TYPE V MUNICIPAL SOLID WASTE FACILITY
TCEQ MSW PERMIT 2234A

APPLICATION PART II

For

LIQUID ENVIRONMENTAL SOLUTIONS OF TEXAS, LLC

Houston Facility
250 Gellhorn Street
Houston, Texas 77013

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RN100708841

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1. Introduction

Liquid Environmental Solutions of Texas, LLC (LES) is in the business of processing non-hazardous liquid wastes. The LES Houston Facility is a de-watering, recycling, and pre-treatment facility. The facility is designed to separate and process the waste streams received into recyclable components, water suitable for discharge into the sanitary sewer system and solid materials for appropriate disposal. The acceptance and processing of such wastes requires a Type V Municipal Solid Waste (MSW) permit.

The purpose of this major permit amendment is to increase the monthly permitted waste receipts from 6 million gallons per month to 8.35 million gallons per month. The basis for this request is included in Attachment SDP-1 to the Site Development Plan (SDP). Additional changes requested in this permit submittal include changing the name of the Owner/Operator from "Liquid Environmental Solutions of Texas, L.P." to "Liquid Environmental Solutions of Texas, LLC" and replacing the facility boiler. The facility has received a temporary authorization from the Texas Commission on Environmental Quality (TCEQ) regarding the boiler replacement. The new boiler is reflected in Table SDP-4 of the SDP.

The original MSW permit application for Permit 2234A, currently owned and operated by LES, was submitted on April 15, 1994. Since that time, there have been a total of eight revisions to the permit documents which constitute the permit, as indicated in the following Table II-1. The Site Operating Plan (SOP) underwent a major reorganization in the November 27, 2006 revision to comply with extensive new regulatory requirements.

Date	Site Development Plan (SDP)	Site Operating Plan (SOP)	Waste Acceptance and Analysis Plan (WAAP)	Permit Edition
4/15/1994	Original	Original (Old)	Original	Original
7/13/1995	-	-	Revision 1	Revision 1
10/13/1995	Revision 1	-	-	Revision 2
6/1/2004	Revision 2	Revision 1	Revision 2	Revision 3
11/1/2005	Revision 3	Revision 2	-	Revision 4
2/1/2006	Revision 4	Revision 3	Revision 3	Revision 5
11/27/2006	-	Original (New)	-	Revision 6
6/28/2007	-	Revision 1	-	Revision 7
5/30/2008	-	Revision 2	Revision 4	Revision 8

Table II-1: Revision history for MSW Permit No. 2234A.

This permit document submittal represents a major reorganization of the previous permit documents. The documents have been reorganized to better align with the corresponding regulatory requirements. Where applicable, regulatory citations are noted. With the concurrence of the Texas Commission on Environmental Quality (TCEQ), these documents are being submitted as clean copies without markups.

Regulatory requirements for Part II of the MSW permit application are presented in Title 30, Texas Administrative Code (TAC), Chapter 330, Section 61.

2. Waste Acceptance Plan (330.61 (b))

The requirements for the waste acceptance plan are addressed in the Waste Acceptance and Analysis Plan, Attachment II-1.

3. General Location Maps (330.61 (c))

A general location map is provided as Attachment I-1 to Part I of the application. Because of the fixed scale specified for the General Location Map and the amount of detail shown, many of the features listed in 330.61 (c) are included in other maps as indicated below:

- Water wells (330.61 (c) (2)) are indicated on the topographic map (Attachment II-3);
- Structures and inhabitable buildings (330.61 (c) (3)) are indicated on the topographic map (Attachment II-3);
- Ponds and lakes (330.61 (c) (4)) are indicated on the topographic map (Attachment II-3);
- Schools, licensed day-care facilities, churches, hospitals, cemeteries, and residential, commercial, and recreational areas (also 330.61 (c) (4)) are indicated on the land use map (Attachment II-5);
- Drainage, pipeline, and utility easements (330.61 (c) (10)) are indicated on the Facility Layout Map (Attachment II-2);
- Facility access control features (330.61 (c) (11)) are indicated on the Facility Layout Map (Attachment II-2); and
- Archaeological sites, historical sites, and sites with exceptional aesthetic qualities (330.61 (c) (12)) are indicated on the topographic map (Attachment II-3).

The roads used to access the facility are paved and are typically either concrete or asphalt.

4. Facility Layout Maps (330.61 (d))

A facility layout map is provided in Attachment II-2. Features required by 330.61 (d) (1) through (8) are indicated. 330.61 (d) (9) does not apply to this facility.

5. General Topographic Maps (330. 61 (e))

A general topographic map is provided in Attachment II-3.

6. Aerial Photograph (330. 61 (f))

In accordance with 330.61 (f) (3), an aerial image of the area with a scale of 1 inch = 2,000 feet is provided in Attachment II-4. The photograph shows at least a one-mile radius around the property boundary, which is indicated.

7. Land-Use Map (330.61 (g))

A land-use map complying with the subject requirements is provided in Attachment II-5. Note that ponds and lakes are indicated on the topographic map (Attachment II-3) and drainage, utility, and pipeline easements are indicated on the Facility Layout Map (Attachment II-2).

8. Impact on Surrounding Area (330.61 (h))

(a) Zoning. While no zoning maps are available, properties in the vicinity of the site are predominantly industrial or commercial, as reflected in the Land Use Map (Attachment II-5).

(b) Character of Surrounding Land. The character of the surrounding land is illustrated in the Land Use Map (Attachment II-5). The site is located in a partially developed industrial/warehouse area, approximately 0.75 miles northeast of the intersection of Interstate 10 and Loop 610 on the East side of Houston. A sewage lift station is located across Gellhorn Drive to the south of the facility. The nearest residence is greater than 1000 feet from the property boundary.

(c) Growth Trends. The site is located within the city limits of the City of Houston in Harris County. According to the Greater Houston Partnership (2005), the population of the City of Houston is expected to grow at a rate of 1.1% annually. Data from the 2000 U.S. Census Bureau interpreted by the City of Houston show that faster growth has occurred in the north and west sections of the City than in the east and south. Growth on the east side of Houston where the site is located has been slow or has shown a negative trend. The industrial nature of the area has been established for many years. In the immediate area, the prevailing development potential appears to be for trucking and warehouse related usage.

(d) Proximity. The approximate number of residences and businesses within one mile of the site and approximate distances to significant land usages follows:

Number of businesses:	181 (HCAD 2008)
Number of residences:	614 (HCAD 2008)
Nearest:	
Residence	1900 ft. north on Wallisville (HCAD 2008)
Business	200 ft southeast across Gellhorn (HCAD 2008)
School	2900 ft. northeast on Wallisville (JW Oates Elementary) (HCAD 2008)
Medical Facility	1500 ft. northwest (Eastway General Hospital) (COH 2008)
Church	3100 feet northeast (St. Phillip Presbyterian) (COH 2008)

Recreational Facility	2750 ft. east off Oates Road (Herman Brown Park) (COH 2008)
Cemetery	4950 feet northeast (Oates Prairie Cemetery) (THC 2009)
Historic/Archaeological Site	None located within 1 mile (THC 2009)

(e) Wells. There are no known wells located within 500 feet of the site (TWDB 2008).

9. Transportation (330.61 (i))

(a) Road availability and adequacy. The facility is located on Gellhorn, a city-maintained four lane concrete roadway. Normal facility access is indicated on the Facility Layout Map included as Attachment II-2. Typically, trucks enter the facility through the westernmost gate on Woodforest Boulevard and exit through the westernmost gate on Gellhorn Drive. Sometimes, trucks enter and exit the facility through the westernmost gate along Gellhorn Drive. Entry through this gate is allowed only for certain loads when an attendant is available to direct traffic.

From the west, access off of I-10 is via the Gellhorn exit. From the east, access is via the Mercury exit and the freeway access road, which bends around north to become the access road for 610. From 610, access is via the Gellhorn/Wallisville exit from the north and the Wallisville/McCarty exit from the south. Though Gellhorn dead-ends adjacent to the plant site, it is a major street maintained by the City of Houston suitable for the volume of heavy truck traffic generated by industrial and commercial businesses in the area. Two-way traffic is permitted on the north side of Gellhorn Drive leading up to the entrance to the site.

(b) Vehicular volumes on access roads. According to the Texas Department of Transportation, traffic along Gellhorn between I-10 and the 610 loop peaked at 6,760 vehicles per day in 2006. This is an increase from 2001 when the maximum number of vehicles recorded in one day was 4,250.

(c) Projected facility-related traffic. Traffic volume expected from the operation of the facility is no more than 150 vehicles per day. This volume includes an expected increase of 50 vehicles per day based on the requested permit capacity increase.

(d) Coordination of proposed public roadway improvements. Since the anticipated increase in traffic due to the proposed capacity amendment is minimal, there have been no proposed roadway improvements.

Impact on airports are not applicable to this Type V facility.

10. General Geology and Soils Statement (330.61 (j))

The Houston Sheet of the Geologic Atlas of Texas characterizes the surface geology of the site area as the Beaumont Clay Formation (Qb), Quaternary fluvial, alluvial, and shallow marine deposits of the Pleistocene Period. The deposits consist of clay and mud flats with concretions (calcium carbonate, iron oxide, and iron manganese) typical to historical and weathered stream channels, levees, back swamp and point-bar areas.

According to the *Soil Survey of Harris County, Texas*, published by the United States Department of Agriculture, Natural Resources Conservation Service (Issued August 1976), the site contains soils of the Lake Charles-Bernard association. The Lake Charles-Bernard association is described as clayey loamy soils that are somewhat poorly drained and very slowly permeable. The specific soil mapping description for 90% of the soils in the site area is Lake Charles clay (LcA) with the remainder of minor soils. Lake Charles clay is nearly level with 0 to 1% slopes. Soil layers from the surface down to a depth of 80 inches are very firm with ranges in color from black to gray and ranges in pH from neutral to mildly alkaline.

Data for fault areas, seismic impact zones, and unstable areas are not applicable to this Type V facility.

11. Groundwater and Surface Water (330.61 (k))

According to the Texas Water Development Board (Report 345, Aquifers of Texas (November 1995) and the Texas Water Plan, Water for Texas 2007), the Gulf Coast Aquifer is the principal aquifer for Harris County. The Gulf Coast Aquifer extends along the Gulf Coast from the Mexican coastline to the Texas-Louisiana border and provides water to all or parts of 54 counties. It is generally composed of four aquifers. In descending order, these include: the Chicot Aquifer (of the Beaumont, Montgomery, Bentley, Willis, and Lissie formations, all overlain by alluvial deposits), the Evangeline Aquifer (of the Goliad and Fleming Sands), the Jasper Aquifer (of the Oakville Sandstone), which is separated from the Evangeline by a confining unit, and the Catahoula Aquifer at depth. The general dip and direction of flow within the aquifer system is from the northwest to the southeast. The average saturated thickness ranges from 700 feet in the south to 1,300 feet in the north. Acceptable water quality has been noted in the shallower portion of the aquifer; however, water quality tends to deteriorate with depth and toward the south, more so with increased pumping that promotes saltwater intrusion from the Gulf of Mexico. Of the Gulf Coast Aquifer group, the Chico and Evangeline are the groundwater source aquifers for the City of Houston. Primary usage has been for municipal and industrial supply.

According to United States Geological Survey (HA 730-E), the Gulf Coast Aquifer is recharged by precipitation in the high outcrop. The mechanisms for aquifer discharge are evapotranspiration, upward migration to shallower saturated zones, discharge to streams, and well pumping. In addition to saltwater intrusion, extensive pumping of the Gulf Coast Aquifer has also caused irreversible land subsidence in Harris County and surrounding areas

(as much as 9 feet), thereby increasing the risk of area flooding. Harris County is not a part of a confirmed or pending groundwater conservation district. Consequently, the Harris-Galveston Subsidence District was born [in 1975] to regulate groundwater usage and redirect a portion of the area water supply from groundwater to surface water resources in Harris and Galveston counties. The current water supply source in the greater Houston area is 71% surface water and 29% groundwater (www.publicworks.houstontx.gov).

The San Jacinto River Basin encompasses the Houston metropolitan area. It is flanked by the Trinity and Brazos rivers (to the east and west, respectively), and drained by the San Jacinto River, its tributaries, and Luce and Buffalo bayous. Reservoirs collecting water from the streams of the basin are currently the major source of municipal and recreation water in the area. The City of Houston Publics Works Department serves the City of Houston and surrounding cities. The Houston area obtains the majority of its drinking water from surface water stored in the following lakes/reservoirs: Lake Livingston (located 58.8 miles NNE of the site), Lake Houston (located 11.2 miles NE of the site), and Lake Conroe (located 49.6 miles NNW of the site). For purposes of preservation, the city's long-range water supply plan is designed to meet water supply needs through the year 2035.

The property is bounded to the north by Harris County Flood Control District ditch H-125-00-00. This ditch flows to Hunting Bayou, thence to the Houston Ship Channel/Buffalo Bayou in Segment 1007 of the San Jacinto River Basin.

Stormwater associated with industrial activity is routed to the treatment facility for pretreatment and discharged to the City of Houston sanitary sewer system. Stormwater from the office parking lot is routed to the stormwater detention pond. This stormwater is tested prior to discharge to the City of Houston storm sewer system. In the event this stormwater fails to meets discharge criteria, it will be routed to the treatment facility and discharged to the City of Houston sanitary sewer system following pre-treatment. Non-impacted stormwater either discharges directly into the flood control ditch or into the City storm sewer system, which appears to be routed to the flood control ditch.

12. Abandoned Oil and Water Wells (330.61 (l))

LES has not encountered any abandoned oil and water wells either before or during construction or during subsequent operations.

13. Floodplains and Wetlands (330.61 (m))

The property is not located within a 100-year floodplain, as indicated in the Federal Emergency Management Agency Flood Insurance Rate Map Number 48201C0695L, revised June 18, 2007. The facility is not located on or adjacent to any wetlands.

14. Endangered or Threatened Species (330.61 (n))

Copies of correspondence sent to the Texas Parks and Wildlife Department and the United States Fish and Wildlife Service are provided in Attachment II-6.

15. Texas Historical Commission Review (330.61 (o))

The Texas Historical Commission (THC) was contacted prior to submittal of the application regarding the existence of known prehistoric or historic cultural resources which would be affected by the facility. Response from the THC is pending. Documentation of this correspondence is included in Attachment II-6.

16. Council of Governments and Local Government Review Request (330.61 (p))

The Houston-Galveston Area Council (H-GAC) is the State designated planning agency for solid waste management issues in the region. The H-GAC was notified prior to submittal of the application and comment was requested. Documentation of this correspondence is included in Attachment II-6.