

WESTERN ELITE INC.

APPLICATION FOR A COMPOSTING FACILITY LINCOLN COUNTY, NEVADA

Prepared for:

Western Elite, Inc.
2745 North Nellis Boulevard
Las Vegas, Nevada
89115

August 19, 2015



Prepared by:
Converse Consultants
731 Pilot Road, Ste H
Las Vegas, NV, 89119

Table of Contents

Introduction

- Tab (a) – Materials to be Composted
- Tab (b) – Composting Plant Layout
- Tab (c) – Equipment and Personnel
- Tab (d) – Process Description
- Tab (e) – Volumes
- Tab (f) – Verification Program
- Tab (g) – Process Monitoring Program
- Tab (h) – Product Final Uses/Available Markets
- Tab (i) – Fire Prevention and Control
- Tab (j) – Odor Prevention and Control
- Tab (k) – Surface Water Run-on and Run-off Control
- Tab (l) – Litter Prevention and Control
- Tab (m) – Contingency Plans
- Tab (n) – Provisions for the Disposal of By-Products

- Plate 1 – Vicinity Map
- Plate 2 – Site Map
- Plate 3 – Process Flow Diagram

Equipment List

List of Revisions:

May 1, 2015	Original	Converse/WEI
June 18, 2015	Rev. 1	Converse/WEI
August 19, 2015	Rev. 2	Converse/WEI

**Western Elite Inc.
Application for a Composting Facility
Lincoln County, Nevada**

INTRODUCTION

Western Elite Inc. (WEI) is providing this application in response to the Nevada Division of Environmental Protection's (NDEP) request to separate the Class III landfill and make the composting plant's plan of operation a stand-alone document. The application is provided in accordance with the *Guidelines for Submitting a Compost Plant Application, NAC 444.670 System to Process Waste: Compost Plant (NRS 444.560)*.

The WEI Composting facility will be located directly adjacent to the Western Elite Landfill on U.S. Highway 93, mile marker 8, Lincoln County, NV, approximately 60 miles north of Las Vegas.

This application is intended to provide a set of operational guidelines to site management and personnel for day to day operation of the compost facility.

Tab (a)

Provide a description of the materials to be composted, including a characterization of the waste sufficient to evaluate the potential for biological or chemical contaminant migration in the event of a release;

Include a complete description of the materials along with an analytical characterization (lab analysis) of the wastes to be composted. It is not necessary to include an analysis for common compostables like hay, yard waste, etc, but be sure to include an analysis for wastes like Septage, Waste Activated Sludge (WAS), Dewatered Activated Sludge (DAS), Filter Cake. The Analysis will vary with the type of composting operation, for example the composting of dairy wastes will differ from the composting of sewage sludge as will the composting of yard waste (or wood wastes, etc). Be sure to speak to the nature of the type and volume of waste that is proposed to be composted.

Raw Materials

Raw materials that will be used for composting will include, but not be limited to; wood, lumber, cardboard, gypsum wallboard, green waste, and higher nitrogen containing materials including, but not limited to; manure, food waste, and bio-solids. High nitrogen raw materials will help balance carbon-to-nitrogen ratios and decrease the residence time of the compost.

Based on the following descriptions, WEI estimates that wood, lumber, cardboard, gypsum wallboard, and green waste components will make up the majority of the feed stock with the remaining high nitrogen materials making up the balance of the total volume.

Descriptions

- **Wood, lumber, cardboard, gypsum wallboard, green waste** – These materials are construction and demolition debris/waste that the WEI will accept from off-site sources. These materials do not create a potential chemical or biological threat in the event of a release. A waste characterization will not be submitted for these materials since they are inert.

- **Manure** – A mixture of horse and/or cow manure will be accepted at the facility when available to supplement the solids listed above. This material will be accepted from off-site sources from the Alamo and surrounding southern Nevada farmlands. This material has not yet been accepted at the facility.
- **Food Waste** – Food waste is accepted from off-site sources, namely casinos, restaurants and other related facilities that service the Las Vegas strip and southern Nevada.
- **Bio-Solids** – Bio-solids refer to treated residues from domestic sanitary sewage. This material has not yet been accepted at the facility. Material characterization will be performed and laboratory results provided to the NDEP once this material has been accepted at the facility.

All raw materials listed above will originate from off-site sources. No more than 10,000 cubic yards of the raw materials listed above will be staged onsite at any one time. In order to establish a baseline for the quality of the raw materials which will be used in our process, manure, food waste, and bio-solids will be sampled once this material has arrived onsite.

Baseline Sampling Regiment

Land disposal of bio-solids (which includes composting) are regulated under 40 CFR 503. There are no other established pollutant standards for the raw materials listed in this tab. Based on this, WEI proposes baseline analytical sampling of bio-solids in accordance with 40 CFR 503.32 (Class A sewage sludge) for the following parameters once bio-solids have arrived at the facility:

- Enteric viruses
- Fecal coliforms
- Helminth ova
- Inorganic pollutants
- Salmonella sp. bacteria
- Specific oxygen uptake rate
- Total fixed and volatile solids

Representative samples of the bio-solid material streams will be collected no less than once per year in accordance with 40 CFR 503.16. The samples will be shipped to a certified analytical laboratory accompanied by a chain of custody for chemical analysis using a standard turnaround time. Sample results will remain on-file at the facility for regulatory and/or consumer review.

In the event that standards for the above listed parameters are not met, corrective actions of the raw materials will take place. This could include tracking the possible cause of contamination through the analysis of all raw materials. If a source of contamination is identified, it will either be remediated and/or its usage as a raw material will be discontinued.

Tab (b)

A layout diagram of the plant showing property boundaries, fencing, roads, principal processing equipment, storage areas for stockpiles of incoming materials and intermediate and final products.

Include a scaled drawing (or drawings) showing the overall plant layout at a scale that provides sufficient detail to delineate the entire plant and individual processing areas. Include it on one (or more) 11 x 17 sheets. Include the run-on and run-off controls and property boundaries.

The compost facility is located on US Highway 93 at mile marker 8 in Lincoln County, Nevada, approximately 30 miles south of Alamo and 65 miles north of Las Vegas. The composting operation is located within the southern half of the southeast quarter, of the southwest quarter of Section 24, Township 11 South, Range 62 East, in Lincoln County, Nevada. The composting operation will occupy portions of Lot 1. Compost windrows will occupy approximately 25-acres mostly in the southern half of Lot 1. The WEI facility is not fenced and is surrounded on all sides by native undeveloped desert.

A vicinity map which identifies the proposed composting facility in relation to the WEI Landfill and surrounding area has been provided on Plate 1 in Appendix A.

A site map which identifies the composting facility within Lot 1 has been provided on Plate 2 in Appendix B. Roads, equipment locations, stockpile locations, run-on and run-off controls located within Lot 1 have also been provided.

Tab (c)

A description of the equipment and personnel necessary to operate the plant;

Include an equipment inventory and a listing of the personnel and their respective job duties and level of authority.

Equipment

The principal processing equipment necessary for the normal operation of the composting facility will be stored on-site and will include; one (1) wheel loader, one (1) water truck, one (1) tub grinder, and one (1) trommel screen. An equipment list which provides a photo of each piece of equipment, a model number for each piece of equipment, and specific processing capacities for each piece of equipment (if applicable) has been provided in Appendix B.

Personnel

Three WEI employees will be assigned as the principal personnel necessary for the normal operation of the composting facility. It is anticipated that the compost facility will operate 8-hours per day, 6 days per week, with the exception of holidays. Employees will work in 8-hour shifts. It is tentatively expected that shifts will be 8am to 4pm; however, this may vary slightly based on incoming volume.

A supervisor will be assigned to each work shift and will be responsible for monitoring trucks within the boundaries of the facility, directing trucks with unprocessed materials to proper dumping points, record keeping, and waste weight calculations.

One equipment operator will be assigned to the grinding/mulching portion of the facility. This operator will feed raw materials into the grinder and remove oversized materials (>3") from the trommel. Oversized materials will be feed back into the grinder. Any inert materials that are encountered will be removed and disposed of at the WEI Landfill.

A second equipment operator will then transport the mulched material to the composting area where it will be placed into windrows. This operator will also be responsible for loading outbound trucks with compost for market delivery.

Currently, the WEI Landfill Manager will act as the General Manager for the compost facility. The General Manager will oversee the entire composting operation and the principle personnel listed above. He will review analytical data and perform all regulatory liaison.

Tab (d)

A description of the process, with a schematic diagram, that shows loading and unloading areas and traffic flow routing.

Describe and show the flow of material through the site and provide it to scale. It should have some relation to the layout diagrams in Tab (b) but should show the flow of compostables through the site and their respective staging areas.

The composting process will consist of following steps:

Material Deliveries

Raw materials delivered to the composting facility are only accepted from known and pre-approved suppliers. Deliveries are weighed at the scale upon entering the facility. Raw material deliveries then proceed to the stockpile area for dumping in the appropriate stockpile. Dumping will be supervised by one of the personnel listed in Tab (c).

Inspection

WEI personnel will inspect every incoming load of raw material to assess its potential for use as compost. Each load of raw material received will also be checked for undesirable and suspect materials. If an in-coming load contains too many inert materials including plastic, metal, glass, and sharp objects, (more than 10% by weight), the material will be rejected. Rejected material will be disposed of in the WEI Landfill. Employees are trained to identify materials that may be unacceptable for composting (i.e. spray cans, solvent, paint cans or containers, insulation, containers holding free liquids, and related materials). Hazardous materials will NOT be accepted at the composting facility.

Grinding

A loader or similar piece of equipment will then convey raw materials into the "tub" grinder for size reduction. Water will be added to the tub grinder during the grinding process to increase moisture content and for dust suppression. During grinding, pulverized debris is forced through a steel grate at the base of the tub and falls to the ground.

Sizing

After the material is pulverized in the tub grinder, it will be transported and fed into a diesel-powered trommel screen by the loader. The trommel screen will size and segregate the pulverized material. Materials that fall through a 3-inch screen at the base of the trommel will be considered "*sized material or "product"*"

and will be placed into windrows where it will undergo aerobic decay. “*Oversized material*” (+3”) will comprise the remaining portion of the material. This material will be fed back into the grinder for further size reduction and the above described process repeated.

A process flow diagram which has a known scale and identifies unloading and loading areas, raw material stockpile, windrows, equipment locations, traffic flow directions, and the flow of materials through the composting facility has been provided on Plate 3 in Appendix B.

Tab (e)

The maximum inventory, by volume, of feed stocks, intermediate materials and products;

Provide the volumes of the raw materials (incoming wastes), compost (windrows volumes) and finished product that will be staged onsite at any given time.

Raw Material

Upon their arrival and acceptance onsite, raw materials will be placed into a commingled stockpile that will be no larger than 10,000 cubic yards in size. Please refer to Tab (a) for a list of acceptable raw materials.

Maximum Volume of Raw Material Onsite = 10,000 cubic yards

Processed Material/Finished Product

After the grinding and sizing process which was described in Tab (d), processed materials will be transported to the composting area where the material will be placed into windrows to undergo aerobic decomposition. The composting area will occupy the southern half of Lot 1. Starting at the east end of the area and working west, processed material will be placed into windrows (that run north/south) that are approximately 15 feet wide, 10 high and 240 feet long. Each windrow will be separated from the next by a 20-foot wide travel lane which will provide access for equipment and if necessary, emergency vehicles. Windrows and travel lanes have been laid-out on Plate 2 which is provided in Appendix B.

Processed Material Volume Calculation;

Cross sectional area of one windrow; $A = \frac{1}{2} \pi r^2$

$A = \frac{1}{2} \times 3.14 \times (10)^2 = 157$ square feet

Volume = 157 square feet \times 240 feet/windrow = 37,680 cubic feet/windrow

37,680 cubic feet \div 27 cubic feet/cubic yard = 1395.6 cubic yards/windrow

1395.6 cubic yards/windrow \times 36 windrows = 50,240 cubic yards

Approximate Total Windrow Volume Onsite = 50,240 cubic yards

Our research indicates that there will be an approximate 50% reduction in volume between raw material and finished product due to aerobic decay. Based on this we estimate the final volume of finished compost to be:

Approximate Finished Product Volume Onsite = 25,000 cubic yards

Finished product which is ready for market distribution will be removed starting from the eastern most windrow working towards the west.

The facility will allow no more than 10,000 cubic yards of “raw material” and 50,240 cubic yards of processed material to accumulate within the boundaries of the composting facility.

Tab (f)

Product specifications and a program to verify conformance with specifications;

Provide a verification program detailing the sampling regime and procedures that will be used to assure the specifications will be met.

WEI will produce high-quality compost for the market place. Our operation will conform to NAC 444.670. If WEI accepts biosolids we will also adhere to the standards for Class A sewage sludge as set forth in 40 CFR 503.32. Materials resulting from composting and offered for sale will meet the requirements relating to the maximum allowable density of fecal coliforms and salmonella sp. Any by-products removed during the process that meet the definition of an acceptable waste for a Class III facility will be disposed of in the adjacent landfill. If other “unknown” byproducts are encountered by WEI, they will be segregated, and Converse Consultants (or another qualified professional) will be notified and will coordinate the proper characterization and disposal of that byproduct material.

WEI’s final product will conform to the following Quality Standards listed in Table 1:

Quality Standards for Mature Compost

Table 1		
Indicator	Quality Standards for Mature Compost	
Visual	Parent material is no longer visible Compost is a mixture of fine and medium size particles	
Physical	Moisture; 30-40% Texture; Fine, $\leq 1/8$ " No sharp particles Will not reheat	
Odor	Humus odor No ammonia or anaerobic odor Innocuous	
Nutrients	Total Nitrogen	1.0 – 2.0%
	Carbon : Nitrogen Ratio	<17 : 1
	Total Organic Matter	20 – 35%
	pH	6.0 – 8.0
Pathogens	Salmonella	<3 MPN/4g of total dry solids
	Fecal Coliforms	<1,000 MPN/g of dry solids
Metals	Arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc	40 CFR 503.13 Tables 1,2, & 3.

--	--	--

In order to ensure that our mature compost will adhere to these specifications, the following sampling regiment will be followed on a quarterly basis for the first year provided our raw materials have not changed. This sampling regiment will then be performed on an annual basis thereafter. If biosolids are accepted at the facility, sampling will be performed in accordance with 40 CFR 503.16.

Final Sampling Regiment for Mature Compost

Size distribution – Percent by weight, volume and bulk density (>50, 25, 16, 9.5, 4.0, 2.0, and <2mm fractions).

Inert Materials – Plastics, metals, and glass will be <1% by weight. No sharp particles that could cause injury.

Nutrients – Total nitrogen, carbon/nitrogen ratio, total organic matter, pH

Biological – fecal coliforms, salmonella, viable weed seeds (if applicable).

503 Metals – Arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc.

Tab (g)

A program for monitoring the parameters of the process, including moisture content and temperature;

Describe the daily, weekly, and monthly monitoring program of quality assurance for the type of composting (windrow testing will vary from static piles or drum rolled techniques, etc). Include the type of instruments (temperature probe, etc.) proposed for the monitoring program.

Our quality assurance program for windrow composting will include monitoring for; temperature, moisture content, and ph. These parameters have been tabulated in Table 2.

Parameter	Frequency	Desired Range
Temperature	Twice Weekly	131 - 150°F
Moisture Content	Weekly	35 – 40%
pH balance	Weekly	6.0 – 8.0
Written records of monitoring results will be kept on site for regulatory and customer review.		

Temperature of the windrows will be monitored on a twice-weekly basis using a 36-inch *REOTEMP* compost thermometer or equivalent. The windrows will be turned as frequently as every two days or as seldom as once per month depending on the internal temperature of the compost. Windrows will be turned a minimum of 5 times during the composting process. The compost will be thermally cured and considered “final product” when the temperature has remained above 131°F for a period of at least 15 days.

Moisture Content of the windrows will be adjusted based on temperature. Insufficient or excessive moisture content will lower internal compost temperatures and slow the composting process. Given the location of the facility in the southern Nevada desert, we will endeavor to keep moisture content in the windrows between 35-40% to optimize aerobic decay. Water will be added to the compost as needed when the windrows are turned.

pH Balance will be measured on a weekly basis and should range from 6.0 – 8.0 standard units. Moisture and pH readings will be collected using a Hanna® Soil pH Meter or equivalent field instrument.

Oxygen Content in the windrows will not be monitored using a field screening instrument. WEI will ensure proper oxygen content and aeration of the material by controlling the amount of moisture in the windrows and making sure that the windrows are not over mixed.

The General Manager will be responsible for determining how often the windrows should be turned, how much moisture should be added, and how long the final product should be stored to meet product specifications listed in Tab F.

Tab (h)

A description of the final use for the compost or the available markets for the compost;

Provide the end user for the compost, depending on the type of material that will be composted (DAS versus yard waste) the end use will determine how much testing and verification may be necessary. For example, if septage is composted and sold to the public, then a strict following of the requirements of 40 CFR 503.32(a) will be required, with additional testing or quality assurance.

The composting process will take approximately 4 to 5 months from the time material arrives at the facility until the final compost product is available for end use. This time period may vary depending upon seasonal conditions. Final product will be sold by WEI directly to agricultural businesses in Lincoln County, Nevada and retailers throughout the state of Nevada. These companies may further sell the product to homeowners, contractors, or municipalities.

Tab (i)

Provisions for fire prevention and control;

In general provide a fire protection plan (not letting the pile get too hot, restricting combustibles, keeping flammables away, etc). Personnel are not expected to fight a fire. Provide an emergency escape plan for the site with routes of ingress and egress and a notification procedure for the local fire department and emergency services.

Compost windrows are monitored at least once per week and maintained at a temperature range between 131°F and 150°F in accordance with Tab (g). If temperatures are observed to climb above 150°F, the windrows will be turned and watered. Based on this program, it is unlikely that a fire will occur at the facility.

In the event that smoldering material is observed, a WEI operator will use a front end loader to remove the smoldering material from the static pile and transport it out of the area. The smoldering material will then be spread out and water or dirt will be used to cover and extinguish the material. A water truck will be ready at the static row when smoldering material is removed in-case the compost ignites.

WEI workers may also use hand held fire extinguishers which are provided on all equipment to extinguish small incipient stage fires. The Alamo substation will then be notified of the incident.

Fire hazards, egress routes and notification procedures specific to the WEI facility are discussed in the approved Integrated Site Wide Contingency Plan dated February 28, 2013.

Tab (j)

Provisions for odor prevention and control;

Provide any description of actions that will be used to prevent/control odors. This will vary from site to site and will also depend on the proximity to neighbors.

The facility is located in an undeveloped area of Lincoln County, Nevada. The nearest inhabited dwelling to the north is located in Alamo which is 30-miles away. The nearest neighbor to the south is the Coyote Spring property. Odor problems should be further diminished by prevailing winds which are predominately out of the south. These combined with the homogenous nature of the feedstock should mitigate the impact of off-site odors.

WEI will manage unprocessed and processed materials to minimize the development of conditions that could lead to odor problems. In general, the potential for odor problems decreases as the composting cycle progresses and temperatures within the compost piles increase.

Please note that even with the best management practices, some level of odor should always be expected at any composting facility.

Tab (k)

Provisions for the control of surface run-on and run-off;

This will vary from site to site and will incur greater controls for sites that are in areas of greater precipitation. Locate (site plan) and describe the barriers/berms that will be installed to provide run-on (controls used to divert waters away from the site) control and control any run-off (controls that are used to control waters that fall on the site). Include evaporation ponds as necessary.

Run-On and Run-Off Control

Surface water movement in the vicinity of the composting plant is generally from the northwest to the south east. WEI has created earthen berms along the north, south, and west boundaries of the facility to shield the facility from potential run-on and run-off hazards. Precipitation that collects inside of the composting plant is expected to drain to the southeast corner where it will likely collect and be subject to evaporation. The amount of precipitation is expected to be minimal.

The layout of the composting plant area is depicted on plates 2 and 3 provided with this application.

Tab (I)

Provisions for litter prevention and control;

Include a description of how the site will be policed for stray litter, material, odds, and ends.

The composting facility will be maintained in a neat and orderly manner. Incoming loads are pre-screened for non-acceptable materials and large amounts of lightweight debris prior to tipping. Any loads that do not meet this criteria will be directed to the Class III landfill. The area surrounding the co-mingled materials pile and the compost plant will be surveyed by employees on a daily basis and all scattered paper and other lightweight debris will be gathered and placed in the adjacent Landfill. During extremely windy conditions, activities that could lead to windblown litter will be curtailed.

Tab (m)

Contingency plans to be followed in the event of emergencies and unforeseen circumstances that may occur at the facility. The plans must provide, at a minimum, for an organized and coordinated course of action to be taken and address the following situations:

- 1) A fire at the facility;**
- 2) A release of hazardous or toxic material; and**
- 3) The shutdown of the facility for any reason; and**

Provide a course/plan of action that accounts for the employees during the event, notifies the authorities and assures that the safety of the employees is considered.

ISWCP

The WEI compost plant is located on a portion of the WEI landfill. The WEI landfill has an approved Integrated Site Wide Contingency Plan (ISWCP) which outlines in writing “plans of action” to be followed by site personnel in response to various incidents that could arise during operations. WEI personnel who are working at the compost plant will be the same personnel who are working on the landfill. As such, the provisions of the ISWCP are mandatory for all WEI workers and visitors within the compost plant. Following is a summary some contingencies that could occur at the compost facility.

Fire

Since the compost will be monitored for temperature change as discussed in Tab (g), the chances of a fire are low. The facility is equipped with a water truck and site vehicles are also equipped with fire extinguishers. In the event that smoldering material or an incipient stage fire is observed, the material will be extinguished using the water truck or hand held fire extinguishers. Proper response to a fire at the facility is further discussed in WEI's ISWCP Section 7.2.

Release of Hazardous or Toxic Material

The raw materials used at the facility are biological in nature; therefore, it is unlikely that the operation will produce any hazardous or toxic materials. The facility is also isolated/surrounded by large tracts of native and unoccupied lands. Based on the nature of the operation, if a release were to occur at the composting facility, it would likely be hydrocarbons (gasoline or oil) from service vehicles related to the composting operation; however, the likelihood of this is slim.

In the event of a release of hydrocarbons from a service vehicle in excess of 25 gallons or 3 cubic yards of contaminated material, the General Manager or his designated agent will notify the Nevada Division of Environmental Protection by the end of the first working day after the release. The notice will be by telephone at 1-888-331-6337.

In response to a release the General Manager shall take corrective action to prevent recurrence of the incident. The corrective action shall be approved by the appropriate state and local agencies and the Nevada Division of Environmental Protection. Chemical releases are further discussed in Section 7.1.2 of the ISWCP.

Acceptable and Prohibited Wastes

As with the landfill, load inspections will be performed by compost plant workers prior to tipping each load. Wastes that are acceptable and prohibited are discussed in Sections 4.5 and 4.6 of the ISWCP. Rejection of loads are discussed in detail in Section 4.8 of the ISWCP. In the unlikely event that prohibited wastes are accidentally accepted, appropriate response actions will be taken by compost plant workers. Response actions for accidentally accepted wastes are discussed in Section 4.9 of the ISWCP.

Disposal of Byproducts from Processing

Byproducts of the composting operation that meet the definition of a Class III waste will be disposed of in the adjacent landfill. If other “unknown” byproducts are encountered by WEI personnel, those byproducts will be segregated, Converse will then be notified and will coordinate proper characterization and disposal of that material.

Operational Shutdown

During certain emergency situations, operations at the compost plant may need to be shutdown. If this were to occur, personnel and visitors located at the compost plant would be required to cease operations and assemble at the scale house at the front of the facility until given further instructions. Operational shutdown procedures are further discussed in the ISWCP in Section 13.6.

Facility Shutdown

Under extreme situation, a shutdown of all landfill operations could occur and all personnel and visitors located throughout the landfill, including the compost plant, would proceed immediately to the scale house. Using the visitor sign in sheet a head count would then be performed and all incoming loads would be

notified to proceed to other dumping locations. Facility shutdown procedures are further discussed in the ISWCP in Section 13.7.

Personnel Protective Equipment

At a minimum, Level D personal Protective Equipment (PPE) will be required while working in the compost plant. This will include (as listed in Section 10.2 of the ISWCP); fluorescent safety vest, steel toe boots, and hearing protection.

Fire Prevention and Response

Fire prevention at the compost facility will be WEI's number one priority. While the compost operation will provide environmental benefit to the community and economic benefit to the company, WEI realizes that these things cannot come at the expense of the health and safety of WEI workers, the public, area communities, and the surrounding lands.

Our research and knowledge indicates that the vast majority of compost fires occur when piles become too large, too deep, too dry, and too porous. These elements can often times occur unknowingly to facility operators if piles or rows are not uniformly turned, watered, monitored, and attended. Ignored compost piles or even piles of segregated byproducts that are not properly attended can generate excessive heat and begin smoldering in a short period of time. Improper handling of smoldering material, and/or inadequate fire backup during the segregation of smoldering material from the piles or rows can ignite smoldering material. Once the compost has ignited, a fire can quickly become unmanageable, especially during windy conditions. Once ignited, large compost fires can burn or smolder for months or even years.

Compost fires at the Hornsby Bend Compost facility in Austin, Nevada and the Diamond Tree Mulch operation in South Salt Lake City, Utah are good examples of large operations where small areas deep within large compost piles began smoldering. Although not specifically known, compost at these two facilities likely ignited when the smoldering material was exhumed and introduced to large quantities of oxygen. Strong winds at both of these facilities only helped to exacerbate these fires. The compost fire on the Moapa tribal lands in Clark County Nevada is another good example. Although not specifically documented, this fire is very likely the result of an unmanaged and ignored pile of material. Since this incident took place on tribal lands, this operation did not have the benefit of proper regulatory guidance and oversight. Based on what we know this pile was likely just a place to dump materials, and not a compost plant properly operated and monitored. Without proper regulatory oversight it is also uncertain if prohibited materials (e.g., tires, plastics, liquids, drums) were introduced into the pile. Prohibited materials can increase the likelihood of auto-ignition, accelerate the spread of the fire, and off-gas hazardous fumes, vapors, and residues into the environment.

WEI's compost operation is comprised of windrows which are more easily monitored and attended than large static compost piles which were discussed in the previous paragraph. WEI will manage up to 36 windrows, each one 15 feet wide, 10 feet high, and 240 feet long. Travel lanes between windrows will be approximately 20-feet wide. Total starting volume of the 36 windrows will be roughly 50,000 cubic yards. Approximately 10,000 cubic yards of raw material may be staged in the compost plant area at any one time. In order to help prevent a compost fire, WEI will employ the following,

Fire Prevention Procedures:

1. The WEI compost plant will be properly permitted by the State of Nevada
2. Stockpiled raw material will be size reduced and windrowed as soon as practical. Stockpiled raw material will be monitored for signs of oxidation and chemical fire on a daily basis.
3. If present, stockpiled byproduct will also be monitored for signs of oxidation and chemical fire on a daily basis.
4. Windrowed material will be uniformly mixed and adequately hydrated.
5. Windrows will be monitored twice weekly to ensure proper temperature range.
6. Windrows will be monitored at least weekly for proper moisture content.
7. Windrows will be monitored at least weekly for proper pH range.
8. Data collected during 6, 7, & 8 will be used to determine the appropriate intervals at which windrows should be turned.
9. Windrows will be separated by 20-foot travel lanes.
10. WEI staff will proactively look for hot spots in windrowed material. Condensing mist streams coming from the tops of windrows during early morning and late afternoon hours may be evidence of vents. WEI staff will also walk the tops of windrows looking for discoloration and vents. If vents are discovered, they will be probed for internal temperature and corrective actions will be taken based on the observations which are made. The temperature of the hot spot (and the compost in general) can then be manipulated through the removal of water (aeration) or addition of water (hydration).
11. As a precautionary measure, a water truck will be present next to the wheel loader when smoldering material is exposed and removed from the windrow. If no visible flames are observed in the windrow, the water truck will then follow the wheel loader to an open area of the facility where the smoldering material will be saturated with water.

If there is visual or temperature data which indicates that compost has ignited, WEI will employ the following,

Fire Response Procedures

1. At the first sign of a compost fire, an Operational Shutdown of the compost plant will occur in accordance with the ISWCP Section 13.6. Local fire authorities (Alamo substation) will simultaneously be notified as will WEI's SSO and CHSO.
2. The wheel loader operator, under the supervision of the Landfill Supervisor will then begin the task of locating the fire within the windrow. (Remember, this may not be a visible surface fire. Flames may be located within the material in a loosely packed region of the windrow). Locating the fire will be accomplished by carefully (slowly) removing material from the windrow. The WEI water truck and the local responding fire truck (if present) will be ready to extinguish any visible flames as quickly as possible. The wheel loader will continue to slowly explore and remove material, and extinguish any visible flames in the windrow and also in the loader bucket. Exposing burning compost to the atmosphere and the subsequent increase in oxygen will accelerate the fire, so material **MUST** be removed slowly and visible flames **MUST** be extinguished quickly! (Windy conditions will increase the risk of surface ignition even more.) This procedure will continue until the Landfill Supervisor is certain that the biological fire has been extinguished. Temperature readings from adjacent material in the windrow will also be collected and used to help determine that the fire has been suppressed.
3. Because of the relatively small height and width dimensions of the windrows, fire breaks can also be made quickly and easily in the windrows. Fire breaks should be placed north and south of the fire using a wheel loader. Fire breaks will serve to isolate that portion of the windrow which is on fire from the remaining stable compost. Fire breaks will be especially beneficial during windy conditions, where a fire could grow rapidly out of control. Prior to creating a fire break, screening of the internal temperature of the windrow should be performed and below 150°F.
4. Safety is paramount during fire response procedures. Personnel should never work from the top of the windrow during a fire response. The material you are standing on could ignite rapidly and with little warning. Fire response activities should be performed from the water truck or the loader when practical. Travel lanes between windrows are 20 feet wide. Vehicles should be situated so they can leave the area quickly in the event the fire grows beyond incipient stage. Fire response personnel and vehicles should approach from upwind or cross wind, especially if conditions are smoky and visibility is low. A sudden flare up may also spread rapidly in a down wind direction, so again, approach from an

- upwind or cross wind direction is advisable. Responder numbers should be kept to a bare minimum. Only those people directly involved in the response should be involved. No spectators.
5. Once the biological fire has been extinguished, WEI will provide a fire watch for a period of 24 hours to ensure that re-ignition does not occur. Two employees will be present (buddy system) at all times during the fire watch. The water truck will be recharged in necessary and present during fire watch. Internal temperatures of nearby windrows should also be periodically monitored.
 6. Compost material that was removed and saturated during the fire response should be placed in an open area of the landfill and allowed to dry. Depending on its condition after drying it can be returned to the composting plant for further processing or disposed in the adjacent landfill. Stable compost which was removed to create fire breaks can be placed back into windrows within the plant.

Tab (n)

Provisions for the proper disposal of by-products;

For the by-products that cannot be composted, identify a disposal option (local landfill, etc).

This operation is not intended to produce any byproducts. Only “clean” raw materials from a known source will be accepted for composting. Each load of raw material received will be checked for undesirable and suspect materials. If an in-coming load is observed to contain inert material (including plastic, metal, glass, and sharp objects) the General Manager will make a decision to remove the materials by hand prior to grinding, or disposed of the material in the adjacent WEI Landfill. Materials which are not successfully reduced during grinding will be returned to the grinder for further size reduction or disposed of in the adjacent landfill provided they meet the definition of a Class III waste.