3.14 PUBLIC SERVICES, UTILITIES AND SERVICE SYSTEMS

This section evaluates potential impacts on public services and utilities that could result from the Project, including impacts to fire protection, water, wastewater, and power suppliers. Storm drainage at the site is addressed in Section 3.10, Hydrology and Water Quality.

3.14.1 SETTING

Public Service Providers

Fire Protection

The Davis Fire Department (DFD) provides fire protection for the Yolo County Central Landfill (YCCL). The Fire Station is approximately 4 miles southwest of the YCCL and is located at 530 5th Street in Davis, CA. In the event of a major fire, incident response is provided by the DFD, City of Woodland Fire Department, and University of California (UC) Davis Fire Department. All buildings, vehicles, and equipment at the YCCL are equipped with portable fire extinguishers. Approximately three water trucks, soil covers, a water tank, three stormwater ponds, a water storage reservoir and groundwater are used for dust control and are available for fire suppression. Front-end loaders and excavators are available to aid in the management of materials to combat fire or prevent its spread. Additional site requirements by the DFD include a water source for fire suppression at the landfill gas (LFG)-to-energy facility and wood facility (freshwater pond) and a water supply for the entrance facilities and household hazardous waste (HHW) facility (water supply well).

The YCCL is in an area dominated by agriculture, which in general is not prone to wildfires. Agricultural uses predominate for several miles in each direction from the Project site. The site has agricultural cropland to the north, open fields to the west (the 323-acre property directly west is the soil borrow site), City of Davis wastewater treatment ponds and wastewater reclamation fields to the east, and the Willow Slough Bypass Channel, an engineered waterway, located across County Road 28H to the south of the YCCL. Additional agricultural cropland is located on the other side of the Willow Slough Bypass Channel.

History of Surface Fires on or Near the Site

Historically, several off-site fires along County Road 104 have been stopped at the perimeter road, with the additional help from water applied by the water truck. There has been one surface fire recently at the YCCL. Early morning October 1, 2020 there was a fire at the YCCL in the shredded tire layer of a new landfill cell. The fire was put out by the DFD, who responded to the 0.5-acre fire at 1 a.m. and 25 firefighters battled the fire throughout the early morning hours. Mutual aid fire personnel brought additional water trucks to the scene. The fire created large plumes of smoke into the air. By 6 a.m., the fire had calmed down but was still smoldering (Sacramento CBS, 2020). It was reportedly caused by an improperly disposed lithium battery. YCCL staff reported that there have been no other recent fires at the YCCL.

Subsurface Fires

Subsurface fires occur when excessive oxygen is drawn into decomposing waste through improper operation of the landfill gas extraction system. The ignition and spread of subsurface fires are a function of several factors, including waste composition and moisture content, available oxygen, and ambient pressure in the area of combustion. Subsurface landfill fires occur by the heating of combustible refuse through biological decomposition or chemical oxidation. Subsurface fires generally manifest themselves as localized areas of severe settlement and possibly small amounts of smoke emanating from the landfill surface. The process requires a continuous source of oxygen; oxidation of the refuse materials can generate enough heat to cause combustion.

The following mechanisms may trigger subsurface refuse fires:

- Burial of "hot loads" with other refuse materials. Loads are examined as they are received to make sure this is minimized.

- Improper operation of landfill gas recovery or migration control systems. Air can be inadvertently drawn into the refuse mass by overdrawing LFG extraction wells, especially those installed near the landfill perimeter or slope face, or by breaks in the subsurface collection header pipe that could occur due to landfill settlement. Open cracks and fissures in the landfill site surface may aid in the pulling of air through the site cover.

- Burial of household hazardous waste. An explosion hazard or subsurface temperature increase could arise from the corrosion and/or rupture of buried containers used to store incompatible or reactive materials. The landfill has a hazardous materials exclusion program in place to reduce the occurrence of such materials in the landfill.

- In the case of aerobic bioreactor technology, the process requires forcing air through the waste mass. The introduction of air and the resulting onset of aerobic activity serve to increase the temperature of the waste mass rapidly and consequently could set off a subsurface refuse fire. However, in addition to the introduction of air, significant amounts of liquid will have already been added and will continue to be added to the refuse during bioreactor operations. This significantly reduces the fire potential.

Generally, there is little concern that a surface fire will ignite a subsurface fire. The potential for a subsurface fire to start from a surface fire is remote for several reasons:

- Cover materials create a barrier, preventing the surface fire from igniting subsurface waste;

- The amount of subsurface waste materials available above the surface is limited to the daily deposit of waste materials; and

- Landfill personnel can utilize earth moving equipment and/or water trucks to quickly extinguish surface fires before there is a high potential for ignition of subsurface materials.

History of Subsurface Fires

Historically, there have been subsurface fires at the site. These fires were treated by elimination of the oxygen supply to the fire and allowing the waste to extinguish itself, and if practical, water addition to the area. The YCCL has not had any subsurface fires in the past three years.

Utilities

Water Supply

Potable water is supplied from an on-site well. Sufficient sanitary facilities are provided on-site for YCCL employees and customers (including facilities in the old landfill operations building and the newer landfill office building).

Wastewater

Wastewater at the YCCL drains to an on-site pump station and is then pumped to Waste Management Unit (WMU) G. It is combined and treated along with other septic waste liquid received for disposal.

Stormwater

There are two locations for storm water to drain off-site, although these have not been used in recent years, as stormwater is contained on-site and not discharged off-site. They include a discharge pipeline from Stormwater Pond 1 to Willow Slough Bypass and a pump station at the borrow site that also discharges to Willow Slough Bypass. The stormwater is monitored at each location for potential contamination as required under YCCL's industrial stormwater permit.

Electricity and Natural Gas

PG&E supplies the electricity used on-site. YCCL equipment and vehicles, including compactors, tractors, loaders, water trucks, truck tippers, and the power generators used for portable lighting at the working face, consume energy in the form of diesel fuel.

Telecommunication System

Communications are handled through cell phones, regular phones, and 2-way radios. In the event of an emergency, either or both means can be used to alert the management team or safety personnel (Fire, Police, Hazmat).

Findings of the 1992 YCCL EIR

The 1992 YCCL Environmental Impact Report (EIR) evaluated the potential effects of expansion of the landfill. The analysis concluded that there would be no significant effects on solid waste disposal or electric services, and that no mitigation measures were required.

Findings of the 2005 YCCL EIR

The 2005 YCCL EIR determined that there would not be any significant impacts related to public services, utilities, and energy.

Mitigation measures to reduce potential significant impacts to a less than significant level included continuing to comply with Title 14, California Code of Regulations (CCR) for regulatory requirements of composting facilities and fire prevention, protection and control measures, continuing to adhere to composting management practices established by the Yolo

County Environmental Health Division, continuing to implement standard composting facility management practices (i.e., proper windrow distance, aeration, temperature and moisture monitoring), continuing to reduce impacts associated with surface fires, continuing to follow existing operational policies at YCCL (i.e., employee training, water tanker, heavy equipment for fire suppression, fire extinguishers), monitoring the temperature of the excavation face, proper aerobic bioreactor cell temperature, moisture and oxygen control, and monitoring.

Regulatory Setting

2030 Countywide General Plan for Yolo County

The 2030 General Plan's Public Facilities and Services Element seeks to establish County service standards and policy guidance to ensure that infrastructure and services will be sufficient to support existing and new development in Yolo County. The element includes the following policies pertaining to Utilities and Public Services that are relevant to the Project:

Goal PF-1: Wastewater Management. Provide efficient and sustainable solutions for wastewater collection, treatment, and disposal.

Policy PF-1.7: Require wastewater treatment facilities that remove or destroy pathogens while minimizing or eliminating contaminated discharge.

Goal PF-2: Stormwater Management. Provide efficient and sustainable stormwater management to reduce local flooding in existing and planned uses.

Policy PF-2.1: Improve stormwater runoff quality and reduce impacts to groundwater and surface water resources.

Policy PF-2.4: Encourage sustainable practices for stormwater management that provide for groundwater recharge and/or improve the quality of runoff through biological filtering and environmental restoration.

Action PF-A14: Minimize pollution of stormwater, receiving water bodies and groundwater, and maximize groundwater recharge potential by:

- Implementing planning and engineering design standards that use low impact development techniques and approaches to maintain and mimic the natural hydrologic regime.
- Utilizing "infiltration" style low-impact development technologies.
- Following stormwater Best Management Practices during and after construction. (Policy PF-2.1)

Goal PF-5: Fire and Emergency Medical Services. Support fire and emergency service providers to enhance the protection of life and property.

Goal PF-9: Solid Waste and Recycling. Provide safe, cost-efficient, and environmentally responsible solid waste management.

Policy PF-9.1: Meet or exceed State waste diversion requirements.

Policy PF-9.2: Manage property to ensure adequate landfill space for existing and planned land uses.

Policy PF-9.3: Employ innovative strategies to ensure efficient and cost-effective solid waste and other discarded materials collection, disposal, transfer and processing.

Policy PF-9.4: Prioritize disposal and processing capacity at the landfill for waste materials generated within Yolo County, but accept waste materials from outside the county when capacity is available and the rates cover the full cost of disposal and processing.

Policy PF-9.5: Promote technologies, including biomass or biofuels, which allow the use of solid waste as an alternative energy source.

Policy PF-9.6: Treat waste materials as potential revenue sources for the County, and maximize the revenue potential associated with the waste stream as new products, economies, needs, and technologies emerge.

Policy PF-9.8: Require salvage, reuse or recycling of construction and demolition materials and debris at all construction sites.

Policy PF-9.11: Expand opportunities for energy and/or fuel production resulting from the solid waste disposal process.

Action PF-A50: Acquire sufficient land to maintain long-term landfill operations, including property for mitigation and soil cover. (Policy PF-9.2)

Action PF-A53: Evaluate the need for and economics of solid waste transfer or processing facilities located in other areas of the county. Consider the option of partnering with private waste companies for construction and operation of the additional facilities. This could support use of smaller collection trucks, and allow for consolidation of loads into large transfer trucks which would reduce truck traffic to the landfill. (Policy PF9.3)

Action PF-A54: Partner with the private sector to operate waste-related diversion, recycling facilities, LFG and energy production facilities or provide other landfill-related commodities and services at the landfill, or to agriculture-related facilities located on surrounding properties, whenever practicable. Evaluate potential for salvage of materials from the County landfill, or other closed landfill facilities, for sale as a future revenue source. (Policy PF-9.3)

*Action PF-A55***:** Research technological strategies and implement the cost-effective strategies to reclaim and reuse capacity of the landfill facility. (Policy PF-9.2, Policy PF-9.3, Policy PF-9.4)

Action PF-A57: Reduce methane emissions from the landfill by closing the filled units, expanding bioreactor operations and the landfill gas collection system to future landfill units; and continuing the use of the landfill gas for energy or fuel. (Policy PF-9.3)

3.14.2 IMPACTS AND MITIGATION MEASURES

Significance Criteria

Appendix G of the *CEQA Guidelines* states that a project would result in a significant impact to Public Service Systems and Utilities if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for fire protection;

- Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects;

- Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years;

- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;

- Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals; or

- Not comply with federal, state, and local management and reduction statutes and regulations related to solid waste.

The Project elements would extend the life of YCCL and reduce landfill disposal of waste, reducing greenhouse gas (GHG) emissions. The Project also proposes to increase the County's ability to divert waste from the landfill and continue to meet state-mandated diversion goals provided in SB 1383, and other state-mandates (AB 341 and AB 32). Therefore, impacts related to solid waste reduction goals and compliance with regulations related to solid waste are negligible and are not discussed further. The Project elements would require an increase in staff members on-site to operate new future facilities. However, the amount of increase in staff members would not result in inadequate capacity to serve the YCCL's wastewater demand for wastewater services. Therefore, impacts related to wastewater treatment are considered less than significant and not discussed further. Because of the nature of the Project, there would be no population increase and it is assumed the Project would not have an impact on police protection, schools, parks, or other public facilities, so these elements are not discussed further.

Impact Analysis

Impact 3.14.1: The increased daily permitted tonnage (TPD) could increase the risk of fire occurring at the YCCL. (Less than Significant)

The Project would involve expanding the overall permitted tonnage for the YCCL to a monthly average of 2,500 TPD with a daily peak of 3,000 TPD. Currently, the YCCL Solid Waste Facilities Permit limits YCCL incoming waste tonnage (disposed and recycled) to a maximum of 1,800 TPD. Increasing the overall tonnage of waste processed at the YCCL would increase demand for fire protection services.

While the need for fire protection services would increase, the YCCL would continue to follow existing operational policies, as follows:

- Landfill personnel are trained to combat refuse fires and to detect trucks with "hot loads." If a hot load is deposited in the active face, personnel are instructed to move all equipment and trucks away from the burning refuse, spread the burning refuse over a large area using dozers, douse the refuse with water from the water truck, cover it with soil, and leave it overnight.
- A water tanker and sufficient cover material are maintained at a convenient location for use in fire suppression.
- Groundwater is used as the main water supply, and there is a sufficient quantity stored on-site.
- Heavy equipment would be called upon for fire suppression.
- A fire extinguisher (trigger in the cab) is located in the cab of each vehicle. All landfill personnel carry cellular phones.

The existing YCCL operational policies listed above would ensure that impacts related to fire and fire protection services from the increase in maximum daily tons of wastes would be less than significant.

Mitigation Measures

None required.

Impact 3.14.2: The Project element facilities (e.g., waste gasification facility, thermal pressure hydrolysis system, transfer station, peaking power plant, wood pellet facility, organic waste fertilizer facility, biomass to methanol pilot facility, and expanded biogas utilization options) could increase the risk of fire occurring at the YCCL. (Significant)

The Project includes the design, construction and operation of landfill facilities that would be dedicated to addressing incoming waste streams more efficiently and to conserve energy. The operation of these facilities could increase potential for fires and thus increase demand for fire protection services and therefore may be considered a significant impact.

Waste Gasification Facility

The waste gasification facility would consist of various equipment and processes to produce hydrogen or electricity. Potential fire risks include but are not limited to dust explosions from material handling inside buildings, fire and/or deflagration within process equipment, instantaneous combustion of pyrophoric materials, and fire and/or deflagration of process gases during a loss of containment.

Thermal Pressure Hydrolysis System

The thermal pressure hydrolysis equipment would consist of pressurized autoclave vessels that are fed steam. The potential fire risks include but are not limited to the potential use of a gas-fired boiler. Although the plan is to use thermal heat that is generated in the combined heat and power unit to produce steam, a gas-fired boiler would be used as a back-up (C. Ramos, Electronic Correspondence, December 2, 2020).

Transfer Station

The transfer station would be designed to handle the YCCL's current and future waste flow and would transfer solid waste to an off-site landfill. There is a wide array of potential fire risks at transfer stations. Some of those risks include but are not limited to spreading fire from incoming "hot loads", build-up of debris, frictional generated heat from mechanical equipment, misuse of electrical equipment, spontaneous ignition, and self-heating of stockpiles (EPA Ireland, 2013). Aside from a functional sprinkler system, due to high ceilings in transfer stations, additional fire protection measures are required (e.g., fire hoses for small fire containment) (EPA, 2000).

Peaking Power Plant

A peaking power plant would operate using LFG-fired engine(s). Internal combustion engines, whether fueled by gasoline, diesel, propane, natural gas and/or other fuels can act as ignition sources. Therefore, engines require a specific fuel-to-air ratio to work properly to avoid any sparks, overspeed and control engine operating temperatures (OSHA, 2012).

Wood Pellet Facility

The wood pellet facility would utilize biomass fuel to create pellets as an energy source that could be sold. The facility would also include outdoor storage. Fires from wood pellet facilities are most commonly from the combustion of wood pellet dust clouds (dust fires), storage fires, and combustion of self-heating fuel piles. Lack of safeguards increase the fire potential in these facilities (e.g., lack of adequate spark detection devises, lack of fire suppression systems, and lack of explosion venting/protection within the dust collection system). Inherent problems with these facilities can be minimized with improvements to equipment design and proper storage of wood pellets (Dafnomilis et al., 2018).

Organic Waste Fertilizer Facility

The organic waste fertilizer facility would utilize organic waste and convert it to fertilizer. Specific fertilizers would be stored at the YCCL and later sold. Potential fire risks from storing organic waste fertilizers comes from storage of fertilizers containing ammonium nitrate.

Ammonium nitrate is a combustible chemical and can create explosive reactions when exposed to a strong initiating source or when confined at high temperatures and when it is not properly stored or processed (EPA, 2015).

Biogas to Methanol Pilot Facility

The Biogas to Methanol Pilot facility would convert methane directly into methanol (specific process of conversion depends on the manufacturer of the facility equipment). Potential fire risks could include but are not limited to the combustion from storage of methanol fuels. Methanol fuels require a high volume of vapor to burn. When ignited, methanol fire is generally not volatile and can be confined to small areas when ignited (EPA, 2001).

Expanded Biogas Utilization Options

The Expanded Biogas Utilization Options would convert biogas into Renewable Compressed Natural Gas (RCNG) vehicle fuel or inject RCNG into a high-pressure gas line, either the Sacramento Metropolitan Utility District (SMUD) or Pacific Gas and Electric Company (PG&E). Potential fire risk could include but are not limited to fire and explosion hazards from methane (the main constituent of biogas). If a spark is present and enough Methane is mixed into the air, fires and explosions can occur. When biogas containment equipment is not properly maintained, biogas can collect in shaft and cavities and potentially form an explosive atmosphere that can be detonated by gas burn-offs, biogas compressors, open fires, or hot surfaces (Khanal and Nitayavardhana, 2019).

Conclusion

Development of the proposed facilities would be designed to meet NFPA regulations, the California Fire Code and all applicable standard building codes that help minimize the possibility and effects of fire related risks at the YCCL. As discussed above, the proposed facilities at the YCCL would all introduce potential fire hazards. Each potential fire risk would be specific to the type of proposed facility components including but not limited to facility design, facility materials storage and facility operational purposes at the YCCL. Thus, this impact would be significant.

Mitigation Measures

Mitigation Measure 3.14.2: As part of the standard review process, the County shall review and approve a *Fire Prevention Control and Mitigation Plan* that shall be developed for each applicable Project element, which shall include but not be limited to:

- Description of the measures the operator will take to prevent fires and to control and extinguish fires.
- Identification and description of the equipment the operator will have available (on-site) to control and extinguish fires.
- Description of the measures the operator will take to mitigate the impacts of any fire at the site to the public health and safety and the environment.

- Description of the arrangements the operator has made with the local fire control authority to provide fire prevention, control, and suppression in the event of a fire.

Level of Significance After Mitigation

Implementation of Mitigation Measure 3.14.2 would reduce the potential impacts related to fire and fire protection services from the development of the Project element facilities to a less-than-significant level.

Impact 3.14.3: The Project facilities could have water demands greater than water supplies. (Less than Significant)

Substantial amounts of water could be required for various operation of the Project elements. YCCL currently maintains a supply of groundwater that exceeds the demands for water supplies on-site. Based on the existing water storage, it is assumed that there is a sufficient amount of water supplies to accommodate all future water needs. As discussed in Chapter 2, Project Description, the Project is proposing to increase groundwater pumping at the site (in accordance with the Central Valley Regional Water Quality Control Board standards) to lower groundwater under several modules as well as treat volatile organic compounds (VOC's) in several wells. This proposed increase in groundwater pumping would add additional water supply to the YCCL that could be used for operational purposes (depending on water quality requirements of the Project elements). Therefore, the YCCL would have sufficient water supplies to accommodate future water demands for the Project elements, and impacts related to water supplies are less than significant.

Mitigation Measures

None required.

Impact 3.14.4: The Non-Specific Future Off-Site Soil Borrow Area could create impacts related to public services and utilities. (Less than Significant)

The location of the Non-Specific Future Off-Site Soil Borrow Area (Off-Site Borrow Area) has not yet been identified, and no parcel of land has been purchased for site development. Development of the Off-Site Borrow Area would not increase population and thus would not create a demand for schools, parks, or other public facilities. The Off-Site Borrow Area would not increase demand for fire or police protection services and would only require police/fire department services in the event of an emergency. The Off-Site Borrow Area would not require new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities. The Off-Site Borrow Area would only require water supplies for dust control during soil excavation and transportation activities. The amount of water supply needed for dust control would vary depending on the weather and soil conditions. The Off-Site Borrow Area would provide portable toilet facilities available to workers on-site. No off-site stormwater drainage facilities would be required. Stormwater would likely remain on-site, and

any off-site discharge would be in accordance with State Water Resources Control Board's regulations and applicable permits. The Off-Site Borrow Area would not generate a significant amount of solid waste or violate any applicable solid waste standards. Minor amounts of municipal waste would be generated by workers on-site and the waste would ultimately be disposed of at the YCCL. Therefore, impacts related to public services and utilities from the development of the Off-Site Borrow Area would be less than significant.

Mitigation Measures

None required.

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