Boulder Park Project Beneficial Use Facility

2022 Annual Report

King County

BOULDER PARK INC. BPI

Boulder Park Project

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Boulder Park Project

IN THE BEGINNING

Over 30 years ago in 1991, three Douglas County farmers began working with King County to explore the potential of using treated wastewater solids on their fields as a soil amendment to improve soil quality and increase crop yields. These farmer's fields located in north Douglas County were non-irrigated, marginal quality soils, and received a mere 7 to 13 inches of annual rainfall.

The first biosolids land applications occurred in 1992 and the farmers saw the benefits immediately witnessing the more vibrant, deeper green color of the crops and experiencing increased yields. It didn't take long before the three farmers established Boulder Park Incorporated (BPI) in 1994. In 1994, BPI and King County Department of Natural Resources and Parks (King County) entered a public-private partnership and initiated what is known as the Boulder Park Project. The Project is jointly permitted, operated, and managed by BPI and King County and has now thrived for nearly three decades. Boulder Park Project is one of the largest farmer-owned and operated, multi-farmer biosolids beneficial use projects in the United States.

There has been growing demand for biosolids from local farmers over the years. The number of participants has grown from three original farmer-sponsors to over 120 farmers/landowners and available permitted acreage has grown from 5,000 acres to over 100,000 acres. BPI make great effort to distribute biosolids to as many farmers as possible, rather than concentrating on a few ownerships. This practice promotes a strong client base, which in turn makes the project more robust and more sustainable into the future.

This report summarizes annual operational and monitoring information from January 1, 2022 to December 31, 2022.

The farmer is the ultimate regulator – if biosolids didn't produce great results, farmers wouldn't use it and there would be no project.

BENEFICIAL USE OF BIOSOLIDS

Recycling biosolids through land application improves soil health and achieves carbon sequestration goals while increasing crop yield for the farmers. Beneficially using biosolids at Boulder Park Project is consistent with the State of Washington's Biosolids Management rule that "encourages the maximum beneficial use of biosolids" per Chapter 173-308-010(2)(a) WAC and recognizes the value of biosolids stating "the State of Washington recognizes biosolids as a valuable commodity" per Chapter 173-308-060(1) WAC.

The photo above shows biosolids being scattered agronomically and uniformly across the field surface in anticipation of the farmer seeding a triticale crop with cover crop mix. A typical agronomic rate for a biosolids application is 2 to 3 dry tons per acre.

BENEFICIAL USE FACILITY

Boulder Park Project is permitted as a Beneficial Use Facility, which allows the project to receive biosolids from permitted treatment facilities for beneficial use and land application services. In 2022, a total of 43 treatment facilities participated in the project with 36 of those facilities delivering biosolids to project fields for beneficial use.

Biosolids delivered to project fields are stored separately and not mixed or co-mingled. The reason for not mixing the biosolids is each treatment facility produces a unique product with a different nitrogen content that must be land applied accordingly. An application rate is calculated for each of the products based on (1) biosolids plant available nitrogen content, (2) residual soil nitrogen concentration at the application site, and (3) crop nitrogen requirements. This is referred to as the “agronomic rate”. A total of 52 fields had biosolids applied at agronomic rate for crop production last year as presented in Appendix A, Figure 1 of this report.

2022 Participants of the Boulder Park Project Beneficial Use Facility

Ace Acme Incorporated	Arlington, WA
Alderwood Water & Wastewater District	Lynnwood, WA
City of Brewster Wastewater Treatment Plant	Brewster, WA
City of Bridgeport Wastewater Treatment Plant	Bridgeport, WA
City of Cashmere Wastewater Treatment Plant	Cashmere, WA
Chambers Creek Wastewater Treatment Plant	Pierce County, WA
City of Chelan Wastewater Treatment Plant	Chelan, WA
Chelan County PUD No. 1, Peshastin WWTP	Wenatchee, WA
Town of Coulee Dam Wastewater Treatment Plant	Coulee Dam, WA
Douglas County Sewer District No. 1	East Wenatchee, WA
City of Duvall Wastewater Treatment Plant	Duvall, WA
City of Enumclaw Wastewater Treatment Plant	Enumclaw, WA
City of Ephrata Wastewater Treatment Plant	Ephrata, WA
City of Grand Coulee Wastewater Treatment Plant	Grand Coulee, WA
Grant County PUD No. 2, Crescent Bar WWTP x	Crescent Bar, WA
Hayden Area Regional Sewer Board WWTP	Hayden, ID
King County DNRP, WTD, Brightwater WWTP	Woodinville, WA
King County DNRP, WTD, South Plant WWTP	Renton, WA
King County DNRP, WTD, West Point WWTP	Seattle, WA
Lakehaven Water and Sewer District, Lakota WWTP	Federal Way, WA
Lakehaven Water and Sewer District, Redondo WWTP	Federal Way, WA
City of Leavenworth Wastewater Treatment Plant	Leavenworth, WA
Liberty Lake Sewer and Water District x	Liberty Lake, WA
LOTT Clean Water Alliance	Olympia, WA
City of Lynden Wastewater Treatment Plant	Lynden, WA
Midway Sewer District	Des Moines, WA
City of Mount Vernon Wastewater Treatment Plant	Mount Vernon, WA
Mukilteo Water and Wastewater District	Mukilteo, WA
City of Okanogan Wastewater Treatment Plant	Okanogan, WA
City of Pateros Wastewater Treatment Plant x	Pateros, WA
City of Quincy Wastewater Treatment Plant x	Quincy, WA, WA
City of Rock Island Wastewater Treatment Plant x	Rock Island, WA
City of Royal City Wastewater Treatment Plant	Royal City, WA
City of Sedro-Woolley Wastewater Treatment Plant	Sedro-Woolley, WA
City of Soap Lake Wastewater Treatment Plant	Soap Lake, WA
Sedron Services Sumner Washington x	Sumner, WA
Southwest Suburban Sewer District, Miller Creek WWTP	Normandy Park, WA
Southwest Suburban Sewer District, Salmon Creek WWTP	Normandy Park, WA
Stevens Pass Sewer District	Stevens Pass, WA
Tree Top Incorporated	Wenatchee, WA
Town of Twisp Wastewater Treatment Plant	Twisp, WA
City of Warden Wastewater Treatment Plant x	Warden, WA
City of Wenatchee Wastewater Treatment Plant	Wenatchee, WA

x *Indicates no biosolids were delivered to Boulder Park Project in 2022.*

PROJECT OPERATIONS

Project operations occur year-round and in all weather conditions. Trucks haul and deliver biosolids to the project every day and the BPI crews are always available and prepared to assist the truck drivers as needed.

Temporary staging of biosolids occurs in designated areas within a project field allowing accumulation of enough biosolids to complete land application for the scheduled field. The biosolids are staged for short periods of time prior to land application, except in winter months when biosolids can be stored for several months. The stored biosolids are carried over into the next year for application in spring.

Land application operations this year were stopped on November 6th when the area was blanketed in about eight or more inches of snow. Typically land applications continue until Thanksgiving or longer before moving into storage mode, but winter came early in 2022.

IMPORTANCE OF A QUALITY PRODUCT

Treatment facilities, or preparers, are tasked with the responsibility of making a great product for our farmers. The preparers must ensure biosolids delivered to project fields for beneficial use meet all state and federal requirements for land application through analytical testing and reporting as required by Washington Department of Ecology. The biosolids laboratory analyses report is provided to Boulder Park Project to demonstrate biosolids quality and regulatory requirements are met.

The preparers understand that farmers are buying their product to use as a soil amendment to build and improve their soils and achieve crop yield goals. These farmers depend on a quality product. The farmer is the ultimate regulator – if biosolids didn't produce great results – farmers wouldn't want it and there would be no project.

Central Washington University Geography-Soils students make their way across the GP-17 Research Plots assessing differences between various biosolids treatments and commercial fertilizer on a dryland winter wheat crop. May 2022.

THE NUMBERS

In 2022, Boulder Park Project land application operations began on March 30th and ended November 4nd. The table below summarizes the 2022 biosolids deliveries, applications, and storage totals.

2022 Project Biosolids Totals:		
»	Total Wet Tons Delivered	120,220.7
»	Total Wet Tons Applied	112,023.1
»	Total Acres Applied	9,465.9
»	Total Fields Applied	52
»	Winter Storage from 2021 Application (applied in 2022)	20,754.3
»	Winter Storage for 2022 Application (carry-over to 2023)	28,951.90

PROJECT LAND APPLICATION ACTIVITY

In 2022, Boulder Park Project applied 112,023.1 wet tons of biosolids on 9,465.9 acres of farmland for crop production. The farmers grew wheat, canola, sunflowers, triticale, orchard grass, field corn, and various cover crop mixes. Appendix A provides a map of 2022 application sites and Appendix B provides 2022 site application and storage activity information.

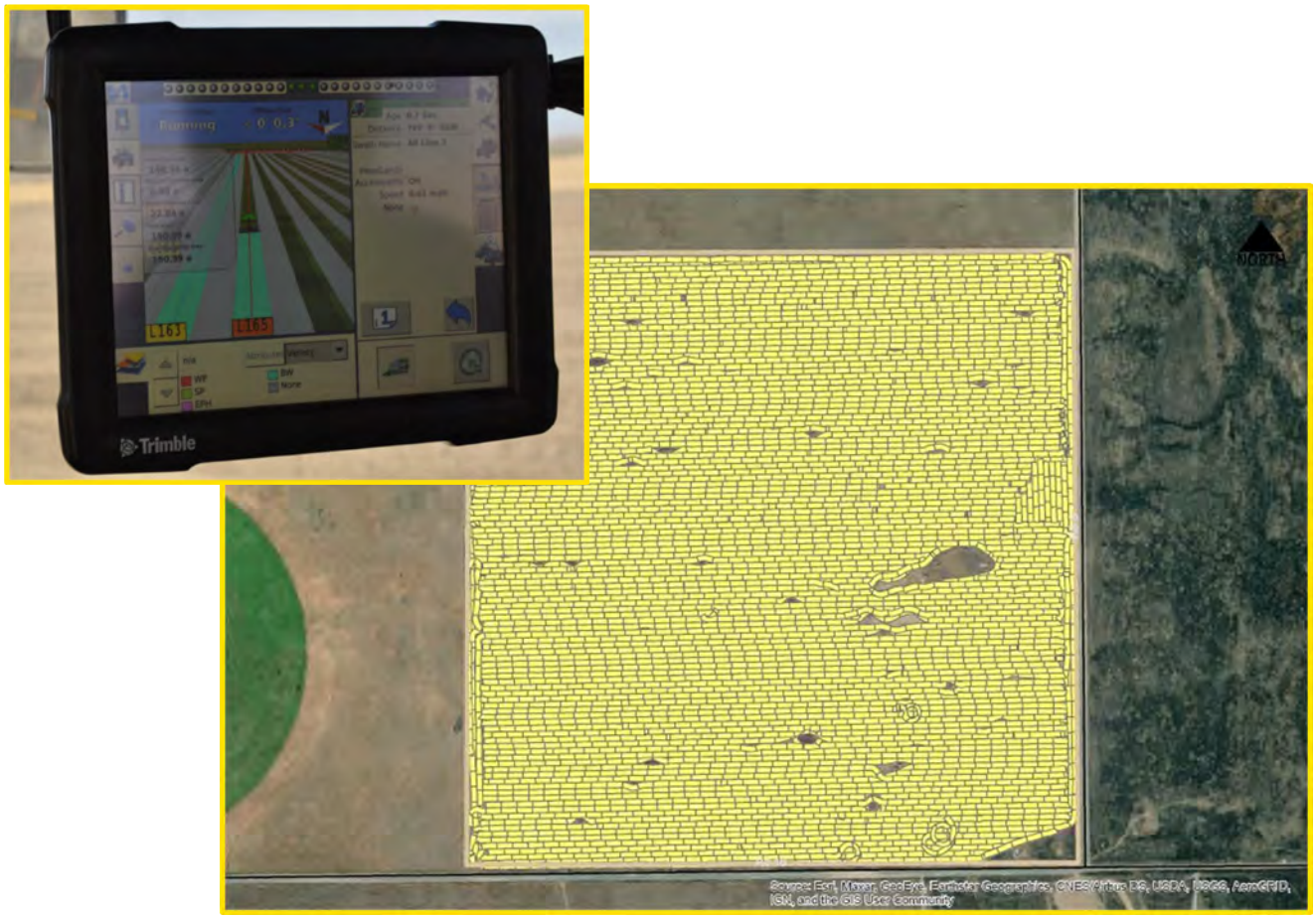
In north Douglas County, farms are primarily dryland, crop-fallow rotation systems. Crop-fallow means one year a field is in crop production and the next year it is in fallow with no crop. The purpose of fallow periods is to build moisture especially since north Douglas County is very dry generally receiving only 7-13 inches of precipitation annually.

Boulder Park Project fields are typically applied with biosolids once every four to six years, or every two to three crop cycles. Unlike commercial fertilizer, biosolids are primarily in an organic form with a smaller portion in mineral forms. This allows for slow release of organic nitrogen as it mineralizes over time at a rate similar to plant uptake.

This means that nitrogen not used by the first crop is likely available for the next crop limiting the potential for leaching and negatively impacting groundwater quality.

Biosolids are applied by BPI personnel using standard farming practices. Large four-wheel drive tractors pull industrial manure spreaders across fields to uniformly apply biosolids at the approved agronomic rate. Equipment is regularly calibrated by BPI personnel to ensure application of biosolids is done as accurately as possible.

Global Positioning Systems (GPS) technology is installed in all five of our four-wheel drive tractors along with automatic steering systems that (1) increases the precision of biosolids applications by decreasing overlap between passes, which means more acreage can be applied with the same amount of biosolids, and (2) improves recordkeeping by accurately documenting the location and acreage applied as shown below.



A Trimble GPS display shows the application path of a tractor applying biosolids (top left); A map created by exporting data captured by GPS and imported to Geographic Information Systems showing the final application of a project site (above).

RESEARCH

There are currently two long term on-farm biosolids demonstration sites at the Boulder Park Project known as GP-17 and JS-14. Research is being done in cooperation with Washington State University (WSU), University of Washington (UW), Boulder Park Project, and local farmers and landowners.

Site GP-17 was initiated in 1994 and has been applied with biosolids every four years since inception. The initial purpose of GP-17 was to determine target biosolids application rates for achieving optimum crop yield while being mindful of good nutrient management practices. In addition to this research, further research at GP-17 includes analyses to increase understanding of the effects of biosolids on soil organic matter cycling and soil fertility at various depths.

Site JS-14 was established in 2020 to investigate potential benefits and interactions of biosolids combined with cover cropping and integrated livestock grazing of cover crops along with analyses of soil health metrics including focus on various biological soil health indicators.

JS-14 Research activities: cattle grazing, May 2021 (above) and WSU researchers perform deep core sampling, April 2022 (left).

Current research work at Boulder Park Project long term on-farm demonstration sites include the following:

- GP-17 [1]: Soil Health Institute (SHI) soil health study initiated in 2019 compared 120 long term research sites across North America to other conventionally managed sites. In this study more than 60 different methods were used as measures of soil health. The analyses have now been completed with five publications using their global dataset as of December 2022 with more publications expected. Major findings of this work at GP-17 have been presented in previous reports and show that biosolids applications at GP-17 have substantially improved physical, chemical, and biological soil properties, particularly at the 3 and 4.5 DT/acre application rates.

- GP-17 [1]: WSU conducted further analyses to increase understanding of the effects of biosolids on soil organic matter cycling and evaluated the impact in the years immediately proceeding an application. Since 2019, soil samples were collected from GP-17 at 3 depths (0-2", 2-6", 6-12") to better understand the stratification and "zone of influence" of the biosolids applications. WSU sampled again in April 2022 and have completed analysis on most soil fertility analyses. Several soil health analyses are still on progress for 2022 samples.

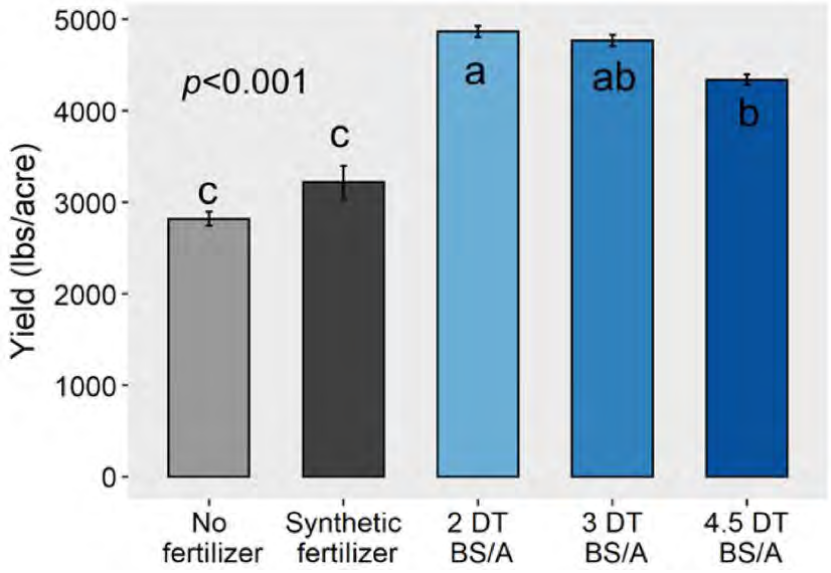
- GP-17 [1],[2]: On August 15, 2022, winter wheat harvest took place. A 30 ft wide strip was harvested from the center of each plot, and the yield in pounds from that section was weighed. A grain sample from each plot was collected for measurement of test weights and grain carbon and nitrogen analysis. At the end of the season, winter wheat grain yields in biosolids-amended plots were all significantly higher than synthetic and unfertilized plots (Figure 2). Compared with synthetic fertilizer, there was a 51%

Field: GP-17, Date: 15Aug22 , WSU-Mount Vernon

	Plot #	Treatment	Total (lbs)	lbs/acre
REP 1	1	AA	1620	3359
	2	3DTBS	2240	4644
	3	4.5DTBS	2070	4292
	4	NOFERT	1340	2778
	5	2DTBS	2300	4769
REP 2	6	4.5DTBS	2150	4458
	7	NOFERT	1430	2965
	8	3DTBS	2330	4831
	9	AA	1660	3442
	10	2DTBS	2340	4852
REP 3	11	4.5DTBS	2060	4271
	12	NOFERT	1310	2716
	13	AA	1380	2861
	14	2DTBS	2400	4976
	15	3DTBS	2330	4831

GP-17 dryland winter wheat harvest results. Note: All biosolids treatments were third crop since last application of biosolids: 8/21/2019 Oats, 11/4/2020 Sunflowers, and 8/15/2022 winter wheat.
AA = synthetic fertilizer; DTBS = dry tons biosolids

increase in grain yield with the 2 dry ton/acre rate, a 48% increase with 3 dry tons/acre, and a 34% increase with 4.5 dry tons/acre.



Graph of yield data (lbs per acre) from winter wheat harvest at GP-17, August 2022. Source: WSU.

- GP-17 [1],[2]: In April 2022, WSU collected deep core soil samples to quantify soil carbon stocks at depth. The team used a truck-mounted hydraulic Giddings probe to collect intact cores as deep as possible. Compacted and cemented soil layers at depth (caused by natural soil formation processes) prevented the team from taking samples below 2 – 2.5 ft. Five cores per plot were collected and were left non-composited to evaluate soil carbon variability within plots. The deep core samples were processed by cutting cores into 6-in segments, calculating a compaction factor when compaction appeared to be greater than ~10%. The 320 resulting samples were weighed for bulk density, with a subsample used to measure gravimetric water content. After airdrying, the samples were sieved, and the gravel content of each sample was measured for mass and volume. The samples will soon be sent to Oregon State University's soil testing lab for analysis of soil carbon, pH, nitrate-N, Olsen P, and texture. Samples will also be analyzed for particulate and mineral-associated organic C.

- GP-17 [4]: UW assessed the application of extended time series of satellite based remote sensing techniques as a tool to identify the impact of biosolid applications in eastern Washington. Spatial resolution limitations of this

preliminary work were found, however, if there are opportunities to apply the methods and analyses to locations that are larger than 90m on a side, this approach appears to be robust. Methods established in this work will be used to evaluate larger areas with biosolid applications that are more appropriate for the spatial resolution of the satellite record in 2023.

- JS-14 [3]: WSU is investigating potential benefits and interactions of biosolids combined with cover cropping and integrated livestock grazing of cover crops. This site received its first biosolids applications on August 4, 2020, was seeded with a cover crop mix on September 21, 2020, and was harvested on August 5, 2021. Results from this work have been presented in previous reports and show cover crops and grazing significantly reduced yield compared to the non-grazed/cover cropped treatment, likely due to the grazing. However, cattle weight gain helps to offset this yield loss. There were no significant differences in yield between biosolids and the commercial fertilizer treatment, but we did find that the unfertilized treatment yields were lower than both the fertilized and biosolids treatments.

  The site was fallowed in 2022, but soil and plant sampling still took place to evaluate the annual effects of the biosolids application that occurred in fall 2020. In early May 2022, soil samples were collected from all plots (0-4", 4-8", 8-12") to be analyzed for soil health metrics. In addition, soil samples from 12-24" were collected in late May. Soil samples were processed in mid-summer 2022 and were sent to analytical labs in fall 2022. Additional soil health analyses are currently being conducted in the WSU NWREC Soil Health Lab.

  Soil measurements in Year 1 and 2 focus on biological soil health indicator tests that are more sensitive to short-term management changes, including microbial biomass through phospholipid fatty acid analysis (PLFA), permanganate-oxidizable C, potentially mineralizable C, and biologically available nitrogen (soil protein, potentially mineralizable N) pools. Soil chemical measurements, including total C, pH, electrical conductivity, extractable nitrate, and Olsen-P were measured in 2021. In subsequent years, physical measurements (e.g., aggregate stability, water holding capacity, bulk density, water infiltration rate)

will also be included as these properties change more slowly in response to management treatments.

Cows were set out on the field (with the ungrazed plots excluded) from May 19 – June 7, 2022. Plant biomass samples were collected from these grazed areas before and after grazing, with volunteer triticale separated from weeds. Soil analysis is still in process for several soil health parameters, but soil fertility analyses show that soil nitrate-N and ammonium-N remain elevated in biosolids-amended plots compared to the unfertilized and synthetic fertilized plots, particularly in the upper 4". Total organic C does not currently show significant differences between treatments, but this is to be expected as total C is slow to change. We are currently analyzing more dynamic soil C pools that will provide indication of the potential for long-term changes in total soil C stocks. Additionally, microbial biomass measurements are being conducted as microbes are primary drivers of soil organic matter cycling and storage.

JS-14 was seeded with a cover crop mix on September 14, 2022 that included winter peas, winter triticale, radish, and turnip. The commercial fertilized treatment plots were fertilized on October 28, 2022. Cows will be turned out to graze in spring 2023. The cover crop will be terminated in late-spring and the site will be planted to spring wheat for harvest in summer 2023.

[1] *King County Annual Report-WSU activities, Annual Report for January-December 2022*. Dr. D. Griffin-LaHue, WSU Mount Vernon; M. Desjardins, WSU Mount Vernon.
[2] *Northwest Biosolids, An Update from the Field: Activities at WSU's Long-Term Biosolids Trials*. November 2022. Dr. D. Griffin-LaHue, WSU Mount Vernon; M. Desjardins, WSU Mount Vernon.
[3] *WSU, Update on JS-14.* December 2021. Dr. D. Griffin-LaHue, WSU Mount Vernon; M. Desjardins, WSU Mount Vernon.
[4] *Value of biosolids for agronomic crops: Dryland Wheat, Summary Report: Application of remote sensing to Douglas County GP17 Experimental Biosolid Amendment Plots*. November 2022. Dr. D. Butman, UW School of Environmental and Forest Sciences.

ENVIRONMENTAL SAMPLING & MONITORING

Each year, the Boulder Park Project conducts lots of soil and water sampling resulting in a significant amount of analytical data. These sampling efforts not only allow the project to satisfy regulatory permit requirements, but also provides information needed to make proactive and better science-based biosolids management decisions, while continuing to demonstrate the project's commitment to environmental stewardship.

In 2022, Boulder Park Project collected 84 soil analyses for nutrients, six soil analyses for background soil metals, and 21 domestic and surface water analyses. The analytical results for these sample analyses can be found in Appendix C of this report.

WSU researchers collect soil samples using core samplers at GP-17 (above). Boulder Park Inc. collects soil samples using a UTV-mounted automated auger sampler (left).

PUBLIC OUTREACH & TOURS

Since the beginning of Boulder Park Project, considerable effort has gone towards providing information to the public, students, local wastewater agencies and organizations, and government officials about the beneficial use of biosolids and project operations. Each year, Boulder Park Project hosts tours to give people the opportunity to experience first-hand and learn about the many benefits of using biosolids in agriculture. Visitors tour and observe operations such as biosolids delivery, storage, and land application. In 2022, there were five tours given with 22 people attending.

To arrange a tour of the Boulder Park Project, please send an email to Jake at jake.finlinson@kingcounty.gov

WE LOVE TOURS – COME AND SEE US!

INFORMATION

Regulatory Information and Permits

Boulder Park Project Beneficial Use Facility is jointly permitted, operated, and managed by BPI and King County. The project was granted Final Coverage under state of Washington Chapter 173-308 WAC, the General Permit for Biosolids Management on January 26, 2023, Permit Number BT0518.

Notice

Project records pertaining to this project are kept by King County Department of Natural Resources and Parks and can be obtained upon request using the contact information provided below. Historical information can be found in the respective annual project reports. Annual reports are submitted to Washington State Department of Ecology and Boulder Park Project participants.

For information, please submit request to:
King County DNRP, WTD
Attention: Resource Recovery-Biosolids
201 S. Jackson Street, MS: KSC-NR-0512
Seattle, WA 98104

References

King County Department of Natural Resources & Parks and Boulder Park Inc. November 2015. Boulder Park Project, Site-Specific Land Application Plan. Including subsequent Addenda.

United States Environmental Protection Agency. 1993. Standards for the Use or Disposal of Sewage Sludge. CFR 40, Part 503. Volume 58 Number 32.

Washington State Department of Ecology. May 2007. Biosolids Management. Chapter 173-308 WAC.

Washington State Department of Ecology. July 2010. General Permit for Biosolids Management. (To meet Chapter 173-308 WAC provisions).

APPENDICES

APPENDIX A

Boulder Park Project Beneficial Use Facility

2022 Biosolids Application Activity Map

APPENDIX A, FIGURE 1

King County

BOULDER PARK BPI INC.

N W E S

0 2 4 8 Miles

Boulder Park Project Site

Poject Site_2022 Applied

Major Road

Public Road

PLSS_Township-Range Line

City Limits

Earthstar Geographics

Boulder Park Project Beneficial Use Facility

2022 Water Sampling Map

APPENDIX A, FIGURE 2

King County

BOULDER PARK BPI INC.

N W E S

0 2 4 8 Miles

APPENDIX B

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 1. 2022 KING COUNTY LAND APPLICATION ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Acres	Wet Tons	Dry Tons[3]
BRIGHTWATER	MB13	T27N-R26E-S14	2021	34.0	409.3	82.7
BRIGHTWATER	JA2	T26N-R27E-S7	2021	27.0	362.1	73.1
BRIGHTWATER	JA5	T26N-R26E-S1	2021	29.7	314.4	63.5
BRIGHTWATER	JP1&JP2LS	T27N-R26E-S22	2021	25.0	316.4	63.9
BRIGHTWATER	LT19	T28N-R24E-S29	2021	21.0	253.4	51.2
BRIGHTWATER	JA4	T28N-R26E-S26	2022	53.0	644.5	134.1
BRIGHTWATER	JP1&JP2LS	T27N-R26E-S22	2022	101.0	1,258.8	261.8
BRIGHTWATER	DT16	T27N-R24E-S7; -S8	2022	36.8	284.0	59.1
BRIGHTWATER	JA6	T28N-R26E-S21	2022	6.0	65.3	13.6
BRIGHTWATER	DT13	T27N-R24E-S24	2022	29.5	352.4	73.3
BRIGHTWATER	JT24 BOT	T28N-R24E-S26;-S27;-S35	2022	14.0	125.7	26.1
BRIGHTWATER	RR2	T29N-R24E-S14	2022	74.0	822.4	171.1
BRIGHTWATER	TD2	T29N-R25E-S30	2022	133.0	1,684.6	350.4
BRIGHTWATER	RR1	T29N-R24E-S14	2022	53.0	542.8	112.9
BRIGHTWATER	DT17	T29N-R25E-S31	2022	39.0	476.5	99.1
BRIGHTWATER	RL1,1B	T27N-R24E-S16	2022	24.0	280.7	58.4
BRIGHTWATER	RL8	T27N-R24E-S21; -S28	2022	35.5	382.7	79.6
BRIGHTWATER	MB18	T27N-R26E-S3	2022	25.7	320.1	66.6
BRIGHTWATER	MB16	T27N-R27E-S18	2022	16.0	225.4	46.9
BRIGHTWATER	MB17	T27N-R27E-S5	2022	23.3	287.9	59.9
BRIGHTWATER	JS10	T27N-R24E-S17	2022	77.0	888.1	184.7
BRIGHTWATER	LT19	T27N-R26E-S16	2022	13.0	159.6	33.2
BRIGHTWATER	RM14	T27N-R26E-S19	2022	10.0	124.8	26.0
BRIGHTWATER	PW2C	T25N-R25E-S2	2022	8.0	120.9	25.1
BRIGHTWATER	PW2	T25N-R25E-S2	2022	55.0	450.0	93.6
BRIGHTWATER	MT4	T27N-R28E-S7	2022	54.0	384.6	80.0
BRIGHTWATER	MT14	T25N-R28E-S9	2022	15.4	188.3	39.2
BRIGHTWATER	MT12	T26N-R28E-S32	2022	24.0	253.9	52.8
BRIGHTWATER	VB1	T23N-R21E-S10, -S11	2022	8.8	93.8	19.5
BRIGHTWATER	RL2	T27N-R24E-S21	2022	25.0	257.0	53.5
BRIGHTWATER	JT16	T27N-R24E-S5; -S8	2022	21.0	251.6	52.3
BRIGHTWATER	JT9	T28N-R24E-S26	2022	29.0	313.5	65.2
BRIGHTWATER	GYP8	T27N-R23E-S25	2022	6.0	64.3	13.4
BRIGHTWATER	DL5	T27N-R25E-S34	2022	45.0	384.1	79.9
BRIGHTWATER	JT2	T28N-R24E-S27	2022	21.0	250.4	52.1
SOUTH PLANT	MB13	T27N-R26E-S14	2021	28.0	313.5	73.3
SOUTH PLANT	JA2	T26N-R27E-S7	2021	64.0	821.5	192.2
SOUTH PLANT	JA5	T26N-R26E-S1	2021	55.0	560.6	131.2
SOUTH PLANT	JA4	T28N-R26E-S26	2021	47.0	520.9	121.9
SOUTH PLANT	JP1&JP2LS	T27N-R26E-S22	2021	40.0	467.3	109.4
SOUTH PLANT	LT19	T28N-R24E-S29	2021	28.0	312.5	73.1
SOUTH PLANT	RT7	T27N-R28E-S26	2022	2.5	31.4	7.4
SOUTH PLANT	JA4	T28N-R26E-S26	2022	98.0	1,131.9	267.1
SOUTH PLANT	JP1&JP2LS	T27N-R26E-S22	2022	78.0	875.2	206.5
SOUTH PLANT	DT16	T27N-R24E-S7; -S8	2022	26.0	188.0	44.4

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 1. 2022 KING COUNTY LAND APPLICATION ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Acres	Wet Tons	Dry Tons[3]
SOUTH PLANT	JA6	T28N-R26E-S21	2022	3.0	31.8	7.5
SOUTH PLANT	DT13	T27N-R24E-S24	2022	31.0	346.0	81.6
SOUTH PLANT	JT24 TOP	T28N-R24E-S26;-S27;-S35	2022	19.0	282.3	66.6
SOUTH PLANT	JT24 BOT	T28N-R24E-S26;-S27;-S35	2022	20.0	157.6	37.2
SOUTH PLANT	RR2	T29N-R24E-S14	2022	70.0	722.6	170.5
SOUTH PLANT	TD2	T29N-R25E-S30	2022	143.0	1,746.1	412.1
SOUTH PLANT	RR1	T29N-R24E-S14	2022	30.0	281.3	66.4
SOUTH PLANT	LT15	T27N-R25E-S20	2022	10.0	125.6	29.6
SOUTH PLANT	DT32	T27N-R25E-S29	2022	33.0	404.8	95.5
SOUTH PLANT	DT17	T29N-R25E-S31	2022	86.0	1,003.9	236.9
SOUTH PLANT	RL1,1B	T27N-R24E-S16	2022	21.5	215.7	50.9
SOUTH PLANT	RL8	T27N-R24E-S21; -S28	2022	97.0	969.9	228.9
SOUTH PLANT	MB18	T27N-R26E-S3	2022	30.0	344.2	81.2
SOUTH PLANT	MB16	T27N-R27E-S18	2022	22.0	281.4	66.4
SOUTH PLANT	MB17	T27N-R27E-S5	2022	19.0	219.6	51.8
SOUTH PLANT	MB15	T27N-R27E-S7	2022	18.0	178.6	42.1
SOUTH PLANT	JS10	T27N-R24E-S17	2022	43.0	468.1	110.5
SOUTH PLANT	LT19	T27N-R26E-S16	2022	28.0	279.0	65.8
SOUTH PLANT	RM14	T27N-R26E-S19	2022	3.0	30.8	7.3
SOUTH PLANT	PW2C	T25N-R25E-S2	2022	39.0	593.2	140.0
SOUTH PLANT	MT4	T27N-R28E-S7	2022	29.0	188.1	44.4
SOUTH PLANT	MT14	T25N-R28E-S9	2022	40.0	471.7	111.3
SOUTH PLANT	MT12	T26N-R28E-S32	2022	45.0	436.4	103.0
SOUTH PLANT	DL5	T27N-R25E-S34	2022	16.0	124.9	29.5
SOUTH PLANT	VB1	T23N-R21E-S10, -S11	2022	163.0	1,940.4	419.1
SOUTH PLANT	JT16	T27N-R24E-S5; -S8	2022	36.0	441.9	95.5
SOUTH PLANT	JT9	T28N-R24E-S26	2022	30.0	374.4	80.9
SOUTH PLANT	JT2	T28N-R24E-S27	2022	48.0	597.3	129.0
WEST POINT	MB13	T27N-R26E-S14	2021	115.0	1,193.3	330.6
WEST POINT	JA2	T26N-R27E-S7	2021	69.0	807.5	223.7
WEST POINT	JA5	T26N-R26E-S1	2021	144.0	1,413.9	391.7
WEST POINT	JA4	T28N-R26E-S26	2021	16.0	180.1	49.9
WEST POINT	JP1&JP2LS	T27N-R26E-S22	2021	92.0	976.6	270.5
WEST POINT	LT19	T28N-R24E-S29	2021	74.0	785.9	217.7
WEST POINT	MB13	T27N-R26E-S14	2022	9.0	94.7	26.1
WEST POINT	RT7	T27N-R28E-S26	2022	12.5	157.0	43.3
WEST POINT	JA4	T28N-R26E-S26	2022	146.0	1,577.4	435.4
WEST POINT	JP1&JP2LS	T27N-R26E-S22	2022	22.0	219.7	60.6
WEST POINT	DT16	T27N-R24E-S7; -S8	2022	77.0	537.7	148.4
WEST POINT	JA6	T28N-R26E-S21	2022	9.0	95.2	26.3
WEST POINT	DT13	T27N-R24E-S24	2022	81.0	885.4	244.4
WEST POINT	JT24 TOP	T28N-R24E-S26;-S27;-S35	2022	31.0	443.8	122.5
WEST POINT	JT24 BOT	T28N-R24E-S26;-S27;-S35	2022	46.0	348.8	96.3
WEST POINT	RR2	T29N-R24E-S14	2022	141.0	1,391.0	383.9
WEST POINT	TD2	T29N-R25E-S30	2022	370.0	4,132.1	1,140.4

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 1. 2022 KING COUNTY LAND APPLICATION ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Acres	Wet Tons	Dry Tons[3]
WEST POINT	RR1	T29N-R24E-S14	2022	62.0	569.6	157.2
WEST POINT	DT31	T27N-R24E-S25, T27N-R25E-S30	2022	7.0	63.3	17.5
WEST POINT	LT15	T27N-R25E-S20	2022	10.5	126.3	34.9
WEST POINT	DT32	T27N-R25E-S29	2022	17.0	189.4	52.3
WEST POINT	DT17	T29N-R25E-S31	2022	161.0	1,821.0	502.6
WEST POINT	RL8	T27N-R24E-S21; -S28	2022	130.0	1,229.4	339.3
WEST POINT	MB18	T27N-R26E-S3	2022	48.0	535.1	147.7
WEST POINT	MB16	T27N-R27E-S18	2022	29.0	378.0	104.3
WEST POINT	MB17	T27N-R27E-S5	2022	80.0	880.9	243.1
WEST POINT	MB15	T27N-R27E-S7	2022	27.0	251.3	69.3
WEST POINT	MB12	T27N-R26E-S12	2022	79.0	907.9	250.6
WEST POINT	JS10	T27N-R24E-S17	2022	80.0	819.6	226.2
WEST POINT	LT19	T27N-R26E-S16	2022	18.0	189.7	52.4
WEST POINT	RM14	T27N-R26E-S19	2022	3.0	31.4	8.7
WEST POINT	PW2A	T25N-R25E-S2	2022	78.0	664.9	183.5
WEST POINT	PW2C	T25N-R25E-S2	2022	38.0	500.0	138.0
WEST POINT	MT4	T27N-R28E-S7	2022	74.0	472.8	130.5
WEST POINT	MT14	T25N-R28E-S9	2022	96.0	1,132.2	312.5
WEST POINT	MT12	T26N-R28E-S32	2022	71.0	660.0	182.2
WEST POINT	VB1	T23N-R21E-S10, -S11	2022	238.0	2,617.7	722.5
WEST POINT	JT16	T27N-R24E-S5; -S8	2022	71.0	785.1	216.7
WEST POINT	JT9	T28N-R24E-S26	2022	85.0	979.6	270.4
WEST POINT	DL5	T27N-R25E-S34	2022	95.0	725.4	200.2
WEST POINT	JT2	T28N-R24E-S27	2022	168.0	1,860.0	513.4
			TOTAL APPLIED:	6,071.7	65,704.7	16,393.3

[1] All biosolids stored and applied seperately.

[2] Biosolids produced in 2021 were placed in winter storage and land applied in 2022.

[3] Dry tons are calculated using the respective annual average for total percent solids.

TABLE 2. 2022 OTHER GENERATORS LAND APPLICATION ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Acres	Wet Tons	Dry Tons[3]
ACE ACME INC.	LT15	T27N-R25E-S20	2022	12.0	381.8	89.7
ACE ACME INC.	LT2	T28N-R24E-S29	2022	17.0	262.4	61.7
ALDERWOOD	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	19.0	53.5	52.4
ALDERWOOD	DT15	T27N-R25E-S17	2021	3.5	10.9	10.7
ALDERWOOD	LT19	T28N-R24E-S29	2021	7.5	20.4	19.9
ALDERWOOD	GYP6	T27N-R24E-S30; -S31; -S19	2021	19.0	44.7	43.7
ALDERWOOD	JA4	T28N-R26E-S26	2022	20.0	57.8	56.6
ALDERWOOD	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2022	3.0	8.0	7.9
ALDERWOOD	JP1&JP2LS	T27N-R26E-S22	2022	26.0	71.3	69.8
ALDERWOOD	JA6	T28N-R26E-S21	2022	31.0	83.1	81.4
ALDERWOOD	DT15	T27N-R25E-S17	2022	29.0	81.6	79.9
ALDERWOOD	RL1,1B	T27N-R24E-S16	2022	11.5	35.1	34.4
ALDERWOOD	RM14	T27N-R26E-S19	2022	34.0	85.7	83.9
ALDERWOOD	RL9	T26N-R24E-S9	2022	16.0	55.4	54.3
ALDERWOOD	RL2	T27N-R24E-S21	2022	7.0	18.9	18.5
ALDERWOOD	DL1	T26N-R25E-S7; -S18	2022	7.0	19.1	18.7
ALDERWOOD	DG1	T28N-R26E-S34	2022	9.5	27.8	27.2
BREWSTER	JA4	T28N-R26E-S26	2021	1.0	21.9	3.5
BREWSTER	GYP6	T27N-R24E-S30; -S31; -S19	2021	2.0	23.7	3.8
BREWSTER	JA4	T28N-R26E-S26	2022	1.0	19.4	3.1
BREWSTER	JP1&JP2LS	T27N-R26E-S22	2022	1.0	20.0	3.2
BREWSTER	JA6	T28N-R26E-S21	2022	1.0	13.7	2.2
BREWSTER	DT15	T27N-R25E-S17	2022	1.0	24.6	4.0
BREWSTER	RM14	T27N-R26E-S19	2022	1.5	23.0	3.7
BREWSTER	RL9	T26N-R24E-S9	2022	1.5	24.5	4.0
BREWSTER	RL2	T27N-R24E-S21	2022	1.0	16.3	2.6
BRIDGEPORT	LT19	T27N-R26E-S16	2021	22.0	245.9	62.0
CASHMERE	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	11.0	225.5	22.8
CASHMERE	GYP6	T27N-R24E-S30; -S31; -S19	2021	5.0	85.2	8.6
CASHMERE	JA4	T28N-R26E-S26	2022	5.0	130.7	12.9
CASHMERE	JP1&JP2LS	T27N-R26E-S22	2022	4.5	106.6	10.6
CASHMERE	JA6	T28N-R26E-S21	2022	5.0	114.3	11.3
CASHMERE	DT15	T27N-R25E-S17	2022	4.5	114.8	11.4
CASHMERE	RL1,1B	T27N-R24E-S16	2022	5.5	118.1	11.7
CASHMERE	RM14	T27N-R26E-S19	2022	7.0	187.1	18.5
CASHMERE	RL9	T26N-R24E-S9	2022	5.0	131.7	13.0
CASHMERE	RL2	T27N-R24E-S21	2022	1.0	27.2	2.7
CASHMERE	GYP8	T27N-R23E-S25	2022	4.0	117.5	11.6
CASHMERE	DL1	T26N-R25E-S7; -S18	2022	2.0	47.3	4.7
CASHMERE	DG1	T28N-R26E-S34	2022	1.0	22.0	2.2
CHELAN	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	2.0	23.0	6.4
CHELAN	GYP6	T27N-R24E-S30; -S31; -S19	2021	1.0	12.0	3.4
CHELAN	JA4	T28N-R26E-S26	2022	1.0	11.0	3.1
CHELAN	JP1&JP2LS	T27N-R26E-S22	2022	2.5	36.0	10.3
CHELAN	JA6	T28N-R26E-S21	2022	1.5	23.0	6.6
CHELAN	DT15	T27N-R25E-S17	2022	4.5	64.0	18.2
CHELAN	RL1,1B	T27N-R24E-S16	2022	3.0	36.0	10.3
CHELAN	RM14	T27N-R26E-S19	2022	1.0	12.0	3.4
CHELAN	RL9	T26N-R24E-S9	2022	3.0	36.0	10.3
CHELAN	RL2	T27N-R24E-S21	2022	4.0	56.0	16.0
CHELAN	DL1	T26N-R25E-S7; -S18	2022	1.0	12.0	3.4
CHELAN	DG1	T28N-R26E-S34	2022	2.0	24.0	6.8

TABLE 2. 2022 OTHER GENERATORS LAND APPLICATION ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Acres	Wet Tons	Dry Tons[3]
CHELAN CO. PUD 1	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	0.5	8.0	1.2
CHELAN CO. PUD 1	GYP6	T27N-R24E-S30; -S31; -S19	2021	0.5	6.2	1.0
CHELAN CO. PUD 1	JP1&JP2LS	T27N-R26E-S22	2022	0.5	7.8	1.2
CHELAN CO. PUD 1	JA6	T28N-R26E-S21	2022	0.3	3.8	0.6
CHELAN CO. PUD 1	DT15	T27N-R25E-S17	2022	0.5	11.6	1.8
CHELAN CO. PUD 1	RL1,1B	T27N-R24E-S16	2022	0.5	9.5	1.5
CHELAN CO. PUD 1	RM14	T27N-R26E-S19	2022	0.5	6.8	1.1
CHELAN CO. PUD 1	RL9	T26N-R24E-S9	2022	0.5	7.0	1.1
COULEE DAM	LT2	T28N-R24E-S29	2022	2.0	33.4	18.8
DOUGLAS COUNTY	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	5.0	76.7	22.2
DOUGLAS COUNTY	GYP6	T27N-R24E-S30; -S31; -S19	2021	4.0	55.4	16.0
DOUGLAS COUNTY	JA4	T28N-R26E-S26	2022	5.0	74.7	21.5
DOUGLAS COUNTY	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2022	1.0	10.6	3.0
DOUGLAS COUNTY	JP1&JP2LS	T27N-R26E-S22	2022	5.0	85.2	24.5
DOUGLAS COUNTY	JA6	T28N-R26E-S21	2022	0.5	8.5	2.4
DOUGLAS COUNTY	DT15	T27N-R25E-S17	2022	10.0	138.0	39.8
DOUGLAS COUNTY	RL1,1B	T27N-R24E-S16	2022	3.2	41.6	12.0
DOUGLAS COUNTY	RM14	T27N-R26E-S19	2022	9.0	127.2	36.6
DOUGLAS COUNTY	RL9	T26N-R24E-S9	2022	3.0	46.0	13.2
DUVALL	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	5.0	86.7	10.7
DUVALL	GYP6	T27N-R24E-S30; -S31; -S19	2021	4.0	56.8	7.0
DUVALL	JA6	T28N-R26E-S21	2022	5.0	81.6	9.7
DUVALL	LT15	T27N-R25E-S20	2022	14.0	318.9	38.0
DUVALL	DT15	T27N-R25E-S17	2022	4.5	87.8	10.4
DUVALL	RL1,1B	T27N-R24E-S16	2022	3.1	53.5	6.4
DUVALL	GYP8	T27N-R23E-S25	2022	1.3	28.4	3.4
DUVALL	LT2	T28N-R24E-S29	2022	4.0	57.4	6.8
ENUMCLAW	LT19	T27N-R26E-S16	2021	36.0	582.9	85.1
ENUMCLAW	LT15	T27N-R25E-S20	2022	36.0	712.5	101.9
ENUMCLAW	RL1,1B	T27N-R24E-S16	2022	8.0	118.3	16.9
ENUMCLAW	LT19	T27N-R26E-S16	2022	11.0	181.3	25.9
ENUMCLAW	LT2	T28N-R24E-S29	2022	63.0	636.1	91.0
EPHRATA	LT19	T27N-R26E-S16	2021	44.0	132.3	115.1
GRAND COULEE	LT19	T27N-R26E-S16	2021	3.5	53.8	15.8
HARSB	LT15	T27N-R25E-S20	2022	31.0	564.3	85.8
HARSB	LT2	T28N-R24E-S29	2022	23.0	231.9	35.2
LAKEHAVEN LAKOTA	JA4	T28N-R26E-S26	2021	2.0	30.1	4.9
LAKEHAVEN LAKOTA	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	48.0	694.8	113.3
LAKEHAVEN LAKOTA	GYP6	T27N-R24E-S30; -S31; -S19	2021	38.0	453.0	73.8
LAKEHAVEN LAKOTA	JA4	T28N-R26E-S26	2022	28.0	483.1	74.4
LAKEHAVEN LAKOTA	JP1&JP2LS	T27N-R26E-S22	2022	35.0	601.2	92.6
LAKEHAVEN LAKOTA	JA6	T28N-R26E-S21	2022	27.0	452.8	69.7
LAKEHAVEN LAKOTA	DT31	T27N-R24E-S25; T27N-R25E-S30	2022	22.0	326.4	50.3
LAKEHAVEN LAKOTA	RL1,1B	T27N-R24E-S16	2022	20.5	300.0	46.2
LAKEHAVEN LAKOTA	TH1	T27N-R26E-S17	2022	34.0	513.0	79.0
LAKEHAVEN LAKOTA	RL9	T26N-R24E-S9	2022	30.0	483.5	74.5
LAKEHAVEN LAKOTA	RL2	T27N-R24E-S21	2022	12.0	181.1	27.9
LAKEHAVEN LAKOTA	GYP8	T27N-R23E-S25	2022	19.0	330.7	50.9
LAKEHAVEN LAKOTA	DL1	T26N-R25E-S7; -S18	2022	18.0	271.5	41.8
LAKEHAVEN LAKOTA	DG1	T28N-R26E-S34	2022	16.0	271.8	41.9
LAKEHAVEN LAKOTA	LT2	T28N-R24E-S29	2022	69.0	693.6	106.8
LAKEHAVEN REDONDO	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	8.0	110.2	23.1

TABLE 2. 2022 OTHER GENERATORS LAND APPLICATION ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Acres	Wet Tons	Dry Tons[3]
LAKEHAVEN REDONDO	GYP6	T27N-R24E-S30; -S31; -S19	2021	7.0	71.6	15.0
LAKEHAVEN REDONDO	JA4	T28N-R26E-S26	2022	7.0	92.9	19.5
LAKEHAVEN REDONDO	JP1&JP2LS	T27N-R26E-S22	2022	8.0	121.0	25.4
LAKEHAVEN REDONDO	JA6	T28N-R26E-S21	2022	11.0	147.2	30.9
LAKEHAVEN REDONDO	DT15	T27N-R25E-S17	2022	10.0	117.9	24.8
LAKEHAVEN REDONDO	RL1,1B	T27N-R24E-S16	2022	4.5	52.9	11.1
LAKEHAVEN REDONDO	RM14	T27N-R26E-S19	2022	9.0	113.7	23.9
LAKEHAVEN REDONDO	RL9	T26N-R24E-S9	2022	6.0	71.9	15.1
LAKEHAVEN REDONDO	RL2	T27N-R24E-S21	2022	1.5	18.0	3.8
LAKEHAVEN REDONDO	GYP8	T27N-R23E-S25	2022	4.0	65.0	13.6
LAKEHAVEN REDONDO	DL1	T26N-R25E-S7; -S18	2022	3.0	36.1	7.6
LAKEHAVEN REDONDO	DG1	T28N-R26E-S34	2022	2.5	34.5	7.2
LEAVENWORTH	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	5.0	81.3	11.2
LEAVENWORTH	GYP6	T27N-R24E-S30; -S31; -S19	2021	4.0	49.4	6.8
LEAVENWORTH	JA4	T28N-R26E-S26	2022	3.5	63.5	9.3
LEAVENWORTH	JA6	T28N-R26E-S21	2022	4.3	82.0	12.0
LEAVENWORTH	DT15	T27N-R25E-S17	2022	4.5	73.4	10.8
LEAVENWORTH	RL1,1B	T27N-R24E-S16	2022	6.0	84.0	12.3
LEAVENWORTH	LT19	T27N-R26E-S16	2022	1.5	21.4	3.1
LEAVENWORTH	RM14	T27N-R26E-S19	2022	4.0	62.4	9.2
LEAVENWORTH	RL9	T26N-R24E-S9	2022	3.0	40.8	6.0
LEAVENWORTH	RL2	T27N-R24E-S21	2022	2.5	39.4	5.8
LEAVENWORTH	GYP8	T27N-R23E-S25	2022	1.0	19.2	2.8
LEAVENWORTH	DL1	T26N-R25E-S7; -S18	2022	2.0	30.1	4.4
LEAVENWORTH	DG1	T28N-R26E-S34	2022	1.0	20.6	3.0
LIBERTY LAKE	LT19	T27N-R26E-S16	2021	4.0	90.5	12.5
LOTT	JA4	T28N-R26E-S26	2021	2.0	32.7	6.6
LOTT	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	71.0	1014.8	204.0
LOTT	GYP6	T27N-R24E-S30; -S31; -S19	2021	51.0	556.0	111.7
LOTT	JA4	T28N-R26E-S26	2022	50.0	650.7	130.8
LOTT	JP1&JP2LS	T27N-R26E-S22	2022	66.0	936.3	188.2
LOTT	JA6	T28N-R26E-S21	2022	45.0	600.3	120.7
LOTT	DT31	T27N-R24E-S25; T27N-R25E-S30	2022	45.0	576.0	115.8
LOTT	RL1,1B	T27N-R24E-S16	2022	41.5	505.2	101.5
LOTT	TH1	T27N-R26E-S17	2022	73.0	883.8	177.7
LOTT	RM14	T27N-R26E-S19	2022	5.0	63.5	12.8
LOTT	RL9	T26N-R24E-S9	2022	56.0	774.7	155.7
LOTT	RL2	T27N-R24E-S21	2022	23.0	266.7	53.6
LOTT	GYP8	T27N-R23E-S25	2022	29.0	426.5	85.7
LOTT	DL1	T26N-R25E-S7; -S18	2022	30.0	370.3	74.4
LOTT	DG1	T28N-R26E-S34	2022	20.0	280.5	56.4
LOTT	LT2	T28N-R24E-S29	2022	125.0	1012.9	203.6
LYNDEN	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	17.0	286.6	36.4
LYNDEN	LT19	T27N-R26E-S16	2021	4.0	83.7	10.6
LYNDEN	JA4	T28N-R26E-S26	2022	12.0	224.4	29.6
LYNDEN	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2022	1.5	28.1	3.7
LYNDEN	JP1&JP2LS	T27N-R26E-S22	2022	17.0	279.2	36.9
LYNDEN	JA6	T28N-R26E-S21	2022	7.0	112.1	14.8
LYNDEN	DT15	T27N-R25E-S17	2022	16.0	281.7	37.2
LYNDEN	RL1,1B	T27N-R24E-S16	2022	5.0	84.7	11.2
LYNDEN	RM14	T27N-R26E-S19	2022	12.0	224.6	29.6
LYNDEN	RL9	T26N-R24E-S9	2022	13.0	254.6	33.6

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 2. 2022 OTHER GENERATORS LAND APPLICATION ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Acres	Wet Tons	Dry Tons[3]
LYNDEN	GYP8	T27N-R23E-S25	2022	7.5	141.0	18.6
LYNDEN	DL1	T26N-R25E-S7; -S18	2022	4.5	84.5	11.2
LYNDEN	DG1	T28N-R26E-S34	2022	4.0	85.0	11.2
LYNDEN	LT2	T28N-R24E-S29	2022	3.0	28.5	3.8
MIDWAY	JA4	T28N-R26E-S26	2021	1.0	23.9	4.1
MIDWAY	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	14.0	221.9	38.4
MIDWAY	GYP6	T27N-R24E-S30; -S31; -S19	2021	11.0	137.0	23.7
MIDWAY	JA4	T28N-R26E-S26	2022	7.0	110.9	19.3
MIDWAY	JP1&JP2LS	T27N-R26E-S22	2022	14.0	242.0	42.1
MIDWAY	JA6	T28N-R26E-S21	2022	17.0	306.3	53.3
MIDWAY	DT15	T27N-R25E-S17	2022	18.0	299.2	52.1
MIDWAY	RL1,1B	T27N-R24E-S16	2022	9.5	146.5	25.5
MIDWAY	RM14	T27N-R26E-S19	2022	14.0	277.6	48.3
MIDWAY	RL9	T26N-R24E-S9	2022	10.0	156.7	27.3
MIDWAY	RL2	T27N-R24E-S21	2022	4.5	84.0	14.6
MIDWAY	GYP8	T27N-R23E-S25	2022	9.5	164.5	28.6
MIDWAY	DL1	T26N-R25E-S7; -S18	2022	7.0	112.8	19.6
MIDWAY	DG1	T28N-R26E-S34	2022	4.0	85.9	14.9
MOUNT VERNON	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	20.0	270.5	53.6
MOUNT VERNON	GYP6	T27N-R24E-S30; -S31; -S19	2021	18.5	185.0	36.6
MOUNT VERNON	JA4	T28N-R26E-S26	2022	12.0	183.4	34.5
MOUNT VERNON	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2022	2.0	30.9	5.8
MOUNT VERNON	JP1&JP2LS	T27N-R26E-S22	2022	21.0	303.8	57.1
MOUNT VERNON	JA6	T28N-R26E-S21	2022	18.0	273.6	51.4
MOUNT VERNON	DT15	T27N-R25E-S17	2022	19.0	272.1	51.2
MOUNT VERNON	RL1,1B	T27N-R24E-S16	2022	13.5	177.2	33.3
MOUNT VERNON	RM14	T27N-R26E-S19	2022	21.0	305.4	57.4
MOUNT VERNON	RL9	T26N-R24E-S9	2022	17.0	246.1	46.3
MOUNT VERNON	RL2	T27N-R24E-S21	2022	4.0	60.0	11.3
MOUNT VERNON	GYP8	T27N-R23E-S25	2022	7.0	118.9	22.3
MOUNT VERNON	DL1	T26N-R25E-S7; -S18	2022	6.0	90.6	17.0
MOUNT VERNON	DG1	T28N-R26E-S34	2022	6.0	90.1	16.9
MUKILTEO	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	11.0	250.7	31.1
MUKILTEO	GYP6	T27N-R24E-S30; -S31; -S19	2021	7.0	130.4	16.2
MUKILTEO	LT15	T27N-R25E-S20	2022	27.0	704.6	89.5
MUKILTEO	DT15	T27N-R25E-S17	2022	5.0	116.2	14.8
MUKILTEO	RL1,1B	T27N-R24E-S16	2022	6.0	114.4	14.5
MUKILTEO	GYP8	T27N-R23E-S25	2022	3.5	85.4	10.8
MUKILTEO	LT2	T28N-R24E-S29	2022	28.0	396.9	50.4
OKANOGAN	LT19	T27N-R26E-S16	2021	15.0	36.8	33.7
PIERCE COUNTY	JA4	T28N-R26E-S26	2021	2.0	30.7	5.4
PIERCE COUNTY	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	129.0	1755.8	309.0
PIERCE COUNTY	LT19	T27N-R26E-S16	2021	7.0	92.7	16.3
PIERCE COUNTY	GYP6	T27N-R24E-S30; -S31; -S19	2021	88.0	967.7	170.3
PIERCE COUNTY	JA4	T28N-R26E-S26	2022	43.0	618.7	115.1
PIERCE COUNTY	JA6	T28N-R26E-S21	2022	63.0	850.1	158.1
PIERCE COUNTY	RL2	T27N-R24E-S21	2022	18.0	246.0	45.8
PIERCE COUNTY	GYP8	T27N-R23E-S25	2022	41.0	569.4	105.9
PIERCE COUNTY	DL1	T26N-R25E-S7; -S18	2022	38.0	501.7	93.3
PIERCE COUNTY	DG1	T28N-R26E-S34	2022	30.0	441.8	82.2
SEDRO-WOOLLEY	LT19	T27N-R26E-S16	2021	15.0	337.6	38.1
SEDRO-WOOLLEY	LT15	T27N-R25E-S20	2022	20.5	567.0	64.6

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 2. 2022 OTHER GENERATORS LAND APPLICATION ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Acres	Wet Tons	Dry Tons[3]
SEDRO-WOOLLEY	RL1,1B	T27N-R24E-S16	2022	3.0	63.2	7.2
SEDRO-WOOLLEY	LT19	T27N-R26E-S16	2022	6.0	142.7	16.3
SEDRO-WOOLLEY	LT2	T28N-R24E-S29	2022	27.0	401.7	45.8
SW SUBURBAN MILLER CREEK	JA4	T28N-R26E-S26	2021	2.0	27.9	5.9
SW SUBURBAN MILLER CREEK	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	13.0	171.8	36.3
SW SUBURBAN MILLER CREEK	GYP6	T27N-R24E-S30; -S31; -S19	2021	7.0	85.6	18.1
SW SUBURBAN MILLER CREEK	JA4	T28N-R26E-S26	2022	6.0	83.1	18.8
SW SUBURBAN MILLER CREEK	JP1&JP2LS	T27N-R26E-S22	2022	10.0	143.1	32.3
SW SUBURBAN MILLER CREEK	JA6	T28N-R26E-S21	2022	14.0	175.0	39.5
SW SUBURBAN MILLER CREEK	DT15	T27N-R25E-S17	2022	14.0	172.8	39.1
SW SUBURBAN MILLER CREEK	RL1,1B	T27N-R24E-S16	2022	5.5	57.4	13.0
SW SUBURBAN MILLER CREEK	RM14	T27N-R26E-S19	2022	11.0	142.9	32.3
SW SUBURBAN MILLER CREEK	RL9	T26N-R24E-S9	2022	10.0	112.8	25.5
SW SUBURBAN MILLER CREEK	RL2	T27N-R24E-S21	2022	4.5	57.2	12.9
SW SUBURBAN MILLER CREEK	GYP8	T27N-R23E-S25	2022	8.5	114.6	25.9
SW SUBURBAN MILLER CREEK	DL1	T26N-R25E-S7; -S18	2022	7.0	84.9	19.2
SW SUBURBAN MILLER CREEK	DG1	T28N-R26E-S34	2022	2.0	28.5	6.5
SW SUBURBAN SALMON CREEK	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	11.0	141.1	30.3
SW SUBURBAN SALMON CREEK	GYP6	T27N-R24E-S30; -S31; -S19	2021	11.0	113.5	24.4
SW SUBURBAN SALMON CREEK	JA4	T28N-R26E-S26	2022	6.0	81.4	17.9
SW SUBURBAN SALMON CREEK	JP1&JP2LS	T27N-R26E-S22	2022	9.0	140.8	31.0
SW SUBURBAN SALMON CREEK	JA6	T28N-R26E-S21	2022	15.0	199.6	43.9
SW SUBURBAN SALMON CREEK	DT15	T27N-R25E-S17	2022	12.0	141.3	31.1
SW SUBURBAN SALMON CREEK	RL1,1B	T27N-R24E-S16	2022	2.5	28.3	6.2
SW SUBURBAN SALMON CREEK	RM14	T27N-R26E-S19	2022	9.0	113.8	25.0
SW SUBURBAN SALMON CREEK	RL9	T26N-R24E-S9	2022	7.0	85.5	18.8
SW SUBURBAN SALMON CREEK	RL2	T27N-R24E-S21	2022	4.0	57.2	12.6
SW SUBURBAN SALMON CREEK	GYP8	T27N-R23E-S25	2022	3.5	55.2	12.1
SW SUBURBAN SALMON CREEK	DL1	T26N-R25E-S7; -S18	2022	4.0	57.1	12.6
SW SUBURBAN SALMON CREEK	DG1	T28N-R26E-S34	2022	2.0	28.3	6.2
STEVENS PASS	GYP8	T27N-R23E-S25	2022	0.3	8.5	0.9
TREE TOP INC.	JT17	T27N-R25E-S33; T26N-R25E-S4; -S8; -S9	2021	3.0	128.1	9.6
TREE TOP INC.	GYP6	T27N-R24E-S30; -S31; -S19	2021	4.0	128.2	9.6
TREE TOP INC.	JA4	T28N-R26E-S26	2022	6.5	249.8	18.7
TREE TOP INC.	JP1&JP2LS	T27N-R26E-S22	2022	1.5	50.0	3.8
TREE TOP INC.	RL1,1B	T27N-R24E-S16	2022	5.5	202.9	15.2
TWISP	JA6	T28N-R26E-S21	2022	0.5	7.3	1.3
TWISP	LT15	T27N-R25E-S20	2022	1.2	20.6	3.6
TWISP	DT15	T27N-R25E-S17	2022	1.0	19.5	3.4
TWISP	RL1,1B	T27N-R24E-S16	2022	0.2	5.1	0.9
TWISP	RL2	T27N-R24E-S21	2022	1.0	18.5	3.2
TWISP	DL1	T26N-R25E-S7; -S18	2022	0.5	6.1	1.1
WARDEN	LT19	T27N-R26E-S16	2021	14.0	128.0	115.3
WENATCHEE	DT31	T27N-R24E-S25; T27N-R25E-S30	2022	44.0	934.1	122.4
			TOTAL APPLIED:	3,394.2	46,318.4	8,740.8

[1] All biosolids stored and applied seperately.

[2] Biosolids produced in 2021 were placed in winter storage and land applied in 2022.

[3] Dry tons are calculated using the respective annual average for total percent solids.

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 3. 2022 KING COUNTY STORAGE ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Wet Tons	Dry Tons[3]
BRIGHTWATER	DL4	T27N-R25E-S27	2022	278.9	58.0
BRIGHTWATER	RM15	T27N-R26E-S9	2022	308.1	64.1
BRIGHTWATER	JT18	T26N-R25E-S4; -S8; -S9	2022	320.9	66.7
BRIGHTWATER	JT6	T28N-R24E-S27	2022	93.7	19.5
SOUTH PLANT	DL4	T27N-R25E-S27	2022	1,206.5	260.6
SOUTH PLANT	GYP4	T26N-R24E-S8	2022	965.5	208.5
SOUTH PLANT	GC7B	T27N-R24E-S11; -S12	2022	653.5	141.2
SOUTH PLANT	GYP2	T26N-R24E-S18; -S7	2022	374.1	80.8
SOUTH PLANT	RL7	T26N-R24E-S3	2022	30.3	6.5
SOUTH PLANT	RM15	T27N-R26E-S9	2022	1,133.4	244.8
SOUTH PLANT	JT18	T26N-R25E-S4; -S8; -S9	2022	2,641.0	570.4
SOUTH PLANT	JT6	T28N-R24E-S27	2022	1,025.1	221.4
SOUTH PLANT	RMG7	T27N-R24E-S13	2022	343.0	74.1
WEST POINT	DL4	T27N-R25E-S27	2022	1,026.5	283.3
WEST POINT	GYP4	T26N-R24E-S8	2022	882.0	243.4
WEST POINT	GC7B	T27N-R24E-S11; -S12	2022	912.4	251.8
WEST POINT	GYP2	T26N-R24E-S18; -S7	2022	846.9	233.7
WEST POINT	RM15	T27N-R26E-S9	2022	1,509.2	416.5
WEST POINT	JT18	T26N-R25E-S4; -S8; -S9	2022	1,022.3	282.1
WEST POINT	JT6	T28N-R24E-S27	2022	1,385.7	382.4
WEST POINT	RMG7	T27N-R24E-S13	2022	532.7	147.0
				17,491.6	4,257.1

[1] All biosolids stored and applied seperately.

[2] Biosolids produced in 2022 were placed in winter storage and will be land applied in 2023.

[3] Dry tons are calculated using the respective annual average for total percent solids.

TABLE 4. 2022 OTHER GENERATORS STORAGE ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Wet Tons	Dry Tons[3]
ACE ACME INC.	RM15	T27N-R26E-S9	2022	29.6	7.0
ACE ACME INC.	JT18	T26N-R25E-S4; -S8; -S9	2022	35.0	8.2
ACE ACME INC.	RL2	T27N-R24E-S21	2022	130.0	30.6
ACE ACME INC.	GYP8	T27N-R23E-S25	2022	66.3	15.6
ALDERWOOD	GYP2	T26N-R24E-S18; -S7	2022	37.0	36.2
ALDERWOOD	RM15	T27N-R26E-S9	2022	24.1	23.6
ALDERWOOD	JT18	T26N-R25E-S4; -S8; -S9	2022	65.7	64.3
ALDERWOOD	JT19	T26N-R24E-S14	2022	36.9	36.1
ALDERWOOD	GYP8	T27N-R23E-S25	2022	35.5	34.7
BREWSTER	JT18	T26N-R25E-S4; -S8; -S9	2022	33.4	5.4
BREWSTER	JT19	T26N-R24E-S14	2022	23.1	3.7
BRIDGEPORT	RL2	T27N-R24E-S21	2022	141.0	33.6
CASHMERE	GYP2	T26N-R24E-S18; -S7	2022	56.3	5.6
CASHMERE	JT18	T26N-R25E-S4; -S8; -S9	2022	160.1	15.8
CASHMERE	JT19	T26N-R24E-S14	2022	63.2	6.3
CHELAN	GYP2	T26N-R24E-S18; -S7	2022	10.0	2.9
CHELAN	JT18	T26N-R25E-S4; -S8; -S9	2022	12.0	3.4
CHELAN	RL2	T27N-R24E-S21	2022	70.0	20.0
CHELAN CO. PUD 1	GYP2	T26N-R24E-S18; -S7	2022	4.0	0.6
CHELAN CO. PUD 1	JT18	T26N-R25E-S4; -S8; -S9	2022	3.5	0.6
CHELAN CO. PUD 1	GYP8	T27N-R23E-S25	2022	4.0	0.6
COULEE DAM	JT19	T26N-R24E-S14	2022	18.4	10.3
DOUGLAS COUNTY	RM15	T27N-R26E-S9	2022	12.2	3.5
DOUGLAS COUNTY	JT18	T26N-R25E-S4; -S8; -S9	2022	75.1	21.6
DOUGLAS COUNTY	RL2	T27N-R24E-S21	2022	24.6	7.1
DUVALL	GYP2	T26N-R24E-S18; -S7	2022	85.9	10.2
DUVALL	JT18	T26N-R25E-S4; -S8; -S9	2022	140.2	16.7
DUVALL	JT19	T26N-R24E-S14	2022	61.5	7.3
ENUMCLAW	RM15	T27N-R26E-S9	2022	59.7	8.5
ENUMCLAW	JT18	T26N-R25E-S4; -S8; -S9	2022	121.7	17.4
ENUMCLAW	JT19	T26N-R24E-S14	2022	120.4	17.2
ENUMCLAW	RL2	T27N-R24E-S21	2022	176.9	25.3
ENUMCLAW	GYP8	T27N-R23E-S25	2022	90.6	13.0
EPHRATA	GYP2	T26N-R24E-S18; -S7	2022	147.4	126.6
GRAND COULEE	JT18	T26N-R25E-S4; -S8; -S9	2022	57.0	18.1
LAKEHAVEN LAKOTA	GYP2	T26N-R24E-S18; -S7	2022	271.9	41.9
LAKEHAVEN LAKOTA	RM15	T27N-R26E-S9	2022	151.1	23.3
LAKEHAVEN LAKOTA	JT18	T26N-R25E-S4; -S8; -S9	2022	541.6	83.4
LAKEHAVEN LAKOTA	JT19	T26N-R24E-S14	2022	302.0	46.5
LAKEHAVEN REDONDO	GYP2	T26N-R24E-S18; -S7	2022	62.1	13.0
LAKEHAVEN REDONDO	RM15	T27N-R26E-S9	2022	46.5	9.8
LAKEHAVEN REDONDO	JT18	T26N-R25E-S4; -S8; -S9	2022	116.6	24.5
LAKEHAVEN REDONDO	JT19	T26N-R24E-S14	2022	48.3	10.1
LEAVENWORTH	RL2	T27N-R24E-S21	2022	30.0	4.4

TABLE 4. 2022 OTHER GENERATORS STORAGE ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Wet Tons	Dry Tons[3]
LEAVENWORTH	GYP2	T26N-R24E-S18; -S7	2022	29.2	4.3
LEAVENWORTH	RM15	T27N-R26E-S9	2022	20.6	3.0
LEAVENWORTH	JT18	T26N-R25E-S4; -S8; -S9	2022	42.4	6.2
LEAVENWORTH	JT19	T26N-R24E-S14	2022	28.7	4.2
LOTT	GYP2	T26N-R24E-S18; -S7	2022	608.8	122.4
LOTT	RM15	T27N-R26E-S9	2022	271.6	54.6
LOTT	JT18	T26N-R25E-S4; -S8; -S9	2022	768.5	154.5
LOTT	JT19	T26N-R24E-S14	2022	440.8	88.6
LYNDEN	GYP2	T26N-R24E-S18; -S7	2022	55.5	7.3
LYNDEN	RM15	T27N-R26E-S9	2022	54.5	7.2
LYNDEN	JT18	T26N-R25E-S4; -S8; -S9	2022	247.3	32.6
LYNDEN	JT19	T26N-R24E-S14	2022	113.1	14.9
LYNDEN	RL2	T27N-R24E-S21	2022	140.6	18.6
MIDWAY	GYP2	T26N-R24E-S18; -S7	2022	136.8	23.8
MIDWAY	RM15	T27N-R26E-S9	2022	54.5	9.5
MIDWAY	JT18	T26N-R25E-S4; -S8; -S9	2022	216.9	37.7
MIDWAY	JT19	T26N-R24E-S14	2022	109.9	19.1
MUKILTEO	GYP2	T26N-R24E-S18; -S7	2022	81.8	10.4
MUKILTEO	RM15	T27N-R26E-S9	2022	73.2	9.3
MUKILTEO	JT18	T26N-R25E-S4; -S8; -S9	2022	113.7	14.4
MUKILTEO	JT19	T26N-R24E-S14	2022	83.3	10.6
MUKILTEO	RL2	T27N-R24E-S21	2022	53.5	6.8
MOUNT VERNON	GYP2	T26N-R24E-S18; -S7	2022	150.4	28.3
MOUNT VERNON	RM15	T27N-R26E-S9	2022	28.9	5.4
MOUNT VERNON	JT18	T26N-R25E-S4; -S8; -S9	2022	206.9	38.9
MOUNT VERNON	JT19	T26N-R24E-S14	2022	152.7	28.7
OKANOGAN	RL2	T27N-R24E-S21	2022	29.8	27.2
PIERCE COUNTY	GYP2	T26N-R24E-S18; -S7	2022	628.0	116.8
PIERCE COUNTY	JT18	T26N-R25E-S4; -S8; -S9	2022	721.4	134.2
PIERCE COUNTY	JT19	T26N-R24E-S14	2022	632.5	117.6
ROYAL CITY	RL2	T27N-R24E-S21	2022	37.5	32.7
SEDRO-WOOLLEY	JT18	T26N-R25E-S4; -S8; -S9	2022	146.9	16.7
SEDRO-WOOLLEY	JT19	T26N-R24E-S14	2022	81.5	9.3
SEDRO-WOOLLEY	RL2	T27N-R24E-S21	2022	171.9	19.6
SEDRO-WOOLLEY	GYP8	T27N-R23E-S25	2022	83.6	9.5
SOAP LAKE	RL2	T27N-R24E-S21	2022	46.3	41.4
SW SUBURBAN MILLER CREEK	GYP2	T26N-R24E-S18; -S7	2022	82.6	18.7
SW SUBURBAN MILLER CREEK	RM15	T27N-R26E-S9	2022	56.8	12.8
SW SUBURBAN MILLER CREEK	JT18	T26N-R25E-S4; -S8; -S9	2022	114.6	25.9
SW SUBURBAN MILLER CREEK	JT19	T26N-R24E-S14	2022	28.9	6.5
SW SUBURBAN SALMON CREEK	GYP2	T26N-R24E-S18; -S7	2022	57.0	12.5
SW SUBURBAN SALMON CREEK	RM15	T27N-R26E-S9	2022	23.5	5.2
SW SUBURBAN SALMON CREEK	JT18	T26N-R25E-S4; -S8; -S9	2022	170.8	37.6
SW SUBURBAN SALMON CREEK	JT19	T26N-R24E-S14	2022	56.9	12.5

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 4. 2022 OTHER GENERATORS STORAGE ACTIVITY

Source[1]	Site	T-R-S Description	Year[2]	Wet Tons	Dry Tons[3]
TREE TOP INC.	GYP2	T26N-R24E-S18; -S7	2022	126.3	9.5
TREE TOP INC.	JT18	T26N-R25E-S4; -S8; -S9	2022	67.5	5.1
TWISP	JT18	T26N-R25E-S4; -S8; -S9	2022	10.4	1.8
			TOTAL STORAGE:	11,460.4	2,349.0

[1] All biosolids stored and applied seperately.

[2] Biosolids produced in 2022 were placed in winter storage and will be land applied in 2023.

[3] Dry tons are calculated using the respective annual average for total percent solids.

APPENDIX C

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 5. 2022 SOIL DATA

Site ID	Sample Type[1]	Date	Lab Sample ID	NO3-N mg/kg 0"-12"	NH4-N mg/kg 0"-12"	Exch. P mg/kg 0"-12"	Sulfate-S mg/kg 0"-12"	Potassium mg/km 0"-12"	pH 0"-12"	% Organic Matter 0"-12"	Moisture in/acre ft 0"-12"
PW 2A	reapp	3/24/2022	S22-03781	9.7	4.6	12	8	278	5.8	1.6	1.8
PW 2	reapp	3/24/2022	S22-03783	10.7	4.2	22	6	289	7.5	3.0	1.6
PW 2A	reapp	3/24/2022	S22-03785	3.9	5.9	27	4	294	7.4	1.7	1.7
MT 4	reapp	3/24/2022	S22-03787	7.2	3.7	27	4	498	7.7	2.8	1.6
RT 7	reapp	3/30/2022	S22-04566	2.8	3.2	17	3	618	7.3	1.3	1.6
RL 1	reapp	4/4/2022	S22-05121	5.5	4.3	23	6	425	7.4	1.7	1.7
JA 4	reapp	4/4/2022	S22-05123	1.9	2.6	16	2	368	6.4	1.5	1.6
JA 6	reapp	4/4/2022	S22-05125	2.4	2.5	11	3	333	6.8	1.0	1.5
RL 9	reapp	4/4/2022	S22-05127	4.9	3.7	32	4	410	6.0	1.6	1.6
DT 31	Pre	4/21/2022	S22-06798	4.6	2.6	14	2	390	6.1	1.7	1.2
RM 14	reapp	4/21/2022	S22-06800	3.9	4.0	15	76	359	7.6	0.9	1.6
TH 1	reapp	4/21/2022	S22-06802	4.3	3.6	24	5	405	6.8	1.5	1.5
MB 23	reapp	4/21/2022	S22-06804	10.0	16.2	20	11	354	6.1	1.7	1.2
MB 24	reapp	4/21/2022	S22-06806	6.1	7.0	16	11	465	6.6	1.6	1.3
MT 12	reapp	4/27/2022	S22-07153	6.2	4.4	13	2	602	6.2	1.9	1.8
MT 14	reapp	4/27/2022	S22-07155	3.7	2.5	22	2	569	5.8	1.4	1.2
DT 15	reapp	4/27/2022	S22-07157	1.3	2.3	13	2	227	6.3	1.1	0.9
DT 13	reapp	4/27/2022	S22-07159	2.9	2.3	14	3	272	7.0	1.1	1.1
DT 19	reapp	4/27/2022	S22-07161	5.5	7.4	16	3	353	6.5	1.1	1.1
DT 32	Pre	4/27/2022	S22-07163	3.2	2.7	8	3	405	6.5	1.1	1.3
DT 16	reapp	4/27/2022	S22-07165	8.8	3.6	24	2	390	5.6	1.8	1.5
DL 1	reapp	4/27/2022	S22-07167	3.1	2.9	30	6	471	6.9	1.4	1.2
DT 28	reapp	4/27/2022	S22-07169	4.5	3.3	13	2	542	7.0	1.3	1.5
DL 5	reapp	5/4/2022	S22-07421	8.7	4.0	26	10	412	6.3	1.2	1.3
DG 1	reapp	5/4/2022	S22-07423	3.4	1.2	36	1	392	6.6	1.3	1.2
LT 9	reapp	5/4/2022	S22-07425	17.2	8.8	51	3	402	5.5	2.3	1.7
LT 8	reapp	5/4/2022	S22-07427	8.2	3.1	37	1	379	5.6	1.7	1.6
LT 7	reapp	5/4/2022	S22-07429	8.5	3.3	29	1	480	5.9	1.7	1.5
LT 2	reapp	5/4/2022	S22-07431	9.9	5.9	54	3	397	5.9	1.0	1.5
LT 18	reapp	5/11/2022	S22-07920	10.8	3.6	23	3	366	6.1	2.1	1.6
LT 18	reapp	5/11/2022	S22-07922	19.4	3.7	16	6	402	6.1	1.7	1.5
MB 16	reapp	5/13/2022	S22-08065	3.3	3.7	12	4	493	6.3	1.0	1.1
LT 20	reapp	5/13/2022	S22-08067	2.1	2.2	19	2	494	7.3	0.9	1.0
LT 14	reapp	5/13/2022	S22-08069	1.9	1.8	21	2	410	5.9	1.2	1.3
LT 21	reapp	5/13/2022	S22-08071	1.9	2.0	22	3	344	5.9	1.2	1.1
LT 11&12	reapp	5/13/2022	S22-08073	32.3	3.4	44	21	611	6.9	1.8	1.8
LT 10	reapp	5/13/2022	S22-08075	8.9	3.5	40	6	404	5.5	1.7	1.5
TD 2	reapp	5/23/2022	S22-08936	2.0	1.4	17	3	367	6.2	1.4	1.4
RR 1	reapp	5/23/2022	S22-08938	10.8	0.7	12	3	513	7.9	1.2	1.6
RR 2	reapp	5/23/2022	S22-08940	5.6	1.4	23	3	418	6.2	2.1	1.8
LT 2	reapp	5/24/2022	S22-09208			52					
LT 10	reapp	5/24/2022	S22-09209			52					
JT 24	Pre	5/26/2022	S22-09591	6.7	2.8	10	6	413	6.5	0.6	1.1
JT 24	Pre	5/26/2022	S22-09593	11.6	5.3	16	5	360	7.4	0.6	1.0
JT 23	Pre	5/26/2022	S22-09595	7.8	4.5	9	15	549	7.7	0.5	1.1
RP 18	Pre	6/10/2022	S22-10664	7.3	1.2	11	58	330	6.2	0.8	1.3
JL 1	reapp	6/10/2022	S22-10666	14.8	5.3	22	10	549	5.8	1.4	1.3
LT 13	reapp	7/18/2022	S22-12617	6.6	2.3	29	11	332	6.0	1.3	0.6
JT 9	reapp	9/14/2022	S22-20228	5.8	1.0	10	10	307	6.5	0.8	0.2

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 5. 2022 SOIL DATA

Site ID	Sample Type[1]	Date	Lab Sample ID	NO3-N mg/kg 0"-12"	NH4-N mg/kg 0"-12"	Exch. P mg/kg 0"-12"	Sulfate-S mg/kg 0"-12"	Potassium mg/km 0"-12"	pH 0"-12"	% Organic Matter 0"-12"	Moisture in/acre ft 0"-12"
JT 2	reapp	9/14/2022	S22-20228	5.8	1.0	10	10	307	6.5	0.8	0.2
JT 16	reapp	9/14/2022	S22-20230	1.2	1.1	22	11	449	7.0	1.2	0.3
VB 1	reapp	9/20/2022	S22-21264	0.4	0.8	14	1	318	6.3	1.0	0.5
VB 10	Pre	9/20/2022	S22-21266	0.4	0.8	10	88	443	6.4	1.1	0.5
RL 2	reapp	9/20/2022	S22-21268	0.9	0.5	18	6	337	7.1	0.7	0.4
RL 3	reapp	9/20/2022	S22-21270	1.3	0.2	31	7	384	6.3	0.8	0.5
RL 4	reapp	9/20/2022	S22-21272	2.4	2.2	31	1	353	6.0	0.8	0.4
GYP 8	reapp	9/20/2022	S22-21274	1.0	0.2	15	11	225	7.1	0.9	0.4
PW 2	reapp	9/22/2022	S22-21584	8.3	1.0	35	29	298	7.5	1.5	1.3
PW 3	reapp	9/22/2022	S22-21586	2.6	0.2	15	18	390	6.4	0.7	0.1
JT 3	reapp	9/28/2022	S22-22555	4.8	2.2	12	5	303	6.1	1.2	0.3
JT 6	reapp	9/28/2022	S22-22557	2.1	0.8	14	3	498	6.6	1.0	0.3
JT 19	reapp	10/19/2022	S22-25037	3.6	2.1	19	8	406	7.7	1.0	0.2
RMG 7	reapp	10/19/2022	S22-25041	3.8	1.6	17	14	332	7.7	1.0	0.3
RMG 2	reapp	10/19/2022	S22-25043	1.3	1.6	14	7	354	7.4	1.0	0.3
JT 18	reapp	10/19/2022	S22-25045	6.9	1.1	10	8	433	8.0	0.9	0.3
JT 14	reapp	10/19/2022	S22-25047	1.3	2.9	18	4	400	6.5	1.5	0.3
GYP 2	reapp	10/19/2022	S22-25049	5.9	2.7	15	5	311	7.2	1.2	0.4
GYP 4	reapp	10/19/2022	S22-25051	2.1	1.6	11	5	241	7.5	1.2	0.3
JT 15	reapp	11/1/2022	S22-26308	2.6	1.3	31	12	369	6.6	1.8	0.2
HT 4	TT	11/1/2022	S22-26310	2.8	1.1	7	10	487	7.1	1.1	0.2
HT 4	TT	11/1/2022	S22-26312	13.3	1.9	15	9	558	6.8	1.3	0.2
HT 4	TT	11/1/2022	S22-26314	16.8	9.1	19	8	442	6.2	1.3	0.2
DM 27	reapp	11/1/2022	S22-26316	1.3	1.4	13	9	247	6.8	1.0	0.1
RL 7	reapp	11/1/2022	S22-26318	2.6	3.2	37	12	421	6.3	1.5	0.2
			COUNT	72	72	74	72	72	72	72	72
			MAX	32.3	16.2	54	88	618	8.0	3.0	1.8
			MIN	0.4	0.2	7	1	225	5.5	0.5	0.1
			AVG	5.9	3.0	21	9	399	6.6	1.3	1.0
			90th Percentile	10.8	5.3	37	14	539	7.5	1.8	1.6

[1] Sample Type: "PRE" means sample was collected prior to biosolids application to establish background conditions; "reapp" means that the site been applied with biosolids previously; and, "P-retest" means that a second sample was collected and analyzed for phosphorous.

"--" means no data.

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 6. 2022 SOIL METALS DATA

Sample Name (Site ID)	Sample Type[1]	Date	Lab Sample ID	As mg/kg	Cd mg/kg	Cr mg/kg	Cu mg/kg	Hg mg/kg	Mo mg/kg	Ni mg/kg	Pb mg/kg	Se mg/kg	Zn mg/kg
DT 32	Pre	4/27/2022	S22-07163	9.7	<0.42	5.1	9.2	<0.004	0.3	7.0	2.21	<1.40	32.0
JT 24 TOP	Pre	5/26/2022	S22-09591	2.9	<0.42	4.8	10.0	<0.004	0.1	6.3	3.0	2.4	37.0
JT 24 BOTTOM	Pre	5/26/2022	S22-09593	2.2	<0.42	5.1	12.6	0.008	0.1	6.4	2.4	<1.40	45.0
JT 23	Pre	5/26/2022	S22-09595	8.2	<0.42	6.1	8.6	<0.004	0.4	6.9	2.7	<1.40	33.0
RP 18	Pre	6/10/2022	S22-10664	4.6	<0.42	16.3	17.3	0.011	0.2	11.8	4.67	3	35.0
VB 10	Pre	9/20/2022	S22-21266	<0.78	0.5	18.7	17.4	0.013	<0.05	14.1	5.96	<1.40	40.0
			COUNT	5	1	6	6	3	5	6	6	2	6
			COUNT <RDL	1	5	0	0	3	1	0	0	4	0
			MAX	9.7	<RDL	18.7	17.4	0.013	0.4	14.1	6.0	3	45.0
			MIN	2.2	<RDL	4.8	8.6	0.008	0.1	6.3	2.2	2.4	32.0
			AVG	5.5	<RDL	9.4	12.5	0.011	0.2	8.8	3.5	0	37.0
			90th Percentile	9.1	<RDL	17.5	17.4	0.013	0.4	13.0	5.3	0	42.5

[1] Sample Type: "PRE" means sample was collected prior to biosolids application to establish background conditions; "reapp" means the site was previously applied with biosolids.

"<RDL" means less than analytical laboratory reporting detection limits. The RDL is defined as the minimum concentration of a chemical constituent that can be reliably quantified.

BOULDER PARK PROJECT BENEFICIAL USE FACILITY

TABLE 7. GROUNDWATER SURFACE WATER DATA

BACTERIOLOGICAL AND NUTRIENT DATA

ID#	WRIA	Date	Lab Sample ID	Fecal Coliform CFU/100 ml	NH_3-N mg/L	NO_3+NO_2 mg/L	Cl mg/L	TDS mg/L
165	44	10/12/2022	WCJ0387-01	ND		11.4	11.7	386
166	44	10/12/2022	WCJ0387-02	ND		5.25	9.3	258
30	44	10/12/2022	WCJ0387-03	ND		4.02		264
153	44	10/12/2022	WCJ0387-04	ND		2.54	15.9	278
71	50	10/12/2022	WCJ0387-05	ND		13.4		358
102	50	10/17/2022	WCJ0459-01	ND		13.9		340
65	50	10/17/2022	WCJ0459-02	ND		8.83		378
22	50	10/17/2022	WCJ0459-03	ND		9.38		430
82	50	10/17/2022	WCJ0459-04	ND		16.9		430
6	50	10/17/2022	WCJ0459-05	ND		6.08		274
8	50	10/17/2022	WCJ0459-06	ND		0.212	4.88	196
11	50	10/17/2022	WCJ0459-07	91	ND	ND		
101	50	10/17/2022	WCJ0459-08	ND		5.46		428
144	50	10/17/2022	WCJ0459-09	ND		9.03		250
62	50	10/18/2022	WCJ0468-01	ND		9.69	13.3	320
5	50	10/18/2022	WCJ0468-02	1		4.5	4.39	264
4	50	10/18/2022	WCJ0468-03	ND		10.6		274
75	44	10/18/2022	WCJ0468-04	ND		0.83		204
76	44	10/18/2022	WCJ0468-05	38	ND	0.684		
72	44	10/18/2022	WCJ0468-06	ND		2.25		448
163	50	10/26/2022	WCJ0675-01	ND		1.68	7.05	222
Water Quality Criteria (MCL):				NC	10	10	250	500

METALS DATA

ID#	WRIA	Date	Lab Sample ID	As mg/L	Cd mg/L	Cr mg/L	Cu mg/L	Hg mg/L	Mo mg/L	Ni mg/L	Pb mg/L	Se mg/L	Zn mg/L
165	44	10/12/2022	WCJ0387-01	0.00165	ND	0.001	0.001	ND	ND	ND	ND	0.002	0.06
166	44	10/12/2022	WCJ0387-02	0.00140	ND	0.001	0.002	ND	ND	ND	ND	0.002	0.53
153	44	10/12/2022	WCJ0387-04	0.00161	ND	0.001	0.002	ND	ND	ND	0.003	0.003	0.18
8	50	10/17/2022	WCJ0459-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.05
62	50	10/18/2022	WCJ0468-01	0.00164	ND	0.002	ND	ND	0.001	ND	ND	0.001	0.03
5	50	10/18/2022	WCJ0468-02	0.00100	ND	0.001	ND	ND	ND	ND	ND	0.001	0.05
163	50	10/26/2022	WCJ0675-01	ND	ND	ND	0.002	0.0003	0.002	ND	ND	0.002	0.01
Water Quality Criteria (MCL):				0.00005	0.01	0.05	1.0	0.002	NC	NC	0.05	0.01	5.0

"ND" means analyte not detected at or above the reporting limit

"NC" means No Criteria established by the WA State Board of Health per the Water Quality Standards, Chapter 246-290-310 WAC.