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Sent: Tuesday, October 11, 2022 5:44 AM
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Cc: Sam Imperati; Benton County Talks Trash; Deborah Gile
Subject: Fwd: Preliminary neighbor responses to questions arising from neighborhood tour
Attachments: NeighborhoodTourQuestions-Replies.pdf

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From: "clearwater" [REDACTED]
To: "Sam Imperati" <samimperati@icmresolutions.com>, "BentonCountyTalksTrash" <BentonCountyTalksTrash@Co.Benton.OR.US>
Sent: Saturday, October 8, 2022 9:32:35 AM
Subject: Preliminary neighbor responses to questions arising from neighborhood tour

The neighborhood tour gave rise to many good questions.

Some of these questions appear to be directed at Republic Services, or DEQ, or various County agencies.

But here we've attempted to give answers and supplementary information in response to the questions, from a neighborhood perspective.

Many of these could be good topics for further discussion in our upcoming Trash Work Group sessions.

BCTT Neighborhood Tour: Member (& Public) Questions

NOTE: Responses from neighborhood tour leaders are given in green.

This document includes all the questions BCTT Work group members and the public sent in from the Neighborhood Tour, October 1st , 2022.

The questions have been roughly grouped into four sections: Community Resources, Disaster Preparedness, Landfill Input & Management, and Safety & the Environment. Within each section, the questions are presented in alphabetical order based on the first letter of the first word in each question.

Community Resources:

1. Can Republic Services show that they have fairly compensated landowners for property purchased next to quarry?

This is question is posed for Republic, but could be answered objectively by the Benton County Assessor's office, which has access to records of sale and past appraisals both for the vicinity of the landfill and for less-impacted areas of Benton County which are otherwise comparable.

To determine what would be "fair value" for a property not already degraded by proximity to landfill operations, we suggest that the assessment should compare sale prices of properties elsewhere in Benton county that, at the time of sale, were similar in size, zoning, and scenic rural character, but at least 3 miles from the landfill. This could include, for example, Logsdon Ridge, Vineyard Mountain, Springhill, and rural-residential areas south of Philomath.

2. Has Republic Services ever donated to the volunteer fire fighters for Adair Village or any other?

This is question is posed for Republic, but could be also be posed to Adair Rural Fire & Rescue (<http://adair-rural-fire.com/site/>), regarding the timing and amount of any donations. ARF&R might also be able to supply information on costs of past responses to landfill fires.

Disaster Preparedness:

1. Given the increasing forecast of earthquake magnitude, how would a 9.0 magnitude earthquake (same as the design criteria for the recent CPU) impact the existing landfill?

This is a good question that could be addressed at least in part by a seismic hazard analysis of the existing landfill, based on current understanding of the risks of a 9.0 (or larger, possibly as high as 9.5) magnitude earthquake on the Cascadia Subduction Zone.

Research by Dr. Chris Goldfinger at OSU (see <https://www.nature.com/articles/news.2010.270>) indicates that there have been 41 earthquakes of magnitude 9.0+ on this zone in the past 10,000 years -- about 1 per 240 years on average (though it's important to note that the intervals between mega quakes can vary considerably from the average).

To our knowledge, this type of analysis has not been done for the older landfill cells. The risk of a M 9.0+ earthquake on the Cascadia Subduction Zone was not recognized before research published by Brian Atwater in 1987 (<https://www.science.org/doi/10.1126/science.236.4804.942>). Even after this evidence was accepted by the scientific community, it took a couple of decades for the implications to make it into state and local regulatory requirements for new construction.

For the most recently planned cells, filings by Republic's geotechnical consultants use a method called "probabilistic seismic hazard analysis." This is a scientifically credible approach, in general terms, but the results depend on numerous assumptions that go into the analysis, in what is a rapidly developing "art." See for example:

<https://www.usgs.gov/publications/probabilistic-seismic-hazard-analysis-regional-and-national-scale-state-art-and-future>

For a landfill, this analysis is further complicated by the uncertainty and variability in the properties of garbage as a material (as evident from the wide range of "density" estimates quoted in Republic's annual reports for Coffin Butte). Taking a careful, independent look at the earthquake modeling in the 2021 Site Development Plan might be a good project for seismic risk assessment and structural engineering experts at OSU.

The results presented by Republic's consultants thus far have been stated in terms of predicted probabilities of displacements of different magnitude for soil cover etc. To our knowledge, these geotechnical model predictions have not been propagated to assess the risks of, e.g. shearing of wells and piping in the methane capture system, ruptures of the liner system, or the resulting risks to public health and safety following a magnitude 9.0+ earthquake.

For comparison, the city of Christchurch, New Zealand has spent more than a decade repairing municipal water and sewer pipes following the M 7.1 earthquake that struck the city in September of 2010. So it's reasonable to expect that a more severe earthquake, shaking a small mountain of old garbage that contains

everything from diapers to bedframes and old kitchen sinks, might cause problems for the many miles of pipes and acres of tarps in the methane capture system.

One thing about earthquakes is that, like unhappy families each earthquake is unhappy in its own way. Most major earthquakes result in a re-evaluation of the building codes that were insufficient to prevent loss of life because the earthquake ended up being longer, or "joltier," or more harmonic, than it was expected to be. That's why the best earthquake research on buildings and other complex structures is conducted on "shake tables."

Here's a link to a cool example:

<https://www.youtube.com/watch?v=Y7kKclsBKDo>

So far as we know, no one has put a scale model of a landfill on a "shake table" and tried out different scenarios that would be comparable to a M 9.0+ earthquake. So much is going on in this landfill: plastic liners with welded seams, perforated pipes, horizontal gas pipes, vertical gas pipes, and layers of waste of highly variable composition and compaction. The properties of the garbage layers are also changing constantly, as chemical reactions transform solids into gases and leachate. It's a very complex system, with much to go wrong.

2. Is there a robust Emergency Management Plan that addresses the needed responses of RSI and County resources? Are personnel appropriately aware and trained for situations that arise with landfills? Is there a consensus among RSI and first responders on how to fight a landfill fire? Are responsibilities clearly identified? Is the effort adequately funded?

These are good questions for the Benton County Emergency Management coordinator. Perhaps he could be asked to speak to the Work Group.

Recently when the County was preparing its Wildfire Protection Plan, county development staff were asked whether the landfill was going to be included in the Plan as a locale of concern, which is either the site in North Benton County where the most fires have originated, or is at least one of the top sites in the County for fire origination.

Staff's reply was that they couldn't include the landfill in the WPP, since staff had no expertise in, or understanding of, the ramifications of fires either originating in a landfill and starting a larger wildfire on neighboring lands, or starting on neighboring lands and spreading to the landfill.

3. The Bit-by-Bit facility said there has been no forest plan for forest fire prevention on landfill land bordering her property. Can republic services speak to their wildfire prevention plan?

There was some misunderstanding here as to what Bit-by-Bit's representative stated. There just has been no communication by Republic Services with neighbors about this issue, at least since Brian May's tenure as landfill manager for VLI (around 2005). Meanwhile the Douglas-fir plantation has become very dense, with many dead branches low down in the trees which could serve as "fire ladders" for a ground fire to move into the canopy and grow explosively.

Potential sources of wildfire risk could include accidents along the highway. During the 2017 tanker spill we were lucky that power lines near the crash site were not damaged enough to arc to ground, and CPI was notified quickly by first responders so that they could shut off power. We might not be so lucky next time. In addition, there many people of limited resources travel on foot, bicycle, or even skateboard along Hwy 99W.

Occasionally neighbors have seen indications of people camping in the dense Douglas-fir plantation (bicycles left by the side of the road or people with backpacks coming out of the forest in the morning). So there may also be a risk of wildfire from campfires or improvised camp stoves.

Landfill Input & Management:

1. Bit by Bit facility said there has been banging in the forest next to their facility at 8pm at night. Can Republic Services address what that may be?

This question is also directed to Republic. As neighbors, we can say that the last time we heard similar banging noises in the forest was during the summer of 2021. It emerged later that Republic was digging test pits and boring holes as part of geotechnical site characterization activities prior to submitting a CUP for landfill expansion. The public was not notified of plans for that activity on these Forest Conservation zoned parcels.

This does illustrate how an expansion of regular landfill operations in this direction would increase impacts of equipment-generated noise on adjacent landowners and their ability to use their properties.

2. Did one of the Benton County Commissioners tell Nancy that in fact the County can negotiate with the Landfill to only accept trash from certain places?

The 1981 Franchise Agreement between the County and VLI limited the service area from which waste could be trucked to a very small number of regions (this is memorialized in the 1974 CUP). Until the franchise agreement was re-negotiated in 2000, adding additional regions for waste collection was collaboratively decided upon by the County and the landfill operator. After the landfill was sold to Allied Waste in 2000, the franchise agreement

was negotiated to remove the County's control over which regions could deposit waste into the landfill. This is memorialized in the 2001 "Baseline Study" prepared by the County:

In return for an increased franchise fee and the institution of a per ton host surcharge, Benton County no longer has rate setting authority for the landfill and will no longer be consulted in regards to the origin or volume of solid waste disposed at the landfill.

Source: Baseline Study, Introduction, page 4 of 322

3. How is it decided how high the landfill can be build? When do you stop adding garbage?

The first part of this question seems to be for the Planning Department (conditions on past permits). The second part of the question seems like a good question for the work group to consider in making recommendations.

4. I am in SWAC but still want clarification on ownership of Coffin Butte Landfill. Who owns the landfill and the PRC? Both Republic? Either the county?

This is a good question for the Planning Department or County Assessor. If you look on the Assessor's website, some parcels around the landfill are listed as being owned by "Republic Services Property Tax" while some are owned by "Valley Landfills Inc." or other entities. It is confusing.

The PRC is located mainly on tax lots 104170000300 & 301 (Valley Landfills Inc.) but with recent expansions of this facility, some operations appear to extend onto tax lots 104170000400 & 302 and 104080000300 & 400 (City of Adair Village) as well as parts of 104170000200 (owner listed as USA, apparently federal government -- the US Forest Service, Siuslaw National Forest maintains some jurisdiction over parts of this lot but other parts such as the former BOMARC missile site might still be under Department of Defense).

5. It was said that the fuel spilled on 99 by the dump was taken to the landfill. Can we talk about how that soil was managed and if it was by DEQ standards?

The first part of this question seems to be mainly for Republic to explain. In connection with other fuel spills, gasoline- or diesel-contaminated soil has sometimes been used as "daily cover" which means that the soil would be spread out, allowing volatile organic compounds in the soil to evaporate into the air.

The second part of this question is a good question for DEQ, as they had a trailer on site for approximately a month for DEQ staff who were supposed to be monitoring the response (the actual work was carried out mainly by a private contractor based in Philomath).

6. The front facing cells seem to be "closed". Can we confirm? When will they be covered with soil and planted over?

These seem to be questions for Republic to answer. From information in the 2021 Site Development Plan, it appears that no cell has been "closed" since 2011. Planning Division staff might be able to speak to conditions of past CUPs.

7. There was a claim that the county was to terrace the landfill and now it appears that the cells that have been covered are in fact not terraced. Can we have Republic Services address that?

Planning Division staff have been asked for documents referenced in the Findings of Fact for the 1983 Zoning Amendment that would describe the referenced "terracing" (they would probably be in the form of drawings).

The best clues as to what might be contained in these documents lie in contemporaneous newspaper articles where County representatives and lawmakers discuss how, after the landfill closes, it will be returned to productive use and look better than it did before, for example, the following quote from the Gazette Times in an article from 11/21/1973,

"Jeanette Simerville, chairman of the Benton County Board of Commissioners, said Tuesday 'the site would be used in increments and as each increment was filled it would be in better condition for productive use than it is now.'"

8. There was a claim that the Quarries created by the government during Camp Adair's time were filled with waste. Can we confirm this?

The tour guide handout included a photograph from an OSU MAIS thesis by historian Bob Zybach which shows the extent of the quarrying during the early Camp Adair period (photos originally taken by Wilma Rohner). More documentation is available from a series of oral history monographs. Copies of several of these are available for inspection at the Soap Creek historic schoolhouse, or can be downloaded from:

http://nwmapsco.com/ZybachB/Oral_Histories/Soap_Creek_Valley/index.html

Several small quarries were created on the lower slopes of Coffin Butte by the US Army and government contractors during the Camp Adair period. These were the source of crushed rock that was used mainly as "fill" to elevate roadbeds through "Swamp Adair" as it was called, although the Army found that this rock was of too poor quality to use for the actual road surfaces or for concrete structures in the camp. For those purposes, better-quality gravel was mined from river-gravel quarries several miles to the east. Two of the main river-gravel quarries from this period have recently been restored as western pond-turtle habitat, as part of Luckiamute State Natural Area in the northeast corner of Benton County,

Many of the oral histories produced by Dr. Zybach reference the old crushed-rock quarries on Coffin Butte as "scars". The quote from the 1973 CUP is as follows:

The scars that erode the face of Coffin Butte should be filled and compacted to a condition permitting re-seeding and eventual visual reclamation of the area.

The "scars" are thought to refer to the pits and bare-rock slopes left by the Army.

Some of those quarries (mainly on the west side of the topographic saddle) were later filled with garbage (sometimes referred to as "the burn dump" in Republic's annual reports) or covered by later landfill cells. This is documented by DEQ (see answer to next question, below).

A couple of quarries on the east end of the butte were used occasionally by ODOT, before those lands were transferred to ODFW (around the year 2000). Those quarries have not been filled with garbage. They are now accessible to the public via the Coffin Butte Trail (part of E.E. Wilson Wildlife Area), and still provide good exposures of the basalt rock that forms much of Coffin Butte. During the tour we noted that these quarries are small in relation to more recent scarring of the butte, by recent expansions of Republic's landfill and the quarry operated by Knife River.

9. There was the assertion that Wah Chang has used the landfill in the past or present and that Magnesium and other metals were dumped there. Can the landfill confirm? If so, can they tell us who regulates how they handle those kinds of materials? Were those rules followed? There were expressed fears of an exothermic reaction underground. Can Republic address?

These facts have been documented by DEQ. Here is the relevant text excerpted from the DEQ document titled "Environmental Cleanup Site Information (ECSI) Database Site Summary Full Report - Details for Site ID 832, Coffin Butte Regional Landfill" (as downloaded from DEQ's of November 14, 2021 at 12:41:30 PM).

Site History: Landfilling at Coffin Butte first began in the 1940s by the Army as a part of waste disposal for the former Camp Adair. (See ECSI #1044 for more information on Camp Adair). In 1975, Valley Landfills, Inc. (VLI) purchased the site and currently operates it as a municipal solid waste facility.

Contamination information: (1/23/95 ACV/SAS) Valley Landfills, a subsidiary of Waste Control Systems, purchased the landfill in 1975 for use as a municipal landfill. In addition to municipal wastes, the landfill received low level radioactive wastes and industrial debris from Teledyne Wah Chang. For the first few years after 1975, zirconium nodule fines from Teledyne were mixed in with the municipal wastes. Because the fines were pyrophoric, the practice was discontinued. Teledyne's wastes are now segregated from the municipal wastes in clay cells. (See ECSI #315 for more information on Teledyne Wah Chang).

Manner and Time of release: Landfilling of wastes; leachate generation. 1940s to present.

Hazardous Substances/Waste Types: municipal and industrial wastes, radium, magnesium, zirconium, asbestos, VOCs [volatile organic compounds].

Note that the term "pyrophoric" as used in the context of hazardous materials refers to substances that ignite instantly upon exposure to oxygen. They can also be water-reactive, where heat and hydrogen, a flammable gas, are produced (see <https://www.purdue.edu/epps/rem/laboratory/HazMat/Chemical%20Materials/pyro.html>).

Safety & the Environment:

1. How far from the landfill has groundwater contamination been found? How has the groundwater contamination plume been contained? Prevented from reaching surface waters?

Groundwater contamination has been found at least as far from the landfill as the well for the the Helms home site which we visited (near where Wiles Road crosses Soap Creek).

The contamination plume was not "contained" but there have been efforts to diminish the strength of the source (e.g. first by capping the old "burn dump" to limit infiltration by rainwater, and later by moving this material to a lined cell). The contaminants that already entered the groundwater prior to completion of these actions will presumably continue to move as a plume, though the concentrations (based on general principles of hydrogeology) can be expected to become more dilute with time and distance, as the plume disperses over a wider area or seeps into surface waters such as Soap Creek.

Further information on Republic's efforts to monitor the plume are detailed in their annual monitoring reports submitted to DEQ (Tuppan Consultants). Those reports also show the extent of their monitoring network.

2. Risk assessments for the Landfill (human health, transportation spills, fire, etc.) should consider including schools being potentially impacted by air borne releases from landfill fires (approx. 2 miles away) or transportation accidents (99W about 1400 ft away).

Yes, we believe that a proper assessment of risks related to the landfill and any expansion should include an assessment of risk to the entire population of the area around the landfill, including school children and families in Adair Village.

In addition to the existing K-12 Santiam Christian School (with enrollment of 650), there is a proposal to build a new elementary school as part of the Corvallis 509-J School district (per testimony at a recent Planning Commission meeting by the Adair city administrator, Patrick Hare). This could bring even more children into the landfill-impacted zone 5 days a week, 9 months per year.

Adair Village is also home to many young families, particularly in the older parts of the town which has many multi-family residences (mainly duplexes) that provide affordable housing for families of moderate or lower income. As of the 2010 Census, 36.7% of residents were under the age of 18 (per Wikipedia).

3. The roads were not built to handle "this kind of traffic". "The road was not built for this kind of traffic." Can the roads department address that please? We were sitting on the corner of Camp Adair and Independence.

Benton County identifies the route in question as a "High Crash Rate Segment" of roadway (Benton County Transportation Plan, page 24 of 112). Highway 20 was just this year blocked when a Republic garbage truck overturned closing both lanes of traffic (Albany Democrat-Herald, April 11, 2022, "Highway 20 closed near Albany due to garbage truck rollover"). In 2020, a Republic Services garbage truck went off the road and tipped over not far from the intersection where the tour stopped (at Independence Highway and Palestine Rd.).

We are not aware of any county-funded studies of landfill- or quarry-related truck traffic on Camp Adair Road. However the degree of wear and tear on the road is evident to residents, in the form of road damage and deep roadside potholes where trucks go off the pavement, particularly on the sharp curves just east of Highway 99W (by the archery range where we stopped). It could be useful to see a record of the frequency of repairs to this road, in comparison with other roads of the same class.

Springhill Drive (just north of where we turned west off of Independence Hwy) can be mentioned as another nearby road that carries some of the heavy traffic from these sources, and is also chronically in very poor condition.

4. The statement that Garbage trucks are the most dangerous truck on the road. I would like to request data to show what the most dangerous trucks on the road are.

If the statement was that garbage trucks are “the most dangerous”, that was a misstatement. Certainly the intent was to say that dump trucks and garbage trucks are among the most dangerous large trucks. According to “Large Truck and Bus Crash Facts” put out by the Federal Motor Carrier Safety Administration, dump trucks come in fourth (at 8 percent) of all large trucks involved in fatal traffic accidents; and dump trucks come in fourth (at 10 percent) of all injury-causing accidents. Garbage trucks represented between 2.2 and 2.5 percent of all large trucks in fatal traffic accidents.

Dump trucks and garbage trucks are very large and as result have long blind spots, and their weight causes them to have long stopping distances and for accidents involving them to be inherently more dangerous. They also are associated with flying debris. During the landfill tour, one of the Republic employees described how garbage loads can catch on fire while in the truck, causing the driver to have to quickly find a place to pull off the road so that they can dump their load to extinguish the fire.

Further Information of an anecdotal nature is fairly easy to find in Google search, e.g.:

<https://www.motorbiscuit.com/garbage-trucks-dangerous-surprising-number-accidents/>

<https://www.trucknews.com/transportation/fatalities-surge-around-truckings-most-dangerous-job-driving-a-garbage-truck/1003130722/>

The following OSHA database and search string could be useful if county staff or the facilitation team would like to devote time to researching this issue more quantitatively:

<https://www.osha.gov/pls/imis/accidentsearch.search?>

https://www.osha.gov/pls/imis/accidentsearch.search?sic=&sicgroup=&naics=&acc_description=&acc_abstract=&acc_keyword=%22Garbage%20Truck%22&inspnr=&fatal=&officetype=&office=&startmonth=&startday=&startyear=&endmonth=&endday=&endyear=&keyword_list=on&p_start=&p_finish=20&p_sort=&p_desc=DESC&p_direction=Next&p_show=20

5. There is a concern as laid out in many articles about air quality and those living close to landfills. There are also concerns about ground water contamination. What has the county decided is a safe distance for residents to be living and their wells in relation to the landfill? I would request that we recommend that the county determine that distance. There is evidence to suggest that air quality is a concern for allergies and cancer. Has the county looked into these claims as a way to make its decision?

Here's a very thorough article from the EPA about the health effects of living near hazardous-waste landfill sites https://www.epa.gov/sites/default/files/2014-03/documents/health_effects_of_residence_near_hazardous_waste_landfill_sites_3v.pdf

While Coffin Butte is not currently designated as a hazardous-waste landfill, it has received hazardous waste in the past (see DEQ report cited above), and it still receives contaminated soils from fuel spills, asbestos, fire debris, and incinerator ash. There is no regular program to audit the contents of garbage trucked in from remote counties. A community-member comment submitted to the Work Group ahead of our October 6th meeting described how even the Corvallis schools have apparently sent items classed as hazardous waste to the landfill.

Potential health effects of living near landfills seem to include respiratory diseases including asthma, lung cancer, and risk of congenital malformation in newborns (Science Daily, May 24, 2016 "Living near a landfill could damage your health").

We are not aware of any local studies or guidelines issued by the County. Formerly the Disposal Site Advisory Committee (DSAC) was under the direction of the County Health Department which might have paid more attention to these types of concerns, but in recent years responsibility has been shifted to the Development Division, which does not have the same level of expertise on public health issues.