BASELINE NOISE FIELD STUDY
PROPOSED SITE FOR THE
EAGLE ROCK ENRICHMENT FACILITY
BONNEVILLE, IDAHO

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1.0 INTRODUCTION

A noise study was conducted on the proposed site for the Eagle Rock Enrichment Facility (EREF) during the week of June 1 through 7 and on June 17, 2008. The purpose of this field study was to collect site-specific data on sound levels at the proposed EREF site. In addition, the study was conducted to identify locations of sensitive receptors and locations of sound sources.

2.0 METHODS

The methods used to obtain and analyze site-specific data on noise are described below. Methods will be identical for the Idaho site.

Sensitive receptors were identified by reviewing aerial photographs of the area, reviewing land ownership of adjacent properties, and visually inspecting the boundary of the proposed site and adjacent properties, when accessible (e.g., roads available and permission granted by private owners). Similarly, noise sources were identified by visually inspecting the boundary of the proposed site and adjacent properties, when accessible (e.g., roads available and permission granted by private owners).

Background noise was surveyed at seven locations (**Figure 1**). With the exception of one location, all locations were near at the proposed site boundary. Four of the sample locations selected for the noise measurements represented the nearest receptor locations for the general public and the locations of expected highest noise levels at points near the site boundary during construction and operation of the proposed EREF (locations 2, 3, 4, and 6). One sample location was at the northwest corner of the proposed site (location 1). Two additional sample locations were at existing noise sources, U.S. Highway 20 (location 5) and an operating irrigation pump on the property (location 7).

Weather during the week of June 1 through 7 was windy with intermittent rain showers through out the day and night. Wind speeds ranged from 2.2 to 15.6 m/s (5 to 35 mph) during the noise survey on June 1 through 7, 2008. Noise measurements were not taken when wind speeds exceeded 11.2 m/s (25 mph). Therefore, measurements were taken on hourly increments throughout the day with the exception of one nighttime measurement. Location 1 was also sampled during the night to obtain a nighttime noise level. The sample was collected from 9:00 pm, June 1, 2008 through 5:30 am (8.5 hr), June 2, 2008. Location 7 (operating irrigation well) was sampled over two, one-hour periods on June 17, 2008.

A Bruel & Kjaer 2250 Integrating Sound Level Meter with a foam-windscreen-covered microphone was used to measure noise levels. The A-weighted decibel scale (dBA), and specifically, equivalent sound level (LA_{eq}) also called the time-average sound level (ASTM 2003) was used to record noise levels. LA_{eq} is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period.

Noise levels were compared to U.S. Department of Housing and Urban Development (HUD, 1985) and the Environmental Protection Agency (EPA, 1973) (EPA, 1974) standards and guidelines. The State of Idaho and Bonneville County do not have applicable noise level guidelines or requirements.

3.0 RESULTS

3.1 SENSITIVE NOISE RECEPTORS

Sensitive receptors considered included schools, hospitals, residences, and special use areas. No schools or hospitals are within 8 km (5 mi) of the proposed EREF site. Similarly, the nearest resident is about 7.7 km (4.8 mi) east of the proposed site along U.S. Highway 20. Grazing and farming are the current land uses on the properties immediately north, east, and west of the proposed site. Therefore, there are no sensitive human receptors in these areas.

The BLM Hell's Half Acre Wilderness Study Area (WSA) is south of the proposed site. This area receives visitors throughout the year and is considered a sensitive receptor location. There is a BLM trailhead about 0.8 km (0.5 mi) southwest of the location of the nearest proposed highway entrance for the site on U.S. Highway 20 (**Figure 1**). In addition, it was estimated that the nearest portion of trail to the proposed highway entrance would be about 0.5 km (0.3 mi).

In addition, wildlife were considered sensitive receptors. In particular greater sage grouse were the focus because of their use of auditory cues for locating breeding grounds (leks) and large home range size. In addition, this species is under review by the U.S. Fish and Wildlife Service to determine if listing is appropriate under the Endangered Species Act.

3.2 SOUND SOURCES

There are two man-made sound sources near and on the proposed EREF site. U.S. Highway 20 represents a linear noise source. Two potato cellars are located at the existing entrance of the site. Conveyors are used on occasion to move potatoes in and out of the potato cellars and are temporary noise sources (**Figure 1**, noise measurement location #5). [Note: No conveyors were operating during this study.] In addition, there is an irrigation pump in the northeast portion of the proposed site (see **Figure 1**, noise measurement location #7) that operates intermittently during the crop growing season.

3.3 SOUND LEVELS

Average background noise levels ranged from 26.4 to 85.5 dBA (**Table 1**). With the exception of noise measurements at the irrigation well, these noise levels are considered moderate, and are below the average range of speech of 48 to 72 dBA (HUD, 1985). Lower noise levels reflect periods when wind speeds were below 32 kph (20 mph) during the sampling period and from measurements distant from U.S. Highway 20 and the irrigation pump. Noise levels exceeding 50 dBA were from measurements taken within 15 m (50 ft) of U.S. Highway 20 during peak traffic periods, which included heavy-duty tractor-trailer trucks passing the proposed site. Noise levels also exceeded 50 dBA in the northeast corner of the site because wind speeds exceeded 40 kph (25 mph) during the measurement period. Noise levels were 78.2 dBA when measured about 6.1 m (20 ft) from the operating irrigation well pump.

HUD has developed land use compatibility guidelines for acceptable noise versus the specific land use (**Table 2**). The EPA has defined a goal of 55 dBA for L_{dn} in outdoor spaces (EPA, 1974). Background noise measurements shown in Table 3.7-1, met the HUD guidelines for "clearly acceptable" for all land uses with the exception of the noise measurement near the operating irrigation pump, which met the normally acceptable

HUD guideline for industrial land uses. When compared to the EPA goal, the noise measurements did not consistently meet the EPA goal. Five of the noise measurements met the EPA goal for outdoor spaces, while two measurements exceeded the EPA goal. The two excedance measurements were associated with the irrigation pump and highway traffic.

4.0 REFERENCES

American Society for Testing and Materials (ASTM), 2003. "Standard Guide for Selection of Environmental Noise Measurements and Criteria." ASTM E1686-03. ASTM, West Conshohocken, PA. 10 pages.

EPA (U.S. Environmental Protection Agency), 1973. Public Health and Welfare Criteria for Noise, EPA 550/9-73-002. Washington, DC.

EPA (U.S. Environmental Protection Agency), 1974. "Information of Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety." EPA 550/9-74-004. EPA, Washington, DC. March.

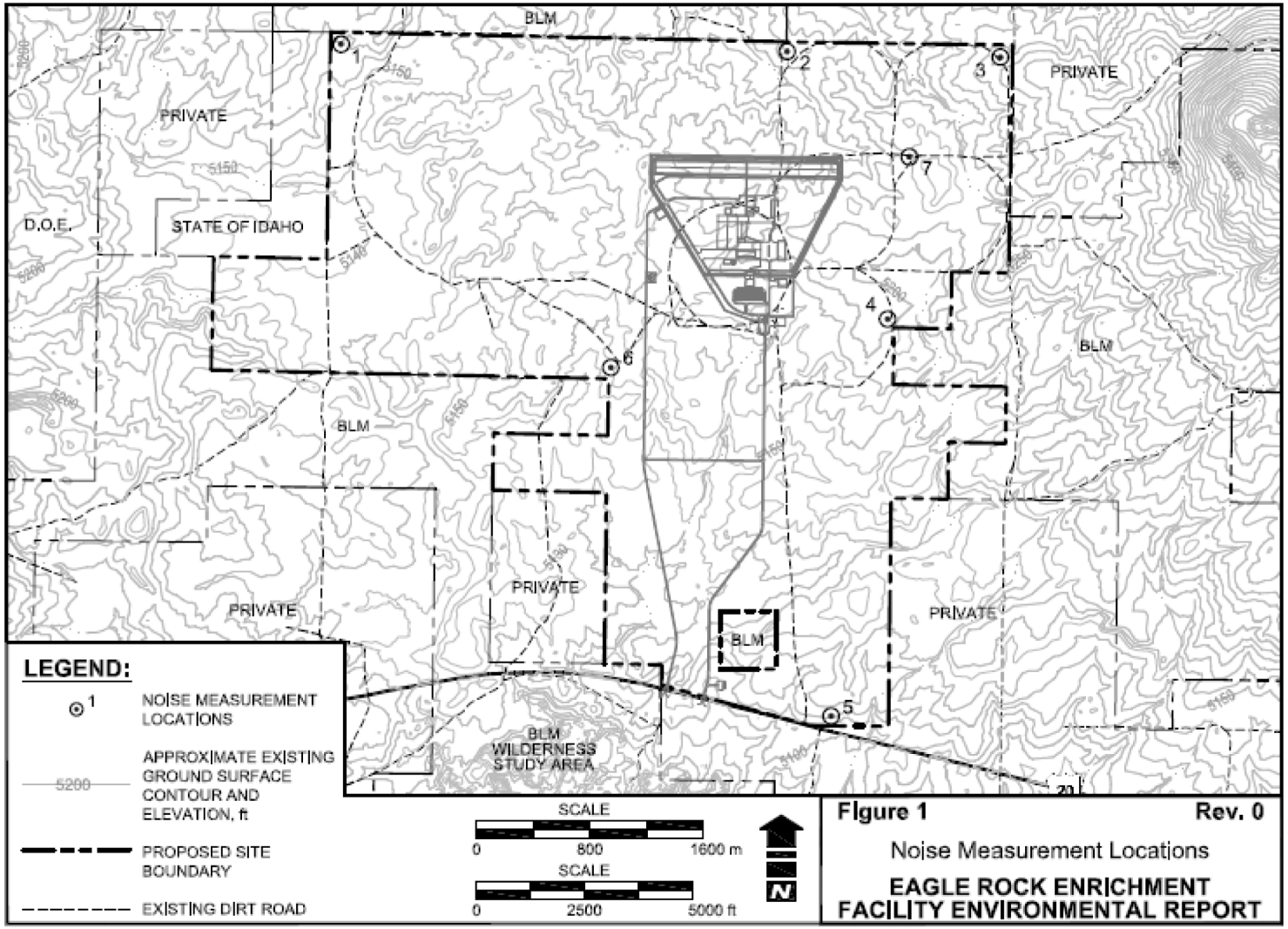
HUD (U.S. Department of Housing and Urban Development), 1985. Housing and Urban Development. “The Noise Guidebook.” Office of Community Planning and Development. June 5, 2002. http://www.hud.gov/offices/cpd/energyenviron/environment/resources/guidebooks/noise/ (Accessed March 21, 2008)

Table 1. Background Noise Levels for the Proposed Eagle Rock Enrichment Facility Site

Date	Location	LAeq [dB]	Location Description (and comments)
6/1/2008	1	38.3	Northwest corner of site area (over night measure)
6/2/2008	1	26.4	Northwest corner of site
6/3/2008	1	26.6	Northwest corner of site
Average	1	**30.4**	Northwest corner of site
6/3/2008	2	29.8	North central boundary of site
6/3/2008	2	34.9	North central boundary of site
6/3/2008	2	47.6	North central boundary of site
6/3/2008	2	46.8	North central boundary of site
Average	2	**39.8**	North central boundary of site
6/5/2008	3	53.5	Northeast corner of site
6/5/2008	3	53.4	Northeast corner of site
6/5/2008	3	52.8	Northeast corner of site
6/5/2008	3	54.3	Northeast corner of site
6/6/2008	3	59.7	Northeast corner of site
Average	3	**54.7**	Northeast corner of site
6/6/2008	4	29.6	Southeast corner of site nearest to EREF footprint
6/7/2008	4	32.7	Southeast corner of site nearest to EREF footprint
6/7/2008	4	41.2	Southeast corner of site nearest to EREF footprint
6/7/2008	4	44.8	Southeast corner of site nearest to EREF footprint
Average	4	**37.1**	Southeast corner of site nearest to EREF footprint
6/4/2008	5	57.6	At U.S. 20 by potato cellar [15 m (50 ft)]
6/4/2008	5	57.6	At U.S. 20 by potato cellar [15 m (50 ft)]
6/4/2008	5	57.4	At U.S. 20 by potato cellar [15 m (50 ft)]
Average	5	**57.5**	At U.S. 20 by potato cellar [15 m (50 ft)]
6/3/2008	6	43.1	Southwest corner of site nearest to EREF footprint
6/4/2008	6	25.1	Southwest corner of site nearest to EREF footprint
6/4/2008	6	25.1	Southwest corner of site nearest to EREF footprint
Average	6	**31.1**	Southwest corner of site nearest to EREF footprint
6/17/2008	7	78.2	Lava Well at [6 m (20 ft)]

Table 2. U.S. Department of Housing Urban Development Land Use Compatibility Guidelines

	Sound Pressure Level (dBA L_{dn})			
Land Use Category	**Clearly Acceptable**	**Normally Acceptable**	**Normally Unacceptable**	**Clearly Unacceptable**
Residential	<60	60-65	65-75	>75
Livestock farming	<60	60-75	75-80	>80
Office Buildings	<65	60-75	75-80	>80
Wholesale, industrial, manufacturing and utilities	<70	70-80	80-85	>85


BLM
PRIVATE
D.O.E.
STATE OF IDAHO
BLM
PRIVATE
PRIVATE
BLM
PRIVATE
BLM
BLM
WILDERNESS
STUDY AREA
1
2
3
4
5
6
7
LEGEND:
NOISE MEASUREMENT LOCATIONS
APPROXIMATE EXISTING GROUND SURFACE CONTOUR AND ELEVATION, ft
5200
PROPOSED SITE BOUNDARY
EXISTING DIRT ROAD
SCALE
0 800 1600 m
SCALE
0 2500 5000 ft
N
Figure 1
Rev. 0
Noise Measurement Locations
EAGLE ROCK ENRICHMENT FACILITY ENVIRONMENTAL REPORT