3. *Floodplain Information:*

Attach a flood map. The Federal Insurance Administration (FIA) of the Federal Emergency Management Agency (FEMA) Map Service Center *produces flood maps that have information on flood areas. If a FIA flood map is not available for an area, use an equivalent mapping technique to determine whether the facility is within the 100-year floodplain, and if so, what the 100-year flood elevation is. The U.S. Geological Survey, the Soil Conservation Service, the Water Management Districts, and the Regional Planning Councils also have information requested in this section.*

The FEMA Map Service Center uses the Flood Insurance Rate Maps (FIRM) to identify flood hazard areas in various parts of the nation. Figure I B 4 contains a portion of the FIRM map that shows the Triumvirate Environmental site. The FIRM map enclosed is identified as the Community Panel Number 12095C 0420E, last revised on December 6, 2000. Another flood map provided by the Orange County storm management division through their Flood Map Update Project in Orange County is also attached as Figure I B 5. The active facility was surveyed in 1994. This survey, attached as Figure II A 4, shows the elevations of the active facility. Based on this survey, no treatment or storage occurs in the 100-year flood plain.

Figure I B 5 shows the proposed floodplain map from Orange County Info map that was updated in 2007. This map is part of the "Flood Map Update Project in Orange County" which is a joint project between Orange County Public Works and FEMA. These organizations recognize that significant changes have occurred in surface water flow and drainage patterns. These changes are related to land development, erosion, land use and other natural forces. FEMA flood maps from 2009 are also attached . This map is provided because it shows the majority of both lots of the Triumvirate Environmental (Florida), Inc. Rocket Blvd facility outside the 100-year floodplain. There may be a small area in the vicinity of the Rocket Blvd. entrance that is actually in the 100-year floodplain.

If the site is located in the 100-year floodplain, identify the 100-year flood level and any other special flooding factors (e.g. wave action) which must be considered in designing, constructing, operating, or maintaining the facility to withstand washout from a 100-year flood.

As indicated in Figure I B 4 in Part I, the TEI site is located in a 100-year floodplain designated as Zone AE, per the 2000 map. Per the legend on this figure, Zone AE refers to areas where base flood elevations have been determined. Exhibit II.A.3.-1 contains a copy of a Flood Zone Determination (FZD) issued by the Stormwater Management Department of Orange County of Florida. The FZD sheet states that the base flood elevation (100-year flood level) for the Triumvirate Environmental site is 90.7 feet. Figure II A 4 contains a topographic survey map dated March 1994, which shows that the ground surface elevation on the active portion of the site area "the original lot" is above the base flood elevation of 90.7 feet. Only areas covered by the former stormwater retention pond and the majority of the eastern property ("the new lot") are below the base flood level, per this figure. No process or waste handling area of the site will be affected by a 100-year flood event.

Special flooding factors are those hazards that may accompany a flood event and inflict damages in addition to the ones created by the effect of water moisture or submersion, which are mainly present in the form of strong currents and/or wave action. Wave action does not constitute a flood hazard for the Triumvirate Environmental site because the area is not subject to tidal conditions or exposed to large bodies of water. Current velocities for areas flooded by the West Branch Boggy Creek are listed in a document named Flood Insurance Study for Orange County, Florida, revised December 5, 1989, for an area identified as Community Number 120179, which was prepared by FEMA. Flood current values for the Triumvirate Environmental area appear in the study in the Floodway Data for Boggy Creek & East Branch Boggy Creek-West Branch Boggy Creek in Table 4, located in Exhibit II.A.3.-2 of this permit application. The area where the Triumvirate Environmental site is located is flooded by the West Branch Boggy Creek. The table indicates that the flood current's mean velocity in feet per second for cross sections C and D of West Branch Boggy Creek is 0.7 and 1.7, respectively. Cross-sections for West Branch Boggy Creek are identified in a folded diagram named Flood Profiles in the study which is shown in Exhibit II.A.3.-3. The diagram shows that cross-section D coincides with Taft-Vineland Road, while cross-section C is located at a point near the Seaboard Coastline Railroad (SCR) Spur "A", and to the south of cross-section D. Taft-Vineland Road, as well as the SCR Spur "A", may also be found in the FIRM map to the north and to the south, respectively, of the Triumvirate Environmental site. Now that the sources of cross-sections C and D have been identified and their locations with respect to the Triumvirate Environmental site have been determined, the focus of this discussion may turn to the hazard posed by flood currents. 100-year flood currents having velocities of 0.7 and 1.7 feet per second are considered low intensity currents, which do not qualify as special flooding factors.

The assessment stated in the previous sentence is reinforced by information presented in the Flood Insurance Study on Flood Hazard Factors (FHFs) for the area under consideration. Section 5.2 of the study describes FHFs as a FEMA device used to correlate expected property damage and actuarial insurance premium rates, where values on a range from 005 to 200 are assigned to the FHFs, directly proportional to the degree of damage. In turn, FHFs may also be correlated to special flooding factors because such factors contribute to damages. The Triumvirate Environmental floodplain area has been assigned an FHF value of 005 in the Flood Insurance Zone Data for Wekiva River-Boggy Creek and East Branch Boggy Creek-West Branch Boggy Creek-Shingle Creek in Table 5 of the study, which is shown in Exhibit II.A.3.-4. Table 5 identifies the Triumvirate Environmental floodplain area by the flooding source as West Branch Boggy Creek and the reach section of the source as Reach 2. The Triumvirate Environmental site is located in the Reach 2 section of the Flood Profiles diagram shown in Exhibit II.A.3.-3 of this application, which also encompasses Taft-Vineland Road and the SCR Spur "A". A value of 005 is the lowest possible FHF value a 100-year floodplain area may be assigned, which indicates that the degree of potential damage is very small. The FHF value of 005 also indicates that expected special flooding factors are none or minimal. In summary, the TEI site is located on a 100-year floodplain area, per the 2000 FEMA map, the 100-year flood level is 90.7 feet, ground surface elevations for the site's buildings and the property west of the buildings are above this level, and potential flood damage from a 100-year flood is very small.

Additionally, provide the following information::

a. An engineering analysis indicating the various hydrodynamic and hydrostatic forces expected to occur at the site as a consequence of a 100-year flood.

In accordance with information provided in the previous response paragraphs, there are no hydrodynamic forces involved at the Triumvirate Environmental site which may result from a 100-year flood because special flooding factors expected in the form of wave action or flood currents are none or minimal.

Hydrostatic forces are created by the mass of flood water that exerts horizontal pressure on a flood protection structure. Such forces are directly proportional to the depth of 100-year flood waters measured at the outside perimeter of the structure. The flood protection structures considered in this paragraph are either buildings featuring elevated flood surfaces or retention walls and berms built around an area with the purpose of keeping flood waters out of the area. The 100-year flood level has been determined to be 90.7 feet. Figure II A 4 is a site topographic map that shows contour lines at the facility site. The contour lines indicate that the ground surface elevation of the entire active facility site area is above the base flood level. Since facility structures are located on areas that have higher elevations than the level of a 100-year flood, there can be no flood water mass from a 100-year flood that may exert hydrodynamic and hydrostatic forces on the structures.

b. Structural and other engineering studies showing the design of operational units (i.e., tanks, incinerators) and flood protection devices (i.e., .floodwalls, dikes) at the facility and how these will prevent washout.

Processes and areas at the Triumvirate Environmental facility have been provided with flood protection structures (devices) in the form of either high floor surface elevations, retention walls, or berms. The existing container storage unit is located in a building that has a floor surface elevation at least 4 feet higher than the 100-year flood level. The north building houses the consolidation/stabilization operations. An Elevation Certificate issued for flood insurance purposes, which is shown in Exhibit II.A.3.b.-1, states that the floor surface elevation of the buildings mentioned above is 95.93 feet for the building at the south and 91.99 feet for the building at the north. This certificate also indicates that the base flood elevation (100-year flood level) is 90.7 feet, which locates the floor surface elevation for both buildings at 5.23 feet and 1.29 feet, respectively, higher than the base flood elevation. These buildings do not require flood walls because the floor surface elevations are above the water surface elevation from a 100-year flood event. The outside area west of the north building where solidification/stabilization operations would be conducted is also above the base 100-year flood level.

c.If applicable, and in lieu of paragraphs 3.a. and 3. b. above, a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded, including:

1. Timing of such movement relative to flood levels, including the estimated time to move the waste to show that such movement can be completed before floodwaters reach the facility;

2. A description of the location(s) to which the waste will be moved and demonstration that those facilities will be eligible to receive hazardous waste in accordance with the regulations under 40 CFR Parts 264 and 265;

3. The planned procedures, equipment and personnel to be used and the means to ensure that such resources will be available in time for use; and

4. The potential of accidental discharges of the waste during movement.

Item c. in the flood information section (II.A.3) of this permit application form does not apply to the Triumvirate Environmental facility because it has addressed paragraphs a. and b. in response to 100-year flood events.

If the site is not located in the 100-year floodplain, provide the source of data for such a determination and include a copy relevant to the FIA map or the calculations and maps used where a FIA map is not available.

Not applicable.