From: [redacted]
To: "Sam Imperati"; [redacted] REDICK Daniel
Cc: NICHOLS Darren; Benton County Talks Trash
Subject: RE: 11/8/22 Capacity Subcommittee Meeting and Report Out to Full Workgroup -11-6-22 Update Draft BCTT Sub-Committee A1 Size Cap Longevity
Date: Sunday, November 6, 2022 7:39:11 AM
Attachments: image001.png
Update 11-6-2022 Draft BCTT Sub-Committee A1 Questions Size Capacity Longevity 10-31-22.docx

Hi all:

Attached, please find update of 11-6-22 for BCTT Sub Committee A-1 additions, revisions, corrections or deletions for the subcommittee's consideration.

The memo includes assumptions in the lite analysis that looks at the three scenarios in the Facilitators request for 11/8/22.

One assumption is the testimony of Knife River to Benton County Planning Commission's meeting of November 2021 whereby Knifer River needs 8 to 10 more years for excavation of rock and gravel. This then appears to create a work interruption with the landfill need for occupation of Cell 6's sub-cells in Year 2026 that are reported in Geo-Engineers' site plan development report for year ending 2021.

I'm sure Knife River, Republic, and Geo-Engineers can resolve the oversight, or my misunderstanding.

In respect to the second subcommittee meeting this coming Wednesday, any of the times are fine with me.

Thanks.

Chuck

From: Sam Imperati <samimperati@icmresolutions.com>
Sent: Friday, November 4, 2022 6:38 PM
To [redacted] REDICK Daniel <daniel.redick@Co.Benton.OR.US>
Cc: NICHOLS Darren <darren.nichols@Co.Benton.OR.US>; Benton County Talks Trash <BentonCountyTalksTrash@Co.Benton.OR.US>
Subject: 11/8/22 Capacity Subcommittee Meeting and Report Out to Full Workgroup

Good Evening:

Unfortunately, our subcommittee meeting on 11/8 from 10:30 AM has to be rescheduled. I need to be at the meeting for the reasons noted below, and I have a scheduling conflict that I can't move.

As you will see in the attached comparison document, I do not think the report out to the BCTT Workgroup went well. I want folks to have time to contact me with their thoughts on the situation to see if we can resolve it in advance. Restated, I'd prefer to focus are subcommittee meeting time on the substantive work.

Are folks available for our second subcommittee meeting the next day, Wednesday, any time between 8:00 AM and 2:30 PM. Please email me your availability for a 2.0-hour meeting during that timeframe. We'll need that amount of time if we are not able to resolve the situation in advance.

I'm around this weekend, and during the week, including evenings, if you want to discuss this. Email is fine, as well.

Sorry and Thanks, Sam

ICM resolutions

Sam Imperati, JD | Executive Director
11524 SW Vacuna Ct. | Portland, OR 97219-8901
(P) 503.244.1174 | (C) 503.314.1156 | (F) 503.244.1038
SamImperati@ICMresolutions.com
ICMresolutions.com

DRAFT

Update 11/6/2022

Memo Additions

The lite probability analysis that looks generally at three scenarios listed below:

C. Synchronization of Landfill waste streams into Coffin Butte's regional disposal site sanitary landfill cells and service interruptions, Longevity - transfer station

Memo

Chuck Gilbert – Public Community Member – BCTT Sub-Committee A-1

Capacity, Size, Longevity

10/31/2022

This memo functions as biased in the sense it does not stand for the consensus of the Sub-Committee-A1 but serves as reasonable information on the subject matter under consideration by the sub-committee A1 for distribution to members for consideration, revisions, additions or deletions.

In reference toTTWG Subcommittee A 1 - Facilitator comments and direction

1) Assumptions that lead to soonest likely closure date

In reference to Geo-Logic engineers report listed below and the stated parameters, the current landfill area was calculated to reach final grades during the middle of the year 2039.

2) Assumptions based upon the last X years stay the same

In reference to Geo-Logic engineers report, (1) the volumetric capacities of the phases as shown on the Site development plan (SDP)

drawings in Appendix A, (2) an operational density of 1,600 lbs/cy, (3) a soil to waste ratio of

15% (for daily cover), and (4) an incoming tonnage of 2,959 tons per day (projected average

daily tonnage). The capacity of each phase was volumetrically calculated from the top of waste

design grades to the design liner grade using AutoCAD Civil 3D software.

Geo—Logic Engineers report referenced reconciles the yardage, tonnage, and density conversions for the reporting Year 2021.

3) Assumptions that lead to longest likely closure date.

Predicated on a cell service interruption with testimony given by Knife River at the November 16, 2021, Benton County Planning Commission an additional 8 to 10 years is needed to excavate the rock and gravel from cell 6.

Within the parameters stated below , work service interupption appears from Years 2026 – 2029, where no cell reservation for solid waste is available, if the above assumptions is true.

The likely closure date for the landfill would then be in Year 2042.

Synchronization of Landfill waste streams into Coffin Butte's regional disposal site and sanitary landfill cells with possible service interruption – longevity - Transfer Station

Reference Summary below under C.

Questions:

1. Is it reasonable to consider participation in advancing a regional transfer station for intermodal services by rail, trucks, or both that would be in harmony with Coffin Butte landfill longevity?

2. Is it reasonable for Republic to advance the topic of a transfer station for consideration, since Republic is a knowledgeable operator to manage and operate the proposed MSD transfer station in equilibrium with commercial waste streams from neighboring counties,

municipalities into Coffin Butte desposial site thereby effecting its longevity and equllibrium Benton County and neighboring counties and municipalities?

3. Is it reasonable for Benton County Talks Trash Sub-Committee A-2 consider a transfer station concept to assist with the need to balance the disposal parameters with Knife River, Coffin Butte, Benton County and neighboring counties and municipalities?

When will the landfill close?

The landfill will close when there are no future cells to be constructed and the open cells reach capacity and are closed to any more solid waste disposal.

What is the landfill's service life?

The landfill service life is when all landfill cells reach capacity and are closed and the *sanitary landfill decomposition cycle for all closed cells are completed.*

What is a Landfill?

The term *landfill* is usually shorthand for a sanitary landfill.

These sanitary landfill facilities were first introduced early in the 20th century, but gained wide use in the 1960s and 1970s, in an effort to end open dumps and other "unsanitary" waste disposal practices.

Landfill means an engineered land burial facility for the disposal of household waste that is so located, designed, constructed, and operated to contain and isolate the waste so that it does not pose a substantial present or potential hazard to human health or the environment. A sanitary landfill also may receive other types of solid wastes, such as commercial solid waste, nonhazardous sludge, hazardous waste from conditionally exempt small quantity generators, construction, demolition, or debris waste and nonhazardous industrial solid waste. See 9VAC20-81 – Virginia

Landfill means a facility for the disposal of solid waste involving the placement of solid waste on or beneath the land surface. ORS 459.005 (14)

What is a disposal site?

Disposal site means land and facilities used for the disposal, handling or transfer of, or energy recovery, material recovery and recycling from solid wastes, including but not limited to dumps, landfills, sludge lagoons, sludge treatment facilities, disposal sites for septic tank pumping or cesspool cleaning service, transfer stations, energy recovery facilities, incinerators for solid waste delivered by the public or by a collection service, composting plants and land and facilities previously used for solid waste disposal at a land disposal site. ORS 459.005 (8)

What is a regional disposal site?

Regional disposal site means a disposal site that receives, or a proposed disposal site that is designed to receive more than 75,000 tons of solid waste a year from outside the immediate service area in which the disposal site is located. As used in this subsection, "immediate service area" means the county boundary of all counties except a county that is within the boundary of the metropolitan service district. For a county within the metropolitan service district, "immediate service area" means the metropolitan service district boundary. ORS 459.005 (22)

What is a landfill cell?

Landfill cell means a discrete volume of a landfill which uses a liner system to provide isolation of solid waste from adjacent cells of solid waste. (RI 250-RICR=140-05-1)

For a more detail explanation of Coffin Butte liner cells, please reference the 2021 Coffin Butte Landfill Site Development Plan in Benton County's materials management document library.

https://www.co.benton.or.us/sites/default/files/fileattachments/community_development/page/8136/2021_cbl_site_development_plan_report.pdf

What is the Landfill cell capacity?

A landfill cell capacity is the volumetric measurement of the solid waste cell from the top of waste design grades to the desgn liner grade in an engineered landfill, usually expressed in cubic yards.

What is the airspace of a landfill cell?

Airspace in a landfill cell is defined as the volume available for waste, daily cover, and interim cover, usually expressed in cubic yards.

What is the size of a cell?

The size of the cell is the area in the plan view of the engineered landfill, usually expressed in acres.

What is the ratio of a solid waste cubic yard to a solid waste ton?

It varies because of the varying densities of solid waste.

As such, Geo-Logic Associates report of Coffin Butte solid waste development plan for Year ending 2021 compared the aerial volumeric survey data in cubic yards at Coffin Butte landfill with the corrolating gate tonnage for the same year to derive the ratio for the conversion of solid waste cubic yard to solid waste tons. For all express purposes, Geo-Logic Associates repprt may be used as a standard for volumeric and area computations of solid waste in Cofin Butte disposal site and engineered sanitary landfill.

What is a Regional Disposal Site Size?

The regional disposal site size is the total land tract areas of the regional disposal site expressed in acreage.

What is Coffin Butte?

Coffin Butte is a regional disposal site and an engineered sanitary landfill in Benton County, north of Corvallis, located off of Coffin Butte Road.

What is a sanitary landfill decomposition cycle?

The sanitary landfill is an engineered facility that separates and confines waste.

Sanitary landfills are intended as biological reactors (bioreactors) in which microbes will break down complex organic waste into simpler, less toxic compounds over time. These reactors must be designed and operated according to regulatory standards and guidelines (See environmental engineering). Wikipedia

Usually, aerobic decomposition is the first stage by which wastes are broken down in a landfill. These are followed by four stages of anaerobic degradation. Usually, solid organic material in solid phase decays rapidly as larger organic molecules degrade into smaller molecules. These smaller organic molecules begin to dissolve and move to the liquid phase, followed by hydrolysis of these organic molecules, and the hydrolyzed compounds then undergo transformation and volatilization as carbon dioxide (CO_2) and methane (CH_4), with rest of the waste remaining in solid and liquid phases.

During the early phases, little material volume reaches the leachate, as the biodegradable organic matter of the waste undergoes a rapid decrease in volume. Meanwhile, the leachate's chemical oxygen demand increases with increasing concentrations of the more recalcitrant compounds compared to the more reactive compounds in the leachate. Successful conversion and stabilization of the waste depend on how well microbial populations function in syntrophy, i.e. an interaction of different populations to provide each other's nutritional needs.:[4] Wikipedia

The decomposition cycle of an engineered sanitary landfill undergoes five distinct phases:[5][4] Wikipedia

Initial adjustment (Phase I)

As the waste is placed in the landfill, the void spaces contain high volumes of molecular oxygen (O_2). With added and compacted wastes, the O_2 content of the landfill bioreactor strata gradually decreases. Microbial populations grow, density increases. Aerobic biodegradation dominates, i.e. the primary electron acceptor is O_2.

Transition (Phase II)

The O_2 is rapidly degraded by the existing microbial populations. The decreasing O_2 leads to less aerobic and more anaerobic conditions in the layers. The primary electron acceptors during transition are nitrates and sulphates since O_2 is rapidly displaced by CO_2 in the effluent gas.

Acid formation (Phase III)

Hydrolysis of the biodegradable fraction of the solid waste begins in the acid formation phase, which leads to rapid accumulation of volatile fatty acids (VFAs) in the leachate. The increased organic acid content decreases the leachate pH from approximately 7.5 to 5.6. During this phase, the decomposition intermediate compounds like the VFAs contribute much chemical oxygen demand (COD). Long-chain volatile organic acids (VOAs) are converted to acetic acid ($C_2H_4O_2$), CO_2, and hydrogen gas (H_2). High concentrations of VFAs increase both the biochemical oxygen demand (BOD) and VOA concentrations, which initiates H_2 production by fermentative bacteria, which stimulates the growth of H_2-oxidizing bacteria. The H_2 generation phase is relatively short because it is complete by the end of the acid formation phase. The increase in the biomass of acidogenic bacteria increase the amount of degradation of the waste material and consuming nutrients. Metals, which are generally more water-soluble at lower pH, may become more mobile during this phase, leading to increasing metal concentrations in the leachate.

Methane fermentation (Phase IV)

The acid formation phase intermediary products (e.g., acetic, propionic, and butyric acids) are converted to CH_4 and CO_2 by methanogenic microorganisms. As VFAs are metabolized by the methanogens, the landfill water pH returns to neutrality. The leachate's organic strength, expressed as oxygen demand, decreases at a rapid rate with increases in CH_4 and CO_2 gas production. This is the longest decomposition phase.

Final maturation and stabilization (Phase V)

The rate of microbiological activity slows during the last phase of waste decomposition as the supply of nutrients limits the chemical reactions, e.g. as bioavailable phosphorus becomes increasingly scarce. CH_4 production almost completely disappears, with O_2 and oxidized species gradually reappearing in the gas wells as O_2 permeates downwardly from the troposphere. This transforms the oxidation–reduction potential (ORP) in the leachate toward oxidative processes. The residual organic materials may incrementally be converted to the gas phase, and as organic matter is composted; i.e. the organic matter is converted to humic-like compounds. Wikipedia

What is Coffin Butte sanitary landfill capacity and projected cell life – longevity?

Below is paraphrased from Geo-Logic Associates site development plan (SDP).

Site life calculations were performed by Geo-Logic Associates for the Coffin Butte Landfill to estimate the overall life span of the landfill

and the general schedule needed for construction of the major individual phases.

The site life calculations performed by Geo-Logic Assocaites are available in their report filed at the below listed webaddress at Benton County:

https://www.co.benton.or.us/cd/page/materials-management-document-library

The site life calculations were based on (1) the volumetric capacities of the phases as shown on the Site development plan (SDP)

drawings in Appendix A, (2) an operational density of 1,600 lbs/cy, (3) a soil to waste ratio of

15% (for daily cover), and (4) an incoming tonnage of 2,959 tons per day (projected average

daily tonnage). The capacity of each phase was volumetrically calculated from the top of waste

design grades to the design liner grade using AutoCAD Civil 3D software.

The volume of soil for the operations layer was subtracted from the gross air space. Supporting documentation for the site life calculations are presented in Appendix B.

The net available airspace volume available for disposal in Cell 5D/5E and Cells 6A – 6I, as of the

March 30, 2021, topographical map, totals approximately 18,645,000 cy. For the purposes of this

report, airspace is defined as the volume available for waste, daily cover, and interim cover.

Soil for daily and intermediate cover is estimated to consume approximately 2,797,000 cy of this

volume, with an assumed soil to waste ratio of 15% by volume.

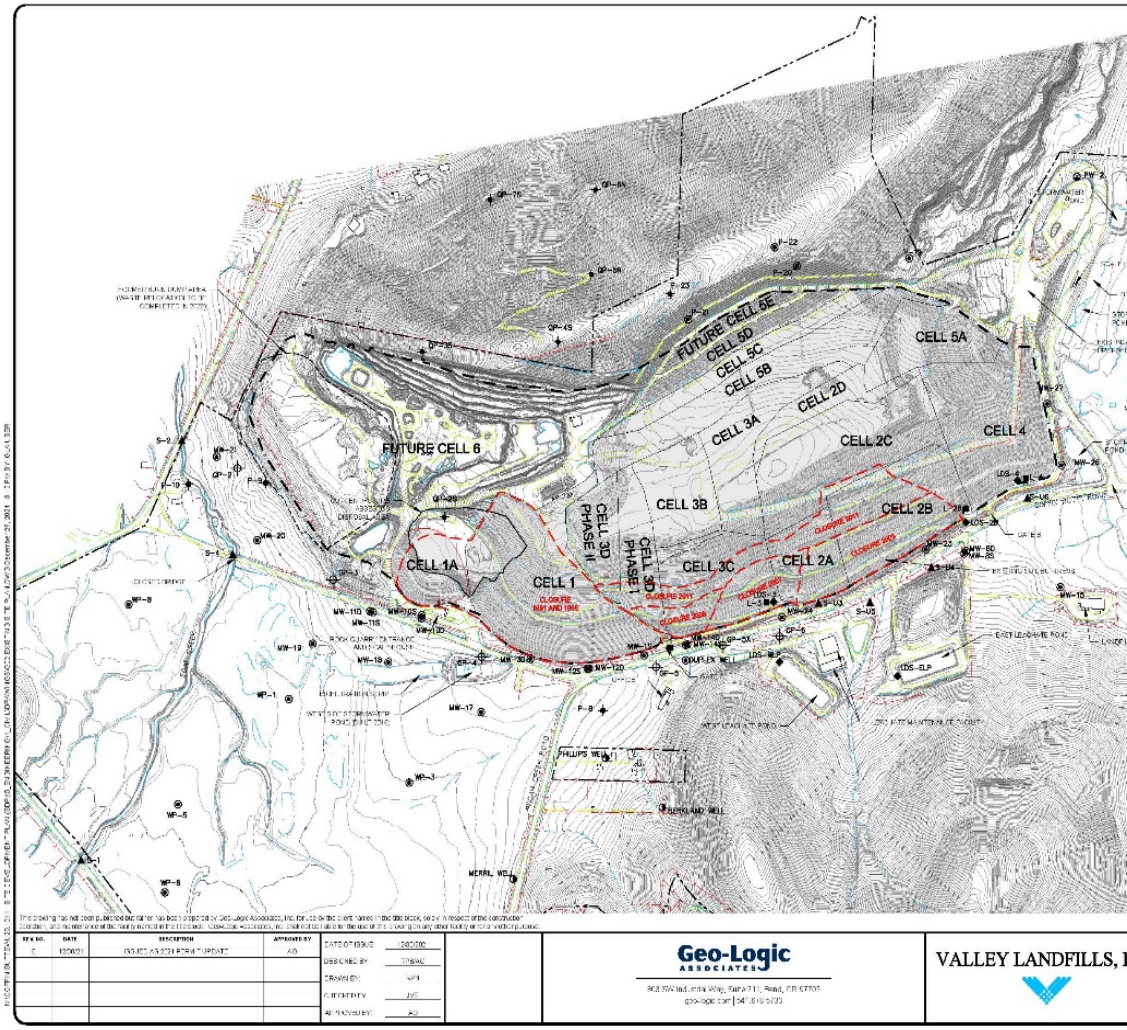
Using the above stated parameters, the current fill area was calculated to reach final grades during the middle of the year 2039.

Table 1 summarizes the site life projections for the landfill for open and future cells as well as a partial history of closed cells that needs further research, if needed.

The below table used data for open and future cells from Geo-Logic Associates site development report, while the closed cells where in part supplied by other historical

Information complied by Benton County in the Materails Management Documnt library.

	Plan View Footprint (Acres)	Capacity (CY)	Cumulative Capacity (CV)	Total Life of Cell (Years)	Year Capacity is Reached	St
Cell 1						Close
Cell 1a						Close
Cell 2						Close
Cell 2b	11					Close
Cell 2c	14.4					Close
Cell 2d						Close
Cell 3						Close
Cell 3a	7.5					Close
Cell 3b						Close
Cell 3c						Close
Cell 3d						Close
cell 4	14					Close
Cell 5a						Close
Cell 5b	11					Close
Cell 5c	5.5					Close
Cell 5D/5E	6.1	4,834,330	4,834,330	4	2025	Open
Cell 6A	19.8	1,482,260	6,316,590	1	2026	futur
Cell 6B	11.3	1,029,430	7,346,020	1	2027	futur
Cell 6C	4.3	1,742,130	9,088,150	2	2029	futur
Cell 6D	11.0	1,859,820	10,947,970	2	2031	futur
Cell 6E	3.9	1,078,420	12,026,390	1	2032	futur
Cell 6F	5.1	1,686,070	13,712,460	2	2034	futur
Cell 6G	2.4	2,015,260	15,727,720	2	2036	futur
Cell 6H	1.1	1,295,450	17,023,170	1	2037	futur
Cell 6I	1.2	1,622,130	18,645,300	2	2039	futur
Listed	129.6					
Projected	178					
Cells 5D/5E	6.1		4,834,330	4	2025	Coffi
Cells 6A-6I	21		13,810,970	14	2029	Disp Site



What is cell phasing?

An arrangement of sequencing cell construction for optiumum disposal operations for a given cell.

What is synchronization?

The concurrence of events in respect of time

Synchronization is the coordination of events to run a system in unison.

What is equlibriium?

A condition in which all acting influences are canceled by other, resulting in a stable, balanced, or unchanging system.

What is a landfill resource?

Resource is something that is available for use or that can be used for support or help

Cofin Butte disposal site and sanitary lanfill is a practical and benefical resource of Benton County.

Knife River is also a practical and benefical resource of both Benton County and Coffin Butte

What is a transfer station?

Transfer station means a fixed or mobile facility other that a collection vehicle where solid wase is deposited temporarily after being removed from the site of generation but before being transported to a final disposal location.

A transfer station in context with solid waste commercial transfer to disposal sites use an upper structure dump floor for inbound traffic, and then channel the solid waste into a down chute into a compactor on the first floor whereby the solid waste is compacted to a required weight to be placed into a rail container or truck van for forwarding to the disposal site via railway or highway.

What is Intermodal freight transport

Intermodal freight transport involves the transportation of freight in an intermodal container or vehicle, using multiple modes of transportation (e.g., rail, ship, aircraft, and truck), without any handling of the freight itself when changing modes. The method reduces cargo handling, and so improves security, reduces damage and loss, and allows freight to be transported faster. Reduced costs over road trucking are the key benefit for inter-continental use. This may be offset by reduced timings for road transport over shorter distances.

What is a rail intermodal center?

A rail intermodal center (sometimes referred to as an inland port) is an inland intermodal terminal for transloading containers directly to road carriers or rail carriers for forwarding cargo or merchandize to/from a seaport, or operating as a center for the transshipment of cargo to inland destinations such as rail served solid waste disposal sites locate in Oregon and Washington.

The Mid-Willamette Valley Intermodal Center in Millersburg OR will be opening next month for intermodal freight transport.

What is Sustainability?

Sustainability is simply defined as using, developing, and protecting resources in a manner that enables people to meet current needs and provides that future generations can also meet future needs, from the joint perspective of environmental, economic, and community objectives. (ORS 184.421)

Where Sustainability thrives, so does Longevity. Sustainability is the key to not only community longevity, but also community success and flourishment.

What is Murphys' Law?

Anything that can go wrong will go wrong, and at the worst possible time.

Corn and soybeans harvest shipped from the heartland of America by river barges to seaports at the mouth of the Mississippi risk running aground with low river water levels this year causing barge backups.

What is Plan B?

It takes an average of 3 trains per barge or 1, 050 highway trucks per barge to transport the products to and from the seaports.

A ton of bulk product can be transported 675 miles by barge inland on a gallon of fuel, compared to 472 miles by railcar or 151 miles by truck, but the water levels need to be sufficient for water travel.

Needless to say, for coordination of transportation goods, it is perceptive to have alternative transport modes and disposal sites available for work interruptions.

Resolution for Consdieration

A. Resources – Synchronization – Cell Reservation - Coffin Butte Landfill

An inquiry and understanding by the Sub-Committee A-1 of the multiple resources are needed that are interwoven with the rate of solid waste going into Coffin Butte's landfill cells.

In other words, there is a synchronization process of three resources that needs to be researched for a potential imbalance of cell reservation at Coffin Butte land fill.

The first resource is the landfill with enumerated solid waste cells designed and allowed for solid waste disposal.

The cells are finite in number, space, and volume for solid waste disposal and are operationally divided into closed , active, and future active cells.

The enumeration of cells, statuses, and capacities is documented in a report by Geo-Logic Associates, professional engineers, of Bend, Oregon for the site development plan of Coffin Butte Landfill, updated December 2021 for Valley Landfills.

This report is in the materials management document library at Benton County's web address: https://www.co.benton.or.us/cd/page/materials-management-document-library

Excerpts from the report are listed above in this memo for convenience which illustrates the numbers for the active and future cells and their lifespans based on the design space and volume of each cell. (*Reference table1*)

The intent here for the first resource is not to weigh the solid waste going into the landfill cells into tons, pounds, and ounces, but hopefully the Sub-Committee instead may work on an agreeable cell life expectancy with the design volume capacities that are referenced in the aforementioned report.

Nonetheless, it is to also to recognize any imbalances in the resources that may be resolved equitably within the solid waste management of Benton County, which also includes the regional waste streams going into Coffin Butte landfill from neighboring counties and municipalities.

The second resource is the parcel of lands in the southerly portion of the Coffin Butte disposal site which is also in part reflected in the aforementioned site plan for Coffin Butte but is limited in design and focus.

Customarily, expansion of a land fill is triggered when solid waste input exceeds reservation ability of disposal cells.

In other words, there are no rooms at the inn.

With no vacancies or limited vacancies of cells, it evokes expansion, which in part is the discourse of the workgroup and the sub-committee-2 to seek collective understanding of the processes of solid waste management by incorporating the overarching goals and tenets of sustainability for expansion or other practical options possible as an alternative to expansion of

a landfill but realizing also that the landfill is a viable and beneficial resource in both Benton County and neighboring counties and municipalities.

The third resource is the rock and gravel aggregates being quarried in Coffin Butte.

It is not the intent to value one resource over another, but instead seek a balance that assures equity and sustainability of all resources where equilibrium is possible.

Knife River supplies stone, sand, and gravel which are the aggregates of the foundation of Benton County's and Oregon's infrastructure for highways, bridges, railways, airport runways, or even sand for the sandbox at home. Within this context, Knife River is a major resource of aggregate in the community.

Conversely, Knife River appears as the minor resource when compared to Coffin Butte's major resource of municipal solid waste within the perimeters of the landfill.

Although a resource hierarchy comparison may assign one resource to be minor while another resource is major, the interdependency of each other makes the overall homeostasis functionable.

In other words, by design Knife River quarries the rock for the landfill cells to the required sub-grade elevation for Coffin Butte use.

Coffin Butte landfill then builds upon the cell floor with geotextile fabric liner, bentonite, and courses of drain rock before placement of solid waste into the cell until filled, then finishing with soil and fabric top layers to the design elevation for closure of cells.

Equilibrium is kept as long as Knife River has adequate time to quarry the rock thereby keeping ahead of the landfill cells disposal operations.

However, in the site development plan paraphrased below for Coffin Butte reflects the current use of Cells 5D/5E for placement of solid waste has a 4-year cell life reaching capacity in Year 2025.

Likewise, future compartmental Cells 6A -6I slated into the primary Cell 6 being also the Knife River quarry excavation site that needs a reported 8-year more excavation time, even though the site development plan reflects a start date of Year 2026.

In earlier testimony at the planning commission, Knife River alluded quarry production was down due to market conditions and also alleged a possible 8-year more excavation may be needed to reach subgrade elevation for the quarry floor.

Projecting the 8-year timeline below appears to be:

B. Timeline – Work Interruptions

Recapitulating by years, the current Cells 5D/5E
Reaching capcity would be from: Years 2022 -2025
4 Years

Knife River quarrying of Cell 6 needs
an alleged 8 more years to finish Years 2022- 2029
8 years

Cells 6A-6I then would have a service from Years 2029-2042
13 years

Work Interruptions at Coffin Butte
for Years 2026-2029 - no cell vacancy 4 years

Questions: May Geo-Logic Associates with Republic agreement and the Sub-committee A-1 consensus reaffirm with the existing LiDAR survey data updated December 2021 to compute with their AutoCad Civil 3D the volume of quarry rock needed to be excavated to reach the design cell floor elevation in Cell 6?

With the quantity rock volume yardage then known, can Knife River with Republic agreement and Sub-Committee A-1 consensus reaffirm the years Knife River needs to excavate the yardage?

Contingent on the above, will a more in-depth inquiry be needed for a practical resolution for the work timeline interruptions, if any?

C. Synchronization of Landfill waste streams into Coffin Butte's regional disposal site and sanitary landfill cells with possible service interruption – longevity - Transfer Station

Questions:

1. Is it reasonable to consider participation in advancing a regional transfer station for intermodal services by rail, trucks, or both that would be in harmony with Coffin Butte landfill longevity?

2. Is it reasonable for Republic to advance the topic of a transfer station for consideration, since Republic is a knowledgeable operator to manage and operate the proposed MSD transfer station in equilibrium with commercial waste streams from neighboring counties, municipalities into Coffin Butte desposial site thereby effecting its longevity and equllibrium Benton County and neighboring counties and municipalities?

3. Is it reasonable for Benton County Talks Trash Sub-Committee A-2 consider a transfer station concept to assist with the need to balance the disposal parameters with Knife River, Coffin Butte, Benton County and neighboring counties and municipalities ?

The main purpose of this updated memo is providing options for consideration by Benton County Talks Trash Sub-Committee A-2 in order to exercise good judgement in recommending alternative landfill site use that complements Coffin Butte synchronization where an interruption in disposal service may be needed.

intermodal containers using railroad's intermodal railcars provide an economical way to transfer MSW by train from the Mid-Willamette Valley to Oregon Department of Environmental Quality's approved regional landfills east of the Cascades.

Accredited landfill sites are modern Subtitle D landfill that accepts primarily municipal solid waste (MSW or household waste) as well as industrial and special wastes.

As an example, Columbia Ridge was opened in 1990 and has a life remaining of 143 years. Its current permitted footprint is 700 acres. The facility's acreage is 12,000 acres. It has a bio-buffer of 10,000 acres.

Union Pacific Railroad can deliver manifest unit trains of MSW directly into the Columbia Ridge Regional Landfill near Arlington, Oregon.

Columbia Ridge Regional Landfill does not stand alone as the only regional landfill that has intermodal train service.

The Roosevelt Regional Landfill in Roosevelt, WA is served by Burlington Northern – Santa Fe Railroad and is operated by Republic Services and Finley Buttes Regional Landfill operated by Waste Connections near Boardman OR is also served by Union Pacific Railroad, although at Finley the railroad does not go directly into the Landfill site and MSW must be road drayed into the landfill from the rail terminal at Boardman.

Rail freight is undoubtedly more environmentally efficient than over-the-road transportation. According to the Association of American Railroads, trains are up to four times more fuel

efficient than trucks. Not only do they consume less fuel, but they also reduce the strain of traffic on roadways by using an alternative over-the-rail transportation of goods, and they also have less air pollution emissions, when compared to over-the-road transportation.

As such, a centralized transfer station at Coffin Butte may be the first option for portions of the collected MSW to be transloaded and compressed into rail containers for forwarding and transloading onto railcars at an intermodal transfer facility.

This option provides both Benton County and Coffin Butte an optimum way to balance the current adverse growth impacts at the landfill while still maintaining a curbside pick-up service that is beneficial and economical for the members of the communities.

The transfer station and intermodal service can also be in step with Coffin Butte's short-range objectives for MSD material handling coordination as well as long-range budgeting and planning needs for Benton County's material handling of municipal solid waste disposal in equilibrium with another feasible alternative landfill access route.

Albany-Millersburg Economic Development (AMEDC), a 401(c) 4 benefit corporation, owns the 60-acre site in Millersburg Oregon that received a connect Oregon grant for the development of an intermodal transportation facility. Linn Economic Development Group (LEDG), a 401(c)4 benefit corporation, is an affiliate of AMEDC and its agent for project management of the intermodal facility.

R&a Engineering in Albany designed and implemented construction of the Mid-Willamette Valley Intermodal Facility (MVIC) in Millersburg, OR for LEDG and its contractor operator. The MVIC receives notice of service through Reece &associates Engineering at 321 1st Ave E. Suite 39, Albany OR 97321.

ITS-Conglobal (ITSC) is the contractor operator for the MVIC.

ITSC employs nearly 4,000 people and handles more than 8.5 million lifts each year at more than 120 facilities across the U.S., Mexico, and Costa Rica. Safety is of the utmost importance, and it is continually stressed at all levels of the organization. Most customers have been with the company for decades. Our superior and reliable service, our broad and evolving scope of services and our exemplary safety record have helped us position ourselves as leaders in the industry.

ITSC have longstanding relationships with nearly every major North American railroad, including BNSF, CN, CSX, KCS, NS, and UP for intermodal loading and unloading of containers.

Union Pacific Railroad will be the carrier serving the MVIC facility with grand opening by month end.

A manifest MSW train generally handles a maximum of 100 double stack railcars.

Each double stack railcar handles 2 each 40- foot rail containers.

Each container handles 28 tons or 5,600 tons of MSW per 100 railcar train.

Annualized at a rate of 1 train per week for 52 weeks would be 291,200 tons of MSW that may be transported to a regional landfill site east of the cascades.

The current annual projected rate of deposal for MSW at Coffin Butte is 1.1 million tons.

Projecting a transfer of 50 per cent of the MSW to regional landfills east of the Cascades to reduce to an optimum tonnage for Coffin Butte operations coinciding with aggregate quarry operations for timely cell development, will transport 550,000 annual tons with 2 trains weekly.

Comparatively, 19,643 trucks would be needed annually to move the same payload of MSW that only takes 104 trains to do.

Although, the initial concept looks at a transfer station being centralized at Coffin Butte, another concept of a more decentralized transfer station nearer to an I-5 facility site in an existing industrial zoned setting may be better suited for improved traffic plans for collection and transferring of MSW from Benton County, neighboring counties, and distant counties with their respective franchise haulers.

In this way, other counties and municipalities can work in conjunction with their own solid waste streams for collection and transfer of their MSW to the decentralized transfer station for handling to rail, thereby lessening the stressed growth impacts at Coffin Butte and on Benton County's roadway infrastructure with the centralized option.

Also, with existing legacy equipment used currently by franchise haulers such as shuffling van floors for handling of MSW from their county venues, the legacy equipment can be readily used at a transfer station equipped with tipping floor, intake chutes, and hydraulic ram compressing systems for transloading MSW into rail containers.

With this convention, the maximum payload can be maintained consistently for shipping of the MSD to destination by rail and bill of lading records are electronically processed for the receipt and transfer of goods.

With the above transfer station system, MSW does not stay resident on the tipping floor, but it moves at a rate of 120 tons per hour to feed, load, and transport the containers to the intermodal ramp for loading onto railcars.

In other words, a 5600-ton MSW train would be loaded in 6 days rounded, but another service lane with another hydraulic loading ram would meet the shipments of 2 trains bi-weekly for transporting the required 550,000 tons annually.

This dual approach use of landfills provides a better service life and manageable disposal quantities for Coffin Butte which then best serves the community and curbside rate payers concerns, as well as the primary need for quarry operations to stay ahead of the disposal operations in order to excavate a quality aggerate for community construction projects.

A proposed transfer station will need to be permitted thru Oregon DEQ application process. Within these parameters, Republic is a knowledge operator to manage and operate the proposed MSD transfer station in equilibrium with commercial waste stream from neighboring counties and municipalities.

Since Republic Services is the current franchise hauler for Benton and Linn Counties as well as the Cities of Albany and Millersburg, this then votes confidence with a more in-depth approach with Coffin Butte current landfill cell life projections being balanced in equilibrium with an alternative access route via rail for MSW disposal at regional landfills east of the Cascades.

In retrospect, it would require 4 trains weekly to rail transfer the current MSW tonnage of 1.1 million.

Likewise, it would require 39,286 trucks to dray the same quantity.