Project Description, Setting, & Objectives Chapter 2

INTRODUCTION

Harvest Power's, composting facility is located on the west side Road 140 between Avenues 248 and 240 in Tulare County, and operates under an existing special use permit (PSP 99-026(ZA)), and all the Conditions of Approval (COA) contained within the special use permit. The proposed facility is surrounded by agricultural uses, including dairies, farms, and vineyards.

PROJECT LOCATION

The Project site is located west of Road 140 between Avenues 240 and 248 in Tulare County, east of the City of Tulare (See figure 2-1). The proposed Project is in the Public Land Survey System of Sections 33, Township 19 South, Range 25 East, and can be found within the Tulare United States Geological Survey (USGS) 7.5 minute topographic quadrangle at:

Latitude: N 36° 13' 56.5782"
Longitude: W 119° 16' 10.5414

The site is a currently operating composting facility that accepts green waste, food waste, and manure on the entire 35 acre site. There are four APNs involved in the proposed expansion and new facility: 150-140-014, 150-140-016, 150-140-009, and the existing easement across 150-130-004. Expanded composting would occur on APNs 150-140-014 and 150-140-016, with the grind screen and green waste unloading occurring on APN 150-140-016. Immediately to the north is parcel 150-130-004. The parcel is currently used as a dairy operation and is not a part of this Project (NAPOP). The surrounding properties are similarly zoned AE-40 and are currently active farms. The Bio-digester and CNG station will be located on APNs 150-140-009.

VICINITY OF PROJECT SITE

State Route 99 is approximately 2 miles to the west. The major natural features in the area include the Sierra foothills located approximately 44 miles to the east. The proposed Project site is located approximately 57 miles east of the Coast Range and approximately 44 miles west of the Sierra Nevada Mountain Range. Bravo Lake is located approximately 20 miles to the southeast of the site and Lake Kaweah and Terminus Dam are located approximately 18 miles to the northeast of the proposed Project site. There are no major or minor faults within two miles of the proposed Project site.

Figure 2-1
Vicinity Map

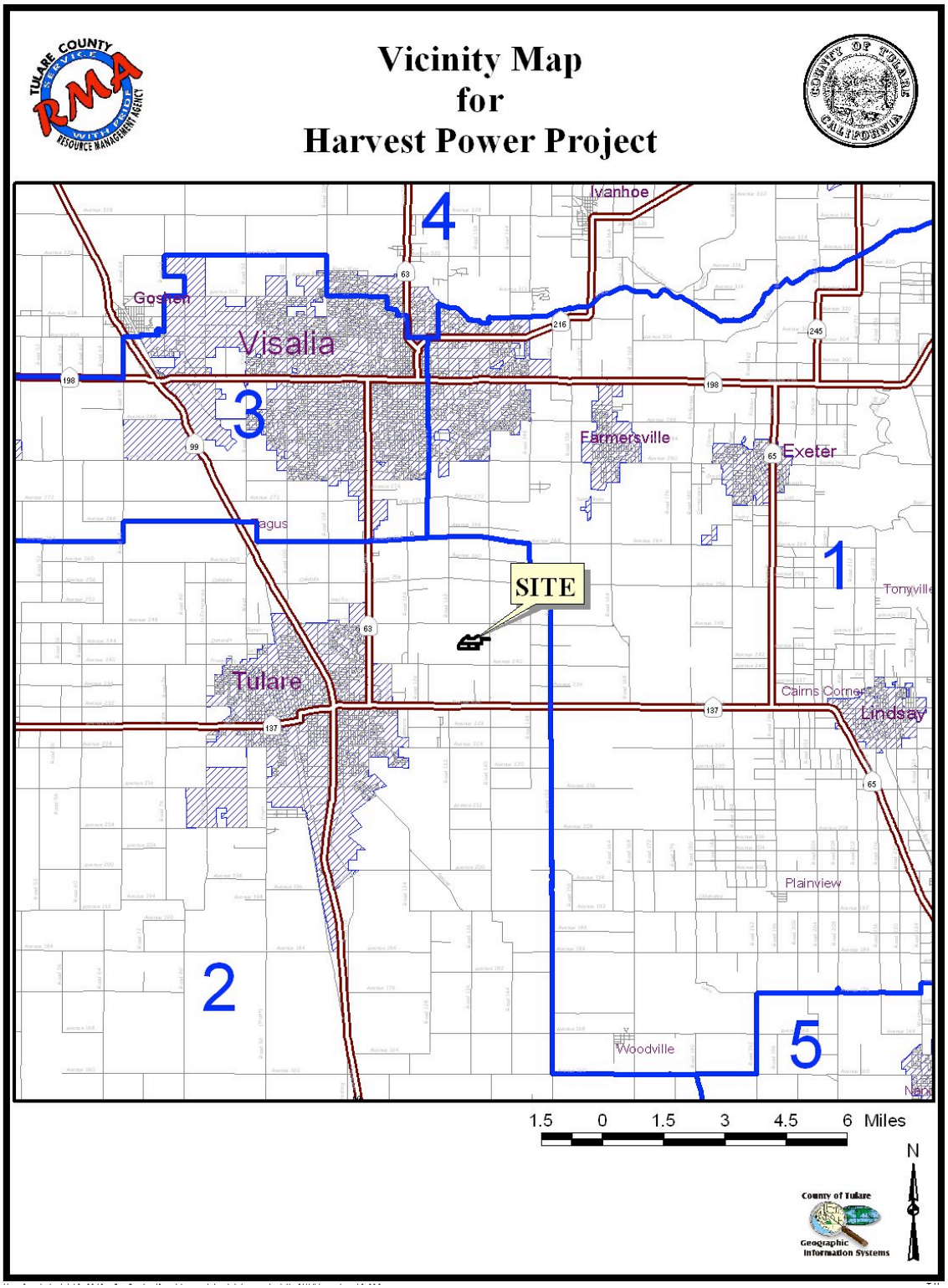


Figure 2-2
Aerial Photo

SURROUNDING LAND USE

The Harvest Power composting facility currently holds operating permits (PSP 92-091 and PSP 99-026 (ZA)) to compost green material, food, and dairy manure. The Project site is zoned AE-40 (Exclusive Agriculture, 40 acre minimum). The General Plan designation is Rural Valley Lands Plan (RVLP). The two larger parcels in the Project site are subject to Land Conservation (Williamson Act) contracts.

Surrounding land uses are primarily agricultural mixture of orange orchards, row crops and farmed lands; rural residences are located less than one mile south and east of the site. Rural residences are located less than one mile south and east of the site. Commercial businesses are located to the north and southeast of the proposed Project site. The Sundale Preschool and Elementary School are located less than one mile SE of the site, at the NW corner of the intersection of Road 140 and Avenue 240.

CURRENT OPERATIONS

The current Use Permit allows for 500 tons per day (TPD), and specifies storage of daily incoming ton limits of (8,000 tons), processing (17,500 tons), and finished product (5,000 tons). Currently, the composting facility is permitted to process 86,000 tons per year (TPY) of green and food material by the County, and CalRecyle's local enforcement agent (LEA), and a not to exceed limit of 156,000 tons per year of green and food material by the San Joaquin Valley Unified Air Control Pollution District (SJVACPD or Air District); however, the facility currently processes approximately 75,000 TPY of green and food material, which is approximately 48% of the permitted limit. Harvest Power will continue to operate as a windrow composting operation. The day-to-day operations include: a processing area for receiving compostable materials and processing them for the composting process; creating and maintaining compost piles with a windrow turner; monitoring temperature and moisture of the active composting piles to meet pathogen reduction and VOC reduction requirements and curing materials; and a finished product area where stabilized materials are stored prior to sale and transport off-site. All material produced at the facility has organic certification. The finished product markets will continue to include local nurseries, landscape services, and farmers. The facility currently accepts clean green materials, including tree trimmings, leaves and agricultural residue in addition to certain food materials, and dairy manure.

PROPOSED USE

The proposed Project includes expanding the amount of material at the site at a not to exceed limit of 216,000 TPY. The material to be processed will consist of 156,000 TPY of combined green and food materials and 60,000 TPY of manure. This Project will include either a low solids and/or high solids anaerobic digestion facility, a Biogas Upgrading Unit, and a Compressed Natural Gas (CNG) fueling station to produce and dispense CNG for sale, primarily to truckers making deliveries to the facility, and a Combined Heat and Power Unit for

cogeneration power usage. The anaerobic digester will be situated on approximately three (3.0) acres of the approximately 35.0 acre composting facility (on APN 150-140-009). This Project will include a high and/or low solids anaerobic digester which will produce biogas from the decomposition of organic feed stocks. The biogas will be conditioned to compressed natural gas using upgrading technology. An undetermined portion of the biogas maybe used in a combined heat and power unit to generate electricity.

The anaerobic digestion process converts the feedstock into bio-methane, or renewable natural gas. The anaerobic digester will process approximately 60,000 tons per year of organic materials primarily from green waste and food processing facilities, and other commercial enterprises and will include Fats, Oil, and Grease (FOG) from restaurants or food processing facilities. The residual material from the digestion process (digestate) will be in liquid and solid form. It will be applied to the composting material already located on the same property as the digester, or stored in a lined and covered pond if the weather does not allow for direct application of the liquid fraction of the digestate.

The energy produced at the facility will be used to create vehicle fuel through the construction of a CNG facility. The CNG refueling station will be constructed and operated in close proximity to the Harvest Power office. This station includes gas clean-up (which concentrates methane levels in the biogas), storage tanks, and a compression unit.

As part of the proposed Project, Harvest Power is requesting the construction of the following:

1) An above ground anaerobic digester
2) An adjacent effluent storage tank if needed
3) Control Room
4) Truck Ramp
5) Feed Hopper
6) Turbo Separator
7) Mixing Tank
8) Fat, Oil, and Grease (FOG) Tank
9) Biogas Upgrading Unit
10) Compressed Natural Gas (CNG) Compressor and Dryer Unit
11) CNG Storage Vessels
12) CNG Dispensary
13) A Combined Heat and Power Unit (CHP)
14) Emergency Flare
15) A Drainage Swale
16) Biofilter

Figure 2-3
LSAD Site Plan

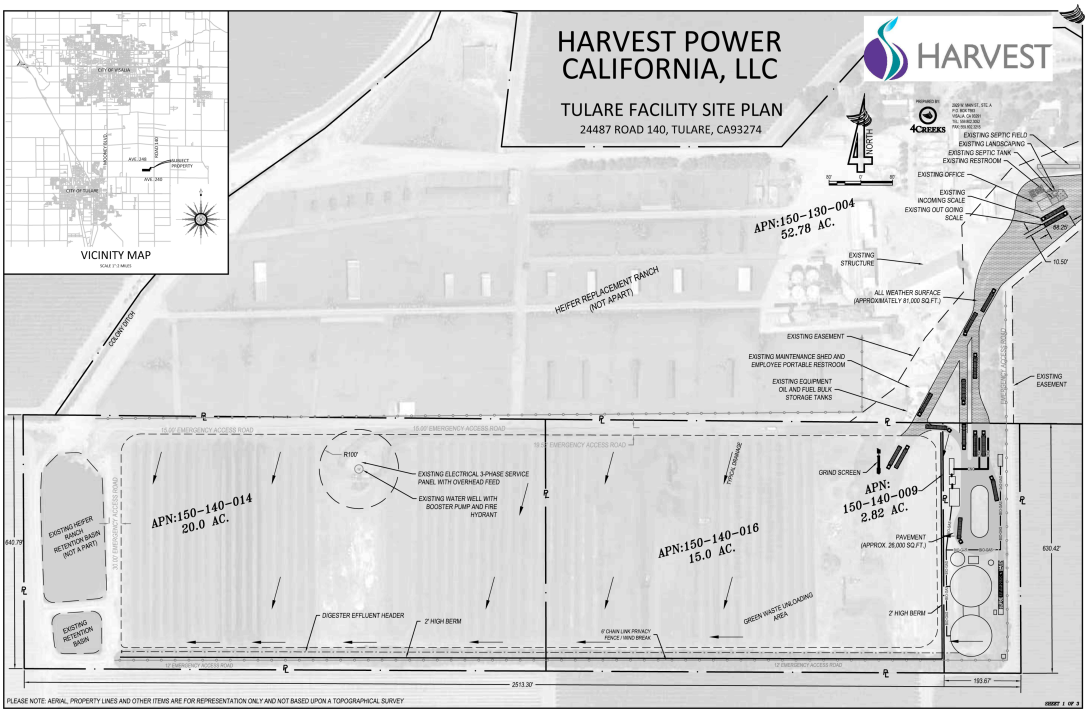


Figure 2-4
Office Plan

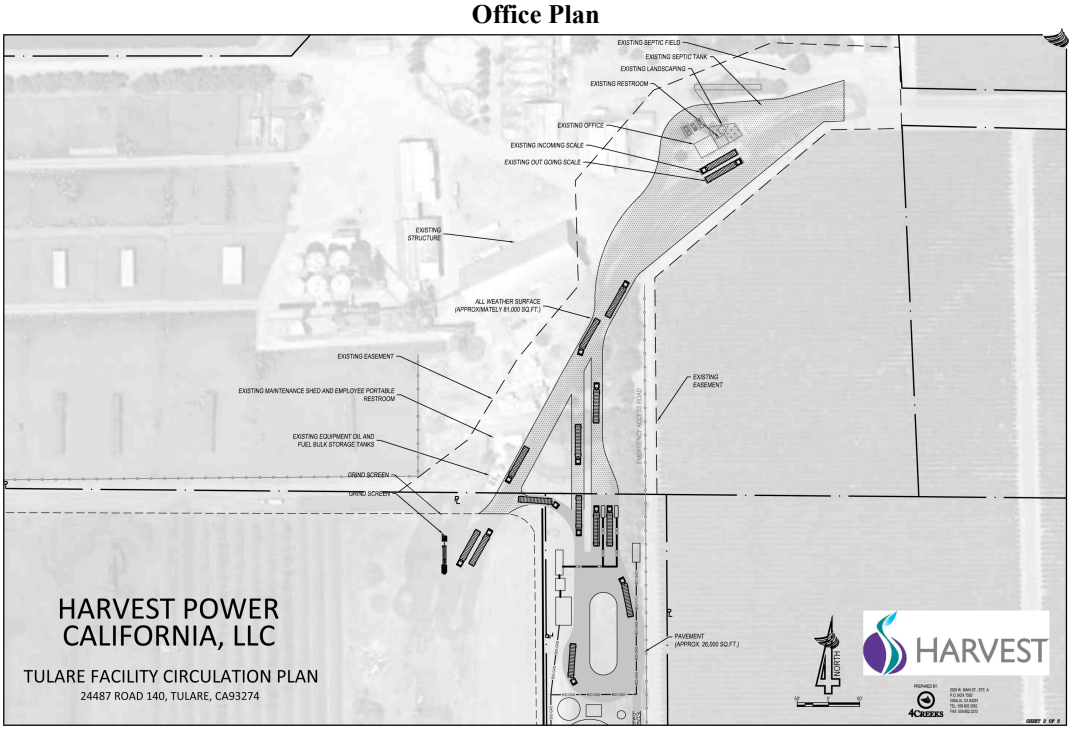


Figure 2-5
Digester Facilities Plan

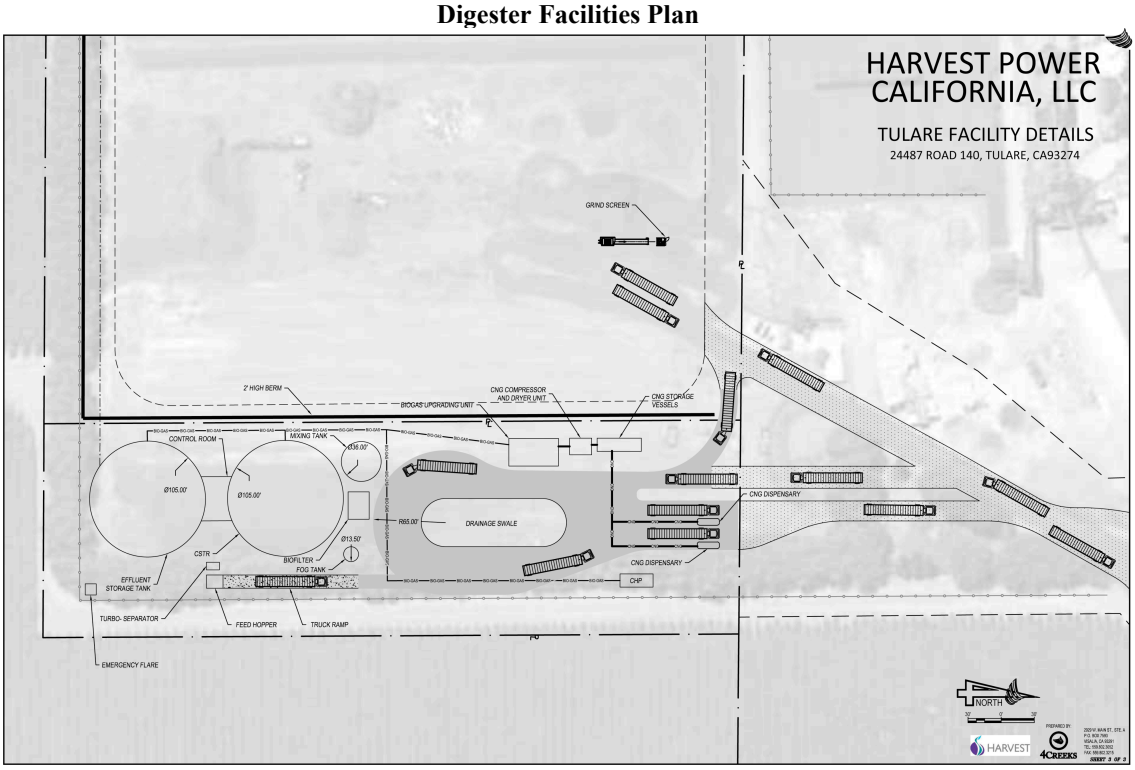


Figure 2-6
Site Plan

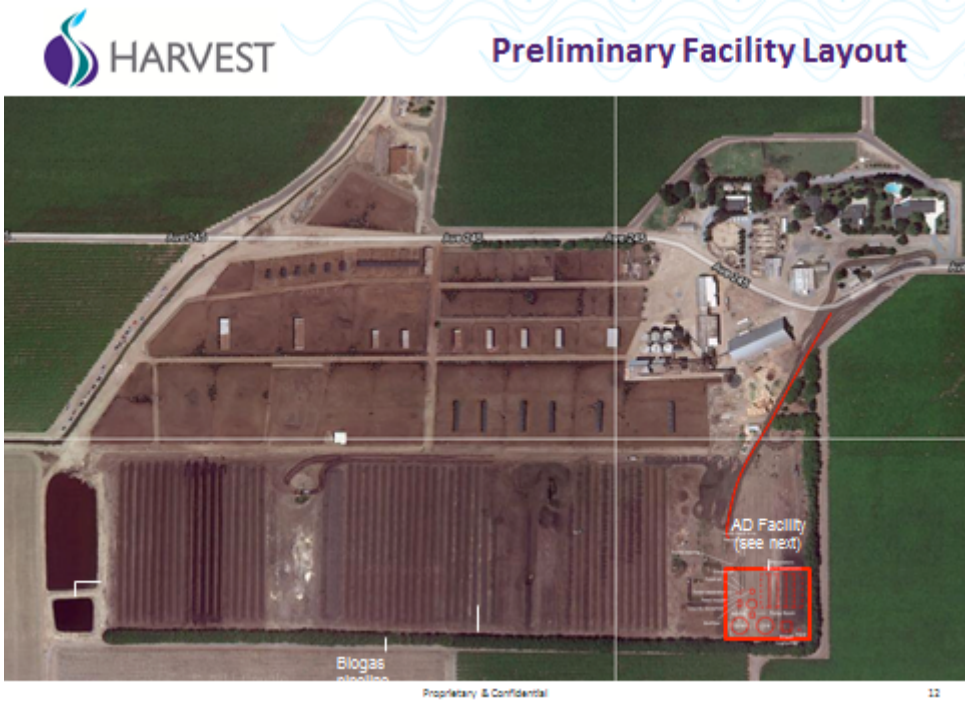
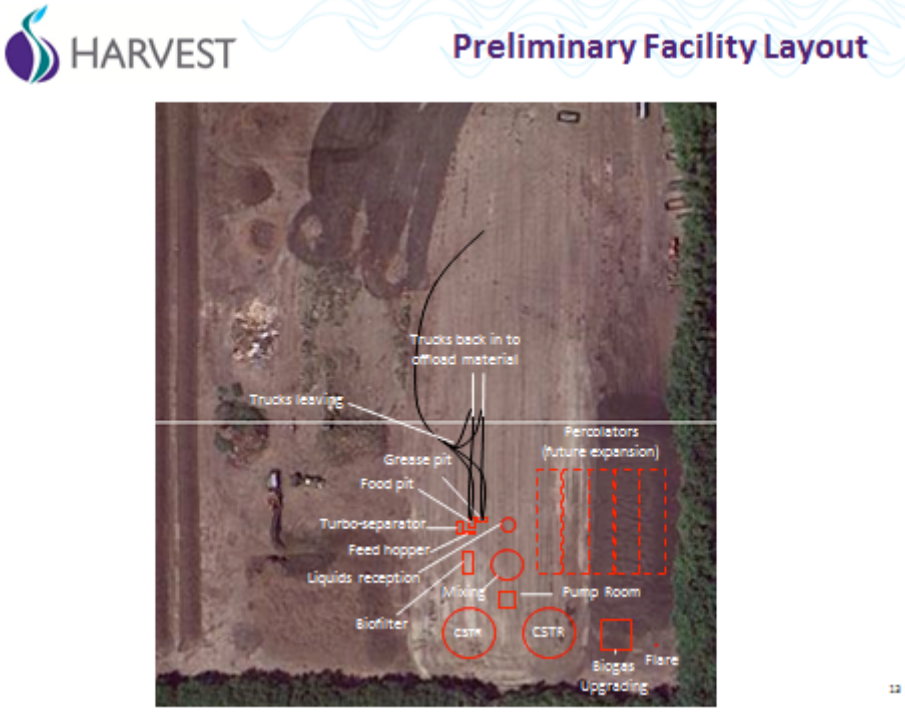


Figure 2-7
Site Plan (Alternate Technology)



REGULATORY SETTING

The materials handled on the site for the composting operation are specified in the "*materials on site*" section below. Amendments to PSP 99-026 (ZA) conditions of approval include an increase in tonnages and the type of material recycled at this facility. These changes are highlighted in the Land Use Section. Harvest Power is under obligation to continue to comply with all conditions of approval under PSP 99-026 (ZA). Other operations that require regulatory compliance include:

County Planning, Engineering and Building Departments

- Compliance with all general plan land uses, zoning regulations, and development codes
- Compliance with all fire codes for the composting and for design and use of CNG tanks
- Compliance with all engineering standards for biogas pipe design
- Compliance with all building requirements

Local utility and special district requirements

- Compliance with standards for connection to Southern California Edison for CHP
- Compliance with any setback requirements from the irrigation district

County Environmental Health & County Solids Waste Division

- Compliance with solid waste handling requirements
- Compliance with odor and vector controls
- Compliance with for all tanks including effluent storage, biodigester, and CNG tanks

CalRecycle

- Compliance with all operations

Regional Water Quality Control Board

- Compliance with all design Water Discharge Requirements (WDR) Requirements including National Pollution Discharge Elimination System (NPDES)
- Approval of all drainage facilities and design specs for concrete

San Joaquin Valley Air Pollution Control District

- Compliance with Fugitive Dust (Regulation VIII) Requirements
- Air Emissions permitting and regulation

EXISTING OPERATIONS

The existing facility includes composting of materials on site. The composted material includes: "green material" (including landscape and tree trimmings), food, and dairy manure materials. The Harvest Power composting facility is currently open Monday through Friday from 7:00 a.m. to 4:30 p.m. and on Saturdays from 8:00 a.m. until 4:00 p.m. The hours will remain the same. The anaerobic digester will be open for deliveries and processing during the same period.

Staffing Personnel

The composting facility currently employs approximately six (6) to nine (9) fulltime employees. The proposed Project will increase the total number of employees to 12. These employees will perform all operations and maintenance tasks related to the facility. The operations building for the existing facility, which is located on the parcel adjacent to the site, will be adequate for the operations of the existing compost Project. A new control room and additional staff will be added to the anaerobic digester facility.

Existing Utilities

- Water – there is an existing agricultural water well on site
- Water Fire – there is existing water well with booster pump and fire hydrant
- Sewer – there is an existing septic system for the office on site
- Drainage – there is existing drainage system with 2 foot high berms surrounding the site and piping / drains between the existing retention basin and the existing windrows
- Electricity – there is an existing 3 phase service panel with overhead feed

Operations Equipment

Initially, the existing off-road equipment used at the facility will also be used during operations of the proposed Project. If there are changes to the type of equipment, including number of units, the County shall review the appropriateness of additional equipment for conformance to the use permit. Current equipment on site includes the following:

- 5 loaders
- 1 grinder
- 3 power screens
- 1 Scarab windrow turner
- 2 water tractors
- 2 roll off trucks

DETAILED DESCRIPTION OF PROPOSED PROJECT

There are three main components of the proposed Project:

1) Expansion of materials accepted at the composting operations;
2) Construction of an anaerobic bio-digester to produce natural gas (biogas); and,
3) A compressed natural gas (CNG) fueling station and combined heat and cooling unit (CHP) exchange unit.

The combined feedstock and trucking operations are summarized in the spreadsheet below, and the associated details are documented in subsequent sections. The maximum amount of trips will not exceed 110 per day (see **Table 2-1**) or 18 per hour and will not operate above any thresholds of significance.[1]

Table 2-1
Tonnages and Truck Traffic
Tulare EIR & CUP Tonnages for Composting and the Anaerobic Digester Project

Description	Input Tonnages		Total	Total Trucks to Accommodate Operations	
Composting Operations	156,000 60,000	}	216,000	85	Separate Conditional Use Permit
Anaerobic Digester	60,000	→	60,000	25	Separate Conditional Use Permit

Source: Harvest Power, Inc. and TPG Associates

Composting Upgraded Operation (Component 1)

Harvest Power plans to continue to operate the composting operation on the same footprint (including the new anaerobic digestion equipment). Materials accepted at the facility will continue to be food material, yard material, and manure. The amount of food and yard material accepted will expand to at maximum limit of 156,000 tons per year, and 1,000 tons per day (during peak periods).. The upgraded tonnages are designed to be consistent with the current Air District permit for the food and yard portion of the facility.

Manure will be composted on site and limited to 60,000 tons per year, and the appropriate Air District permits will be obtained if the manure limits accepted at the facility require a permit amendment. Due to the site's space constraints, it is not anticipated that the total of 216,000 tons per year of combined green waste, food waste, and manure compost will be reached.. However, the separate limits allow maximum operational flexibility on the balance of these materials on the site.

Incoming material – Feedstock Processing Area

When material is delivered to the site, it is deposited in an area reserved for grinding. First, the material is screened for non-compostable materials. These materials are separated and placed in a covered dumpster. The green and commingled material is then put through the grinder and

[1] Appendix E: TPG Amended Traffic Study Letter , March 5, 2013

placed into windrows. Materials that are particularly woody in nature may be ground, screened and sent off site for hog fuel. All compostable material entering the site will be ground and incorporated within three days of receipt. As soon as it is formed into windrows, the composting process and conditions associated with this process will begin. The stockpiles will continue to be maintained below 15 feet in height. This area will adhere to all fire department requirements (see Fire Protection section, Chapter 3.14.)

Composting material – Windrow area

Once the material is placed into windrows it will be monitored for temperature and moisture and turned. This process ensures that it meets CalRecycle pathogen reduction and vector attraction reduction requirements; In addition to CalRecyle requirements, this process also reduces volatile organic compounds (VOC) as required by the Air District. This process is consistent with the current operations at the site. The Air District regulations will require a more prescribed watering regime to reduce air contaminants and significantly reduce dust through the use of additional watering and maintenance to minimize the tracking of material off site and for dust suppression during the dry months. Following the time and temperature requirements, the material will remain in the windrows until it is cured. This stage begins a drop in temperature of the composting piles and initiates the process of creating mature compost. This phase lasts 2-3 months and enables the compost to stabilize so that it is beneficial to plant growth. After curing, the material cannot begin composting again and thus is free from any potential odor or vector issues. The facility is currently accepting food and yard material, and the addition of digestate from the anaerobic digestion process will not alter the composting process. The management practices are designed to ensure that this material will not cause odor, vector issues and pathogen and that VOC reduction conditions are met or exceeded.

Overs

At the end of the curing phase, the material is run through a screen and the material is separated into fines and overs. The fines are sold as finished compost products, and the overs are either incorporated into the compost or reground for mulch product.

Finished product

The finished compost product is placed into separate piles where it is either sold directly in bulk, or mixed with other amendments to form specialized products. The finished compost material is stable, and certified organic. It is sold to landscapers and for agricultural uses. All material is sold well within the six month required hold time. There is a higher demand than there is supply of the finished compost. If the material is stockpiled temporarily for larger orders, the material will continued to be stored in piles below 10 feet in height.

Equipment

Initially, the same equipment will be used to manage the facility. Current equipment on site includes the following: five (5) loaders, a grinder, three (3) power screens, Scarab windrow turner, and two (2) water tractors, and two (2) roll off trucks.

Dust

Harvest Power has a number of dust control procedures in place, all of which will continue when the site is upgraded. The dust study that was conducted resulted in a number of conditions that are ongoing and will be continued: (See Air Quality Section)

- All travel ways and composting areas are watered at least twice per day during the dry season and as needed during the balance of the year to reduce the generation of dust;
- Misting system was installed and is operated on the scarab and can be installed on any other compost trucking equipment to capture fine dust particles; and
- Trees along the east and south property line can be misted during the dry season to help remove buildup of dust on the leaves.
- The LEA conducts regular inspections of the facility and dust migration is one of the items routinely checked.
- Dust fence was installed January 2011, along the southern and eastern boundary of the site to capture dust generated from the composting facility.
- Harvest Power inspects area for dust migration daily during the dry season and as needed the remainder of the year

Truck Traffic

The Harvest Power composting facility is currently accepting materials to be composted and selling bulk compost to the landscaping and agricultural community. All of the vehicles enter the site, are weighed, and then off-loaded. This process is accomplished within the same hour for each truck. At the upgraded facility, the maximum number of trucks will not exceed 85 at the composting facility. All truck trips include hauling of inbound (feedstock to be composted) and outbound (final compost) material for sale for agricultural use

Harvest Power maintains control over the number of vehicles entering and leaving the site. The facility operator contracts with each load entering and leaving the facility. The site receives very limited use from the general public. It is the intent of Harvest Power to be open for community drop off days, which will be subject to pre-approved by the County and CalRecycle's LEA. The flow of traffic into the site is as follows: The trucks enter the site, drive across the scale to be weighed, drive to the off-loading area where material is inspected, and off-loaded. The traffic at the site is controlled so that no trucks will back up onto Road 140. The outbound trucks enter the site, load finished compost material, are weighed, and leave the site.

Drainage and Water Quality

The composting facility is currently designed to protect ground and surface water. The compost pad is compacted and the site is bermed and sloped toward a compacted retention pond. The compaction and berm are currently, and will continue to be maintained, for operational reasons and to prevent any adverse effects to the groundwater. Any changes required by the Regional Water Quality Control Board will be implemented and maintained.

All internal runoff created by the facility operations and precipitation up to a 100-year, 24-hour storm event is currently, and will continue to be, contained on site. Water coming into contact with any feedstock or composting material will be prevented from leaving the site through berms and detention/retention ponds. Additionally, the compost pad areas will be sloped toward the retention pond, which is designed to collect water from the entire 35 acre site. The current berms and slopes will be modified to ensure that any changes to current conditions are met.

The facility will continue to comply with any regulations or procedures required by the State or Regional Water Quality Control Board. The drainage ponds will continue to be maintained to manage weed growth and prevent fly and mosquito breeding. Harvest Power will comply with the statewide general waiver order for composting facilities, including any future order approved and required by the State Water Quality Control Board (SWQCB).

Air Quality

Harvest Power currently holds Permit to Operate and is in compliance with the all San Joaquin Air Pollution Control District (SJVAPCD or Air District) rules/regulations. These regulations impose stringent operational parameters and require that emissions must not exceed current levels for existing composting facilities; Harvest Power falls within this category. This document contains conditions for equipment and composting operations to ensure that there will be no increased emissions from the current operations. The facility also complies with all air quality regulations that encompass more stringent requirements including a watering regimen designed to avoid increases in VOC emissions. These regulations also include provisions for dust control on-site and preventing/removing any dust that may be tracked off-site. The facility will also comply with the air quality regulations that encompass more stringent requirements on incorporation of incoming material (currently at a maximum of 10 days, moving to a maximum of three days when the incoming food and yard material reaches 100,000 tons per year for the composting facility). The facility will adhere to these operational conditions. The upgrades will be conducted in accordance with this permit with no modifications required by the Air District.

Odor

Harvest Power currently operates under an odor mitigation plan to comply with the CalRecycle Full Composting Facility permit. The Odor Impact Mitigation Plan (OIMP) includes contact information and specific protocols designed to prevent odor, and address odor concerns if they do arise. The OIMP focuses on processes to prevent odor from migrating off site during the feedstock delivery, composting and curing phases, and the protocol to address odor concerns should they arise. The processes include mixing the any food materials with green materials immediately upon arrival at the site, and incorporating into compost windrows as soon as possible, within a maximum of 36 hours. Watering and turning regimes increase the temperature and speed of breakdown of the material in the windrows, diminishing odor. A specific protocol for neighbor notification and response to neighbor issues is also included. This document will be updated with the permit modification required by CalRecycle for the upgraded feedstock volumes.

Greenhouse Gas Emissions

State of California regulations under its new climate change policies encourages the diversion of material from landfills to activities such as composting. At Harvest Power, green, food and manure materials are composted and reduce or replace landfilling. In addition, the end use of the material for agricultural and landscape uses adds organic matter and increases water holding capacity of the soil that enables the soil to sequester more carbon. Overall, the Harvest Power facility reduces greenhouse gases by the combination of removing these materials from the landfill and applying the finished compost product to the land.

Biodigester (Component 2)

The proposed Project includes a biodigester that processes gases from the anaerobic digester facility, which includes a low solids and/ or high digestion process. (See Figure 2-5) Two digestion processes low solids (LSAD) and High Solids (HSAD) or a hybrid of these could be included at the site. The digester facility will be designed to accept approximately 192 tons per day for six days per week for a total of approximately 60,000 tons per year of organic materials for the anaerobic digester. Feedstock for the facility will be sourced from Tulare and neighboring counties. Examples of this material will include scraps from local restaurants, institutions and cafeterias, food processing residuals, and restaurant fats, oils, and grease (FOG). Material will be delivered to the site and deposited immediately into two reception areas: a food waste reception area and an above ground grease tank.

Anaerobic Digester Feedstocks

A combination of Food, Green and Fats, Oils, and Greases will be utilized as feedstocks for the anaerobic digester. The total amount of material accepted into the digester will not exceed 60,000 tons per year. For the high solids digester option, approximately 75% of these materials will be composted after they are processed, and this material will also count toward the 156,000 tons per year limit.

Grease

Truckloads of grease feedstock that are mostly liquid in nature will be pumped directly from the delivering transportation unit into an above ground liquid reception tank with approximately 15,000 gallons of storage capacity using a flexible heavy duty hose with quick connect couplings. The grease will pass through a stone/grit separator before it is pumped to the mix tank. The grease tank will be a fixed mount roof with an internal heater that will keep the grease from solidifying.

Organic Separator

Food waste from the receiving container will be conveyed to a mechanical organic separator that will separate organics from non-organics. The organic fraction will then be pulverized into a liquid form with an intergraded hammer mill and pumped to the digester by an intergraded liquid

transfer pump. The inorganic fraction from the mechanical separator will be removed from the organic separator by intergraded take-away augers and discharged into a roll off bin that will be hauled to a nearby landfill.

Food and Green Waste

Truckloads of food waste will be off-loaded into an above-ground, liquid tight container for LSAD and immediately moved into the digester in the event it is processed as HSAD. Trucks will back up onto a sloped ramp leading to the receiving container. The food waste container will be equipped with a hydraulically operated cover that will close immediately after the truckload is emptied. The food waste receiving container will be fitted with discharge screws at the bottom to discharge the food waste into a mechanical organic separator.

All organic receiving equipment will be mounted on concrete with a perimeter splash lip to ensure any residual liquid is contained and pumped back into the storage vessels, to avoid contact with areas that are not lined or paved.

Mix Tank

Material from the organic separator and grease tank will be pumped to a mixing tank. Mixers in the tank will keep the feedstock homogenized. This tank will have a volume of approximately 150,000 gallons, providing a retention capacity of approximately four days.

The mixing/hydrolysis tank serves as a feed equalization and buffer holding tank. The substrate will be diluted to 12 to 14% Total Solids (TS) level with recycled digestate liquid and intermittently agitated with a mixer to maintain a homogenous mixture. The mixed material will be fed directly to the digester. The pump assemblies will be configured to feed the digester and to maintain an appropriate organic loading rate to the digester.

Figure 2-8
LSAD Process Flow Diagram

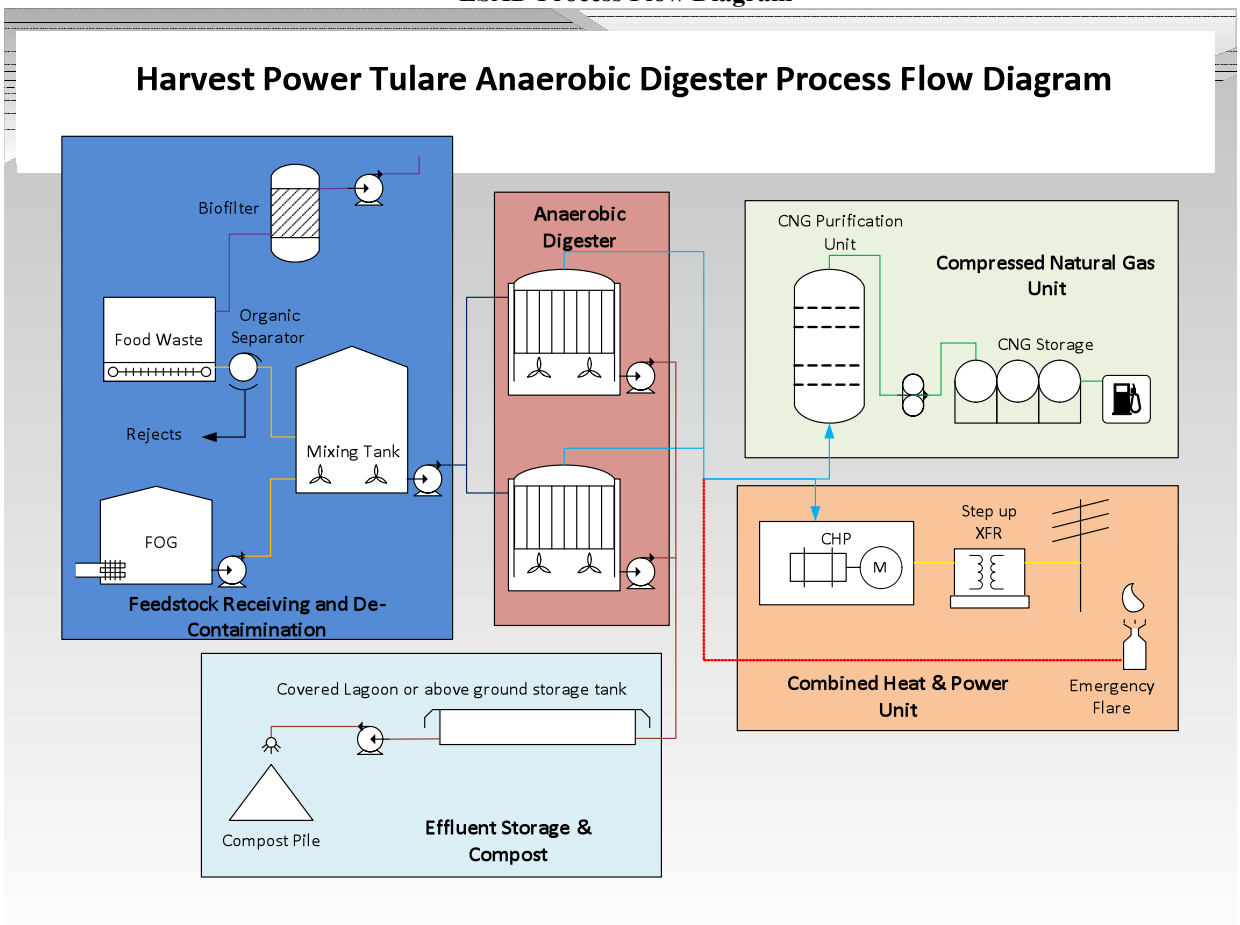
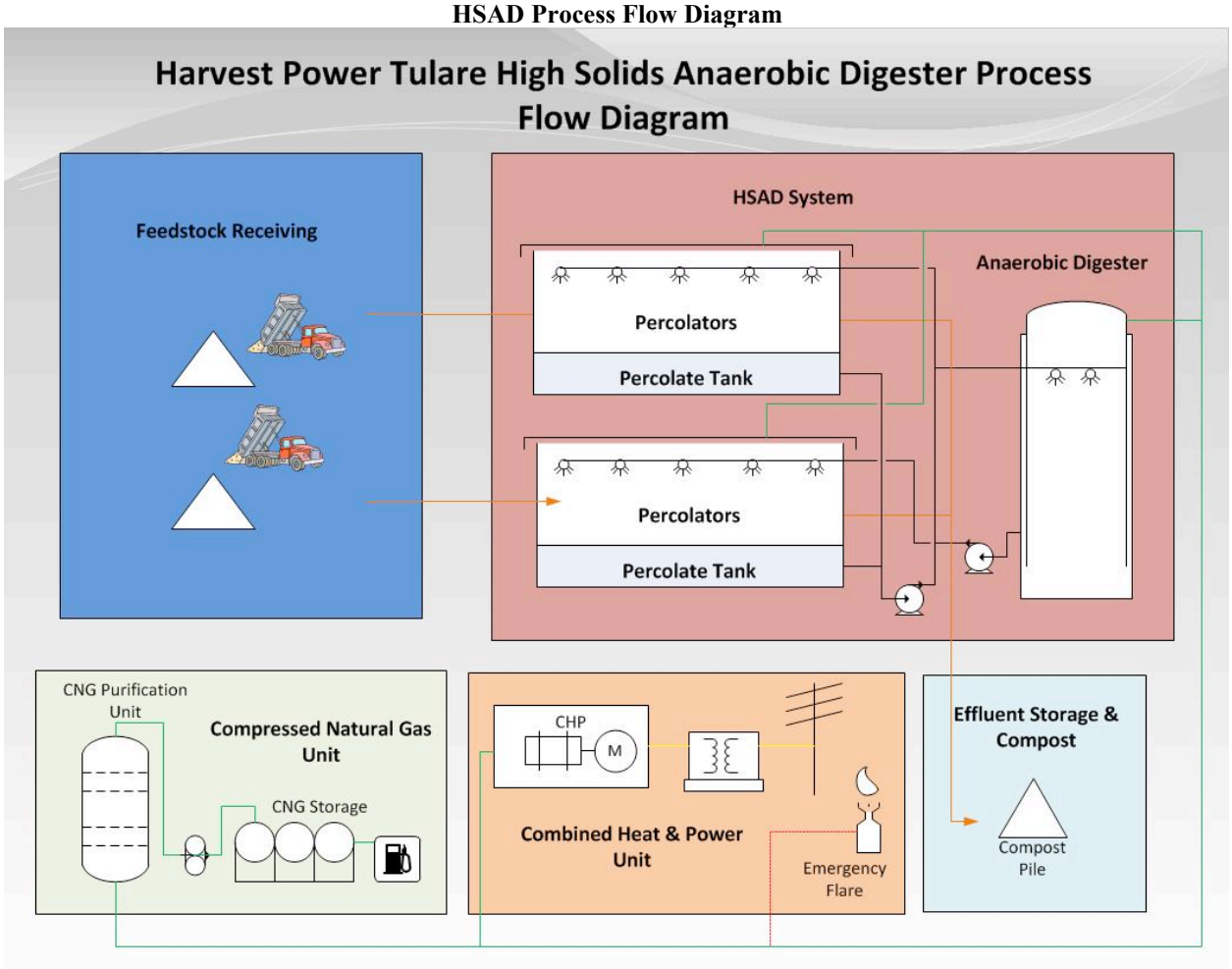


Figure 2-9
HSAD Process Flow Diagram



The High Solids Digestion Process

The high solids anaerobic digester will process a maximum of 60,000 tons per year of organic feedstocks primarily from food processing facilities, and other commercial enterprises and will include Fats, Oil, and Grease (FOG) from restaurants or food processing facilities and green waste. The anaerobic digester will produce approximately 300 scfm of biogas with 60% methane content.

The High Solids Anaerobic Digesters (HSAD) digesters are constructed of reinforced concrete. The biogas in the head space of the percolators is forwarded to the upgrading unit/CNG station and/or Combined Heat and Power (CHP) as the organic material breaks down and degrades. The dry anaerobic digestion technology is an innovative Batch Two-Stage High Solids Anaerobic Digestion (HSAD). The HSAD anaerobic digester design incorporates another important feature that enhances process control: buffer tanks for storage of hydrolysate between the two stages. The movement of hydrolysate between the buffer tanks and the methanation digesters can be regulated to continually maximize the output of the methanogenesis process, which allows for a more stable rate of biogas production that will be forwarded to the upgrading unit/CNG station

and or CHP. The hydorlysate is pumped from an above ground tank and sprinkled over the organic faction in the percolator. Biogas is also produced in the hydorlsate tank and forwarded onto the upgrading unit and/or CHP for producing energy.

Digestate Management

The composting windrow piles at the facility currently, and will continue to utilize pumped groundwater to maintain the desired moisture levels in the compost windrows. Maintenance of moisture levels is also required in order to control VOC emissions from the windrows according in accordance will Air District Rule 4566 (Organic Material Composting Operations).

Harvest Power plans to utilize digestate from the anaerobic digestion facility to augment the fresh water requirement. During the winter months, when it is too wet to apply this material to the compost piles, Harvest Power will store the digestate in a lined and covered lagoon or above ground storage tank for the LSAD technology. The HSAD technology will be transferred from the percolators and mixed in with compost using a front end loader. The liquid in the digestate form the HSAD will augment the water requirements for the composting facility

The liquid from the LSAD storage will be pumped onto the piles in the drier periods. In either case, the management of the digestate will protect ground and surface water. If an above ground effluent tank is utilized, it will be equipped with leak prevention and leak detection system consistent with Central Valley Regional Water Quality Board requirements. The HSAD will be transferred from the perculators to the composting facility and mixed in with a fount end loader to minimize fresh water consumption.

A separate pipeline for the LSAD digestate will run from the storage device along the northern boundary of the site to enable spreading of the digestate onto the windrows. At each windrow, a tee fitting will be used to serve as a connection point for saturating windrows.

Flare

An emergency flare will be provided as a precautionary measure as a back-up for the digestion system(s). An emergency flare is in place on site to flare biogas in the event the gas clean-up and compressor become inoperable or too much biogas is being generated. Each methane digester has some biogas storage capacity; as such the redundancy of two digesters eliminates the need to use the flare during maintenance events.

Air Quality

The digestion facility is enclosed and is gas-tight in order to capture valuable biogas. However; in the process of upgrading biogas into pure methane, a very small percentage is lost in the waste gas stream. This stream is directed to a biofilter to minimize the release of methane and hydrogen sulfide. To ensure prevention or reduction of air quality emissions , Harvest Power will comply with Air District rules/regulations to permit, meet, or exceed their requirements for the biofilter, flare, CNG facility, and, if electricity is produced, the CHP unit. The BACT policy

listed on the SJVAPCD's website explains how the Air District determines which technology applies (how to perform a top-down cost effective analysis). Any technology shown for VOC also controls CH4. Biofilters are very efficient in VOC removal (> 95% control if well maintained). A biofilter is extremely efficient in removing sulfur compounds (typically greater than 99.9% control efficiency)

Dust

There will be no additional dust generated from the anaerobic digester. All areas around the facility and the CNG fueling station will be paved or applied with an all-weather surface. If necessary, the all-weather surface roads will be watered, and the tires of the trucks rinsed to prevent dust or track-out.

Truck Traffic

The Harvest Power composting facility is currently accepting materials to be composted, and selling bulk compost to the landscaping and agricultural community. The anaerobic digestion facility will be accepting additional food waste materials.

The anaerobic digestion facility and CNG station may add truck trips to the site. This number is anticipated to be up to 25 additional trucks per day. The maximum total of truck trips to the facility including all operations will not exceed 110 trucks per day. The analysis provided in the Traffic Study includes up to 120 trucks per day in order to cover all contingencies, such as producing more CNG and the ability to service more local trucks with this service. As shown in **Table 2-1**, truck traffic generated by this project was studied for both direct and cumulative analysis. The maximum amount of trips will not exceed 110 per day, or 18 per hour, and will not operate above any thresholds of significance.[2]

Harvest Power maintains control over the number of vehicles entering and leaving the site. The facility operator contracts with each load entering and leaving the facility. The site receives very limited use from the general public. It is open for community drop off days which will be pre-approved by the County and CalRecycle's Local Enforcement Agency (LEA). The flow of traffic into the site is as follows. The trucks enter the site, drive across the scale to be weighed, drive to the off-loading area where material is inspected and, off-loaded. The traffic at the site is controlled so that no trucks will back up on Road 140.

Drainage and Water Quality

Harvest Power will comply with the any requirements of the Regional Water Quality Control Board. It is anticipated that the current site design, combined with the protections included in the energy facility design are sufficient to protect ground and surface water quality issues related to this facility. All internal runoff created by the facility operations and precipitation up to a 100-year, 24-hour storm event is currently, and will continue to be, contained on site. Water will be prevented from coming into contact with any feedstock through project design; in a rare case of

[2] Appendix E: TPG Amended Traffic Study Letter , March 5, 2013

that it does during the off-loading process, this liquid will be prevented from leaving the site and collected in a compacted the site's retention pond. The facility will continue to comply with any regulations or procedures required by the state or regional water quality control board. The drainage ponds will continue to be maintained to manage weed growth and prevent fly and mosquito breeding.

As described earlier in the document, all digestate (liquid and solid) from the facility will either be applied directly to the compost piles, substituting for water that would have been needed for the composting process. In periods of heavy rain, this digestate from the LSAD will be stored either in a lined and covered lagoon or storage tank and then applied to the compost piles during drier periods.

If storage tanks are chosen, they will be liquid-tight. In addition, they will be equipped with a leak detection system. A matt wicking material and a High Density Polyethylene (HDPE) liner with welded seams will be laid underneath the foundation, secured to the tank walls and connected to a visual monitoring well so that any leakage can be observed and contained. In the unlikely event of a leak, the inspection well also acts as an access to vacuum the leaking fluid and pump back into the tanks. This design has been implemented and approved by the Central Valley Regional Water Quality Control Board for similar anaerobic digester Projects in the Central Valley.

The material receiving device consists of a fully containerized unit. The organic separator will be liquid tight as well. As a precautionary measure, food waste or leaking material will be further contained by mounting the equipment on concrete foundations with elevated lip seals as to prevent any contamination from reaching the ground.

Odor

The anaerobic digestion facility is designed with a biofilter to ensure that no offensive odor migrates off site. This facility will also be required to obtain a full solid waste facility permit from CalRecycle and thus an odor impact mitigation plan will be required. The Odor Impact Mitigation Plan (OIMP) includes contact information and specific protocols designed to prevent odor and address odor concerns should they occur. The OIMP focuses on processes to prevent odor from migrating off site during feedstock delivery, the biofilter and protocol to address odor concerns should they occur. A specific protocol for neighbor notification and response to neighbor's concerns is also included.

Methane Biofilter

The nature of anaerobic digestion eliminates the emission of methane gas: the digestion facility is gas-tight in order to capture valuable biogas. However, in the process of upgrading biogas into pure methane, a very small percentage is lost in the waste gas stream. This stream is directed to a biofilter to minimize the release of methane.

Greenhouse Gas Emissions

The State of California encourages the division of material from landfills to activities such as anaerobic digestion through new climate change regulations. At this facility, the food and/or yard materials will be processed into energy and digestate to be composted, both processes replace landfilling. In addition, the ultimate end use of the material for agricultural and landscape uses adds organic matter and increases water holding capacity of the soil enable the soil to sequester more carbon. Furthermore, renewable CNG is considered by CARB to have the lowest carbon intensity of any transportation fuel.

Biogas and CNG Station and/or CHP Unit (Component 3)

CNG Station

The biogas from the digesters and effluent storage device will be upgraded to biomethane (methane content >97%) suitable for vehicle fuel and/or pipeline gas. Harvest Power will utilize a scrubbing technology for upgrading the biogas to bio-methane. The scrubbing process preferentially absorbs the undesirable gases such as CO_2 and H_2S into an absorbent solution. The scrubbing vessel facilitates gas absorption. The product gas (primarily methane)) is forwarded to the compression and dryer unit where the biomethane is dyed and pressurized to approximately 4,500 psig. The pressurized CNG stream leaving the compress and dryer is forward to above ground storage vessels where the CNG will be stored. The CNG from the storage vessels will be forwarded to dispensers that will be equipped with a card lock/card reader device to facilitate point of sale transactions.

Equipment

There will be two additional front end loaders required to manage the materials at the anaerobic digester. In addition, there is a compressor to clean and produce the CNG. The anticipated noise levels of this equipment are addressed in the noise report as part of this document.

Air Quality

The CNG station will comply with any and all requirements of the Air District. There are a number of these facilities already operational in the district.

Truck Traffic

It is anticipated that the majority of the trucks using the CNG refueling unit will be the same trucks delivering material to the site. Any additional trucks will not exceed the maximum limit calculated through the traffic thresholds and those listed in the previous traffic section The CNG station will serve trucks currently operating on CNG and enable others to convert to a more cost effective and cleaner fuel. Additional trucks that may be using the refueling station will already be traveling on or near Road 140.

Combined Heat & Power

The CHP (Combined Heat & Power) cogeneration equipment is a fully integrated power generation system. The system components are delivered to the site fully assembled and tested. The CHP module integrates all cogeneration components convert energy efficiently.

The CHP is an internal combustion engine designed to convert the biogas to electricity and is sized at 250kw. The generator connected to the CHP is generating 3-phase 480 volt power that will be connected to a step up transformer converting the 480 volts to 12,000 volts. It will connect to the distribution grid located on Road 140 (just in front of the property). All power generated will be sold under a long term power purchase agreement. The post combustion gases generated in the CHP by this combustion process will be forwarded to a Selective Catalyst Reduction System (SCR), which is integrated into the exhaust of the CHP. The SCR will meet or exceed standards required by the Air District's permitting process.

Project Construction

Construction of the proposed Project is anticipated to be completed in approximately 16 months. It will include construction of the all-weather surface (approximately three acres on parcel 150-140-009). It will also include pouring concrete for the pads, ramps, and for roadways, and include building the tanks and equipment to operate the digestion facility, including adding all the piping, CNG tank, CHP and pumps.

Construction Traffic

It is anticipated that proposed Project construction would require 15-20 construction workers resulting in an average of approximately 25 construction-related vehicle trips per day.

Material Staging

Construction of the proposed Project will require temporary staging and storage areas for the proposed Project materials and equipment. The materials staging and storage will be located onsite on a portion of the 35.0 acre site.

Construction Water Usage

The proposed Project will require approximately 2.6 acre-feet of water for dust control during the construction period.

Construction Waste Disposal

Any construction waste would be disposed at the Visalia or Teapot Dome Landfills.

OBJECTIVES OF PROPOSED PROJECT

Objective 1: Implementation of AB 32

AB 32 has defined plans and programs for year 2020, with the vision of year 2050 that sets a goal to have an 80% reduction of greenhouse gas (GHG) compared to the 1990 base year. AB 32 resulted in the adoption of the AB 32 Scoping Plan in 2008 that included a series of measures adopted by the California Air Resources Board (CARB) for high recycling/zero waste, which will affect the solid waste and recycling sector and local government. The key components of AB 32 include anaerobic digestion (AD), the increased use of compost, and extended producer responsibility (EPR). The proposed composting expansion, anaerobic digester, and CNG station are consistent with AB 32 measures of year 2020 and implements the objectives for the year 2050 goal.

Objective 2: General Plan Update 2030 – Climate Action Plan

Legislation mandating greenhouse gas reduction and 75% diversion of recyclable materials is resulting in residential collection of co-collected (comingled) food scraps and green materials at an increasing number of municipalities, combined with increased commercial food collection. The County of Tulare Board of Supervisors adopted its General Plan 2030 Update on August 28, 2012. The Update includes a Climate Action Plan (CAP) to address AB 32. This Climate Action Plan identifies specific General Plan policies that encourage solid waste reduction.

The proposed Project was developed to support and implement the efforts made by Tulare County to address climate change through its General Plan and Climate Action Plan. The proposed Project is intended to support and is integral to the diversion of organic materials (green waste and food waste) into composting in order to produce products that have a multitude of benefits to agriculture, such as water conservation, erosion control, disease suppression, and increased yield, beyond just reducing burning. In addition, the facility will assist in meeting state greenhouse gas emissions reductions by providing an alternative to diesel trucks coming to the facility, see Objective 3.

Objective 3: Renewable Energy

The proposed Project would add energy production capabilities on the current footprint of the composting facility pad. In addition, transportation fuel will be distributed through a CNG refueling station to provide fuel for trucks using the facility, and, to a limited extent, the general public. By producing energy as well as compost, the facility will bring additional renewable energy resources to Tulare County.

Objective 4: Expand production of organically certified soil

The existing composting operations produce organically certified soil. With increasing demand, this facility proposes to expand production to fill the needs of this particular niche market.

Objective 5: Efficient Business Operations

The proposed Project is intended to implement the company's strategic business plan by planning, designing, constructing, and operating a facility which is economically, technologically and environmentally feasible.

REFERENCES

Tulare County 2030 General Plan, August 2012

Tulare County 2030 General Plan Background Report, February 2010

2012 CEQA Guidelines