Summer 8-28-2024

2024 Spring Migration Seasonal Report for Berkeley Pit Waterfowl Protection Plan

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Mr. Jason Rappe
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Mr. Daryl Reed, State Project Officer
Montana Department of Environmental Quality
1225 Cedar Street
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Re: 2024 Spring Migration Seasonal Report for Berkeley Pit Waterfowl Protection Plan

Dear Mr. Rappe and Mr. Reed:

Atlantic Richfield Company (Atlantic Richfield) and Montana Resources, LLC (MR) (collectively 'the Parties') submit this 2024 Spring Migration Seasonal Report to satisfy the requirements of the ***Final Berkeley Pit Waterfowl Protection Plan*** (Plan) dated August 4, 2021, which was approved by the Agencies on September 1, 2021.

If there are any questions concerning this seasonal report, please contact Loren Burmeister representing Atlantic Richfield at (406) 723-1826 or Mark Thompson representing MR at (406) 496-3211.

Submission of this report does not constitute a statement by Atlantic Richfield or MR concerning responsibility between them for any identified tasks or a statement by Atlantic Richfield or MR that any specific task is required to comply with any existing agreement.

On behalf of the Parties,

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Attachment: 2024 Spring Migration Seasonal Report

cc (email copy only):

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Silver Bow Creek/Butte Area National Priority List Site
Butte Mine Flooding Operable Unit
Waterfowl Protection Plan
2024 Spring Migration Seasonal Report
Provided in August 2024

INTRODUCTION

Atlantic Richfield Company (Atlantic Richfield) and Montana Resources, LLC (MR) (collectively 'the Parties') submit this 2024 Spring Migration Seasonal Report to satisfy the requirements of the ***Final Berkeley Pit Waterfowl Protection Plan*** (Plan) dated August 4, 2021, which was approved by the Agencies on September 1, 2021.

The following report is a summary of waterfowl protection efforts and additional measures outlined in the Plan that were conducted during the spring 2024 seasonal reporting period.

MIGRATION MONITORING & COMMUNICATION; OBSERVATION & HAZING PROGRAM

Migration Monitoring & Communication

The Plan includes monitoring migration activities and weather conditions, with the subsequent classification of observation and hazing status (Level 1 – Standard, Level 2 – Heightened, and Level 3 – Urgent). To this end, the Parties employ a professional meteorologist to provide short- (i.e., daily), medium- (i.e., 4 to 7 days), and long-range (i.e., 8 to 14 days) forecasts during migration seasons and seasonal temperature and precipitation trends, as appropriate.

The Parties formed a migration monitoring group composed of select contractors with direct expertise in ecological monitoring and migration trends, in coordination with select Waterfowl Advisory Board (WAB) members. This group closely monitors migration movements through information provided via Global Positioning System (GPS) telemetry datasets and online sources (e.g., www.ebird.org), communicates with wildlife agencies and refuges in the appropriate flyway, and conducts on-the-ground surveys of regional water bodies. Other environmental factors, such as open water (e.g., not frozen) and snow cover, are tracked to aid in migration monitoring. Weekly update emails are generated to advise the Parties on the appropriate selection of observation and hazing classifications and to further inform waterfowl protection personnel at the Berkeley Pit (Pit). These weekly update emails are sent out to the Agencies and others involved in waterfowl protection efforts during the migration season.

Observation Program

Observations of the Pit for waterfowl protection efforts continued during both the non-migration period (i.e., January 1 to February 29) and the spring migration period (i.e., March 1 to May 31) in compliance with the Plan. This spring, the Parties successfully implemented a new observation protocol based on a flowchart, the background of which was described in detail in *Request for Change (RFC) No. RFC-Berkeley Pit WPP-2024-01*, which was approved by the agencies on February 6, 2024. The flowchart uses waterfowl migration forecasting and the presence of waterfowl on the Pit to determine the observation frequencies and hazing strategies. This flowchart effectively replaced the hourly-based observation frequencies used in the past. Additionally, the Plan states, "If the Pit surface is frozen, with no open water, observations are to occur daily to confirm the presence of ice/open water." The Pit remained completely frozen through March; thus, observations were made at least once per day to ensure ice coverage remained. Tables 1 and 2 below summarize the relevant observation data.

During the spring 2024 migration season, the Parties continued to use the weekly conceptual migration forecast. Forecasts made each week categorized each day of the upcoming week with color codes according to projected migration activity (i.e., baseline, increased, considerable, and major migration). The forecasts were accurate and helped establish hazing status at the Pit throughout the migration season and guide the use of the flowchart. In addition to migration activity predictions, the weekly forecast document included a breakdown of species, which were observed at the Pit during the timeframe of each specific forecast, by percentage. These breakdowns were derived from Pit data from 2018 through 2023. The weekly document is a simple and effective way to communicate migration trends and predictions to waterfowl protection personnel and others and will continue to be used for future waterfowl protection efforts.

Waterfowl Protection Efforts

During the spring reporting period, 4,149 waterfowl were observed at the Pit: 0 during the non-migration period and 4,149 during the spring migration period. There was one mortality observed during the spring migration period, which results in a nearly 100% success rate for deterring or hazing waterfowl from the Pit during the reporting period. This is consistent with long-term hazing success rates (see Table 2 herein compared to Appendix A in the Plan).

Passive and Active Waterfowl Deterrents

The parties continued to document the deterrence of waterfowl from landing on the Pit. To do so, WPP personnel are trained to identify and record waterfowl that are deterred from ever landing on the water. A checkbox is included on the Hazing Logs to aid in recording the number and species, when possible, of deterred birds. The primary passive deterrents at the Pit are the Phoenix Wailers and propane cannons; however, the hand-held lasers, indirect rifle shots, aerial drones, bullhorn, and other measures (e.g., vocalizations, vehicle horns, fireworks) may also be used to successfully deter incoming birds from landing. A summary of the reporting period's waterfowl observations, including a count of deterred waterfowl, is available in Table 1 below.

Table 1. Waterfowl Observation Summary for 2024 (through May)

	Month	Observations	Total Waterfowl[1]	Mortalities	Deterred[2]
	January	28	0	0	0
	February	27	0	0	0
Spring Migration	March	30	0	0	0
Spring Migration	April	115	2,980	1	32
Spring Migration	May	115	1,169	0	17

[1] Indicates the total number of waterfowl observed to have landed or attempted to land on the Pit surface.
[2] Indicates the total number of waterfowl observed as being deterred from landing on the Pit surface.

Table 2. Waterfowl Observation and Success Rate Summary for 2024 (through May)

Time-frame	Observations	Total Waterfowl	Mortalities	Success Rate[3]
Non-Migration Season Totals	55	0	0	100%
Spring Migration Season Totals	260	4,149	1	99.98%
Annual Totals	315	4,149	1	99.98%

[3] Indicates the total number of waterfowl successfully leaving the Pit.

REPORTING AND NOTIFICATION

During the migration period, the Parties, through the migration monitoring group and/or the WAB, continue to provide the Agencies with weekly update emails that summarize current migration conditions, recommendations on hazing level status, and documentation of relevant species of concern that may use the Pit.

Monthly waterfowl protection reports detailing observation and hazing, and other relevant activities were submitted to the Agencies on the following dates:

- *January 2024 Berkeley Pit Migratory Waterfowl Protection Monthly Report* on February 15, 2024
- *February 2024 Berkeley Pit Migratory Waterfowl Protection Monthly Report* on April 3, 2024
- *March 2024 Berkeley Pit Migratory Waterfowl Protection Monthly Report* on April 16, 2024
- *April 2024 Berkeley Pit Migratory Waterfowl Protection Monthly Report* on May 30, 2024
- *May 2024 Berkeley Pit Migratory Waterfowl Protection Monthly Report* on June 28, 2024

ADAPTIVE MANAGEMENT

Waterfowl Advisory Board

The Parties continue to engage Dr. Stella Capoccia through Montana Tech in a Sponsored Research Agreement that involved forming and facilitating an independent advisory group (i.e., WAB) to coordinate with and to advise the Parties and Agencies on waterfowl protection issues and the effectiveness of the Plan(s) moving forward.

The WAB met twice during the reporting period. Meeting were held on January 30 and May 28 to discuss site updates and provide regional waterfowl observations. In addition, discussion at the January 30 meeting included Pit ice status and a Request for Change to implement the observation flowchart.

Evaluation of Protection Efforts, Technology, and Site Conditions

The Parties continue to evaluate the current protection efforts and consider new technologies and evolving site conditions. The information gained from site experience is shared between the Parties and the WAB to assess potential improvements to the Waterfowl Protection Program. These assessments take place both internally amongst the Parties and during WAB meetings. New developments in waterfowl hazing and deterrent technologies are also discussed in these meetings. For the 2024 spring season, no major developments or advancements of technology were completed. Current technologies (i.e. unmanned surface vehicles [USVs]) were used and maintained with minor updates.