin Thayn
7732 E Hwy 6
Price, Utah 84501

Re: Mine Fan Design, West Ridge Resources, Inc., West Ridge Mine, ACT/007/041, Folder #2, Carbon County, Utah

Dear Messrs. and Miss Thayn:

On August 20, 1998, the Division held an informal conference regarding issues that were of concern to you at the proposed West Ridge Mine. At the conclusion of the conference you indicated a desire to be kept informed of the fan design at the West Ridge Mine. We have now received the fan information from the mine and are forwarding it to you as ordered by the conference officer. We hope that this document provides you with the information that you requested. Please call if you have further concerns or need additional information.

Sincerely,

Daron R. Haddock
Permit Supervisor

tm
Enclosures
cc: Ranvir Singh, OSM
Price Field Office
O:\007041.BCN\FINAL\THAYNFAN.LTR

WEST RIDGE RESOURCES, INC.

P.O. BOX 902
PRICE, UTAH 84501
PHONE (435) 637-5385
FAX (435) 637-8860

RECEIVED
JUL - 9 1999
DIV. OF OIL, GAS & MINING

July 7, 1999

Mr. Lowell Braxton, Director
Division of Oil, Gas and Mining
1594 W. North Temple, STE. 1210
P.O. Box 145801
Salt Lake City, Utah 84114-5801

Copy Dave, Joe, PFO
ACT/007/041 #2

RE: West Ridge Mine Fan

Dear Lowell:

On Aug. 20, 1998 the Division held an informal conference with regard to a letter received from Milton and David Thayn. At the conclusion of the meeting, the Thayns indicated that they would like to be kept informed of the fan design at the West Ridge Mine. In response to the Division's request for final design of the mine fan, Andalex is providing the following information:

1) fan type and specifications,
2) fan installation and sound reduction measures,
3) report by Acoustical Engineers, Inc. regarding fan noise,

Andalex presently has a used mine fan at their Tower operations which was previously used to ventilate the Apex mine. This mine fan will be suitable for ventilating the new West Ridge Mine. It is a Spendrup fan model AMF2000-8-10, 1,180 rpm 0-200,000 cfm and 0-5 inches of water gauge.

The fan will be located in the right fork of C Canyon. Air outflow from the fan will be directed up the canyon to the northeast. The fan will located on a lower pad with the outflow directed at a 30 foot high embankment which will be constructed upstream from the fan to act as an acoustical sound barrier. Because noise from the fan is greatest along the discharge axis, directing the discharge end of the fan toward the embankment (which is over 3 times the height of the fan opening) the embankment will serve to acoustically diffuse and muffle the sound of the fan. As the shop is to be located on the pad above the fan, it is very important to Andalex to reduce the sound of the fan as much as possible.

A recent report (attached) based on a noise survey of the existing Andalex facilities determined that, at a distance beyond 500 feet, the typical noise from this mine fan would be less than 60 decibels. Placing a roughened embankment directly in front of the fan will reduce the noise level even more. The mine fan will be oriented 90 degrees to the direction of the Thayn property. Because of the surrounding mountains and the directional orientation of the fan, the report states that noise from the mining operations as a whole would be inaudible at a distance of 2000 feet or

greater. The nearest point of the Thayn property lies more than 15,000 feet to the northwest of the West Ridge Mine with two intervening ridges nearly 9,000 feet high located in between. As a point of comparison, the Dugout Mine (with an operating mine fan) is located approximately 8,000 feet west of the Thayn property.

Given the orientation of the fan, the embankment constructed directly in front of it, the minimal decibel levels of the fan as determined by acoustical engineers, the rugged 9,000 foot high mountains in between, the three mile distance to the Thayn property and the proximity of the existing Dugout mine fan, we feel that our new fan installation should not have a detrimental effect on the Thayn property.

Should you need any additional information, please feel free to contact us.

Sincerely,

Jean Semborski
Environmental Coordinator

Enclosures

Acoustical Engineers Inc.
Consultants

1817 South Main Street, Suite # 5 Salt Lake City, Utah 84115 (801) 467-4206

September 14, 1994

Andalex Resources
P. O. Box 902
Price, Utah 84501

attn: Dave Shaver

Re: Smoky Hollow Mine & Unit Train Loadout Facility,
Baseline Date for Noise Impact

Measurements were made of the noise conditions at several locations at the currently operating Andalex coal mining, processing, and loading facilities in the Price, Utah area. This data has been used to provide a set of normalized reference noise levels, which are to be used to project the potential noise impacts for the proposed Smoky Hollow Mine development.

Equipment used for these measurements conforms to ANSI type "One, Precision Standards, and was calibrated prior to, and following the tests, to standards traceable to the U.S. Bureau of Standards. Data recorded included the overall "A" weighted decibels (dB A), as well as octave band spectrum analysis. Measurements were made in several typical positions surrounding the various items of equipment. Large items, such as the railcar loader were also measured at several different distances, to establish the near field-far field relationship, and determine the characteristic attenuation with distance.

The measurements were made under the direction of Mr. David Shaver, during periods of normal operation of the machinery.

The specific operations examined are as follows:

1. Wildcat Loadout Facility, at Wildcat Canyon, west of Price. Noise from railroad car loading, and coal crusher.

2. Deadman Canyon Mine Facilities, Noise from mine ventilating fans, and truck loading operations.

In all cases, specific steps were taken to assure the noise measured was due to the sources in question. Surface winds were minimal (<8 mph), and the dominant noise under investigation was at least 10 decibels above any ambient conditions.

Noise Standards.

There are several sets of noise standards or regulations which should be considered, as provided by HUD/FHA for addressing suitable conditions for housing, and the Federal Highway Program Manual, which provide a Federal Guideline for acceptable background noise conditions. In both cases, a level of 55 dB A is generally given as a maximum for what would be considered, "most critical" requirements, such as private residences, or "parks, amphitheaters,-- or activities requiring special qualities of serenity and quiet." The Day-Night level (Ldn) metric is commonly employed, where the average noise conditions over a 24 hour period are analyzed, and a ten decibel penalty is applied to the conditions between 10 PM & 7 AM. A 55 dB A LdN is normally considered as an upper limit for totally acceptable residential conditions. With the 10 decibel night time weighting applied, an Ldn of 55 will be achieved by a continuous sound at 48.6 dB A.

A second consideration is for what may be "generally inaudible" in open, outdoor settings. With normal surface breezes and other activities, a background noise level of about 45 dB A can be considered typical, although it is certainly possible to occasionally find outdoor conditions where the background level is well below 40 dB A.

For the railroad car and truck loading operations, the noise is likely present for less than 10% of the time. For the fan and crushers, the operations could be considered continuous.

We have provided a calculated radius surrounding the machinery where it would be expected that these two noise levels will not be exceeded, ie: at 55 dB A and 48.6 dB A.

Also shown is the calculated one hour "equivalent Level" (Leq) for each operation, at a 500' distance. This can be taken as the average condition which would be measured during any typical one hour period, at a nominal distance of 500' from the source.

Railroad Car Loading:

This is a very large operation. Measurements were made at distances up to 1500' from the elevated tipple, conveyor, and train of hopper cars. In general, this noise source behaves as a line sound source, at least out to the measurement points observed.

The following reference points have been calculated, for distances from car loading tipple. (to nearest 10')

At side of system where reclaim conveyor belt is exposed:

At 55 dB A	850'
At 48.6 dB A	2600'

At side of system where the reclaim conveyor belt is enclosed:

At 55 dB A,	700'
At 48.6 dB A	2180'

Hourly Leq, during a continuous loading operation, at 500' distance:

Open belt side	60 dB A, Leq
Enclosed belt side	57 dB A, Leq

Leq for 24 hour period, assuming one 1 1/2 hour loading operation/day, with average ambient level of 40 dB A for remainder of day:

Open belt side	45 dB A, Leq
Enclosed belt side	42 dB A, Leq

Coal Crusher

This is a somewhat more specifically defined noise source. In general the sound radiation pattern behaves as a point source. The measurement site is essentially an open, free field, with the measured data confirming a point source condition.

The following reference points have been determined for distances having free line of sight access to the crusher; intervening coal piles or other blockage will reduce the noise level somewhat in some directions.

At 55 dB A	1000'
AT 48.6 dB A	2089'

Hourly Leq, for continuous operation, at 500' distance, 61 dB A, Leq

Mine Fan

The noise radiation from this device has a pronounced directional character, with the noise level on the discharge axis about 8-10 decibels higher than that at the sides, at 90° from the discharge. In addition, any likely installation of this fan will place it in close proximity to the face of a bluff, in the canyon.

The orientation indicated on the proposal drawings shows the discharge pointing into the end of narrow canyon, with canyon walls extending upward about 600 feet on three sides. These conditions are similar to those measured at the Deadman Canyon site. The canyon walls are very diffusive acoustically, with some potential for focusing.

In general, the radiation pattern will behave somewhat similar to a line source, with possible lobes occurring on lines centering on the canyon axis. The data below describes the typical worst case, based on the maximum radiation on the fan axis from the Pinnacle mine fan.

55	dB A	2510'
48.6	dB A	4940'

Hourly Leq, for continuous operation, at 500' distance 69 dB A, Leq

Truck Loadout Facility

This is essentially a point noise source, similar to the crusher. There are two noise conditions; one during the initial phase of loading, (lasting approximately 5 seconds) when the coal impacts on the empty metal panels of the trailer. Following this, the impact noise is reduced by about 10 decibels, due to the damping of the coal impact by the coal bed. The entire loading operating appears to take about 4-5 minutes, with about 10-12 seconds total at the higher noise level.

The calculated data is as follows, for both conditions:

Maximum noise

55	dB A	1800'
48.6	dB A	2350'

Nominal Noise

55	dB A	400'
48.6	dB A	1660'

Hourly Leq, assuming 6 trucks per hour, at 500' distance, = 57 dB A, Leq

In the above calculations, the excess attenuation due to air absorption, (at 70 °F, 40% relative humidity) has been included for all cases where the distance exceeds 2000 feet. This can be considered a typical worst case, due to the usual very dry air in this area.

No credit is taken in the above calculations for the barrier effect of the surrounding mountains, which will be significant. At any off site location, where the listener does not have line-of-sight access to the noise, (generally at distances greater than about 3000 feet), additional sound attenuation of 20 decibels or more can be expected.

Comments:

Railroad Car Loading Site:

Both the California Wash, Nevada and the Iron Springs, Utah sites are in essentially open country, adjacent to operating railway lines, and far from any residential, or other sensitive land use. At the Nevada site, the nearest residential property shown is over 2 miles distant. At the Iron Springs site, the nearest residential area is at a distance of over 3 miles. At any distance beyond one mile, the noise from this operation would be inaudible, under conditions of normal sound propagation.

Mine Site.

On the canyon floor, in the area of the mine operations, the noise will be dominated by that generated by the crusher and the mine ventilating fan. At distances beyond 500 feet from either machine, the typical noise will likely be below 60 dB A.

It appears that any locations removed from the mine site by more than about 2000 feet will benefit from the noise barrier effect of the surrounding mountains. Beyond this point, we would expect the noise from the mine operations to be essentially inaudible under any normal conditions of sound propagation.

The nearest areas of noise sensitivity appear to be Burning Hills Wilderness Study Area, at a distance of over 3 miles, and the Glen Canyon National Recreation Area, at a distance of over 6 miles.

The above constitutes the noise impacts from the proposed Andalex Smoky Hollow Coal Mining Operation, based on the information provided at this time.

ACOUSTICAL ENGINEERS INC.

Richard K. Fullmer P. E.