

APPENDIX F

HAZARDS AND HAZARDOUS MATERIALS TECHNICAL STUDY

HAZARDS AND HAZARDOUS MATERIALS TECHNICAL STUDY

**FOR THE
TAJIGUAS RESOURCE RECOVERY PROJECT AND
ALTERNATIVES**

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GOLETA, CALIFORNIA**

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Abbreviations and Acronyms

AD	Anaerobic Digestion
AST	aboveground storage tank
BACT	Best available control technology
CAA	Clean Air Act
CAC	criteria air contaminants
Cal/EPA	California Environmental Protection Agency
Cal-OSHA	California Department of Industrial Relations, Division of Occupation Safety and Health
CalRecycle	California Department of Resources Recycling and Recovery
CARB	California Air Resource Board
CCR	California Code of Regulations
CCRWQCB	Central Coast Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHSC	California Health and Safety Code
CHP	combined heat and power
CND	Conditional Negative Declaration
CSSR	Consumer Source Separated Recyclables
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DOT	U.S. Department of Transportation
DTSC	California Department of Toxic Substance Control
EAP	Emergency Action Plan
EIR	Environmental Impact Report
EHS	Environmental Health Services Division
ERP	Emergency Response Plan
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Right to Know Act
FM O&G	Freeport-McMoRan Oil & Gas
FPPP	Fire Protection and Prevention Plan
GHG	greenhouse gases
GPM	gallons per minute
H ₂ S	hydrogen sulfide
HAS Act	Hazardous Substance Account Act
HazMat	California Emergency Management Agency Hazardous Materials
HDPE	high density polyethylene
HHWE	Household Hazardous Waste Element
HMBP	Hazardous Materials Business Plan

HSC	Health and Safety Code
HSP	Health and Safety Plan
IIPP	Illness and Injury Prevention Plan
IS	Initial Study
IWMA	California Integrated Waste Management Act
LEA	Local Enforcement Agency
LFG	landfill gas
LOC	level of concern
LUST	leaking underground storage tank
MMRP	Mitigation Monitoring and Recordkeeping Plan
MRF	Materials Recovery Facility
MSW	municipal solid wastes
NFPA	National Fire Protection Association
NDFE	Non-Disposal Facility Element
NSPS	New Source Performance Standards
OEHHA	California Office of Environmental Health Hazard Assessment
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Act
OWMP	Operations Waste Management Plan
PCB	polychlorinated biphenyls
PEIR	programmatic Environmental Impact Report
PPE	personal protective equipment
psi	pound per square inch
psig	pound per square inch gauge
PSM	Process Safety Management
PSR	Process Safety Review
PTO	Permit to Operate
PXP	Plains Exploration and Productions Company
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
RRWMD	Resource Recovery and Waste Management Division
SARA	Superfund Amendments and Reauthorization Act
SBCSD	Santa Barbara County Sheriff's Department
SBFD	City of Santa Barbara Fire Department
SBCFD	Santa Barbara County Fire Department
SCR	selective catalytic reduction
SCRTS	South Coast Recycling and Transfer Station
SMFD	Santa Maria Fire Department
SMP	Soil Management Plan
SPCAPCD	Santa Barbara County Air Pollution Control District

SPCC	Spill Prevention Control and Countermeasures
SRRE	Source Reduction and Recycling Element
SSOW	source separated organic waste
SWRCB	State Water Resources Control Board
TLEP	Tajiguas Landfill Expansion Project
TPH	Total Petroleum Hydrocarbons
TSD	treatment/storage/disposal
TRRP	Tajiguas Resource Recovery Project
UFC	Uniform Fire Code
UPRR	Union Pacific Railroad
VMP	Vector Management Plan

SECTION 1 INTRODUCTION

This Technical Study for the Tajiguas Resource Recovery Project (TRRP or Proposed Project) is based on the County approved scope of services between URS and the County of Santa Barbara. This Technical Study provides a qualitative assessment of the Proposed Project and Alternatives and the potential hazards and hazardous material impacts associated with each. CEQA criteria and standards were used to assess the potential impacts associated with the proposed project. Based on CEQA criteria, the proposed risks (primarily to onsite employees as compared to the general public) would be less than significant with design features, compliance with existing regulatory requirements, and the implementation of additional mitigation measures identified in this Technical Study. The Proposed Project and Alternatives will require additional processes and equipment, and up to 55 additional employees varying by shift. This Technical Study examines the safety hazards and identifies measures to maintain a safe work environment and protect public health and safety.

The Proposed Project involves the development of the following facilities at the County of Santa Barbara Tajiguas Landfill.

1.1 Materials Recovery Facility (MRF)

The proposed MRF would separate and remove recyclable material recovered from the municipal solid waste (MSW) stream delivered to the landfill. The MRF would be an approximately 60,000-square foot metal building with a panelized, color coated, exterior. The building would be constructed with a landfill gas (LFG) barrier and venting system and a LFG monitoring system. A tip floor sorter worker would inspect all waste upon arrival to identify large bulk and loose materials and segregate any visible hazardous materials for shipment to authorized disposal facilities. Additional sorters stationed throughout the MRF processing lines would facilitate increased levels of MSW sorting, separation and recovery rates of recyclable materials, and decreased levels of contamination to the organic waste material forwarded to the Anaerobic Digestion (AD) Facility. The MRF equipment would likely include the following components: size reducer, trommel screens, ballistic separation, air separation, magnetic and eddy current separators, optical sorting devices, conveyor belts, material storage bins, computerized process automation and control systems, electrical transformers, baling system, dust filter and collection system, biofilter and air handling system, materials quality control stations and platforms, back-up generator and fuel storage, process wash down water filtration system, and a spare parts inventory. All MRF sorting and separation equipment would be electrically powered. Two existing diesel fuel tanks (20,000 and 550 gallons), and a 230-gallon gasoline tank, currently used for landfill operations, would be temporarily relocated to the top deck of the landfill and then relocated back to the operations deck (adjacent to the MRF fuel tanks) following construction of the TRRP. Additionally, a new 10,000-gallon diesel/biodiesel storage tank would be installed for the MRF and AD rolling stock.

1.2 Anaerobic Digestion (AD) Facility

The proposed AD Facility would decompose organic material recovered from the MRF for production of methane gas. The AD Facility building would be approximately 63,000-square feet and would be constructed of concrete with a metal frame gable roof peak running east to west. The building would be constructed with a landfill gas (LFG) barrier and venting system and a LFG monitoring system. The enclosed building, with the exception of the digester units, would be equipped with an air circulation control system that regulates air and controls odors within the structure and exhausts air through a bio-filter system that is shared with the MRF. The AD Facility would share a diesel-fueled backup generator engine with the MRF to provide for emergency operations in the event of a loss of electrical power. The AD Facility would utilize a proprietary technology to convert organic waste recovered from the MSW in the MRF and source separated organic waste (SSOW) into a biogas containing 50 to 60 percent methane. The biogas would be used to power two (2) onsite combined heat and power (CHP) engines. SSOW would be trucked directly to the proposed AD Facility and delivered to a SSOW Delivery Area or transferred from the adjacent MRF via an automated conveyor belt system directly to a MSW organics delivery area.

The AD Facility would include three percolate (water solution with 1% manure solids) storage tanks each estimated to be a maximum 34-feet in height: one approximately 150,000 gallon tank to support the anaerobic digestion of organic waste recovered from the MSW and two approximately 75,000-gallon tanks to support the anaerobic digestion of SSOW. The percolate system for the AD Facility would be a closed loop system and would not produce any wastewater discharge. Biogas would be harvested within 16 enclosed process structures in "digesters," which are large concrete vessels. These digesters are filled with organic waste feedstock and the waste is processed using an anaerobic digestion procedure. At the conclusion of the anaerobic process, after the high quality biogas has been extracted for beneficial use (energy production), a controlled purging process would direct the residual gases in the digestion chamber to a flare. The flare would function as an odor control device to destruct the potentially odorous residual gases in the chamber prior to opening the chamber doors and removing the digestate. The MRF and AD equipment would be fueled from a single 10,000-gallon above ground diesel/biodiesel storage tank. The tank would be approximately 8 feet in diameter and 27 feet long and would include secondary containment. Additionally, a 7,500-gallon diesel fuel storage tank would be provided adjacent to the standby generator.

1.3 Energy Facility

The Proposed Project's Energy Facility would produce electricity from the combustion of the methane gas in biogas. The Energy Facility would be located in the AD Facility's CHP engine room attached to the south side of the AD Facility. Best available control technology (BACT) in the form of a selective catalytic reduction system would be provided with the CHP engines to

reduce the criteria air contaminants (CAC), or criteria pollutant levels below the requirements of the Santa Barbara County Air Pollution Control District (SBCAPCD). A flare would be installed on the roof of the AD Facility building as a back-up safety precaution to handle biogas when insufficient engine combustion capacity is available due to maintenance or other downtime of the CHP engines. The flare would also be used for odor control and methane destruction from biogas purging events in the AD Facility. A 200-gallon propane storage tank would provide supplemental fuel flows to the CHP engines to ensure continuous CHP engine operation within manufacturer's specifications during start-up, shut-down and any periods of irregular, below specification biogas production from the digesters.

1.4 Composting Area Facilities

The Proposed Project's composting area facilities would provide final treatment and conditioning of digestate material, prior to its sale for use as a soil amendment/compost. These facilities include a paved and bermed approximate 5-acre composting area and compost runoff management facilities (e.g. tanks and pipes) for storage and conveyance of compost runoff during the wet months. Runoff collection facilities include a 325,000-gallon aboveground storage tank and several smaller portable tanks.

1.5 Commingled Source Separated Recyclables (Optional)

The Proposed Project's Optional Commingled Source Separated Recyclables (CSSR) includes an additional waste processing area of 10,000 square feet and would be located in the northeast corner of the proposed MRF building (see Attachment 3, Figure 3.6).

1.6 Alternatives

The following seven alternatives were subject to analysis:

- A. **No Project Alternative:** continued disposal of MSW at the existing, permitted Tajiguas Landfill until the disposal capacity is reached in ~2026. As the County is required to provide waste disposal services for the communities currently served by the Tajiguas Landfill, after ~2026 the County would need to provide other disposal options. Absent implementation of the proposed project, the County would likely either pursue an expansion of the Tajiguas Landfill (Alternative E) or export waste to another landfill (Alternative F or G);
- B. **Urban Area MRF Alternative 1 (Marborg Industries MRF):** the MRF would be located at the Marborg Industries 620 Quinientos Street facility, the AD Facility would be located at the Tajiguas Landfill, with disposal of residual waste at the Tajiguas Landfill;
- C. **Urban Area MRF Alternative 2 (South Coast Recycling and Transfer Station [SCRTS] MRF):** the MRF would be located at the SCRTS and the AD Facility would be located at the Tajiguas Landfill, with disposal of residual waste at the Tajiguas Landfill;

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- D. **Offsite Aerobic Composting:** the MRF would be located at the Tajiguas Landfill, the AD Facility would be replaced with aerobic composting of organics at the Engel and Gray Composting Facility in Santa Maria, with disposal of residual waste at the Tajiguas Landfill;
 - E. **Tajiguas Landfill Expansion:** expansion of the existing Landfill to provide additional waste disposal capacity to approximately year 2036 (equivalent to the proposed project);
 - F. **Waste Export to the Simi Valley Landfill and Recycling Center:** export of MSW after the existing permitted Tajiguas Landfill capacity is reached in ~2026;
 - G. **Waste Export to the Las Flores Canyon Landfill:** export of MSW to the City of Santa Maria's proposed new landfill after Tajiguas Landfill capacity is reached in ~2026.

SECTION 2 SETTING

2.1 Regional Overview

The Proposed Project would be located at the Tajiguas Landfill, a Class III non-hazardous solid waste disposal facility owned by the County of Santa Barbara and operated by the County of Santa Barbara Public Works Department Resource Recovery and Waste Management Division (RRWMD). The Tajiguas Landfill has a permitted operation area of approximately 357 acres within County-owned land along the Gaviota Coast, approximately 26 miles west of the City of Santa Barbara. The permitted Landfill waste footprint encompasses approximately 118 acres.

The Gaviota Coast is characterized by a series of moderately steep, east-west trending coastal canyons that drain southward from the Santa Ynez Mountains in the north, to the Pacific Ocean. The Tajiguas Landfill is located in one of these canyons, Cañada de la Pila. Most of the coastal canyons are separated from one another by relatively steep ridgelines, which provide a degree of isolation from fire or explosion hazards that might be present from the activities within the canyons. There are few residential areas along the Gaviota Coast as a whole. The closest residential use to the project site is the Arroyo Quemada community located approximately 2,000 feet southeast of the landfill property. Most of the surrounding lands are used for agriculture (which includes as a permitted use, a single family dwelling) and several large parcels are within conservation easements. Other uses include state beaches, state parks, recreation areas and abandoned and active oil and gas facilities.

2.2 Hazardous Materials

The major source of hazardous materials in the project area is commercial traffic along U.S. Highway 101, which is located about 1,600 feet south of the Tajiguas Landfill. The Union Pacific Railroad (UPRR) tracks also run parallel to the highway, just on its south side. The highway and UPRR have many cargo carriers handling petroleum, petroleum products, and various industrial gases. These commodities and special products are legally allowed to be transported by motor or rail carrier by U.S. Department of Transportation (DOT) and state agencies.

2.2.1 Active Facilities

The Gaviota Coast and its canyons have active oil and gas facilities which have inherent hazards including crude oil spills, toxic gases, and associated flammable gas. These facilities are subject to state and federal regulations, administered by local agencies. The active facilities include the Gaviota Oil Heating Facility (operated by Freeport-McMoRan Oil & Gas [FM O&G]) and the Las Flores Canyon Oil and Gas Processing Facilities (operated by ExxonMobil). Similarly, there are crude and oil pipelines (All American) and gas pipelines (Southern California Gas) connecting these facilities to the marketplace. These pipelines run past the entrance of the Tajiguas Landfill and are marked per state and federal requirements. These facilities have been

subject to environmental review that included a hazardous materials review by the County of Santa Barbara and others.

2.2.2 Inactive Facilities

The Gaviota Coast contains a number of historic facilities and closed facilities that are currently undergoing abandonment. This includes the former Shell Hercules Gas Plant located in Cañada de la Huerta currently owned by Aera Energy LLC, located in the canyon immediately west of the Landfill property. This site once housed facilities for processing natural gas produced from subsea wells in the Molino Offshore field. The Department of Toxic Substances Control (DTSC) has designated the site a State Response Cleanup site due to soil and groundwater contamination from hydrocarbons, mercury, lead and polychlorinated biphenyls (PCB) at varying magnitudes. The site is currently under remediation and does not pose an immediate environmental hazard to the proposed project. The site has undergone some remediation and future remediation efforts are being investigated by the current landowner Shell Oil, with significant oversight from a multiple agency task force.

2.3 Site-specific Setting

The Landfill property encompasses three parcels of approximately 497 acres with a current permitted operational area of 357 acres and a permitted waste footprint of 118 acres. The landfill is permitted to accept a maximum of 1,500 tons/day of MSW and green-waste. Based on current waste disposal rates, the Tajiguas Landfill is projected to reach its permitted capacity in approximately 2026.

The landfill receives various waste streams for disposal including: residential and commercial waste collected by contracted and franchised haulers; waste from three county transfer stations; residuals from the commingled recyclables processed by Gold Coast in Ventura County; self-hauled waste; and other waste including dead animals, hard to handle materials and grit from wastewater treatment plants.

The current landfill operations have a good safety record with very few Occupational Safety and Health Administration (OSHA) recordable incidents (Spier 2013).

2.4 Proposed Project Site and Surrounding Area

Areas adjacent to the Tajiguas Landfill consist of national forest, open space, and agricultural uses such as grazing land and avocado orchards. As noted above, the residential community of Arroyo Quemada is located on the coast, approximately 2,000 feet southeast of the Tajiguas Landfill property boundary. The coastal zone boundary crosses through the southern half of the Landfill property. The Proposed Project facilities would be located outside of the coastal zone. The facility as proposed would be located in an inland area of the landfill with the existing

developed operations deck, which currently houses the landfill administration office and other landfill facilities. Part of the existing operations deck overlies a closed area of the landfill footprint and the remainder of the deck is comprised of engineered clean fill constructed by landfill staff within the past 10 years. The MRF and AD structures would be sited outside of the waste footprint. The composting area would occupy up to approximately 5 acres on the landfill top deck. Prior to installation of the Composting Area facilities, the landfill top deck will be closed and a final cover system will be installed. The County has continually operated the Tajiguas Landfill as a Class III solid waste landfill since 1967. Prior to operation as a landfill the land uses on the Proposed Project site were reportedly undeveloped and used for agricultural purposes. A Phase I Environmental Site Assessment that details the history of site operations and areas of historic hazardous materials use and storage has not been prepared for the specific area in the landfill that TRRP facilities are to be located. The location of the MRF and AD Facility is within areas of reported clean fill placed by the RRWMD and the Composting Area overlies the landfill waste disposal area. Therefore, significant areas of soil contamination are not anticipated. Some localized areas on the operations deck may have been impacted due to landfill fueling activities and existing landfill hazardous material storage.

2.5 Wildfire Hazards

The Tajiguas Landfill is within a designated high fire hazard severity zone. The surrounding areas are mapped as high and very high fire hazard severity zones. The recent regional fires affecting the area included the Gaviota Fire, in which no damage to the landfill occurred (see Attachment 5, Map 1). Vegetation on areas of the site not disturbed by ongoing operations consists primarily of uncultivated, flammable vegetation such as coastal sage scrub, chaparral and ruderal grasslands. There have been no recent reported incidents of fire on the landfill from offsite sources. However, occasional small fires resulting from reflective bird deterrents have occurred on the site. These small fires have been contained and extinguished immediately by landfill staff (01-EIR-05, Santa Barbara County, 2002). The existing top deck, which has not yet reached final fill elevations, and the area where the MRF and AD Facility is proposed to be located, is and would be relatively barren and devoid of combustible materials. Many of the slopes are vegetated with coastal sage scrub species and annual grasses for erosion control. The Santa Barbara County Fire Department (SBCFD), Station #18 is located in Gaviota (approximately 5 miles west of the landfill), and would respond to a fire or other emergency associated with the Proposed Project within 9 minutes. There are three existing water tanks onsite. The Proposed Project includes a 220,000 gallon water tank (to provide the estimated required water volume of 210,000 gallons for fire protection). Existing site improvements such as roads and the perimeter firebreak also provide protection from wildfires. I.

2.6 Current LFG Energy Recovery

Landfill gas is currently produced on the landfill site during the anaerobic decomposition of organic waste materials and has the potential to migrate through the soil. The volume of LFG generated is a function of the total volume of material in the waste prism. The LFG contains approximately 50 to 60 percent methane and is collected by gas extraction wells and a network of collection pipes and is routed to a main header system. LFG is burned in either a flare and/or an internal combustion engine for power production. This flare and engine are located within the landfill property, near the southern entrance of the landfill. The facilities are owned by NEO Tajiguas LLC (collection system) and MM Tajiguas Energy LLC (power production). The equipment does not include large pressurized vessels or a gas holder to store LFG. Attachment 1 provides a plan view of the LFG collection system for the landfill. The flare and engine are located near the southern mouth of the landfill canyon, and are much lower in elevation than current landfill operations.

The LFG collection system is continuously monitored for gas quality and volume throughput at the engine/flare via instrumentation. If there are disruptions, the operators of the system (NEO Tajiguas or MM Tajiguas Energy) are alarmed by either installed instrumentation or programmed callouts at the engine facility. This requires the operators to troubleshoot the collection system. The operations personnel notify the RRWMD staff at the landfill for information on the problem or increased awareness of the situation. Additional protection for the integrity of the LFG collection system is the monthly preventative maintenance performed by a technician to ensure proper flow balancing within the network of collection pipes. In addition, there is an active surface monitoring program by the RRWMD staff to assess LFG emissions from the surface above the waste footprint.

2.7 Hazardous Materials

Hazardous materials currently used and stored at the landfill include motor fuels (diesel and gasoline), oils and small quantities of household hazardous waste recovered from the MSW. The motor fuels are stored in three (3) portable aboveground atmospheric tanks. The fuels are used for off road diesel equipment for onsite landfill operations, and on road vehicles utilized by RRWMD staff for transportation (onsite and offsite). There have been no reported spills or releases from the tanks. A listing of these fuel tanks and volumes are presented in the Attachment 1.

2.8 Regulatory Setting

The management of hazards, hazardous materials, hazardous waste, and public safety is subject to numerous laws and regulations at all levels of government. Regulations applicable to the Proposed Project are designed to regulate hazardous materials and hazardous wastes, as well as to manage sites contaminated by hazardous waste. These regulations are designed to

limit the risk of upset during the use, transport, handling storage and disposal of hazardous materials. Summaries of federal and state laws and regulations related to hazards and hazardous materials management are presented in this section.

2.8.1 Regulatory Definitions

The following hazardous materials and hazardous waste definitions provide a simplified overview of a very complicated subject; they are not legal definitions.

Hazardous Material. Any material that because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment. Hazardous materials include, but are not limited to, hazardous substances, hazardous waste, and any material which a handler or the administering regulatory agency has a reasonable basis for believing would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment (California Health and Safety Code, Section 25501 (o)). A number of properties may cause a substance to be considered hazardous, including toxicity, ignitibility, corrosivity, or reactivity.

Hazardous Waste. A waste or combination of waste which because of its quantity, concentration, or physical, chemical, or infection characteristics, may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitation-reversible illness; or pose a substantial present or potential hazard to human health or the environment, due to factors including, but not limited to, carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties, or persistence in the environment, when improperly treated, stored, transported, or disposed of or otherwise managed (California Health and Safety Code, Section 25141). California waste identification and classification regulations are found in Title 22 of the California Code of Regulations (CCR).

2.8.2 Federal

U.S. Environmental Protection Agency. The U.S. Environmental Protection Agency (EPA) is the principal regulatory agency responsible for the safe use and handling of hazardous materials.

Superfund Amendments and Reauthorization Act (SARA) Public Law 99-499 (100 Stats. 1613). SARA amended the Comprehensive Environmental Response, Compensation, and Liability Act (*CERCLA*, 42 U.S.C. § 9601 *et seq.*) on October 17, 1986. SARA reflected the EPA's experience in administering the complex Superfund program during its first six years and made several important changes and additions to the program. SARA revised the Hazard Ranking System to ensure that it accurately assessed the relative degree of risk to human

health and the environment posed by uncontrolled hazardous waste sites that may be placed on the National Priorities List.

SARA specifically addresses the management of hazardous materials by requiring public disclosure of information relating to the types and quantities of hazardous materials used at various types of facilities. SARA Title III (42 U.S.C § 11001 et seq.) is referred to as the Emergency Planning and Community Right to Know Act. The Act addresses community emergency planning, emergency release notification, and hazardous materials chemical inventory reporting.

Resource Conservation and Recovery Act (RCRA) 42 U.S.C. §6901 et seq. RCRA gave the EPA the authority to control hazardous waste from the “cradle-to-grave.” This includes the generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous waste.

The 1986 amendments to RCRA enabled the EPA to address environmental problems that could result from underground tanks storing petroleum and other hazardous substances. RCRA focuses on active and future facilities; however, once a hazardous material is released to the environment, it is deemed a waste as soon as the material impacted is disturbed or moved. Therefore, contaminated soil can be regulated under RCRA. The California Department of Toxic Substance Control implements the RCRA in California and regulations regarding hazardous waste are contained in the CCR, Title 26. Most waste streams at oil and gas sites qualify for the “RCRA petroleum exclusion,” described in Section 261.4 of Title 40 of the Code of Federal Regulations (CFR). Thus, most petroleum soil contamination resulting from typical “exploration, development, or production of crude oil, natural gas or geothermal energy” is excluded from RCRA classification. A clarification of the RCRA petroleum exclusion is provided in the March 22, 1993 issue of the Federal Register (Volume 58, p. 15.284).

RCRA regulates disposal of solid and hazardous waste, adopted by congress on October 21, 1976. Subtitle D of RCRA established the solid waste program, which encourages states to develop comprehensive plans to manage nonhazardous industrial solid waste and municipal solid waste, sets criteria for municipal solid waste landfills and other solid waste disposal facilities, and prohibits the open dumping of solid waste. RCRA encourages environmentally sound solid waste management practices that maximize the reuse of recoverable material and foster resource recovery. Solid waste is predominately regulated by state and local governments.

Guidelines for Land Disposal of Solid Waste, 40 CFR, Part 241. This section delineates the minimum levels of performance required of any solid waste and disposal site. Features of this regulation include site selection consistent with public health, air and water quality standards, and determination of the waste that will be accepted by the facility. Provisions are included

regarding control of surface water, leachate, dust, LFG, and prohibition of open burning. Application of daily cover material or approved alternative daily cover is required to minimize fire hazards, infiltration of precipitation, odors and blowing litter, to provide control of vectors and fugitive emissions of LFG, and to discourage scavenging. These guidelines also address protection of equipment, use of safety equipment, fire protection emergency communications, site access traffic control, and recordkeeping.

Clean Air Act of 1990, 42 U.S.C. 7401-7671. The Clean Air Act (CAA) as amended in 1990 also requires states to implement a comprehensive system to inform local agencies and the public when a significant quantity of such materials is stored or handled at a facility (see 40 USC, §68.115). It establishes a nationwide emergency planning and response program and imposes reporting requirements for business that store, handle, or produce significant quantities of extremely hazardous materials. The requirements of this implemented system are reflected in the California Health and Safety Code, §25531 et seq. This includes New Source Performance Standards codified under 40 CFR 60.

Clean Air Act Risk Management Plan, 42 USC § 112(r). This section of the CAA determines that facilities storing or handling significant amounts of acutely hazardous materials are required to prepare and submit a Risk Management Plan (RMP), codified under 40 CFR 68.

Clean Water Act, 33 U.S.C. § 26 et seq. The Clean Water Act (CWA), 33 U.S.C. § 26 et seq., aims to prevent the discharge or threat of discharge of oil into navigable water or adjoining shorelines. The regulations require that a written Spill Prevention Control and Countermeasures (SPCC) Plan be prepared for facilities that store or treat oil that could leak into navigable waters.

Occupational Safety and Health Act of 1970 (OSHA), 29 USC §651 et seq.; 29 CFR §§1910 et seq.; and 29 CFR §1926 et seq. OSHA establishes occupational safety and health standards (§1910) (e.g., permissible exposure limits for toxic air contaminants [§1910.100], electrical protective equipment requirements [§1910.137], electrical workers safety standards [§1910.269], and the requirement that information concerning the hazards associated with the use of all chemicals is transmitted from employers to employees [§1910.1200]) and safety and health regulations for construction (§1926). Subpart I of §1910 and Subpart E of §1926 address personal protective equipment (PPE). Section 1910.119 addresses Process Safety Management and management of highly hazardous chemicals and includes requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals.

Under the Operational Status Agreement of October 5, 1989, between the federal OSHA and the California Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA), the state resumed full enforcement responsibility for most of the relevant federal standards and regulations, (55 Federal Register 18610 [July 12, 1990]; 29 CFR §1952.172).

Federal OSHA has retained concurrent enforcement jurisdiction with respect to certain federal standards, including standards relating to hazardous materials at 29 CFR §1910.120 (*Id.*).

National Fire Protection Association. The National Fire Protection Association (NFPA) sets forth minimum standards to establish a reasonable level of fire safety and property protection from the hazards created by fire and explosion. The standards apply to the manufacture, testing, and maintenance of fire protection equipment. The NFPA also provides guidance on safe selection and design, installation, maintenance, and construction of electrical systems.

U.S. Department of Transportation. The U.S. Department of Transportation (DOT) has the regulatory responsibility for the safe transportation of hazardous materials.

2.8.3 State

California Emergency Management Agency. The California Emergency Management Agency Hazardous Materials (HazMat) Section coordinates statewide implementation of hazardous materials accident prevention and emergency response programs for all types of hazardous materials incidents and threats.

California Health and Safety Code § 25500. The California Health and Safety Code (CHSC), Section 25500, requires companies that handle hazardous materials in sufficient quantities to develop a Hazardous Materials Business Plan (HMBP). The HMBP includes basic information on the location, type, quantity, and health risks of hazardous materials handled, stored, used, or disposed of that could be accidentally released into the environment. Each plan includes training for new personnel, and annual training of all personnel in safety procedures to follow in the event of a release of hazardous materials. It also includes an emergency response plan and identifies the business representative able to assist emergency personnel in the event of a release.

California Department of Toxic Substance Control. The objective of the Department of Toxic Substance Control (DTSC) is to protect human health and the environment from exposure to hazardous material and waste. The DTSC has the authority to respond to and enforce the cleanup of hazardous substance releases pursuant to the Hazardous Substance Account Act (HAS Act), Chapter 6.8, Division 20 of the HSC, and the cleanup of hazardous waste under the Hazardous Waste Control Law, Chapter 6.6 (commencing with §25100).

The HAS Act contains a petroleum exclusion by which the term “hazardous substance” cannot apply to “petroleum, including crude oil or any fraction thereof which is not otherwise specifically listed or designated as a hazardous substance” (HSC § 25317). As a result, the DTSC can enforce the cleanup if the presence of hazardous substance results from: 1) the addition of hazardous substances to crude oil and the addition is not part of regular crude oil processing; or 2) use and wear of crude oil (HAS Act, Hazardous Waste Control Law).

Waste streams at oil production sites are generally considered waste, not substances, and are thus regulated by the DTSC when hazardous. Certain waste streams can be considered as recyclable material, not waste, provided that their ultimate disposal to land does not release contaminants to the environment (Health and Safety Code Section 25143 et seq.). Drilling waste is classified under Section 66261.120 of CCR Title 22 as “special waste” and does not necessarily need to be disposed at hazardous waste treatment/storage/disposal (TSD) facilities even if it exhibits hazardous characteristics. In reality, there are few non-hazardous waste TSD facilities permitted to accept special waste with hazardous characteristics (M & E 1995).

Under Government Code Section 65962.5.(a), the DTSC is required to compile and update as appropriate, but at least annually, and submit to the Secretary for Environmental Protection, a list of all of the following:

- 1) All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
- 2) All land designated as hazardous waste property or border zone property pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.

Central Coast Regional Water Quality Control Board. The Porter-Cologne Water Quality Control Act (California Water Code, Division 7) established the authority of the State Water Resources Control Board (SWRCB), and provided the Central Coast Regional Water Quality Control Board (CCRWQCB) with the primary responsibility of protection of water quality. The CCRWQCB protects ground and surface water quality in Santa Barbara County by the development and enforcement of water quality objectives and implementation of the Water Quality Control Plan for Santa Barbara County. The CCRWQCB governs requirements, issues waste discharge permits, takes enforcement action against violators, and monitors water quality.

Landfill design, construction, and maintenance are regulated by CCRWQCB in accordance with CCR Title 14 and 27 to ensure the environmental safety of the facility both during its operation and upon its closure (California Water Code §§ 13172, 13226, 13227). In addition, Title 27 and the RWQCB permit prescribe proper drainage design practices to be used to prevent standing water and other areas conducive to vector habitats.

California Department of Resources Recycling and Recovery (CalRecycle). CalRecycle is component of the California Environmental Protection Agency (Cal/EPA). CalRecycle is responsible for managing California’s solid waste stream and protects public health and the environment by regulating waste management facilities.

In September 1989, the California Integrated Waste Management Act (also known as Assembly Bill [AB] 939) was enacted into law. The IWMA establishes an integrated system of waste

management in California and requires each local jurisdiction to implement a Source Reduction and Recycling Element (SRRE), Household Hazardous Waste Element (HHWE), and Non-Disposal Facility Element (NDFE). The IWMA requires that the Siting Element be prepared by the county and approved by the County Board of Supervisors and a majority of the cities within the county. The IWMA requires each city in the state to divert at least 50 percent of its solid waste from landfill disposal through source reduction, recycling, and composting.

CalRecycle sets operations and design standards for solid waste facilities such as the Tajiguas Landfill and the Proposed Project. Many of the operations and maintenance standards are within 27 CCR, Division 2, Chapter 3, Subchapter 4, Section 20510 et. seq. Requirements for Vectors Control are within Section 27 CCR, §20810, CalRecycle waste classification definitions and management controls are presented Subchapter 2, Section 20200 et. seq. This section helps define residuals and other material not meeting the classification of MSW. The prohibited wastes for the MSW are shown in Table 1.

TABLE 1
PARTIAL LIST OF PROHIBITED
WASTES FOR MUNICIPAL SOLID WASTES

Waste Item
All liquids
Antifreeze
Asbestos
Automobile Batteries
Explosives
Gas cylinders
Gasoline
Loads of detergent
Mercury
Paint
Pesticides
Petroleum products
Radioactive
Septate
Universal waste (fluorescent tubes, batteries, electronic waste)
Wood preservatives

State Assembly Bill 32. (AB 32), the California Global Warming Solutions Act of 2006 added Division 25.5 to the California Health and Safety Code, set a goal of the reduction of all greenhouse gases (GHG) generated in the State to 1990 levels by the year 2020. The California Air Resource Board (CARB) has adopted a Scoping Plan detailing the various state-wide GHG reduction actions that will be required to achieve this unfunded mandate. AB 32's "Scoping Plan" as well as the State Air Resources Board adopted plan of 2009, includes increased recycling and landfill methane capture as key components of achieving this significant reduction in GHGs.

State Assembly Bill 341. (AB 341) amends sections of the public Resources Code relating to solid waste and sets a goal for the state to recycle 75 percent of waste by 2020. The bill specifically calls out composting of organics currently disposed of in landfills as a method of achieving this goal. AB 341 allows a solid waste facility to modify their existing permit, instead of having to undergo a permit revision, under specified circumstances.

Aboveground Petroleum Storage Act. California Health and Safety Code §25270 to 25270.13 is intended to ensure compliance with the federal CWA. The law applies if a facility has an aboveground storage tank (AST) with a capacity greater than 660 gallons or a combined AST capacity greater than 1,320 gallons and if there is a reasonable possibility that the tank(s) may discharge oil in "harmful quantities" into navigable waters or adjoining shore lands. If a facility falls under these criteria, it must prepare an SPCC Plan. The law does not cover AST design, engineering, construction, or other technical requirements, which are usually determined by local fire departments. Although there are no navigable waterways or shore lands near the project site, the Project will store greater than 10,000 gallons of petroleum products onsite, and the facility will be required to prepare an SPCC plan.

Safe Drinking Water and Toxics Enforcement Act (Proposition 65). Proposition 65 requires the state to identify chemicals that cause cancer and reproductive toxicity, contains requirements for informing the public of the presence of these chemicals, and prohibits discharge of the chemicals into sources of drinking water. Lists of the chemicals of concern are published and updated periodically by California Office of Environmental Health Hazard Assessment (OEHHA).

California Fire Code, Article 80. This article includes provisions for storage and handling of hazardous materials. Considerable overlap exists between this code and Chapter 6.95 of the California Health and Safety Code (HSC). However, the fire code contains independent provisions regarding fire protection and neutralization systems for emergency venting (§ 80.303, D, Compressed Gases). Other articles that may be applicable include Article 4, Permits, and Article 79, Flammable and Combustible Liquids.

Title 8, California Code of Regulations. Title 8 prescribes general occupational safety and health regulations and standards in addition to the construction and industrial safety regulations, standards, and orders. Applicable sections of CCR Title 8, Chapter 4, Subchapters 7 and 24 will be complied with during construction and operation of the Proposed Project. Specifically, Title 8 CCR §1509 (Construction) and §3203 (General Industry) make numerous changes designed to redirect the emphasis of Cal-OSHA toward ensuring that employers have an effective work site Illness and Injury Prevention Plan (IIPP), to focus Cal-OSHA discretionary inspections in the highest hazard industries as determined by workers' compensation and other occupational injury data, and to limit the number of follow-up inspections that Cal-OSHA must perform. Title 8, CCR §5189 requires facility owners to develop and implement effective Safety Management Plans to ensure that large quantities of hazardous materials are handled and managed safely.

2.8.4 Local Authorities and Administering Agencies

Certified Unified Program Agency (CUPA). The CUPA is an agency certified by the DTSC to conduct the Unified Program, which consists of hazardous waste generator and onsite treatment programs; aboveground and underground storage tank programs; Hazardous Materials Management, Business Plans, and Inventory Statements; and the Risk Management and Prevention Program. In the Proposed Project area, the CUPA is the Santa Barbara County, Public Health Department Environmental Health Services Division (EHS).

The EHS supervises the remediation of contaminated soil sites in Santa Barbara County. The EHS will grant closure of an impacted site when confirmatory samples of soil and groundwater taken demonstrate that levels of contaminants are below the standards set by DTSC and RWQCB.

Santa Barbara County Comprehensive Plan. The plan provides guidance for issues of public health and safety within the County. The county reviews proposed projects for consistency with the Comprehensive Plan.

County Environmental Health Services Division. The Local Enforcement Agency (LEA) responsible for the monitoring of landfill regarding the performance standards in CCR, Title 27, including items associated with health and safety.

2.9 Previous Analysis

A vertical and lateral expansion of the Landfill (Tajiguas Landfill Expansion Project or TLEP) to increase the volume of waste that could be disposed of, and extend the Landfill by approximately 15 years, was approved in 2002, with minor changes approved in 2006, a reconfiguration of the waste footprint approved in 2009 (Tajiguas Landfill Reconfiguration Project). The TLEP was analyzed in 01-EIR-05 (Santa Barbara County 2002) and the

Reconfiguration Project was analyzed in Subsequent EIR (08-EIR-00000-00007) (Santa Barbara County 2009).

01-EIR-05 identified potentially significant impacts associated with the potential for landfill fires (associated with wildfire, onsite storage of petroleum products), expansion of the LFG collection system, rodents that would expose onsite personnel to disease, and worker safety exposure to excavated and infectious waste. The impacts were all reduced to less than significant with applicable mitigation measures.

In 01-EIR-05, LFG collection and treatment was discussed in the context of the air quality and hazards. Specifically, LFG collection is subject to compliance with existing operational based state regulations of CCR Title 27, Division 2, for LFG monitoring via sub surface probes and active surface monitoring. The safe collection and monitoring is also subject to federal air quality regulations codified under New Source Performance Standards (NSPS) with CFR Title 40, Part 60, subpart Cc (Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills) and subpart WWW (Municipal Solid Waste Landfills).

The federal standards have two key required plans that are maintained continuously as the landfill evolves (and closed) for compliance with its Federal Part 70 air permit (PTO # 9788 R3) from the SBCAPCD. The *LFG Active Collection System Design Plan* and the *Surface Monitoring, Maintenance and Recordkeeping Plan* are maintained and implemented by RRWMD. These documents, coupled with semi-annual compliance verification and annual compliance verification reports by all parties involved with LFG collection and control, provide a basis with compliance assurance with safe operating conditions. The SBCAPCD has the jurisdiction from the EPA to oversee and administer the state and federal NSPS requirements within their federal operating permit program.

The previous Final EIR (01-EIR-05) had a significant discussion of nuisances at the existing Landfill, including the subset of vectors. Vectors can consist of insects (flies, mosquitos, et. al.) and small rodents. Control of such is required by Title 27 of California Code of Regulations (CCR). The impacts for nuisances from rodent vectors were considered significant but mitigable (Class II). The required mitigation for the impact, NUI-1, required continuation of good housekeeping practices. Similar impacts for insect vectors were also judged as significant but mitigable (Class II).

In 2011 CalRecycle developed a Programmatic Environmental Impact Report (PEIR) for proposed anaerobic digestion facilities statewide which specifically included a review of hazards and hazardous materials. The PEIR was certified on June 22, 2011. Potential impacts identified in the PEIR that may apply to the Proposed Project include the following:

- Construction of AD facilities could result in the potential exposure of construction workers, the public and the environment to preexisting soil and/or groundwater contamination. (Significant).
- Transportation, use, disposal or accidental spill of hazardous materials during construction of AD facilities would not result in the potential exposure of construction workers, the public and the environment to hazardous materials. (Less than Significant).
- Transportation, use, disposal or accidental spill of hazardous materials during the operation and maintenance of AD facilities would not result in potential harmful exposures of the public or the environment to hazardous materials. (Less than Significant).
- Operation of AD facilities could increase the risk of fire hazards due to the potential release of biogas. (Significant).
- AD Facility operations could generate vectors (flies, mosquitoes, rodents, etc.) exceeding regulatory agency thresholds for the presence of vectors. (Less than Significant).

Attachment 2 of this study provides the Mitigation Monitoring and Recordkeeping Plan (MMRP) for hazardous material impacts from the PEIR for background.

CalRecycle has not prepared a programmatic EIR on MRFs in California. However, there have been several site-specific EIRs on proposed MRFs and transfer stations. These EIRs have not focused on the design details of the MRF relating to public and worker safety but rather existing site conditions and construction impacts. The California Integrated Waste Management Board (predecessor to CalRecycle) did prepare an outline tool for assisting CEQA study in 2005. However, the outline did not include a discussion of risk of upset, hazardous material, or fire safety.

The aforementioned oil development projects of Exxon Las Flores Canyon (to the east) and the FM O&G (previously Plains Exploration and Production and Chevron) Gaviota oil facilities has had detailed quantitative risk assessments performed for the explosion, fire, and toxic risks. These studies did involve pressurized methane releases as well as other petroleum liquids from potential operations. Vulnerability areas (onsite and offsite) with the hazards were identified in these studies.

A recent British Loss Prevention Bulletin article, "Lessons for safe design and operation of anaerobic digesters," published February 2013 (Jenkins 2013) discusses a study that was undertaken to determine frequency and causes of accidents in AD plants internationally. No databases for industrial accidents indicated fatalities specifically for AD plants were identified in the United States. The majority of incidents in the article reportedly involved biogas explosions or hydrogen sulfide poisonings. The number of incidents appeared to result from an industry lacking a formal safety culture, and handling materials for which a more rigorous chemical

engineering approach and procedures are required. Lessons learned apply to all stages of an industrial scale AD project from design, documentation, and process review, through project management to commission, operation and maintenance procedures.

2.10 Thresholds of Significance

For the purpose of this analysis, significant criteria are based on CEQA Guidelines (14 CCR Chapter 3 Appendix G), and the Santa Barbara County Environmental Thresholds and Guidelines Manual (Santa Barbara County 2008).

CEQA defines a significant effect on the environment as a substantial or potentially substantial adverse change in the physical conditions of the area affected by the project. An impact related to hazards and hazardous materials, including fire hazards, would be considered significant if it would result in any of the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5, and as a result, create a significant hazard to the public or environment.
- For a project located within an airport land use plan or where such a plan has not been adopted, within 2 miles of a public airport or public use airport, result in safety hazard for people residing or working in the project area.
- For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

In addition to Appendix G thresholds, an impact would be significant if it would:

-
- Generate vectors (flies, mosquitos, rodents, etc.) to such an extent that the applicable enforcement agency determines that any of the vectors occur in numbers considerably in excess of those found in the surrounding environment, disseminate widely from the property, and cause harmful effects on the public health of the surrounding population (CalRecycle 2011).

The Public Safety Thresholds contained in the County CEQA Thresholds and Guidelines Manual focus on involuntary public exposure to acute risks that stem from certain types of activities with significant quantities of hazardous materials or land uses proposed in proximity to existing hazardous facilities. The Santa Barbara County thresholds employ quantitative measures of societal risk of a proposed development to indicate whether the annual probability of expected fatalities or serious injuries is significant or not. The thresholds apply to risks from specific facilities, activities, and handling of specific hazardous materials. The Proposed Project does not include any of the these facilities or activities, or handling of such hazardous materials identified in the applicability section of the Santa Barbara County Public Safety Thresholds and Guidelines Manual, therefore these thresholds are not applicable to the analysis of the TRRP.

With respect to the analysis of project alternatives, there are no City of Santa Barbara or City of Santa Maria thresholds relating to hazardous materials other that those listed in CEQA Guidelines (14 CCR Chapter 3 Appendix G).

SECTION 3 IMPACT ANALYSIS

The Proposed Project would modify current waste management operations at the Tajiguas Landfill by the addition of a MRF and Dry Fermentation AD Facility, Energy Facility and Composting Area. The proposed MRF would include a high capacity, negative pressure air handling system that would be designed to capture the dust and odor emissions that are anticipated to be produced from the processing of mixed MSW. The MRF would include a 1,400-kilowatt diesel-fueled backup generator engine that would provide for normal MRF and AD Facility operations in the event of a loss of electrical power. Approximately 7,500 gallons of diesel would be stored in an aboveground storage facility for the MRF and AD rolling stock. Approximately 10,000 gallons of diesel fuel would be stored in an aboveground facility for the backup generator for MRF and AD Facility of the Proposed Project. The two existing diesel fuel tanks (20,000 and 550 gallons), and a 230-gallon gasoline tank, currently used for landfill operations would be temporarily relocated to the top deck of the landfill and then relocated back on the operations deck (adjacent to the MRF fuel tanks) following construction of the TRRP.

MSW received at the landfill would be processed through the MRF. The MRF waste processing area would include a series of specialized equipment designed to size, reduce, sort separate and recover maximum quantity of available recyclable material from the MSW, while also recovering organic waste material for delivery to the AD Facility. The Tajiguas Landfill is a Class III Landfill and as such is not permitted to receive hazardous waste. However, similar to existing landfill operations, MSW received at the landfill may contain small quantities of non-permitted hazardous waste. The tip floor sorter would inspect all waste upon arrival, to segregate hazardous materials for shipment to authorized disposal facilities. In the event of unanticipated MRF waste processing equipment maintenance, short term waste stream storage could be accommodated in the MRF tip floor area. In the event of an extended facility shutdown or community disaster, all, or a portion of the waste stream could bypass the MRF and be delivered directly to the landfill for disposal.

The AD Facility would be housed within an approximate 63,000-square foot building and associated energy facility and percolate storage tanks that would convert all organics recovered from the MSW and SSOW into: biogas (primarily composed of methane and carbon dioxide) and digestate. The AD Facility would include 16 digesters, a mixing area, a mixed MSW organic waste delivery area, a compost load out area, two engine rooms, a control room, office, and a biogas cleanup and maintenance area. The AD Facility would include three percolate tanks to support the anaerobic digestion process. The percolate system would be a closed loop system and would not produce any wastewater discharge. Biogas would be harvested within the digesters. The biogas is estimated to be comprised of approximately 50–60 percent methane with the balance comprised mainly of carbon dioxide. After the initial anaerobic digestion phase is complete, the remaining material would be removed from the digesters and mixed with 50–60 percent fresh organic waste in an enclosed mixing area and placed back in digesters for the

final anaerobic digestion phase. The digestate would then be removed from the digesters and transported to the composting area, and would be cured into compost and/or soil amendments in an approximately 5-acre area.

The Biogas would be used to power two 1,537-horsepower onsite CHP engines driving electric power generators. The Energy Facility would be located on the south side of the AD Facility. A 200-gallon propane storage vessel would be located west of the Energy Facility and would provide supplemental fuel flows to the CHP engines. The Energy Facility will include air pollution control downstream of the engine, consisting of urea atomization handling equipment and catalyst (selective catalytic reduction [SCR] and oxidation) block housing. The exhaust gases would exit through a common exhaust stack with trace amounts of ammonia vapor (referred to as ammonia slip).

As an optional element, the project could also process up to 130 tons/day CSSR or 40,000 tons/year. With the inclusion of the optional element, the total processing capacity of the MRF would be approximately 290,000 tons/year. Processing of CSSR would increase the production of marketable recyclables by up to 36,000 tons/year producing up to an additional 4,000 tons/year of residue which would be disposed of in the landfill. An additional waste processing area (10,000 square feet) would be added to the MRF building if the optional CSSR material were processed at the MRF Facility.

The RRWMD and its vendor, Mustang Renewables Power Ventures, LLC (Mustang), has provided a significant amount of vendor supplied information on the following AD and MRF areas (Mustang Project Information 2013). Some of this information (non-proprietary) is presented in Attachment 3 of this report as listed below:

- Anticipated Hazardous Materials and Hazardous Waste Streams
- Project Utilities and Plan View of Features
- Anticipated AD Facility Waste Contamination Levels For Design Basis (per Mustang)
- TRRP MRF and ADF Plan View
- Simple Block Flow Diagrams from Bekon
- Mustang Proposed Operations and Maintenance Plan

With the Proposed Project, the landfill operations would continue to be operated by the County in compliance with CCR Title 27 and maintain adequate drainage controls in accordance with requirements of the RWQCB to prevent ponding that could attract vectors.

3.1 Methodology of Analysis

There are six areas to analyze regarding hazards, hazardous materials and worker safety: 1) biogas handling and design for potential injury to workers or visitors do to explosion; 2) building and LFG safety design features for process chemical and fluid management and control; 3) non biogas hazardous materials and wastewater for prevention of compost contamination; 4) fuel storage review; 5) wildland fires and; (6) other areas affecting health and safety. The following subsection provides a discussion the technical areas and factors involved in the analysis.

3.1.1 Biogas Handling and Design

A literature review of hazard analyses for MSW anaerobic digesters was conducted and no specific design cases were found except for the aforementioned British Loss Prevention Bulletin article on anaerobic digesters. Therefore, this risk of upset analysis assesses the hazards and ultimate areas of vulnerability, given the level of protections with the process design against equipment error, human error, or sabotage. High severity risk items will be assessed based on the inherent hazardous properties of the materials present and the level of controls.

Biogas contains methane (CH_4) at concentration of approximately 50 to 58 percent by volume and carbon dioxide (CO_2) at concentrations up to between 40 to 46 percent, depending on stage of the digestion process. Other gases would include nitrogen (1.6 percent by volume) and oxygen (0.1 percent by volume). When methane is mixed with atmospheric air at methane concentrations of 5 and to 15 percent by volume, the mixture is flammable. The auto-ignition temperature of methane is high (1003 degrees Celsius). However, in the presence of an ignition source, methane and oxygen is extremely flammable. The biogas within the digester is not toxic by itself. However, due to lack of oxygen, the cell atmosphere would lead to asphyxiation to humans and/or vectors. The sealed pressure control of the digester cells should not allow biogas to escape through seals on the cell doors.

The review of the detailed plans from the AD Facilities focused on the volume, handling and processing of biogas throughout the entire cycling of digestate and waste material. Consequently, the focus of identifying potential hazards with the methane in the biogas would be on events where oxygen (21 percent volume of air) and methane could mix at the identified flammability limits. This could occur primarily during the time when digestion cells are opened to change the digestate. The AD Facilities have a detailed loading and processing schedule of the individual cells to prevent the mixing of oxygen and methane at these flammability limits. A programmable logic controller will have a program to carefully control the gas (fuel and oxygen) ratios and enable proper purging of the AD cells.

The USEPA requires reasonable worst-case analysis of flammable mixtures under the Accident Prevention Provisions of 40 CFR 68. For all regulated flammable substances, EPA requires a facility assume that the worst-case release results in a vapor cloud containing the total quantity

of the substance that could be released from a vessel or pipeline. For the worst-case consequence analysis, it must be assumed that the vapor cloud detonates. If a TNT-equivalent method is used for analysis, a facility must assume a 10 percent yield factor.

The purging of the biogas within the digester cells at the end of the anaerobic digestion process cycle would occur approximately once every 28 days. With the AD Facility having 16 digester cells, there would be a minimum of 208 purging cycles during a year. There are not anticipated to be any maintenance events in the AD Facility that would lead to additional purging events as scheduled CHP engine maintenance requirements do not interrupt the digestion and purging schedules.

This study assumes the failure of such systems and postulates a reasonable worst-case release of biogas (with methane) from a cell forming a vapor cloud. The mass of methane within the biogas, estimated at 195 kilograms or 427 pounds, could be followed by a hypothetical ignition (e.g., from a very hot material or welding/cutting activity) to estimate the area of vulnerability around the AD vicinity. This hazard assumes calm pessimistic atmospheric conditions for dispersion. The mass of methane could ignite and produce a flash flame. The rapid combustion could result in an expansion of the ignited gases and subsequently produce in a pressure wave (referred to as overpressure). Typically, a regulatory agency acceptable level of concern (LOC) for this hazard is an overpressure of 1 pound per square inch (psi) in the atmosphere. This LOC can lead to broken glass and debris (USEPA 1999).

Based on the generally accepted hazard consequence evaluation methods (e.g., TNT equivalent method with 10 percent yield), the worst-case release and ignition of biogas of one entire cell would not affect any offsite areas. Specifically, the overpressure hazard zone of 1 PSI would be approximately 400 feet downwind (in a circular radius) of the AD Facility, based on the assumption that an ignition source is within the AD Facility. This affects the uninhabited hillside to the western landfill property boundary and the area around the MRF.

The probability of this occurring is anticipated to be low, however cannot be defined until a detailed Process Safety Review (PSR) is prepared. The probability is contingent on multiple events occurring at one time. With the degree of engineering controls discussed in Mustang's documents (e.g. Bekon proprietary process description and three, redundant levels of overpressure prevention systems) the probability is approximately once in a 100 years of operation of the facility. This estimate is subject to further review following detailed risk ranking as part of a PSR.

The area beyond the landfill property fence line to the west of the AD Facility would have inherent protection because the pressure wave would not follow the downward slope of the hill on the Shell Hercules property (normally unoccupied). In addition, the overpressure effects for this area would be less than the 1 psi level of concern. A representative vulnerability area is

shown graphically on Figure 1. The public receptors at U.S. Highway 101 or nearest residents are located much further than the estimated vulnerability area caused by overpressure or heat effects by ignition of worst-case biogas venting.

It should be noted the release of biogas in excess of the reasonable worst-case analysis provided above (one digester cell) is mitigated by design because the AD Facility is comprised of 16 individual digestion cells connected by small diameter piping. Thus, the maximum mass of biogas onsite that could be released instantaneously and leading to ignition is inherently mitigated by the segregation of individual digestion cells. This is because the cells are opened and closed independently following a purging cycle of the cell interior gas. There is a chance that more than one cell could lose containment resulting in larger consequences of fire and explosion. However, this event would likely depend on multiple failures of the control system and would have a lower probability of occurrence that would be determined following a PSR. Likewise, the effect of overpressure on the AD Facilities themselves would likely be small, given the structural strength of the concrete cell walls and energy facility. The consequence of a hypothetical explosion of methane from one cell is not a significant public safety impact under CEQA, but a significant event for worker safety and a PSR is recommended to rank the risk potential.

The digesters operate at low pressures (less than 0.5 pounds per square inch gauge [psig]) and have a pressure relief system that would direct the biogas to a flare header for methane destruction. The AD flare is designed to efficiently combust excess biogas experienced during the scheduled digester cell purging events (lasting up to an hour), unscheduled Energy Facility shutdowns, and other AD process upsets. The flare is mounted on top of the AD Facility and has a state of the art pilot ignition system using supplemental propane gas. Consequently, flaring is not anticipated to be a continuous event occurrence. A shroud around the flare tip will provide inherent protection of the pilot from high wind events. Bekon, the AD designer, has provided typical structural examples of the flare from other AD facilities within their mechanical systems description. The anchoring of the flare and piping systems is subject to Uniform Building Code and Santa Barbara County Fire Department requirements via a seismic review. The AD Facility is equipped with a contingent vapor pressure relief system to vent biogas to the atmosphere should gas pressures build too quickly or the flare control system malfunction. The relief system is based on a fixed pressure setpoint of 0.5 psig using a water seal similar to a water trap under a household sink.

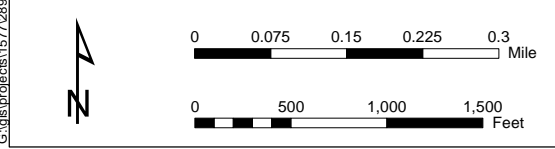
3.1.2 Building and LFG Safety Design Features

Seismic risk to the structures and tanks was examined. The design criteria for the water and percolate tanks selected is Uniform Building Code, Zone 4. Additional special building criteria such as high ground acceleration or liquefaction were discussed with the geotechnical and geology specialist and found not to be applicable.



Legend

- ▲ TRRP Facility Source Locations
- Approximate Limits of Landfill Disturbance
- Landfill & County Properties
- Compost Area
- Approximate vulnerability area for 1 PSI over pressure



**County of Santa Barbara Public Works
Tajiguas Landfill
Santa Barbara County**
URS Corporation

Source: [1] NAIP Aerial (2012), [2] Parcels: Santa Barbara County Clerk-Recorder-Assessor Map Division 2008

Figure 1. Tajiguas Resource Recovery Project Vulnerability Area for Biogas Release Resulting in Explosion

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The basis for the sizing for the firewater storage needs of the project facilities (MRF, AD/Energy Facility) was 2010 California Fire Code (Title 24). This basis is dependent on the area of each of the buildings and the water required for fighting the fire for the duration of two hours. The resultant delivery rate of 1,740 gallons per minute would be adequate for fighting fire at the Proposed Project buildings

The presence of LFG in close proximity to the MRF and AD/Energy Facilities was examined relative to the landfill's existing compliance activities relative to its LFG collection and monitoring programs. An impermeable membrane with a passive ventilation system installed underneath the buildings of the MRF and AD/Facility would provide an additional level of protection from methane intrusion. Lastly, the placement/location of combustible gas monitors inside the MRF and AD/Energy facilities would be done in coordination with the fire department requirements, the PSR, and final project design documents. Mustang indicated that several of their current operating facilities with large floor areas have multiple gas detectors present and it would be expected that similar quantities would be installed strategically for Proposed Project buildings.

3.1.3 Non-biogas Hazardous Material and Wastewater

Hazardous materials present in the construction and operational phases were assessed for the dangers to the public and workers. In addition, hazardous waste streams generated as normal operation of the MRF, AD Facility and the Energy Facility were reviewed with respect to the quantity and toxicity to the workers. A listing of these anticipated hazardous materials and hazardous waste streams for operations and construction phases are presented in Attachment 3. The three biofilter systems proposed for odor control at the MRF and AD Facility were reviewed for potential hazards and waste streams. No fire, explosion, or pathogenic hazards were identified. Some very low volume condensation streams from the biofilter may occur periodically (daily bleed off) but the waste stream is manageable with the proposed wastewater treatment process and recycled water handling plans.

The three percolate liquid storage tanks are to be contained by an 8-foot high containment wall capable of controlling and preventing the release of percolate to the adjacent road and driveway. The containment area is capable of holding the worst-case catastrophic release of the largest percolate tank volume (150,000 gallons) with the volume displacement of the other percolate and water tanks present. The percolate solution has a vapor pressure similar to water and would not produce significant vapors upon a worst-case release into the containment area.

Wastewater treatment planned at the AD Facility for sanitary wastewater and wash down wastewater was reviewed for hazard material and risk of upset concerns. The proposed effluent will be treated adequately for pathogens via the packed bed aerobic wastewater treatment unit coupled with ultra-violet light treatment. No chemical reaction or gas buildup is foreseen in the treatment process. The transfer of the treated wastewater at 4,000 gallons per day to the

70,000-gallon recycled waste water storage tank is via an underground fused high density polyethylene (HDPE) line. Loss of containment from defects or ground conditions would be a very infrequent event (estimated once every 100,000 years).

Ammonia vapor (an acutely hazardous material) produced from the air pollution control processes at the Energy Facility, would be present in very low concentrations in the treated exhaust (estimated at less than 10 parts per million by volume). This level with the inherent dispersion within would not be a significant acute hazard to the public or workers. Ammonia is not stored in vapor or liquid form at the site due to the use of less volatile/toxic urea liquid.

The MRF and AD Facility would include rooftop solar panels. Periodic maintenance of these panels may result in the need to replace or upgrade the solar panels. Reviews of the technical specifications of the proposed panels indicate the solar panels with potential toxic metals (e.g. cadmium tellurium) would not be present. Thus, the hazard to the environment and workers from handling and waste disposal/recycling is viewed as an insignificant hazardous material impact, provided the maintenance staff adheres to existing California e-waste requirements. The periodic washing of the solar panels would not result in metal contaminated wash water.

One of the potential hazards that could occur at the MRF is the loss of containment (of liquid or gas) from a gas or pressurized cylinder (e.g. propane) that was inadvertently missed in the initial load check on the MRF tipping floor. Following tip floor inspection, the waste is compacted using a large electrically powered size reducer. If such a gas or pressurized liquid cylinder is within the waste being compacted, the reducer's action would lead to a loss of containment by puncturing the vessel. The size reducer equipment would likely funnel any blast effects from this loss of containment upward, due to the funnel like geometry of the feed hopper that MSW is fed into. The MRF will have sufficient sprinklers and water delivery according to UFC requirements (e.g., FPPP), in the event that escaping gas and/or MSW did ignite in the hopper.

3.1.4 Fuel Storage Review

The project would incorporate three diesel fuel tanks and one gasoline tank for serving rolling stock of the current landfill operations as well as the new mobile off road sources needed for the MRF, AD Facility, and the composting/curing operations for the digestate. Two existing diesel fuel tanks (20,000 and 550 gallons), and one existing 230-gallon gasoline tank, currently used for landfill operations, would be temporarily relocated to the top deck of the landfill and then relocated back on the operations deck (adjacent to the MRF fuel tanks) following construction of the TRRP. Additionally, a new 10,000-gallon diesel/biodiesel storage tank would be installed for the MRF and AD rolling stock. The existing and proposed tanks include secondary containment and are surrounded by steel bollards to protect them from vehicle collision. Additionally, a 7,500-gallon diesel fuel storage tank would be provided adjacent to the standby generator. A

new 200-gallon propane storage tank would be located west of the Energy Facility to provide supplemental fuel flows to the CHP engines and the flare pilot.

Design information on the backup generator fuel tank provided by Mustang was reviewed. The tank would be double-walled conforming to the current standards of the Uniform Fire Code (UFC). Accordingly, the tank would have annular space for leak detection and alarming to the structural integrity requirements of the UFC and the SPCC requirements. The tank has a containment structures for small spills that could occur during transfer. These features provide a high degree of protection for any loss of containment accident. The larger new fuel tank (10,000 gallons) would have the same construction features. Both the two new MRF tanks and two relocated tanks for landfill operations would be permitted by the CUPA prior to operation. The ignitibility of diesel fuel and biodiesel is very low with a direct flame. Thus, collisions and impact to tanks are not expected to result in fuel fires.

3.1.5 Wildland Fires

URS reviewed available historical fire and wildfire severity zone maps for the Proposed Project region. The potential for surface and subsurface landfill fires were evaluated as a result of the Proposed Project. The level of significance would be based on whether the proposed Project increases the potential for wildfires to occur in adjacent, offsite areas.

3.1.6 Other Areas Affecting Health and Safety

Emergency Plans. The existing Tajiguas Landfill Emergency Action Plan (EAP) provides procedures for emergencies at the facility. The landfill also maintains a waste control acceptance protocol for landfill operations. Mustang's Preliminary Draft Operations and Maintenance (O&M) Plan (2013) (provided in Attachment 3) that provides general procedures for hazardous materials handling, hazardous waste management and worker safety. However, there is no written manual or document that describes personnel training for the EAP or the O&M Plan. Currently, there is not a specific written Emergency Response Plan (ERP) for hazardous waste accumulation or handling. The Preliminary Draft O&M Plan does not propose any onsite AD Facility operations staff during some off hours (second and/or third shift).

Hazardous Waste Handling and Training. The MRF and Energy Facility would have a dedicated hazardous waste storage area within their respective structures (See Attachment 3). This would be the repository for residuals from the MRF process and are a prohibited waste. No details were provided on the storage area. Based on review of the Draft O&M Plan, Mustang plans to have procedures and equipment (e.g. recordkeeping, containment, electrical grounding) to address the proper handling and storage of the waste (prior to offsite transportation) to meet the state and federal requirements.

Review of the Draft O&M Plan by Mustang, indicates a high degree of proposed employee training, from general safety to special employee job function training. The training would provide the employees with the knowledge base to respond to some upset conditions in the MRF or the AD Facility. In the MRF and AD facilities with many energized and moving areas, adherence to the lockout-tagout training procedures and other critical safety systems is critical for a safe work environment.

Vehicle Movement Safety. There will be significant vehicle movement in the MRF and the AD/Energy Facilities. The moving equipment (trucks and rolling stock such as loaders) could result in traffic collisions with the AD facilities or other energized areas. The final project design review of the facilities (including hazardous material storage and water tanks) would incorporate crash protection bollards and/or barriers to reduce the severity of traffic collisions. Similarly, specific gas detector placement (flammable gas and methane) within the interior facilities would be conducted.

Site Security. The Tajiguas Landfill currently has several security systems in place consisting of a load check gate attendant during the day, locked gates at night, nighttime electronic surveillance, and alarm call outs. There is fencing on the southern, western, and eastern borders of the Tajiguas Landfill property. The existing LFG collection system operators, MM Tajiguas Energy have access to the landfill property after hours (via keys). Currently, there is no written security plan for the landfill. It is anticipated that in the future, the working entities at the landfill property, Mustang, NEO Tajiguas, MM Tajiguas Energy, and RRWMD would formalize a plan upon the construction start, given the wide breadth of contractors coming onsite. Upon the start of operation, Mustang will have a 24 hour presence at the MRF. The potential of sabotage at the new TRRP facilities is expected to be minimized, based on these above factors. Nonetheless, a process safety review should incorporate review of human factors, external events, and site security.

3.2 Project-specific Impacts

Based on the significance criteria, the potential environmental impact areas/issues have been identified in the project area and are discussed below.

The Proposed Project would have a significant impact if it creates a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials.

Potentially significant direct impacts include a hazard to workers, the public, or the environment through the transport, use or disposal of hazardous materials.

Construction activities associated with the Proposed Project would not require extensive or ongoing use of acutely hazardous material or substances. During construction, small quantities

of hazardous materials (i.e., fuel and lubricating oils for equipment) would be used at the Proposed Project site and transported to and from the site during construction. Small quantities of the substances could be accidentally released to soil. The Proposed Project would be required to implement hazardous materials handling procedures and worker safety procedures according to applicable regulations discussed above and RRWMD landfill contractor requirements. Because of the small amounts of hazardous materials used during for construction activities and with the implementation of applicable regulations for hazards materials and health and safety, potential impacts associated with use of hazardous materials for Project construction purposes would be less than significant.

Operational activities associated with the Proposed Project would not require extensive use of acutely hazardous materials or substances. Small quantities of hazardous materials as described in Attachment 3 would be used at the Proposed Project site for operations. As discussed in Section 2, Regulatory Setting, numerous laws and regulations govern the transport, use, storage, handling and disposal of hazardous materials. The facility would be required to maintain a HMBP with the CUPA, for the use and storage of onsite hazardous materials (e.g., diesel fuel, propane and sulfuric acid). The HMBP would meet Emergency Planning and Right to Know Act (EPCRA) Tier 2 requirements and would require the reporting of hazardous materials over regulatory thresholds. The HMBP would outline emergency response procedures and onsite equipment as well as training requirements. The final design and siting of diesel fuel tanks (four tanks having a total capacity of 37,500 gallons) would be in accordance with the UFC, ensuring proper spatial separation with other fuel and ignition sources. Therefore, impacts associated with hazardous materials use and storage would be less than significant.

The Proposed Project would have a significant impact if it creates a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials to the environment.

The Proposed Project includes the use of anaerobic digesters. Biogas generated in the bio-digesters consists of methane and carbon dioxide, with small amounts of H₂S and ammonia. Typically, biogas is saturated with water vapor and may have trace amounts of hydrogen, nitrogen, oxygen, dust and siloxanes. Methane is not toxic, but is classified as a simple asphyxiate. Biogas itself is not explosive and will not burn unless oxygen is available at low concentrations. The methane in biogas is explosive when mixed with air in concentrations of 5 to 15 percent. In open spaces, biogas readily mixes with air, reducing its potential to reach flammable concentrations.

Operation of the AD Facility could increase the risk of onsite fire and explosion hazards due to the potential release and ignition of biogas. The MRF and AD Facilities will be equipped with LFG monitors and alarms that would identify LFG buildup and explosive conditions. This

equipment will provide early detection of explosive conditions and allow quicker shutdown response. Impacts from fire or safety hazards to the workers, landfill staff and the public would be less than significant with implementation of Mitigation Measures HAZ-1 (Emergency Response Plan) and, HAZ-2 (Fire Protection and Prevention Plan). The remote location of the AD Facility relative to other facilities/activities on the landfill property (e.g. the existing landfill Energy Facility, landfill working face, Composting Area) will also limit risk to onsite personnel. By review of the project design and O&M Plan, there are significant engineering protections (such as automated purging of cells and overpressure contingencies) included in the design. The potential impact area of an unmitigated release and explosion would not impact offsite public receptors. Therefore, off-site public safety impacts from operation of the AD Facility would not be significant. Nevertheless, accidental release of biogas and explosion from equipment failure or faulty process control could result in a significant hazard to the public visitors and workers on the landfill property. Process hazard analysis and pre-startup safety review are inherent elements of process safety in an industrial setting and implementation of Mitigation Measure HAZ-3 (Process Safety Review), would reduce the impact to visitors and on-site staff to less than significant. This mitigation would help fine tune process risk identification and integrate process protections (monitoring, procedures, or process equipment changes) into the final design.

The maximum amount of methane onsite (present at the AD/Energy Facilities at any one time) is currently estimated to be less than the federal safety regulatory threshold of 10,000 pounds. The anticipated amount of methane present in the cells according to Mustang is approximately 70,000 standard cubic feet. This amount will be verified during the PSR and subsequent final design. However, if the PSR and final design shows total mass of methane in quantities exceeding the threshold, the aforementioned OSHA Process Safety Management (PSM) and federal/state RMP would be required in lieu of HAZ-3 (PSR). The potential increase of the methane present onsite would likely not increase the public safety impact because the methane is compartmented with digester cells and an explosion would likely involve only a small portion of the total gas present onsite.

A LFG collection system is currently in place at the landfill which would reduce the potential for gas migration into newly constructed facilities. In addition, Title 27 of the CCR requires enclosed structures proposed to be built onsite to include combustible gas infiltration protection and monitoring features. The existing LFG collection system operates by extracting LFG from the waste mass via a vacuum applied to the wells by a blower located at the engine and flare station. The gas is transferred through a series of pipes and the blower to the cogeneration facility. It is then routed to either the flare, where it is incinerated, or to the engine to power the generator and produce electricity. The LFG system is operated 24 hours a day, 7 days a week.

Safety features are built into the system at the engine and flare station. Safety equipment includes a flame arrestor at the main LFG inlet pipe at the flare and an auto shutoff valve at the

main LFG inlet pipe. There is a coordination of the LFG collection operator and landfill personnel. If there is a breach or plug in the vacuum collection system, the pressure and methane monitors at the engine or flare will immediately detect it and prompt a shutdown. In addition, monthly maintenance of the LFG collection wells is conducted and documented by the LFG collector operator to ensure the integrity of the entire system (i.e. proper distribution of flow and minimizing leakage).

The MRF, AD and Energy Facilities will not be constructed on an active landfill area (area with waste footprint beneath it). The landfill maintains an active LFG collection system. Therefore the potential for LFG migration to the MRF, AD, and or Energy facility is reduced. However, the Composting Area will be located on the top of the closed landfill area with a LFG collection system beneath the landfill final cover system. Proposed Project potential impacts from LFG during construction and operation would be less than significant because of the following factors:

- 1) Existing LFG infrastructure is well maintained and has an adequate breakdown response system;
- 2) The MRF, AD and Energy Facilities would be located on areas outside of the waste disposal footprint;
- 3) The MRF and AD Facility will have enough methane monitors installed for early warning; and;
- 4) Any accidental pipe breakage of the LFG system would involve the release over time of small masses of methane resulting in low gas concentrations in the ambient atmosphere.

The Proposed Project would have a significant impact if it emits hazardous emissions or handles acutely hazardous materials, substances, or waste within 0.25 mile of a school.

There are no schools within 0.25 mile of the Proposed Project site. The nearest school is located approximately 12 miles from the Proposed Project site. Therefore, the Proposed Project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school and there would be no impact.

The Proposed Project would have a significant impact if it is located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, a significant hazard to the public or environment would be created.

The Proposed Project is not located on hazardous materials sites lists compiled pursuant to Government Code Section 65962.5. The MRF, AD and Energy Facilities are proposed to be

located in an area of engineered fill composed of clean native soil, and the Composting Area would be constructed on top of the closed landfill. However, there is potential for exposure of construction workers, the public, or the environment to preexisting soil and/or groundwater contamination in areas where hazardous materials may be used or stored as a part of existing landfill operations (e.g. fuel tanks, hazardous material storage areas, etc.). If hazardous materials from historic use of the project site as a landfill, are present in excavated soil, hazardous materials could be released to the environment resulting in exposure to construction workers or the public. Impacted soil could also require disposal as a hazardous waste and could result in a significant hazard to the public or environment. Hazardous materials in soil, if identified, could be managed appropriately according to applicable laws and regulations to reduce the risks associated with exposures to individuals or releases to the environment. Implementation of Mitigation Measure HAZ-4 (Construction Soil Management Plan) would reduce the impact to less than significant.

The Proposed Project would have a significant impact if it is located within an Airport Land Use Plan or where such a plan has not been adopted, within two miles of a public airport or public use airport and would result in a safety hazard for people residing or working in the project area.

The Proposed Project is not located with an Airport Land Use Plan or within two miles of a public airport or public use airport and there would be no impact. The Santa Barbara Airport is located over 20 miles from the project site.

The Proposed Project would have a significant impact if it located within the vicinity of a private airstrip, and result in a safety hazard for people residing or working in the project area.

The Proposed Project would not be located within the vicinity of a private airstrip. Therefore the Proposed Project would not result in a safety hazard for people residing or working in the Project area and there would be no impact.

The Proposed Project would have a significant impact if it impairs implementation or interferes with an adopted Emergency Response and Evacuation Plan.

Emergency response and evacuation procedures for the Proposed Project area are coordinated by the Santa Barbara County Sheriff's Department (SBCSD) and the SBCFD. The Proposed Project would involve changes to the site, including modest increases in employees, automobile traffic, and truck trips. In addition, the Proposed Project includes construction of new buildings, new industrial processes (MRF/AD Facility), and changes to the existing landfill procedures. Minor changes to the existing spill contingency plans and emergency response plans would be required. Emergency access to and in the vicinity of the project site could potentially be affected during construction activities. During construction and operation activities of the Proposed

Project, the SBCFD would require that adequate vehicular access be provided and maintained. As described in the TRRP Traffic Study, a Traffic Control Plan would be prepared. The Traffic Control Plan would provide access for emergency vehicles at all times. Therefore, the Proposed Project would not impair implementation of, or physically interfere with an adopted emergency response plan or emergency evacuation plan related to hazardous materials. The impacts to emergency response plans or emergency evacuation plans would be less than significant.

The Proposed Project would have a significant impact if it would expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

The Proposed Project has the potential to increase fire hazards by: 1) increasing the amount of structural development including 123,000-square feet of metal or concrete building material onsite that would require fire protection; 2) increasing the number of workers present onsite up to 55 personnel; and 3) introducing new ignition sources. In addition, the biogas produced by the AD Facility has the potential to ignite or explode. Under the anticipated low frequency of a flaring event, the resulting flame would be small and adequately spaced from any combustion source (e.g. vegetation). An existing fire break is present around the perimeter of the landfill and large areas of the landfill have low biomass present due to the ongoing waste disposal activities which help to reduce the potential for wildland fires. A preliminary estimate of required fire water volume for the MRF and AD Facility is 210,000 gallons (1,750 gallons per minute [GPM] for 2 hour fire duration, based on sprinkler-protected buildings). A 220,000-gallon elevated water tank would be constructed on the ridge northwest of the TRRP Project site to supply both fire and domestic flows (approximately 500 feet from the MRF). A dedicated fire protection water distribution system would convey the fire flow to the site fire hydrants and to the building sprinkler systems. The design would include a 360 degree fire vehicle access driveway with fire hydrants around the AD Facility and MRF buildings (see Attachment 5, Exhibit W-2).

There is potential for fire to occur from “hot loads” (MSW contaminated with smoldering material) in the MRF. A hot load is a waste transport vehicle that contains hot or smoldering materials that ignite when exposed to air. If a fire occurs from a hot load at the MRF, it would likely be small and short duration. Procedures of the Proposed Project would involve spreading the initial trash onto the tipping floor and using hoses if needed to which would reduce the potential for hot loads to result in fires at the facility.

It is possible that fires originating in the vicinity of the landfill could move onto the Proposed Project area from the north and from areas to the west, east, and southeast, which are designated as open space, agricultural and residential uses. However, this is unlikely, as: 1) the landfill top deck is barren with the remainder sparsely vegetated; 2) during operations, the working face is kept small, so the area of uncovered waste is minimal; and 3) there is no

exposed waste which could catch fire. The MRF, AD and Energy Facilities would be protected from fire with sprinklers and modern non-flammable construction materials. Flammable storage (i.e., diesel and propane) would be located away from the Proposed Project buildings and according to applicable fire code. The buildings would have a fire buffer zone around them that includes irrigated vegetation.

The SBCFD provides fire protection services to the existing landfill site within an approximate response time of 9 minutes. Although there are no formal County requirements for water storage for fire protection related to the landfill activities, the landfill currently reserves 22,000 gallons of water stored in a 10,000 and 12,000-gallon tanks for use in the event of a fire. The 220,000 gallon storage of fire water storage for the TRRP facilities will help supplement this level of fire protection.

The impacts from wildfires would be potentially significant but reduced to less than significant with implementation of Mitigation Measure HAZ-2 (Fire Protection and Prevention Plan).

Generate vectors (flies, mosquitos, rodents, etc.) to such an extent that the applicable enforcement agency determines that any of the vectors occurs in numbers considerably in excess of those found in the surrounding environment, disseminate widely from the property, and cause harmful effects on the public health of the surrounding population.

Similar to the existing landfill operations, waste processing activities for the Proposed Project could attract wildlife species. Specifically, the composting of digestate and accompanying MRF (to a lesser extent), could potentially create impacts to workers by the following:

- Providing habitat and food for rodents.
- Creating poor drainage facilities that provide habitat for mosquitoes if ponding occurs.

Similar to applying daily cover to MSW faces, the continual daily windrowing of digestate and compost will help mitigate insect vectors. In addition, the heat of the compost (as it is turned) would likely produce detrimental conditions for insect breeding.

There is also a potential of rodents to inhabit equipment and structures. This potential exists for the existing landfill but also for the Proposed Project due to the indoor nature of MRF operations providing tight spots and vacancies in the equipment. The increase in rodent population with the MRF structure could increase the exposure potential to onsite workers. While the landfill would maintain its compliance with Mitigation Measure NUI-1 (good housekeeping) of 01-EIR-05, the Proposed Project likewise would maintain vigilance the Proposed Project facilities.

Therefore the Proposed Project would include development and implementation of a Vector Management Plan (VMP). The VMP would focus on good housekeeping, minimizing accessibility of organic waste to nuisance species, and minimizing features that would support

breeding by these species. The VMP may also include deterrents such as scarecrows, cages, netting and acoustic devices such as cannons. Similar to applying daily cover to MSW faces, the continual daily windrowing of digestate and compost will help mitigate insect vectors and their breeding. The VMP would be designed to be adaptive, and include some monitoring of the presence and/or abundance of individual nuisance animals and increasingly more stringent measures to limit accessibility of wastes to these animals. The facility design within the MRF would prevent standing water, by proper sloping and connective drains installed within the facility. Off-hour MRF inspections are planned for the project operations, which coupled with daily maintenance oversight, would provide constant vigilance for elimination of rodents and insect nests. With the implementation of the VMP, onsite and offsite impacts from vectors would be less than significant.

3.2.1 Impacts of the Optional CSSR Element

The CSSR optional element would involve the construction of an additional 10,000 square feet of building area and is not anticipated to require the additional use or transport and handling of additional hazardous materials. This optional element would not increase the potential for impacts associated with the risk of fire or explosion, LFG, accidental release of biogas, and processing of organic waste. Under the optional CSSR element, no increase in potential impacts associated with emergency response and evacuation is anticipated. Additionally, no increase in the potential for impacts associated with wildland fires during construction or operation of the Proposed Project are anticipated. Therefore, with the addition of the optional element the levels of impacts discussed in the prior sections would remain the same.

3.3 Worker Safety Discussion

Operation of the MRF and AD Facility and digestate/cured compost may expose workers to pathogens, disease carrying vectors, dust, noise, hazardous materials and other operational hazards. With implementation of applicable worker health and safety regulations and Mitigation Measure HAZ-1 (Emergency Response Plan) the impacts would be less than significant. The worker safety regulations would include respiratory protection and hazard communication according to Cal-OSHA.

Pre-processing involves the activities necessary to prepare the feedstocks for delivery into the AD vessel. The mixed solid wastes must be sorted to remove hazardous wastes. Residues (see Attachment 3) ineligible for disposal in the landfill (i.e. hazardous waste or e-waste from batteries, paint containers, aerosol cans and other household hazardous wastes) would be removed and transported to an appropriate recycling or disposal facility. The MRF would have an initial load checking procedure for ineligible materials. The loads would be emptied onto a large tipping floor area with a loader that would provide a high degree of inspection and retrieval of ineligible material. Consequently, operation of the MRF Facility could potentially increase the

rate of generation and handling of state and federal regulated hazardous wastes due to increased quality control during load checking and the separation process associated with the MRF.

Workers would have to handle and remove the prohibited waste from the waste stream. The prohibited waste would then be placed in the appropriate interim storage location that complies with applicable state and federal waste management requirements. The interim storage duration could be up to 180 days at the site. During this time mechanical upsets could occur that can result in accidental dermal/inhalation exposures to employees. Subsequent loading and transport of segregated hazardous waste could result in landfill transportation-related accidents and potential exposures. Potential impacts to worker safety from generation and handling of hazardous waste would be reduced with the preparation of a Hazardous Waste Management Plan.

Exposure to worker safety hazards would be minimized through adherence to appropriate engineering design criteria and administrative controls (e.g., use mechanical, magnetic and optical sorting methods to limit worker contact with the MSW), use of applicable personal protective equipment (PPE), and compliance with all applicable health and safety laws and regulations. The programs, regulations, and preventive measures intended to control potential worker health and safety impacts associated with these hazards will provide a comprehensive health, safety, and fire prevention program and an accident/injury prevention program intended to ensure healthful and safe operations at the facility. With implementation of this program, operational activities associated with the Proposed Project will not result in any significant environmental impacts to worker health and safety. A Health & Safety Plan (HSP) would be prepared to address worker safety hazards during the project and to comply with federal and state Occupational Safety and Health Administration Standards for worker safety. The HSP would document workplace health and safety and environmental protection procedures and guidelines that would govern the Proposed Project work. The HSP would include procedures require to minimize potential impacts to worker safety.

3.3.1 Operations Waste Management Plan

To avoid the potential effects on human health from accumulation, handling, and disposal of hazardous wastes, a detailed Operations Waste Management Plan (OWMP) should be prepared prior to operation of the Proposed Project. The OWMP shall include load checking procedures to identify and safely remove hazardous (including electronic waste and other universal wastes) or medical waste from the waste stream before and during processing in the MRF and AD Facility. The purpose of the OWMP is to create procedures for proper identification, classification, storage, labeling, packaging, recordkeeping, manifesting, use of waste minimization principles, and disposal of hazardous materials and waste. The following procedures will be included:

- Identification of potential hazardous wastes.
- Description of each hazardous waste stream.
- Waste classification procedures.
- Waste container and label requirements.
- Accumulation, handling, transport, treatment, and disposal procedures for each waste.
- Waste minimization procedures.
- Preparedness, prevention, contingency, and emergency procedures, including in the event of an unplanned closure or planned temporary facility closure.
- All facility employees shall receive awareness training for hazardous waste segregation, accumulation, and labeling; inspection of satellite accumulation areas; spill contingencies; and waste minimization procedures in accordance with Title 22 CCR.

3.4 Extension of Life Impacts

Implementation of the Proposed Project would involve continuing landfill activities (although reduced in scale) and delaying final closure of the landfill by approximately 10 years. The current use of hazardous material and infrequent generation of hazardous waste (oil waste, oily debris, batteries etc.) at the landfill operations would continue at rates equal or less than the current operations. These activities have not resulted in significant risk of upset in the past and are not expected to increase due the extension of landfill life. Section 2.9, Previous Analysis, identifies hazardous material and hazards impacts previously identified in association with landfill operations. The landfill would receive the same overall volume of waste and the generation of the LFG and leachate collection will continue as the waste currently disposed of in the landfill continues to degrade. However, waste entering the landfill after implementation of the Proposed Project would have significantly reduced organic fraction which would likely, over the long term, generate less LFG and leachate. Federal and state LFG regulations would continue to apply to landfill operations and the LFG collection system would continue to operate (collect and control LFG).

3.5 Cumulative Impacts

The context for the analysis of cumulative impacts from environmental safety is limited to the immediate surrounding area. Hazardous materials and contamination issues are largely site specific and generally will not combine with impacts from other projects to result in cumulative impacts.

Based on land uses in the surrounding area (primarily agricultural, open space and residential use) and the limited amount and type of hazardous materials to be used as part of the Proposed

Project, no significant incremental cumulative impacts associated with environmental safety would be expected to occur as a result of the Proposed Project implementation. Regulations implemented by the DTSC, SBCFD, and the RWQCB would require similar measures being applied to other potential developments with environmental safety issues in the Proposed Project region. Therefore, the Proposed Project would not be expected to result in significant cumulative impacts related to the transport, use, or disposal of hazardous materials.

The surrounding area is also within the high fire hazard area so there is some increased risk of fires when considered with the potential fire hazards at the TRRP site. However, TRRP includes building sprinklers and fire hydrants and residential projects would also have to meet fire prevention standards for adequate water supply pressure and access, therefore cumulative impacts would be less than significant.

The current operations of the Tajiguas LFG flare and/or power generation facilities or adjacent pipelines are not expected to pose a cumulative risk of upset with the mitigated risk of upset with the Proposed Project. This is due to the spatial separation between the existing facilities and Proposed Project activities.

With respect to cumulative risk of upset impacts, the only projects that have the potential to contribute to cumulative risk of upset impacts are the Shell Hercules Remediation Project and the SoCal Gas Storage Enhancement Project. The Shell Hercules Remediation Project is located immediately west of the TRRP site and access to U.S. Highway 101 would be shared with the landfill. The SoCal Gas Storage Enhancement Project is located 20 miles west of the TRRP site and due to the distance is not expected to contribute to cumulative risk impacts. Risks at the Shell site are related to PCB contaminated soil excavation and subsequent removal/transportation of the soil. Due to the spatial separation and the nature of risks at each of the sites, cumulative impacts are not expected.

The Proposed Project's temporary increase in construction-related traffic, increase in operational employee trips, and trips exporting recyclables and compost could increase the traffic collision risk with trucks carrying impacted soil from the Shell Hercules Site Remediation (immediately to the west). Currently, it is feasible that soil removal trucking activities could occur during the summer period (when dry) in later years (2015 or beyond) when the Proposed Project is being constructed or operated. Considering the good site visibility at the intersection between the landfill access road and the Shell Hercules site, the limited number of daytime departures of recyclable transport trucks from the landfill, and the low likelihood of release of impacted soil, cumulative risk of upset would reduce the project's contribution to cumulative risk of upset conditions. The risk of a hazardous material transportation accident leading to a release of impacted soil near the landfill entrance is not a significant impact based on the low likelihood of the event. Therefore impacts are expected to be less than significant.

SECTION 4 MITIGATION MEASURES

4.1 HAZ-1 – Emergency Response Plan

A site-specific Emergency Response Plan (ERP) shall be developed prior to operation of the Proposed Project. The ERP shall be designed to address potential emergencies, including hazardous materials releases, fires, earthquakes, bomb threats, pressure vessel ruptures, and other catastrophic events. The ERP shall describe evacuation routes, warning devices, points of contact, assembly areas, responsibilities, and other actions to be taken in the event of an emergency. The ERP shall have a layout map and a fire extinguisher list and shall describe arrangements with local emergency response agencies for responding to emergencies. This shall include coordination with the SBCFD with respect to confined spaces and the potential for explosion.

4.2 HAZ-2 – Fire Protection and Prevention Plan

To reduce potential fire impacts, a Fire Protection and Prevention Plan (FPPP) shall be prepared prior to operation of the Proposed Project. The FPPP shall identify fire hazards, describe facility operations, procedures to prevent ignition of fires, include regular inspection of fire suppression systems, and provide for worker training in safety procedures as well as protocols for responding to fire incidents. In addition, the FPPP shall identify firefighting equipment and systems at the landfill and methods to safely store flammable and combustible materials. Fire protection equipment shall be installed and maintained in accordance with all applicable NFPA standards and recommendations. Fire reporting protocols (based on the size of the fire) and investigation protocols shall be detailed in the FPPP.

The FPPP shall include the information provided below.

- Names and/or job titles responsible for maintaining equipment and accumulation of flammable or combustible material control
- Procedures in the event of fire
- Fire alarm and protection equipment
- System and equipment maintenance
- Monthly inspections
- Annual inspections
- Firefighting demonstrations
- Housekeeping practices
- Training

4.3 HAZ-3 – Completion of Process Safety Review

The Proposed Project shall require the completion of a Process Safety Review (PSR) prior to final design. The PSR shall consist of a process hazard analysis, using a methodology for implementation of the OSHA Process Safety Management standard (29 1910.119) or one cited in American Institute of Chemical Engineer's "Guidelines for Hazard Evaluation Procedures" (AIChE 1992). The purpose of the PSR shall be to identify any weaknesses in the handling and processing of the biogas within the AD (from individual cells to combustion in engine and or flare.

At a minimum, the PSR shall address: 1) the project's process control for purging the AD cells prior to withdrawal of processed digestate; 2) maintenance activities involving biogas conditioning and digester sump biogas; 3) incidents that could occur during remote off-hour evening and weekend monitoring of operations; and 4) examining the safe flare operation (continuous) and redundancies included in the design. The need for onsite AD Facility monitoring personnel during the 2nd and 3rd working shifts shall be included in the PSR.

Based on the results of the Process Safety Review, recommendations would be made for inclusion in the FPPP and the ERP.

4.4 HAZ-4 – Development of a Soil Management Plan for Construction Activities

Prior to earth disturbing activities, areas within the Proposed Project footprint where historical hazardous materials use occurred shall be assessed for the potential of impacted soil conditions. If impacted soil is identified, additional assessment including a workplan to determine the lateral and vertical extent of impacts shall be prepared and a Soil Management Plan (SMP) shall be developed and implemented. The objective of the SMP shall be to provide guidance for the proper identification, handling, onsite management, and disposal of impacted soil that may be encountered during construction activities. Depending on the type and extent of impacted material, remediation may include excavation and offsite disposal, onsite aeration, on or offsite treatment and backfilling. The SMP shall include practices that are consistent with the California Title 8, Cal-OSHA regulations, as well as appropriate remediation standards that are protective of the public and the environment. Appropriately trained professionals will be onsite during construction activities to monitor soil conditions encountered. If impacted soil and/or groundwater are encountered during demolition work, work shall be halted and necessary actions would be completed.

SECTION 5 ALTERNATIVES

5.1 Alternative A – No Project

Under the No Project Alternative, the landfill operations would continue, and the existing conditions would remain unchanged. The landfill would continue receipt and disposal of MSW until the disposal capacity is reached in approximately 2026. After 2026 the County would need to provide other MSW disposal options by either pursuing an expansion of the landfill (Alternative E) or export waste to another landfill. No additional impacts from hazards or hazardous materials are anticipated under this alternative. Impacts would be as described in the prior landfill environmental documents and summarized in section 2.9, Previous Analysis above.

5.2 Alternative B – Urban Area MRF Alternative 1 (MarBorg Industries MRF)

Alternative B would involve the same operations as the Proposed Project and would have similar hazards and hazardous materials impacts. Under Alternative B, the MRF would be located at the MarBorg Industries site in the City of Santa Barbara (see Attachment 4, MarBorg Industries MRF Development Plan). The AD and Energy Facilities would remain at the landfill and would have the same potential impacts and recommended mitigation measures as the Proposed Project. Impacts would be reduced to less than significant levels.

Construction and operation activities associated with Alternative B would not require extensive use of acutely hazardous materials or substances. The landfill and MarBorg Industries facilities, proposed under Alternative B would be required to implement hazardous materials handling procedures according to applicable federal and state regulations. Operational handling of hazardous materials and segregated hazardous waste at the MarBorg Industries site would be identical to the Proposed Project. While public receptors are closer to the facility due to its multiple zoning urban location, there is not an increased risk of exposure of hazardous materials to the public, because all material handling is proposed to be conducted inside a building and initial MRF compaction equipment can safely handle incoming MSW.

The MarBorg Industries site is not located on hazardous materials sites lists compiled pursuant to Government Code Section 65962.5. There were no enforcement action records identified on the CalRecycle Solid Waste Facility Enforcements database for the MarBorg Industries facility. A Phase II Investigation conducted in 1998 for the Union Pacific Railroad Site (which included the MarBorg Industries site) assessed soil and groundwater impacts on the property. Based on results of the Phase II Investigation, analytical results indicated that historic site operations did not appear to have significantly impacted soil beneath the site. Based on groundwater sampling data, historic site operations appeared to have a limited impact on groundwater. Total petroleum hydrocarbons and benzene, ethylbenzene, toluene and xylene were detected in two grab samples at low screening levels (ERM 1998). Based on the historic operations in the area and remediation activities at nearby properties, there is a potential for exposure of construction

workers, to residual impacted soil and/or groundwater. Mitigation Measure HAZ-4 would reduce potential impacts to less than significant levels.

The MarBorg Industries site is not located with an Airport Land Use Plan or within two miles of a public airport, public use airport or within the vicinity of a private airstrip and therefore there would be no additional safety hazard for people residing or working in the area. Alternative B would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan related to hazardous materials. Currently, Emergency response and evacuation procedures for the MarBorg Industries site area are coordinated with the City of Santa Barbara Fire Department (SBFD). Fire Station 2 is located at 819 Cacique Street with an approximate response time of 5 minutes. Additional backup fire and hazardous materials control resources are available from other City stations and mutual aid agreements with County and other emergency responders (City 2013). Water supply to fight fire would be supplied by the City of Santa Barbara's fire water distribution system from fire hydrants. Water for fire suppression would be conveyed to the buildings sprinkler systems per City Building Code. Alternative B would involve changes to the MarBorg Industries site and changes to the existing spill control and contingency plans and emergency response plans similar to those of the Proposed Project. Emergency access to the MarBorg Industries site could potentially be affected during construction activities. During construction and operation activities, the SBFD would require that adequate vehicular access be provided and maintained. Therefore Alternative B would not impair implementation of, or physically interfere with, and adopted emergency response plan or emergency evacuation plan related to hazardous materials. The MarBorg Industries site is not located in a high fire hazard area, therefore there is no additional impact associated with wildland fires.

There would be no additional impacts associated with vectors from Alternative B. With the implementation of the VMP, impacts from vectors would be less than significant.

5.3 Alternative C – Urban Area MRF Alternative 2 (South Coast Recycling and Transfer Station [SCRTS])

Alternative C would involve the same operation as the Proposed Project and would have similar hazards and hazardous materials impacts to the Proposed Project. The MRF would be located at the SCRTS site in unincorporated Santa Barbara County. The AD and Energy Facilities would remain at the landfill location and would have the same potential impacts and recommended mitigation measures as the Proposed Project to reduce impacts to less than significant levels.

Construction and operation activities associated with Alternative C would not require extensive use of acutely hazardous materials or substances. The landfill and SCRTS facilities proposed

under Alternative C would be required to implement hazardous materials handling procedures according to applicable federal and state regulations.

There were no enforcement action records identified on the CalRecycle Solid Waste Facility Enforcements database for the SCRTS. The SCRTS is not located on hazardous materials sites lists compiled pursuant to Government Code Section 65962.5. The Santa Barbara County Corporation Yard at 4568 Calle Real appears to be located adjacent to the SCRTS and was identified on the Leaking Underground Storage Tank (LUST) Cleanup Site database. The cleanup status of the facility was reported as Completed-Case Closed. However, there is a potential for exposure of construction workers, to residual soil and/or groundwater impacts associated with the historical use of the facility as a landfill. Mitigation Measure HAZ-4 would reduce the potential impacts to less than significant.

Alternative C does involve locating the MRF in close vicinity to the former County Foothill Landfill. The landfill ceased accepting municipal waste in 1967. The former landfill has been subject to periodic inspection and monitoring by RRWMD. This includes methane gas monitoring from a series of peripheral LFG probes in areas where municipal waste was historically deposited. Attachment 4 provides a plan of the probes locations. Many of the County buildings in the area including those on the current SCRTS have LFG monitoring occurring. In addition, the LEA (Santa Barbara County EHD) conducts inspections, including LFG monitoring. The records for the RRWMD and LEA show minimal methane concentrations (<10 parts per million by volume in probes). Because the MRF will have a vapor barrier installed under the foundation and include interior LFG monitors, the fire and explosive risk of upset impacts are not a significant impact. Attachment 4 provides some the representative LEA reports and monitoring records (Stoodley 2013).

It is anticipated that the construction of the MRF will not require export of historical fill material based on preliminary MRF plans. If geotechnical investigations indicate that historical municipal waste material needs to be exported for the MRF, then the regulatory driven hazardous waste handling procedures would be implemented.

The SCRTS is not located with an Airport Land Use Plan or within two miles of a public airport, public use airport or within the vicinity of a private airstrip and therefore there would be no additional safety hazard for people residing or working in the area. Alternative C would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan related to hazardous materials. Emergency response and evacuation procedures for the SCRTS area are coordinated by the SBCSD and the SBCFD.

Alternative C would involve changes to the existing SCRTS facility and updates to the existing spill contingency plans and emergency response plans similar to those necessary for implementation of Proposed Project. Emergency access to and in the vicinity of the SCRTS

could potentially be affected during construction activities. During construction and operation activities, the SBCFD would require that adequate vehicular access be provided and maintained. Therefore, Alternative C would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan related to hazards and hazardous materials. County Fire Station 13 is located at 4570 Hollister Avenue, with an approximate response time of 3 to 5 minutes. Additional backup fire and hazardous materials control resources are available from other County stations and other emergency responders. (County 2013). Water supply to fight fire would be supplied by Goleta Water District fire water distribution system from fire hydrants. Water for fire suppression would be conveyed to the buildings sprinkler systems per County Development Code. While the area has been subject to or close to historical wildfires from the foothills and mountain range (e.g., Painted Cave Fire) due to infrequent high offshore winds, this alternative site is similar to the proposed site, relative to buffer distance to combustible biofuels. The County emergency services are located within ½-mile of the SCRTS and would be able to respond. Thus, no additional impact would be associated with wildland fires.

There would be no additional impacts associated with vectors from Alternative C. With the implementation of the VMP, impacts from vectors would be less than significant.

5.4 Alternative D – Offsite Aerobic Composting (Engel and Gray)

Alternative D would involve operations of the proposed MRF at the landfill similar to the Proposed Project. Under Alternative D, the AD and Energy Facilities would not be constructed, risk of upset conditions (potential for explosion and fire) and use of hazardous materials associated with the AD and Energy Facilities would not occur. Under Alternative D, organics recovered from the MRF would be sent to the existing Engel and Gray Composting Facility in Santa Maria and processed by way of open air aerobic composting. An Initial Study (IS) and Conditional Negative Declaration (CND) were prepared for the Engel and Gray Composting Facility on May 30, 1995 and an addendum to this CND was prepared on July, 3, 2008. Pathogens and vector management was discussed in the IS and CND documents. According to the IS and CND documents, there would be no impacts associated with the project from hazards or hazardous materials and no mitigation measures would be required.

There were no enforcement action records identified on the CalRecycle Solid Waste Facility Enforcements database for the Engel and Gray facility. The Engel and Gray facility is not located on hazardous materials sites lists compiled pursuant to Government Code Section 65962.5. Evergreen Oil Inc. was identified as a hazardous waste recycler and is located in the site vicinity to the Engel & Gray facility. No impacted soil or groundwater associated with Evergreen Oil, Inc. was reported on the DTSC (Envirostor) or RWQCB (Geotracker) databases. The Engel and Gray facility is not located with an Airport Land Use Plan or within two miles of a

public airport, public use airport or within the vicinity of a private airstrip and therefore there would be no additional safety hazard for people residing or working in the area.

Alternative D would not impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan related to hazardous materials. Emergency response and evacuation procedures for the Engel and Grey Composting Facility are coordinated by the Santa Maria Fire Department (SMFD). No additional impact would be associated with wildland fires.

5.5 Alternative E – Landfill Expansion

Alternative E as previously analyzed in a 2002 EIR (01-EIR-05), identified hazards and hazardous materials having potentially significant impacts associated with landfill fires (associated with wildfire, onsite storage of petroleum products), expansion of the LFG collection system, and vectors (rodents that would expose onsite personnel to disease). These impacts were all reduced to less than significant levels with applicable mitigation measures similar to the Proposed Project.

5.6 Alternative F – Waste Export to the Simi Valley Landfill and Recycling Center

Alternative F would not include the construction or operation of new facilities and the Tajiguas Landfill would continue with the current operations until capacity is reached in 2026. Upon capacity, MSW would be disposed of under Alternative F at the Simi Valley Landfill. There were four hazardous material related impacts cited the Final EIR for the Simi Valley Landfill and Recycling Expansion Project (Ventura County Planning Division 2010) are the following:

- 1) Fire hazards
- 2) Hazardous materials (due to use of Liquefied Natural Gas)
- 3) Hazardous waste
- 4) Historical petroleum development waste

Each of these impacts and mitigations were reviewed for potential effects from MSW export from Santa Barbara County. The exported waste from south coast watershed of Santa Barbara County (at the end of the Tajiguas Landfill permitted capacity) would not increase the severity of the hazards nor require new mitigation measures.

5.7 Alternative G – Waste Export to the Santa Maria Integrated Waste Management Facility

Alternative G would not include the construction or operation of new facilities and the Tajiguas Landfill would continue with the current operations until capacity is reached in 2026. The Santa Maria Integrated Waste Management Facility (SMIWMF) would operate under its permitted capacity. There were seven impacts cited the Final EIR for the SMIWMF (Ricon 2010). These include the following:

- 1) LFG hazards
- 2) Historical petroleum development abandonment waste
- 3) Hazardous material and impacted soil transport
- 4) Heavy equipment operation and exposure to waste materials
- 5) High dust levels for landfill employees
- 6) Vector nuisances
- 7) Fire hazard protection

Each of these impacts and mitigations were reviewed for potential effects from MSW export from South coast watershed of Santa Barbara County (at the end of the Tajiguas Landfill permitted capacity). The exported waste from Santa Barbara County would not increase the severity of the hazards nor require new mitigation measures.

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Attachment 1

**Technical Information from Existing Setting Regarding
Hazardous Materials**

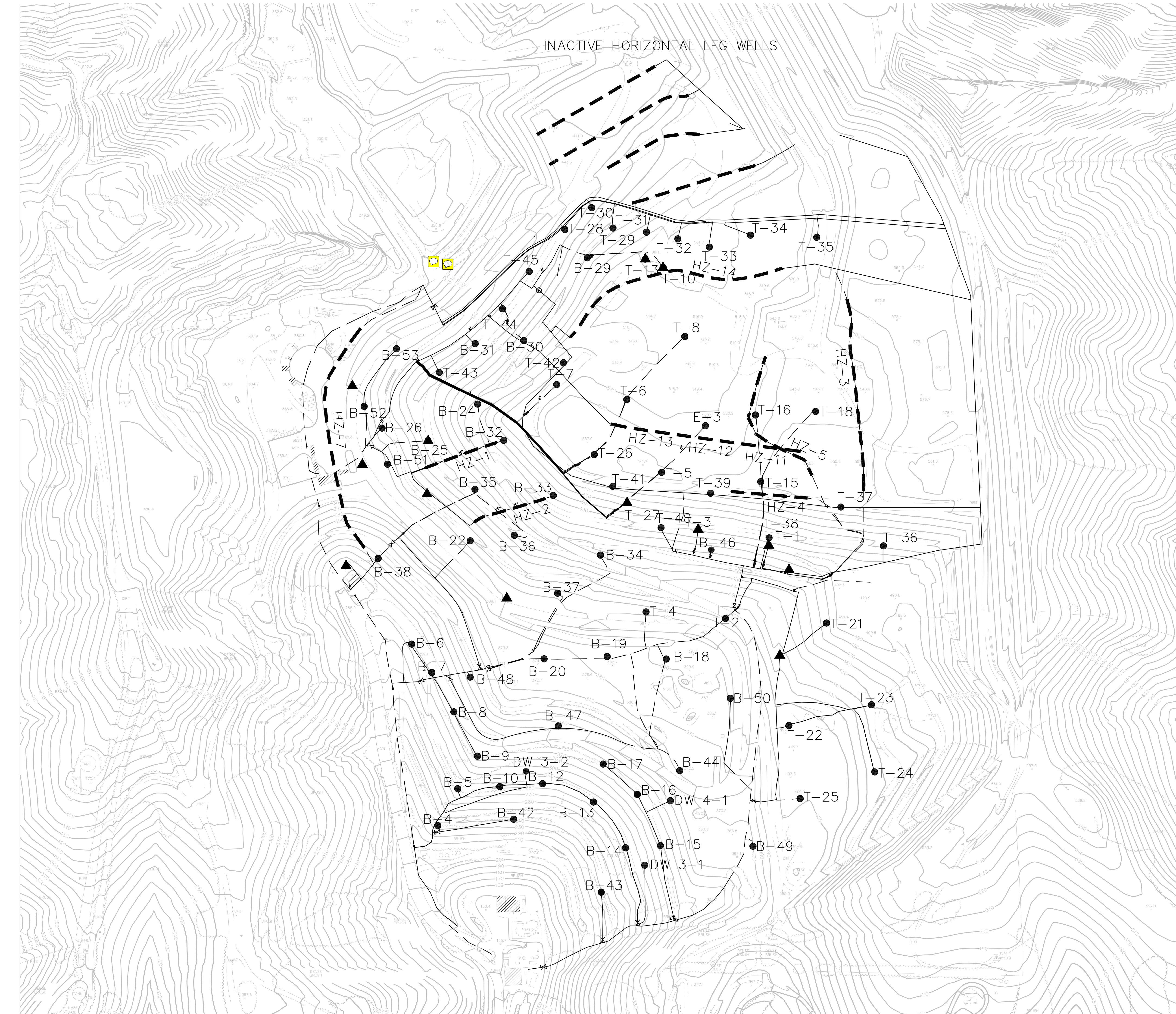
Schedule of Existing Fuel Storage Tanks at Tajiguas Landfill

Figure of Tajiguas Landfill Active Collection System. August 2012

Schedule of Existing Fuel Storage Tanks at Tajiguas Landfill

Fuel Type	RED DIESEL	CLEAR DIESEL	UNLEADED GASOLINE
Tank Dimensions (outside) (approximant)	46' long x 10' wide x 12' tall (includes skids)	8' long x 4' wide x 5' tall	6' long x 3' wide x 3' tall
Capacity	20,000 gallons	550 gallons	230 gallons
Annual throughput (2012)	96,923 gallons (see attached)	4,042 gallons (see attached)	3,711 gallons (see attached)
Delivery schedule	Usually 1/month or more as needed (7,500 gallons/delivery) (see attached)	Every other week (see attached)	Every other week (see attached)

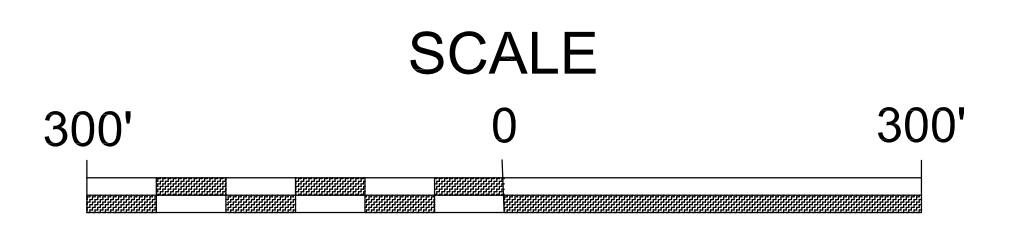
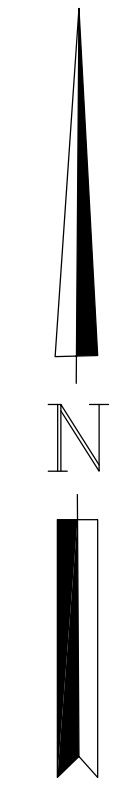
Spier 2013. Email communication from Travis Spier, Interim Operations Manager/Civil Engineer, Tajiguas Landfill County of Santa Barbara Public Works. RRWMD to Joddi Leipner.



INACTIVE HORIZONTAL LFG WELLS

LEGEND

- ABOVE GROUND HEADER / LATERAL LINE
- BURIED HEADER / LATERAL LINE
- ACTIVE LFG WELL
- ▲ INACTIVE LFG WELL
- █ ACTIVE HORIZONTAL WELLS



COUNTY OF SANTA BARBARA
 RESOURCE RECOVERY AND
 WASTE MANAGEMENT DIVISION

**TAJIGUAS LANDFILL ACTIVE
 COLLECTION SYSTEM
 AUGUST 2012**

Attachment 2

**Mitigation Monitoring and Recordkeeping Plan (MMRP)
from Program EIR**

From:

CalRecycle. 2011. Statewide Anaerobic Digester Facilities for the Treatment of Municipal Organic Solid Waste, Final Program Environmental Impact Report. SCH No. 2010042100 Prepared by ESA for the California Department of Resources Recycling and Recovery, Sacramento, CA. June.

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
Impact 10.3: AD facilities could create a new source of light or glare with adverse affects to daytime and/or nighttime views.	Measure 10.3a: Implement 10.1b.	See Mitigation Measure 10.1b		
	Measure 10.3b: Any lighting (portable or permanent) should be hooded and directed onto the project site. This would reduce effects to nighttime skies from uplighting, reduce glare, and prevent light from spilling onto adjoining properties and roads.	Operator	Use hooded and directed lighting on site.	Operations
	Measure 10.3c: Flares may be enclosed to reduce the visibility of flames during operation.	Operator	Consider use of enclosed flares.	Operations
Impact 10.4: The project could result in cumulative impacts to visual resources.	Measure 10.4: Implement Mitigation Measures 10.1a, 10.1b, 10.2a, 10.2b, 10.2c, 10.2d, 10.2e, 10.3a, 10.3b, and 10.3c.	See Mitigation Measures 10.1a, 10.1b, 10.2a, 10.2b, 10.2c, 10.2d, 10.2e, 10.3a, 10.3b, and 10.3c.		
11. Hazards and Hazardous Materials				
Impact 11.1: Construction of AD facilities could result in the potential exposure of construction workers, the public and the environment to preexisting soil and/or groundwater contamination.	Mitigation Measure 11.1: Prior to final project design and any earth disturbing activities, the applicant or agency(ies) responsible shall conduct a Phase I Environmental Site Assessment (ESA). The Phase I ESA shall be prepared by a Registered Environmental Assessor (REA) or other qualified professional to assess the potential for contaminated soil or groundwater conditions at the project site; specifically in the area proposed for construction of AD facilities. The Phase I ESA shall include a review of appropriate federal, State and local hazardous materials databases to identify hazardous waste sites at on-site and off-site locations within a one quarter mile radius of the project location. This Phase I ESA shall also include a review of existing and past land uses through aerial photographs, historical records, interviews of owners and/or operators of the property, observations during a reconnaissance site visit, and review of other relevant existing information that could identify the potential existence of contaminated soil or groundwater. If no contaminated soil or groundwater is identified or if the Phase I ESA does not recommend any further investigation then the project applicant or agency(ies) responsible shall proceed with final project design and construction. OR If existing soil or groundwater contamination is identified, and if the Phase I ESA recommends further review, the applicant or agency(ies) responsible shall retain a REA to conduct follow-up sampling to characterize the contamination and to identify any required remediation that shall be conducted consistent with applicable regulations prior to any earth disturbing activities. The environmental professional shall prepare a report that includes, but is not limited to, activities performed for the assessment, summary of anticipated contaminants and contaminant concentrations at the proposed construction site, and recommendations	Project Applicant	Conduct Phase I ESA.	Local CEQA review
		Project Applicant	If applicable, conduct sampling and prepare report with summary and recommendations for contaminants. Integrate recommendations into project mitigation.	Local CEQA review
		Local Lead Agency	Review Phase I and follow-up report (if applicable).	Local CEQA review

MITIGATION MONITORING AND REPORTING PLAN

Impact	Mitigation Measure	Responsibility for Compliance	Method for Compliance	Timing of Compliance
	for appropriate handling of any contaminated materials during construction.			
Impact 11.3: Transportation, use, disposal or accidental spill of hazardous materials during the operation and maintenance of AD facilities would not result in potential harmful exposures of the public or the environment to hazardous materials.	Mitigation Measure 11.3: Implement Mitigation Measures 5.1a and 6.2a-f.			
Impact 11.4: Operation of AD facilities could increase the risk of fire hazards due to the potential release of biogas.	Mitigation Measure 11.4a: Prior to project approval, AD facility operators shall prepare and implement a Fire Safety Plan that outlines fire hazards, describes facility operations procedures to prevent ignition of fires, requires regular inspection of fire suppression systems, and provides for worker training in safety procedures as well as protocols for responding to fire incidents. The Fire Safety Plan shall be reviewed and approved by the local fire enforcement agency.	Project Applicant	Prepare a Fire Safety Plan.	Local CEQA Review
		Local Fire Agency/LEA	Review and approve Fire Safety Plan.	Local CEQA Review
		Operator	Implement Fire Safety Plan.	Operations
	Mitigation Measure 11.4b: Implement Mitigation Measure 11.5.	See Mitigation Measure 11.5		
Impact 11.5: AD facilities could be located within one quarter mile of a school resulting in potential hazards associated with accidental release of hazardous materials, including biogas.	Mitigation Measure 11.5: AD facilities shall be sited at least one quarter mile from existing or proposed schools, daycare facilities, hospitals and other sensitive land uses.	Project applicant	Site facilities at least one quarter mile from existing or proposed schools, daycare facilities, hospitals and other sensitive land uses.	Local CEQA Review
Impact 11.7: AD facilities could be located within five miles of a public airport or private airstrip and create an aviation hazard.	Mitigation Measure 11.7: For any AD facility proposed within 5 statute miles of an airport's air operations area, the operator will notify the Federal Aviation Administration (FAA) Regional Airports Division office and the airport operator of the proposed facility as early in the process as possible. AD facilities with any open air (outdoor) activities must receive an FAA Determination of No Hazard prior to project approval.	Project applicant/ Operator	Notify FAA if applicable.	Local CEQA Review
		FAA	Review project and issue an FAA Determination of No Hazard.	Prior to Project Approval
Impact 11.8: Development of AD facilities could contribute to cumulative impacts related to hazardous materials.	Mitigation Measure 11.8: Implement Mitigation Measures 11.1, 11.4, 11.5, and 11.7.	See Mitigation Measures 11.1, 11.4, 11.5, and 11.7		

Attachment 3

Technical Information on Proposed Project

Anticipated Hazardous Materials and Hazardous Waste Streams

Table 3-1 Hazardous Materials Usage and Storage During Construction

Table 3-2 Hazardous Materials Usage and Storage During Operation

Table 3-3 Summary of Construction Waste Streams and Management Methods

Table 3-4 Operating Waste Streams and Management Methods

Project Utilities and Plan View of Features

Figure 3.5 Utilities

Figure 3.6 MR and AD Facilities Site Plan

Anticipated AD Facility Waste Contamination Levels for Design Basis

TRRP MRF and ADF Plan View

Figure 3.9 MR Facility Plan

Figure 3.11 AD Facility Plan

Simple Block Flow Diagrams

Biogas System Block Flow Diagram

Percolation System Block Flow Diagram

Mustang Proposed Operations and Maintenance Plan

TRRP Summary of Liquid Tanks and Vessels

Attachment 3

**Table 3-1
Hazardous Materials Usage and Storage During Construction**

Material	Hazard Characteristics	Purpose	Storage Location	Maximum Stored	Storage Type
Acetylene	Ignitability	Welding	Hazardous Material Storage Area	<1,000 cubic feet	Cylinder
Diesel Fuel	Ignitability	Emergency generator	Hazardous Material Storage Area	500 gallons	Tank
Oxygen – Gaseous	Ignitability	Welding operation	Hazardous Material Storage Area	<1,000 cubic feet	Cylinder
Paint, solvents, adhesives, cleaners, sealants, lubricants	Toxicity	Construction maintenance, Painting,	Hazardous Material Storage Area	200 gallons	Can/Small containers

Reference: 2013b. Personal Communication between Matt Dunn of URS Corporation and John Dewey, CEO, Mustang Renewable Power Ventures, LLC.

Attachment 3

**Table 3-2
Hazardous Materials Usage and Storage During Operation**

Material	Hazard Characteristics	Purpose	Storage Location	Maximum Stored	Storage Type
Sulfuric Acid (Batteries)	Corrosivity, reactivity, toxicity	Electrical power	Energy Facility Common Area: Contained within main electrical room	4 cells < 100 lbs	Batteries
Diesel Fuel (No. 2)	Ignitability	Existing landfill, TRRP Operations, Emergency generator	Outside MRF and inside AD	10,000 gallons-MRF 7,500 gallons-AD, 20,000 gallons-Existing landfill operations	Aboveground storage tanks and in equipment
Paint, solvents, adhesives, cleaners, sealants, lubricants	Toxicity	Equipment Maintenance	Maintenance Area	200 gallons	1 gallon and 5 gallon containers
40% Urea Solution	Toxicity	Air Pollution Control	Energy Facility	5,000 gallons	Poly Tank
Hydraulic Oils	Toxicity	Equipment Operation	Various in MRF	165 gallons (3 drums)	55 gallon drum and holding reservoir
Propane	Flammability	Energy facility	Energy Facility	200 gallons	200 gallon pressure vessel tank
Oxygen – Gaseous	Ignitability	Maintenance-Welding	Hazardous Material Storage Area	<150 cubic feet	Cylinder
Acetylene	Ignitability	Maintenance-Welding	Hazardous Material Storage Area	< 250 cubic feet	Cylinder
Methane	Ignitability	AD Facility	Digesters	<100,000 standard cubic feet *	Concrete digesters
Carbon Dioxide	Toxicity	AD Facility	Digesters	TBD	Concrete digesters

Reference: 2013b. Personal Communication between Matt Dunn of URS Corporation and John Dewey, CEO, Mustang Renewable Power Ventures, LLC.

Attachment 3

**Table 3-3
Summary of Construction Waste Streams and Management Methods**

Waste Stream	Waste Classification	Amount	Disposal Method
Scrap wood, steel, glass, plastic, paper, calcium silicate insulation, mineral wood insulation	Non-hazardous	20 tons ¹	Weekly collection for recycling and/or disposal at a Class II or III Landfill
Scrap Metals	Non-hazardous	10 tons	Weekly collection/disposal at a Class III Landfill
Empty hazardous material containers	Hazardous and non-hazardous	150 containers	Containers <5 gallons will be disposed of as normal refuse. Containers >5 gallons will be returned to vendors for recycling or reconditioning
Spent welding materials	Hazardous	2 tons	Disposal at a Class I landfill
Waste oil filters	Non-hazardous	TBD ²	Recycle at a permitted treatment, storage and disposal facility (TSDF)
Waste oil, including used motor oil, transmission fluid, hydraulic fluid, and antifreeze	Hazardous ²	TBD ²	Hazardous waste disposal facility or recycle
Oil rags, oil sorbent excluding lube oil flushes	Hazardous	TBD ²	Hazardous waste disposal facility or recycled
Solvents, paint adhesives	Hazardous	270 pounds per month	Hazardous waste disposal facility or recycle
Spent batteries; lead acid	Hazardous	TBD ²	Recycle
Spent batteries	Universal Waste Recyclable	75 batteries per month	Recycle or dispose of at a Universal Waste Destination Facility
Sanitary waste	Sanitary	300 gallons per day	Collected by contracted sanitary service and off-site treatment/disposal
Fluorescent, mercury vapor lamps	Universal Waste	150 pounds per year	Recycle or dispose at Universal Waste Destination Facility
Passivating and chemical cleaning waste	Hazardous or nonhazardous	TBD ²	Sample and characterize. Dispose in accordance with applicable regulatory requirements.
Hydrotest water	Hazardous or nonhazardous	10,000 gallons (life of project construction)	Sample and characterize. Dispose to appropriate waste water treatment facility if nonhazardous. Dispose of to appropriate hazardous waste disposal facility if hazardous

Reference: 2013b. Personal Communication between Matt Dunn of URS Corporation and John Dewey, CEO, Mustang Renewable Power Ventures, LLC.

¹Estimate from John Dewey or Best engineering judgment

²Estimated to be an infrequent waste stream. To be determined (TBD) based on construction management.

Attachment 3

**Table 3-4
Operating Waste Streams and Management Methods**

Waste Stream	Waste Classification	Anticipated Amount	Treatment
Empty hazardous material containers	Hazardous	Varies, based on chemical usage	Recondition or recycle
Universal Waste	Hazardous	TBD ¹	TBD
E waste	Hazardous	TBD ¹	TBD
Lubricating oil (Engine oils)	Hazardous	<400 gallons per engine per year	Hazardous waste disposal facility or recycle
Lubricating oil filters engine pump and air compressor system)	Hazardous	500 lbs per year	Hazardous waste disposal facility or recycle
Lubricating oil (miscellaneous equipment oil flushes)	Hazardous	1,000 gallons per year per plant	Hazardous waste disposal facility or recycle
Solvents, paints and adhesives	Hazardous	<300 lbs per	Hazardous waste disposal facility or recycle
Spent Filters for Percolate Liquid	Potentially hazardous	TBD ¹	TBD
Waste SCR and Oxidizing Catalytic Blocks	Potentially hazardous (metals)	blocks every two years	Reclaim metals and landfill ceramics
Activated Carbon	Potentially hazardous	TBD ¹	TBD
Waste Urea	Non-hazardous	TBD ¹	TBD

Reference: 2013b. Personal Communication between Matt Dunn of URS Corporation and John Dewey, CEO, Mustang Renewable Power Ventures, LLC.

¹Estimated to be an infrequent waste stream. Quantity to be determined (TBD) based on operations experience.



Keynotes

- ① Proposed Resource Recovery Project
- ② Temporary Landfill Operations Facilities
- ③ Proposed Composting Area
- ④ Proposed Water Tank - 220,000 gallons
- ⑤ Proposed Recycled Water Tank A - 70,000 gallons
- ⑥ Proposed Well 6 (Approx. Location)
- ⑦ Proposed Mechanics Building
- ⑧ Proposed Composting Area Runoff Collection Tank - 325,000 gallons
- ⑨ Existing Sedimentation Basin
- ⑩ Existing Concrete Drainage Channel



SCALE: 1"=400'
0' 400' 800'

DRAFT

Legend

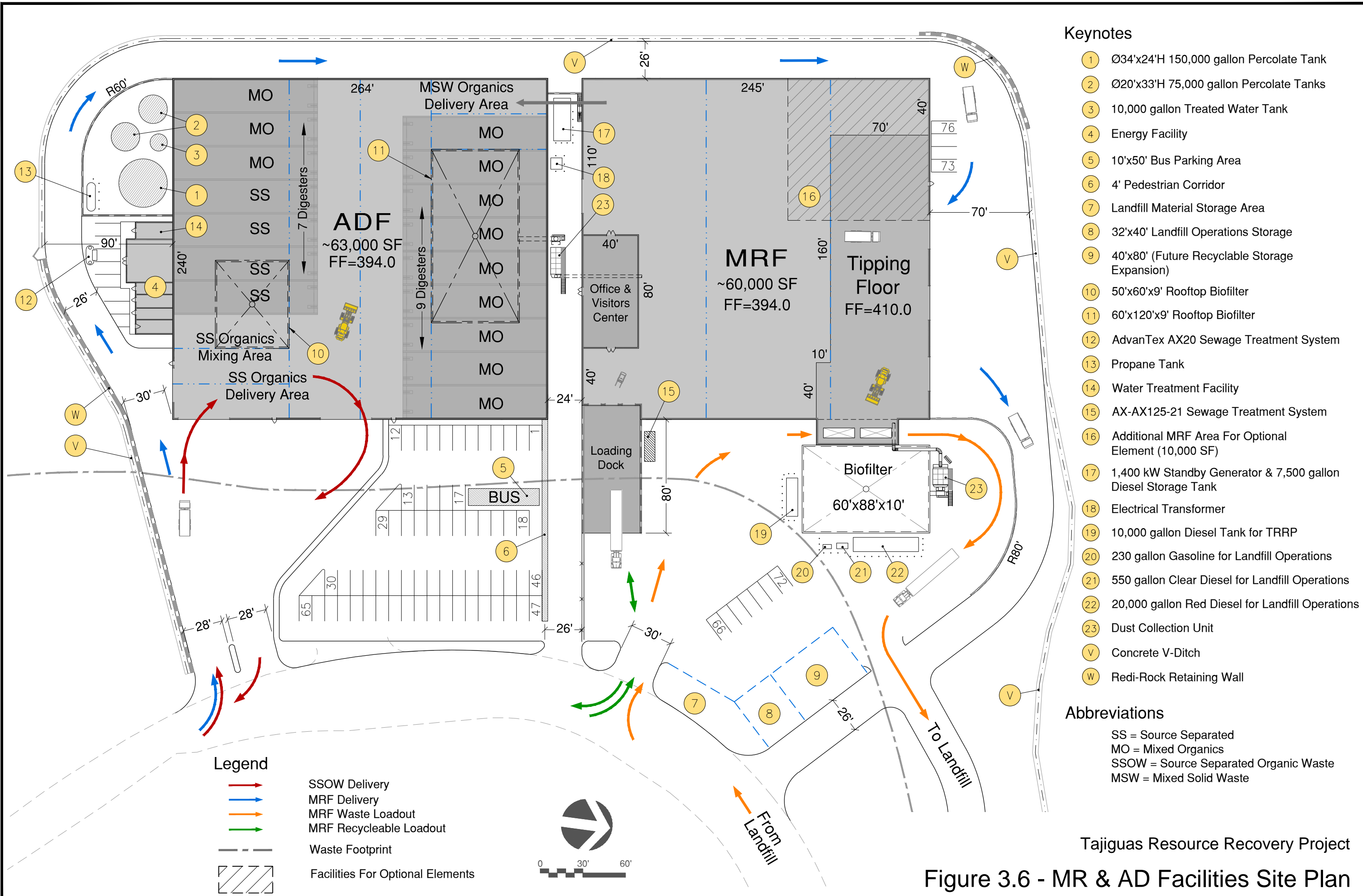
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|----------------------|--|---------------------------------|
| Landfill Boundary | Existing Power Lines | Pila Creek |
| Existing Water Lines | Proposed Power Lines | Pila Creek (in 48" Storm Drain) |
| Proposed Water Lines | Proposed Power Lines [not part of the RRP] | |
| Well | | |

Tajiguas Resource Recovery Project

Figure 3.5

Utilities

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Keynotes

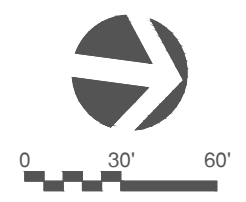
- 1 Ø34'x24'H 150,000 gallon Percolate Tank
- 2 Ø20'x33'H 75,000 gallon Percolate Tanks
- 3 10,000 gallon Treated Water Tank
- 4 Energy Facility
- 5 10'x50' Bus Parking Area
- 6 4' Pedestrian Corridor
- 7 Landfill Material Storage Area
- 8 32'x40' Landfill Operations Storage
- 9 40'x80' (Future Recyclable Storage Expansion)
- 10 50'x60'x9' Rooftop Biofilter
- 11 60'x120'x9' Rooftop Biofilter
- 12 AdvanTex AX20 Sewage Treatment System
- 13 Propane Tank
- 14 Water Treatment Facility
- 15 AX-AX125-21 Sewage Treatment System
- 16 Additional MRF Area For Optional Element (10,000 SF)
- 17 1,400 kW Standby Generator & 7,500 gallon Diesel Storage Tank
- 18 Electrical Transformer
- 19 10,000 gallon Diesel Tank for TRRP
- 20 230 gallon Gasoline for Landfill Operations
- 21 550 gallon Clear Diesel for Landfill Operations
- 22 20,000 gallon Red Diesel for Landfill Operations
- 23 Dust Collection Unit
- V Concrete V-Ditch
- W Redi-Rock Retaining Wall

Abbreviations

- SS = Source Separated
- MO = Mixed Organics
- SSOW = Source Separated Organic Waste
- MSW = Mixed Solid Waste

Legend

- SSOW Delivery
- MRF Delivery
- MRF Waste Loadout
- MRF Recyclable Loadout
- - - Waste Footprint
- Facilities For Optional Elements

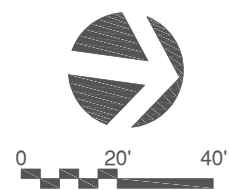
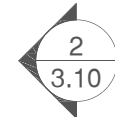
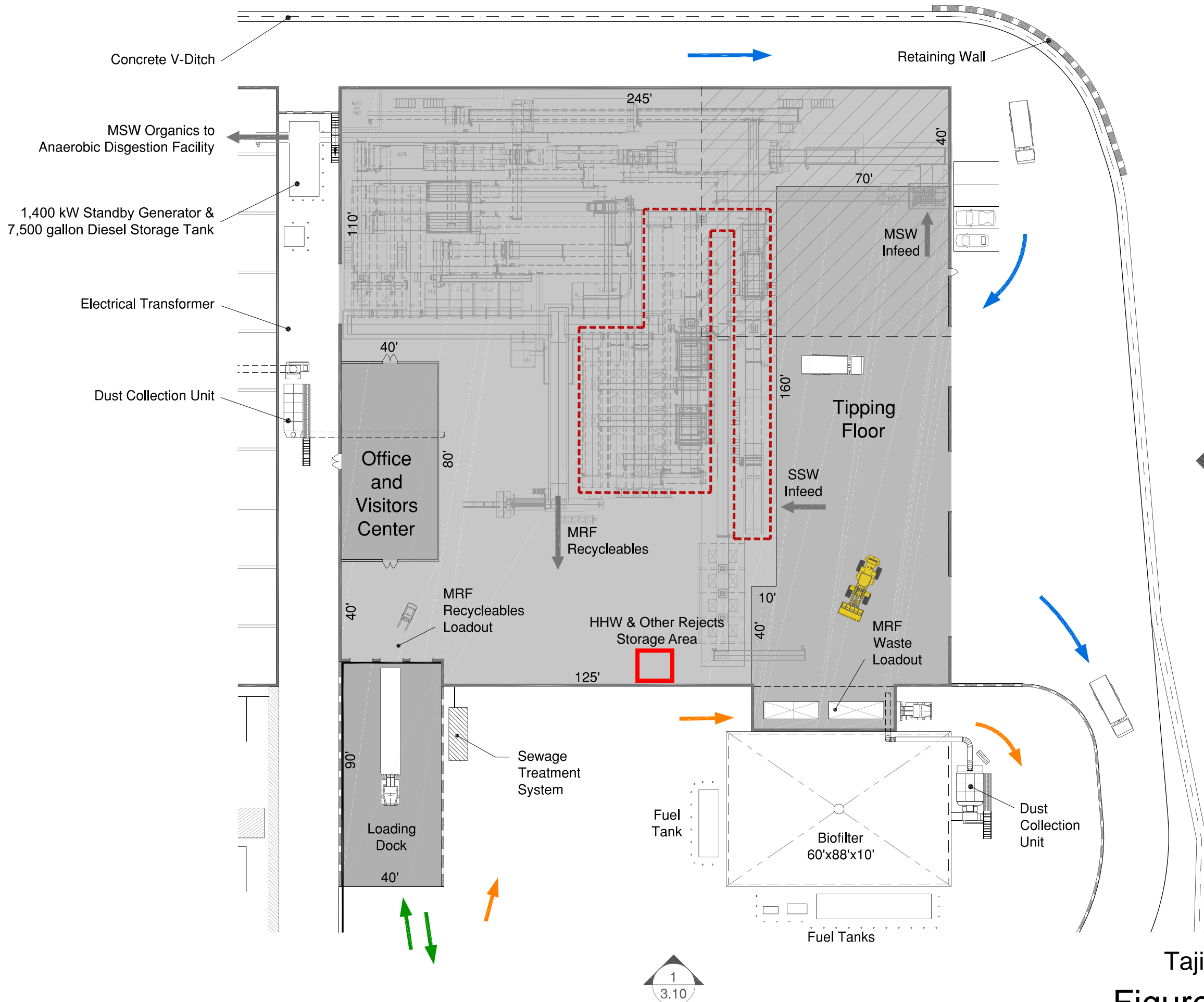


Tajiguas Resource Recovery Project
Figure 3.6 - MR & AD Facilities Site Plan

Anticipated AD Facility Waste Contamination Levels for Design Basis

<u>Contamination</u>	Maximum Concentration by weight
Glass	0.50%
Film & other Non-compostable Plastic	1.00%
Styrofoam	0.50%
Metal	1.00%
Tires/Rubber	1.00%
Textiles, carpet, upholstery	1.00%
Diapers	1.00%
Concrete, Rock & Brick, Tile	2.00%
Asphalt & Asphalt roofing	1.00%
Dirt & Other inert material	3.00%
Total Maximum Contamination	12.00%
<u>Prohibited Materials (not allowed, may be refused for processing)</u>	
Bio sludge	0.00%
Hazardous materials	0.00%
Animal waste	0.00%
Wood (pressure treated & painted)	0.00%
Electronic waste	0.00%
Bulky Items	0.00%
Medical waste	0.00%
Contaminated soils	0.00%
Batteries	0.00%
Painted Wallboard	0.00%

Reference: 2013b. Personal Communication between Matt Dunn of URS Corporation and John Dewey, CEO, Mustang Renewables Power Ventures, LLC.



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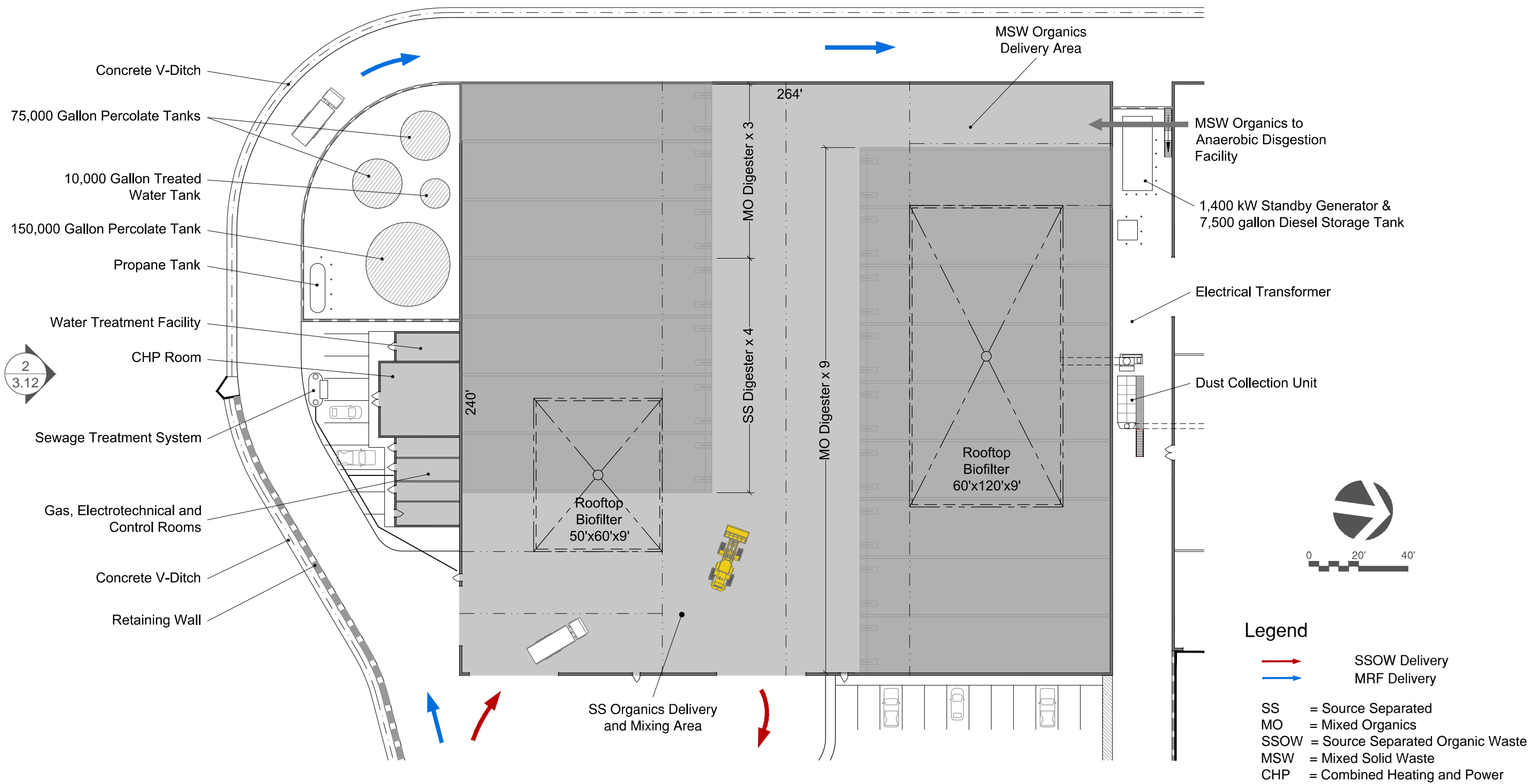
- MRF Delivery
- MRF Waste Loadout
- MRF Recyclable Loadout
- SSW Processing Area
- Facilities For Optional Elements (10,000 sq. ft.)

- SSW = Source Separated Waste
- SSOW = Source Separated Organic Waste
- MSW = Mixed Solid Waste



Tajiguas Resource Recovery Project
Figure 3.9 - MR Facility - Plan

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- Legend**
- SSOW Delivery
 - MRF Delivery
 - SS = Source Separated
 - MO = Mixed Organics
 - SSOW = Source Separated Organic Waste
 - MSW = Mixed Solid Waste
 - CHP = Combined Heating and Power

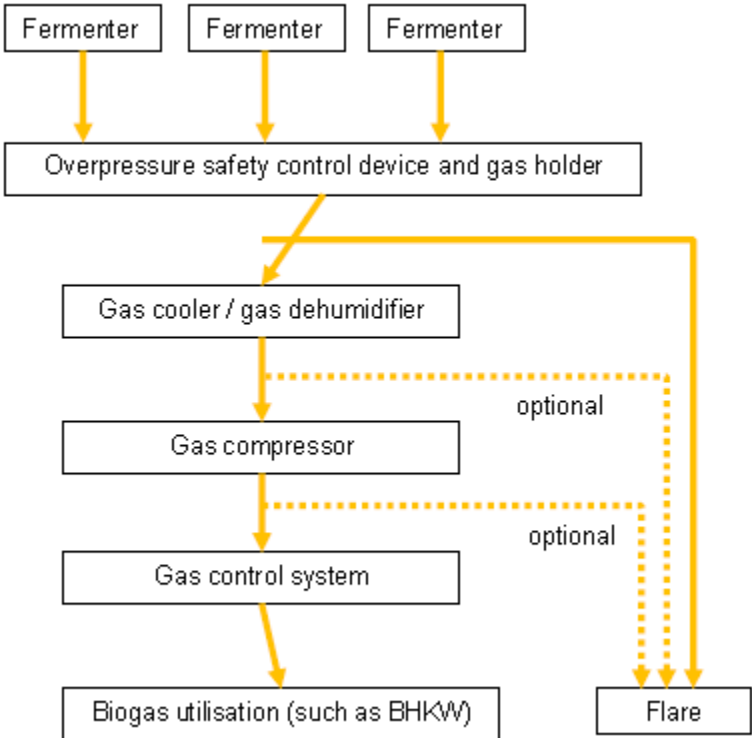
Tajiguas Resource Recovery Project
Figure 3.11 - AD Facility - Plan

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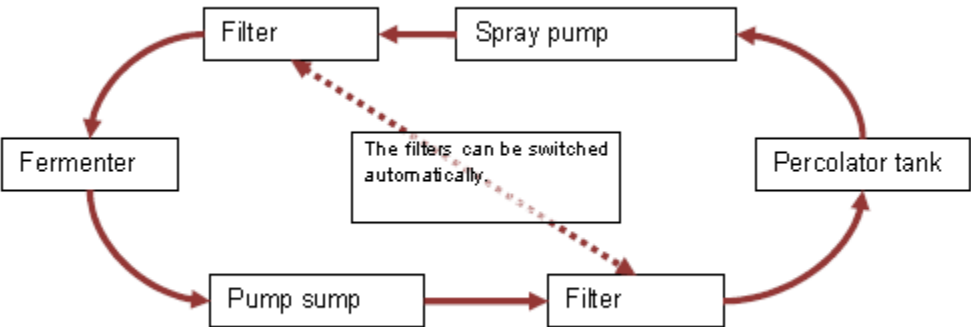
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Simple Block Flow Diagrams

Biogas System



Percolation System



Reference: Bekon Biogas Pneumatic Handbook and Percolate Aeration Handbook as provided by John Dewey

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VOLUME III – TECHNICAL APPROACH PROPOSAL

E. OPERATIONS AND MAINTENANCE PLAN

Each Proposer shall submit, as part of its Technical Approach Proposal, each of the following technical plans and narratives to demonstrate its ability to provide the Scope of Services. All of the items presented in Section 4, Scope of Services, and Appendix F shall be addressed.

OPERATION AND MAINTENANCE

Prepare an Operation and Maintenance Plan to outline the Proposer's overall approach to performing the operation and maintenance responsibilities, as set forth in this RFP. The outline should include the management philosophy of the Proposer and any management procedures or policies that will be followed:

- Explain the Proposer's approach to and the instrumentation that will be used for inspecting waste at delivery and for diverting, separating and properly handling and disposing of Unacceptable Waste, as specifically required by State and local regulations.*
- Explain the Proposer's technical approach to performing such operation and maintenance responsibilities, including training and inspection procedures, monitoring measures and preventative, corrective and predictive maintenance programs.*
- Describe the frequency of sampling and the laboratory procedures to be undertaken by the Proposer, including compliance sampling and analysis in order to ensure compliance with permits and the Performance Guarantees.*
- Describe, generally, the manner by which the Proposer will produce all reports required in the Contract.*
- Describe the procedures for monthly and annual reviews with the Public Participants of operations, reports, ongoing cost information, and key upcoming projects and operations, which may impact any Scope of Services.*
- Describe proposed Preventative, Predictive and Corrective Maintenance activities, including related record-keeping activities.*
- Discuss what quality assurance and quality control procedures will be used to monitor any aspect of the operation and maintenance of the Facility. Describe the frequency of calibration of weigh scales and the procedures to be used in the event scales are found to be out of calibration.*
- Identify and describe the Proposer's planned computerized management system, including the maintenance system and the operating system and the tie in to continuous, real time monitoring of process and environmental performance data.*
- Provide estimates for the expected annual usage of electricity, chemicals, fuel, water and other consumables required for operation of the Facility.*
- Describe how the Proposer will maintain the Facility in a neat, clean, and litter-free manner at all times, ensuring the operation of these assets does not create impermissible odor, litter, noise, fugitive dust, vector or other adverse environmental effects.*
- Describe how the Proposer will manage emergencies that may arise at the Facility and interact with the County, other Public Participants, and the applicable fire, police, and emergency management personnel during such emergency.*
- Briefly describe the Proposer's general safety program, including staff training, preventative maintenance, and safety procedures for OSHA compliance program requirements. Essential elements of such program shall include regularly scheduled safety training sessions for all personnel, standard operating procedures for chemical storage and handling, confined space entry and emergency response, lockout/tagout, right-to-know, and the care and use of proper safety equipment.*
- Provide a complete staffing plan, identifying job title, function and number of personnel. Describe how the Proposer will utilize displaced County Landfill staff, in any, as part of the staffing plan. Provide examples and describe how the Proposer has previously developed projects that have integrated displaced public employees into a newly developed project.*

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MATERIALS RECYCLING FACILITY

Explain the Proposer’s approach to and the instrumentation that will be used for inspecting waste at delivery and for diverting, separating and properly handling and disposing of Unacceptable Waste, as specifically required by State and local regulations.

The tipping area is where the receipt of the single stream mixed MSW occurs. The Tip Floor Spotter is responsible for coordinating all vehicles and employees working on the tip floor to ensure a safe working environment. All people working on the tipping floor, including Contractor staff and truck drivers, must take direction from the Tip Floor Spotter. Should the Spotter be absent, these coordinating responsibilities fall to the loader operator.

Regular training sessions shall be conducted for plant employees to distinguish Acceptable Waste for processing from Unacceptable Materials and Hazardous Waste. This will assure that any individual assigned to the tipping floor and processing areas will be able to maintain quality control standards and allow safe operation of the facility. Moreover, tip floor personnel will be trained to recognize the different compositions of residential and commercial streams; and the importance of segregating these for optimal processing performance. Any material which cannot be handled safely shall not be processed at the MRF. These materials shall not be accepted by the MRF.

The following steps cover incoming material inspection, Hazardous Waste procedures and Unacceptable Material procedures:

1. Personnel directly involved in the handling of incoming materials, such as the Front End Loader Operator, [Materials Handler Operator](#) or Tipping Floor Spotter will be trained and instructed to identify and deal with traffic control, excessive reject materials, non-processable materials, hazardous materials and unacceptable waste.
2. All delivered loads of material shall be unloaded, onto the floor and subject to inspection. When material is discharged onto the tipping floor, the Front End Loader Operator or Spotter will visually inspect the load. In the event that material of a questionable nature is received, the Plant Manager is to be notified.
3. If Hazardous Waste is discovered in a delivered vehicle, the driver will not be permitted to discharge his load and will be directed to leave the site. The Plant Manager will be notified, and all vehicle information (hauler, vehicle number, scale ticket number, waste type, etc.) will be documented. If necessary, photographic documentation will be made

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4. If Unacceptable Waste are non-hazardous and can be handled safely, they will be reloaded into the delivery vehicle and rejected per agreed upon load rejection procedures. If the materials can not be reloaded into the delivery vehicle, the material will be relocated to an unoccupied area of the facility and stored in a secure container.
5. In the event that the material is determined to be hazardous but not an immediate threat, it will be removed from the area and set aside away from traffic and personnel, and where it can be isolated. Danger signs and warnings will be posted as necessary.
6. In cases where the material is considered to be a possible immediate threat, such as explosives or ruptured drums, the material will be left in place, roped off if possible and personnel and traffic prevented from operating in that area of the tipping floor. The appropriate governmental or local emergency response personnel will be contacted immediately.
7. Suspected Hazardous Wastes will be sampled and tested by an approved laboratory. If necessary, a specialist contractor will determine the status of any suspect waste and identify handling procedures. If the waste is determined to meet any of the hazardous waste identification criteria established by the controlling regulatory authorities, it will be properly packaged, labeled and monitored pending transfer from the facility.
8. Removal of all non-processable materials from the MRF will be accomplished in as expeditious a manner as possible using federal, state, and county procedures utilizing only appropriately licensed hazardous waste transporters. Unacceptable Waste, including oversize bulky wastes, such as certain white goods and large timbers not eliminated in the above screening process, will be placed in containers for removal.
9. It is important to note that the standard procedure includes follow up investigation of accounts and of loads brought to the plant immediately following highly contaminated loads.
Rejects are materials that are not acceptable. These materials can not be safely and/or effectively processed or marketed. These materials are the specific types of Reject Materials, that when delivered in sufficient concentrated quantity, or by their very presence, are unacceptable for processing due to the adverse impact the materials would have to the processing system, personnel, or to the quality of Recovered Materials.

It is likely that loads of waste for processing will contain a quantity of Rejects. As each load of material is delivered, visual inspections shall be made to the reasonable extent possible. When

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Rejects are found, the material will be manually removed from the stream by the Spotter, [Materials Handler Operator](#) or Front End Loader Operator into a roll off container designated for that purpose. Rejects include any items that are not specifically listed as acceptable materials elsewhere in this Operations and Maintenance manual. Examples of rejects include, but are not limited to, the items listed below:

- Tires
- Combustible Material
- Barrels containers, pressure vessels and tanks containing or used for volatile or flammable liquids or for unknown liquids, solids or gases
- Propane Tanks
- Pails containing excessive residue or hazardous material or potential hazardous material
- Gasoline Tanks
- Any containers used for hazardous materials
- Machinery Parts (hydraulic pumps, gear boxes, steel shafts, etc.)
- Large and/or heavy Automobile and Truck Parts that may damage the processing system (drive line components, engines, transmission parts, axle assemblies, wheel parts, other metal parts, heavy plastic and rubber car parts).

Any oversize materials which can not be reasonably processed by the equipment are also considered rejects, including, but not limited to the following:

- White Goods (Appliances other than small household appliances like toasters)
- Mattresses, Box Springs
- Furniture, Couches, upholstered Chairs, Lawn Chairs, Window Frames
- Any item of waste having dimensions or weight which may cause obstructions or equipment damage within the processing system.
- Construction and/or Demolition Waste including shingles, masonry, dry wall, insulation, concrete, steel, wood, and any debris over 3' in any dimension.
- Large bolts, heavy vinyl or other material. Cargo nets, fire hoses, parachutes, large tents, swimming pools liners and covers and carpeting.

The screening of Acceptable Materials for Rejects and Hazardous Waste is critical. Contractor will employ the procedures set for herein.

Contractor will employ a Tip Floor Spotter at all times to inspect the mixed MSW as they are discharged from delivery vehicles prior to being pushed onto the infeed conveyors. If the inspection

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indicates that any material amount of Hazardous Waste has been delivered (it being recognized that immaterial amounts of Hazardous Waste, such as batteries and paint cans do not trigger this requirement), Contractor will: 1) direct the hauler to leave the Facility with the hauler's entire load, 2) direct the hauler to retrieve that portion of the load which Contractor determines is or may be Hazardous Waste, or 3) direct the hauler, at the hauler's expense, to provide for the removal of Hazardous Waste from the MRF by a licensed Hazardous Waste Contractor. If the hauler fails to comply with Contractor's direction, Contractor will notify the Public Participants of the hauler's non-compliance, and Contractor will provide the Public Participants the identification and plate number of the vehicle which deposited the Hazardous Waste, along with photographs and a written report of the incident.

Contractor will establish a procedure in consultation with the Public Participants and maintain records related to the refusal or rejection of incoming material and will notify the Public Participants regarding the delivery and disposition of Hazardous Waste in accordance with the notification procedures of this O&M Plan.

All Hazardous Wastes are prohibited at the MRF as they may: pose an unreasonable threat to health and safety, cause extraordinary damage to the facility (beyond normal wear and tear), cause violation of any applicable code or law.

These would include but not be limited to the following: radioactive waste; biological waste; powders; live animals; chemicals, acids, or other toxic materials; compressed gas cylinders; explosives of any nature (TNT, dynamite, gun powder, ammunition, fireworks, flares, etc.); and any other refuse which could display the same fire and/or explosive potential similar to any of the listed items.

Explain the Proposer's technical approach to performing such operation and maintenance responsibilities, including training and inspection procedures, monitoring measures and preventative, corrective and predictive maintenance programs.

Facility Training Program

This Facility Training Program is developed to outline the training activities for the MRF.

Employee Safety and Health training is an essential component of Contractor's operations. Facility operators and employers are responsible for ensuring all employees, including supervisors and contract laborers are properly trained appropriate to their assigned jobs and tasks. Contractors shall be advised of the unique hazards related to the operation of the facility, which may affect the activities in which the Contractor's employees will engage. Generally, there are five types of training:

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1. Employee Orientation - All new and transferring employees must be made familiar with their new work location.
2. Job Qualification – All employees must meet certain minimal requirements to ensure they will be able to safely perform their assigned duties, as outlined in the Job Descriptions section of the O&M Manual. In some cases this training must be provided after employment begins.
3. Hazard Recognition - All employees must be familiar with the potential hazards of their workplaces. Training should identify both the hazard and a method of avoiding or safely managing it. Regulatory compliance programs require that numerous training programs (e.g., Hazard Communication, PPE, Lockout / Tagout, Emergency Planning) be implemented.
4. Risk Reduction - Some employees will be identified as requiring special or supplemental training (e.g., Traffic Control, Safe Lifting) due to their task assignment or safety performance.
5. Follow-up - Training must be repeated periodically to maintain an employee's knowledge of the requirements and to ensure the employee's knowledge is based on current job responsibilities and workplace conditions.

Upon completion of New Employee Orientation, subsequent job specific training will commence. Employee training begins with a clear understanding of the work employees are to perform. Employees must also be aware of the regulations that apply to their operations and the requirements for employee training contained in those regulations.

Contractor shall refer employees to the manufacturer's, installer's, modifier's or system designer's instructions to ensure that correct operating and maintenance procedures and work practices are understood and followed.

Contractor is responsible for ensuring that adequate training is provided either by the contract laborer's parent employer or by the facility operator where a job or task is performed.

Contractor management will conduct regular (at least monthly) safety training sessions. Such meetings shall be used to review the MRF Training program elements, discuss the results of facility inspections, employee behavior observations, traffic, customer issues, operational changes, etc.

Documentation of completed employee training is essential. Training records for each employee will be stored either in a separate training file or in each employee's personnel file where they can be reviewed during audits or inspections.

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Employees will not be allowed or permitted to perform any task or duty for which they have not received training. This also applies to all temporary employees and contract laborers.

Periodic refresher training is required for many functions. Refresher training intervals normally range from one to three years. Changes to equipment used or processes which may be modified, must be evaluated to identify any new hazards. Such changes to equipment or processes require all affected employees to be re-trained. All recognized hazards must be addressed. Additional retraining also shall be provided whenever a periodic inspection reveals, or whenever management has reason to believe, that there are employee deviations from procedures, or inadequacies in the employee's knowledge of procedures.

Training will be repeated on a periodic basis, and specifically if there is evidence that previously trained employees demonstrate a lack of understanding or are not complying with the training requirements.

Equipment operators must be trained in the operation of their equipment as it is used in the MRF. Ideally, they should have, or be working toward, operator certification. At a minimum, management should conduct an equipment proficiency evaluation when the employee is hired and annually thereafter.

Maintenance Programs

MRF Maintenance Standards – The following standards establish separate, specific maintenance standards for general maintenance (i.e. clean and litter free), Processing equipment maintenance, and mobile equipment maintenance.

Formalized maintenance programs consist of clearly defined procedures for managing and performing maintenance. Simplicity is the key to the development of a successful Preventive Maintenance Program.

The Maintenance Supervisor has overall responsibility of the Maintenance Department. The detailed description of the Maintenance Supervisor's responsibilities is included as part of this Manual. In general, the Maintenance Supervisor is responsible for coordinating with the Plant Manager in the development and implementation of the MRF's Maintenance Program. The Maintenance Program will effectively maintain the plant equipment, supervise the staff and coordinate scheduled and unscheduled maintenance repairs. The Maintenance Supervisor will also be responsible for administering the Preventive Maintenance program activities to the maintenance staff.

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Preventive Maintenance (“PM”) is defined as the sum of those actions performed on operational equipment, buildings and grounds that contribute to uninterrupted operation of equipment facilities. These maintenance actions are performed on a scheduled basis, rather than intermittently or as a result of an equipment breakdown.

The objectives of an effective Preventive Maintenance Program are:

- Reduce the complex maintenance requirements to simple procedures, easily identified and managed.
- Define the preventive maintenance requirements, schedule and control their performance, describe the methods and tools to be used, and provide for the detection of impending breakdowns.
- Forecast and plan manpower and material needs.
- Plan and schedule' maintenance procedures.
- Detect areas for improved training and maintenance techniques.

The actual planning and accomplishment of preventive maintenance procedures should be based on the establishment of priorities in consideration of the effect upon total process system operations. Manufacturer's equipment operation and maintenance manuals provide the specific procedures for the respective equipment.

Describe the frequency of sampling and the laboratory procedures to be undertaken by the Proposer, including compliance sampling and analysis in order to ensure compliance with permits and the Performance Guarantees.

The MRF will be equipped with weigh scale at the waste delivery area. On a daily basis, waste delivered to the MRF will be weighed and recorded upon delivery. Post MRF processing, tonnages delivered to the AD Facility and/or the Gasification Facility will be weighed. Both tonnages will be recorded and entered into a computer controlled process control system. The process control system will be equipped with data logging which will track pre- and post- MRF processing tonnage and thus provide a means to ensure compliance with the tonnage guarantees (i.e. Waste Throughput Guarantee, Availability Guarantee, Annual Waste Throughput Guarantee, Residue Quantity Guarantee, etc.).

Describe, generally, the manner by which the Proposer will produce all reports required in the Contract.

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The process controls for the MRF will perform data acquisition on a continuous or semi-continuous real time basis. Reports from the system will be generated in an agreed upon format and timeline between Contractor and Public Participants.

Describe the procedures for monthly and annual reviews with the Public Participants of operations, reports, ongoing cost information, and key upcoming projects and operations, which may impact any Scope of Services.

The data requirements for monthly, annual and ad-hoc report requirements will be consistently collected. The ~~senior~~-MRF operator will produce the reports based on a consistent format including the relevant specified parameters. Any monthly and annual reviews with the Public Participants will be scheduled upon commissioning of the Facility.

Describe proposed Preventative, Predictive and Corrective Maintenance activities, including related record-keeping activities.

Contractor will develop a formalized maintenance program, consisting of clearly defined procedures for managing and performing maintenance. This volume provides guidance for the formulation of systems and techniques which can be adapted to the needs of the facility. Simplicity is the key to the development of a successful program.

1. Basic Objectives – The basic objective of maintenance management is the optimum use of available manpower, equipment, material, and money by:
 - a. Providing effective support and response to management and operational requirements;
 - b. Increasing the productivity of the maintenance force;
 - c. Insuring a high standard of maintenance; and
 - d. Achieving economic goals in the maintenance of facilities.
2. Maintenance Management Purposes – The purpose of Maintenance management are to:
 - a. Ensure maintenance is performed on a scheduled basis rather than on an intermittent, break-down basis;
 - b. Take corrective action before advanced deterioration necessitates major repairs;
 - c. Ensure repairs are timely and efficient;
 - d. Improve maintenance capacity and quality;
 - e. Ensure that the equipment of the facility meet their functional requirements;
 - f. Provide direct control over the use of the maintenance labor force;

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- g. Eliminate over-maintenance as well as under-maintenance; and
 - h. Develop and maintain equipment maintenance history to identify areas that need corrective action by management.
3. Maintenance Classification – Maintenance requirements are divided into two major classifications: a) Preventive, and b) Scheduled.
- a. Preventive Maintenance – The sum of those actions performed on operational equipment, buildings and grounds that contribute to uninterrupted operation of equipment facilities is classified as Preventive Maintenance. These maintenance actions are performed on a scheduled basis rather than intermittently or on breakdown. The system is designed to assist the facility to:
 - i. Reduce the complex maintenance requirements to simple procedures easily identified and managed.
 - ii. Define the preventive maintenance requirements, schedule and control their performance, describe the methods and tools to be used, and provide for the prevention of detection of impending breakdowns.
 - iii. Forecast and plan manpower and material needs.
 - iv. Plan and schedule maintenance.
 - v. Detect areas for improved training and maintenance techniques.
 - b. Scheduled Maintenance Classifications – The actual planning and accomplishment of Scheduled Maintenance should be based on the establishment of priorities in consideration of the effect upon total operations of the facility. A maintenance Work Order is completed to document the maintenance required. Four priority levels are derived from the following classifications of maintenance required.
 - i. Problem will cause immediate system downtime.
 - ii. Problem requires attention within 24 hours.
 - iii. Problem is a nuisance but does not require immediate attention.
 - iv. Contract maintenance required.
4. Spare Parts
- a. Spare Parts Procedures – A successful maintenance program is dependent on the availability and organizational of spare parts for equipment in case of breakdown. It is the intent of this Maintenance Program to maintain an available inventory of spare

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parts whether it is maintained by the facility, vendors or both. In most cases necessary spare parts will be maintained by the facility. In some cases available vendor inventory, which can be delivered in emergency fashion, will be utilized. This will especially be true in large dollar inventory items.

- b. Spare Parts Numbering and Location – It is important to organize all facilities' inventories of spare parts. It is therefore necessary to assign spare part's numbers and locations to facilitate finding the part when it is needed, for especially someone unfamiliar with the part. There are three basic forms utilized in maintaining a spare parts system:

- i. Spare Parts Inventory and Location
- ii. Spare Parts Vendor Master List
- iii. Spare Parts ID Tags

- c. Spare Parts Inventory and Location Form

- i. Identifies parts utilizing equipment name and number and part OEM number.
- ii. Identifies quantity on hand and reorder point
- iii. Identifies bin location of part

Each segment of the system has its own bin location, for example all conveyors that are similar have one spare parts bin.

- d. Spare Vendor Master List – The Vendor Master List identifies all vendors associated with a piece of equipment

- e. Spare Parts Tag

- i. Identifies part description and vendor part number.
- ii. Is filled out upon check in of part prior to placing in bin.

Upon use of part, the parts tag is deposited in the parts used bucket to help facilitate the inventory system. Daily as necessary the tags are compared to the spare parts inventory to update this inventory and parts ordered when dictated by minimum quantity.

- 5. Maintenance Logs And Procedures

- a. Emergency Maintenance Log – Emergency maintenance is defined as maintenance required on down equipment to minimize down time. For this situation, a work

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order may be filled out after the work has been completed. The Plant Manager will make the decision. After the emergency situation is remedied the emergency maintenance log should be completed as follows by the maintenance personnel performing the work.

- i. Month: Enter current month. Log should reflect one month's work only.
- ii. Date: Enter date of work.
- iii. Equipment: Enter equipment ID number of work.
- iv. Work performed: enter a description of work performed.
- v. Hours: Enter hours spent on emergency to nearest ¼ hour.

At the end of each month the original log should be filed in the maintenance master file.

- b. Maintenance Work Order Instructions – The following are instructions for filling out a maintenance work order (“MWO”) requesting or defining maintenance requirements

- i. A. Plant: Enter plant name.
- ii. Date: Enter date of generation.
- iii. MWO #: Maintenance will enter a number.
- iv. Equipment #: Enter equipment ID# from equipment master list.
- v. Equipment name: Enter name.
- vi. Description: Enter complete description of problem or work. Try to be as specific as possible.
- vii. Priority: Circle priority number using the following guidelines:
 1. Priority 1: Problem will cause immediate system down time.
 2. Priority 2: Problem request attention within 24 hours.
 3. Priority 3: Problem is a nuisance but doe not require immediate attention
 4. Priority 4: Contract maintenance required.

The majority of all Mao’s should have a priority 2 or 3. Priority 1 Mao’s are overridden by emergency breakdowns and should not be confused. Mao’s are not required for emergency situations.

- viii. Work performed: Maintenance will enter description work performed.

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- ix. Stock parts used: Maintenance will enter parts number of parts used. Inventory logs should be adjusted to reflect use.
- x. Non stock parts used: Maintenance will enter list of non stock parts used.
- xi. Cost: Maintenance will enter and total costs of parts.
- xii. Date: Maintenance will enter dates of work performed.
- xiii. Hours: Maintenance will enter (min ¼ hr.) of hours of mechanical (M), electrical (E), and instrumentation (I) performed.
- xiv. Remarks: Maintenance will enter remarks on anything unusual about work.
- xv. Originator: Signature of person originating MWO.
- xvi. Maintenance: Signature of maintenance person.
- xvii. Date Completed: Maintenance will enter completion date and also notify originator of completion.

Completed MWO's should be field in the master maintenance file in a separate file folder for each piece of equipment. Uncompleted MWO's should be kept in the shop on clipboards designating each priority.

Discuss what quality assurance and quality control procedures will be used to monitor any aspect of the operation and maintenance of the Facility. Describe the frequency of calibration of weigh scales and the procedures to be used in the event scales are found to be out of calibration.

The quality of the recovered materials produced is critical to the success of our operations. Every single staff member working in the plant has a hand in ensuring material quality. Quality control begins on the tip floor, by making sure that excess rejects are not introduced into the system, and continues throughout the mechanical and manual aspects of the sorting system. Every sorter working on the system contributes to the quality of our materials, as do the maintenance personnel who keep the equipment working.

Our focus in processing the incoming stream will be to maximize the value of the recovered materials we will sell. On the fiber side, our focus will be to sort the fiber materials to maximize our volume of OCC and ONP, and minimize the lower value grades that we produce. Depending on the nature of the inbound material stream, combined with our processing needs and storage availability, we may choose to produce office mix paper from time to time, but typically this is not a material that we target at a high-volume MRF, as the levels of contamination can be high, and the volume of office paper collected may be sporadic. We will seek to minimize the production of mixed paper at

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all times, and the application of extensive optical technology will aid us to produce high-quality news that will allow for the blending of mixed paper with the ONP to maximize facility revenue.

On the container side, our sorting efforts will be similarly focused on generating high- value commodities. Key target materials will include PET, HDPE-Natural, HDPE- colored, as well as aluminum and tin cans. We also will make mixed plastic bales of #3 - #7 plastics, as well as a mixed rigid plastic grade (predominantly oversized plastics that are sorted at presort). However, our attention will be more focused on securing the quantity and quality of the higher value plastics and metals. Glass will be mechanically separated from the stream and put through an initial cleanup system to remove the most obvious contaminants, to maximize its market value as a mixed color product.

Quality control for the containers coming from the single stream operation is largely a function of the efficiency of the optical sorting equipment and the effective training of the sorters, as only those materials ejected by the optical sorters and approved by the sorters will go into our products. For fiber, the sorting process is as much an inspection process as sorting; we both optically and manually remove the wrong materials from the fiber stream, rather than positively sorting the selected items. Effective quality control is created by a reliable plan for cross training staff on the different grades of materials we generate, how these are sorted and baled, and how to identify problems to supervisors.

The final quality control operation in our processing system is the forklift and loader operators who move products into storage and into trailers for outshipment. It is the responsibility of these staff to ensure that only the proper grades of material are shipped to market. Material downgrades are unacceptable.

Following are several specific quality and inspection procedures related to managing the out shipment of products from the MRF.

- Storage Areas
 - Forklifts loaders move processed material to storage areas prior to shipping or directly into available containers ready for transport to markets. Two storage areas include Bale Storage and Glass Storage
 - Bale Conditioning & Stacking Quality Control
 - ◆ All fiber, plastics, aluminum, and tin sorted from the processing system will be baled.

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- ◆ Bales in a stack must be consistent material composition and shape. Straps, ties, or similar devices in sufficient number for the type of material as well as the size and shape of the stack must contain bales. Bales stored in tiers must be stacked, blocked, interlocked, or limited in height so they are stable and secure against sliding or collapse. Straight stacks (one bale placed directly on top of another) must be limited to four (4) high. Plastics will be stored in a specifically designated area if required. If plastics are stored outside of the designated and delineated area, then these shall only be stacked two (2) high.
 - ◆ Loose, incomplete, or out-of-shape bales must not be stacked or be used to support other bales in the stack.
 - ◆ Bales in stacks must be visually inspected daily for stability of the stack and condition of the bales. Immediate action must be taken to correct an unstable condition, such as identifying and removing bales that are not structurally sound.
 - ◆ Training must be provided to authorized employees to provide them knowledge of bale content and quality, stacking requirements, and remedial action that can be taken to correct unstable stack conditions. Training must also be provided to other affected employees to provide them knowledge of the potential hazards involving bale stacking, the precautions necessary to avoid these hazards, and the requirements to report apparent hazards to the employer.
 - ◆ Bale storage areas must be designated as special work areas, with access limited to only authorized employees.
- Quality Inspections: Quality is a major factor for all shipments leaving the facility. In an effort to control negative impacts on our quality, it is crucial to conduct commodity inspections before and during the loading process.
 - An initial inspection of the truck will be made for any possible contaminants left in the truck from previous loads. If any contaminants are found, they should be removed from the truck before any loading occurs. The loader should inspect each bale/bucket during the loading process to see if any contaminants are visible.
 - If any contaminants are visible, the loader should notify his or her supervisor immediately, and that particular bale/bucket should not be loaded. The contaminated material should be separated from any other materials for closer inspection. The integrity of baled material is an

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important factor. If the bale cannot be loaded without the bale breaking and the material spilling, then it should not be loaded. Again, the supervisor should be notified and the problem bales set aside to be dealt with.

- Baled material is loaded using a forklift. Bales are extracted from bale storage and loaded onto a trailer located at one of the loading dock doors along the north wall of the building
- Forklift Operator or Baler Operator is responsible for filling out the correct paperwork while loading out materials. After a trailer is filled, it will be weighed on the outbound scale adjacent to the loading docks. We anticipate that ~~all~~ many of the recovered recyclable product shipments will be sold FOB at the MRF with transportation arranged by the buyer or provided by the MRF Operator. Thus, once loaded, we will then coordinate the final paperwork among the scalehouse, loading dock operations, and truck driver to most efficiently process the load and get the materials moving to market.
- Empty trailers awaiting a load will be moved onto available loading docks immediately as docks become available.
- The use of on site staged trailers provides both additional storage space and saves time and double handling of bales when loaded out for shipment. Depending on market conditions and available trailers, from time to time we may intend to use staged trailers to expedite shipping.
- Tractor Trailers
 - Forklift operators are responsible to make sure that the following guidelines are followed by themselves as well as drivers and should observe the following when loading trucks or trailers:
 - Ensure trailer is secured and can not be moved or driven away;
 - Make sure portable or powered dockboard (bridge dock plate) is secured in position by an anchor or other device which will prevent slipping;
 - Mobile equipment operators should always inspect trucks or trailers before loading - check the floor, frame and support members for holes and other damage making sure the vehicle is safe to load;
 - Clean the vehicle of contaminants, sweep out if necessary before loading;
 - Load the vehicle carefully - as though they would also be unloading it; and
 - Turn on equipment lights. Turn on dock lights if appropriate.

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Identify and describe the Proposer's planned computerized management system, including the maintenance system and the operating system and the tie in to continuous, real time monitoring of process and environmental performance data.

Contractor will intends to integrate the computerized management system of MRF, AD Facility, and if the Alternative Proposal is approved, the Gasification Facility. Currently, the VDB system uses the Atlas 2000 Maintenance Control Program. This program has been developed and is sold by Data-Trak, Inc. (<http://www.maintenance-software.com>).

Provide estimates for the expected annual usage of electricity, chemicals, fuel, water and other consumables required for operation of the Facility.

The estimated annual usage of electricity for the MRF is approximately ~~2,200,000~~5,062,000 kWh or less than ~~47%~~34% of the estimated power produced by the AD facility.

Describe how the Proposer will maintain the Facility in a neat, clean, and litter-free manner at all times, ensuring the operation of these assets does not create impermissible odor, litter, noise, fugitive dust, vector or other adverse environmental effects.

Effective housekeeping procedures ensure that all walking areas and floors are kept free from obstructions, accumulations of material, grease, oil, and water. A systematic approach shall be employed by facility operators for the cleaning of residues that may accumulate on potential ignition sources, such as electric motors. Compressed air will be used for cleaning purposes and only with appropriate personal protective equipment. The blast cleaning nozzles must be equipped with an operating valve that must be held open manually. The following procedures are recommended for Facility Cleanup:

- Cleanup will be conducted in an organized manner by facility operators, under the supervision of plant supervisor.
- An organized, daily effective cleanup schedule will help ensure maximum plant safety, and peak system and employee performance.
- Cleanup at the Facility will be conducted during downtime periods or during brief periods prior to breaks.

An organized approach to cleaning up will be developed and enforced. Cleanup must not be left to the end of the day or end of the week.

Describe how the Proposer will manage emergencies that may arise at the Facility and interact with the County, other Public Participants, and the applicable fire, police, and emergency management personnel during such emergency.

Safety of workers and the surrounding population and environment is of paramount importance to Contractor. Contractor will coordinate with county and city departments and attend

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meetings related to emergency preparedness efforts. Prior to the commencement date, Contractor will prepare a Contingency Plan for all aspects of emergency operations including: equipment repair, fire prevention and response, permanent and temporary worker replacement, and earthquake preparedness.

Supervisors and managers will have the authority to commit company resources to resolve emergency and non-emergency health, safety, and environmental issues if such action is necessary to protect the health and safety of site employees and the nearby community. Supervisory personnel will be cross-trained with other operational personnel so they are available to cover for workers when absences occur due to sudden illness, emergencies, or vacations.

If a situation arises that cannot be handled by facility personnel, then 911 will be called or another outside emergency agency appropriate for the situation. The Public Participants and will be notified immediately after the appropriate outside emergency agency has been notified.

Briefly describe the Proposer's general safety program, including staff training, preventative maintenance, and safety procedures for OSHA compliance program requirements. Essential elements of such program shall include regularly scheduled safety training sessions for all personnel, standard operating procedures for chemical storage and handling, confined space entry and emergency response, lockout/tagout, right-to-know, and the care and use of proper safety equipment.

The Safety Program provides a safe and healthy work place for all persons who are employed or visit the facility. Making safety a priority enables Contractor to attract and keep effective employees. Contractor's primary goal for safe facility operation is to meet or exceed all local, state, and Federal worker safety regulations (i.e. OSHA). The following outlines the comprehensive programs developed by Contractor to ensure public, employee, and facility safety.

Safety Program

The Safety Program covers Safety Policies, Personal Protective Equipment ("PPE") Program, and MRF Hazard Assessment. Following are the key strategies that the MRF shall follow in maintaining safe working conditions:

- Providing and using well tested safety equipment.
- Preventing accidents through proper training and manufacturers specifications.
- Responding quickly to accidents and incidents, and making changes to prevent recurrences.
- Reviewing occupational safety data by decision makers.

Multiple forms of communication will be used to implement the safety plan. MRF management will conduct monthly safety training sessions. Such meetings shall be used to review

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safety program elements, discuss the results of facility inspections, employee behavior observations, traffic, customer issues, operational changes, and other safety related topics as they arise.

Contractor will identify an in-house safety panel that will be responsible to review safety programs and recommend modifications to management.

The Safety Policy will be implemented through orientation and training. In addition, applicable OSHA Policy Statements, posters, and signage will be used to reinforce the safety program.

Personal Protective Equipment

Personal Protective Equipment (“PPE”) is essential to protecting employees from recognized hazards that could result in workplace injuries and illnesses. All PPE used by employees in the course of their work must be maintained in a sanitary and reliable condition.

The following list of PPE shall be provided to all employees of the MRF. The following page provides a sample PPE Employee Acknowledgement Form, which should be signed by employees who receive this safety equipment. All safety equipment shall be OSHA approved for facility operating conditions.

- Safety Glasses - Glasses should provide a custom fit with excellent top, bottom, and side protection, offer peripheral vision and a coating to provide an anti-fog, anti-static, anti-scratch, and anti-UV protection.
- Disposable/Reusable Earplugs - Earplugs which are disposable/reusable and provide the wearer with a noise-reduction rating of 26 are provided.
- Work Gloves - Work gloves should be used by all employees. They should be manufactured with a cut-proof fabric and have a safety cuff that provides lower-arm protection. Leather safety gloves are preferred for paper and plastics sorting. Neoprene dipped gloves are preferred for glass sorting.
- Hard Hats - Hard hats must be worn by all employees. This headgear is made from lightweight polyethylene, so it provides excellent head protection with minimum weight and maximum comfort.
- Dust Masks - Masks will be made available for people working in the paper processing areas to protect against airborne dust particles.

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- Eye-Wash Station - A gravity-fed emergency eye-wash station should provide the optimum in emergency eye-wash capability. Eyewash stations are lightweight and portable and require no plumbing or installation.
- Other recommended plant safety equipment per applicable codes, includes anti-fatigue mats, first aid kits, fire extinguishers, lockout safety kits, including lockout tags and pad locks, to be used by designated personnel as directed.

Personal protective equipment does not remove the hazard from the workplace. It is the last line of defense before the hazard reaches the employee. The first line of defense is to engineer the hazard out of the process through administrative or other workplace controls.

MRF Hazard Assessment

Under most circumstances, the MRF does not produce or receive in any incoming waste loads that are toxic or volatile materials that can cause harm to employees as a result of direct contact. In the event harmful materials are received, the load rejection procedures included previously in this document are to be followed.

Critical to the overall safety and organization of the plant is the ongoing care and cleaning of all operational areas of the MRF.

Safety hazards are present however, during regular operations for employees working in the vicinity of certain equipment. These hazards include:

- Noise from the movement of glass through the system and into storage.
- Noise from the process system equipment.
- Small pieces of airborne glass and dust generated from the processing system

The plant's process equipment is designed, fabricated and installed per numerous codes to protect employees and operators. Nevertheless, potentially dangerous situations can still occur around material handling equipment made up of moving parts. Plant Safety Training will include:

- Familiarizing employees with the layout of the process equipment.
- Explaining to employees the equipment safety features and safety equipment.
- Outlining for employees the hazards and explaining all Safety Procedures.
- Noting any applicable local, state, or federal safety guidelines.
- Instructing staff about fire prevention, explosion prevention procedures, and contingency plans in the event of accidents.
- Daily inspections and reviews by management.

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Lockout/Tagout Procedure

Anytime a piece of equipment requires maintenance of any kind that requires shutdown, this lockout procedure will be followed.

All maintenance personnel will be assigned a lock with one key. Only one key will be available for any one lock. This lock and key after assigned to a maintenance person will not be utilized by any other person for any use. Should the lock be defective or the key lost, the lock must be replaced and discarded.

This lock will remain in the possession of the assigned person at all times.

Lockout procedure:

- Shut down equipment at disconnect to de-energize the machine at the power source.
- Place lock on electrical disconnect of machine. Secure lock and keep the key on your person.
- Perform maintenance as necessary.
- Upon completion of maintenance remove lock and secure

Provide a complete staffing plan, identifying job title, function and number of personnel. Describe how the Proposer will utilize displaced County Landfill staff, in any, as part of the staffing plan. Provide examples and describe how the Proposer has previously developed projects that have integrated displaced public employees into a newly developed project.

~~Figure 1~~ ~~Figure 10~~ depicts the preliminary organizational relationship between the various job categories at the MRF.

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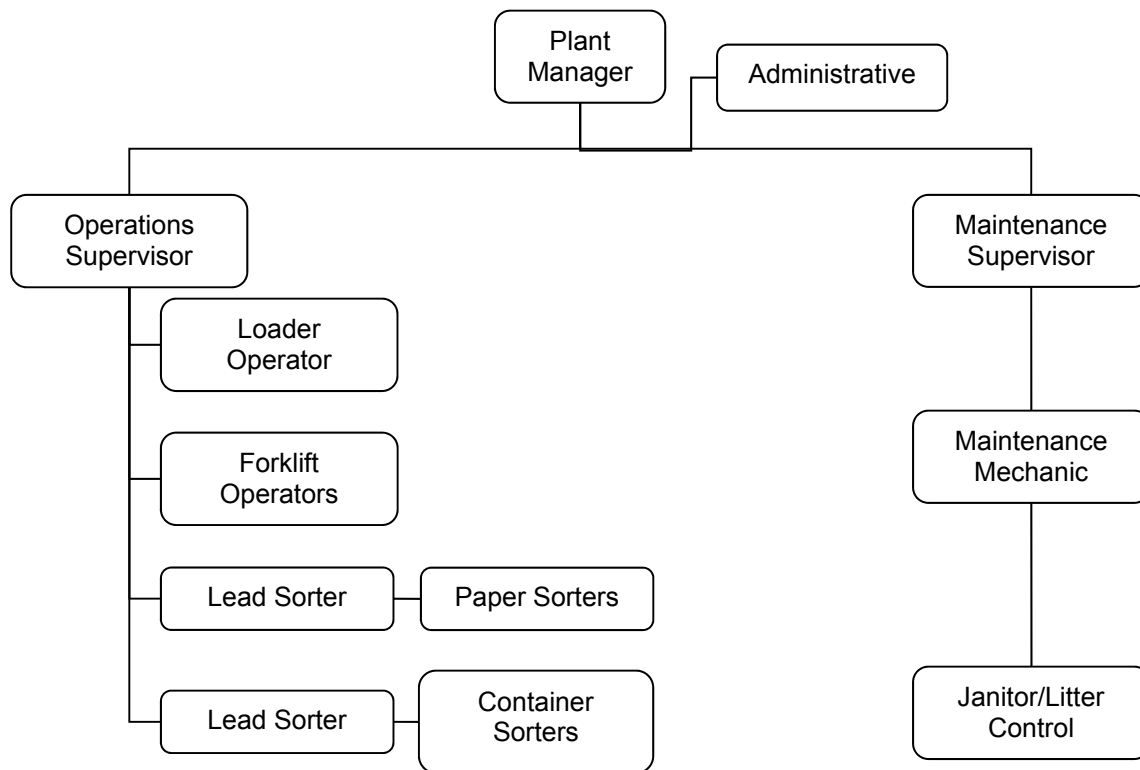


Figure 110. MRF Preliminary Organizational Chart for the Tajiguas EcoPark

Contractor shall hire the following initial number of employees to operate the MRF:

Job Category/Job Title	No. of Personnel
Manual Presort	260
OCC QC	2
Presort #2	2
ONP Top deck QC	0
ONP bottom deck QC	2
Polishing screen QC	2
Container line presort	2
Container line QC	2

Of the ~~30-38~~ staff included in this list, over half are dedicated to removing oversize and prohibited materials which can otherwise foul the proper operation of the sorting system. The remaining sorters are performing quality control sorts, removing any items that either the screens or optical sorting units may have not removed from the stream. On the container line, the majority of sorting will be automated, with manual sorting only for quality control purposes.

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In addition to this sorting staff up on the system, we will have a number of additional positions to fill. We will run with one or two loaders on the tip floor (depending on volumes and volume types), a tip floor spotter, and at least two forklift operators at all times. We will also have a full time mechanic and a maintenance assistant to keep all of the MRF equipment in proper running order at all times. We will stage our operations such that we have loader operator and forklift coverage for all receiving hours of the day. Total MRF employment is estimated at ~~49~~75 employees.

The Contractor will institute a local hiring preference with displaced County Landfill staff. Included in the capital costs of the MRF is a complete training program and ongoing support package.

BEKON DRY FERMENTATION FACILITY

The following Operation and Maintenance plan is based on BEKON's experience with its ~~14~~18 commercial size fully operating facilities in Europe. The BEKON Facility design is consistent using similar or identical components wherever plants are built. Furthermore, industry standard components are used in construction with proven and predictable performance. Because of this consistency the operating requirements of BEKON Facilities are well documented.

The Operation and Maintenance plan is based on comprehensive process performance monitoring. The plan has been developed using data provided by the process control and engine management computers, the use of long lived components, and the documentation of periodic intervention when appropriate.

Explain the Proposer's approach to and the instrumentation that will be used for inspecting waste at delivery and for diverting, separating and properly handling and disposing of Unacceptable Waste, as specifically required by State and local regulations.

The waste arriving at the BEKON plant will be OMSW as separated by the MRF and/or Source Separated Organic Waste (SSOW) including food and green waste. The BEKON process is highly tolerant of inert foreign material in the feedstock. It's only negative effect on biogas production is a dilution of the organic feedstock. The feedstock biomass arrives at the BEKON Facility in the Delivery Hall where it is visually inspected by the plant operators as it is being stacked for future use. BEKON operators are trained to visually inspect the general quality and structure of the incoming material and its suitability as feedstock. Foreign material that would destroy bacteria is

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unacceptable and would be rejected by the plant operator and hauled away by the wheel loaders. Such foreign material generally includes Hazardous Waste (“HHW”) and Universal Waste (i.e. batteries and electronic devices). As the MRF initially processes the mixed MSW, such waste streams will most likely not find their way to the BEKON Facility Delivery Hall.

Explain the Proposer’s technical approach to performing such operation and maintenance responsibilities, including training and inspection procedures, monitoring measures and preventative, corrective and predictive maintenance programs.

Larger BEKON facilities like the one proposed for Tajiguas are usually staffed 40 hours a week. The staff members on site perform a combination of operating and maintenance functions to optimally utilize their time and to provide a safe working environment. The staff presence is required to refill digesters on a 28 day cycle. That can usually be achieved within a normal work week. The staffing requirement is two personnel plus a supervisor (3 total) and that is primarily to ensure that a second person is available in the case of an accident. The work is structured so the two individuals can exchange their duties to reduce fatigue. Accordingly, both have the same training in operations and maintenance. In addition to these two individuals there will generally be a team leader who may or may not have other responsibilities on the site, but who will certainly have identical training to the other two in order to provide vacation and other backup coverage.

The day to day operating functions are as follows:

- Visually screening incoming material for suitability
- Preparing digesters for reloading and placing them back into service
- Operating wheel loaders for reloading of digesters
- Interaction with plant process computer to analyze and optimize process
- Scheduling future reloading of digesters
- Maintaining plant operating logs
- Cleaning and maintaining filters
- Draining condensation from air tanks
- Responding to after-hours alarms

The day to day maintenance functions are as follows:

- Physical inspection of plant systems
- Analyze diagnostic readings from plant equipment
- Performance of minor repairs

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- Cleaning equipment and plant floors
- Minor maintenance of wheel loaders
- Testing backup systems
- Monitoring major cyclic maintenance activity and scheduling work
- Monitoring diagnostic parameters and scheduling remedial work

Most Long Cycle Maintenance relates to equipment with moving parts and is cyclic based on manufacturers' recommendations or manufacturers predicted life expectancy. All aspects of the CHP units are driven by running hours. Similarly pumps, compressors and blowers all have recorded running hours and are refurbished or replaced on a running hour basis. This strategy is financially optimal because it tends to avoid plant shutdowns and extracts a very high percentage of the equipment's useful life without incurring unnecessary risk. It is possible because the operating conditions are well known and consistent leading to consistent performance and life expectancy of embedded equipment.

Training of plant operating staff is essential to the operating and maintenance strategy. The elements of BEKON plant operator training is as follows:

- Safety training related to plant systems and equipment
- Safety training related to explosive gasses
- General safety training related to the industrial site environment
- Environmental awareness training
- Community awareness training
- Wheel Loader operation and minor maintenance training
- Visual feedstock screening
- BEKON plant Biological process training
- BEKON plant Systems training
- Emergency response training
- Spill Response training
- Fire Safety Training
- Computer control training
- Utility interface training
- Contracts/and contractor relationship training

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Finally BEKON plants are easily capable of being monitored remotely by BEKON's experts or by others with approved access. This provides an opportunity for bringing additional experience and expertise on board to troubleshoot equipment or process problems or to optimize plant performance.

Describe the frequency of sampling and the laboratory procedures to be undertaken by the Proposer, including compliance sampling and analysis in order to ensure compliance with permits and the Performance Guarantees

BEKON plant process dynamics are continuously monitored so sampling is not required. The process computers retain a log of refueling each digester as well as the gas production of each digester and the total electricity output of the plant. Once the plant is in operation and stabilized, the principal variable in producing gas and electricity is the continuing quality of the feedstock. This means the plant output is reflective of the quality of the incoming feedstock. Because of the large number of digesters anomalies are easily identified and average production is easy to establish.

Gas quality is continuously monitored by a multi-channel gas analyzer. The analyzer looks at each digester as well as the totals. Since all significant plant events are logged, any failures and the duration of those failures are accurately recorded.

Any additional measures that may be required to meet compliance requirements will be built into the plant maintenance procedures. For example, a periodic CHP unity engine emission test to verify the effectiveness of the CLAIR emission controls may be required.

Describe, generally, the manner by which the Proposer will produce all reports required in the Contract.

Reporting requirements are generally routine. Plant process computers will be set up to collect the data required for the reports and a standard report format will be generated by the Facility process computers. Preparation of reports will be the responsibility of the senior BEKON plant operator who will proactively collect the required information on an ongoing basis in anticipation of the agreed upon reporting cycle.

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Describe the procedures for monthly and annual reviews with the Public Participants of operations, reports, ongoing cost information, and key upcoming projects and operations, which may impact any Scope of Services.

Per previous sections, the data requirements for monthly, annual and ad-hoc report requirements will be consistently collected. The senior BEKON plant operator will produce the reports based on a consistent format including the relevant specified parameters. All reports will be subject to management review and incorporation into broader project reports.

Describe proposed Preventative, Predictive and Corrective Maintenance activities, including related record-keeping activities.

Per previous sections the dominant maintenance strategy for BEKON plants is cyclical based on running hours. This is similar to the aviation and other industries where operating conditions are well known and predictable. The BEKON plant monitoring technology and physical inspection process lends itself to the predictive intervention maintenance of some plant components. This is primarily to anticipate random premature failures. For example, ignition voltage for each cylinder of the CHP engine is monitored on continuous voltage as a means of anticipating premature ignition failure. Recording is partially by logging within the CHP engine management computer, partly within the BEKON Plant computers and partly manually as word and Excel files.

Discuss what quality assurance and quality control procedures will be used to monitor any aspect of the operation and maintenance of the Facility. Describe the frequency of calibration of weigh scales and the procedures to be used in the event scales are found to be out of calibration.

BEKON Plant instrumentation keeps track of critical plant metrics and annunciates if parameters are out of bounds. BEKON plant operator training augments quality control by monitoring and recording parameters that cannot be electronically monitored. For example, the density of the incoming feedstock is measured by load cells in the wheel loader bucket that determine the weight contained in the bucket, the bucket having a known volume.

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Identify and describe the Proposer's planned computerized management system, including the maintenance system and the operating system and the tie in to continuous, real time monitoring of process and environmental performance data.

The BEKON plant is designed for local area network and internet connection. The control room has a Windows-based main process computer that communicates with a Siemens Simatic process controller, and a backup computer that is usually used for administrative functions such as scheduling and preparing reports. All of this equipment is supplied by an Uninterrupted Power Supply (“UPS”) to prevent loss of data during power outages. Multiple hard drives in each computer record operational data. Periodic off-site data storage will also be used to further prevent loss of data. These computers will be remotely accessible by internet connection to people with password access.

Provide estimates for the expected annual usage of electricity, chemicals, fuel, water and other consumables required for operation of the Facility.

Assuming that the front end loaders and other rolling stock equipment use approximately 3.43 gallons of fuel per hour, and will be in use approximately 4,2002,080 hours per year, the amount of diesel fuel used per year will be approximately 14,28619,000 gallons. The water needed for AD Facility cleaning will be approximately 52,83450,000 gallons per year. The amount of oil needed will depend of the specific CHP modules and front end loaders. The CHP engines will be maintained according to hours of service and the amount of oil and lubricants needed is approximately 4,5851,031 gallons of oil per CHP per year. The amount of electricity needed for the plant-AD Facility will be approximately 693,000 kWh/a under the Maximum Volume delivery scenario.

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Table 15. BEKON Facility Electrical Consumption

Electrical Load	Period of Use (hrs/yr)	Energy Requirement (kWh/yr)
Hydraulic	70	153
Compressor	1,095	2,190
Gas Dryer	5,840	21,900
Gas Compressor	8,760	50,808
Sump Pump Digesters	1,460	54,896
Percolate Filters	8,760	17,250
Pump Percolate Tank	1,825	10,950
CHP Units	8,030	240,900
Emergency Cooler CHP	7,300	20,440
Digester heating Pump	8,760	8,760
Exhaust Flushing Blower	627	690
Supply Air Digesters	627	1,881
Extracting Air Digesters	2,090	6,270
Hall Ventilation	8,760	87,600
Air Humidifier Pump	8,760	70,080
Automation	8,760	8,760
Other	8,760	26,280
Total	141,911	630,078

693,000 kWh/yr

Describe how the Proposer will maintain the Facility in a neat, clean, and litter-free manner at all times, ensuring the operation of these assets does not create impermissible odor, litter, noise, fugitive dust, vector or other adverse environmental effects.

BEKON takes pride in its plants and insists on cleanliness and professionalism in their operation. Clean plants run better and provide a safer work environment for employees. Most BEKON plants have had hundreds of visitors interested in the technology and a positive impression is important in making an impression on potential customers.

Odor releases are detrimental to relationship with neighbors. The fully enclosed BEKON plant design with associated biofilter goes to great lengths to contain and manage the inevitable odors associated with waste. BEKON plants provide great benefit to the environment in providing a renewable source of energy and in eliminating Methane, a powerful greenhouse gas from the environment. These are important BEKON business priorities.

The process for achieving a clean and neat plant is by specifically assigning the task to the BEKON plant operators as part of their daily routine. Refilling digesters is a messy task and a daily cleanup is necessary.

Noise is controlled by the BEKON processes being largely indoors.

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Describe how the Proposer will manage emergencies that may arise at the Facility and interact with the County, other Public Participants, and the applicable fire, police, and emergency management personnel during such emergency.

BEKON plants are highly monitored and that, together with a high level of automation, provides a sound basis for detecting emergencies. The best way of dealing with emergencies is by avoiding them with solid operating policies and procedures. That is the first line of defense. Abnormal conditions will be detected by the following means:

- Abnormal conditions trigger an audible alarm for use while operators are present.
- After hours, BEKON plant operators carry pagers that signal alarm conditions at the BEKON plant.
- After hours, BEKON plant operators have remote computer access to the BEKON plant controls and monitoring systems
- Emergency phone numbers are prominently posted on BEKON plants in the event that a problem is detected by a third person.

BEKON operators will maintain a list of all regulatory and emergency services. That list will be posted indoors and outdoors at the plant and carried by all BEKON plant operators. The list will be tested on a periodic basis and BEKON plant staff will provide their contact information to each of those organizations. Where appropriate, for example, fire protection agencies, the BEKON plant operators will offer plant orientation visits to those organizations. BEKON will also provide descriptive literature describing the plant processes for the use of emergency response organizations.

Finally, one BEKON plant operator is always on call and will respond to assist emergency response workers during emergencies.

Briefly describe the Proposer's general safety program, including staff training, preventative maintenance, and safety procedures for OSHA compliance program requirements. Essential elements of such program shall include regularly scheduled safety training sessions for all personnel, standard operating procedures for chemical storage and handling, confined space entry and emergency response, lockout/tagout, right-to-know, and the care and use of proper safety equipment.

BEKON's safety program focuses on both the office and project site environment. The cornerstone of the safety program is communication and in particular project safety and facility meetings. This allows BEKON employees to effectively deal with new situations typical of the

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construction and commissioning of new power plants. BEKON also employs a system of employee safety meetings and safety training to ensure that employees share their experiences and any concerns. Safety meetings are held periodically. Safety training depends on the nature of a person's specific work, however, driver safety, first aid, and fire prevention is common to all employees.

Project work demands that employees have the skills to identify hazards, the control to allow them to eliminate or control hazards, and the personal protective equipment to prevent or reduce injury should an accident occur. It also requires careful planning and coordination between employees and together with employees of other companies working on the project. This analysis and associated discussions take place in regular morning meetings and at tailboard conferences as specific tasks are started.

BEKON's existing plants are located in Germany, Italy, Switzerland, and Austria. In the process of designing, ~~and~~ building and operating 16-18 facilities, BEKON has not experienced violations cited by government agencies in any of those jurisdictions. Within the last ~~three-five~~ years (April ~~2007-2008~~ to April ~~2010~~2013), BEKON has experienced one lost time accident. That accident involved an upper arm injury that required the individual to miss five days of work. BEKON has not been the recipient of safety awards.

The success of a specific project is largely dependent on strong project management. That is because well organized projects contain fewer surprises and surprises can lead to accidents. It is also because safety can be embedded in project planning carrying the full authority of the project manager. This is how BEKON will approach the Santa Barbara project

Provide a complete staffing plan, identifying job title, function and number of personnel. Describe how the Proposer will utilize displaced County Landfill staff, in any, as part of the staffing plan. Provide examples and describe how the Proposer has previously developed projects that have integrated displaced public employees into a newly developed project.

This BEKON plant will be staffed by four key people.

- Plant Manager/Team Leader
- Senior BEKON Plant Operator
- Two BEKON Plant Operators

As described in previous sections all four will be trained in all technical aspects of the BEKON plant. All four will be expected perform day to day operations and if necessary, emergency response. The structure is designed to provide entry level positions and advancement opportunities.

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BEKON has significant experience with handing plants over to existing municipal landfill and compost operators. The ideal candidates for the BEKON plant operator and Manager positions are people who enjoy a mixture of hands on work, mostly wheel loader operation, an aptitude for technology, and ideally, an aptitude for the science underlying the biological process. Safety consciousness and environmental sensitivity are also important factors. The ideal candidate will have a college education.

The manager should have business acumen as well as an ability and willingness to communicate with the public participants and the public should that become necessary.

REPAIR AND REPLACEMENT

- *Outline the Proposer's approach to performing repair and replacement, including major repair and replacement for the Facility.*
- *Discuss what quality assurance and quality control procedures will be used to monitor any and all aspects of the repair and replacement, including major repair and replacement, of the Facility.*
- *Provide a specific, itemized list of all major maintenance, repair and replacement activities that the Proposer plans to perform throughout the life of the Contract for the Facility, and state the dollar amount budgeted and the implementation schedule for each item, activity and piece of equipment. Note that this list, as negotiated, will be incorporated into the Contract so as to assure that proper maintenance, repair and replacement is performed, and that the Public Participants are not left with depleted assets requiring a major overhaul when the Contract expires.*

MATERIALS RECOVERY FACILITY

Outline the Proposer's approach to performing repair and replacement, including major repair and replacement for the Facility.

On completion of the final engineering design work and prior to start up, the manuals for preventative maintenance will be produced by VDB. These manuals would provide guidance on the correct procedures for maintaining the equipment supplied.

As part of the capital cost of the MRF, VDB will provide a spare parts package. Life expectancy of parts will vary dependant on usage.

Discuss what quality assurance and quality control procedures will be used to monitor any and all aspects of the repair and replacement, including major repair and replacement, of the Facility.

The MRF capital cost includes a parts package and an operating & maintenance contract from VDB. Repairs and replacement parts will be covered under warranty and have an estimated life of 5-10 years. Approximately 6.0% of capital costs have been conservatively estimated for annual repairs, reserves for replacement and operating contingency. Typical for VDB MRF's is approximately 2-3%.

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Provide a specific, itemized list of all major maintenance, repair and replacement activities that the Proposer plans to perform throughout the life of the Contract for the Facility, and state the dollar amount budgeted and the implementation schedule for each item, activity and piece of equipment. Note that this list, as negotiated, will be incorporated into the Contract so as to assure that proper maintenance, repair and replacement is performed, and that the Public Participants are not left with depleted assets requiring a major overhaul when the Contract expires.

See Appendix D and the electronic copy Van Dyk Baler Equipment Proposal for details.

BEKON DRY FERMENTATION FACILITY

Outline the Proposer's approach to performing repair and replacement, including major repair and replacement for the Facility.

BEKON plants, though technically sophisticated, have few moving parts. The design philosophy results on plants that are robust, and easily maintained. All systems are monitored by the process control computer locally or remotely and there is no requirement to have staff present on a daily basis. Physical inspections identified as “daily” can be conducted on days when digesters are refilled. Routine maintenance is straightforward and can usually be scheduled well in advance.

The following maintenance schedule applies to the initial 20,000 hours of the GE/Jenbacher CHP unit’s lifecycle. The subsequent schedules, not included here for brevity, are similar, and ultimately show crankshaft and other major component replacements. There are highly detailed manufacturer’s instructions underlying this table as well as similar tables for subsequent maintenance time lines. These machines are highly instrumented and are self monitoring. Inspections are limited to:

- Daily physical Inspection
- Daily air filter Check
- Weekly Ignition Voltage check

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Table 26. 20,000 hour Maintenance Schedule of the GE/Jenbacher CHP Unit

Maintenance Time Line A																						
Maintenance / Inspection work	Operating hours																					
	< 100	1000	2000	3000	4000	5000	6000	7000	8000	9000	10000	11000	12000	13000	14000	15000	16000	17000	18000	19000	20000	
Maintenance after first start-up	•																					
Valve clearance			•		•		•		•		•		•		•		•		•		•	
Ignition system			•		•		•		•		•		•		•		•		•		•	
Inspection			•		•		•		•		•		•		•		•		•		•	
Crankcase suction filter			•		•		•		•		•		•		•		•		•		•	
Regulating rods, Throttle valve, Actuator			•		•		•		•		•		•		•		•		•		•	
Gas train			•		•		•		•		•		•		•		•		•		•	
Turbocharger											•											•
Engine coolant pump											•											•
Starter											•											•
Gas mixer											•											•
Mixture bypass valve																						•
Torsion vibration damper																						•
GE Jenbacher switch cabinets																						•
Piston, Piston cooling																						•
Con rod, Con rod bearing																						•
Cylinder liner, Scraper ring																						•
Camshaft, Steering parts																						•
Crankshaft main bearing																						
Engine oil pump																						
Turbocharger after lubrication pump																						
Plate type heat exchanger																						
Overhaul																						
Exhaust gas manifold, Isolation																						
Cylinder head replacement																						
Generator					•				•		•		•				•					•
Elastomer parts											•											•

The balance of the BEKON plant consists of structures, piping, pumps, valves, compressors, hydraulics and blowers, all of which are monitored by the process computer. Spare parts are provided for components that contain wear parts and spare units are stocked in case of unit failure. Although there are many plant components, there are relatively few specific types allowing for efficient stocking of spare parts. The following is a summary of the maintenance strategy for each system.

Table 37. Summary of Maintenance Strategy for each BEKON Facility system

Description	Inspection	Replacement
Pumps		
Supply Collection pump for percolation pump	x	
Circulation pumps heater circuits	x	
Distributor pump percolate	x	
Pump for sump-pump	x	
Axial face seals	x	x

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CHP circulation pump, Heating	x	
Blade wheels	x	
Gas Treatment		
Gas cooler	x	
Heat exchanger	x	
Safety relief valve	x	
Monitoring temperature	x	
Engine bearer	x	
Cleaning stream trap	x	
Filter	x	x
Compressed Air Construction		
Compressor	x	
Safety relief valve	x	
Engine bearer greasing	x	
Steam trap	x	
Cleaning	x	x
Wear parts	x	
Compressed air vessel	x	
Safety relief valve	x	
Measures		
Pressure monitoring heater circuit pumps	x	
Level monitoring pump sump	x	
Level monitoring percolation storage	x	
Pressure digester	x	
Pressure percolation storage	x	
Pressure (operation/control air)	x	
Level monitoring of CHP engine oil	x	x
Flow rate gas meter	x	
Flow rate heat meter plant and external heat consumer	x	
Level monitoring heating water in complete system	x	
CH4	x	
CO2	x	
H2S	x	
Temperature heater circuits digester, percolation and facility heating	x	
Temperature gas utilization room, digester	x	
Positioning detector of all valves and valvulars	x	
Flow rate of flush and exhaust lines	x	
Controls and Instruments		
Safety relief valve	x	
Compressed air regulator	x	
Isolation flap	x	
Control valves	x	
Overflow valves	x	
Ball valves	x	
Valves	x	
Holding valves	x	
Holding valvulars	x	
Pressure regulator (control air for control valve supply air)	x	
Gasfilter	x	x
Help System		
Exhaust gas compressor	x	
Hydraulic system digester gates	x	
Seals digester gates	x	
Electronics		
Control electronic control cabinet incl. Fuses	x	
Measurement isolation	x	
Emergency power chain	x	
Gas alarm system	x	
Measuring adapter	x	x
Personal computer	x	x
Controls and Instruments Active Coal Adsorption		
Valves	x	
Active charcoal	x	x
Lifting bar	x	
Assembly opening pump sump	x	

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In almost every case the plant components are designed to last the full life of the plant and it is not necessary to replace them on a periodic basis. In other rarer cases, for example, the replacement of the activated charcoal in the Biogas Filter, intervention and replacement is based on either running hours or performance metrics provided by the process computer.

Discuss what quality assurance and quality control procedures will be used to monitor any and all aspects of the repair and replacement, including major repair and replacement, of the Facility

As shown above the major wear components are the CHP units' engines. They are manufactured by GE/Jenbacher and are of very high and predictable quality. Every detail of their inspection, periodic adjustment, periodic component replacement and general maintenance is documented in maintenance manuals for the equipment. The engine management computer monitoring of these engines is extensive and any abnormal conditions will be detected.

For the most part the engine maintenance will be contracted to the manufacturer or professional service providers qualified to work on the engines. The contract with these service providers will specify total conformance with GE maintenance manuals and procedures and the work will be conducted while the BEKON plant operators are present.

Other maintenance replacements such as the pumps, blowers, filter elements etc. will either be replaced by the BEKON plant operators or by qualified contractors under the supervision of BEKON plant operators. The material will be drawn from the inventory of on hand spares.

Provide a specific, itemized list of all major maintenance, repair and replacement activities that the Proposer plans to perform throughout the life of the Contract for the Facility, and state the dollar amount budgeted and the implementation schedule for each item, activity and piece of equipment. Note that this list, as negotiated, will be incorporated into the Contract so as to assure that proper maintenance, repair and replacement is performed, and that the Public Participants are not left with depleted assets requiring a major overhaul when the Contract expires.

The detailed list is included in the preceding section. The list breaks down into two basic components. The first are the CHP units' including the engines, generators, controls, heat exchangers and all other equipment supplied initially with the GE/Jenbacher package. The second is the assortment of pumps, blowers, valves and controls associated with the plant.

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CHP annualized costs – The annual cost of maintaining the CHP units according to General Electric specifications is \$11.00 per operating hour for each CHP for a total of \$176,000 annually. This assumes 8,000 operating hours per CHP and includes \$31,680 for the 4,5851,031 gallons of oil per CHP that are needed each year. This price is based on the maintenance contract offered to BEKON customers in Germany and is subject to minor price variation in the U.S. This annual operating and maintenance investment is sufficient to maintain the equipment in top operating condition for an indefinite period.

Plant annualized costs – The annual cost for maintaining the balance of the BEKON plant is \$220,000 and is based on the maintenance contract offered to BEKON customers in Germany. The price of a maintenance contract in the U.S. may differ slightly. This annual reinvestment will ensure a life expectancy of plant systems for at least 20 years and probably more. The physical and mechanical structures have a life expectancy exceeding 30 years so reinvestment in the plant at the 20 year point would be limited to the replacement of some of the piping and controls. Note that some of the planned replacements within the annualized costs are technology updates, for example replacement of the Windows-based control room computers.

BEKON plants are robust and long lived with very high terminal values. The simplicity of the basic design and operation of BEKON plants ensures consistent performance throughout their service lives.

RESIDUALS MANAGEMENT

- *Describe how Residuals will be handled (Residuals Management Plan).*
- *Describe how Residuals will be tested.*

Materials Recovery Facility

In the Base Case Proposal, the residuals will be conveyed to a skip toward the north end of the MRF. Upon filling of the skip, it will be tested for hazardous materials. If no hazardous materials are present, the residual will be disposed in the Landfill by Santa Barbara County. If hazardous materials are present, the waste will be handled as hazardous waste and transported to the appropriate hazardous waste disposal facilities.

In the Alternative Proposal, the residuals will be conveyed to the Gasification Facility where they will serve as feedstock for the gasification chambers.

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ODOR CONTROL

- *Describe the odor control measures proposed by the Proposer (Odor Control Plan) to prevent odors beyond the odor control boundary. Describe guarantees for odor control (Odor Guarantee) to be made by the Contractor and the Guarantor and penalties to be paid for nonperformance (to be incorporated in the Environmental Performance Guarantee).*
- *Identify other facilities operated by the Proposer using methods and technologies similar to the proposed Odor Guarantee, as well as their performance record and overall effectiveness in odor reduction.*

As mentioned previously, the MRF will be housed in a completely enclosed building operating under negative pressure. Such a design will prevent odors from becoming a nuisance to the community. Fragrance misters will also be installed for odor control.

BEKON facilities handle odorous wastes and produce Biogas as an intermediate product. Biogas consists primarily of methane, carbon dioxide, and hydrogen sulfide, and is also odorous. A key feature of the BEKON technology is that these odors are destroyed when the biogas is consumed in the CHP engine. There are three sources of odors within the BEKON Facility process and each is handled in a manner specific to its nature. A single large biofilter is common to the treatment of all three sources. They are as follows:

1. Delivered waste material (feedstock) – The feedstock, whether from a MRF or from source separated collection, will have odors. The BEKON Facility design incorporates a Delivery Hall where incoming material is deposited and temporarily stored. In some facilities the material arrives by conveyor and in others it arrives by truck. In either case, there must be a temporary opening to the atmosphere to allow the material to enter. The BEKON Delivery Hall is operated under negative pressure with large blowers drawing air from the delivery hall and driving it through a system of ducts to the large outdoor biofilter where the odors are eliminated.
2. Refueling the digesters – Every 28 days, the digestate resulting from the previous batch of feedstock is removed by wheel loader and a new batch of feedstock is placed in the digester. During this process some of the old material is mixed with new material to accelerate gas production. This activity occurs in the enclosed Mixing Area and within the open digester that is being loaded. Although the odors are enclosed in the building, it is necessary to ventilate the Mixing Area to maintain acceptable working conditions. The same ventilation fans that maintain negative pressure in the Delivery Hall provide fresh air to the Mixing Area. The Mixing Area has inlet air openings where fresh air flows in and the same air is exhausted through the biofilter for outdoor odor control. The Mixing Area operates under a

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slight negative pressure. This negative pressure ensures that any air leaks in the building structure have air flows into rather than out of the building.

3. Purging the digesters – As a prerequisite to opening digester doors for loading, the biogas within the digester must be purged. The purpose of purging is to remove biogas in a manner that it never mixes with air in proportions that would result in a volatile mixture. The patented BEKON process uses CHP exhaust and ultimately air in the purging process and forces the biogas out to the flare and then the final non combustible portion to the biofilter. The combination of combustion in the flare and exhausting to the biofilter completely contains the odors in the purging process.

The primary means of odor control is containment in a fully enclosed facility. In Europe some facilities are enclosed and some are not. There have been some incidents where unenclosed facilities have attracted odor complaints but this has only occurred during the startup phase when there have been isolated problems getting the digestion biology up to speed. There have been no complaints about odor from facilities that are in regular operation. There have been no complaints about enclosed facilities. The Santa Barbara facility is designed to be fully enclosed.

NOISE CONTROL

- *Describe noise control measures proposed (Noise Control Plan) to prevent off-site noise complaints. Describe guarantees for noise control (Noise Guarantee) to be made by the Contractor and the Guarantor and penalties to be paid for nonperformance (to be incorporated in the Environmental Performance Guarantee).*
- *Identify other facilities operated by the Proposer using similar methods and technologies similar to the proposed Noise Guarantee, as well as their performance record and overall effectiveness in noise reduction.*

As mentioned previously, the MRF will be housed in a completely enclosed building. This will prevent fugitive noise from becoming a nuisance to the surrounding community. Furthermore, the primary noise generators of the MRF operations include the wheel loaders and motors driving the conveyor system. Such equipment is manufactured with insulated housing to reduce vibration and thus noise.

BEKON's standard enclosed facility design contains embedded noise control features that almost eliminate outdoor noise. In addition a key feature of the technology is that facilities have few moving parts that create noise. The three noise sources within a BEKON facility are the GE/Jenbacher CHP units, building exhaust fans, and 25 ton wheel loaders. Noise control is achieved as follows:

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- The GE/Jenbacher CHP units are indoors and equipped with mufflers as well as heat exchangers and CLAIR emission control units that quiet the exhaust to very low levels.
- The building exhaust fans are indoors with the exhaust air passing through a sound muffling biofilter.
- Wheel loaders used for periodically refilling the BEKON digesters are equipped with mufflers and are operated indoors.

BEKON facilities are quiet and have not attracted any noise complaints in Europe. It has not been necessary to develop additional noise mitigation measures for these facilities. Furthermore the noise producing processes within the Facility are entirely predictable and consistent so there are no event based noise sources to contend with. Sound levels at a distance of 250 feet from facility walls are estimated to not exceed 75 dB (decibels).

TRRP - Summary of Liquid Tanks and Vessels

Tank ID	Capacity	Height (ft)	Diameter (ft)	Purpose	Location
P-1	150,000	41	25	Percolate storage	Containment area beside ADF
P-2	75,000	34	20	Percolate storage	Containment area beside ADF
P-3	75,000	34	20	Percolate storage	Containment area beside ADF
W-1	220,000	48	28	store well water for fire protection and domestic use	On ridge, NW of MRF
W-2	10,000	17	10	store well water for domestic use	Within MRF
RW-1	70,000	30	20	store recycled water for irrigation re-use	On ridge, NW of MRF
RW-2	5,000	14	8	store recycled water to pump to RW-1	Within MRF
CF-1	325,000	30	50	store compost area runoff	On plateau, North of Compost Area
CF-2	21,000	8x13x36	n/a	Baker tank to receive runoff	Spill containment pad beside compost area
CF-3	21,000	8x13x36	n/a	Baker tank to receive runoff	Spill containment pad beside compost area
U-1	4,950	TBD	TBD	Tank, Insulated, heat traced	TBD
D-1	TBD	TBD	TBD	Diesel	Adjacent to MRF, near loading bay
D-2	TBD	TBD	TBD	Diesel	Adjacent to MRF, near loading bay
D-3	TBD	TBD	TBD	Diesel	Adjacent to MRF, near loading bay
P-1	TBD	TBD	TBD	Propane Storage Vessel	Containment area beside ADF

Reference: 2013b. Personal Communication between Matt Dunn of URS Corporation and John Dewey, CEO, Mustang Renewable Power Ventures, LLC.

Attachment 4

Alternatives Technical Background Data

Existing Gas Probe Location for Methane Monitoring at SCRTS

Figure 1 Foothill Landfill Methane Gas Monitoring Points

Representative LEA Reports and Monitoring Records at SCRTS

Foothill Landfill-Landfill Gas Probe Monitoring Form

Plan View of Existing Facilities at SCRTS

Figure 1 South Coast Transfer and Recycling Station Traffic & Waste Flow Pattern

Grading Plan and Plan View for proposed MRF at SCRTS

Figure 5.6 SCRTS MRF Preliminary Site Plan

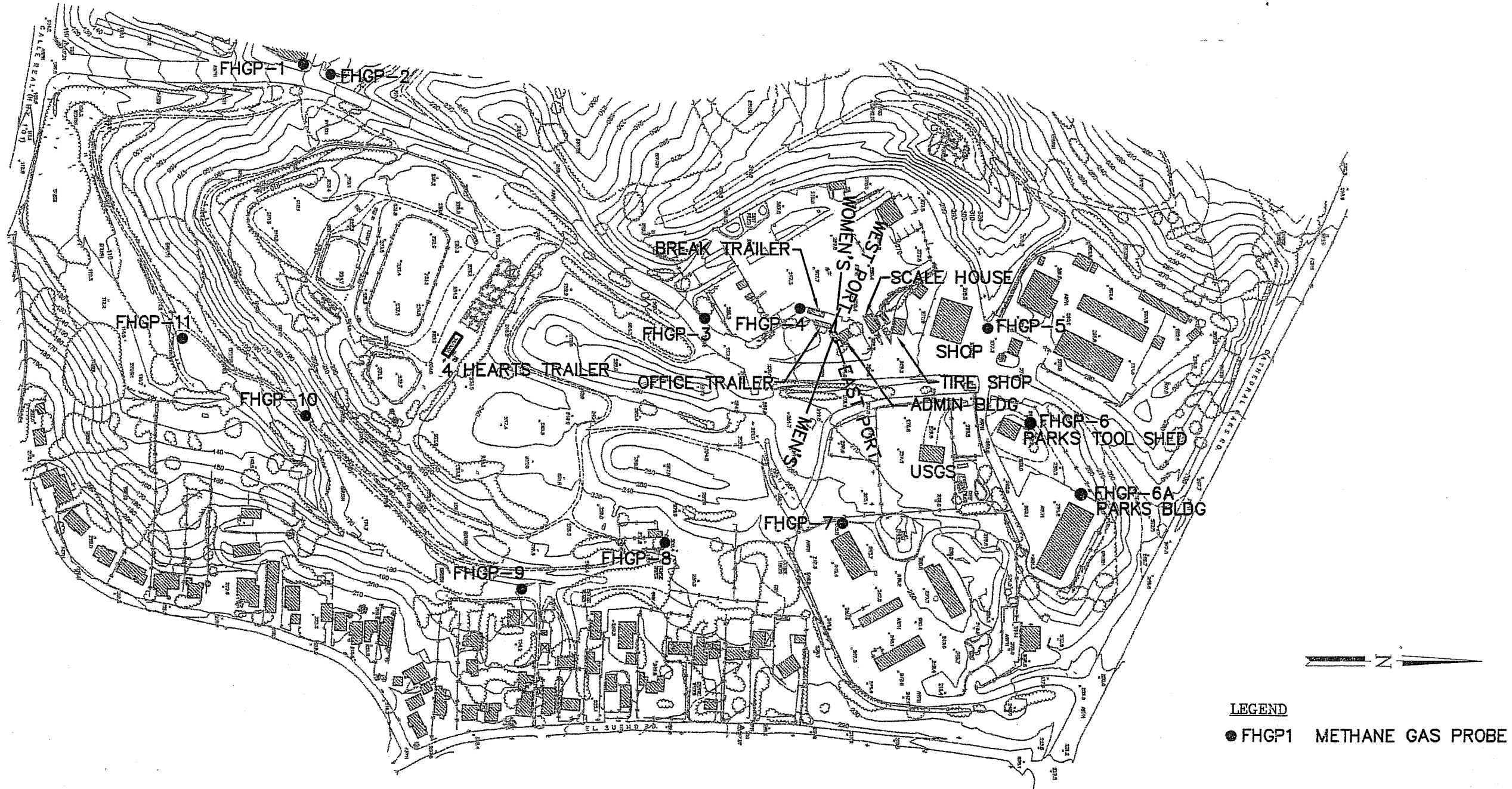
Figure 5.7 SCRTS MRF Preliminary Grading Plan

Plan View of Proposed MRF at MarBorg Site

Figure A1.0 MarBorg Industries MRF Development Plan

Plan View of Existing Drainage Basins at Engel and Gray

Regional Composting Facility Site Map



<p>COUNTY OF SANTA BARBARA DEPARTMENT OF PUBLIC WORKS SOLID WASTE & UTILITIES DIVISION</p>	<p>FOOTHILL LANDFILL METHANE GAS MONITORING POINTS</p>	<p>SCALE: 1"=300'</p>	<p>FIGURE NO. 1</p>
--	---	------------------------------------	----------------------------------

**FOOTHILL LANDFILL
LANDFILL GAS PROBE MONITORING FORM**

DATE: 04/08/13

INITIALS: JH

WEATHER: Clear 71

BAROMETRIC PRESSURE : 29.64

INSTRUMENT: Landtec GEM 2000

MONITORING PROBE DATA

Well No.	CH ₄ %	CO ₂ %	O ₂ %	Pressure (in. water)	Time	Probe Depth (ft)	Comments
FHGP-1	0.0	1.4	17.9	0.0	2:05 PM	6	Reading recorded after parameters stabilized
FHGP-2	0.0	3.1	16	0.0	2:02 PM	6	Reading recorded after parameters stabilized
FHGP-3	0.9	13.9	6.8	0.0	2:10 PM	6	Reading recorded after parameters stabilized
FHGP-4	0.0	5.1	16.4	0.0	2:13 PM	8	Reading recorded after parameters stabilized
FHGP-5	0.0	1.3	15.9	0.0	2:16 PM	6	Reading recorded after parameters stabilized
FHGP-6	0.3	13.5	7.2	0.0	1:40 PM	6	Reading recorded after parameters stabilized
FHGP-6A	0.0	3.9	16.4	0.0	1:37 PM	6	Reading recorded after parameters stabilized
FHGP-7	0.0	3	15.6	0.0	1:44 PM	6	Reading recorded after parameters stabilized
FHGP-8	0.0	3.4	16.6	0.0	1:48 PM	6	Reading recorded after parameters stabilized
FHGP-9	0.0	1.2	18.5	0.0	1:51 PM	6	Reading recorded after parameters stabilized
FHGP-10	0.0	4.6	15.3	0.0	1:56 PM	6	Reading recorded after parameters stabilized
FHGP-11	0.0	6.1	19.2	0.0	1:59 PM	6	Reading recorded after parameters stabilized

COMMENTS AND OBSERVATIONS:

ND = <0.1% or <1000ppm

**FOOTHILL LANDFILL
LANDFILL GAS PROBE MONITORING FORM**

DATE: 01/22/13

INITIALS:

WEATHER: Clear 72

BAROMETRIC PRESSURE (mb):

INSTRUMENT Landtec GEM 2000

MONITORING PROBE DATA

Well No.	CH ₄ %	CO ₂ %	O ₂ %	Pressure (in. water)	Time	Probe Depth (ft)	
FHGP-1	0.0	2.4	17.3	0.0	12:59 PM	6	Reading recor
FHGP-2	0.0	2.9	16.3	0.0	12:57 PM	6	Reading recor
FHGP-3	4.2	15.1	5.6	0.0	2:09 PM	6	Reading recor
FHGP-4	0.0	4.3	17.2	0.0	2:06 PM	8	Reading recor
FHGP-5	0.0	0.8	16.4	0.0	1:43 PM	6	Reading recor
FHGP-6	3.2	10.5	7.0	0.0	1:39 PM	6	Reading recor
FHGP-6A	0.0	1.8	17	0.0	1:37 PM	6	Reading recor
FHGP-7	0.0	3.1	15.7	0.0	1:32 PM	6	Reading recor
FHGP-8	0.0	3.8	16.0	0.0	1:29 PM	6	Reading recor
FHGP-9	0.0	0	19.5	0.0	1:25 PM	6	Reading recor
FHGP-10	0.0	4.1	14.6	0.0	1:23 PM	6	Reading recor
FHGP-11	0.0	6.1	13.8	0.0	1:19 PM	6	Reading recor

COMMENTS AND OBSERVATIONS:

ND = <0.1% or <1000ppm

FHGP10 valve missing. Replaced missing valve.

**FOOTHILL LANDFILL
LANDFILL GAS PROBE MONITORING FORM**

DATE: 07/25/12

INITIALS: JH

WEATHER: Clear 74

BAROMETRIC PRESSURE (mb): 29.59

INSTRUMENT: Landtec GEM 2000

MONITORING PROBE DATA

Well No.	CH ₄ %	CO ₂ %	O ₂ %	Pressure (in. water)	Time	Probe Depth (ft)	Comments
FHGP-1	0	0.9	19.3	0.0	1:32 PM	6	Reading recorded after parameters stabilized
FHGP-2	0	5.8	15.6	0.0	1:30 PM	6	Reading recorded after parameters stabilized
FHGP-3	0	10.2	10.2	0.0	1:17 PM	6	Reading recorded after parameters stabilized
FHGP-4	0.1	8.1	15.8	0.0	2:08 PM	8	Reading recorded after parameters stabilized
FHGP-5	0	1	19.3	0.0	1:11 PM	6	Reading recorded after parameters stabilized
FHGP-6	0	13.9	7.3	0.0	2:00 PM	6	Reading recorded after parameters stabilized
FHGP-6A	0	1.6	19.2	0.1	1:58 PM	6	Reading recorded after parameters stabilized
FHGP-7	0	8.4	10	0.0	1:52 PM	6	Reading recorded after parameters stabilized
FHGP-8	0	4.2	17.2	0.0	1:47 PM	6	Reading recorded after parameters stabilized
FHGP-9	0	0.8	19.8	0.0	1:44 PM	6	Reading recorded after parameters stabilized
FHGP-10	0	4.6	16.2	0.0	1:41 PM	6	Reading recorded after parameters stabilized
FHGP-11	0	7.1	14.1	0.0	1:38 PM	6	Reading recorded after parameters stabilized

COMMENTS AND OBSERVATIONS:

ND = <0.1% or <1000ppm

**FOOTHILL LANDFILL
LANDFILL GAS PROBE MONITORING FORM**

DATE: 05/25/12

INITIALS: JH

WEATHER: Clear 70

BAROMETRIC PRESSURE (mb): 29.47

INSTRUMENT: Landtec GEM 2000

MONITORING PROBE DATA

Well No.	CH ₄ %	CO ₂ %	O ₂ %	Pressure (in. water)	Time	Probe Depth (ft)	Comments
FHGP-1	0	2.6	18.1	0.0	1:08 PM	6	Reading recorded after parameters stabilized
FHGP-2	0	4.9	15.6	0.0	1:10 PM	6	Reading recorded after parameters stabilized
FHGP-3	14.9	23.9	3.1	0.0	1:15 PM	6	Reading recorded after parameters stabilized
FHGP-4	0	8.4	17.2	0.0	1:12 PM	8	Reading recorded after parameters stabilized
FHGP-5	0	1.3	13.9	0.0	1:53 PM	6	Reading recorded after parameters stabilized
FHGP-6	15.2	17.2	5.4	0.0	1:49 PM	6	Reading recorded after parameters stabilized
FHGP-6A	0	3.1	17.3	0.1	1:46 PM	6	Reading recorded after parameters stabilized
FHGP-7	0	7.5	7.1	0.0	1:40 PM	6	Reading recorded after parameters stabilized
FHGP-8	0	5.9	15	0.0	1:30 PM	6	Reading recorded after parameters stabilized
FHGP-9	0	1.2	19.1	0.0	1:28 PM	6	Reading recorded after parameters stabilized
FHGP-10	0	5.7	13.9	0.0	1:26 PM	6	Reading recorded after parameters stabilized
FHGP-11	0	8	12.4	0.0	1:23 PM	6	Reading recorded after parameters stabilized

COMMENTS AND OBSERVATIONS:

ND = <0.1% or <1000ppm

**FOOTHILL LANDFILL
LANDFILL GAS PROBE MONITORING FORM**

DATE: 01/04/12

INITIALS: JH

WEATHER: Clear 75

BAROMETRIC PRESSURE (mb): 29.85

INSTRUMENT: Landtec GEM 2000

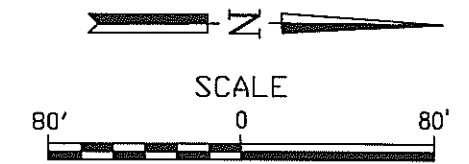
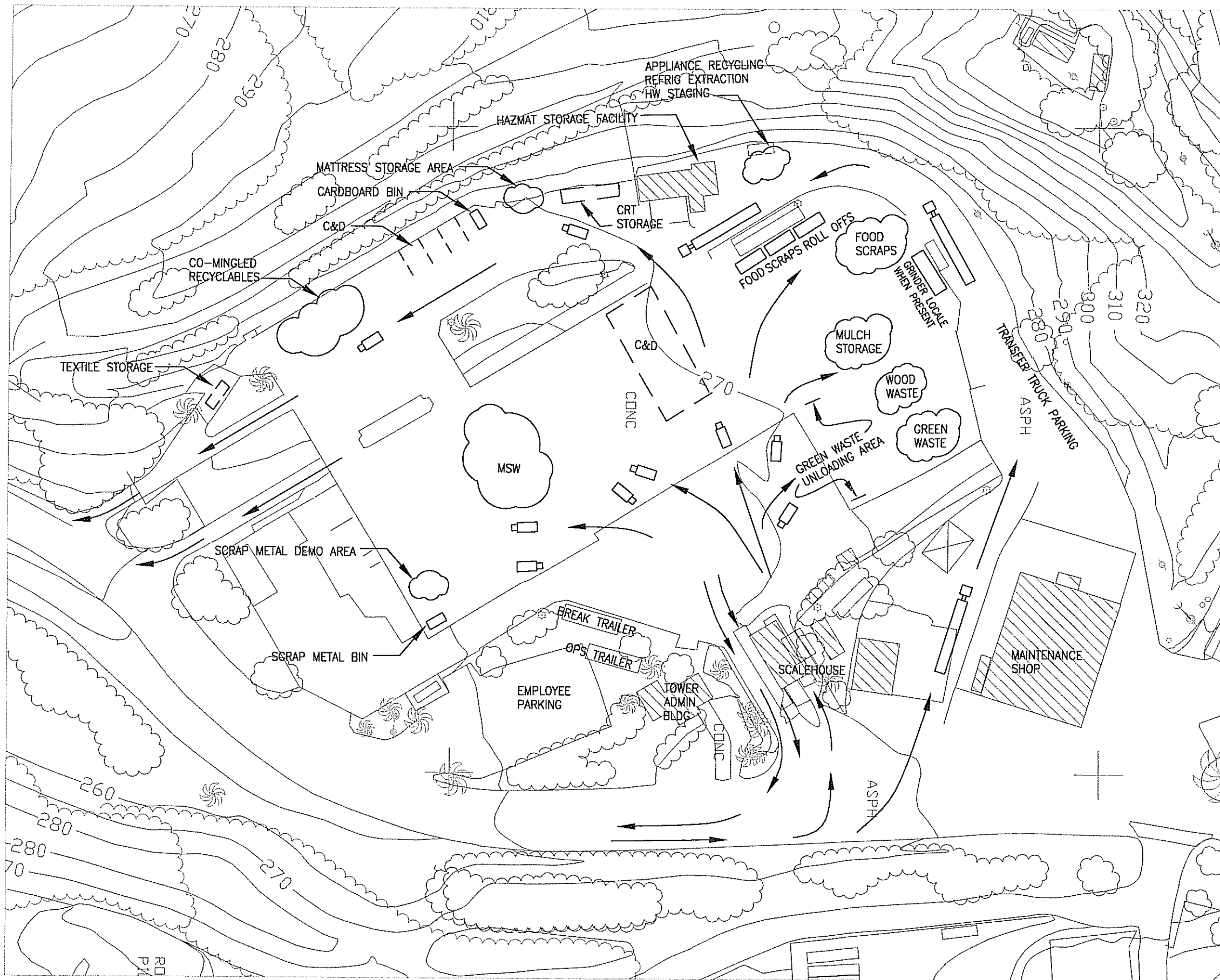
MONITORING PROBE DATA

Well No.	CH ₄ %	CO ₂ %	O ₂ %	Pressure (in. water)	Time	Probe Depth (ft)	Comments
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FHGP-2	0.0	4.3	6.3	0.0	1:22 PM	6	Reading recorded after parameters stabilized
FHGP-3	0.0	12.4	7.7	0.0	1:16 PM	6	Reading recorded after parameters stabilized
FHGP-4	0.0	5.7	17.7	0.0	1:14 PM	8	Reading recorded after parameters stabilized
FHGP-5	0.0	0.5	20.2	0.0	12:29 PM	6	Reading recorded after parameters stabilized
FHGP-6	0.0	10.5	9.3	0.0	1:50 PM	6	Reading recorded after parameters stabilized
FHGP-6A	0.0	0.9	19.2	0.1	1:47 PM	6	Reading recorded after parameters stabilized
FHGP-7	0.0	7.2	9.7	0.0	1:53 PM	6	Reading recorded after parameters stabilized
FHGP-8	0.0	3.9	16.7	0.0	1:38 PM	6	Reading recorded after parameters stabilized
FHGP-9	0.0	0.4	19.9	0.0	1:33 PM	6	Reading recorded after parameters stabilized
FHGP-10	0.0	4.1	15.9	0.0	1:31 PM	6	Reading recorded after parameters stabilized
FHGP-11	0.0	6.9	14.4	0.0	1:28 PM	6	Reading recorded after parameters stabilized

7

COMMENTS AND OBSERVATIONS:

ND = <0.1% or <1000ppm

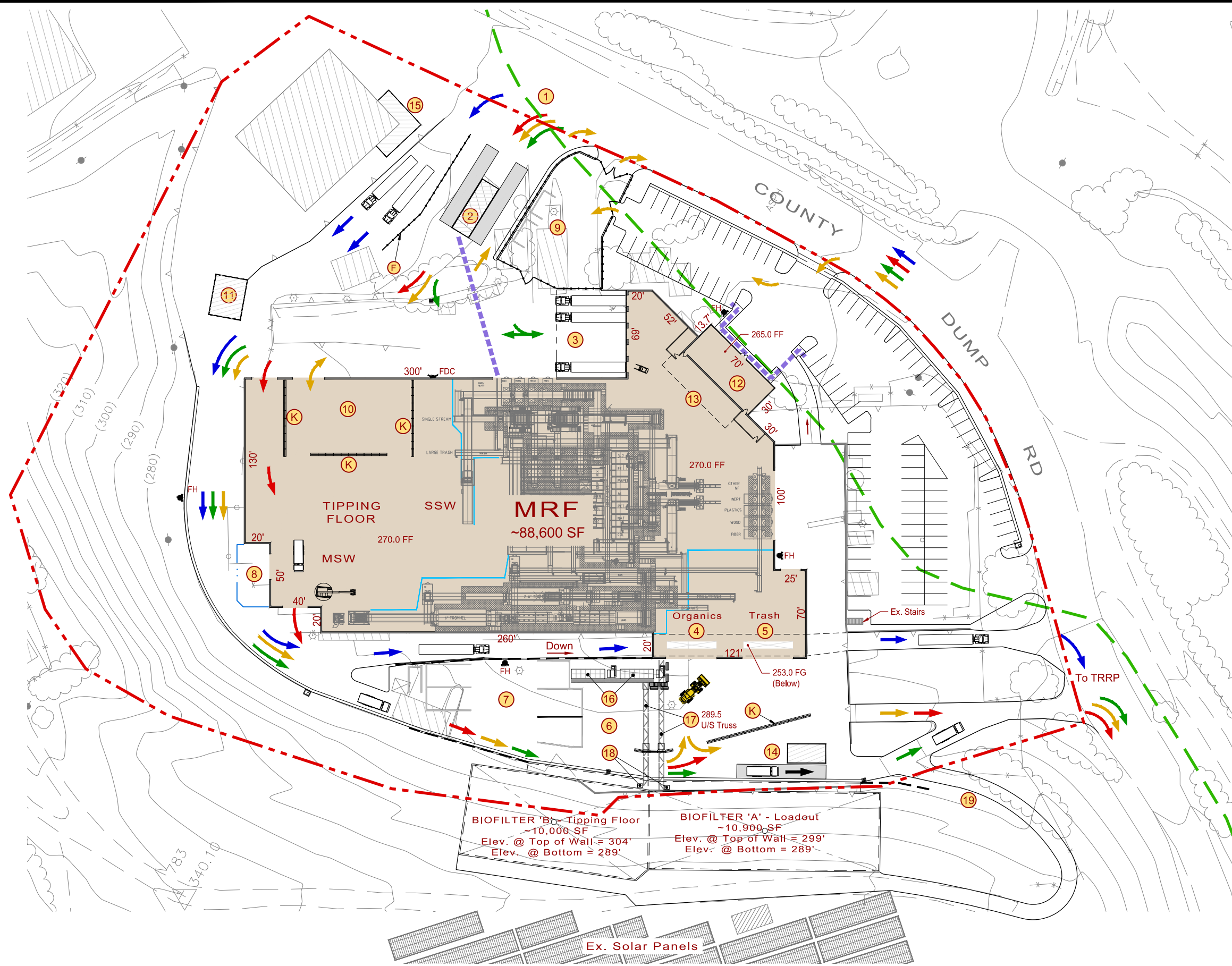


G:\GROUP\ENGINEER\TRANSFER STATION\RSI\FIG III-1 TRAFFIC FLOW TAB (June 2010).dwg

FIGURE I (Rev. June 23 2010)

REVISIONS:	CONSTRUCTION STARTED:	PROJECT ENGINEER:	COUNTY OF SANTA BARBARA DEPARTMENT OF PUBLIC WORKS RESOURCE RECOVERY & WASTE MANAGEMENT DIVISION	DESIGN BY:	CHECKED BY:	SCALE:	PROJECT NO.	SOUTH COAST TRANSFER AND RECYCLING STATION TRAFFIC & WASTE FLOW PATTERN	SHEET NO.
	CONSTRUCTION COMPLETED:	DATE		DRAWN BY:	CONSTRUCTABILITY REVIEW BY:	1"=80'	130000		OF
	RECORD DRAWING:			NGD					FILE NO.

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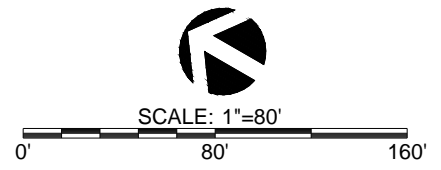
KEYNOTES

- ① Entrance
- ② Weigh Scales & Scale House (675 SF)
- ③ Recyclable Loadout Dock (with canopy or office over)
- ④ Organic Waste Loadout
- ⑤ Trash Loadout
- ⑥ Green Waste Drop-off & Mulch Area
- ⑦ Rubble
- ⑧ Various
- ⑨ Self-Recycleables, E-Waste & Universal Waste
- ⑩ Self-Haul Drop Off
- ⑪ Wash Rack
- ⑫ 3 Story Annex (offices, employee area, visitor center, 3rd floor is 50' x 70') Total Office 7,700 SF
- ⑬ Bale Storage (Office Above)
- ⑭ Weigh Scale & Scale House (450 SF)
- ⑮ 1 Story Addition to Maintenance Bldg. (~750 SF)
- ⑯ Dust Collection Units (2 - 26' x 7.5')
- ⑰ 3' Dia. Duct in 4' x 4' Box Truss (Overhead)
- ⑱ Humidification Units (2 - 3' x 4')
- ⑲ Biofilter Access Road (12' Wide, Paved)
- F Proposed Fence
- K Proposed K-Rail Barrier

LEGEND

- - - Existing SCRTS Permit Area (8.3 ac.)
- - - Reported Refuse Limit (Approximate)
- - - ADA Access Route
- Interior Partition Wall
- MRF Delivery
- Waste Loadout
- Recyclable Loadout
- Self Haul / Green Waste Delivery

Prepared by
John Kular Consulting
 10901 Rockridge Way, Bakersfield, CA 93311
 661-663-7732 kularconsult.com



Urban Area MRF Alternative 2
 South Coast Recycling and Transfer Station
Figure 5.6 - Preliminary Site Plan

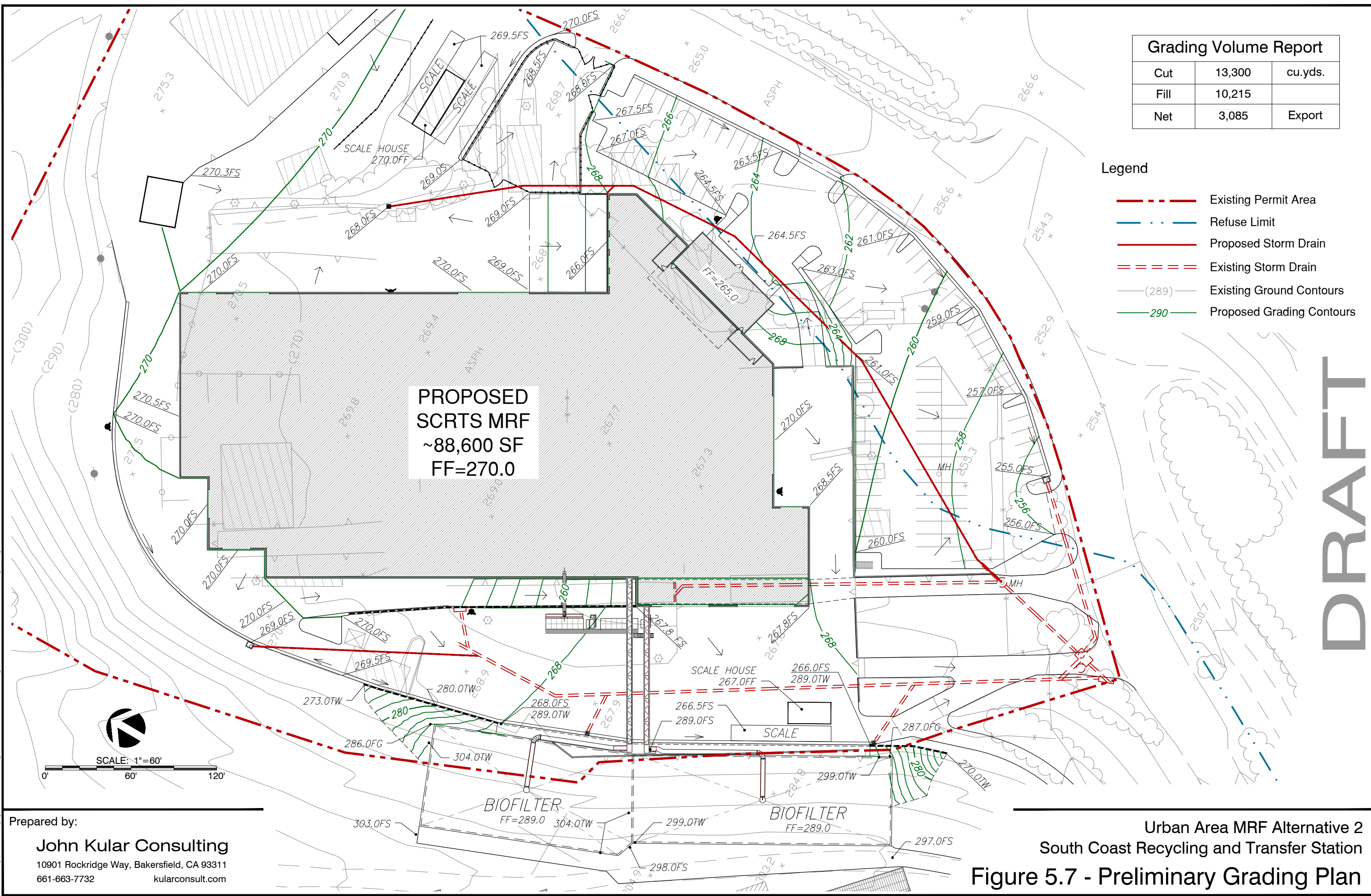
W:\Projects\Tajiguas\Drawings\CEQA\CEQA-Fig5.07-SCRTS-Grading.dwg 8/28/2013 4:26 PM

Grading Volume Report

Cut	13,300	cu.yds.
Fill	10,215	
Net	3,085	Export

Legend

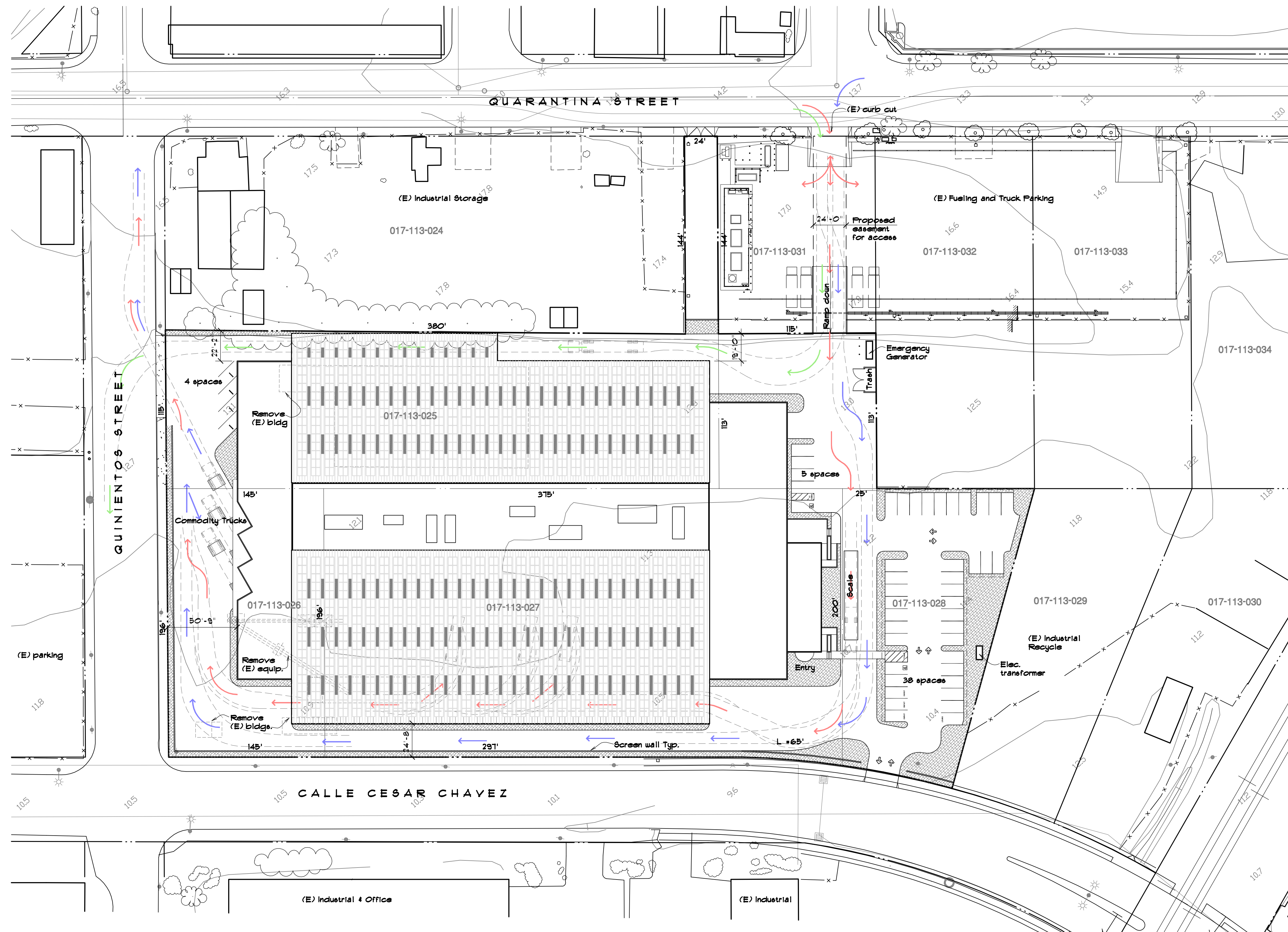
- - - Existing Permit Area
- . . - Refuse Limit
- Proposed Storm Drain
- = = = Existing Storm Drain
- () Existing Ground Contours
- Proposed Grading Contours



DRAFT

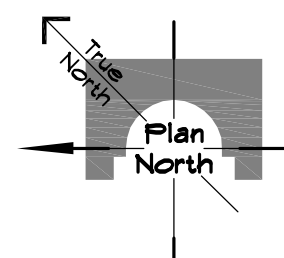
Prepared by:
John Kular Consulting
 10901 Rockridge Way, Bakersfield, CA 93311
 661-663-7732 kularconsult.com

Urban Area MRF Alternative 2
 South Coast Recycling and Transfer Station
Figure 5.7 - Preliminary Grading Plan



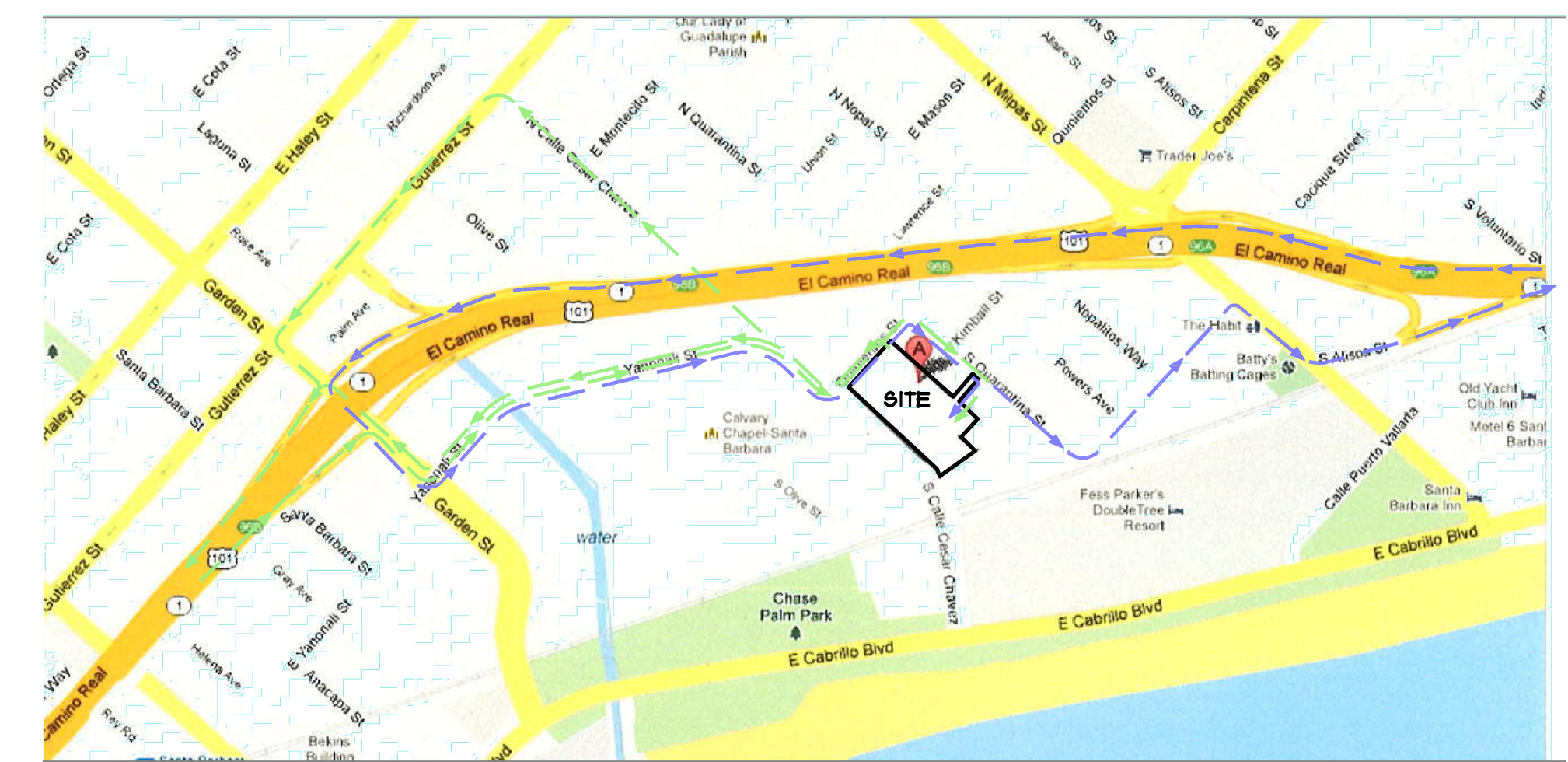
MRF Development Plan

0 20' 40' 80' 120'



Circulation Legend

- Collection Trucks
- Commodity Trucks
- Transfer Trucks



Vicinity Map • TRUCK ROUTES
No Scale

Project Information

Proposed Project:
Construct a Materials Recovery Facility (MRF) on property owned by MarBorg Industries at 620 Quinteros Street, Santa Barbara.

The MRF will receive, sort, and process mixed waste material and store recyclable materials to be shipped and marketed to end-users. The main function of the MRF is to maximize the quantity of recyclables processed, and to reduce the amount of material sent to the land-fill as well as process wastes into a fuel source for the production of energy.

There are basically four components of a MRF facility: sorting, processing, storage, and load-out. The operations within the MRF are designed to be as automated as possible to increase speed of operation, reduce costs and maximize recovery.

Existing Property Uses:
The property, which is located at the southeast corner of Quinteros Street and Calle Cesar Chavez, has a number of industrial uses.

- APN 017-113-025: MarBorg green waste and inert materials processing
- APN 017-113-028 & portion of -027: Concrete batch plant for ready-mix concrete.
- APN 017-113-031: portion to be subdivided into this project used for inert materials processing.
- APN 017-113-028 & portion of -027: vehicle and equipment storage and inert storage.

Land Use Information:

General Plan:
Zoning M-1(2D)-3 Light Manufacturing with Special District 3 overlay - Coastal Zone

Adjoining land uses:
East - APN 017-113-024: M-1 industrial storage
APN 017-113-031, 032 & 033: M-1 MarBorg vehicle fueling and storage
South - APN 017-113-029, 032 & 033: M-1 inert waste processing and storage.
West - M-1 industrial and related office uses.
North - M-1 parking lot and portable restroom storage yard and office.

Public Services: All public services currently available at the site.
Site Access: See site vicinity plan for MRF related vehicle proposed access to the site. Truck access to the site will be only from Quinteros Street and from Quarantina Street. Access from Quarantina St. will be over an easement on the adjacent MarBorg owned property (APN 017-113-031) which lines up with Carpinteria St. to the east. Only visitor and employee parking will access from Calle Cesar Chavez.

Development Land and Building Area:

Land Area:	APN 017-113-025	49,616 SF
	APN 017-113-026	22,472 SF
	APN 017-113-027	74,400 SF
	APN 017-113-028	23,369 SF
	APN 017-113-031 portion	13,050 SF
	APN 017-113-031 portion	102,927 SF
	Total	4.19 Ac

Existing Construction to be Removed:		
APN 017-113-025	Building	10,255 SF
	Paving	39,361 SF
APN 017-113-026	Building	774 SF
	Paving	21,698 SF
APN 017-113-027	Paving	74,420 SF
APN 017-113-028	Paving	23,369 SF
APN 017-113-031 portion	Paving	13,050 SF

Building to be Constructed:		
MRF		103,290 SF net
2 sty Visitor Ctr/Office/ Employee		3,872 SF
Total		107,162 SF net

Site Development Statistics:			
Site Area	182,927 SF	100%	
Bldg Coverage	106,222 SF gross	58%	
Parking/Drives	60,170 SF	33%	
Landscaping	16,535 SF	9%	

Ancillary facilities:
Emergency Power: Emergency electrical power system will be provided for emergency lighting and for office operations. Electrical demand for equipment is too large to accommodate.

Fueling Facilities: No fueling facilities will be provided on this site. Fueling facilities for CNG powered vehicles and equipment is currently located on adjacent parcels fronting Quarantina St.

Truck Scales: A single truck scale will be located on the south side of the building.

Solar Systems: Anticipate having approximately 41,000 SF of solar panels on west sloping roofs as shown on schematic building elevations.

Natural Interior Lighting: Anticipate having enough roof mounted skylights to eliminate the need for electrical lighting during normal daylight hours.

Parking & Site Circulation:
Truck Circulation and Site Access: All trucks are proposed to access the site from Quarantina St. at a location opposite Carpinteria St. intersection. The access will be over an easement on APN 017-113-031 which is owned by MarBorg Industries. On site trucks will either circulate through the building or around the south, west and north sides of the building onto Quinteros Street.

Visitors and Employee Site Access and Parking: All visitor and employee access will be from Calle Cesar Chavez directly into parking.

Required Parking:

MRF Building total area	103,290 SF	= 0 parks
Truck Circulation	22,711 SF	= 13 parks
Tipping/Sorting	64,758 SF @ 1/5,000 SF	= 13 parks
Processing	15,821 SF @ 1/500 SF	= 32 parks
Office/Visitors	4,000 SF @ 1/250 SF	= 16 parks
		61 parks
Buildings greater than 50 KSF		x 70%
		Total required
		43 parks

Parking Provided: 47 parking spaces provided
Bike Parking Provided: 7 bike parking spaces

Building Ventilation:
Building will be mechanically ventilated as required by the California Building Code. Equipment will be roof-top mounted within equipment enclosures and concealed by building roof shapes.

LMA ARCHITECTS

315 West Haley Street
Santa Barbara, CA 93101
(805) 963-3357 Fax (805) 963-2785
A California Corporation

Edwin A Lervik AIA
Consulting Architect



Revisions

Date	#	Remarks
02/05		Equipment
04/09		Enlarged Plan

Client
MarBorg Industries
128 E. Yonahli Street
Santa Barbara, CA 93103
(805) 963-1852

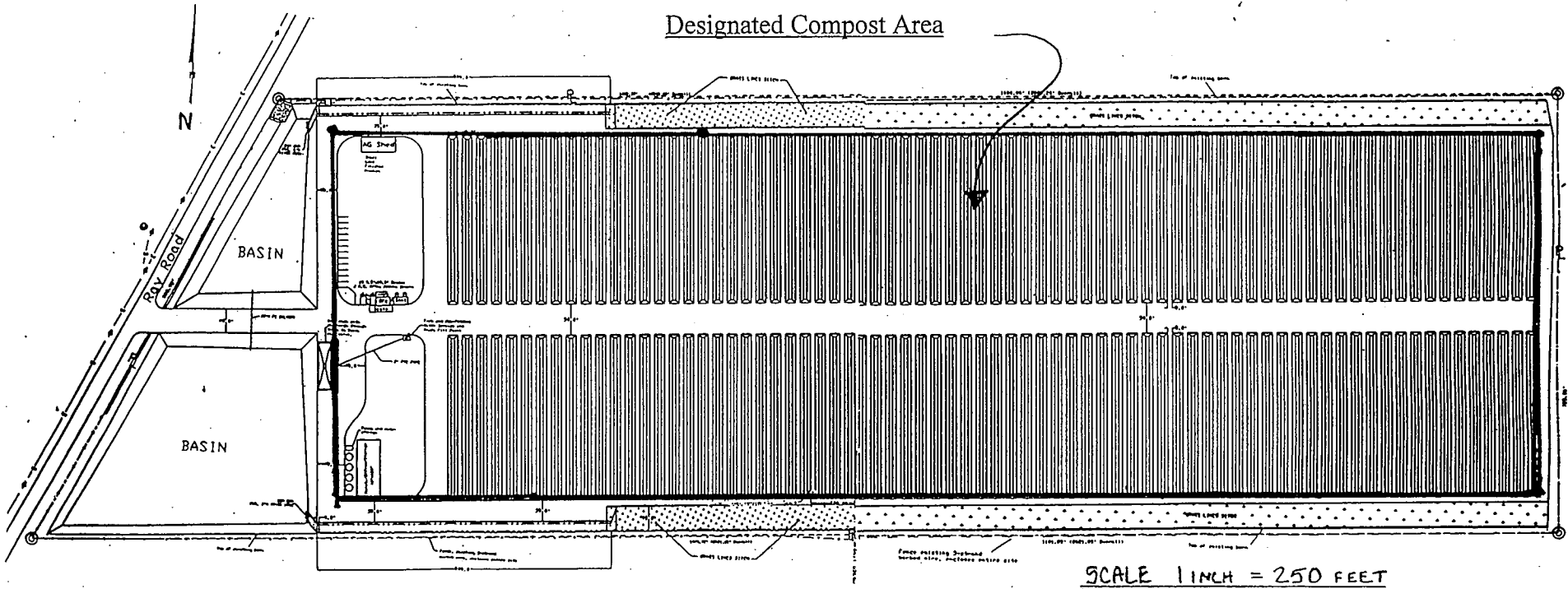
MarBorg Industries
MRF
Materials Recovery Facility
620 Quinteros Street
Santa Barbara, CA 93103

Development Site Plan

Date	01/04/13	Job Number	1220
Drawn By	TLB	Checked by	EAL
Sheet		of	Sheets

A1.0

ref: 1220a01tblk.dwg



ATTACHMENT II ENGEL & GRAY REGIONAL COMPOSTING FACILITY
SITE MAP

Attachment 5

Fire Hazard and History Maps

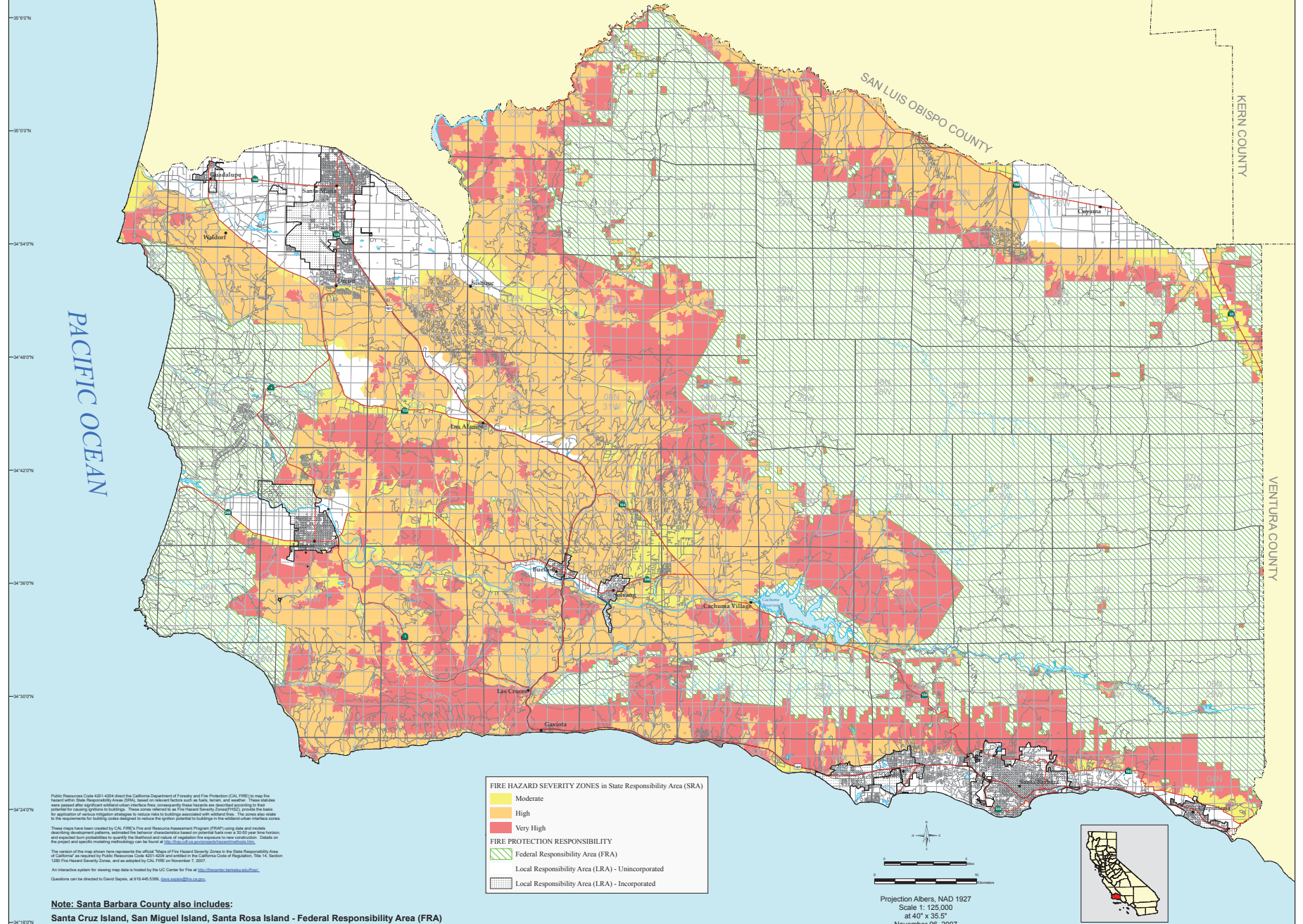
Map 1 Fire Hazard Severity Zones in State Responsibility Area

Map 2 Santa Barbara County Fire History 2012

Exhibit W-2 ADF and MRF Water Distribution and Fire Protection Plan

FIRE HAZARD SEVERITY ZONES IN SRA

Adopted by CAL FIRE on November 7, 2007



Public Resources Code 4201-4204 direct the California Department of Forestry and Fire Protection (CAL FIRE) to map fire hazard within State Responsibility Areas (SRA), based on relevant factors such as fuels, terrain, and weather. These data were prepared after significant wildfire activity elsewhere here, consequently these hazards are described according to their potential for causing damage to buildings. These areas referred to as Fire Hazard Severity Zones (FHSZ), provide the basis for application of various mitigation strategies to reduce risks to buildings associated with wildfire fire. The zones also relate to the requirements for building codes designed to reduce the ignition potential in buildings in the wildfire-urban interface zones.

These maps have been created by CAL FIRE's Fire and Resource Assessment Program (FRAP) using data and models describing development patterns, estimated fire behavior characteristics based on potential fuels over a 30-50 year time horizon, and expected burn probabilities to quantify the likelihood and rates of vegetation fire exposure to new construction. Details on the project and specific modeling methodology can be found at <http://www.fire.ca.gov/development>.

The version of the map shown here represents the official "Maps of Fire Hazard Severity Zones in the State Responsibility Area of California" as required by Public Resources Code 4201-4204 and entitled in the California Code of Regulations, Title 14, Section 1200 Fire Hazard Severity Zones, and as adopted by CAL FIRE on November 7, 2007.

An interactive system for viewing map data is hosted by the UC Center for Fire at <http://www.fire.ca.gov/development>.

Questions can be directed to David Segura, at 916-445-5708, dsegura@fire.ca.gov.

FIRE HAZARD SEVERITY ZONES in State Responsibility Area (SRA)

- Moderate
- High
- Very High

FIRE PROTECTION RESPONSIBILITY

- Federal Responsibility Area (FRA)
- Local Responsibility Area (LRA) - Unincorporated
- Local Responsibility Area (LRA) - Incorporated

Note: Santa Barbara County also includes:
 Santa Cruz Island, San Miguel Island, Santa Rosa Island - Federal Responsibility Area (FRA)

Projection: Albers, NAD 1927
 Scale: 1:125,000
 at 40° x 35.5"
 November 06, 2007

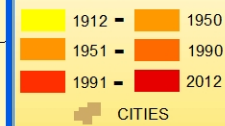


SANTA BARBARA COUNTY FIRE HISTORY 2012

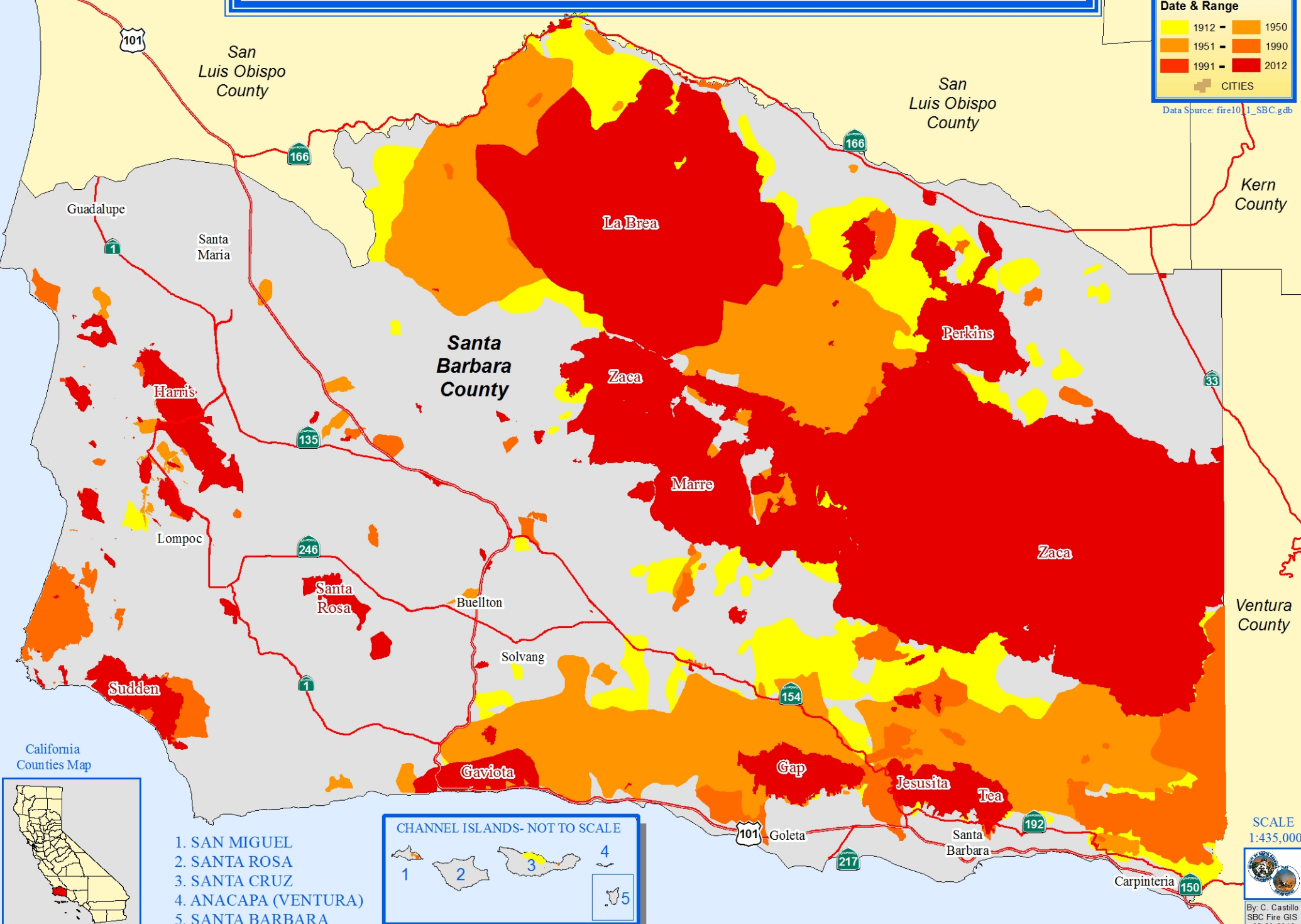
Legend

SBC Fire History

Date & Range



Data Source: fire10_1_SBC.gdb



California Counties Map



1. SAN MIGUEL
2. SANTA ROSA
3. SANTA CRUZ
4. ANACAPA (VENTURA)
5. SANTA BARBARA

CHANNEL ISLANDS- NOT TO SCALE



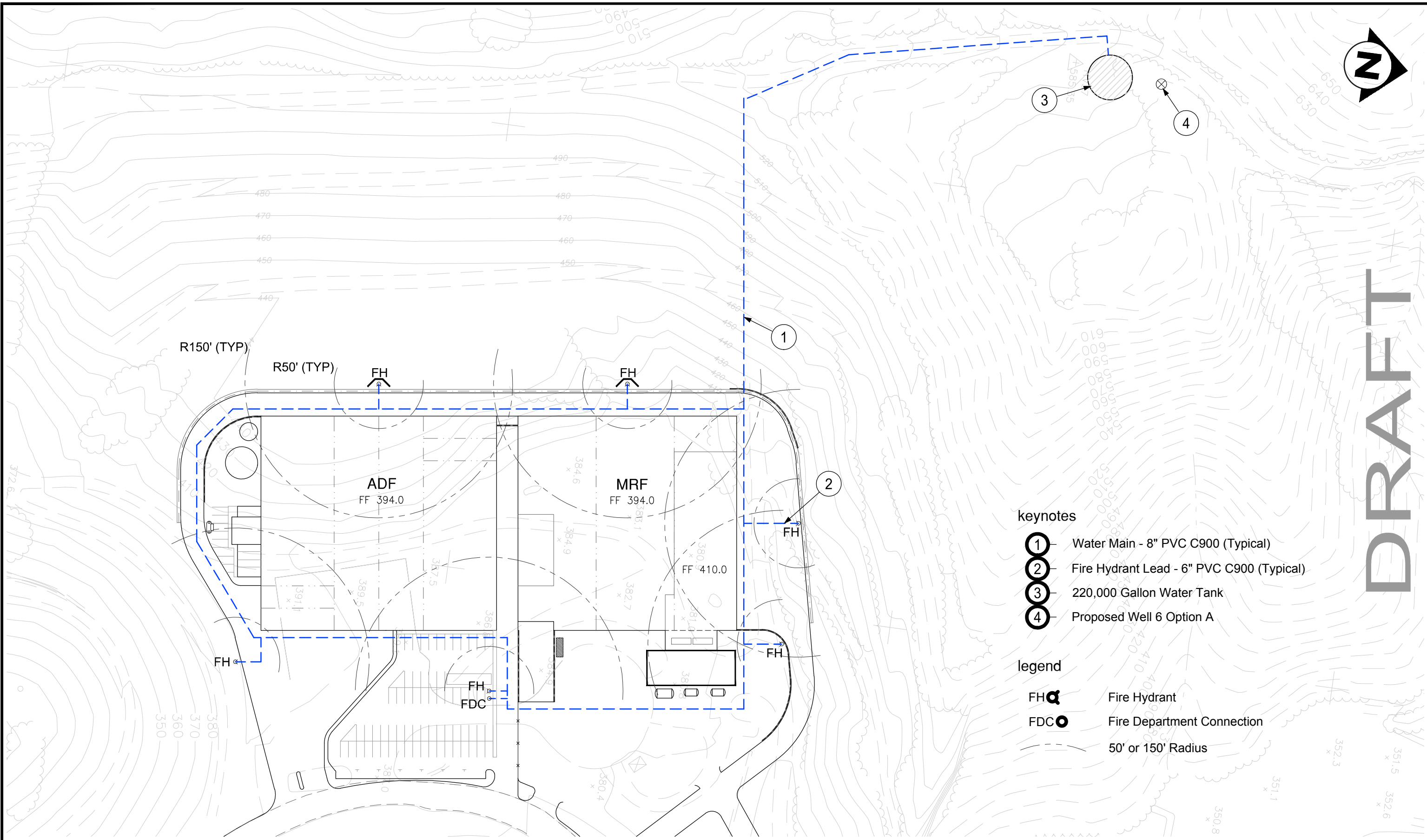
SCALE
1:435,000



By: C. Castillo
SBC Fire GIS
05-30-2012



DRAFT



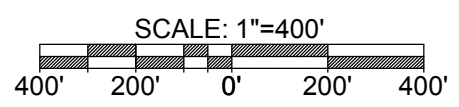
keynotes

- ① Water Main - 8" PVC C900 (Typical)
- ② Fire Hydrant Lead - 6" PVC C900 (Typical)
- ③ 220,000 Gallon Water Tank
- ④ Proposed Well 6 Option A

legend

- FH Fire Hydrant
- FDC Fire Department Connection
- 50' or 150' Radius

prepared by
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 10901 Rockridge Way, Bakersfield, CA 93311
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Tajiguas Resource Recovery Project
Exhibit W-2
 ADF & MRF Water Distribution and Fire Protection Plan
 7/18/2012