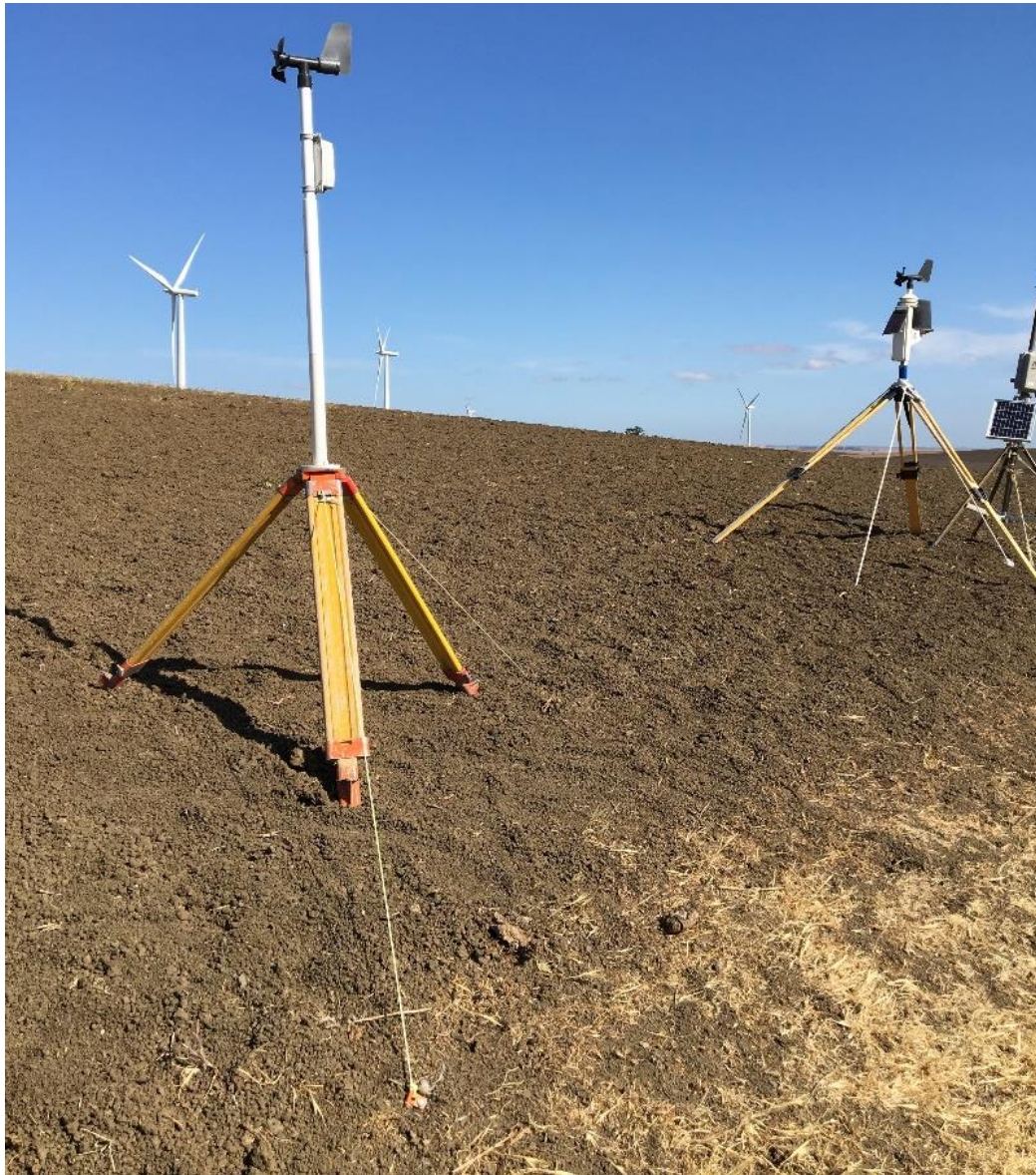


SOLANO COUNTY

2021 ANNUAL BIOSOLIDS LAND APPLICATION REPORT



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Presented to the Board of Supervisors: March 22, 2022

2021 Annual Biosolids Land Application Report

Executive Summary

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- Exhibit II: Registered Biosolids Land Application Sites in Solano County**
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Attachments

- A: Bay Area Clean Water Agencies Report**
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2021 Annual Biosolids Land Application Report

EXECUTIVE SUMMARY

The Solano County Department of Resource Management provides this annual summary report for the 2021 biosolids land application season (April 16 through October 14, 2021), as required by Chapter 25 of the Solano County Code.

Work performed by Solano County staff related to the land application of biosolids included: conducting stakeholder meetings, performing field inspections, sampling of biosolids material for pollutant (heavy metal) analysis, tracking volumes of land applied material, and responding to inquiries and concerns from the public. Staff reviewed notifications and required reporting information prior to and during the land application work.

The 2021 Bay Area Clean Water Agency (BACWA) Report summarizing the biosolids generators' operations for the year is also included.

Recommendations:

The Department of Resource Management recommends the Board of Supervisors accept the 2021 Annual Biosolids Land Application Report. Solano County Code (SCC) Chapter 25 continues to be protective of the public health and the environment by regulating land application of class A and class B biosolids.

The Department is currently evaluating the level of oversight that should be applied for new companies that take biosolids material and perform additional processes on the material to either extract energy or use the biosolids feedstock as part of a fertilizer soil amendment. Since all of the odor complaints received were related to the landspreading of Lystegro, the Department anticipates returning with recommendations on amendments to Chapter 25 to address potential nuisances if voluntary management practices implemented by the applicator, Lystek, are not successful in preventing odor nuisances. The Department is also continuing to monitor whether additional changes may also be necessary as California moves forward in implementing organic diversion and reduction regulations (SB 1383) as part of its Short-Lived Climate Pollutant Reduction Strategy, as promulgated by CalRecycle.

Acres, Tonnages, and Sources:

During the 2021 biosolids land application season, 2,070 acres of pasture and rangelands in Solano County received 10,010 calculated dry tons of Class B biosolids as a soil amendment. Land application commenced on April 16, 2021 and concluded on October 14, 2021.

Exhibit II provides a map and chart which illustrate the location and timeline of biosolids land application to registered fields in 2021.

Exhibit III summarizes historical tonnages and land-applied acreage from 2002 through 2021.

Exhibit IV illustrates the percentage of biosolids supplied by the 13 regional generators that contributed biosolids material for the 2021 season.

Prior to bulk application of biosolids compost, Chapter 25 requires the applicators to notify the Environmental Health Division. During the 2021 season, no notices of bulk application of biosolid compost were received by the Environmental Health Division.

Staffing:

During the 2021 biosolids land application season, staff conducted 21 field inspections at the land application sites and collected nine samples for lab analysis. Staff spent 213 hours overseeing the biosolids program which included: reviewing applications, performing inspections, reviewing

reports, responding to public comments, requests for information, preparing and facilitating the biosolids stakeholder meetings, reviewing current industry trends, and preparing this annual biosolids summary report.

Monitoring and Reporting:

Prior to approving the receipt of biosolids from a generator source, biosolids samples must be analyzed for pollutant concentrations and compared to the US EPA Part 503 acceptance criteria.

Through the 2021 land application season Solano County staff collected nine field samples of the biosolids material for pollutant analysis. All sample data received prior to and during the 2021 season were within the Class B pollutant thresholds for land application. Summary of the sample results, description of the cumulative pollutant loading and available plant nitrogen uptake on each registered field that received biosolids in 2021 is presented in Exhibit V.

During field application, weather station data from the applicator is reviewed by staff. Precipitation is also monitored by visual inspection and through daily weather reports. Based on the data reviewed, wind speed did not exceed 25 mph for a period of 60 minutes during any land spreading activity.

Protests and Complaint Investigations:

Solano County Code Chapter 25 allows County residents adjacent to fields proposed for biosolids land application to submit a protest and bring forward concerns about land application in proximity to their properties. No protests were filed prior to the 2021 biosolids land application season.

Four complaints were received during the land application season regarding odors. Two of the complaints were determined by the investigating inspectors to stem from Lystek fertilizer applications. Two additional complaints were received from the Yolo-Solano Air Quality Management District (YS-AQMD), and these were also similarly attributed to Lystek operations. One additional odor complaint was received during December when no land application of biosolids was occurring and the odors were determined to come from a Lystek land application operation. Once notified, Lystek has stated it will investigate odor complaints within 24 hours – one of the above-mentioned complaints resulted in a pause in Lystek operations.

No received odor complaint was attributed to the Synagro land application operations within the 2021 season.

Staff are still working with Lystek to generate a set of Best Management Practices (BMP) that will reduce the generation of offsite odors and odor complaints.

Exhibit VI provides additional details of the complaints and the number of complaints received in previous years.

Biosolids Stakeholder Group Meetings:

The Biosolids Stakeholder Group met on February 17, 2022. Due to Covid-19 precautions, the meeting was held virtually. A summary of the meeting discussion is presented in Exhibit VIII.

Solano County Research Study:

County staff are still studying ideas for a research project. Potential collaboration with one of the institutions selected as a US EPA grantee, with inclusion and characterization of biosolids material applied within Solano County, has been proposed. Staff are also examining the possibility of a biosolids odor migration study project.

Regulatory and Industry Update:

Exhibit X provides a summary of SB 1383, which requires the diversion of organic waste from landfills. Methane emissions are reduced by decreasing the volume of organic waste, a category

which includes biosolids, disposed of in landfills – with targets of a 50 percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2020, and a 75-percent reduction in the level of the statewide disposal of organic waste from the 2014 level by 2025.

Also provided is a short summary of recent changes the US EPA is implementing to its biosolids program, which includes efforts directed at identifying and characterizing potentially new pollutants in biosolids.

Short descriptions and updates are also provided for additional companies operating within the biosolids management industry in Solano County.

Bay Area Clean Water Agencies Report:

Generators that provide biosolids for land application in Solano County are required to present a summary of material supplied and an update on each agency's efforts toward developing alternative energy sources and uses of biosolids. The Bay Area Clean Water Agency Report (BACWA) for 2021 is included in Attachment B.

The 2021 Biosolids Trends Survey Report from BACWA is also included as Attachment C.

Exhibit I: A Brief Overview of Solano County's Biosolids Program

Biosolids are the solid fraction of sewage sludge that undergoes treatment to reduce pathogens and reduce vector-attraction factors. The pathogen reduction and vector-attraction reduction methods must meet specific regulatory standards to beneficially reuse the biosolids as a soil amendment. Biosolids are regulated by various federal, state, and county agencies, each providing requirements and oversight for the generation, sampling, management, and land application of biosolids.

Under the federal regulations¹ 40 CFR Part 503, the U.S. Environmental Protection Agency (US EPA) regulates biosolids generation and establishes ceiling and lifetime pollutant accumulation concentrations in soils receiving biosolids, as well as pathogen and vector-attraction reduction standards for the biosolids material. These regulations also specify the sampling frequency and methodology and provide methods for calculating plant available nitrogen application (PAN) and lifetime pollutant loading and reporting requirements.

The California State Water Resources Control Board (SWRCB) regulates the land application of biosolids under Water Quality Order No. 2004-0012-DWQ². Additional restrictions are in place that address land application in sensitive habitats, including the Suisun Marsh. State regulations also specify time restrictions between biosolids land application and various crop harvest activities, minimum setback distances between staging and land application sites, and sensitive receptors including water bodies, water wells, and public roads and establishes a field registration process.

Solano County began overseeing the land application of biosolids in 1995 and currently regulates the land application of biosolids through Solano County Code Chapter 25.³ Chapter 25 builds upon both federal and State requirements through a County-specific inspection and oversight program. Chapter 25 restricts when and where biosolids may be applied to minimize offsite impacts by allowing applications only during the dry season (April 15th through October 15th), and prohibiting the land application of biosolids during wet weather and during high wind events. The County's program also encourages public participation through notifications and the holding of stakeholder meetings and establishes a funding mechanism to perform research on the composition and effects of land applied biosolids.

During the 2021 application season, the only permitted land applicator of biosolids was Synagro West LLC. Synagro has applied biosolids within Solano County since 2000 when they purchased Pima Gro and Bio Gro and assumed operations of their registered biosolids land application sites in Solano County. Synagro only applies biosolids to fields which have been approved and registered with the SWRCB. Exhibit II presents more information about current field registrations and registered fields that received biosolids in the 2021 land application season.

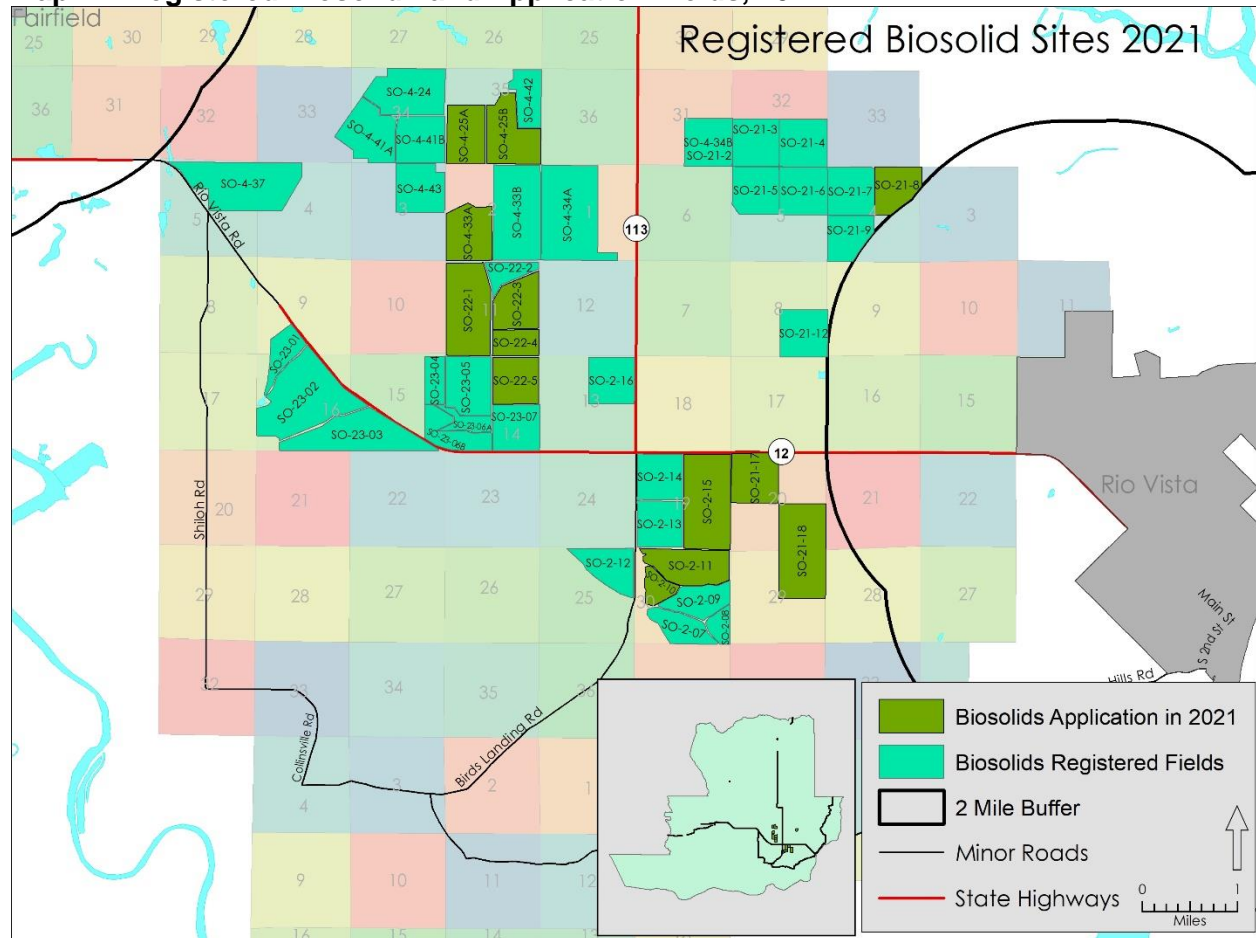
¹ 40 CFR Part 503: *Standards for the Use or Disposal of Sewage Sludge*

² State Water Resources Control Board (SWRCB) Water Quality Order No. 2004-0012-DWQ: *General Waste Discharge Requirements For The Discharge Of Biosolids To Land For Use As A Soil Amendment In Agricultural, Silvicultural, Horticultural, And Land Reclamation Activities*

³ Solano County Code Chapter 25, Article IV: *Domestic Septage Land Application and Biosolids Land Application*

EXHIBIT II – Registered Biosolids Land Application Sites in Solano County

Map 1 – Registered Biosolid Land Application Fields, 2021

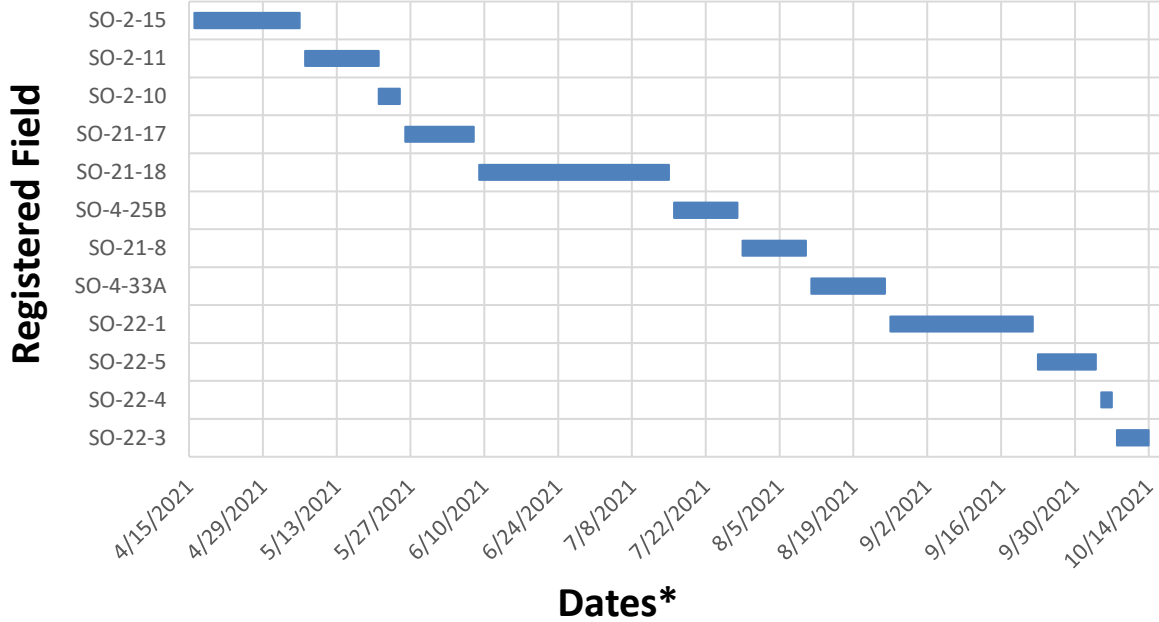


Ranch Name and ID	Corresponding Registered Fields	Total Net Acreage
Hamilton Farms (SO-2)	SO-2-7, -8, -9, -10, -11, -12, -13, -14, -15, -16	1,213
Emigh Ltd Ranch (SO-4)	SO-4-24, -25A+B, -33A+B, -34A+B, -37, -41A+B, -42, -43	1,951.19
McCormack Ranch (SO-21)	SO-21-2, -3, -4, -5, -6, -7, -8, -9, -12, -17, -18	1,439
Emigh Souza Ranch (SO-22)	SO-22-1, -2, -3, -4, -5	685
Mayhood Ranch (SO-23)	SO-23-1, -2, -3, -4, -5, -6A+B, -7	949.6
Total Net Acres Registered for Biosolids Applications		6,237.79

The above map illustrates the 6,237.79 net acres of biosolids registered fields in Solano County for the 2021 season. Property line, water well, creek, residence, and other setbacks reduce the gross acreage to the net acreage values presented. The required 2-mile setback distance from City limits is also shown. Not all registered fields are land applied in any one year.

Fields which received biosolids land application in 2021 are in a darker green, fields which are registered, but that did not receive land application this year, are in a lighter aqua color.

2021 Timeline of Biosolid Field Application



Dates*

**The chart has been simplified to present continuous dates of biosolids land application, however, land application is not permitted during weekends, County holidays, or during precipitation events, per Solano County Code Ch. 25.*

Registered Fields that received biosolids application in 2021 include: SO-2-10, -11, -15, SO-4-25A, -25B, -33A, SO-21-8, -17, -18, and SO-22-1, -3, -4, and -5.

The timeline of applied field locations is presented in the above chart. As noted in the chart, the dates are presented in a continuous fashion to allow for easier presentation of the dates, however biosolids land application is not permitted during weekends, County holidays, or during precipitation events, per Solano County Code Ch. 25.

The applicator is required to provide a 24-hour advanced notification when changing fields.

As previously noted, the 2021 season began on 4/16/2021 and ended on 10/14/2021.

EXHIBIT III – Tonnages and Acreages of Land Application, 2021

In 2021, a total of 2,070 acres of farmland received 10,010 calculated dry tons of Class B biosolids as soil amendments.

Compared to the 2020 season there were increases in tonnages and applied acres:

- +43% (3,006.5 tons) increase in tonnages when compared to 2020.
- +52% (712.3 acres) increase in applied acres when compared to 2020

The last five years of land application averaged 7,793 calculated dry tons per year.

The below graph illustrates the historical and current annual tonnages of biosolids land applied from 2002-2021. The most biosolids applied in a single year was in 2002 (18,697 dry tons) compared to 4,965 dry tons received in 2013 when the least amount of material was land applied.

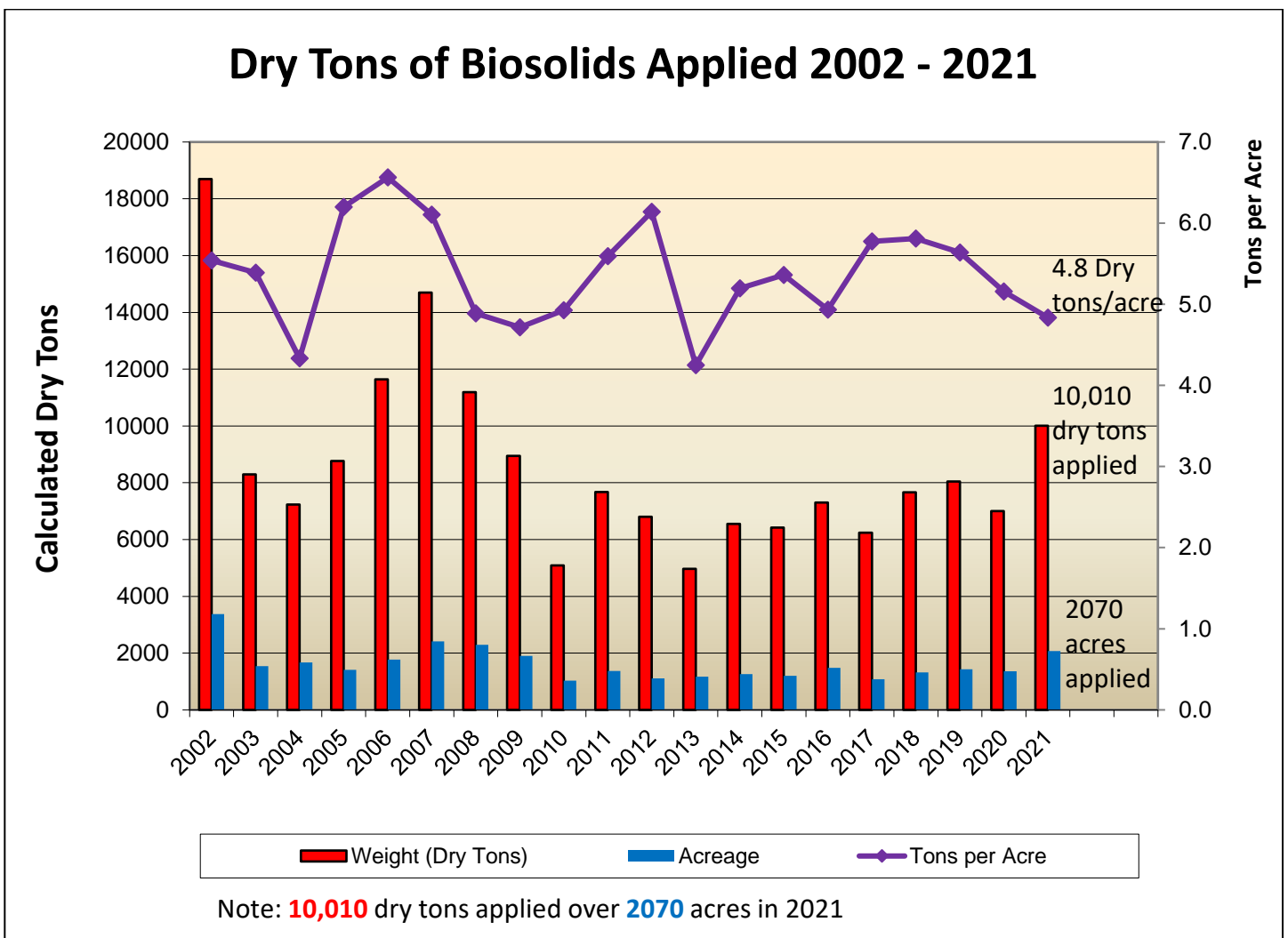


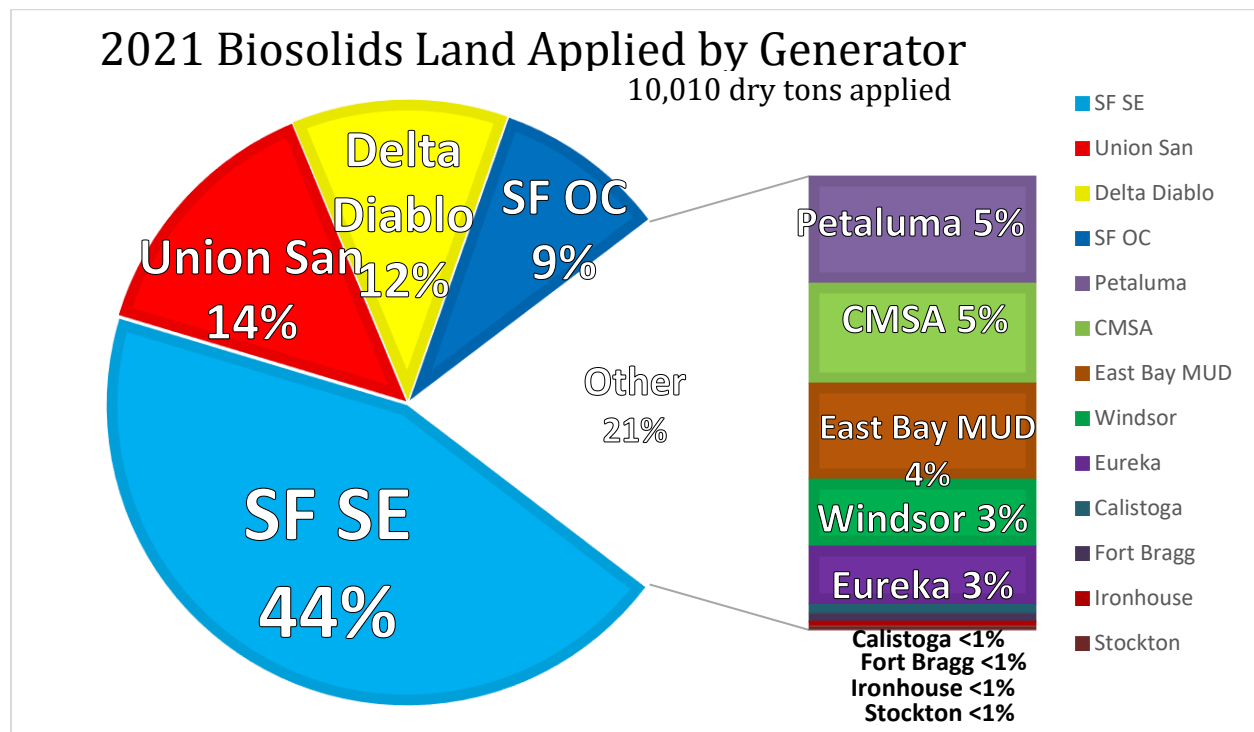
EXHIBIT IV – Generators and Percent of Biosolids Land Applied in 2021

In 2021, 13 generators provided 10,010 calculated dry tons of biosolids for land application in Solano County.

The generators that provided biosolids for land application in 2021 included:

City of Calistoga, Central Marin Sanitation District, Delta Diablo, East Bay Municipal Utility District, City of Eureka, Fort Bragg Municipal District #1, Ironhouse Sanitary District, San Francisco Public Utilities Commission (two generators; Southeast Water Pollution Control Plant and Oceanside Water Pollution Control Plant), City of Petaluma, Union Sanitary District, Windsor, and the City of Stockton RWCF.

The two San Francisco Public Utilities Districts (San Francisco Oceanside and San Francisco Southeast) together accounted for approximately 53% (5,362 calculated dry tons) of the total biosolids received during the 2021 season. The below graph illustrates the percentage of biosolids provided by each generator.



Notes:

SF SE = San Francisco Southside
 SF OC = San Francisco Oceanside Treatment Works
 CMSA = Central Marin Sanitation District

EXHIBIT V – Pollutant Analyses, Cumulative Pollutant Loading, and Nitrogen Loading

The United States Environmental Protection Agency (US EPA) published Title 40 of the Code of Federal Regulations (CFR) Part 503 in 1993. Part 503 provides a regulatory framework for the land application of biosolids, including concentration limits of nine heavy metals (“pollutants”). Solano County Code Chapter 25 adopted by reference Title 40 CFR, Part 503 as part of its biosolids regulations.

As specified under Part 503, prior to biosolids land application, the biosolids generator must provide documentation of Notice and Necessary Information (NANI) that demonstrates the Class B biosolid materials proposed for land application meet standards for pollutant concentrations, class and method of pathogen reduction, and method of vector attraction reduction.

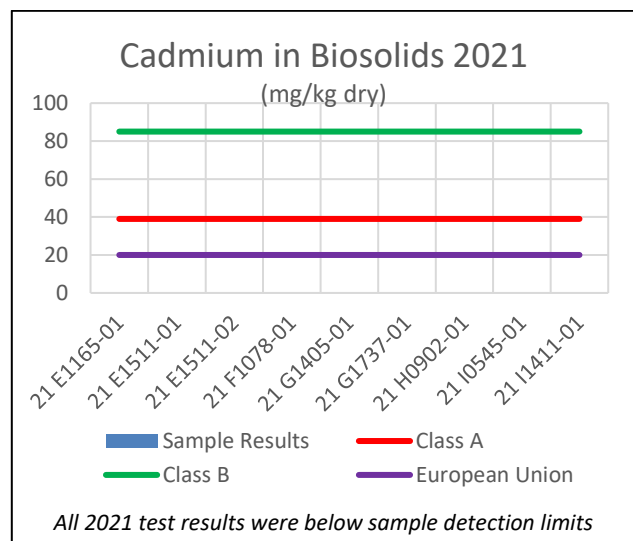
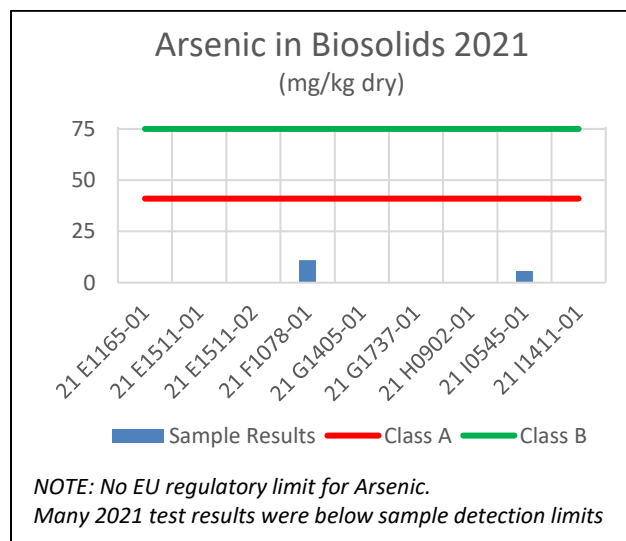
Pollutant concentration limits specified under Part 503 include: Arsenic, Cadmium, Copper, Lead, Mercury, Nickel, Selenium, and Zinc. The Part 503 rule was amended in 1994 – pollutant limits for molybdenum in biosolids applied to land were deleted, but the molybdenum ceiling limit was retained. The US EPA eliminated Chromium concentration limits for biosolids in 1995 as the risk of concentrated hexavalent chromium in biosolids (12,000 mg/kg) was found to be negligible.

Solano County only permits the application of biosolids from generators that provide NANI reports confirming the pollutant concentrations are below the Part 503 Class B limits. Prior to land application, all generators for the 2021 biosolids season submitted NANI reports with pollutant concentrations within all Class B pollutant criteria.

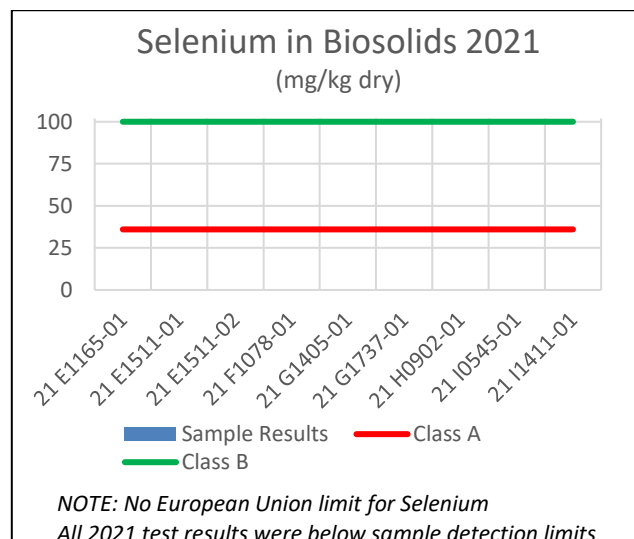
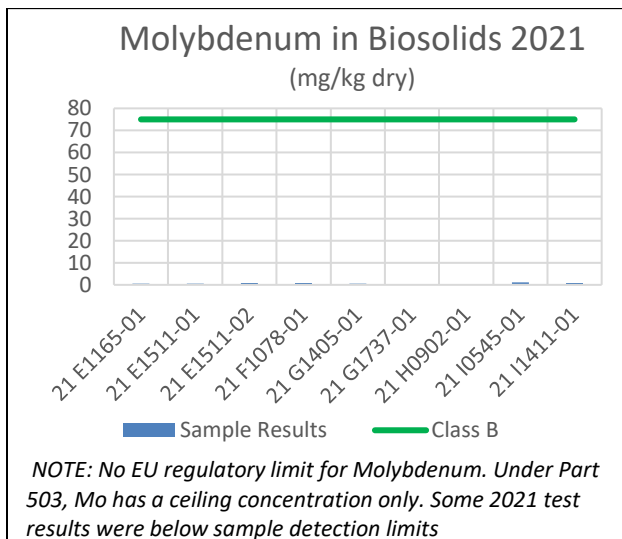
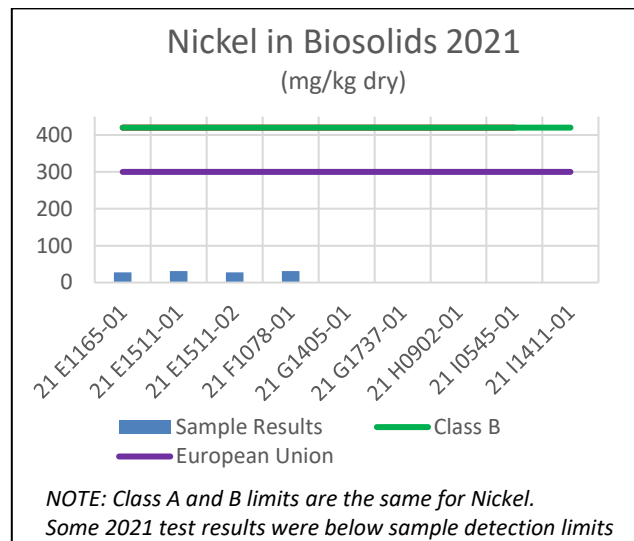
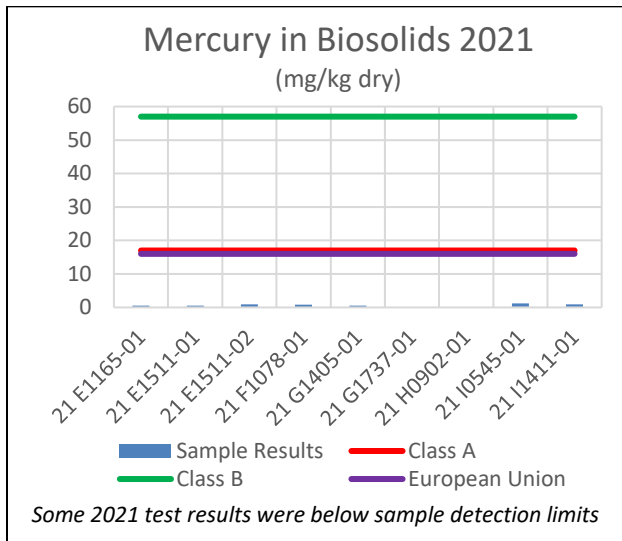
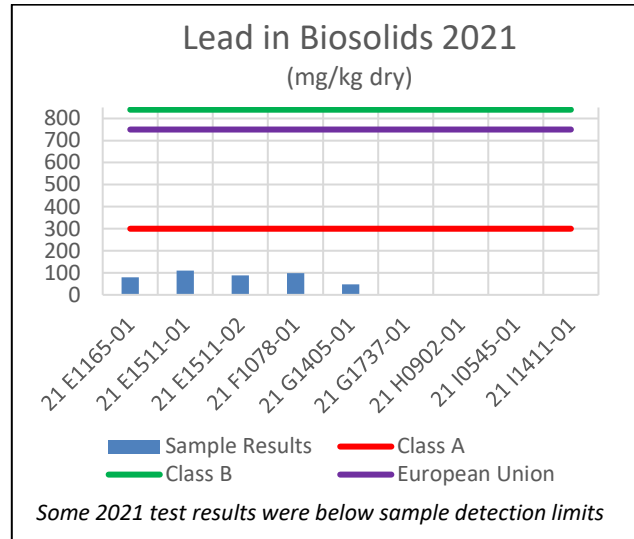
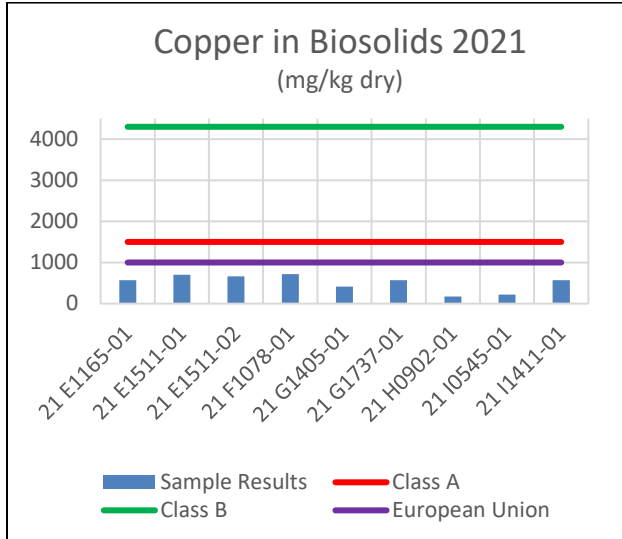
The European Union (EU) limits for biosolids are taken from the European Council Directive 86/278/EEC of 12 June 1986, Annex 1B. EU limits are not required for land application of biosolids in Solano County but are presented herein for reference. There are no EU limits for Arsenic, or Selenium.

In addition to the sampling performed by the generators as part of the application process, County staff collected nine field samples during the 2021 season. All samples were reported below Part 503 Class A and Class B biosolids threshold limits for pollutants.

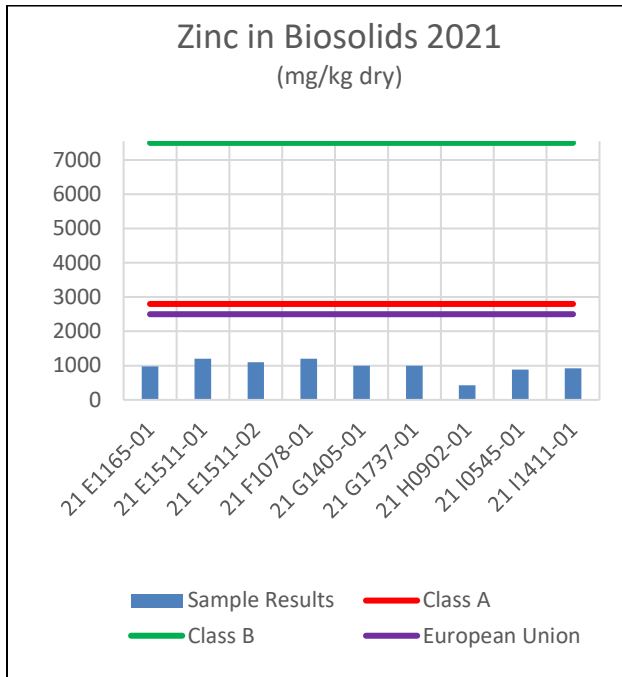
2021 Biosolids Field Sampling Pollutant Analyses



2021 Pollutant Analyses, continued.



2021 Pollutant Analyses, continued.



Calculated Field Life and Cumulative Pollutant Loading Rates (CPLR)

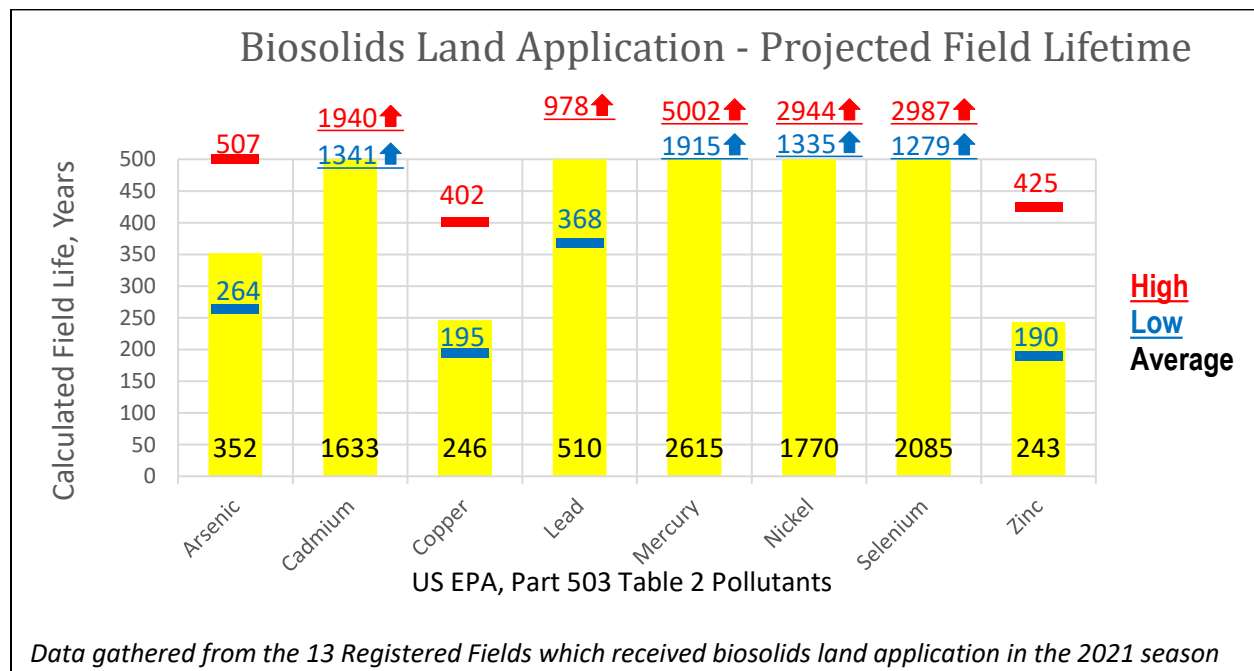
The EPA Biosolids Management Handbook provides a method for calculating the number of years that a location may receive biosolids land application without exceeding the federal limits for pollutants (40 CFR Part 503.13, Table 2: Cumulative Pollutant Loading Rates). The process involves determining the current pollutant loadings, pollutant loading rates, and projecting those calculations forward against the federal limits.

The calculation provides the “Site Life”, in years, that the field can continue to receive biosolids land applications. It should be noted that “years” refers to application seasons, and often sites will be fallowed and not land applied every year.

An average value for the eight Table 2 pollutants was calculated for the 13 registered fields that received biosolids in the 2021 land application season and is shown in the graph below. Also included are the lowest and highest values out of the 13 registered fields. The graph only illustrates values up to 500 years, values exceeding 500 years are labeled.

Based on current pollutant loads, the 2021 biosolids land application rates, and looking at all of the pollutants over the 13 fields, field SO-4-33A has the shortest projected site life, at 190 years (application periods), at which point it may reach the pollutant loading threshold for zinc.

It should be noted that the amount of biosolids land applied to any field in any year is also constrained by the agronomic rate of PAN that can be applied. In 2021, as in years past, the Central Valley Waterboard has approved a maximum PAN application rate of 200 pounds/acre



2021 Projected Field Site Life: Estimated number of years that each registered field may continue to receive biosolid land applications without exceeding federal (Part 503) Cumulative Pollutant Loading Rates (CPLR). The graph summarizes the average values of all 13 fields which received biosolids in 2021.

The pollutant loading projections are averages for all fields applied and indicate projected number of years that the fields can continue to be used. High and low value calculations are labeled.

Field SO-4-33A has the shortest projected site life at 190 years and is limited by zinc.

Nitrogen Loading – Plant Available Nitrogen (PAN) Calculation

One of the primary nutrients supplied by biosolids is nitrogen. Nitrogen is also one of the limiting factors in determining land application rates, as Solano County Code Chapter 25 requires that biosolid land application rates adhere to the SWRCB agronomic rate requirements. Agronomic rate generally refers to the nitrogen requirements of a plant for optimal growth and production. The agronomic rate provides an upper boundary of biosolids that can be land applied based on location, soil, and crop type.

Overapplication of nitrogen may lead to excess nitrogen run-off and explosive algae growth in lakes and streams, impacting surface and/or ground water. Ingestion of nitrate in drinking water may also lead to methemoglobinemia, also known as “blue baby syndrome”, where the excess nitrate decreases the ability of blood to carry oxygen – a potentially serious condition for pregnant or nursing women and infants.

Not all the nitrogen within land applied biosolids are available for vegetative uptake. Volatilization is the escape of some of the nitrogen into the air as ammonia. Mineralization is the breakdown by soil microbes of organic nitrogen, amino acids, and other carbon-based compounds into inorganic nitrogen, which is available for vegetative uptake. The US EPA provides a formula which utilizes volatilization and mineralization correction factors to calculate a PAN value in terms of dry pounds of PAN/acre, or dry kilograms of PAN/hectare.

For the combination of pasture grasses that are grown on the biosolids land application fields, the SWRCB has historically approved a maximum PAN application rate of 200 lbs./acre, which was similarly approved for 2021. SO-2 fields grow a slightly different mixture of pasture grasses, and those fields are usually capped at a maximum PAN application rate of 175 lbs./acre.

Several fields which received biosolids during prior seasons have residual nitrogen in the ground that is accounted for in methodology set forth by the US EPA. These fields have a reduced target PAN application rate to factor in the prior nitrogen loading.

It should be noted that the Regional Water Quality Control Board (RWQCB) has required quarterly groundwater monitoring on the SO-21 fields since 2005 to assess potential excess nitrogen as nitrate into ground water. The nitrate concentrations in the groundwater have reported consistent levels with no exceedances of the primary Maximum Contaminant Level of 10 parts per million reported. For other fields with no groundwater monitoring, the RWQCB has restricted land application to only those portions of the fields that show at least a 25-foot vertical separation to groundwater.

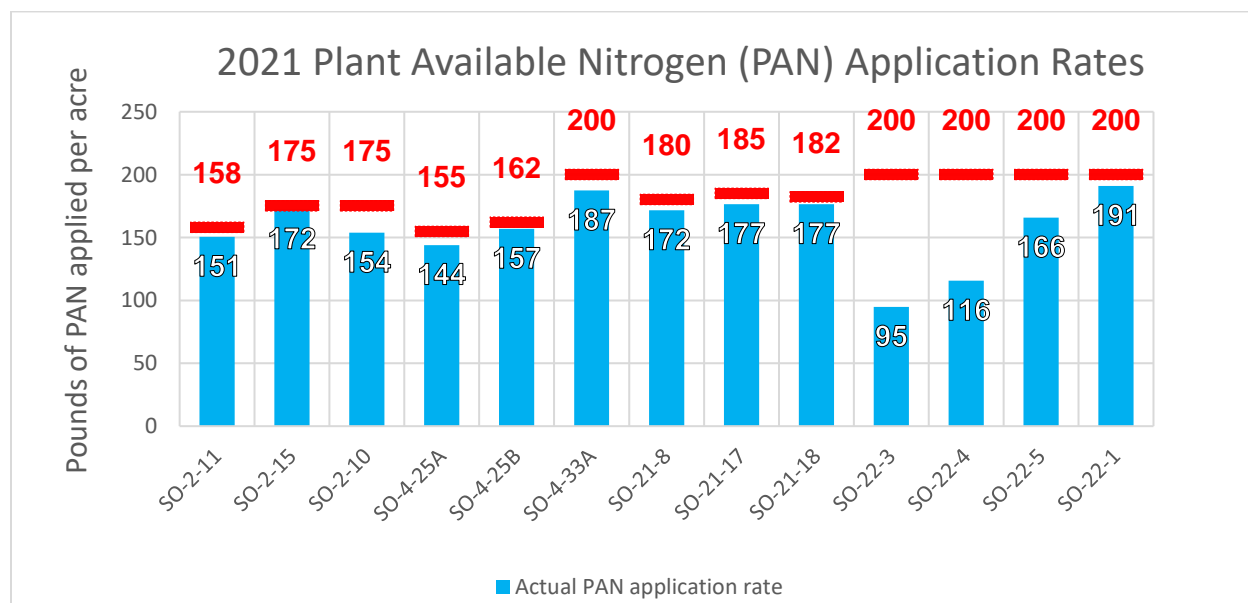


EXHIBIT VI – 2021 Application Period Operational Summary

This is a brief summary of operational issues encountered during the 2021 application period. There is also a description of the violations that were identified – received complaints are described in Exhibit VII.

On 3/11/2021, prior to the land application season commencement, notification was sent to Synagro that the phone number published in the Daily Republic and Vacaville Reporter was not active and that the number would need to be re-activated, or new proof of publication notices would be required. New proof of publication notices from the Daily Republic and the Vacaville Reporter were received.

Notification received from Synagro on 5/3/2021 that loads were being temporarily diverted to landfill due to high wind speeds. Land application was resumed after wind speeds verified to be under 25 mph for at least 60 minutes.

A revised Notice of Applicability (NOA) was issued by the Central Valley Regional Water Quality Control Board (CV-RWQCB) for the Emigh Land TP (SO-4) registered fields on March 29, 2021. Three additional fields were registered, one field was unregistered, and clarification was provided as to oversight for one of the fields. The revised NOA increased the net acreage for the SO-4 fields from 1,570 to 1951.19 total net acres.

On March 19, 2021, the Central Valley Regional Water Quality Control Board (CV-RWQCB) issued approval for the installation of four groundwater monitoring wells (MW) to support the monitoring of the expanded acreage of SO-23 fields.

The notice of Applicability (NOA) for Mayhood Ranch (SO-23) registered fields was revised on November 2, 2021, and then again on February 1, 2022, by the Central Valley Regional Water Quality Control Board (CV-RWQCB). The February 1, 2022 revision was to include a field which was inadvertently not included in the November 2, 2021 revision. The revised NOA specifies a total of 949.6 net acres for all SO-23 registered fields.

On November 3, 2021 the Central Valley Regional Water Quality Control Board (CV-RWQCB) issued a Notice of Violation (NOV) to Synagro for land application of biosolids to Mayhood Ranch fields in prior years, without having obtained a Notice of Applicability (NOA). In response Synagro has sent documentation describing why the NOV is not justified with a written request to rescind this NOV.

Due to scattered rain during the evening of 9/9/2021 and in the morning of 9/10/2021, Synagro reported that some loads were diverted to landfill. Land application was resumed later in the day on 9/10/2021 as the rain ceased.

EXHIBIT VII – Protests Received and Complaint Investigations

Protest Process:

Solano County Code Chapter 25 allows residents adjacent to a field proposed for biosolids land spreading the opportunity to protest the land application of biosolids prior to the commencement of land spreading activities. As required by Chapter 25, the biosolids applicator, Synagro, provided notices of biosolids land application to residents adjacent to proposed land application sites at least 14 to a maximum of 45 days prior to beginning land spreading operations.

Public notices stating the intent to land apply biosolids were also published on March 17, 2021 in the Fairfield Daily Republic and on March 21, 2021 in the Vacaville Reporter.

No protests were received for the 2021 land spreading season.

Complaint Investigations:

6/16/2021:

Complaint received stating a “very grotesque smell” that had been ongoing for several days in the Rio Vista area. Complainant stated that other residents of Rio Vista were also complaining about the same odor on the local Nextdoor website.

Investigation by staff on 6/17 could not detect any odor. Complainant informed that staff was not able to substantiate odor. Additional information provided by Lystek indicated a LysteGro fertilizer application site in the vicinity had paused operations on 6/16.

7/30/2021:

Phone contact from Yolo-Solano Air Quality Management District (YS-AQMD) relaying an odor complaint received from the Dixon area. YS-AQMD stated their field inspector determined that there was a noticeable odor. LysteGro fertilizer application in this area during the past week. No biosolids registered fields in this area. Complaint info forwarded to Ag Department, County Counsel, and Lystek, complainant info removed, for additional follow up.

8/27/2021:

Complaint relayed from YS-AQMD regarding application of LysteGro fertilizer in the Dixon area. Complainant stated that the “stench” of LysteGro was present from August 14 to August 21, and prevented them from opening any of the windows on their house. Complainant stated that after LysteGro application the area was flood irrigated, exacerbating the odor.

Complainant stated they also contacted the Solano Ag Department and the California Department of Food and Agriculture (CDFA) – Fertilizer Complaints program. Complainant states that CDFA informed him that odor nuisance was not part of their regulatory oversight.

Discussions with Lystek regarding odor minimization and best management practices continue with this office. The application of Lystegro product to agricultural land includes the injection of the material below the ground surface to minimize odors. Best management practices include time controlled irrigation of the applied lands to minimize the production of additional odors associated with the irrigation water and the additional moisture and increased potential for creation of odorous aerosols.

9/22/2021:

Complaint received from area resident about strong biosolids odor – complainant stated they can differentiate between manure and biosolids, and the odor was “definitely biosolids”. At the time

the call was received, there was no known land application occurring in that area.

Just after receiving the complaint phone call, a notification was received from Lystek indicating they were performing a LysteGro fertilizer application in very close proximity to the complainant.

Lystek was informed that a complaint was received regarding odor at this location; they stated a staff member would go out to investigate. Lystek sent notification later that day that the LysteGro application had been shut down at that site.

11/30/2021 (This date is after the October 14th close of the biosolids land application season):

Complaint received regarding LysteGro fertilizer application. Complainant inquired why the LysteGro fertilizer was not subject to the Solano County Code Chapter 25 Biosolids requirements.

Lystek provided notification on 12/1/2021 they had been applying LysteGro since 11/29/2021 in that area. Lystek later stated their investigating staff member did not detect any odors in the area on 12/1.

All five of the received complaints this year appear to stem from LysteGro fertilizer operations. No odor complaints were determined to originate from permitted biosolids land application operations.

The below graph summarized the number of annual complaints regarding biosolids land application received since 2004. The complaints received during the 2021 biosolids land application season which determined to not originate from permitted biosolids land application operations are not included in this chart.

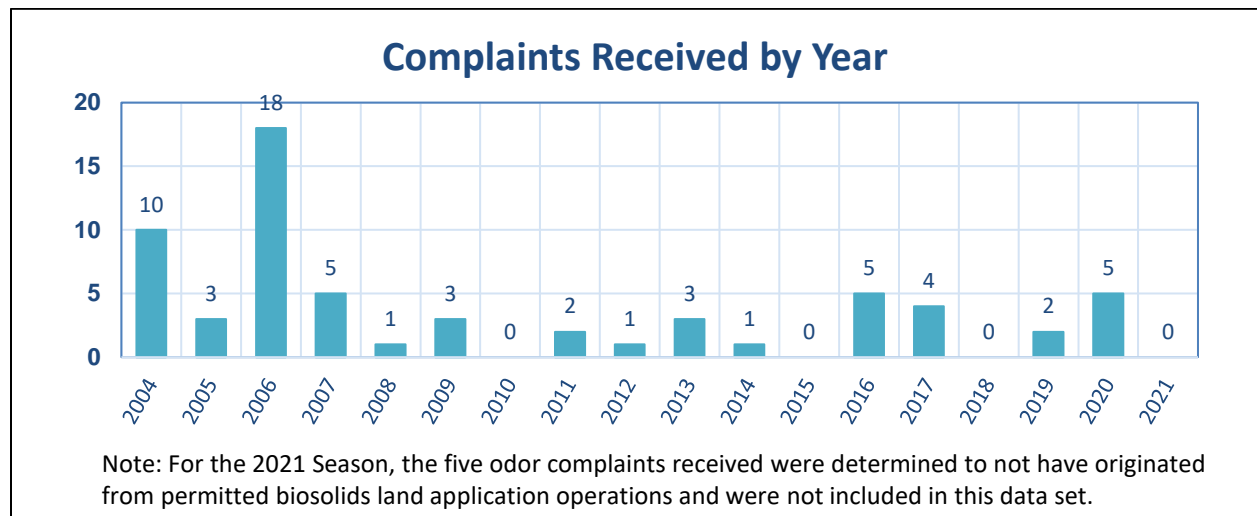


EXHIBIT VIII – Biosolids Stakeholder Group Meetings Summary

The Biosolids Stakeholder’s Group meeting was held virtually on February 17, 2022.

Participants in the Stakeholder Group Meeting included:

Solano County Environmental Health, Solano County Ag Department, US EPA – Region 9, San Francisco Public Utilities Commission, Synagro, Lystek, Aries Clean Technologies, County residents, City of Rio Vista residents, Waterboard representatives, and a staff member from UC Davis.

Environmental Health staff presented a brief overview of the 2021 biosolids land application season, including the calculated dry tonnages and net acres applied, the timeline of application, calculations of the plant available nitrogen applied during the season, a description of the complaints received, and short summaries of SB 1383 implementation and US EPA efforts in biosolids regulation.

A brief statement was made about the past season’s biosolids land application by Synagro. Brief statements and introductions were made by Lystek and Aries Clean Technology on their general activities within Solano County.

The San Francisco Public Utility Commission (SF-PUC), who is a major supplier of biosolids land applied materials within Solano County, stated that the multi-year, multi-billion-dollar renovation of its South East facility had commenced.

An area resident inquired why Lystek biosolids derived fertilizer applications were not subject to County oversight – the generation of very bad odors was cited as reason that County oversight was required. Other County residents, including residents of Rio Vista, provided comment that odor generation was an issue that needed to be addressed.

The area resident brought forward an additional concern – inquiring that if there was no County oversight how was it determined that contamination or pollutants were not being land applied. The US EPA staff present in the meeting provided comment that sampling of Class A-EQ biosolids material is still required and that reporting is reviewed by the US EPA – the Lystek biosolids derived fertilizer product meets all of the pollutant thresholds for Class A-EQ classification.

County staff re-iterated that for biosolids derived fertilizer products oversight could be considered.

EXHIBIT IX – Biosolids Research Fund Summary

In 2004, the Board of Supervisors established a biosolids scientific research and education fee of \$15 per applied acre, which is charged to all biosolids land application permit holders. This provides funding for the Biosolids Education and Research Trust Fund (Research Trust Fund). The Research Trust Fund allows Solano County to fund research studies on the potential effects of biosolids land application in Solano County.

Through a series of stakeholder meetings, the five broad areas that the Research Trust Fund was established to study, in order of priority, are:

1. Complete characterization of constituents and concentrations within biosolids.
2. Human health studies, including potential impacts from aerosols and vectors.
3. Determination of on-site and regional watershed impacts to water, soil, and wildlife.
4. Bioaccumulation in pasture grass or feed and impact to domestic animals.
5. Economic impact of using biosolids/sewage sludge, and comparison of cost/benefit to use of other chemical fertilizers or manure.

The current Biosolids Research Trust Fund allocation available for research is roughly \$100,000

Previous County-funded biosolids research projects include:

- *Evaluation of the Potential Regrowth of Fecal Coliform Bacteria in biosolids between Sewage Treatment Plants and Land Application sites in Solano County* (Department of Resource Management, 2005),
- *Occurrence and Fate of Selected Pharmaceutical and Personal Care Products in Biosolids-Applied Soils in Solano County, California*, (Mississippi State University, 2006),
- *Assessment of the Impacts of Biosolid Application on Water and Soil Quality and Bioavailability of Constituents of Concern*, (University of California, Davis, 2012).
- *Assessment of the Agronomic Effects and Potential Carbon Sequestration Associated with Biosolid Applications on Rangelands in Solano County*, (Blankinship & Associates, Inc., 2017)

A research project has not yet been decided for 2022. Staff are evaluating potential topics for research.

Once the topic for research is decided, staff will prepare a Request for Proposals (RFP) to select a research partner for further biosolids study.

Exhibit X: Biosolids Regulatory and Industry Update

Regulatory Update:

California: Senate Bill 1383 – Short-Lived Climate Pollutants

In September 2016, Governor Brown signed into law SB 1383 establishing methane emissions reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants (SLCP). CalRecycle received a Notice of Approval of Regulatory Action from the Office of Administrative Law on SB 1383 Short-Lived Climate Pollutants regulations. SB 1383 grants CalRecycle the regulatory authority to achieve established targets to reduce statewide disposal of organic waste. The regulations promulgated under SB 1383 became effective on January 1, 2022.

The expansion of companies offering biosolids based commercial fertilizer products may increase as implementation of SB 1383 progresses. SB 1383 establishes targets to achieve a 50 percent reduction in the level of the statewide disposal of organic waste by 2020, and a 75 percent reduction by 2025. The 50 percent reduction of organic waste going to landfill is 23 million tons, with the target goal of 11.5 million tons of organic waste by 2020 and the amount of organic waste reduced to 5.75 million tons by 2025. Landfill gas emissions currently account for 20 percent of California's total methane gas emissions. Reductions in organic waste sent to landfill will reduce the amount of methane generated by organic waste in the landfill. Methane is a pollutant of concern, is 84 time more potent than carbon dioxide, and is considered a super pollutant.

Organic material diverted from landfills also be diverted to activities that reduce greenhouse gas emissions. Recovery activities are defined as actions that keep organic waste out of the landfills and reduce greenhouse gas emissions.

Further information can be found at the CalRecycle website:

<https://www.calrecycle.ca.gov/Organics/SLCP/>

US EPA – Program Revisions in Response to Office of Inspector General Report

On 11/15/2018, the Office of the Inspector General (OIG) released report No. OPE-FY17-0019 titled, "*Weaknesses in the EPA's Biosolids Program Threaten the Agency's Mission to Protect Health and the Environment*", which described perceived program shortcomings and provided 13 recommendations for the EPA's biosolids management program. The EPA disagreed with five of the recommendations and a resolution process was initiated. Resolution was reached on July 25, 2019. The information presented below comes from the "2018 Final Resolved Office of Inspector General Recommendations, EPA Corrective Actions and Target Completion Dates" table which is available on the EPA website here: <https://www.epa.gov/biosolids>

Implementation of the 13 Recommendations has been ongoing, as of February 2022, nine of the 13 Recommendations have been marked as "Completed". Several of the Recommendations are described below.

US EPA – Program Revisions:

Website Revisions, Recommendations 7, 9, and 10

The US EPA has recently made fairly extensive revisions to its website providing more information and provided better transparency for the process by which it is seeking to identify additional pollutants in biosolids. These changes appear to have been performed to address recommendations made by the Office of the Inspector General (OIG).

Three of the completed recommendations relating to the website revisions are described below:

7. Recommendation (Completed 7/9/2020)

Issue guidance on what new technologies are allowable options or alternatives for
2021 Biosolids Land Application Report
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biosolids pathogen reduction.

High-Level Intended Corrective Action(s):

The OW is updating the biosolids website to clarify existing information on the Pathogen Equivalency Committee's determinations on alternative technologies for pathogen reduction. EPA does not agree with the characterization of this recommendation as necessary to correct a program deficiency but does agree with the intent of the recommendation to improve the Biosolids Program

9. Recommendation (Completed 7/9/2020)

Change the website response to the question "Are biosolids safe?" to include that the EPA cannot make a determination on the safety of biosolids because there are unregulated pollutants found in the biosolids that still need to have risk assessments completed. , such as fire retardant chemicals, pharmaceuticals, and chemicals found in personal care products. USEPA is taking a neutral position at this time until further research and development can occur. This change should stay in place until the EPA can assess the risk of all unregulated pollutants found in biosolids

High-Level Intended Corrective Action(s):

The EPA is in the process of revising the entire EPA biosolids website in order to update and clarify information and ensure transparency. This will include deleting the question "Are biosolids safe?" Instead, the EPA will use appropriate risk communication language that will ensure that potential risk from unregulated pollutants found in biosolids is adequately communicated.

10. Recommendation (Completed 7/9/2020)

Modify the EPA's website on biosolids to: (a) identify unregulated pollutants found in biosolids, (b) disclose biosolids data gaps, and (c) include descriptions of areas where more research is needed. These changes should stay in place until the EPA can assess the risk of all unregulated pollutants found in biosolids

High-Level Intended Corrective Action(s):

The EPA is in the process of revising the entire EPA biosolids website in order to update and clarify information and ensure transparency. This includes identifying pollutants found in biosolids, disclosing biosolids data gaps and addressing research areas. The EPA is consolidating the information so that it is more easily obtained

US EPA – Program Revisions:

Identification of additional pollutants and development of risk assessment and screening tools for biosolids land application scenarios, Recommendations 5, 3, and 4

The US EPA conducts biennial reviews that are meant in part to identify additional toxic pollutants, toxicity levels, and develop regulations consistent with the protection of the environment and human health. The agency had fallen behind schedule in publishing these reviews and the OIG could not conclude that a transparent, feasible process was in place to identify new pollutants.

Three of the recommendations relating to biennial reviews and identification of new pollutants are described below:

5. Recommendation (Completed 12/31/2018)

Complete and publish all future biosolids biennial reviews, including the 2017 biennial review, prior to the next review required by the Clean Water Act.

High-Level Intended Corrective Action(s):

OW is on target to publish the 2017 Biennial Review (i.e., literature search from January 2016 through December 2017) on time.

Note: The Biosolids Biennial Report No 8 (Reporting Period 2018-2019) was released in February 2021 and is described in more detail below.

3. Recommendation (Target Completion date 3/31/2023)

Complete development of the probabilistic risk assessment tool and screening tool for biosolids land application scenarios.

High-Level Intended Corrective Action(s):

OW is working to complete the screening tool and probabilistic risk assessment framework for biosolids land application scenarios. OW anticipates releasing the screening tool first, followed by the probabilistic modeling framework, after peer and public review.

4. Recommendation (Target Completion date 12/31/2022)

Develop and implement a plan to obtain the additional data needed to complete risk assessments and finalize safety determinations on the 352 identified pollutants in biosolids and promulgate regulations as needed.

High-Level Intended Corrective Action(s):

OW will develop and implement a plan to obtain data needed to complete risk assessments on the 352 identified pollutants found in biosolids. OW will prioritize pollutants using the screening tool to determine which pollutants warrant a more refined (i.e., probabilistic) risk assessment and take into consideration the 61 chemicals identified as hazardous under other statutes as identified by the OIG.

US EPA – Program Revisions:

Update on approved biosolids treatment methods and sampling practices, Recommendations 5 and 8.

In response to industry inquiries, the US EPA has sought to provide clarity on approvable methods for biosolids pathogen reduction. Currently there are six methods to achieve Class A pathogen reduction and three methods to achieve Class B pathogen reduction levels. Alternative Methods #3 and #4 rely upon extensive microbiological monitoring of produced biosolids to ensure pathogen reduction levels are being met.

Providing clarity on approvable pathogen reduction processes, which may not have to rely upon extensive microbiological monitoring, may allow for the development and eventual use of innovative treatment processes, potentially expanding the scope of companies providing biosolids treatment and management services.

Two of the recommendations relating to updates of the pathogen reduction and fecal coliform sampling methods are described below. Recommendation 7, described above, is also related to this topic.

5. Recommendation (Target Completion date 7/1/2022)

Publish guidance on the methods for the biosolids pathogen alternatives 3 and 4.

High-Level Intended Corrective Action(s):

OW is working with the EPA Office of Research and Development to update the 2003 Environmental Regulations and Technology Control of Pathogens and Vector Attraction in Sewage Sludge document to include EPA Methods 1680, 1681 and 1682.

8. Recommendation (Target Completion date 7/1/2022)

Issue updated and consistent guidance on biosolids fecal coliform sampling practices.

High-Level Intended Corrective Action(s):

OW is working with the EPA Office of Research and Development to update the 2003 Environmental Regulations and Technology Control of Pathogens and Vector Attraction in Sewage Sludge document.

US EPA – Publications in 2021:

The US EPA website contains a Biosolids Library page which provides resources, meeting summaries, and reports. This page lists five documents produced in 2021, which are briefly described below. The Biosolids Library page can be accessed here:

<https://www.epa.gov/biosolids/biosolids-library>

1. Report on the Elemental Analyses of Samples from the Targeted National Sewage Sludge Survey
April 2021, EPA 822-R-21-002:
This report describes the sampling and analysis activities performed in a follow-up to EPA Targeted National Sewage Sludge Survey (TNSSS) and presents summary level data from the elemental analyses of sewage sludge samples.
2. Targeted National Sewage Sludge Survey (TNSSS): Summary Statistics and Estimates of 95th Percentiles for 84 Additional Analytes
April 2021, EPA 822-R-21-003
This document provides the statistical analysis of pollutant concentrations for 84 non-prioritized analytes from the 2009 Targeted National Sewage Sludge Survey.
3. EPA National Biosolids Meeting Summary 2021
Summary of EPA Nationals Biosolids Meeting 2021, held virtually November 2-4, 2021
4. Fact Sheet: Biosolids Biennial Report No 8 (Reporting Period 2018-2019)
February 2021, EPA-822F21003
Summary of the Biosolids Biennial Report No 8 (Reporting Period 2018-2019)
5. Biosolids Biennial Report No 8 (Reporting Period 2018-2019)
February 2021, EPA-822R21001

This document fulfills Section 405(d)(2)(C) of the Clean Water Act (CWA) requirements that states that EPA shall review the sewage sludge regulations not less often than every two years for the purpose of identifying additional toxic pollutants and promulgating regulations for such pollutants consistent with the requirements of section 405(d).

US EPA – Research Funding Awarded in 2021:

On September 28, 2021, the US EPA announced that just under \$6 million in grant funding was awarded to four institutions for research to support states, municipalities, and utilities in determining the potential risks to human health and the environment from pollutants found in biosolids. Each award was for just under \$1.5 million, with final reports due in 2024.

The Request for Application (RFA), stated that research projects were to focus on two areas:

Research Area 1: Understanding the impact of different common treatment and management processes on resulting pollutant levels in Class A & B biosolids

Research Area 2: Better understanding of the occurrence, fate, and transport of chemical pollutants in land-applied biosolids, particularly those that may persist and/or accumulate in soils and biota post application.

The four grantees, titles of the projects, and brief project abstracts are:

1. **Michigan State University**, in conjunction with Colorado State University, Great Lake Water Authority, University of Georgia Research Foundation:

“Assessing biosolid treatment processes on pollutant environmental fate and plant uptake following land application”

Researchers will conduct studies to improve our knowledge on occurrence, fate, transport, plant uptake, livestock and human exposure to pharmaceuticals, personal care products, and per- and polyfluoroalkyl substances (PFAS) from land-applied biosolids.

2. **Virginia Institute of Marine Science**, in conjunction with Hampton Roads Sanitation District:

“Elucidating the occurrence of known and emerging chemical contaminants in wastewater biosolids and the influence of treatment and management processes on their fate, mobility and bioavailability”

The research team will evaluate the influence of wastewater source and sludge treatment choice to improve strategies for monitoring sludge-related pollutants, selecting optimal treatment processes, and reducing contaminate levels in US biosolids and receiving soils.

3. **Johns Hopkins University**:

“Fate and Transport of Unregulated Organic Contaminants in Biosolids - Development of a Human and Environmental Exposure Risk Framework”

The project team will use analytical, toxicological, and risk sciences tools to identify previously unknown biosolids-associated organic contaminants, trace their fate through multiple environmental media, and prioritize them for future decision-making.

4. **Water Research Foundation**, in conjunction with Purdue University, University of California Riverside, University of Cincinnati

“Unregulated Organic Chemicals in Biosolids: Prioritization, Fate and Risk Evaluation for Land Applications”

Researchers will prioritize unregulated contaminants and conduct laboratory and field studies to evaluate fate and transport models in risk assessments, leading to recommendations of best practices to minimize potential risks of unregulated organic chemicals in biosolids-amended fields.

More information on these awards and research projects can be found here:

Industry Update: Lystek International Inc.

Canadian based Lystek International Inc. (“Lystek”) continues to operate its Organic Material Recovery Center at the Fairfield Suisun Sewer District location on Chadbourne Road. The Public-Private Partnership began operations onsite in 2016. Lystek has a current on-site lease agreement with the Fairfield-Suisun Sewer District expiring in 2041. The lease agreement includes a provision for a 10 year extension aligned with the expiration date in 2041.

Lystek has a patented¹ process to convert biosolids to fertilizer – this fertilizer product is called LysteGro. It is an injectable biosolids derived fertilizer product with known minimum nitrogen, phosphorus, and potassium (N-P-K) values.

Derived from biosolids feedstock, LysteGro is registered with the California Department of Food and Agriculture–Fertilizer Materials Inspection Program² (CDFA-FMIP).

Industry reports indicate that Lystek has increased its agreements with biosolids generators and the volume of land applied biosolids derived fertilizer material. Lystek has also added Anheuser Bush as a material generator supplying biosolids from the Budweiser Beer manufacturing plant in Fairfield, California.

Although licensed as a commercial fertilizer, LysteGro is derived from a Class A EQ Biosolids material, with the potential to generate odors. Solano County Code Chapter 25 regulates the land application of biosolids, including bulk class A biosolids. To date, Lystek fertilizer has not been considered to be a biosolids material under Chapter 25, Solano County Code, due to the lack of bacteriological activity as a result of further processing, the potential addition of other organics to the product, and the method of application, along with its registration as a fertilizer and regulation by the CDFA.

Odor nuisance complaints received in 2021 resulted in an exploration of potential mitigation measures to address the odor complaints received. Staff collected samples of the product for analysis. The sample results confirmed no bacteriological activity and were within compliance limits for heavy metals.

The Department is still studying the appropriate level of oversight Lystek and other companies seeking to enter the biosolids industry with new treatment methods that are not fully encompassed within the current regulatory framework of Solano County Code.

The Department is working with Lystek to better refine its Best Management Practices requirements and implementation. Mitigation measures being considered include wind speed restrictions, setback distances, neighbor/city notifications, and LysteGro activity disclosures. The Department plans to follow up with the Board of Supervisors to discuss its findings regarding LysteGro.

Further information on Lystek can be found at: www.lystek.com

¹ US Patent 6,808,636 B2 www.uspto.gov - “Treatment of Sewage Sludge”. Patent issued October 26, 2004, to Lystek International Inc. Abstract of the patent reads:

“A method for reducing sludge viscosity of a sewage sludge having a solids concentration of at least 10% (w/w). The method comprises the steps of increasing the pH of the sludge to 9.5-12.5%, at least one step selected from subjecting the sludge to a holding step of at least one day and adding inorganic or organic chemicals to facilitate viscosity reduction, followed by incubating the sludge at temperature up to 100° C., and subjecting the sludge to a shearing or disintegration step. The method provides sludge, especially concentrated sludge, that is more readily pumped or transported.”

² California Department of Food and Agriculture, Fertilizer Materials Inspection Program (CDFA-FMIP) lists Lystek International LTD under license #447783. Lystek’s registered fertilizer product is LysteGro®, which has the CDFA-

Industry Update: Aries Clean Technologies

Aries Clean Technologies (“Aries”) was started in 2010 as PHG Energy and currently has their headquarters in Tennessee. Solano County has held preliminary meetings with Aries, who is proposing to co-locate a biomass processing center at the Fairfield Suisun Sewer District facility on Chadbourne Road.

The biomass processing center would utilize the Aries patented¹ Fluidized Bed Gasifier and Downdraft Gasifier processes to daily gasify roughly 165 wet tons of biosolids and 65 tons of wood chips or other wood or yard waste. The gasification process is a thermochemical decomposition process which heats the feedstock material to temperatures between 900-1,700 degrees Fahrenheit in an oxygen starved environment. Once initiated, the process is self-sustaining, and Aries states the process is able to destroy harmful chemicals, including per- and polyfluoroalkyl substances (PFAS).

From those feedstocks, roughly 250 kilowatts of net power generation and 13 tons of Bio-Fly Ash² or biochar would be produced. Additionally, roughly 1.5 tons of spent sorbent material from air pollution control equipment and 2 tons of wood feedstock rejects (rocks and/or metal) would be produced daily. The biochar and Bio-Fly Ash can be used in industrial applications, such as an additive in concrete, and agricultural applications as a soil amendment. The excess electricity generated would be made available for purchase to the Fairfield Suisun Sewer District (FSSD), any co-located tenants at the FSSD, and/or could be used to power electric vehicles used in the transport of feedstock materials to the facility, and/or carbon products from the site.

The Fairfield Suisun Sewer District made publicly available an Initial Study/Mitigated Negative Declaration CEQA document on February 2, 2022, with the comment period closing on March 4, 2022.

Further information on Aries can be found at: www.ariescleantech.com

¹ For this 2021 report, Solano County Environmental Health was only able to identify four of the eight patents that the Aries Clean Technologies website references. US Patent Nos. 9,242,219; 9,809,769; 10,611,973; and 10,696,913. Only one is described below.

US Patent 9,242,219 – “Fluidized Bed Gasifier and Method for Gasifying Biosolids”. Patent issued on January 26, 2016 to PHG Energy LLC. Abstract of the patent reads:

“A fluidized bed biogasifier is provided for gasifying biosolids. The biogasifier includes a reactor vessel and a feeder for feeding biosolids into the reactor vessel at a desired feed rate during steady-state operation of the biogasifier. A fluidized bed in the base of the reactor vessel has a cross-sectional area that is proportional to at least the fuel feed rate such that the superficial velocity of gas is in the range of 0.1 m/s (0.33 ft/s) to 3 m/s (9.84 ft/s). In a method for gasifying biosolids, biosolids are fed into a fluidized bed reactor. Oxidant gases are applied to the fluidized bed reactor to produce a superficial velocity of producer gas in the range of 0.1 m/s (0.33 ft/s) to 3 m/s (9.84 ft/s). The biosolids are heated inside the fluidized bed reactor to a temperature range between 900° F. (482.2° C.) and 1700° F. (926.7° C.) in an oxygen-starved environment having a sub-stoichiometric oxygen level, whereby the biosolids are gasified.”

Additional information can be found at www.uspto.gov

² Aries Clean Technology has trademarked the fly ash produced from its patented gasification process as Bio-Fly Ash and their website states there are various applications for industrial, agricultural, and manufactured products.

EXHIBIT XI: Summary of the Annual Bay Area Clean Water Agencies (BACWA) Report to the Solano County Board of Supervisors and the BACWA 2021 Biosolids Trends Survey

The Bay Area Clean Water Agencies, BACWA, is a joint powers agency providing technical expertise and financial support from a Public Utilities perspective. Collectively, the member agencies operate throughout nine Bay Area Counties and provide sanitary services to over 7.1 million people.

The BACWA principal agencies are the five largest wastewater treatment agencies in the San Francisco Bay Area: East Bay Municipal Utilities District, East Bay Dischargers Authority, San Francisco Public Utilities Commission, Central Contra Costa Sanitary District, and the City of San Jose. The BACWA Executive Board is comprised of one member from each of the five founding Public Utilities.

BACWA 2021 Annual Report to the Solano County Board of Supervisors

The BACWA Annual Report to the Solano County Board of Supervisors Land Application of Biosolids in Solano County report, dated December 2021, summarizes the land application of biosolids conducted in Solano County in 2020.

Per the BACWA report, three Northern California counties received roughly 82% of the land applied biosolids in 2020, with Sacramento County receiving 38%, Merced receiving 26%, and Solano County receiving 18%. BACWA indicates that in the Bay Area Region biosolids primary uses in 2020 included; landfill beneficial use (~39%), Class B land application (~30%), incineration (~10%), and landfill disposal (~6%).

The BACWA report indicates that the Lystek Organic Materials Recovery Center (OMRC) co-located at the Fairfield Suisun Sewer District facility on Chadbourne Road has continued to increase production of its biosolids derived fertilizer product, LysteGro, and in 2020 represented 5.1% of the total end use of biosolids material in the Bay Area – an increase from 3.8% when the facility opened in 2017.

BACWA 2021 Biosolids Trends Survey

BACWA has prepared a separate report, 2021 Biosolids Trends Survey, which presents survey responses from 31 agencies that provide sanitary sewer services within the Bay Area – representing over 95% of the BACWA member agencies. This survey was similar in format to those conducted in 2016 and 2018 by BACWA.

The survey is available at: <https://bacwa.org/wp-content/uploads/2021/12/BACWA-2021-Biosolids-Trends-Survey-Report.pdf>

The Survey asked respondents to provide information about the type and level of treatment / class of biosolids produced at each facility, the total wet tonnage of biosolids produced, the breakdown of end uses that each facility makes use of, the range of per ton disposal (tipping) costs incurred, the average travel distance for end use biosolids disposal, the status of each agencies implementation plan to adapt to SB 1383 requirements, and staffing levels and the extent of any biosolids marketing and outreach efforts.

Of the 30 agencies that provided responses regarding their readiness for SB 1383 changes, 17 indicated that operational changes due to SB 1383 requirements were either still being planned or implementation was underway, six stated that implementation of SB 1383 changes were completed, and seven stated SB 1383 would not impact biosolids management at their agency.

In response to the question on how their agency would implement changes related to SB 1383 limits on landfill use and disposal, nine agencies stated they would be increasing the volume of biosolids sent to a third party for additional treatment, like Lystek, for end use, and 11 agencies stated they would be increasing their reliance on land application.