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2.0 FACILITY DESCRIPTION AND GENERAL PROVISIONS [B AND E]

[WAC 173-303-806(4)(a)(i), (x), (xi), (xviii), 40 CFR 270.14(b)(1), (10), (19)]

This section briefly describes the Mixed Waste Facility (MWF) and provides an overview of the treatment and storage operations, including the following:

- General Description
- Facility Description
- Construction Schedule
- Topography
- Seismic Considerations
- Traffic Information.

The MWF is located inside a 45-acre site at the southeast corner of Logston Boulevard and Battelle Boulevard in Richland, Washington. Within the 45-acre complex is a radioactive only waste operation as well. This radioactive-only facility and its processes are not addressed in this application. The entire site is near the Hanford Site in an industrial area in the City of Richland and is approximately 0.8 kilometer (0.5 mile) south of Horn Rapids Road and 1.0 kilometer (0.7 mile) west of Stevens Drive in the northwest quarter of Section 22, Township 10 North, Range 28 East, Willamette Meridian. The property is situated within the Horn Rapids Triangle in northern Richland. The location of the site is shown on the graphic layout map, Figure 1.0, at the end of this section. The property is currently owned by Perma-Fix Northwest Richland, Inc. (PFNW-R). The property is geographically situated within the Pasco Basin in the northern portion of the Columbia Plateau, east of the Cascade Mountains. The Yakima River is approximately 4 kilometers (2.5 miles) to the southwest, and the Columbia River is approximately 2.4 kilometers (1.5 miles) to the east.

The MWF is a treatment and storage facility for radioactive Resource Conservation and Recovery Act (RCRA) waste and radioactive Toxic Substance Control Act (TSCA)-regulated Polychlorinated Biphenyls (PCBs) waste. Mixed waste operations include treatment, storage (Building 13) and loading and unloading areas. Herein after, "mixed waste" will mean radioactive wastes regulated under RCRA and/or Washington Dangerous Waste Regulations, which are also regulated by the Nuclear Regulatory Commission/Washington Department of Health. Mixed TSCA regulated wastes are wastes that are regulated by TSCA and the Nuclear Regulatory Commission/Washington Department of Health. Mixed waste also refers to TSCA-regulated PCB wastes that may also be RCRA-regulated and regulated under

the Washington Department of Health. Henceforth, the use of the word "waste" may also include TSCA regulated PCB constituents and/or dangerous/hazardous constituents.

All waste that enters the facility is appropriately repackaged or treated and packaged then shipped off-site for further treatment or disposal. No waste is disposed of on-site.

A more detailed discussion of the waste types, known characteristics of the waste, and the methods of treatment and storage are provided in the following:

- Section 1 Part A Application,
- Section 3 Waste Analysis Plan, and
- Section 4 Process Information.

2.1 General Description [B-1]

[WAC 173-303-806(4)(a)(i), 40 CFR 270.14(b)(1)]

2.1.1 Facility Owner and Operator Information

Perma-Fix Northwest Richland, Inc. is both the owner and operator of the MWF.

PFNW-R has responsibility for all administrative, operational, regulatory compliance, and other responsibilities associated with activities under the Permit. These activities are conducted at the MWF, located in Richland, Washington. The EPA RCRA site identification number is WAR 00001 0355.

2.1.2 Facility Name

Perma-Fix Northwest Richland, Inc. (PFNW-R)

2.1.3 Owner

Perma-Fix Northwest Richland, Inc.
2025 Battelle Boulevard
Richland, Washington 99354

2.1.4 Operator

Perma-Fix Northwest Richland, Inc.
2025 Battelle Boulevard
Richland, Washington 99354

2.2 Facility Description Mixed Waste Facility [B-1a]

The MWF was originally permitted under the premise that the Stabilization Building, Gasification/Vitrification (GASVIT™) Building, and the Waste Storage Building were going to be separate, enclosed structures to provide the waste management operations protection from the environment. Instead, these buildings were constructed as one enclosed structure known as Building 13. Hereinafter, this application will use the terms Non-Thermal Area, Thermal Area and Waste Storage Area, respectively, to distinguish between the different areas within Building 13. Table 2-1 cross-references the original name and current name of the general areas within Building 13.

Table 2-1. Building 13 Area Name Cross-Reference

Original Name Designation of Area	Current Name Designation of Area
Stabilization Building (STB) and Annex	Non-Thermal Area
Gasification/Vitrification (GASVIT™) Building (GVB)	Thermal Area
Waste Storage Building (WSB)	Waste Storage Area

MWF Building 13 is a steel-framed, metal-sided, predominately one-story building that is erected on a reinforced concrete substructure. MWF Building 13 has electrical service, lighting, water service and ventilation. The concrete reinforced floor has a load rating of 60,000 pounds per square inch. The existing location of Building 13 is shown on Drawing DWG-SITE-CIVIL-001. All referenced drawings are included in Section 12, unless otherwise noted.

There are no personnel access doors or roll-up doors openings flush with the outside ground surfaces. Where there are personnel entries, there are either sloped ramps or steps to allow exit from the door or entry. Roll-up doors provide entry ways for material handling equipment such as carts and fork lift trucks. To allow the access for large material handling equipment, the roll-up door areas have sloped ramps allowing equipment to cross the concrete curbs. The design and construction of the floors within Building 13 was to preclude waste from migrating to surface water, soil, or groundwater. The floors within Building 13 have been constructed entirely of concrete. There are no drain valves, floor drains, sewer lines, or other openings that will allow liquids to flow from the curbed areas. Chemical-resistant water-stops made of polyvinyl chloride or rubber were used for all construction joints. The construction joints were sealed with a heat-resistant silicone sealant.

The floors of Rooms SB-02 through SB-09, SB-11, MWT-01, MWT-02, MWT-04 and WSB-1, WSB-2, WSB-3 and WSB-4 within Building 13 are coated with a waterproof sealant, NSP 100 epoxy concrete

sealer (or equivalent) and/or NSP 122 (or equivalent) floor coating. A drawing showing the specific room locations is included as DWG-MW-GA-001. The NSP 100 system is designed to resist direct contact with most acids, alkalis, and petroleum products and prevent in infiltration of any waste that may be released.

Building 13 is located on a topographical high area, and the local relief is such that Building 13 will easily shed surface runoff. Additionally, the area around Building 13 has been graded to promote drainage away from the building to protect the treatment and storage areas from precipitation and any run-on or run-off.

The Rail Loading Area (RLA) and Truck Loading Area (TLA) are designed and constructed to capture and contain any spills or leaks while rail cars or trucks are loaded or unloaded in accordance with WAC 173-303-395(4). The RLA is located outside of the Radiological Controlled Area (RCA) while the TLA is located within the RCA. The design and construction of these concrete loading areas is to preclude waste from migrating to surface water, soil, or groundwater. There are no drain valves, floor drains, sewer lines, or other openings that will allow liquids to flow from the curbed areas. Chemical-resistant water-stops were specified for all construction joints. The concrete coating is waterproof sealant NSP 100 or equivalent.

Building 13:

Building 13 incorporates all systems and ancillary equipment needed for the safe and reliable operation of pretreatment, inspection and other non-treatment activities, non-thermal and thermal treatment processes and waste storage activities. Non-treatment activities may include inspection, sampling/fingerprinting, pre-sorting and transfer operations. Descriptions of operations conducted in Building 13 are presented in Section 4. Process flow diagrams of the treatment processes are included at the end of this section. The configurations of the various rooms within Building 13 are shown on drawing DWG-MW-GA-001.

Building 13 Non-Thermal Area:

The Non-Thermal Area is comprised of the original stabilization building and an annex constructed later. The annex was constructed in calendar year 2000. The existing stabilization building had a floor area of approximately 15,000 square feet divided into three 5,000-square foot (approximate) rooms. The constructed annex increased the stabilization building size by 6,820 square feet. Individual inspection, storage, pretreatment and treatment processes taking place in the Non-Thermal area may be connected to

and ventilated directly to the Non-Thermal Area process ventilation system (SB-09), as appropriate. All air (and emissions) collected and treated by the Non-Thermal Area process ventilation system (SB-09) then passes through the Non-Thermal Area building ventilation system (SB-02). The duct work associated with the ventilation systems SB-09 (process) and SB-02 (building) is separate. In addition, the general space of each room in the Building 13 Non-Thermal Area is ventilated by the Non-Thermal Area building ventilation system (SB-02), which maintains negative air pressure in each room, relative to outside of the building. The main components of the SB-02 ventilation system include HEPA and carbon filters. The main components of the SB-09 ventilation system include HEPA filters and carbon bed filters.

The Non-Thermal Area has a floor area of approximately 22,000 square foot divided into several rooms, a laboratory, office area and an access stairwell. The Building 13 slab provides equipment foundation support and secondary containment features. Not only is Building 13 completely surrounded by a curb, but the Non-Thermal Area of Building 13 is also surrounded by a continuous curb as shown on drawing DWG-MW-GA-001. Brief descriptions of each room are presented below. Dimensions and square footages are approximate and their locations are shown on DWG-MW-GA-001.

Room SB-01, Access Stairwell:

Room SB-01 contains the access stairwell near the center of Building 13. The staircase leads to the second floor area where the Thermal Area Control Room access door is located. SB-01 has an approximate area of 250 square feet. No waste treatment or pretreatment activities, waste staging, waste inspection, or waste storage takes place in this room.

Room SB-02:

Room SB-02 is located on the north end of Building 13 with an approximate area of 3,175 square feet. Note that rooms SB-04 and SB-05 are located within Room SB-02. Waste inspection, pretreatment, non-thermal treatment and storage activities take place in SB-02. The room also contains HAZMAT storage cabinets and stores material handling equipment, such as fork lift trucks and carts, as well as a folk lift battery charging station.

Room SB-04:

Room SB-04 is an approximate 565 square feet area located inside of Room SB-02. Waste inspection, pretreatment, non-thermal treatment and storage activities take place in SB-04.

Room SB-05:

Room SB-05 is an approximate 175 square feet area located inside of Room SB-02. Waste inspection, pretreatment, non-thermal treatment and storage activities take place in SB-05.

Room SB-06:

Room SB-06 is an approximate 2,650 square feet room located near the center of Building 13. The Size Reduction and Screening System (TP-01) is located, and the Low Capacity Mixing System (TT-02) will be located in Room SB-06. In addition, other waste inspection, pretreatment, non-thermal treatment and storage activities take place in SB-06.

Room SB-07:

Room SB-07 is an approximate 4,900 square feet room located in the northeast area of Building 13. Waste inspection, pretreatment, non-thermal treatment and storage activities take place in SB-07.

Room SB-08:

Room SB-08 is an approximate 4,900 square feet room located in the northeast corner of Building 13. The super-compactor unit (part of the TP-07 Compaction and Macro-Encapsulation System) is located on the west end of Room SB-08. In addition, other waste inspection, pretreatment, non-thermal treatment and storage activities take place in SB-08.

Room SB-09:

Room SB-09 is approximately 975 square feet and is located on the east side of Building 13. Waste inspection, pretreatment, non-thermal treatment and storage activities take place in SB-09.

Room SB-10, Non-Thermal Area Ventilation:

Room SB-10 is approximately 2,950 square feet. This room houses the Non-Thermal Area process ventilation system (SB-09) equipment and the Non-Thermal Area building ventilation system (SB-02) equipment. These systems provide negative air pressure and filtration for the entire Non-Thermal Area. All emissions from system SB-09 are routed directly to system SB-02. Major pieces of equipment installed in this room include banks of HEPA/charcoal filters, a dust collector baghouse, induced draft (ID) fans and ductwork directing the outlet of SB-02 to the Non-Thermal Area building exhaust stack. No waste treatment or pretreatment activities, waste staging, waste inspection or waste storage takes place in this room.

Room SB-11:

Room SB-11 is approximately 975 square feet on the east side of Building 13. Waste inspection, pretreatment, non-thermal treatment and storage activities take place in SB-11.

Room SB-12, Thermal Area Control Room:

The Thermal Area Control Room SB-12 is located above the Access Stairwell (Room SB-01) on the second floor. The room is accessible through the stair case in Room SB-01. No waste treatment or pretreatment activities, waste staging, waste inspection or waste storage takes place in this room.

Laboratory/Office Area:

The Laboratory and Office area is approximately 1,000 square feet and general administrative and plant operations management activities take place in the Office. Various sample storage and testing is completed in the Laboratory.

Building 13 Thermal Area

The Thermal Area was constructed in calendar year 2000, and is immediately adjoining the southern wall of the Non-Thermal Area and is part of Building 13. The Thermal Area is enclosed and is protected from the environment. The Building 13 slab provides equipment foundation support and secondary containment features. Not only is Building 13 completely surrounded by a curb, but the Thermal Area of Building 13 is also surrounded by a continuous curb as shown on drawing DWG-MW-GA-001. The Thermal Area has a floor area of approximately 13,500 square feet divided into four rooms. Brief descriptions of each room are presented below. Dimensions and square footages are approximate.

Individual inspection, storage, pretreatment and treatment processes taking place in the Thermal area may be connected to and ventilated directly by the Thermal Area process ventilation system (GV-09), as appropriate. All air (and emissions) collected and treated by the Thermal Area process ventilation system (GV-09) then passes through the Thermal Area building ventilation system (GV-22). The duct work associated with the ventilation systems GV-09 (process) and GV-22 (building) is separate. In addition, the general space of each room in the Building 13 Thermal Area is ventilated by the Thermal Area building ventilation system (GV-22), which maintains negative air pressure in each room, relative to outside of the building. The main components of the GV-22 ventilation system include HEPA and carbon filters. The main components of the GV-09 ventilation system include HEPA filters and carbon bed filters.

Room MWT-01:

Room MWT-01 is an approximate 5,430 square feet room located in the southeast corner of Building 13. The GASVIT™ System equipment now occupies Room MWT-01. Waste inspection, pretreatment, non-thermal treatment, thermal treatment and storage activities take place in MWT-01.

Room MWT-02:

Room MWT-02 is an approximate 3,625 square feet located near the center of Building 13. The Thermal Desorber System (TT-08) is located in Room MWT-02. Waste inspection, pretreatment, non-thermal treatment, thermal treatment and storage activities take place in MWT-02.

Room MWT-03, Thermal Area Ventilation:

Room MWT-03 is an approximate 1,845 square feet room. This room houses the Thermal Area process ventilation system (GV-09) equipment and the Thermal Area building ventilation system (GV-22) equipment. These systems provide negative air pressure and filtration for the entire Thermal Area. All emissions from system GV-09 are routed directly to system GV-22. Major pieces of equipment installed in this room include banks of HEPA/charcoal filters, a dust collector baghouse, induced draft (ID) fans and ductwork directing the outlet of GV-22 to the Thermal Area building exhaust stack. No waste treatment or pretreatment activities, waste staging, waste inspection or waste storage takes place in this room.

Room MWT-04:

Room MWT-04 is an approximate 2,000 square feet room located near the center of Building 13. Room MWT-04 contains two tanks for the collection of liquids generated on site. Liquids are consolidated in these tanks for less than 90 days and then containerized for treatment on-site, or for shipment off-site for treatment or disposal. Treatment does not take place in these tanks. Waste inspection, pretreatment, non-thermal treatment, thermal treatment and storage activities take place in MWT-04.

Electrical Room:

The Electrical Room in the Thermal Area is approximately 840 square feet and contains controls, instrumentation and associated equipment necessary to provide electricity to the Thermal Area. Electrical instrumentation for thermal processes is also located in this room. No waste treatment or pretreatment activities, waste staging, waste inspection or waste storage takes place in this room.

Building 13 Waste Storage Area

The Waste Storage Area (i.e. SB-03, and WSB-1 through WSB-4) was constructed in calendar year 2000 and is immediately adjoining the western wall of the Non-Thermal Area and is part of Building 13. The area is enclosed and is protected from the environment. The entire Waste Storage Area has an area of approximately 32,500 square feet. The Building 13 slab provides equipment foundation support and secondary containment features. The waste storage area is divided into five rooms. These five rooms, which include WSB-1, WSB-2, WSB-3, WSB-4 and SB-03, are completely surrounded by a curb. In addition, WSB-1, WSB-2 and WSB-3 are each individually surrounded by a curb, as shown on drawing DWG-MW-GA-008. In the Waste Storage Area, storage and staging of waste in addition to some non-treatment activities and pretreatment activities will take place. In addition, non-thermal treatment activities may take place in Room SB-03. Brief descriptions of each room are presented below. Dimensions and square footages are approximate.

Room SB-03:

Room SB-03 is a large approximate 12,500 square feet area that includes areas for truck unloading, waste pretreatment, waste storage, waste staging, and waste inspection activities. In addition, non-thermal treatment activities may take place in SB-03. Room SB-03 includes a hallway that provides access to and movement of personnel and wastes between the Non-Thermal Area, Thermal Area and Waste Storage Areas. Activities can be ventilated by a flexible connection to the Non-Thermal Area process ventilation system (SB-09). Containers will not be opened in Room SB-03 without first establishing ventilation for the activity by use of a temporary enclosure and / or flexible connection to the Non-Thermal Area process ventilation system.

Room WSB-1:

Room WSB-1 is an approximate 4,500 square feet waste storage room on the west side of Building 13, across from the Thermal Area. Room WSB-1 is used for waste storage, pretreatment and inspection activities. No waste treatment activities take place in this room.

Room WSB-2:

Room WSB-2 is an approximate 4,200 square feet waste storage room on the west side of Building 13, across from the Thermal Area. Room WSB-2 is used for waste storage, pretreatment and inspection activities. No waste treatment activities take place in this room.

Room WSB-3:

Room WSB-3 is an approximate 4,300 square feet waste storage room on the west side of Building 13, across from the Thermal Area. Room WSB-3 is used for waste storage, pretreatment and inspection activities. No waste treatment activities take place in this room.

Room WSB-4:

Room WSB-4 is a 7,000 square feet waste storage room on the southern-most end of Building 13. Room WSB-4 is used for waste storage, pretreatment and inspection activities. No waste treatment activities take place in this room.

Rail Loading Area (RLA):

The Rail Loading Area (RLA) is a an approximate 90 feet by 90 feet curbed exterior concrete pad located outside of the RCA on the west side of the property designed and constructed to meet the containment requirements of WAC 173-303-395(4) – Loading and Unloading Areas and 40 CFR 761.65(b)(1)(ii). Only loading, unloading and staging activities will take place on the RLA. The location of the RLA is shown on drawing DWG-SITE-CIVIL-001.

Truck Loading Area (TLA):

The Truck Loading Area (TLA) is a an approximate 60 feet by 70 feet curbed exterior concrete pad in the RCA on the west side of Building 13 designed and constructed to meet the containment requirements of WAC 173-303-395(4) – Loading and Unloading Areas and 40 CFR 761.65(b)(1)(ii). The TLA will provide direct access to room SB-03 in Building 13. Only loading, unloading and staging activities will take place on the TLA. The location of the TLA is shown on drawing DWG-SITE-CIVIL-001.

2.2.1 Waste Shipment Receipt

Building 13 and Truck Loading Area Waste Shipment Receipt:

Incoming trucks enter the facility through the Logston Boulevard access road and park outside the Radiological Controlled Area (RCA) gate. The trucks are inspected and surveyed for compliance with the Department of Transportation regulations and shipment documentation is reviewed. If the truck does not pass the initial inspection, the processes are implemented as described in the Waste Analysis Plan (WAP). If the truck passes the inspection, it is allowed to enter the RCA through the security gate. Once inside the RCA Yard Area, the containers in shipment are again visually inspected for any evidence of damage, leakage, or loss of integrity. Any leaking or failed container is placed inside a salvage or overpack container using a safe handling procedure described in the MWF WAP or their

contents are transferred into container(s) in good condition. Liquid and solid waste container unloading activities in the Yard Area take place on the Truck Loading Area (TLA) concrete pad. The location and configuration of the TLA is shown on drawing DWG-SITE-CIVIL-001. The containers may be placed on the TLA for up to 24 hours following initial receipt (completion of initial inspection and survey) or unloaded directly into Building 13. Liquid waste containers will enter into Building 13 through SB-03. Intact containers are unloaded and placed in container staging or storage areas inside Building 13. If storage areas are occupied, containers may be staged in the Yard Area for up to 24 hours before being moved to a storage area inside Building 13. No waste treatment or permitted storage activities will take place on the TLA.

Rail Loading Area Waste Shipment Receipt:

The RLA is where liquid or solid waste containers are unloaded from or loaded onto rail cars or vehicles. The location and configuration of the RLA are shown on drawing DWG-SITE-CIVIL-001. Methods of waste receipt by rail may include:

1) Shipping Container up to 40 feet in length
2) B-25 Box (Roll-off box typically 96 cubic feet in size)
3) Smaller containers delivered by rail
4) Large bulky items

Containers may be taken off of the rail car and placed on the RLA for up to 24 hours. Containers may also be taken off of the rail car and placed on another vehicle for transfer to the TLA or transfer directly into Building 13. The containers may be placed in the Yard Area for up to 24 hours. No waste treatment or permitted storage activities will take place on the RLA.

Railcars will enter and exit the facility through the rail spur located on the southern side of the property through Gate E and travel approximately 430 feet to the RLA which is located outside of the Radiological Controlled Area (RCA). Gate E across the point of rail spur entry onto the property will control access. The rail spur is oriented parallel to Logston Blvd and does not enter the RCA. The containers will be inspected and surveyed for compliance with the Department of Transportation regulations and shipment documentation is reviewed. If the container does not pass the initial inspection, the processes will be implemented as described in the Waste Analysis Plan (WAP). If the container passes the inspection, it will be unloaded onto the RLA or unloaded onto vehicles for unloading onto the TLA or unloaded directly into Building 13. Containers unloaded to the RLA or TLA or placed in the Yard Area must be transferred into Building 13 within 24 hours of initial receipt

(completion of initial inspection and survey). Unloading or transfer of liquid waste containers into Building 13 will take place in SB-03 of Building 13. Once inside Building 13, the containers in shipment are again visually inspected for any evidence of damage, leakage, or loss of integrity. Any leaking or failed container is placed inside a salvage or overpack container using a safe handling procedure described in the MWF WAP or their contents are transferred into container(s) in good condition. Intact containers will be unloaded and/or placed in container storage areas inside Building 13, or to a process area for treatment. .

2.3 Waste Confirmation Inspection and Acceptance

Incoming waste containers are subjected to a confirmation inspection process by the MWF. The acceptance procedures as described in the MWF WAP consist of inspecting the containers and the contents and reviewing shipment documentation. Some containers may be accepted if a visual inspection confirms that their contents match the description in the appropriate shipping manifest and profile documents. Others are accepted when a detailed sampling and analysis for "fingerprint" or other waste characteristic parameters show that the waste in container meets the descriptions given in the container manifest documents.

2.4 Construction Schedule [B-1b]

Construction of the RLA and associated rail spur and TLA began during 2010 and were completed first quarter 2011.

The following process units included in this permit application are not yet constructed:

- TP-13 Portable Sorting System (not treatment),
- TP-14 Portable Liquid Treatment System
- TP-10 Portable Extraction Mixer System,,
- TT-01 High-Capacity Mixing System,
- TT-09 Portable Mercury Amalgamation (Bulk Scale portion) System,
- TT-10 Portable Debris Washing System.

The above-listed systems are scheduled for construction during the second half of 2012.

2.5 Topographic Map [B-2]

[WAC 173-303-806(4)(a)(xviii), 40 CFR 270.14(b)(19)]

A topographic map prepared by Worley Surveying Service, Inc. is included in Section 1 as DWG-SITE-CIVIL-003. This map shows on-site contours at 1 foot intervals. Legal boundaries of the facility and map orientation are depicted on this map. Building 13, where the storage and treatment of mixed RCRA-regulated and mixed PCB waste will occur is shown on this map. The RLA and TLA are shown on drawing DWG-SITE-CIVIL-003. Access control to the property is provided by the property fence, gates and the guard house (Building 19) as depicted on this map. Also shown is the RCA fence, which controls access to Building 13 and the TLA. A wind rose is provided separately as Figure 2.0 at the end of this section. The wind rose was created from ten years of data collected at the Hanford Meteorological Station #30 (HAMR) operated by Pacific Northwest National Laboratory for the U.S. Department of Energy. The Hanford stations provide meteorological data for the Hanford Site, located just north of the Richland, Washington. Another topographic map (7.5 minute series) from the USGS for the Richland quadrangle is also included as Figure 3.0 at the end of this section. This USGS map covers a distance of more than 1,000 feet around the facility and shows surface waters. The Columbia River is approximately 1.5 miles east, and the Yakima River is approximately 2.5 miles southwest from the MWF. Land use in the vicinity of the MWF includes the Areva NP, Inc.'s nuclear fuel fabrication and processing facility approximately 0.25 mile northeast, DOE's laydown yard approximately 0.25 mile east, railcar transfer yard lands on the south, and Ferguson Enterprises, Inc.'s plumbing fixtures, parts, and supplies storage building approximately 0.3 mile west.

Drawing DWG-MW-GA-001 shows the layout of Building 13. Treatment and storage areas of Building 13 are also noted on drawing DWG-MW-GA-001. The facility is not located within the 100-year flood plain area. See FEMA flood insurance map panel number 5355330005E, included at the end of this section as Figures 4.0a and 4.0b.

2.6 Seismic Consideration [B-3]

[WAC 173-303-806(4)(a)(xi), 40 CFR 270.14(b)(11)(i) and (ii), 40 CFR 264.18(a)]

The MWF is in Benton County, Washington, which is not listed in the Appendix VI to 40 CFR 264 (Political jurisdictions in which compliance with Section 264.18(a) must be demonstrated). Hence, MWF is assumed to be in compliance with this requirement. Per the 2008 U.S. Geological Survey National Seismic Hazard Maps (Open File Report 2008-1128), the earthquake peak ground acceleration

at MWF for 10% probability of exceedance in 50 years has a value of 0.07g (standard gravity). The earthquake peak ground acceleration at MWF for 2% probability of exceedance in 50 years has a value of 0.17 g. Seismic design load per the Uniformed Building Code is for Zone 2B, I = 1. The earthquake hazard maps are included at the end of this section as Figures 5.0a and 5.0b.

2.7 Traffic Information [B-4]

[WAC 173-303-806(4)(a)(x), 40 CFR 270.14(b)(10)]

Drawing DWG-MW-CIVIL-001 shows the traffic pattern for the MWF.

Building 13 and TLA:

Incoming waste trucks enter the facility by going south on Logston Boulevard approximately 143 yards from Battelle Boulevard, then going east by turning left onto the facility's gravel access road to the gate located approximately 30 yards west from Building 17. This gate is located along the facility's security fence. Inside the facility the Radiological Controlled Area (RCA) is surrounded by its own fence. The RCA fence has an access Gate D located approximately 20 yards south of Building 17. Another RCA access Gate F is located approximately 10 yards north of Building 17. This Gate F is used only for maintenance or emergency purposes. The facility's gravel access road is approximately 125 yards, as measured from Logston Boulevard to the gate on the RCA fence. Logston Boulevard is a gravel road. Client truck tractors do not enter into the RCA. Instead, the client tractor is unhitched from the trailer and a PFNW-R tractor is used to bring the trailer into the RCA.

Outgoing waste trucks follow the same path as incoming waste trucks in reverse. The estimated number of waste trucks to and from the MWF is four per day. Traffic control for the waste trucks includes reporting at the guard shack and the facility access gates at Logston Boulevard and the access gates D and F on the RCA fence.

Liquids are loaded/unloaded on the TLA or directly into the Truck Bay area located in SB-03 of Building 13. Solids may be unloaded/loaded on the TLA or directly into Building 13. Both Building 13 and the TLA have a curbed concrete floor. The facility access and on-site roads, as well as loading/unloading areas, have sufficient load-bearing capacity, based on the fact that these roads and loading/unloading areas have been in use for at least 10 years of operations at MWF. The TLA has been designed for and has sufficient load-bearing capacity.

RLA:

Incoming liquid and solid waste may also enter the facility via rail by traveling north along the rail spur. The rail spur passes through the Gate E located along the facility property fence. Rail cars travel along the rail spur and pull onto the RLA located approximately 430 feet north of the facility's southern property edge.

Outgoing waste via rail follows the same path as incoming waste in reverse. The estimated number of rail cars to and from the MWF is two per day. Traffic control for the waste railcars include the facility access Gate E across the rail spur. The rail cars have no means to enter the RCA.

Containers of liquid and / or solids are loaded/unloaded on the RLA, which has a curbed concrete floor. The facility access rail spur, as well as loading/unloading areas, have been designed for and have sufficient load-bearing capacity for the estimated activities.

2.8 Treatment Process Flow Diagrams

Flow diagrams of the various treatment processes are included in Figure 6.0:

- TP-01 Size Reduction and Screening System
- TP-02 Cutting and Shearing System
- TP-14 Liquid Treatment System
- TP-07 Compaction and Macroencapsulation System
- TP-10 Extraction Mixer System
- TT-01 High Capacity Mixing System
- TT-02 Low Capacity Mixing System
- TT-03 In-Container Mixing System
- TT-05 Physical Extraction System
- TT-08 Thermal Desorber System
- TT-09 Mercury Amalgamation System
- TT-10 Debris Washer System

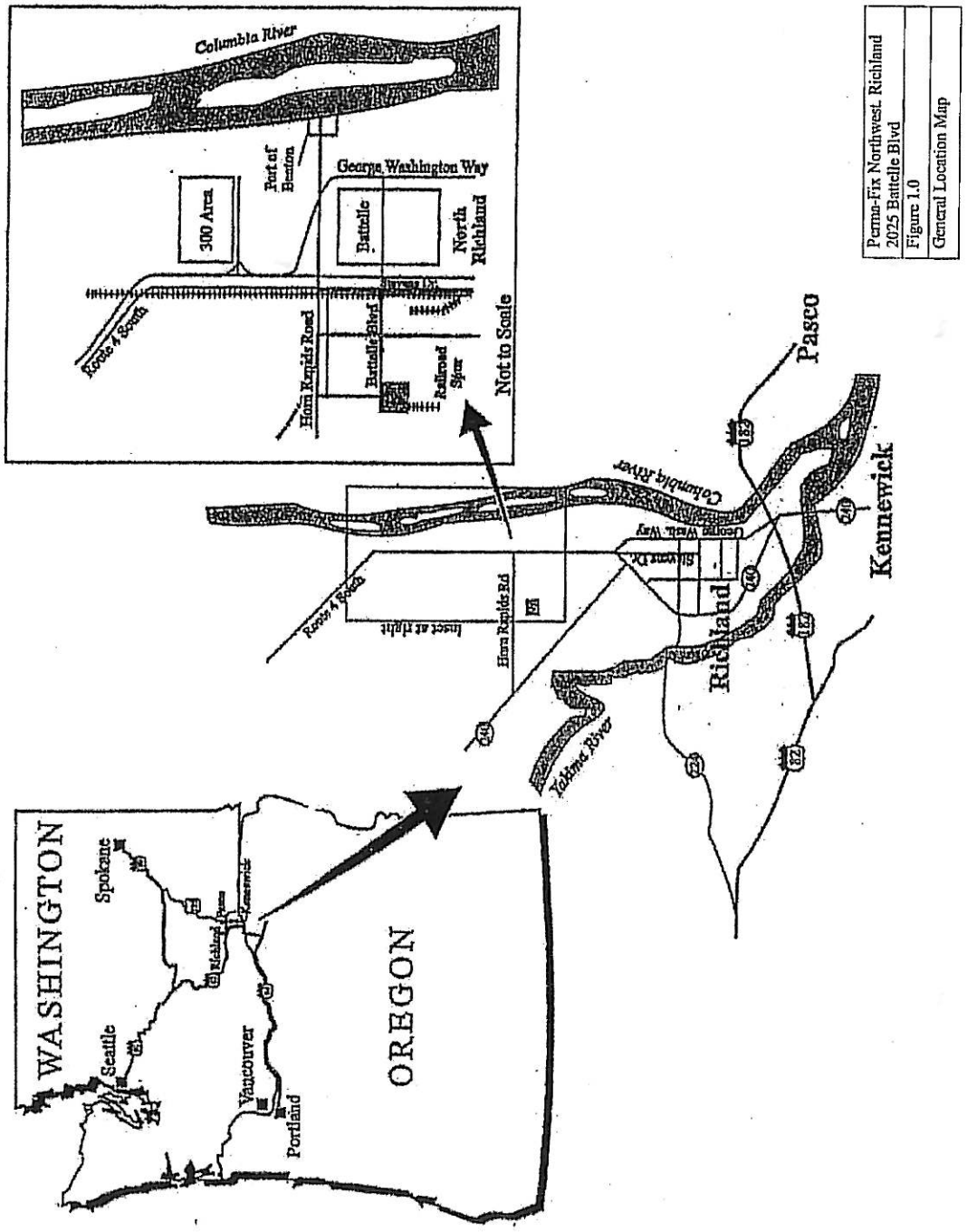
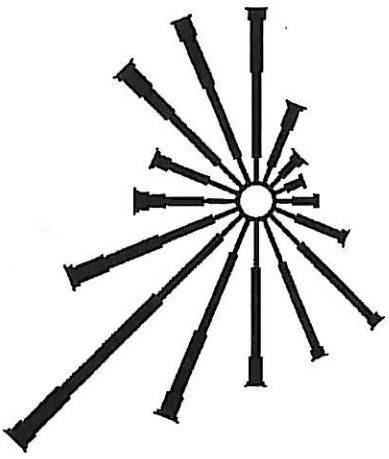


Figure 1.0
Geographic Layout Map

Figure 2.0
Wind Rose

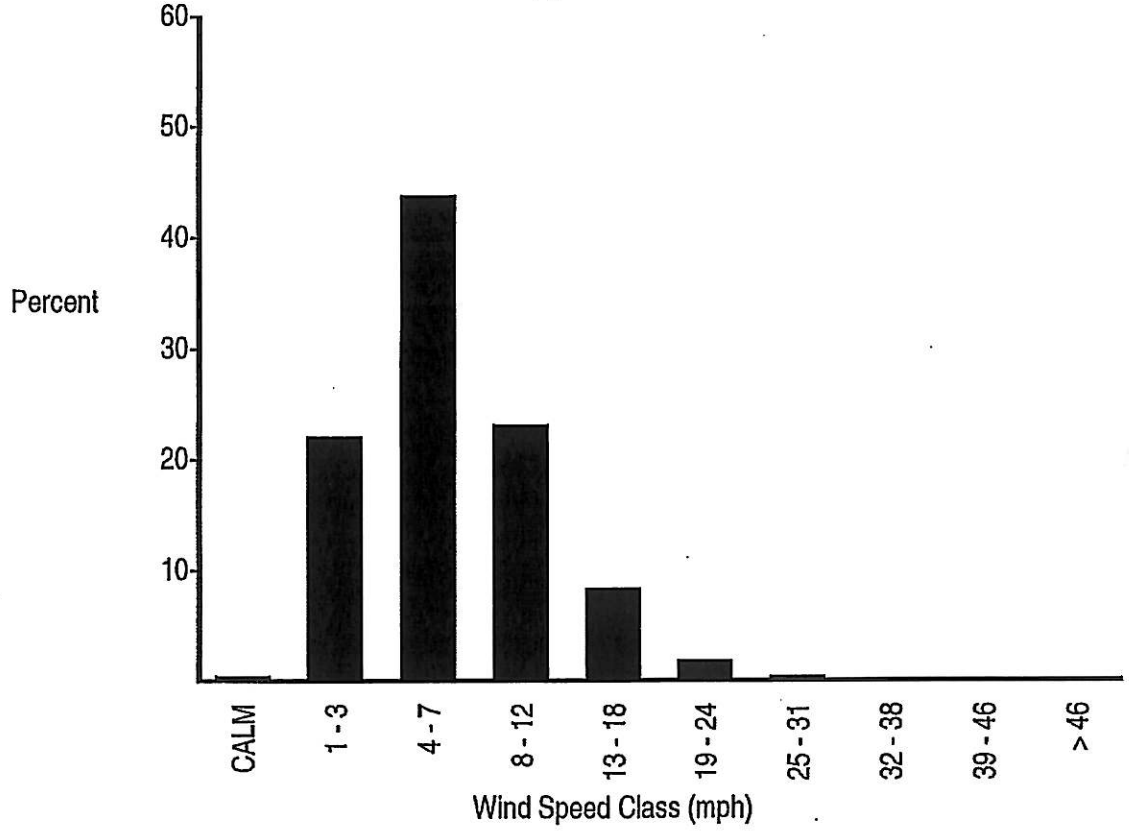


N

Station #30 - HAMR

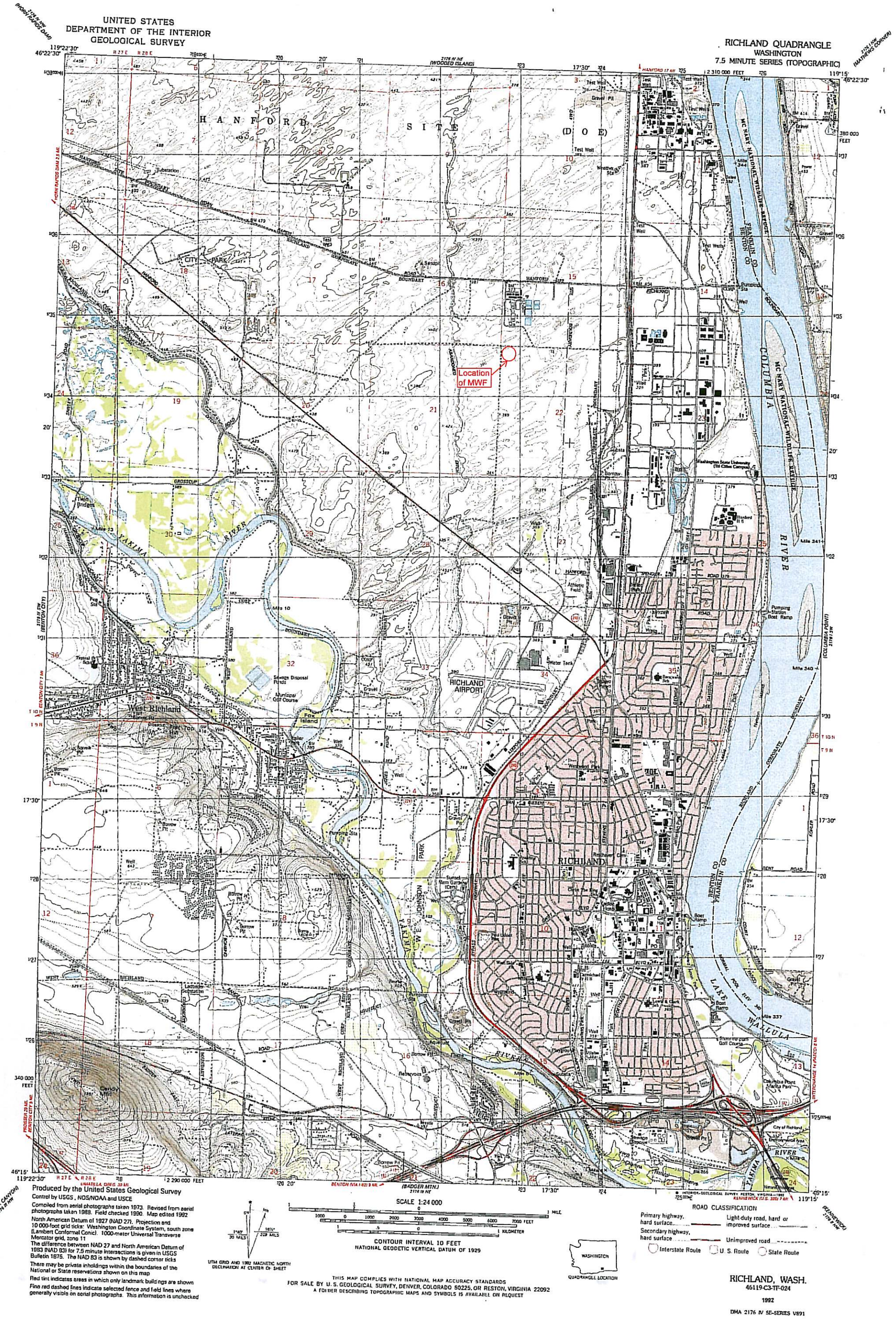
(a) Wind Rose

Period: 1/1998 - 12/2007



(b) Wind Speed Histogram

Figure 3.0
USGS Topographical Map


UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
RICHLAND QUADRANGLE
WASHINGTON
7.5 MINUTE SERIES (TOPOGRAPHIC)
HANFORD SITE (DOE)
Location of MWF
RICHLAND
West Richland
RICHLAND AIRPORT
COLUMBIA RIVER
YAKIMA RIVER
LAKE WALLULA
Produced by the United States Geological Survey
Control by USGS, NOS/NOAA and USCE
Compiled from aerial photographs taken 1973. Revised from aerial photographs taken 1989. Field checked 1990. Map edited 1992
North American Datum of 1927 (NAD 27). Projection and 10 000-foot grid ticks: Washington Coordinate System, south zone (Lambert Conformal Conic). 1000-meter Universal Transverse Mercator grid, zone 11
The difference between NAD 27 and North American Datum of 1983 (NAD 83) for 7.5 minute intersections is given in USGS Bulletin 1875. The NAD 83 is shown by dashed corner ticks
There may be private inholdings within the boundaries of the National or State reservations shown on this map
Red tint indicates areas in which only landmark buildings are shown
Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked
SCALE 1:24 000
CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
ROAD CLASSIFICATION
Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
Interstate Route
U. S. Route
State Route
UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
WASHINGTON
QUADRANGLE LOCATION
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST
RICHLAND, WASH.
46119-C3-TF-024
1992
DMA 2176 IV SE-SERIES V891

Figures 4.0a and 4.0b
FEMA Flood Insurance Map

APPROXIMATE SCALE
1000 0 1000 FEE

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

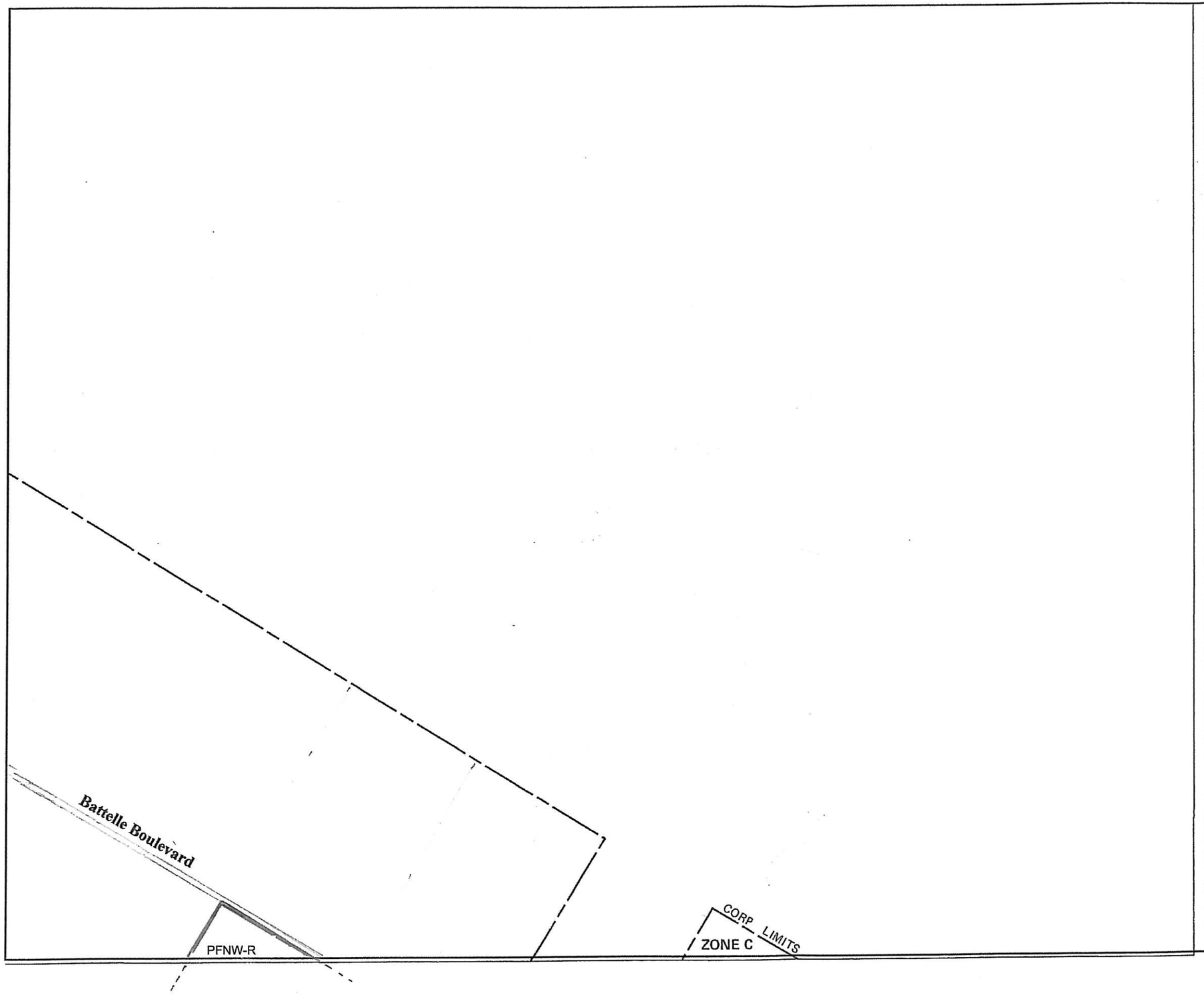
CITY OF
RICHLAND,
WASHINGTON
BENTON COUNTY

PANEL 10 OF 15
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
535533 0010 E

MAP REVISED:
MARCH 1, 1984

Federal Emergency Management Agency



APPROXIMATE SCALE

1000 0 1000 FEI

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

CITY OF
RICHLAND, WASHINGTON
BENTON COUNTY

PANEL 5 OF 15
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
535533 0005 E

MAP REVISED:
MARCH 1, 1984

Federal Emergency Management Agency

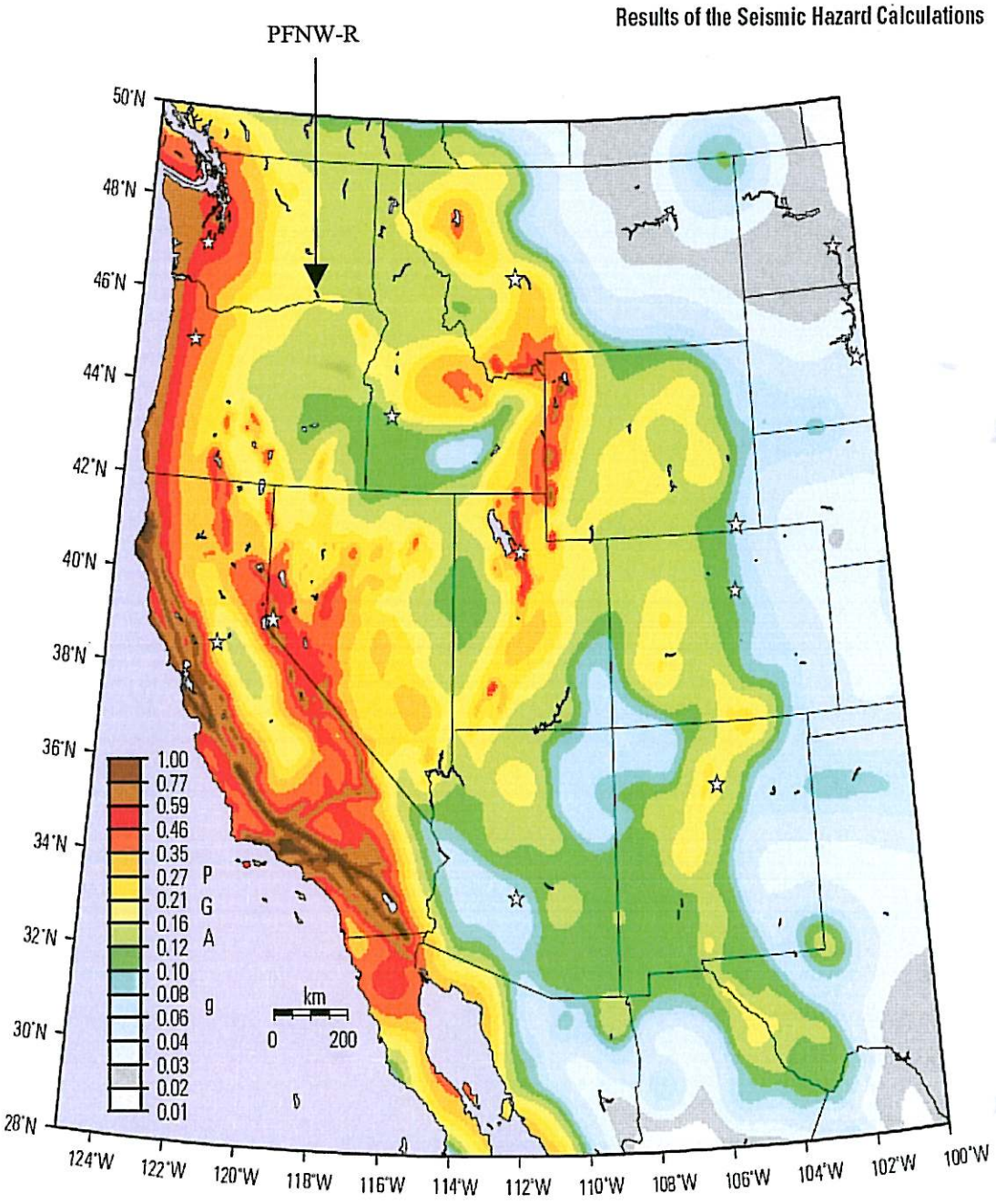


Figure 38. Map of peak ground acceleration (PGA) for 2-percent probability of exceedance in 50 years in the Western United States in standard gravity (g).

Figure 5.0a
USGS Seismic Hazard Map - Arrow indicates location of MWF.

52 Documentation for the 2008 Update of the United States National Seismic Hazard Maps

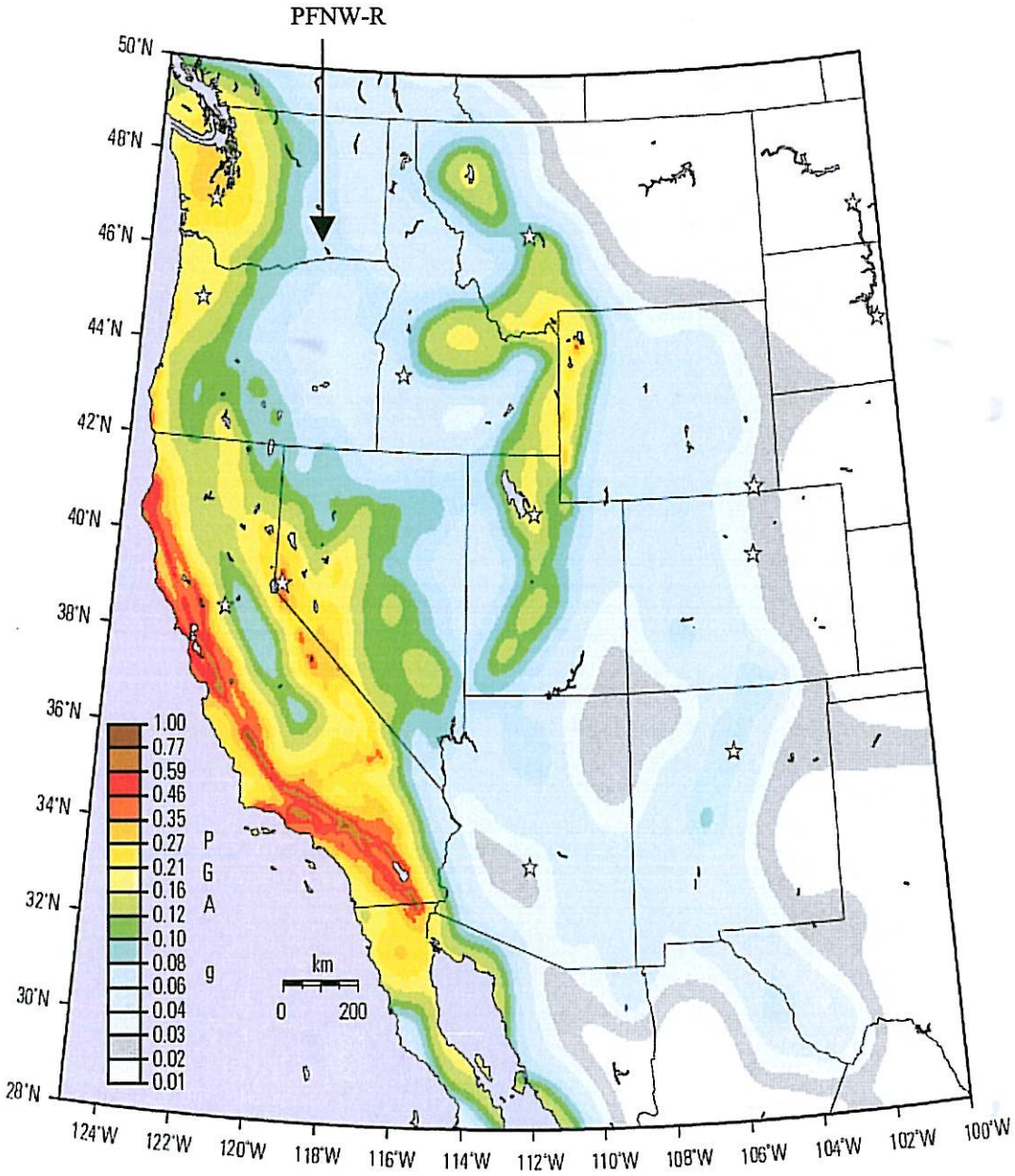
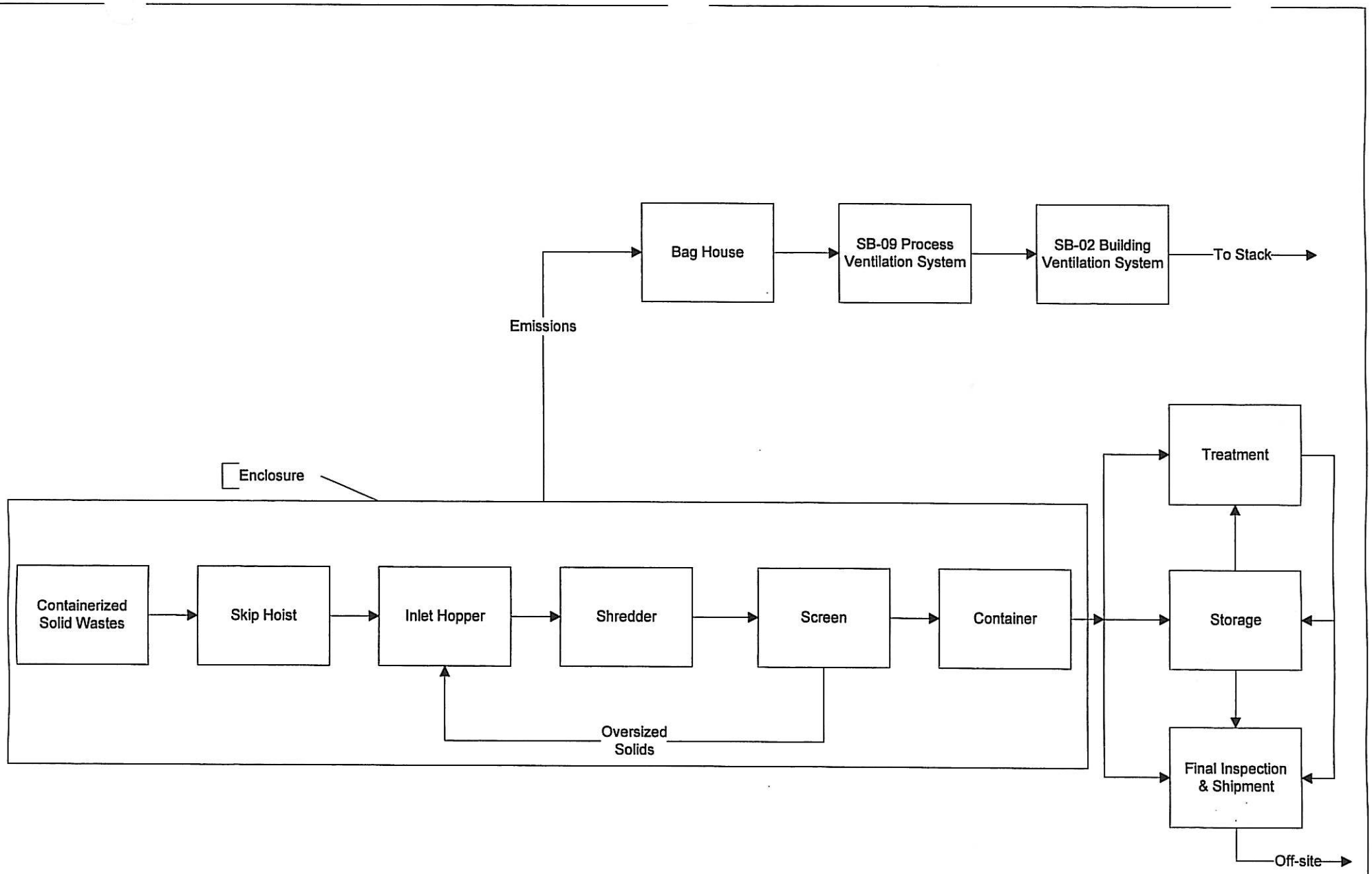


Figure 39. Map of peak ground acceleration (PGA) for 10-percent probability of exceedance in 50 years in the Western United States in standard gravity (g).

Figure 5.0b
USGS Seismic Hazard Map - Arrow indicates location of MWF.

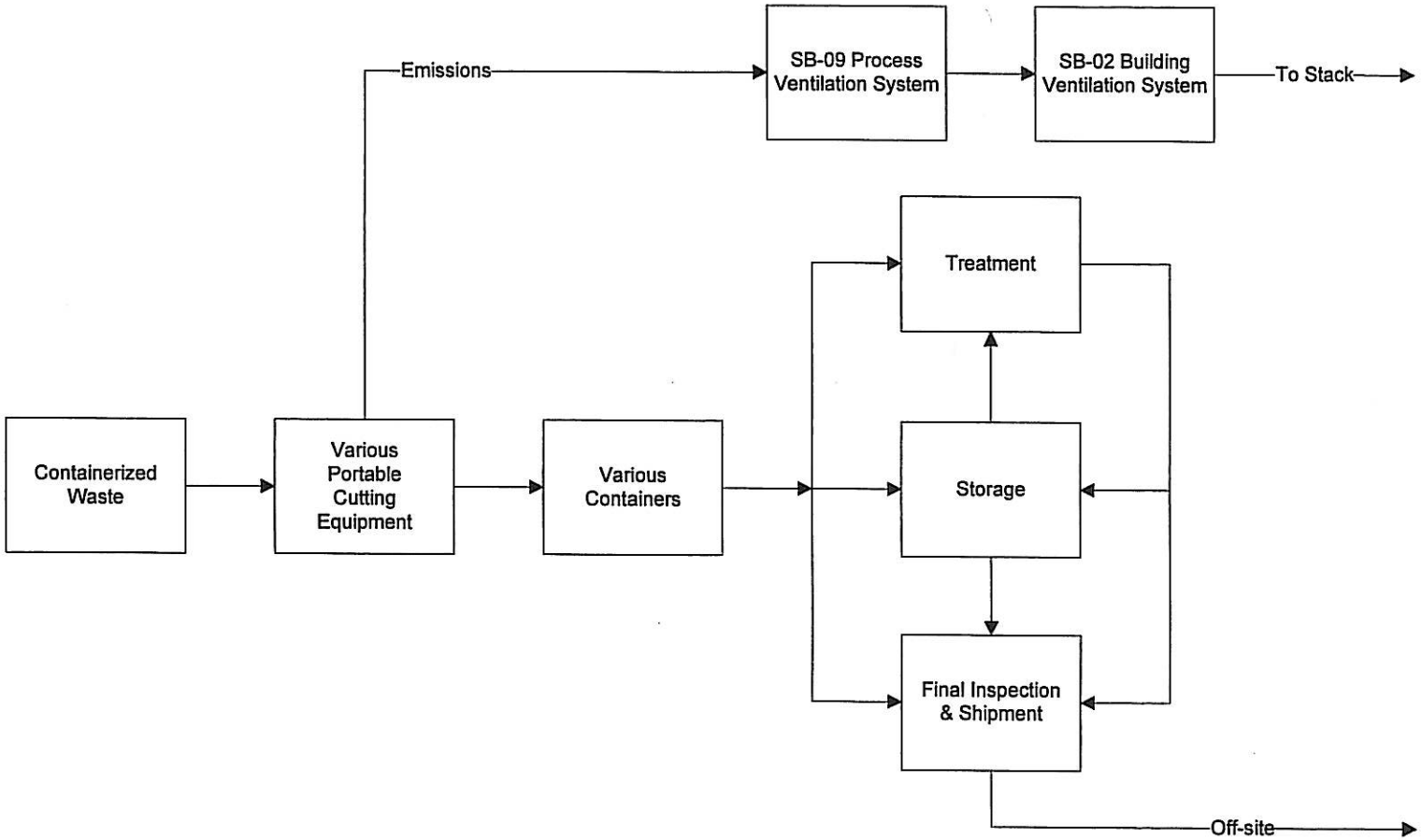
Figure 6.0
Treatment Process Flow Diagrams



TP-01 Size Reduction & Screening Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

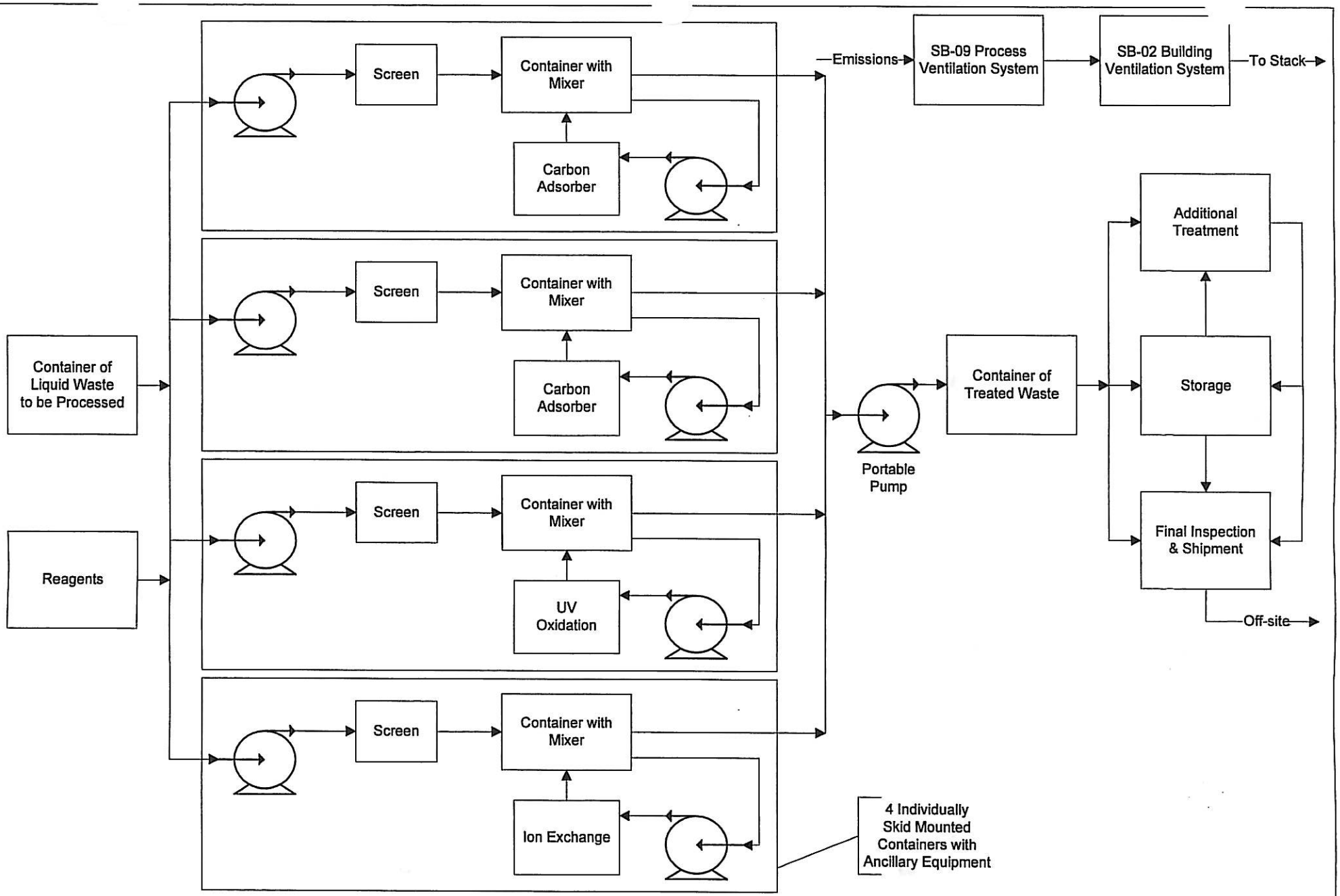
SCHREIBER & YONLEY ASSOCIATES
ENVIRONMENTAL ENGINEERS



TP-02 Cutting & Shearing Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

SCHREIBER & YONLEY ASSOCIATES
ENVIRONMENTAL ENGINEERS



TP-14 Liquid Treatment Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

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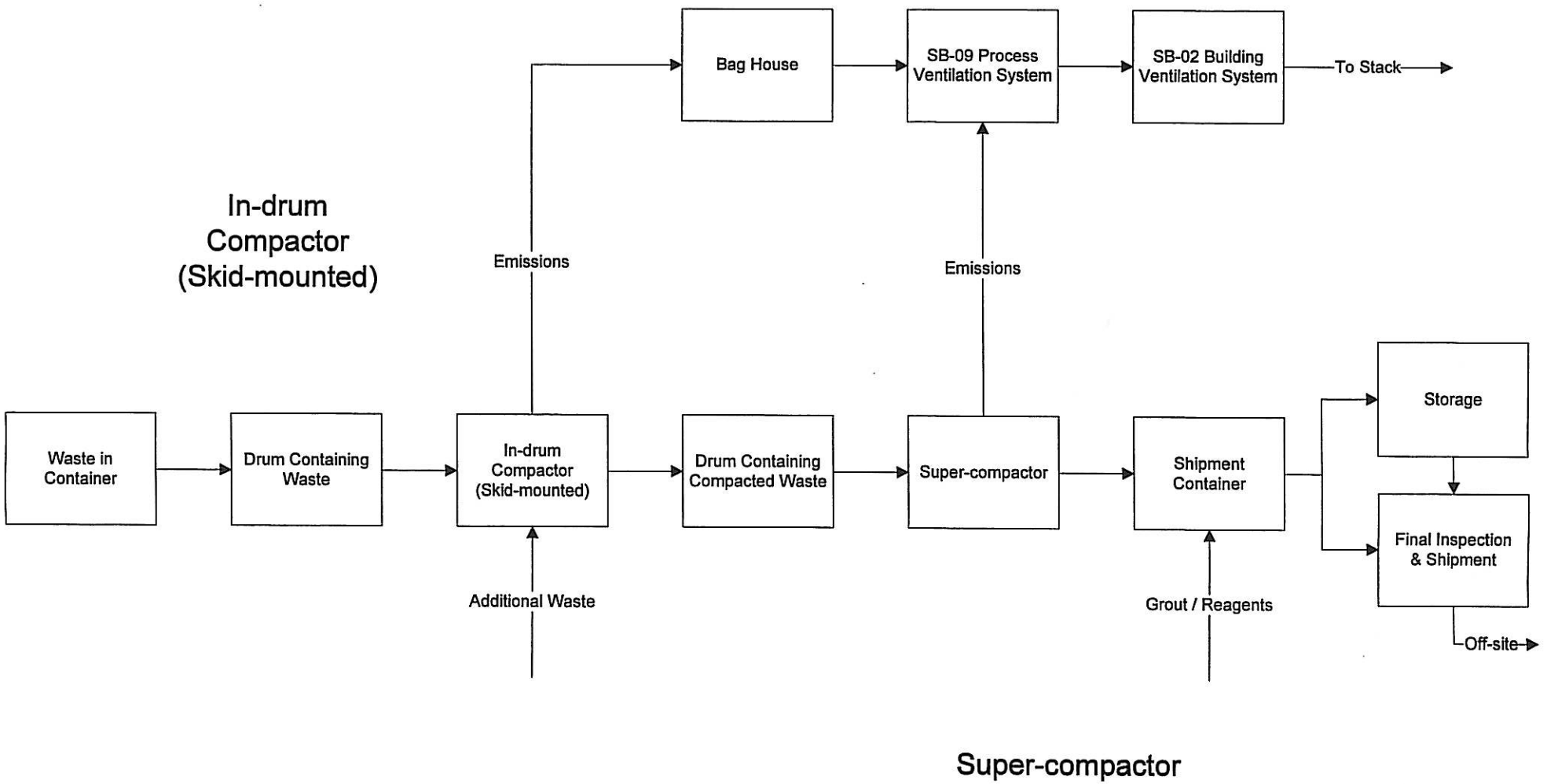
ENVIRONMENTAL ENGINEERS



TP-07
Compaction & Macroencapsulation
Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

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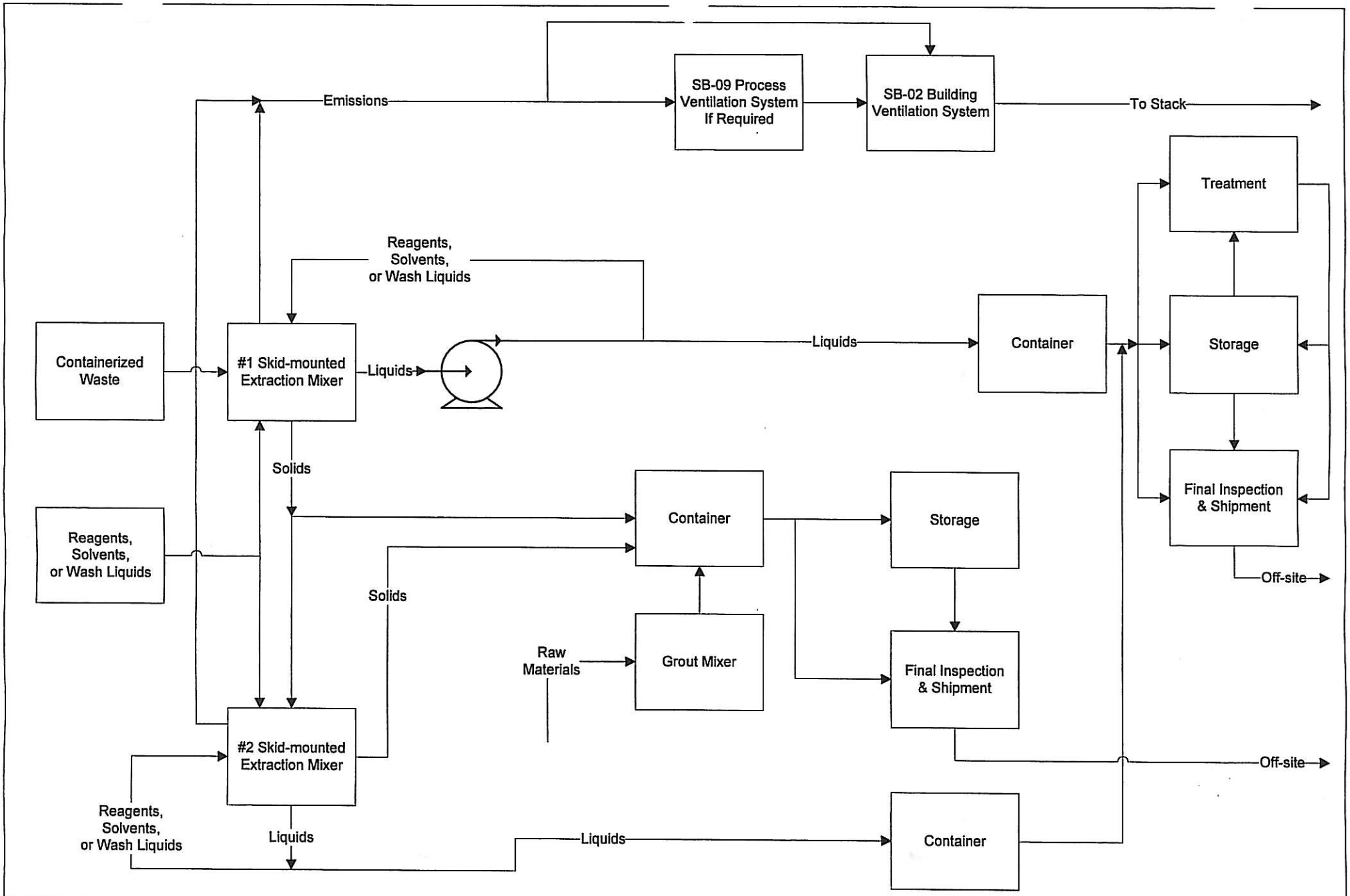
ENVIRONMENTAL ENGINEERS



TP-10 Extraction System Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

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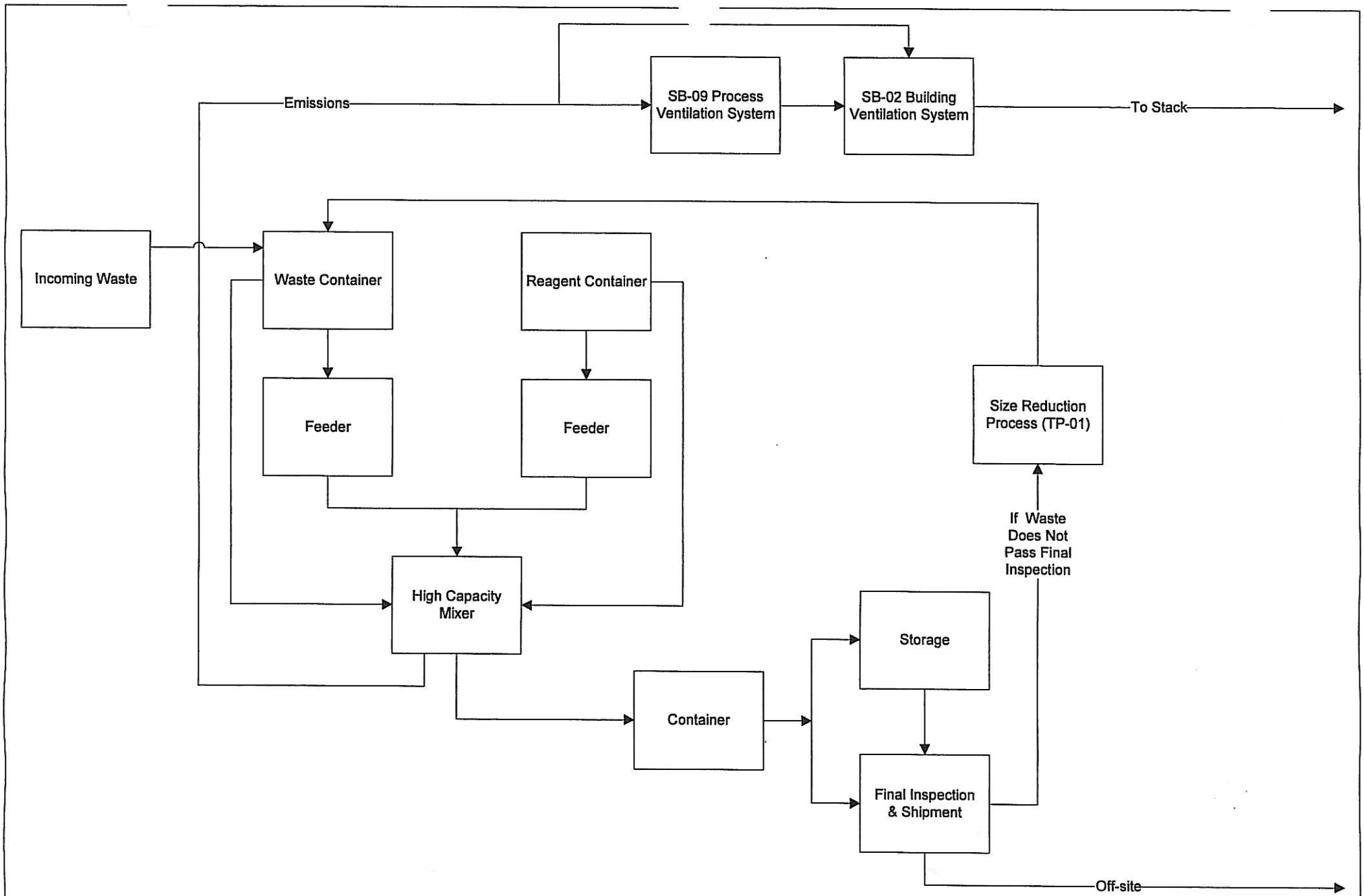
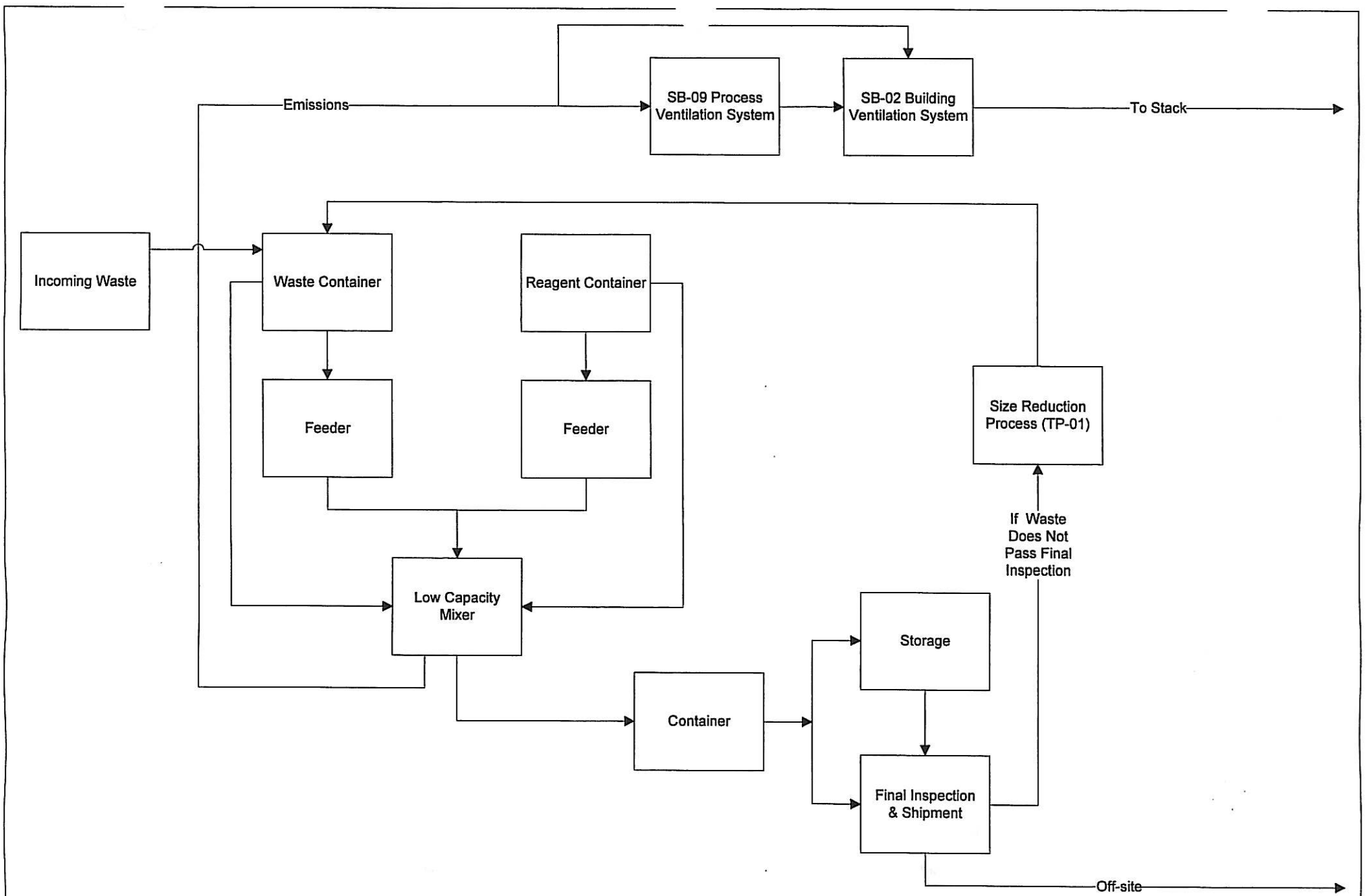
ENVIRONMENTAL ENGINEERS



TT-01 High Capacity Mixing System
Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

SCHREIBER & YONLEY ASSOCIATES
ENVIRONMENTAL ENGINEERS



TT-02 Low Capacity Mixing System
Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

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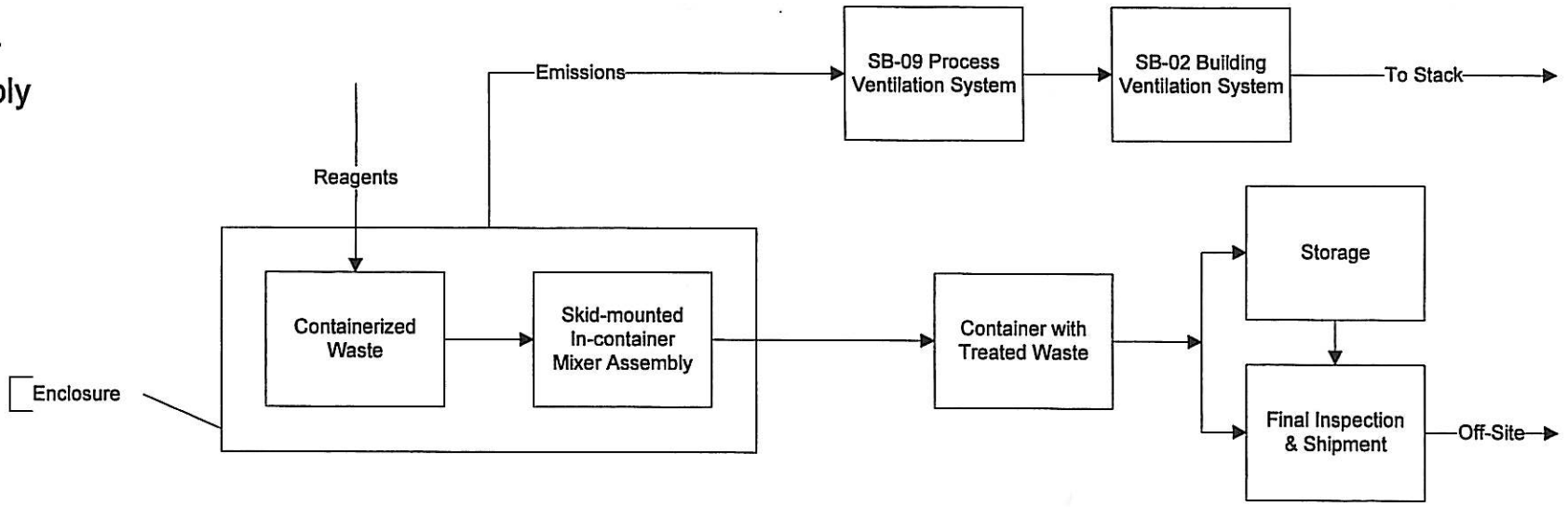
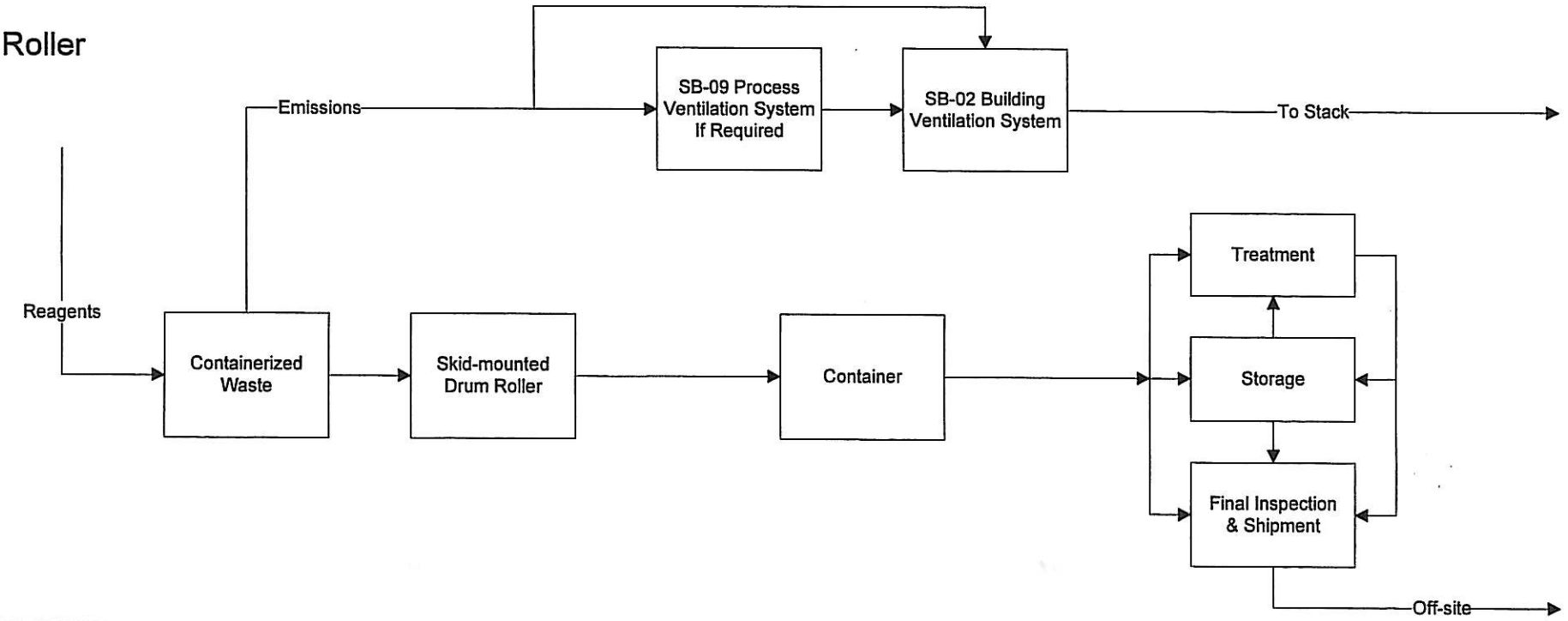
In-container Mixer Assembly



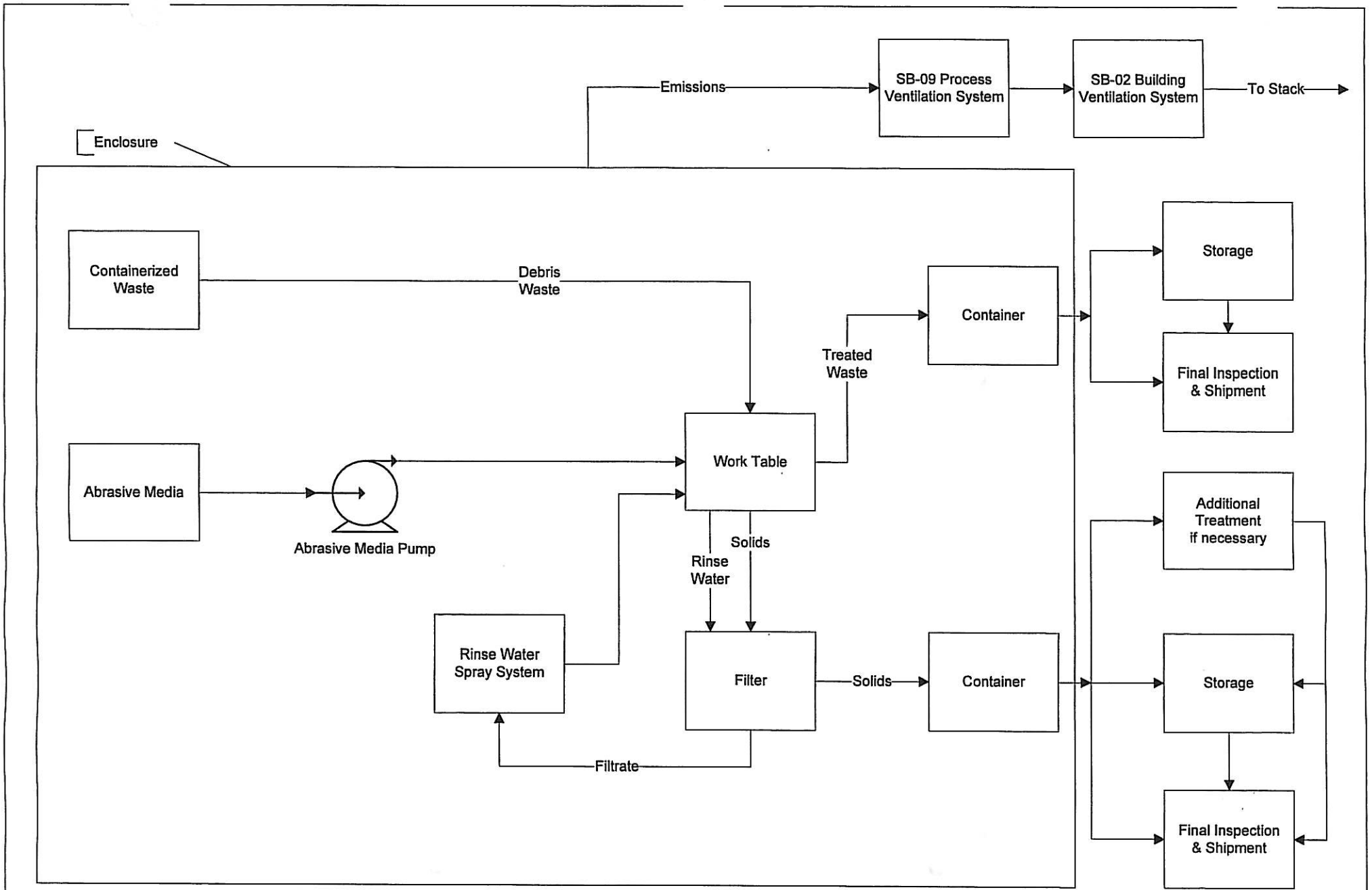
Drum Roller



TT-03 In-Container Mixing Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

SCHREIBER & YONLEY ASSOCIATES
ENVIRONMENTAL ENGINEERS



TT-05 Physical Extraction System
Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

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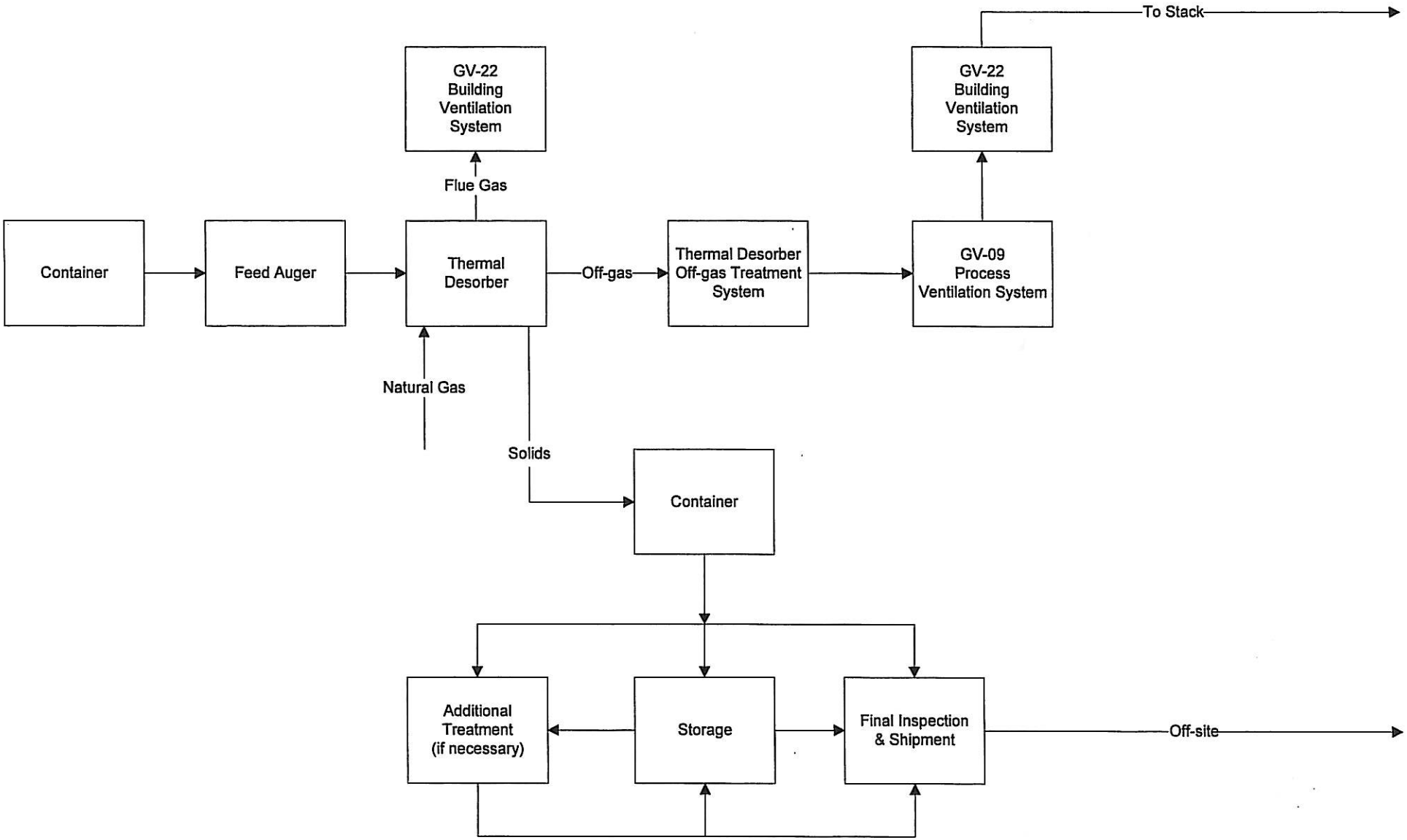
ENVIRONMENTAL ENGINEERS



TT-08 Thermal Desorber System Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

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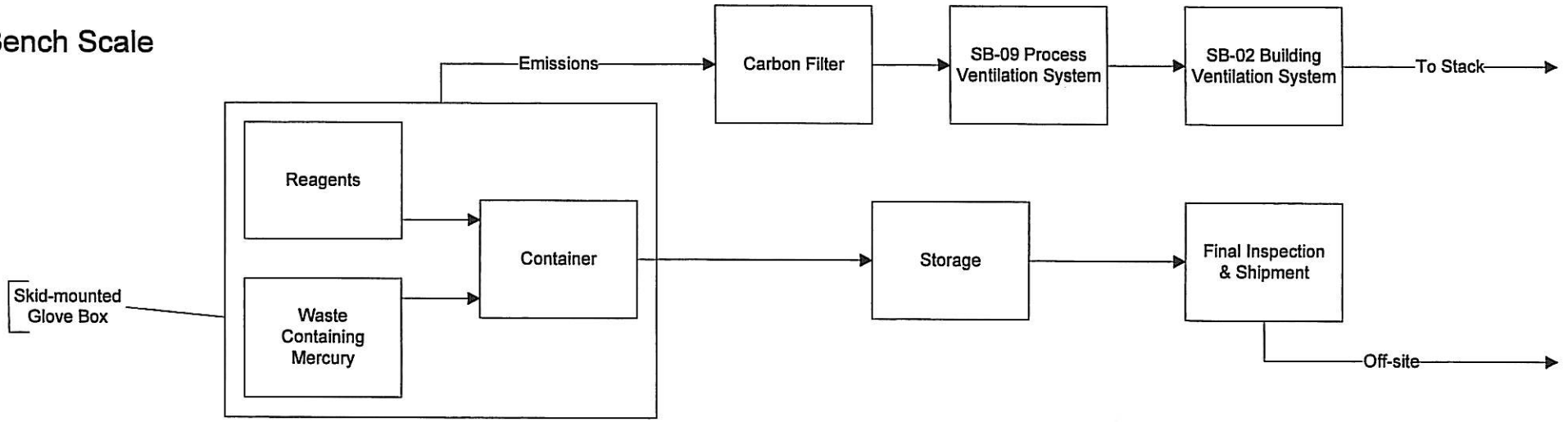
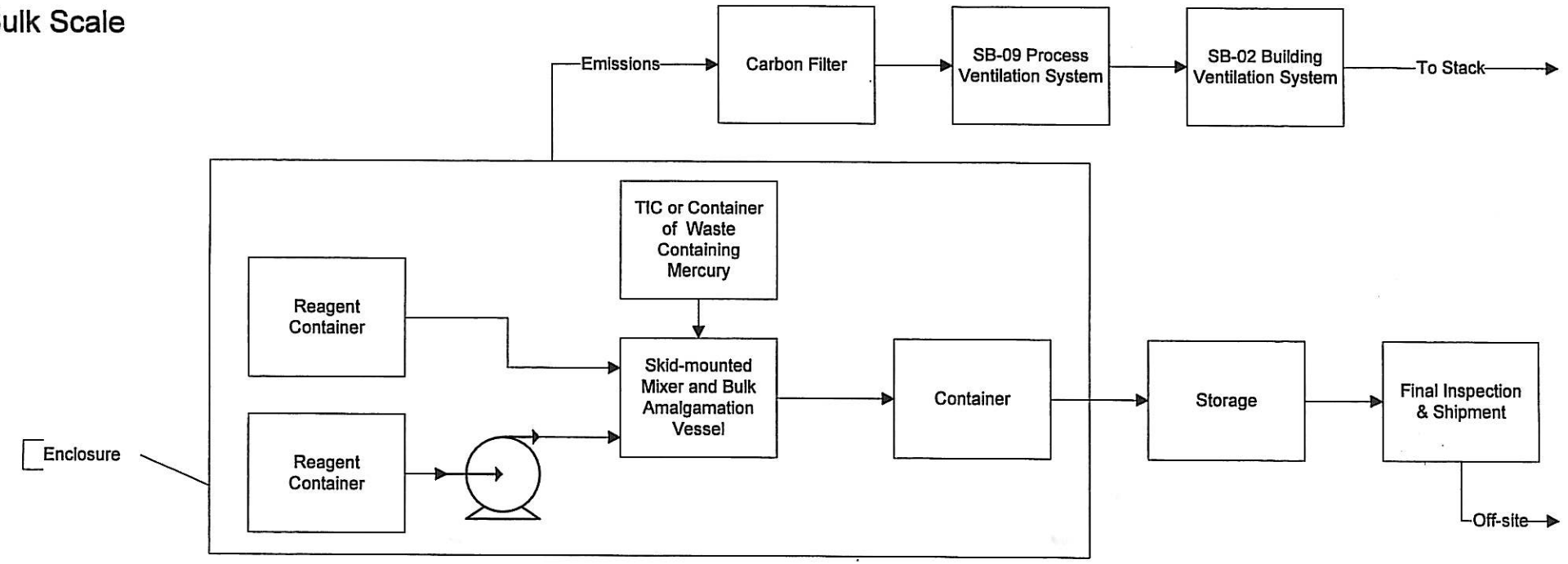
ENVIRONMENTAL ENGINEERS

Bench Scale



Bulk Scale



TT-09 Mercury Amalgamation Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

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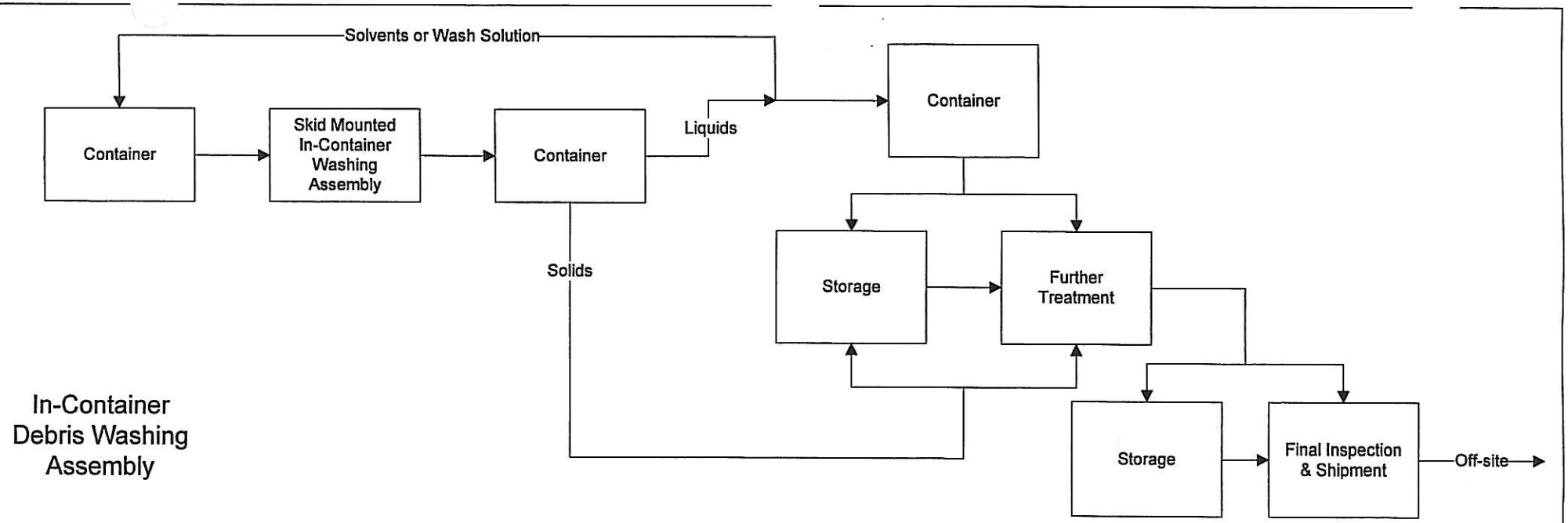
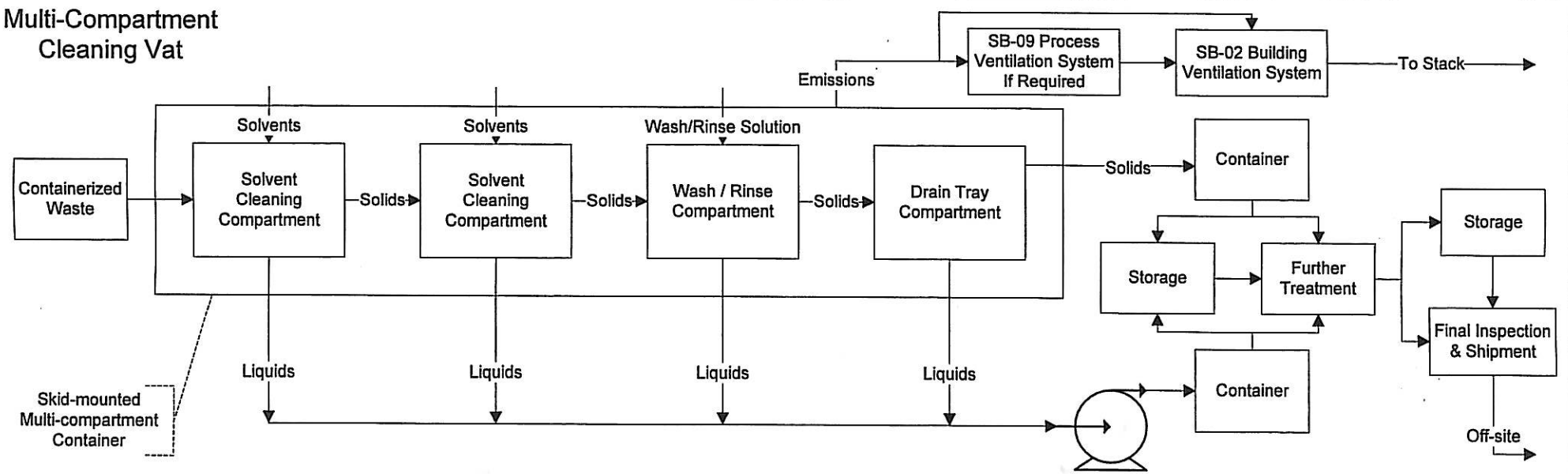


In-Container Debris Washing Assembly



Multi-Compartment Cleaning Vat

TT-10 Debris Washer Process Flow Diagram

Drawn by: JFW
Date: 3/3/2009
Revision: 1

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