

**ADDENDUM TO
FIRE RISK ASSESSMENT OF COFFIN BUTTE LANDFILL, CORVALLIS, OREGON
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SCS ENGINEERS
JANUARY 14, 2025**

MFA and subconsultant, Dr. Tony Sperling of Landfill Fire Control Inc. (LFCI), reviewed and commented on a report entitled Fire Risk Assessment of Coffin Butte Landfill by James Walsh of SCS Engineers. Their comments are inserted below. In collaboration with staff from Coffin Butte Landfill, James Walsh has prepared responses to each comment, also inserted below. This document can be considered an Addendum to the latest report of September 24, 2024.

PAGE 2: HISTORY OF PRIOR LANDFILL FIRES

1. MFA/LFCI Comment: This report only references three fire events occurring at the landfill since 1999. However, the County has indicated that there have been at least two additional fire events on this site in the past year or so. The cause of these recent fires and the actions taken should be included in this portion of the document.

SCS Response: The updated report of September 24, 2024 had already referenced a total of five fire events, consistent with the above comment. We believe the comment above was based on an earlier version of the report.

PAGE 3: FIRE MITIGATION PLANS

2. MFA/LFCI Comment: The first paragraph indicates that water would be used as the primary means of extinguishing a fire. LFCI notes that the most effective and current industry standard for the primary method of fire suppression for a landfill fire is smothering with 12 inches of soil. The Applicant should provide justification for the primary use of water for their initial response.

SCS Response: It is agreed that soil is to be the initial and primary means of extinguishing fires at the working face of the landfill. Water is secondary and would be used only if appropriate and needed. This is the fire extinguishment practice known to landfill operating personnel and is reflected accordingly in the Landfill's Operating Standards and Best Practices.

3. MFA/LFCI Comment: With consideration to the preceding comment, LFCI recommends that the second paragraph describe the action plan in the case of a landfill fire to first control the fire (using soil or water), then assess and take further steps to extinguish the fire.

SCS Response: As stated above, soil will be the initial and primary fire extinguishment method at the working face, with water to supplement such soil only if appropriate and needed.

4. MFA/LFCI Comment: The document refers to the availability of public water on site, but the narrative does not indicate the amount of on-site stored volume and/or refilling capacity of the

water system available for fire suppression activities. This information should be included to better understand the firefighting capabilities Of the existing system, as no improvements appear to be proposed, LFCI recommends a minimum sustained flow of 1,000 gallons per minute be available for fire suppression and further information be provided on how the Applicant will provide the logistics for maintaining this flow rate (e.g. available hydrant connections, tanker shuttles).

SCS Response: The clean water supply is from a Village of Adair water stand located near the site. The site has a 4,000-gallon water truck which is loaded and ready for fire extinguishment. Water can also be pumped from fresh water on-site ponds into the water truck, and thence applied to any fire as appropriate and needed. Pump rates into and from the water truck are sufficiently robust to extinguish any fire on site. Pumper fire trucks from Adair or Corvallis can also be employed to supply and apply sufficient water at appropriate rates.

PAGE 4: LANDFILL FIRE SOURCES, RISK PROFILES, AND SPECIFIC MITIGATION MEASURES

5. MFA/LFCI Comment: Battery fires are increasingly becoming a source of landfill fires and should be addressed in this document. Reactive and banned materials should be identified.

SCS Response: Vehicle batteries are banned from disposal in the landfill. Signage at the landfill entry lists vehicle batteries among other items as banned from landfill disposal. The landfill site has a separately designated recycling center for collection of vehicle batteries and used oil. Any materials collected at this center are removed from the landfill for recycling or disposal elsewhere.

Signage at the entry to the landfill lists the following as banned from disposal at Coffin Butte Landfill:

- Hazardous Waste
- Liquid Waste
- Chemicals
- Used Oil
- Tires
- Vehicle Batteries
- Motor Vehicles
- Electronic Waste
- Burning Material
- Infectious Medical Waste

6. MFA/LFCI Comment: For Working Face Fires, LFCI recommends the inclusion of bar hole punch for monitoring the subsurface carbon monoxide (CO) and temperature, as well as infrared camera inspections.

SCS Response: Coffin Butte Landfill has detailed procedures for identifying and extinguishing working face fires, as described in the report of September 24, 2024. The landfill also abides by Standard Operating Procedures (SOPs) that address the identification and extinguishment of

landfill working face fires. These SOPs were developed by the landfill's parent Republic Services for use at its hundreds of landfills. In total, these procedures have proven effective and sufficient.

7. MFA/LFCI Comment: For Grassland Fires, LFCI recommends that this document specify a measurable fire buffer distance between the landfill and surrounding grasslands. This fire buffer should be adequately maintained at all times. In addition, fire watch provisions or infrared monitoring should be implemented to manage ignition risks during off hours.

SCS Response: A gravel-covered fire buffer has been installed in and around the blower/flare station, to prevent any sparks from the flare from igniting grassed areas. It should be noted that sparks from the site's flares are rarely if ever observed.

Perimeter roads around several of the landfill's cells serve as buffers as they now exist. Going forward, the landfill will endeavor to implement additional buffer separations around future landfill fill areas.

8. MFA/LFCI Comment: For Gas Well Fires, LFCI recommends preventive monitoring, including monitoring for CO levels, targeted maximum oxygen concentrations, and balancing gas levels to prevent aerobic decomposition. In addition, the Applicant should provide standard operating procedures for handling high-temperature wells and specify operating temperature thresholds.

SCS Response: Current procedures or preventive monitoring to detect developing gas well fires in place now, are extraordinarily robust and more than sufficient to detect and prevent gas well fires. First, the site abides by the U.S. EPA's NSPS regulations. These rules prescribe routine monthly monitoring of all gas wells for pressure, temperature, and oxygen. NSPS sets limits for each of those three parameters as a way to detect early on the potential to develop a gas well fire. Second, the landfill's parent Republic Services has a 205-page SOP document specifically for landfill gas management. Several sections in that SOP address the prevention, detection, and mitigation of gas well fires. Coffin Butte Landfill follows that SOP. Third, all Republic Services landfills including Coffin Butte enter all landfill gas monitoring results into an advanced database system for monitoring and managing landfill gas systems. That software is SCSeTools, and it automatically detects any exceedances of the NSPS Standards on gas well fires, and in fact also spots early trends toward a possible gas well fire before actual exceedances occur, so that mitigation measures can be employed early on.

OTHER RECOMMENDATIONS FROM MFA AND LFCI:

9. MFA/LFCI Comment: Spontaneous combustion fires are not addressed in this document, except in relation to gas wells. LFCI notes that spontaneous combustion on slopes is a fire risk that should be included.

SCS Response: Spontaneous combustion can potentially occur at the landfill's working face. Working face fires are not sourced only to the entry of a hot load. Detection, prevention, and extinguishment of such fires at the working face follow the same robust procedures already in

place for working face fires. Gas well fires are exclusively sourced to a spontaneous combustion event as an overdrawn gas extraction well pulls atmospheric oxygen into an anaerobic environment deep in a landfill. Such fires usually first manifest themselves on the ground surface immediately around the gas well's wellhead. But if the well is located near a sideslope, the gas well's zone-of-influence can also break through laterally and manifest itself on the sideslope some distance from the gas wellhead. Such breakthroughs would be observed by gas operations personnel on the monthly rounds.

It should be noted that for all the reasons under #7 above, the sound management practices applied on the gas system at Coffin Butte ensure that such gas well fires manifesting themselves anywhere will not occur. In fact, Coffin Butte personnel report that a gas well fire has never occurred at the site. That clean record is expected to continue, considering all the sound management practices applied at this site.

10. MFA/LFCI Comment: Typical landfill construction has an inherent risk of capturing LFG at the edges of geomembrane sheets and should be addressed in this document.

SCS Response: It is assumed that the reference here is to geomembrane sheets applied as part of any given landfill cell's final cover system. Such membrane sheets are tied into the bottom liner in the cell's perimeter anchor trench, thus allowing no gas to escape and no fire associated with any escaping methane can occur. If geomembrane sheets are applied atop fill areas without such an airtight connection, the landfill's operating personnel will properly secure the perimeter to contain that gas under the sheet, not allowing any venting of landfill gas around its edges.

11. MFA/LFCI Comment: Smoking should only be allowed in designated areas and prohibited elsewhere on site.

SCS Response: Smoking is banned everywhere on-site, with posted signage to that effect. There are two designated smoking areas outside, atop gravel-covered or paved areas. One is outside the landfill office and one is adjacent to employee lockers.

12. MFA/LFCI Comment: The use of bird deterrent flares should be avoided.

SCS Response: Bird deterrent flares are not used at the site.

13. MFA/LFCI Comment: Annual fire safety and firefighting training should be undertaken for all employees who would respond to a fire along with regular cross-training with Adair Rural Fire & Rescue.

SCS Response: Management at the landfill conducts fire safety training once per year. This training is usually in the summer months. The training usually takes around 30 minutes. Topics covered in such training include:

- Understanding the components of a fire
- The different types of fire extinguishers, and when/how to use them
- Landfill fires / what landfill heavy equipment to use / what material to use to fight the landfill fire/who to contact / etc.

- When and where to gather during an evacuation.

Coffin Butte Landfill and Adair Fire have a plan on how to work together. That plan is reviewed and updated through regular communication between the parties. Adair Fire has responded to a fire at the Coffin Butte Landfill previously, and the planned coordination worked successfully in practice.

PROPOSED CONDITIONS OF APPROVAL

January 15, 2025, Update

Applicant's proposal is hereby granted Preliminary Conditional Use Approval. Operating (Final) Approval is subject to completion of all Preliminary Approval Conditions listed below. Applicant shall adhere to the following conditions under the terms of approval of this conditional use permit.

Until Applicant completes the Preliminary Approval Conditions, Applicant shall not:

- (A) Construct the internal haul road;
- (B) Construct the leachate ponds;
- (C) Construct the employee building;
- (D) Construct the new landfill cell.

Upon Applicant submitting documentation demonstrating that the Preliminary Approval Conditions have been met, the Planning Official will issue a written notice of Operating Approval at which time Applicant may initiate construction of items (A) through (D) above, subject to the Operating Approval Conditions below.

Operating Approval Conditions shall remain in effect for the duration of the Project. Failure by Applicant to comply with the Operating Approval Conditions may result in revocation of the Conditional Use Permit.

Preliminary Approval Conditions

The following Preliminary Approval Conditions shall be completed during the four-year period that begins on the later of: (a) the date of final decision (including resolution of any appeals) of the Conditional Use Permit; or (b) from the date of Oregon Department of Environmental quality ("DEQ") approves of all required environmental permits ("Preliminary Approval Period"). The Planning Official may grant one extension for up to a year prior to the expiration of the Preliminary Approval Period if Applicant makes a written extension request stating the reasons preventing completion within the approval period. Failure to commence the Preliminary Approval Conditions within the Preliminary Approval Period shall render this Conditional Use Permit void.

Phase 1 Preliminary Approval Conditions – Only those activities necessary to complete the following conditions are authorized until all of these Phase 1 Preliminary Approval Conditions have been met.

PA-1 Wetlands. On Tax Lot 1200, Applicant shall prepare and obtain approval from the Oregon Department of State Lands of a wetland delineation. Applicant shall not locate any portion of the project within the mitigation wetland and required buffer of the mitigation wetland as shown in Applicant's Exhibit 2.