Environmental Site Assessment

± 270 Acre Tract of Vacant Land
619 W. F.M. 1161
Hungerford, Texas 77488

Prepared for

Wharton Economic Development Corporation
1944 N. Fulton
Wharton, Texas 77488

February 2012

AVO 28637/EA01

HALFF

HALFF ASSOCIATES, INC.

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February 22, 2012
AVO 28637/EA01

Mr. David Schroeder
Executive Director
Wharton Economic Development Corporation
1944 N. Fulton
Wharton, Texas 77488

Re: Phase I Environmental Site Assessment for ±270 Acres of Vacant Land located at 619 W. F.M. 1161 in Hungerford, Texas

Dear Mr. Schroeder:

Attached please find a Phase I Environmental Site Assessment performed by Halff Associates for the above referenced property.

Halff Associates is pleased to be of service to you on this project. We are a full service consulting engineering firm and would be glad to provide any additional service on this project or on any other projects anticipated by you in the future. If you have any questions regarding this report, please feel free to call me at (713) 588-2444.

Sincerely,

HALFF ASSOCIATES

Al Brunson
Environmental Scientist

Christopher B. Kennedy, P.G.
Quality Control Review

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1.0 EXECUTIVE SUMMARY

On February 8, 2012 Halff Associates (Halff) performed a Phase I Environmental Site Assessment (ESA) on behalf of the Wharton Economic Development Corporation (Client) for ±270 acres of vacant land located at 619 W. F.M. 1161, Hungerford, Wharton County, Texas (Property or Site). Figure 1, the Location Map, shows the Property location on the U.S. Geological Survey (USGS) Topographic Quadrangle Map "Hungerford, Texas". Figure 2, the Site Schematic, shows significant features of the Site. Both figures are presented at the end of this report.

The Property consisted of an irregular shaped tract of land containing of approximately 270 acres. At the time of the Site visit, the majority of the property was cultivated for agricultural purposes. An unimproved road bisected the Property in a general northeast to southwest direction. Three additional unimproved roads were observed on the Site. Two of the roads lead from the main road to the eastern portion of the Site and areas that appeared to be the former locations of single-family homes. The third road lead from the central portion of the Site to the western Property boundary. A soil stockpile, approximately 25 feet in diameter and 4 feet high was observed at the end of the northern most road. The stockpile contained brick and pieces of rusted metal. The southernmost east/west road terminated at what appeared to be the location of a former single family home. A storage building (approximately 8' X 10'), an active water well, a pole mounted transformer, two used tires, several concrete foundation blocks, and what appeared to a former septic tank were observed at the end of this road. The former septic tank appeared to have been filled with soil. At the time of the Site visit, numerous empty seed sacks were observed in the small storage building. Overhead power lines were located on the eastern Property boundary on the southern half of the site. Signage for an underground AT&T phone line was observed on the northern Property boundary near the northern entrance to the Site.

A pipeline marker was observed on the southern Property boundary approximately 500 feet from the southwest corner of the Property. Additional pipeline markers were also observed on the east and west Property boundary approximately 250 feet south of the northern Property boundary. Details concerning the two pipelines are further discussed below.

Information obtained regarding the pipeline associated with the marker located on the south Property boundary indicated that it was owned by Enterprise Products. According to Mr. Jason York, Field Supervisor for Enterprise Products, the pipeline crossed the southwest portion of the Property and was identified as pipeline 17B-100. Mr. York reported that the pipeline was constructed in the 1940's and originally constructed as a crude gathering line and currently transports natural gas. The pipeline was reported to be 16 inches in diameter and installed approximately four feet below ground surface (bgs). According to Mr. York, the pipeline was inspected and brought up to Department of Transportation standards in August 2011. Mr. York reported that to his knowledge, there have been no releases associated with the pipeline in the area of the Property.

A second pipeline was located on the northern portion of the Property, crossing the Property in an east/west direction approximately 250 feet south of the northern Property boundary. According to the observed markers, this pipeline was owned by the Houston Pipeline Company. Mr. John Stolle,

a field representative for the Houston Pipeline Company was contacted for details concerning the pipeline. According to Mr. Stolle, the pipeline was originally installed in 1966, replaced in 1981 and had always transported natural gas. Mr. Stolle stated the pipeline was constructed with six-inch diameter steel pipe and was buried approximately four feet bgs. According to Mr. Stolle, he had worked for Houston Pipeline Company since 1984 and was not aware of any problems with the pipeline in that time. Mr. Stolle stated the pipeline was inspected and tested last year with no problems reported.

The inspection of the Property did not reveal any evidence of contamination, such as stressed vegetation, stained soils, or unusual odors. No evidence of the storage, treatment, or disposal of hazardous waste was observed on the Property. There were no visible or evident aboveground or underground storage tanks, treatment facilities, or hazardous waste handling or disposal facilities found at the Property. No manufacturing processes were observed during the Site inspection. No evidence of spills, staining, or stressed vegetation was observed on or near the above listed items; therefore, the miscellaneous debris observed on Site is considered a *de minimis* condition for the Property.

Based on a review of historical resources, the Property had been developed agriculturally since at least 1951. Residential structures were located on the Site from at least 1951 until at least 1996. The area surrounding the Property has historically consisted of farmland with scattered residential and commercial developments beginning in the early 1950's.

The area surrounding the Property has historically been vacant land, residential, commercial, and public roadways. No obvious evidence of the generation, storage, or disposal of hazardous waste was observed on the immediately adjacent properties surrounding the Site.

A closed junk yard was located approximately 300 feet east of the Property across U.S. Business 59. Several large stockpiles of used tires were scattered across the site. In addition to the tires, demolished building materials, and several empty oil containers were observed at the time of the Property investigation. At the time of the site visit, the junkyard was not in operation. The closed junkyard was not identified on the regulatory databases reviewed for this report. Chief Abbot, of the Wharton Fire Department was interviewed by phone (2/21/2012) concerning the Property and the closed junkyard located east of the Property. Chief Abbot reported that the WFD had no records concerning fires, hazardous materials responses, or the removal of USTs on the Property or the closed junkyard located east of U.S. Business 59. When asked about the closure of the identified junkyard, Chief Abbot stated that he was not sure why the junkyard closed, but it was not the result of any city or county action. Chief Abbot also stated that he had no knowledge or reports of hazardous material dumping at the closed junkyard.

Based on distance, topographic gradient, and information received from the Wharton Fire Department, the closed junkyard identified during the area reconnaissance did not appear to constitute a recognized environmental condition for the Property.

A regulatory review of the Property and surrounding area identified no Environmental Protection Agency (EPA) registered facilities and three Texas Commission on Environmental Quality (TCEQ) registered facilities within the prescribed search radii. Based on distance and database information, none of the identified facilities appeared to represent a potential environmental concern to the Property.

A User Questionnaire was provided to the Client in order to obtain any information pertinent to the Site that may indicate a potential for recognized environmental conditions to exist at the Site. Mr. David Schroeder of the Wharton Economic Development Corporation completed the questionnaire and reported no specialized knowledge of the Site that may indicate a potential for recognized environmental conditions to exist, and that the purchase price reasonably reflected the fair market value of the Property. Mr. Schroeder was not aware of any commonly known or reasonably ascertainable information about the Property that would indicate a recognized environmental condition. Mr. Schroeder stated that the ESA was being performed to determine any environmental issues prior to purchase of the Property.

An Owner/Operator Questionnaire was provided to Mr. Mark Matula, Trustee for the Julius and Mary Matula Family Trust, the owner of the Site, in order to obtain any information pertinent to the Site that may indicate a potential for recognized environmental conditions to exist at the Site. In addition to the Owner/Operator Questionnaire, Mr. Matula was interviewed by phone. Mr. Matula stated that his parents bought the Property in approximately 1990 and moved into a house located on the east central portion of the Property. Mr. Matula did not remember when the house was removed from the Site. According to Mr. Matula, a filled in septic tank and active water well were located near the former house location. Mr. Matula stated that the well was four inches in diameter, but did not have any additional information concerning the well. Mr. Matula had no knowledge regarding the presence of any above or below ground petroleum storage tanks ever having being on the Property. According to Mr. Matula, one above ground propane tank was formerly located near the house his parents had lived in but had been moved off-Site. Mr. Matula stated that Mr. Tim Krenek currently leases the Property for agricultural purposes. Contact information concerning Mr. Krenek was not provided at the time of report preparation. The lack of communication with Mr. Krenek was identified as a minor data gap. However, due to the amount of information received from other sources, the lack of a response from these agencies does not appear to be significant and did not impact the ability to identify potential recognized environmental conditions associated with the Property.

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM E 1527-05 or the ±270 acres of vacant land located at 619 W. F.M. 1161, Hungerford, Wharton County, Texas, (the Property). Any exceptions to, or deletions from, this practice are described in Section 2.0 of this report. This assessment has revealed no evidence of ***recognized environmental conditions*** in connection with the Property.

Although not identified as a REC or Historical REC, the bricks, rusted metal, and tires associated with the minor dumping identified as a ***de minimis*** condition for the Property should be removed from the Site and properly disposed.

2.0 OBJECTIVES/LIMITATIONS

On February 8, 2012 Halff Associates (Halff) performed a Phase I ESA on behalf of Wharton Economic Development Corporation (Client) for ±270 acres of vacant land located at 619 W. F.M. 1161, Hungerford, Wharton County, Texas. The purpose of the ESA was to identify, to the extent feasible pursuant to the process described in the ASTM E-1527-05 Standard, *recognized environmental conditions* in connection with the Property. *Recognized environmental conditions* are defined in the ASTM Standard as meaning "the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater, or surface water on the property." According to the ASTM Standard, *recognized environmental conditions* are not intended to include *de minimis* conditions, which are defined as "conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies." The scope of the investigation is set forth in the agreement between the Client and Halff, a copy of which is included as Appendix A.

The ESA was performed in accordance with the ASTM E-1527-05 Standard and generally accepted principles and practices of the profession undertaken in similar studies at the same time and in the same geographical area. Halff observed the degree of care and skill generally exercised by the profession under similar circumstances and condition.

The purpose of the ASTM E-1527-05 Standard is to "define good commercial and customary practice in the United States of America for conducting an environmental site assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. §9601) and petroleum products. As such, this practice is intended to permit a user to satisfy one of the requirements to qualify for the innocent landowner, contiguous property owner, or bona fide prospective purchaser limitations on CERCLA liability (landowner liability protection or LLP). That is, the practice that constitutes "all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice as defined at 42 U.S.C. §9601(35) (B). Controlled substances are not included within the scope of this standard. While use of this practice is intended to constitute all appropriate inquiry for purposes of the LLPs, it is not intended that its use be limited to that purpose. This practice is intended primarily as an approach to conducting an inquiry designed to identify recognized environmental conditions in connection with a property."

Halff has endeavored to meet what it believes is the applicable standard of care for the services performed and, in doing so, is obliged to advise you of ESA limitations which are essential to help clients identify and thereby manage risks. These risks may be further evaluated, but not eliminated, through additional research or investigation. Halff will, upon request, advise you of the additional research or investigation opportunities available and associated costs.

Property use was researched using available standard historical sources such as aerial photographs and topographic maps. The Property was visually examined for evidence of hazardous waste treatment, storage, or disposal facilities, or other activities or processes generating potentially hazardous substances. Federal and State Regulatory databases were reviewed to determine the regulatory status of the Property and registered facilities in the nearby area.

Phase I ESAs are relatively modest investigations of the conditions that exist at a given site, at the time the observations are made. Typically, only visual observations of the condition of the site are made; principally to determine if more detailed investigations are justified. An investigation of the site conducted in a few hours can fail to uncover the problems that exist at that location. This is especially true of underground conditions, which cannot be evaluated by visual ground-level inspections. Any reference to visual signs of contamination should not be misinterpreted. Visual signs of contamination do not necessarily indicate that extensive site contamination exists; and conversely, the absence of visual signs of contamination does not indicate that the site is not contaminated.

Information obtained for this ESA was received from a variety of sources that Halff believes are reliable. However, Halff does not warrant the authenticity or reliability of the information sources used in the preparation of this report.

Per the ASTM E 1527-05 Standard, this report may be relied upon for a period of one year prior to the date of acquisition of the Property or the date of the intended transaction provided that the following components of the inquiry have been conducted or updated within 180-days of the date of acquisition or the date of the intended transaction: Interviews with owners, operators, and occupants; searches for recorded environmental cleanup liens; reviews of federal, tribal, state, and local government records; visual inspections of the Property and of adjoining properties; and the declaration by the Environmental Professional responsible for the assessment or update. Based on the date the regulatory report was generated, an update of this report is necessary after **August 3, 2012**.

This assessment has been prepared for the exclusive use and reliance of the Client. It may not be reproduced without the approval of the Client. Any conclusions or observations included in this report are intended for the sole use of the Client. Use or reliance by any other party is prohibited without the written authorization of the Client and Halff. Reliance on this assessment by the client and all authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, ESA report, and Halff's General Terms and Conditions for Environmental Assessment Services. Any use of or reliance upon the information by a third party other than the Client shall be at the sole risk and liability of such third party and without legal recourse against Halff, its subsidiaries and affiliates, or their respective employees, officers, or directors.

3.0 SITE OVERVIEW/PROPERTY DESCRIPTION

ADDRESS:	619 W. F. M. 1161, Hungerford, Wharton County Texas
LAND AREA:	±270 Acres
BUILDING IMPROVEMENTS:	None
CURRENT OWNER:	Julius and Mary Matula Family Trust
CURRENT OCCUPANT:	Mr. Tim Krenek
CURRENT USE:	Agricultural
PRIOR USE:	Agricultural with single-family home(s)
SURROUNDING LAND USE:	Farm land, commercial, residential, vacant land, rail road right of way, and public roadways
GEOGRAPHIC COORDINATES:	29°23'20.94"± North Latitude 96°05'00.87"± West Longitude

4.0 SITE BACKGROUND/OPERATING HISTORY

4.1 Ownership

According to information provided by the Client, the Julius and Mary Matula Family Trust is the current owner of the Property. Owner information for the Property was obtained from Mr. Mark Matula, Trustee for the Site. A review of the chain-of-title for the Property was not included in the scope of work for this assessment.

4.2 Review of Aerial Photographs

Aerial photographs of the area surrounding the Property for the years 1951, 1956, 1972, 1996, 2004, and 2010 were obtained from an aerial photography company and reviewed for visible abnormalities or indications of past surrounding area land use that would raise environmental concerns. Review of the historical aerial photographs indicated that the Property had been developed agriculturally from at least 1951 to 2010. What appeared to be three single-family homes and their support structures occupied the Site from at least 1951 until at least 1972. The third home remained until at least 1996. The area surrounding the Property has historically been vacant land, residential, commercial, and public roadways. Copies of the historical aerial photographs are presented in Appendix B. A summary of the selected aerial photographs is presented in Table 1, below.

TABLE 1
AERIAL PHOTOGRAPHY REVIEW SUMMARY

Date	Site Description	Adjacent Property Description
1951	The majority of the Property was utilized for agricultural purposes. Approximately 30 acres on the east side of the Site appeared to be used as pastureland. What appeared to be three houses and several support buildings were located on the central and east central portions of the Site. The three houses were located on the northern end, the western edge, and the southern end of the pastureland area. An unimproved road bisected the Property in a general northeast to southwest direction. Three additional roads that lead to the three houses on the eastern half of the Site were also visible. A fifth road leading from the central portion of the Site to the west side of the Property was also visible. What appeared to be a drainage channel lead from the central portion of the Property to the eastern Property boundary. Linear scarring was observed on the southwest portion of the Property and corresponded with an unidentified pipeline depicted on the USGS Topographic Map "Hungerford, Texas" dated 1953.	F. M. 1161 bordered the north end of the Site. The eastern Property boundary was adjacent to a railroad right-of-way and C. R. 220 formed the south Property boundary. The adjacent properties surrounding the Site were similar to the Site. What appeared to be several single-family homes were observed near the perimeter of the Property. U. S. Business 59 was located approximately 250 feet east of the Site. Linear scarring was observed on the adjacent property to the west and corresponded with an unidentified pipeline depicted on the USGS Topographic Map "Hungerford, Texas" dated 1953.
1956	The Site remained relatively unchanged since the previous aerial photograph.	The surrounding properties remained relatively unchanged since the 1951 aerial photograph.
1972	The Site appeared to remain relatively unchanged since the previous aerial photographs; however, due to the resolution of the aerial photograph, specific details regarding the property could not be determined.	The surrounding properties remained relatively unchanged since the 1956 aerial photograph with the exception of minor residential development along U. S. Business 59 and residential and commercial development northeast of the Property in the town of Hungerford. Due to the resolution of the aerial photograph, specific details regarding the surrounding properties could not be determined
1996	The majority of the Site remained relatively unchanged since the previous aerial photographs. Approximately 11 acres of the pastureland located on the east side of the Property appeared to have been converted to cropland. The houses located on the northern and southern portions of the original 30 acres of pastureland were no longer visible and appeared to have been removed	What appeared to be a junk yard was located approximately 300 feet east of the Property beyond the adjacent railroad right-of-way. At the time of the Site visit, the junk yard was not in operation. The remaining surrounding properties remained relatively unchanged since the 1972 aerial photograph.

Date	Site Description	Adjacent Property Description
2004	One small structure remained on the eastern half of the Property with only a small portion of the original pastureland remaining. Linear scarring was observed on the northern portion of the Property approximately 250 feet south of the northern Property boundary and corresponded with pipeline markers observed on the east and west Property boundaries during the Site visit. The rest of the Property was utilized for crop production and appeared similar to previous aerial photographs.	The surrounding properties remained relatively unchanged since the 1996 aerial photograph. The junkyard previously noted to the east was still present but did not appear to have as much junk on site as was observed in 1996.
2010	The Site remained relatively unchanged since the 2004 aerial photograph.	The adjacent properties and surrounding area remained relatively unchanged since the 2004 aerial.

Review of the historical aerial photographs indicated that the Property has been developed agriculturally since at least 1951. Residential structures were located on the Site from at least 1951 until at least 1996. The area surrounding the Property has historically consisted of farmland with scattered residential and commercial developments beginning in the early 1950's. The inability to obtain aerial photographs in five-year intervals was identified as a minor data gap. However, due to the amount of information acquired from other sources, the lack of five-year interval coverage on the aerial photographs does not appear to be significant and did not impact the ability to identify potential recognized environmental conditions associated with the Property based on the observe Site and surrounding area land use.

Review of the historical aerial photographs revealed no obvious signs of dumping or other similar activity indicating an environmental concern for the Property. Since aerial photographs for five-year increments and prior to 1951 were not reasonably ascertainable and since the first developed use of the Site was unknown, the historical use of the Property was also researched by reviewing available City Directories and Sanborn Fire Insurance Maps, which are further discussed below.

4.3 Historical City Directories/Fire Insurance Maps

The Site was located in a rural to sparsely developed area within Wharton County. Halff attempted to review city directories at the local library; however, historical city directories were not available for the area where the Site is located.

According to a historic map search for Sanborn Fire Insurance Maps, no detailed maps of the Property area were available.

4.4 Review of Topographic Map

The USGS Topographic Map "Hungerford, Texas" dated 1953 and photorevised in 1980 was reviewed as an aid in determining historical land use of the Property. The topographic map showed the Property to be located in a lightly developed area of Wharton County southwest of the city of Hungerford. F.M. 1161 was located along the northern Property boundary. An unimproved road formed the western Property boundary and the southern Property boundary was formed by C. R.

220. A Southern Pacific rail line was located along the eastern Property boundary and U.S. Highway 60 was located approximately 250 feet east of the Property. Three structures were depicted on the eastern half of the Site. An unimproved road bisected the Site in a general north to south direction. Two smaller unimproved roads lead to two of the structures and a third short unimproved road located near the southeast corner of the Property lead to the third structure. An unidentified pipeline was depicted crossing the southwest portion of the Site in a north to south direction. A second unidentified pipeline was depicted approximately 2,000 feet southwest of the Property. Several small structures were depicted on adjacent properties to the west, south, and east of the Site. No mines or quarries were depicted on the Property or adjacent properties.

Based on historical records reviewed for the Site, the Property appeared to be developed agriculturally in 1951. The earliest available historical resource reviewed for the area was a 1951 aerial photograph, which showed the Property to be used for agricultural and residential purposes. No historical records prior to 1951 were identified for the Property or surrounding area. As a result, the use of the Property prior to 1951 could not be established and this lack of information was identified as a data gap. However, in the professional opinion of Halff, this data gap does not appear to be significant based on the observed land use on Site and in the surrounding area in 1951 and this data gap did not impact the ability to identify potential recognized environmental conditions associated with the Property.

5.0 ENVIRONMENTAL SETTING

5.1 Surface Conditions

According to the USGS Topographic Maps "Hungerford, Texas" the Property was situated in a relatively flat area with a local topographic trend sloping slightly to the southeast. Surface elevations on the Property were estimated to be approximately 105 to 101 feet above mean sea level. The nearest surface water body feature was an unnamed tributary of West Bernard Creek and was located approximately 800 feet southeast of the Site.

Based on visual observations, surface runoff on the northern and southern portions of the Property appeared to flow towards the central portion of the Site and then directed to the eastern Property boundary by two shallow drainage channels. Surface runoff from the adjacent properties to the north, east, and south did not appear to be significant and would be restricted by a shallow drainage system in the area. Surface runoff from the adjacent property to the west did not appear significant due to the lack of surface gradient in the area.

5.2 Subsurface Conditions

Geology

Wharton County is in the Western Gulf Coast section of the Coastal Plain. The uppermost formations, from which the parent materials of soils in the county are weathered, are of Pliocene, Pleistocene, and Holocene (recent) age. These formations originally consisted of fluvial, deltaic,

coastal marsh, and lagoonal soil materials and shallow sea deposits broken by normal faults, salt domes, pimple mounds, undrained depressions, and scarps.

According to the Geologic Atlas of Texas, Houston Sheet (Bureau of Economic Geology, University of Texas at Austin), the Property is located on the Lissie Formation. Formation deposits include clay, silt, sand, and very minor siliceous gravel of granule and small pebble size. In the upper part of the formation, deposits are locally calcareous, with some concretions of calcium carbonate and iron oxide and iron-manganese nodules common in the weathered zone. The surface is fairly flat and featureless except for numerous rounded shallow depressions and pimple mounds, with the lower part being very gently rolling and characterized by "moderate permeability, moderate drainage, and high shear strength. Geologic units include meanderbelt, levee, crevasse splay, and distributary sands and flood-basin mud over meanderbelt sand. The thickness of the Lissie Formation in the area of the Property is about 200 feet.

According to the USDA Soil Conservation Service's Soil Survey of Wharton County, Texas, soil in the vicinity of the Property consist of *Lake Charles Clay, 0 to1 percent slopes.* This soil is somewhat poorly drained, level to gently sloping, neutral clays. These soils are on a featureless plain where slopes are mostly less than 1 percent but range to 3 percent. The surface layer is neutral black clay about 38 inches thick. The next layer is mildly alkaline very dark gray clay about 22 inches thick. The underlying material, to a depth of more than 63 inches, is mottled, mildly alkaline, gray clay. This soil is poorly drained. Surface runoff is very slow, and permeability is slow. The shrink-swell potential is very high.

Hydrogeology

According to the Ground-Water Resources of Colorado, Lavaca, and Wharton Counties, Texas Department of Water Resources Report No. 270, the Gulf Coast aquifer provides the majority of groundwater in the vicinity of the Property. The principal water bearing units are the Goliad, Willis, and Lissie Formations. In the vicinity of the Property, usable quality water may be encountered to a maximum depth of approximately 3,000 feet.

Sufficient data was not available to evaluate shallow groundwater conditions at the Site. Typically, the direction of groundwater flow in near-surface aquifers will flow in the direction of surface topography.

5.3 Floodplains

The Property was identified on two Federal Emergency Management Agency's Flood Insurance Rate Maps (FIRM) for Wharton County, Texas and Incorporated Areas. Community Panel Nos. 4806520150C, dated April 18, 1983 and 4806520250D , dated November 7, 2001, both showed the Property to be located in Zone X (unshaded). Zone X (unshaded) designates areas determined to be areas of 500-year floods; areas of 100-year floods with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flooding.

6.0 RESULTS OF ON SITE INVESTIGATION

6.1 Site Observations

On February 8, 2012 Mr. Al Brunson of Halff completed an on-Site investigation and area reconnaissance. Photographs of the Site taken during the on-Site investigation are presented in Appendix C.

The Property was visually observed by driving and walking the accessible areas considered representative of the Property. The Property was also viewed from the adjacent roadways. Potential surface features on the Property to be investigated by Halff during the Site investigation included, but were not limited to, the following:

- stained floors, soil or pavement;
- floor drains and sewage disposal;
- surface appurtenances of cisterns, cesspools or septic tanks;
- pits, sumps, drywells, catchbasins or surface impoundments;
- wells for water, oil, gas, disposal or groundwater monitoring;
- aboveground storage tanks (AST) or surface appurtenances of underground storage tanks (UST);
- natural waterways and surface water discharges;
- stressed vegetation, discolored water or abnormal odors;
- liquid or solid waste dumping or disposal; and
- unnatural fill material or soil grading.

The Property consisted of an irregular shaped tract of land containing of approximately 270 acres. At the time of the Site visit, the majority of the property was cultivated for agricultural purposes. An unimproved road bisected the Property in a general northeast to southwest direction. Three additional unimproved roads were observed on the Site. Two of the roads lead from the main road to the eastern portion of the Site and areas that appeared to be the former locations of single-family homes. The third road lead from the central portion of the Site to the western Property boundary. A soil stockpile, approximately 25 feet in diameter and 4 feet high was observed at the end of the northern most road. The stockpile contained brick and pieces of rusted metal. The southernmost east/west road terminated at what appeared to be the location of a former single family home. A storage building (approximately 8’ X 10’), an active water well, a pole mounted transformer, two used tires, several concrete foundation blocks, and what appeared to a former septic tank were observed at the end of this road. The former septic tank appeared to have been filled with soil. At the time of the Site visit, numerous empty seed sacks were observed in the small storage building. Overhead power lines were located on the eastern Property boundary on the southern half of the site. Signage for an underground AT&T phone line was observed on the northern Property boundary near the northern entrance to the Site.

A pipeline marker was observed on the southern Property boundary approximately 500 feet from the southwest corner of the Property. Additional pipeline markers were also observed on the east

and west Property boundary approximately 250 feet south of the northern Property boundary. Details concerning the two pipelines are further discussed below.

Information obtained regarding the pipeline associated with the marker located on the south Property boundary indicated that it was owned by Enterprise Products. According to Mr. Jason York, Field Supervisor for Enterprise Products, the pipeline crossed the southwest portion of the Property and was identified as pipeline 17B-100. Mr. York reported that the pipeline was constructed in the 1940's and originally constructed as a crude gathering line and currently transports natural gas. The pipeline was reported to be 16 inches in diameter and installed approximately four feet below ground surface (bgs). According to Mr. York, the pipeline was inspected and brought up to Department of Transportation standards in August 2011. Mr. York reported that to his knowledge, there have been no releases associated with the pipeline in the area of the Property.

A second pipeline was located on the northern portion of the Property, crossing the Property in an east/west direction approximately 250 feet south of the northern Property boundary. According to the observed markers, this pipeline was owned by the Houston Pipeline Company. Mr. John Stolle, a field representative for the Houston Pipeline Company was contacted for details concerning the pipeline. According to Mr. Stolle, the pipeline was originally installed in 1966, replaced in 1981 and has always transported natural gas. Mr. Stolle stated the pipeline was constructed with six-inch diameter steel pipe and was buried approximately four feet bgs. According to Mr. Stolle, he had worked for Houston Pipeline Company since 1984 and was not aware of any problems with the pipeline in that time. Mr. Stolle stated the pipeline was inspected and tested last year with no problems reported.

The inspection of the Property did not reveal any evidence of contamination, such as stressed vegetation, stained soils, or unusual odors. No evidence of the storage, treatment, or disposal of hazardous waste was observed on the Property. There were no visible or evident aboveground or underground storage tanks, treatment facilities, or hazardous waste handling or disposal facilities found at the Property. No manufacturing processes were observed during the Site inspection. No evidence of spills, staining, or stressed vegetation was observed on or near the above listed items; therefore, the miscellaneous debris observed on Site is considered a ***de minimis*** condition for the Property.

6.2 Regulated Substance Identification/Inventory

Regulated Substances

With the exception of the items identified in Section 6.1, no potentially regulated materials were identified on the Site at the time of the Site inspection.

Polychlorinated Biphenyl (PCB) Equipment

One pole-mounted transformer was centrally located on the eastern half of the Property. At the time of the Site visit, the transformer appeared to be in good condition with no evidence of spills or leaks in the area of the transformer. The PCB content of the transformer was unknown.

6.3 User Provided Information

A User Questionnaire was provided to the Client in order to obtain any information pertinent to the Site that may indicate a potential for recognized environmental conditions to exist at the Site. Mr. David Schroeder of the Wharton Economic Development Corporation completed the questionnaire and reported no specialized knowledge of the Site that may indicate a potential for recognized environmental conditions to exist, and that the purchase price reasonably reflected the fair market value of the Property. Mr. Schroeder was not aware of any commonly known or reasonably ascertainable information about the Property that would indicate a recognized environmental condition. Mr. Schroeder stated that the ESA was being performed to determine any environmental issues prior to purchase of the Property.

6.4 Owner/Operator Provided Information

An Owner/Operator Questionnaire was provided to Mr. Mark Matula, Trustee for the Julius and Mary Matula Family Trust, the owner of the Site, in order to obtain any information pertinent to the Site that may indicate a potential for recognized environmental conditions to exist at the Site. In addition to the Owner/Operator Questionnaire, Mr. Matula was interviewed by phone. Mr. Matula stated that his parents bought the Property in approximately 1990 and moved into a house located on the east central portion of the Property. Mr. Matula did not remember when the house was removed from the Site. According to Mr. Matula, a filled in septic tank and active water well were located near the former house location. Mr. Matula stated that the well was four inches in diameter, but did not have any additional information concerning the well. Mr. Matula had no knowledge regarding the presence of any above or below ground petroleum storage tanks ever having being on the Property. According to Mr. Matula, one above ground propane tank was formerly located near the house his parents had lived in but had been moved off-Site. Mr. Matula stated that Mr. Tim Krenek currently leases the Property for agricultural purposes. Contact information concerning Mr. Krenek was not provided at the time of report preparation. The lack of communication with Mr. Krenek was identified as a minor data gap. However, due to the amount of information received from other sources, the lack of a response from these agencies does not appear to be significant and did not impact the ability to identify potential recognized environmental conditions associated with the Property.

6.5 Area Reconnaissance

At the time of the Site investigation, a visual survey of the adjacent properties and nearby surrounding area was conducted from public road rights-of-way. The surrounding area was examined for visible evidence of hazardous waste treatment, storage, or disposal facilities, and other

activities or processes generating potentially harmful wastes. Properties adjacent to the Site were observed as follows:

NORTH:	F.M. 1161, then farmland and a residential neighborhood
EAST:	Southern Pacific railroad, U.S. Business 59, several single-family homes, and a closed junk yard
SOUTH:	C.R. 220, then farmland
WEST:	Farm and pasture

Land use in the Site vicinity was generally farmland, commercial, residential, vacant land, and public roadways. No evidence of hazardous waste treatment, storage, or disposal facilities were observed on the properties surrounding the Site. A closed junk yard was located approximately 300 feet east of the Property across U.S. Business 59. Several large stockpiles of used tires were scattered across the site. In addition to the tires, demolished building materials, and several empty oil containers were observed at the time of the Property investigation. At the time of the site visit the junkyard was not in operation. The closed junkyard was not identified on the regulatory databases reviewed for this report.

Chief Abbot, of the Wharton Fire Department was interviewed by phone (2/21/2012) concerning the Property and the closed junkyard located east of the Property. Chief Abbot reported that the WFD had no records concerning fires, hazardous materials responses, or the removal of USTs on the Property or the closed junkyard located east of US. Business 59. When asked about the closure of the identified junkyard, Chief Abbot stated that he was not sure why the junkyard closed, but it was not the result of any city or county action. Chief Abbot also stated that he had no knowledge or reports of hazardous material dumping at the closed junkyard.

Based on distance, topographic gradient, and information received from the Wharton Fire Department, the closed junkyard identified during the area reconnaissance did not appear to constitute a recognized environmental condition for the Property.

7.0 ENVIRONMENTAL/REGULATORY AGENCY INQUIRIES

7.1 Federal and State Regulatory Agencies

Halff contracted Geosearch of Austin, Texas to conduct a Federal and State environmental regulatory database search for the Site and surrounding area in accordance with ASTM E-1527-05 Standard Practice, including but not necessarily limited to all ASTM recommended databases and minimum search distances. Geosearch obtained these databases directly from government sources. The databases are updated on approximately quarterly intervals. Halff reviewed the environmental databases provided by Geosearch. Copies of the maps and lists are provided in Appendix D - Regulatory Review Data and Maps. A summary of the researched databases and review radii is shown in Table 2.

TABLE 2
REGULATORY REVIEW SUMMARY

Source	Database	Description	ASTM Radius (Miles)	Property ?	No. Within Radius
EPA	NPL	The National Priorities List (NPL) is a subset of the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and identifies sites for priority cleanup under the Superfund Program.	1	No	0
EPA	Delisted NPL	This database includes sites from the United States Environmental Protection Agency's Final National Priorities List (NPL) where remedies have proven to be satisfactory or sites where the original analyses were inaccurate, and the site is no longer appropriate for inclusion on the NPL, and final publication in the Federal Register has occurred.	1/2	No	0
EPA	CERCLIS	The CERCLIS contains data on potentially hazardous waste sites that have been reported to the EPA by states, municipalities, private companies, and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites, which are either proposed to or on the NPL, and sites, which are in the screening and assessment phase for possible inclusion on the NPL.	1/2	No	0
EPA	CERCLIS - NFRAP	CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from the CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.	1/2	No	0
EPA	RCRAC	The Corrective Action Report (CORRACTS) identifies hazardous waste handlers with Resource Conservation and Recovery Act (RCRA) corrective action activity.	1	No	0
EPA	RCRIS TSD	The Resource Conservation and Recovery Information System (RCRIS) includes selective information on facilities that treat, store, and/or dispose (TSD) of hazardous waste as defined by RCRA.	1/2	No	0
EPA	RCRIS Generator	The RCRIS database includes several classifications of hazardous waste generators. This also includes facilities which do not presently generate hazardous waste and are classified as a RCRA non-generator.	TP and Adj.	No	0
EPA	EC	This database includes site locations where Engineering and/or Institutional Controls (EC) have been identified as part of a selected remedy for the site as defined by United States Environmental Protection Agency official remedy decision documents. Engineering controls include caps, barriers, or other device engineering to prevent access, exposure, or continued migration of contamination.	TP	No	0

Source	Database	Description	ASTM Radius (Miles)	Property ?	No. Within Radius
EPA	FRS	The Facility Registry System (FRS) database serves as an inventory of all facilities registered with the EPA.	TP	No	0
EPA	ERNS	The Emergency Response Notification System (ERNS) is compiled from reports of emergency responses to releases of hazardous substances, answered either by the EPA or by local emergency personnel who notified the EPA of the action.	TP	No	0
EPA	TRI	The Toxic Release Inventory System (TRI) identifies facilities that release toxic chemicals to the air, water, and land in reportable quantities under SARA Title III Section 313.	TP	No	0
TCEQ	SF	The Superfund Registry (states' equivalent to CERCLIS) contains information pertaining to potentially hazardous sites that have been placed on the State Priority List.	1/2	No	0
TCEQ	PST	The Petroleum Storage Tank (PST) registration database serves to track the location and number of aboveground and underground tanks under TCEQ jurisdiction.	TP and Adj.	No	0
TCEQ	LPST	The Leaking Petroleum Storage Tank (LPST) database serves to track the locations and cleanup of leaking petroleum storage tanks in Texas.	1/2	No	2
TCEQ	Spills	The Spills database is compiled from reports of emergency responses to spills or discharges of hazardous materials, answered either by the TCEQ or by local emergency personnel who notified the TCEQ of the action.	TP	No	0
TCEQ	DCR	The Dry Cleaners (DCR) database is a listing of dry cleaning facilities registered with the TCEQ.	1/2	No	0
TCEQ	SIEC01	The Texas Risk Reduction Program (TRRP) requires the placement of institutional controls (e.g., deed notices or restrictive covenants) on affected property in different circumstances as part of completing a response action. In its simplest form, an institutional control (IC) is a legal document that is recorded in the county deed records. In certain circumstances, local zoning or ordinances can serve as an IC. This listing may also include locations where Engineering Controls are in effect, such as a cap, barrier, or other engineering device to prevent access, exposure, or continued migration of contamination.	TP	No	0
TCEQ	VCP	The Voluntary Cleanup Program (VCP) identifies facilities, which have undertaken or completed on-site remediation activities.	1/2	No	0
TCEQ	BSA	The BSA database includes relevant information on contaminated Brownfields properties that are being cleaned.	1/2	No	0

Source	Database	Description	ASTM Radius (Miles)	Property ?	No. Within Radius
TCEQ	IOP	The Innocent Owner/Operator Program (IOP) identifies facilities, which have become contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and the facility owner/operator did not cause or contribute to the source or source of contamination.	1/2	No	1
TCEQ	CALF	The Closed and Abandoned Landfill Inventory (CALF) serves as an inventory of permitted as well as unauthorized landfills that have been closed and abandoned in Texas.	1/2	No	0
TCEQ	MSWLF	The Municipal Solid Waste Facilities/Landfill Sites database serves to track solid waste disposal facilities or landfills, including active or inactive facilities and open dumps.	1/2	No	0
TCEQ	TX IHW	The Industrial and Hazardous Waste (IHW) Database contains summary reports by waste handlers, generators, and shippers in Texas.	1/4	No	0

TP = Target Property; Adj. = Adjoining

The Property was not identified in the regulatory review performed for this ESA. No EPA registered facilities and three TCEQ registered facilities were identified in the databases within the prescribed search radii for this ESA. Estimates of the topographic gradient in the area of the Property were obtained from the USGS Topographical Quadrangle Maps "Hungerford, Texas" and from Site observations and area reconnaissance.

LPST

Two LPST sites were identified within one-half mile of the Property. The closest facility was identified as Sabrsula Grocery (LPST ID# 102191), addressed 7809 Highway 59, and was located approximately 1,430 feet northeast and cross to down-gradient of the Property. According to the LPST database, a release from the PST system at the facility was reported in November 1991. The TCEQ priority for the release was listed as "minor soil contamination-does not require a remedial action plan" and the status was listed as "final concurrence issued, case closed." The status of the USTs was listed as "removed from ground" (11/30/1991).

The second LPST facility listed was Henreys General Store (LPST ID# 109624), located at Highway 59 and Live Oak Street, and located approximately 1,650 feet northeast and cross to down-gradient of the Property. According to the LPST database, a release from the PST system at the facility was identified in March 1995. The TCEQ priority for the release was listed as "groundwater impact, public/domestic water supply well within 0.25-0.5 mile" and the status was listed as "final concurrence issued, case closed." The status of the USTs was listed as "removed from ground" (3/2/1995).

Based on distance, topographic gradient, and/or database information, the LPST facilities identified during the database review did not appear to constitute a recognized environmental condition for the Property.

IOP

One IOP site was identified within one-half mile of the Property. The facility was identified as T-Mobile Huddleston Tower (IOP ID# 594), addressed 110 East live Oak Street, and was located approximately 1,600 feet northeast and cross to down-gradient of the Property. According to the IOP database, the site was entered in to the IOP program in November 2006 and a certificate of completion was issued in June 2007. The contaminants identified on-site were listed as volatile organic compounds and total petroleum hydrocarbons and the media affected were soils and groundwater. Work at the site was described as completed. Based on distance and/or database information, the IOP facility did not appear to constitute a recognized environmental condition for the Property.

7.2 Local Government Inquiries

City of Wharton

Fire Department

A written request was forwarded to the Wharton Fire Department (WFD) for information regarding potential environmental concerns for the Property, such as hazardous material spills, illegal dumping, and underground storage tank installations or removals. At the time of report preparation, a written response had not been received from the WFD. Chief Abbot, of the WFD was interviewed by phone (2/21/2012) concerning the Property and the closed junkyard located east of the Property. Chief Abbot reported that the WFD had no records concerning fires, hazardous materials responses, or the removal of USTs on the Property or the closed junkyard located east of U.S. Business 59. When asked about the closure of the identified junkyard, Chief Abbot stated that he was not sure why the junkyard closed, but it was not the result of any city or county action. Chief Abbot also stated that he had no knowledge or reports of hazardous material dumping at the closed junkyard.

Wharton County Local Emergency Planning Committee (LEPC)

The LEPC serves as the local repository for facilities required to submit information on storage of hazardous materials above a minimum quantity as regulated in SARA Title III "Emergency Planning and Community Right-to-Know Act." A request for information concerning the Site and adjacent properties was forwarded to the LEPC. At the time of report preparation, no response had been received from the LEPC. The lack of response from the Wharton County LEPC was identified as a minor data gap. However, due to the amount of information received from other sources, the lack of a response from the Wharton County LEPC does not appear to be significant and did not impact the ability to identify potential recognized environmental conditions associated with the Property. Any information received from the Wharton County LEPC of environmental concern for the Property will be forwarded upon receipt.

8.0 DATA GAPS

In accordance with the standards and practices required for conducting all appropriate inquiries, ASTM 1527-05, the following data gaps were identified and Halff's opinion regarding the significance of these data gaps are summarized below:

- The inability to obtain aerial photographs in five-year intervals was identified as a minor data gap. However, due to the amount of information acquired from other sources, the lack of five-year interval coverage on the aerial photographs does not appear to be significant and did not impact the ability to identify potential recognized environmental conditions associated with the Property.
- Based on the historical records reviewed, neither the first developed use nor the use of the Property prior to 1940 could be established and was unknown. The earliest historical information reviewed for the Site was dated 1951 and showed the Property to be developed for agricultural and single family residential purposes. In the professional opinion of Halff, this data failure does not appear to be significant and did not impact the ability to identify potential recognized environmental conditions associated with the Property based on the surrounding land use in 1951.
- The lack of response from the Wharton County LEPC was identified as a minor data gap. However, due to the amount of information received from other sources, the lack of a response from these agencies does not appear to be significant and did not impact the ability to identify potential recognized environmental conditions associated with the Property.

9.0 CONCLUSIONS AND RECOMMENDATIONS

We have performed a Phase I ESA in conformance with the scope and limitations of ASTM E 1527-05 of the ±270 acres of vacant land located at 619 W. F.M. 1161, Hungerford, Wharton County, Texas, the Property. Any exceptions to, or deletions from, this practice are described in Section 2.0 of this report. This assessment has revealed no evidence of *recognized environmental conditions* in connection with the Property.

Although not identified as a REC or Historical REC, the bricks, rusted metal, and tires associated with the minor dumping identified as a de minimis condition for the Property should be removed from the Site and properly disposed.

10.0 ENVIRONMENTAL PROFESSIONAL STATEMENT

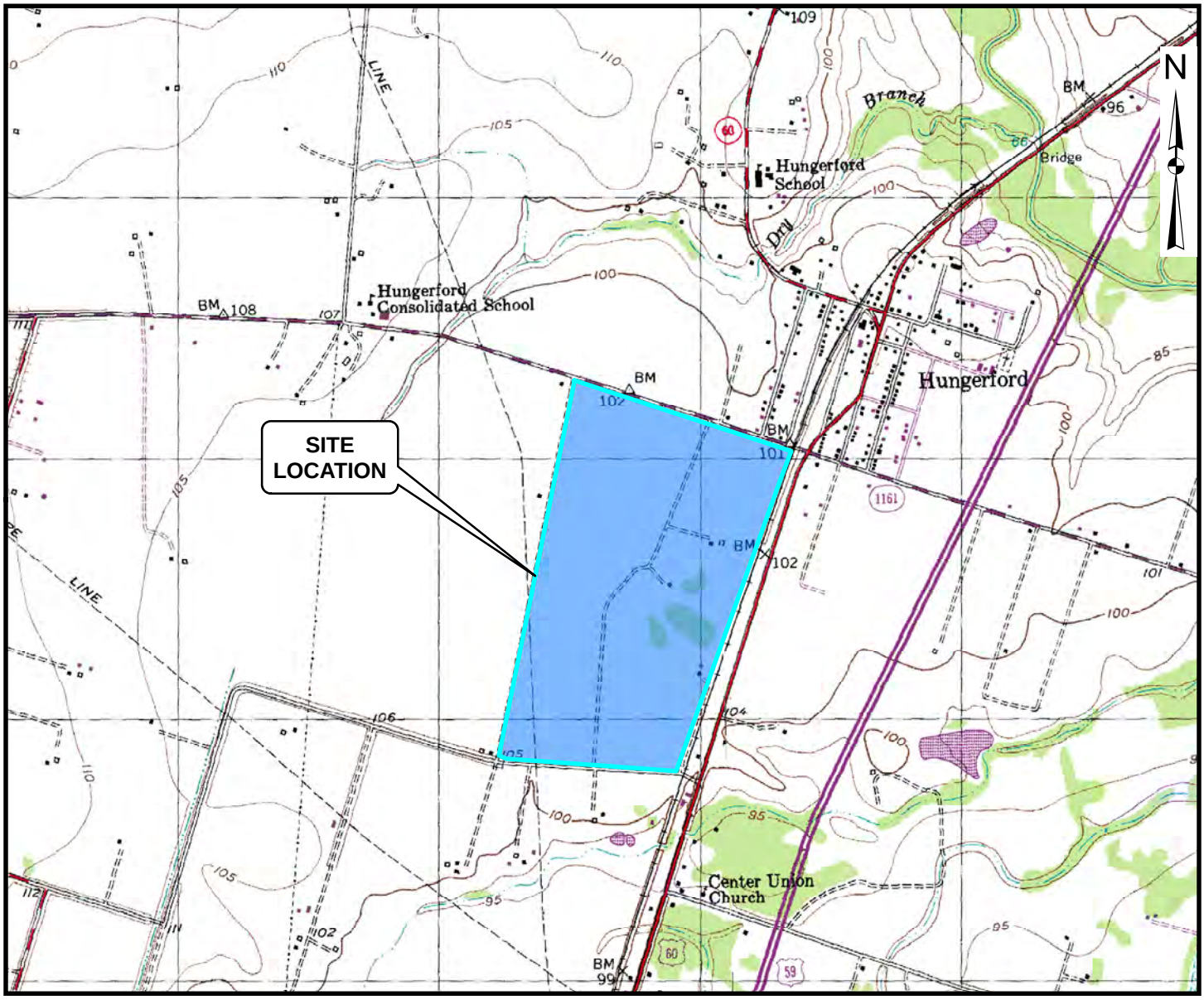
I declare that, to the best of my professional knowledge and belief, I meet the definition of *Environmental Professional* as defined in §312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the subject *property*. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Name: Al Brunson

Title: Environmental Scientist

Date: February 22, 2012

FIGURES



SCALE 1: 24000

0.9 0.45 0 0.9 Miles

1000 0 1000 2000 3000 4000 5000 6000 Feet

1 0.5 0 1 Kilometers

CONTOUR INTERVAL 10 FEET

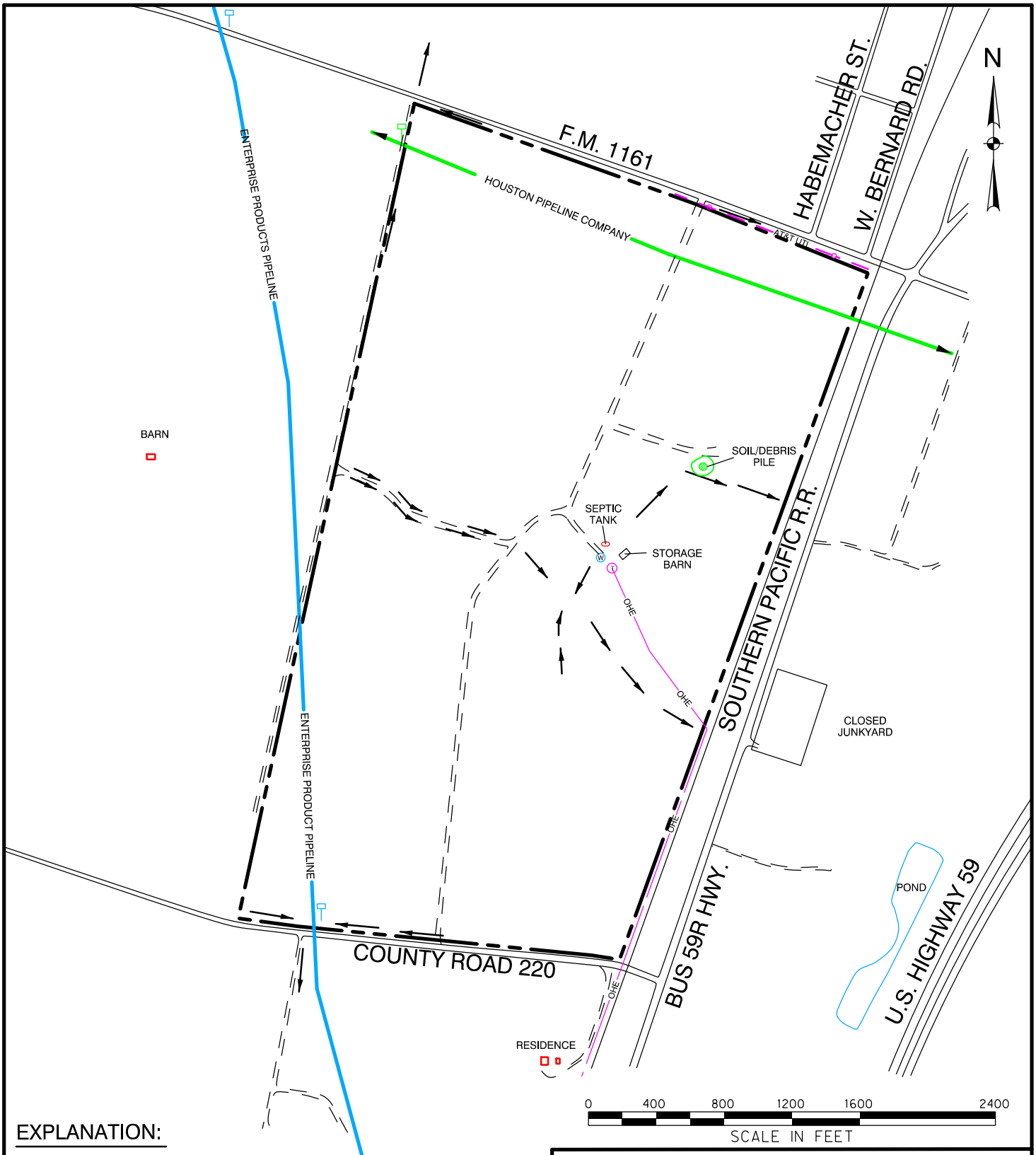
DOTTED LINES REPRESENT 5-FOOT CONTOURS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

HUNGERFORD QUADRANGLE

TEXAS - WHARTON CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

FIGURE 1

LOCATON MAP



EXPLANATION:

- PROPERTY BOUNDARY
- DIRT ROAD
- DIRECTION OF SURFACE DRAINAGE
- HOUSTON PIPELINE COMPANY LINE
- ENTERPRIXE PRODUCTS PIPELINE
- (W) WATER WELL
- (T) POLE MOUNTED TRANSFORMER
- OHE — OVERHEAD ELECTRIC LINE
- PIPELINE MARKER

SITE SCHEMATIC
+ 270 ACRES
619 F.M. 1161

WHARTON ECONOMIC DEVELOPMENT CORPORATION

HUNGERFORD, TEXAS

HALFF®
14800 ST. MARY'S LANE, SUITE 160
HOUSTON, TEXAS 77079-2943
TEL (713) 588-2450
FAX (281) 310-5259

DESIGN	DRAWN	DATE	SCALE	CONTRACT NO.	FILE NAME	FIGURE
C.M.	CADD	FEBRUARY 2012	AS NOTED		28637 28637_SITE	2

APPENDIX A

SCOPE OF WORK

HALFF

February 1, 2012
1008-12-8386

David Schroeder
Executive Director
Wharton Economic Development Corporation
1944 W. Fulton
Wharton, Texas 77488

Re: Phase I Environmental Site Assessment for ±270 acres located at 619 W. F.M. 1161, Hungerford, TX

Dear Mr. Schroeder:

Halff Associates is pleased to submit this proposal for environmental services to perform a Phase I Environmental Site Assessment (ESA) on the property referenced above. The ESA will be conducted by our staff and is estimated to require approximately three weeks to complete. The ESA will be performed in accordance with the American Society for Testing and Materials (ASTM) E1527-05 Standard Practice and will consist of the tasks outlined as follows:

TASK 1: Review selected, commercially available aerial photography of the site and adjacent area, noting any visible abnormalities during site or area development, which may indicate potential environmental problems. This typically involves examining four photographs taken at approximately 10-year intervals, depending on availability of photography for the property location. Additionally, review other standard historical sources (e.g. Sanborn Fire Insurance Maps, historical city directories, etc.) in an effort to develop the site history.

TASK 2: Review standard physical setting sources (e.g. U.S. Geological Survey topographic map, Federal Emergency Management Agency Flood Insurance Rate Map, U.S. Department of Agriculture Soil Survey, etc.) in an effort to determine general geologic, hydrogeologic, and topographic characteristics of the site.

TASK 3: Review Federal and State regulatory databases in accordance with ASTM E1527-05 Standard Practice, including but not necessarily limited to all ASTM recommended databases and minimum search distances, looking specifically for activities which could be potential sources of contamination. The databases reviewed typically include federal databases such as the Environmental Protection Agency (EPA) National Priority List, Comprehensive Environmental Response, Compensation, and Liability Information System database, Resource Conservation and Recovery Act (RCRA) Generator database, RCRA Corrective Action Report, and the Environmental Response Notification System database. Also reviewed are state databases such as the Petroleum Storage Tank (PST) Registration database, Leaking PST database, State Superfund Registry database, Solid Waste Landfill/Disposal Site database, Closed Landfill Inventory database, Voluntary Cleanup

HALFF ASSOCIATES, INC.

14800 ST. MARY'S LANE, SUITE 160
HOUSTON, TX 77079-2943

TEL (713) 588-2450
FAX (713) 588-2488

WWW.HALFF.COM

Program database, Innocent Owner/Operator Program database, and the Spill Response database. Briefly, summarize the degree of risk posed by sites identified within the search distances. This does not include a detailed risk assessment of all pathways, receptors, exposure assessments, or dose response evaluations.

TASK 4: Contact local government officials in an effort to identify recognized environmental conditions on or near the subject property.

TASK 5: Contact current site owner/manager, a reasonable number of occupants, and past owners, operators, or occupants who are likely to have additional material information regarding the potential for contamination at the site, in an effort to identify recognized environmental conditions in connection with the property. Property owners or occupants of neighboring properties will be contacted in an effort to identify recognized environmental conditions in connection with the assessment of abandoned properties.

TASK 6: Visit the subject property to ascertain existing conditions. Visually survey the subject property for surface water, water wells, on-site and off-site storm water drainage, and utilities servicing or passing through the site. Perform a curbside visual survey of adjacent properties to determine land usage and existing conditions, looking specifically for activities that could be of environmental concern.

TASK 7: Identify any evident or obvious on-site storage or disposal facilities, such as aboveground or underground tanks, drums, impoundments, waste piles, and landfills.

TASK 8: Identify evident or obvious on-site treatment facilities, which handle wastewaters, solid wastes, or hazardous materials, and comment on their potential for discharge of waste materials to the environment.

TASK 9: Identify evident or obvious electric transformers in service at the site and visually inspect for polychlorinated biphenyl (PCB) labels and evidence of insulating fluid leakage.

TASK 10: Evaluate the regulatory status and compliance/complaint history of on-site facilities identified during Tasks 1 through 9 based on the federal, state, and local information gathered.

TASK 11: Prepare an ESA report, summarizing the activities conducted and the information gathered in Tasks 1 through 10, listing any comments and recommendations regarding the subject property. Data gaps will be identified in the report and an opinion will be provided whether those data gaps affect the environmental professional's ability to identify recognized environmental conditions on the property. Halff Associates will provide two copies of the ESA report.

The total fee for the ESA that includes the work described in the tasks outlined above will not exceed without your authorization. It has been assumed that the site will be accessible, and the owner/client will provide site access. It has been assumed that the user will provide information regarding the environmental cleanup liens, activity use limitations (AULs), specialized knowledge, the purchase price compared to the fair market value of the property, an assessment of commonly known or reasonably ascertainable information about the property, and/or indications of the presence or likely presence of contamination on the property as detailed in the attached *User Questionnaire.*

Phase I ESAs are relatively modest investigations of the conditions that exist at a given site at the time the observations are made. Typically, only visual observations of the condition of the site are made principally to determine if investigations that are more detailed are justified. An investigation of the site conducted in a few hours can fail to detect problems that may exist at that location. Additional services that can be performed, but which are not within the scope of work for the Phase I ESA include:

- Water sampling and analysis;
- Testing of building materials;
- Testing for asbestos-containing materials;
- Testing for lead-based paint;
- Soil borings and hydrogeological analysis;
- Ambient air sampling and dispersion modeling;
- High-volume air sampling for various contaminants;
- Storm water sampling and analysis;
- Underground storage tank testing and remediation;
- Wetland assessments;
- Researching title records for environmental liens or activity and use limitations;
- Federal and state regulatory agency file review;
- Site clean-up and remediation; and
- Evaluation of permitting requirements.

We hope that you will find the above satisfactory and we appreciate the opportunity to be of service to you. This proposal is valid for a period of 30 days. A copy of Halff's Generals Terms and Conditions and the *User Questionnaire* is also attached as part of this proposal. The user must provide the information identified in the questionnaire, if available, to the environmental professional to qualify for the *Landowner Liability Protections* offered by the "*Brownfields Amendments.*" Halff Associates would also benefit from a site map, boundary survey, appraisal, title commitment or title research concerning the site, and any previous geotechnical (soils) or environmental studies. These materials can be returned to you immediately upon completion of the assessment, if necessary.

Unless otherwise stated, fees quoted in this proposal exclude state and federal sales taxes on professional services. Current Texas law requires assessment of sales tax on certain kinds of surveying services, but does not require sales taxes on other professional services. In the event that new or additional state or

federal taxes are implemented on the professional services provided under this contract during the term of the work, such taxes will be added to the applicable billings and will be in addition to the quoted fees.

Halff Associates is a multi-disciplinary engineering firm providing a wide range of services including civil and environmental engineering, planning, and surveying. If we can furnish additional information, please feel free to call.

Thank you for your consideration of Halff Associates.

Sincerely,

HALFF ASSOCIATES, INC.

Al Brunson

Al Brunson
Environmental Scientist

Authorized by: _____ **Date:** 2/1/2012

attachment

federal taxes are implemented on the professional services provided under this contract during the term of the work, such taxes will be added to the applicable billings and will be in addition to the quoted fees.

Halff Associates is a multi-disciplinary engineering firm providing a wide range of services including civil and environmental engineering, planning, and surveying. If we can furnish additional information, please feel free to call.

Thank you for your consideration of Halff Associates.

Sincerely,

HALFF ASSOCIATES, INC.

Al Brunson
Environmental Scientist

Authorized by: _____ **Date:**_____

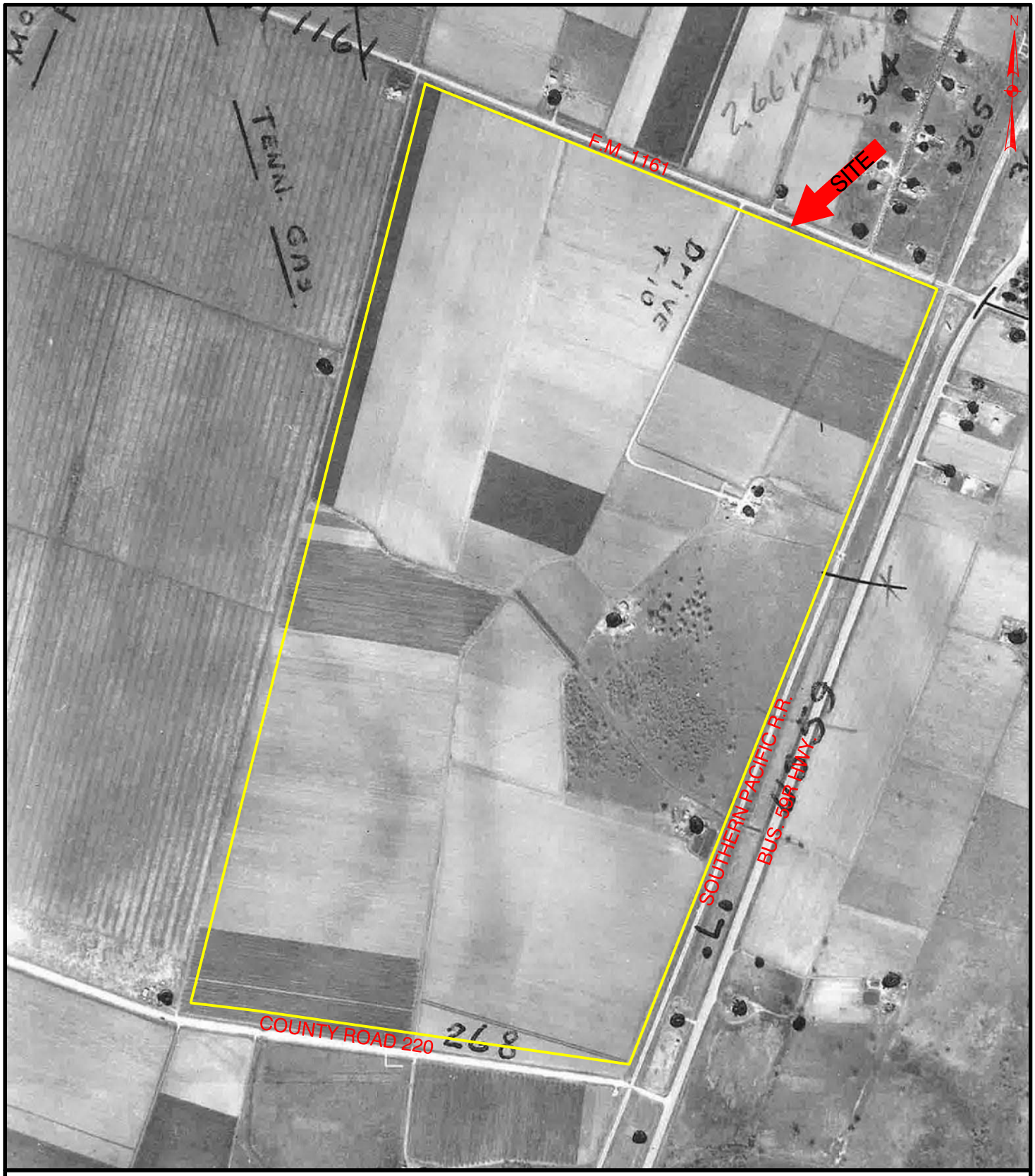
attachment

APPENDIX B

AERIAL PHOTOGRAPHS

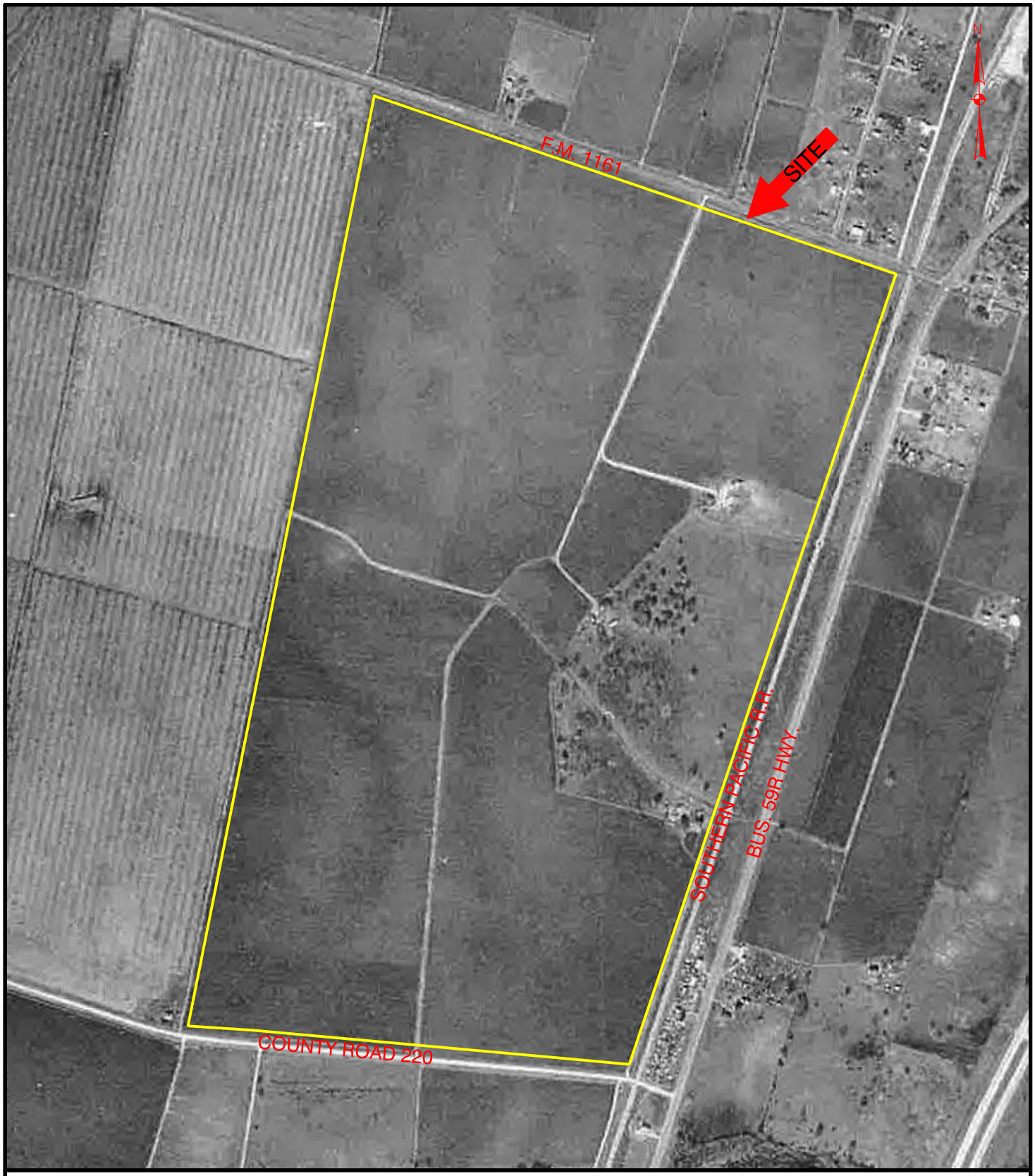
1951 AERIAL PHOTOGRAPH

APPROX. SCALE: 1" = 700'



1956 AERIAL PHOTOGRAPH

APPROX. SCALE: 1" = 700'



1972 AERIAL PHOTOGRAPH

APPROX. SCALE: 1" = 700'

1996 AERIAL PHOTOGRAPH

APPROX. SCALE: 1" = 700'

2004 AERIAL PHOTOGRAPH

APPROX. SCALE: 1" = 700'

2010 AERIAL PHOTOGRAPH

APPROX. SCALE: 1" = 700'

APPENDIX C

SITE PHOTOGRAPHS

Photograph 1 - Looking south, view of the north entrance to the Site addressed 619 F.M. 1161, Hungerford, Wharton County Texas.

Photograph 2 - Looking west, view of the northern Property boundary along F.M. 1161.

Photograph 3 - Looking south, view of the eastern Property boundary.

Photograph 4 - Looking east, view of the southern Property boundary along C.R. 220.

Photograph 5 – Looking north, view of the western Property boundary.

Photograph 6 – Looking northwest, view of residential properties located on the north side of F.M. 1161 near the northeast corner of the Property.

Photograph 7 – Looking northeast, view of the adjacent property to the north across F.M. 1161.

Photograph 8 – Looking south, view of an AT&T underground telephone cable marker located on the northern Property boundary.

Photograph 9 – Looking east, view of a gas pipeline marker located on the eastern Property boundary approximately 250 feet south of F.M. 1161.

Photograph 10 – Looking northwest, view of a gas pipeline marker located on the southern Property boundary approximately 500 feet east of the west Property boundary.

Photograph 11 – Looking north, view of the southern entrance to the Property from C.R. 220.

Photograph 12 – Looking west, view of an unimproved road leading to the west side of the Property from the central portion of the Site.

Photograph 13 – Looking east, **v**iew of a water well and storage building located on the east-central portion of the Property.

Photograph 14 – View of the filled in septic tank located adjacent to the water well and storage building.

Photograph 15 – View of old tires located adjacent to the water well and storage building located on the east-central portion of the Property.

Photograph 16 – View of soil pile containing brick and pieces of rusted metal located on the northeast portion of the Site.

Photograph 17 – View of brick, rock, and rusted metal observed in soil pile located on the northeast portion of the Property.

Photograph 18 – Looking west, view of water draining from the Property under the Southern Pacific rail lines located along the eastern Property boundary.

Photograph 19 – View of a junkyard located approximately 300 feet east of the Property across U.S. Business 59. The facility was not identified on the databases reviewed for this report.

Photograph 20 – View of southern half of the previously identified junkyard located east of the Site.

APPENDIX D

REGULATORY REVIEW DATA & MAPS

GeoSearch
On time. On target. In touch.™

Radius Report

http://www.geo-search.net/QuickMap/index.htm?DataID=Standard0000038357

Click on link above to access the map and satellite view of current property

Target Property:

+/- 270 Acres
619 FM 1161 RD
Hungerford, Wharton County, Texas 77488

Prepared For:

Halff & Associates Houston

Order #: 16360
Job #: 38357
Project #: 1008128386
Date: 02/03/2012

3006 Bee Caves Rd, Suite A-230 · Austin, Texas 78746 · phone: 888-396-0042 · fax: 512-472-9967 · www.geo-search.net

TARGET PROPERTY SUMMARY

+/- 270 Acres
619 FM 1161 RD
Hungerford, Wharton County, Texas 77488

USGS Quadrangle: ***Hungerford, TX***
Target Property Geometry: ***Area***

Target Property Longitude(s)/Latitude(s):
(-96.088995, 29.396698), (-96.081182, 29.394393), (-96.085489, 29.383779), (-96.092133, 29.384262), (-96.088934, 29.396698), (-96.088934, 29.396591), (-96.088995, 29.396698)

County/Parish Covered:
Wharton (TX)

Zipcode(s) Covered:
East Bernard TX: 77435
Wharton TX: 77488

State(s) Covered:
TX

****Target property is located in Radon Zone 3.***
Zone 3 areas have a predicted average indoor radon screening level less than 2 pCi/L (picocuries per liter).

DATABASE FINDINGS SUMMARY

DATABASE	ACRONYM	LOCA-TABLE	UNLOCA-TABLE	SEARCH RADIUS (miles)
FEDERAL				
AEROMETRIC INFORMATION RETRIEVAL SYSTEM / AIR FACILITY SUBSYSTEM	AIRSAFS	0	0	Target Property
BIENNIAL REPORTING SYSTEM	BRS	0	0	Target Property
CLANDESTINE DRUG LABORATORY LOCATIONS	CDL	0	0	Target Property
EPA DOCKET DATA	DOCKETS	0	0	Target Property
FEDERAL ENGINEERING INSTITUTIONAL CONTROL SITES	EC	0	0	Target Property
EMERGENCY RESPONSE NOTIFICATION SYSTEM	ERNSTX	0	0	Target Property
FACILITY REGISTRY SYSTEM	FRSTX	0	0	Target Property
HAZARDOUS MATERIALS INCIDENT REPORTING SYSTEM	HMIRSR06	0	0	Target Property
INTEGRATED COMPLIANCE INFORMATION SYSTEM (FORMERLY DOCKETS)	ICIS	0	0	Target Property
INTEGRATED COMPLIANCE INFORMATION SYSTEM NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	ICISNPDES	0	0	Target Property
MATERIAL LICENSING TRACKING SYSTEM	MLTS	0	0	Target Property
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM	NPDESR06	0	0	Target Property
PCB ACTIVITY DATABASE SYSTEM	PADS	0	0	Target Property
PERMIT COMPLIANCE SYSTEM	PCSR06	0	0	Target Property
RCRA SITES WITH CONTROLS	RCRASC	0	0	Target Property
CERCLIS LIENS	SFLIENS	0	0	Target Property
SECTION SEVEN TRACKING SYSTEM	SSTS	0	0	Target Property
TOXICS RELEASE INVENTORY	TRI	0	0	Target Property
TOXIC SUBSTANCE CONTROL ACT INVENTORY	TSCA	0	0	Target Property
NO LONGER REGULATED RCRA GENERATOR FACILITIES	NLRRCRAG	0	0	Target Property and Adjoining
RESOURCE CONSERVATION & RECOVERY ACT - GENERATOR FACILITIES	RCRAGR06	0	0	Target Property and Adjoining
BROWNFIELDS MANAGEMENT SYSTEM	BF	0	0	0.5000
COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION & LIABILITY INFORMATION SYSTEM	CERCLIS	0	1	0.5000
LAND USE CONTROL INFORMATION SYSTEM	LUCIS	0	0	0.5000

DATABASE FINDINGS SUMMARY

DATABASE	ACRONYM	LOCA-TABLE	UNLOCA-TABLE	SEARCH RADIUS (miles)
NO FURTHER REMEDIAL ACTION PLANNED SITES	NFRAP	0	1	0.5000
NO LONGER REGULATED RCRA NON-CORRACTS TSD FACILITIES	NLRRCRAT	0	0	0.5000
OPEN DUMP INVENTORY	ODI	0	0	0.5000
RESOURCE CONSERVATION & RECOVERY ACT - TREATMENT, STORAGE & DISPOSAL FACILITIES	RCRAT	0	0	0.5000
DELISTED NATIONAL PRIORITIES LIST	DNPL	0	0	1.0000
DEPARTMENT OF DEFENSE SITES	DOD	0	0	1.0000
FORMERLY USED DEFENSE SITES	FUDS	0	0	1.0000
NO LONGER REGULATED RCRA CORRECTIVE ACTION FACILITIES	NLRRCRAC	0	0	1.0000
NATIONAL PRIORITIES LIST	NPL	0	0	1.0000
PROPOSED NATIONAL PRIORITIES LIST	PNPL	0	0	1.0000
RESOURCE CONSERVATION & RECOVERY ACT - CORRECTIVE ACTION FACILITIES	RCRAC	0	0	1.0000
RECORD OF DECISION SYSTEM	RODS	0	0	1.0000
SUB-TOTAL		**0**	**2**	

STATE (TX)

GROUNDWATER CONTAMINATION CASES	GWCC	0	0	Target Property
HISTORIC GROUNDWATER CONTAMINATION CASES	HISTGWCC	0	0	Target Property
TCEQ LIENS	LIENS	0	0	Target Property
MUNICIPAL SETTING DESIGNATIONS	MSD	0	0	Target Property
NOTICE OF VIOLATIONS	NOV	0	0	Target Property
STATE INSTITUTIONAL/ENGINEERING CONTROL SITES	SIEC01	0	0	Target Property
SPILLS LISTING	SPILLS	0	0	Target Property
DRY CLEANER REGISTRATION DATABASE	DCR	0	0	0.2500
INDUSTRIAL AND HAZARDOUS WASTE SITES	IHW	0	0	0.2500
PERMITTED INDUSTRIAL HAZARDOUS WASTE SITES	PIHW	0	0	0.2500
PETROLEUM STORAGE TANKS	PST	0	1	0.2500

DATABASE FINDINGS SUMMARY

DATABASE	ACRONYM	LOCA-TABLE	UNLOCA-TABLE	SEARCH RADIUS (miles)
AFFECTED PROPERTY ASSESSMENT REPORTS	APAR	0	0	0.5000
BROWNFIELDS SITE ASSESSMENTS	BSA	0	0	0.5000
CLOSED & ABANDONED LANDFILL INVENTORY	CALF	0	0	0.5000
INNOCENT OWNER / OPERATOR DATABASE	IOP	1	0	0.5000
LEAKING PETROLEUM STORAGE TANKS	LPST	2	0	0.5000
MUNICIPAL SOLID WASTE LANDFILL SITES	MSWLF	0	0	0.5000
RAILROAD COMMISSION VCP AND BROWNFIELD SITES	RRCVCP	0	0	0.5000
RADIOACTIVE WASTE SITES	RWS	0	0	0.5000
TIER I I CHEMICAL REPORTING PROGRAM FACILITIES	TIERII	0	10	0.5000
VOLUNTARY CLEANUP PROGRAM SITES	VCP	0	0	0.5000
RECYCLING FACILITIES	WMRF	0	0	0.5000
STATE SUPERFUND SITES	SF	0	0	1.0000
SUB-TOTAL		**3**	**11**	

TRIBAL

UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	USTR06	0	0	0.2500
LEAKING UNDERGROUND STORAGE TANKS ON TRIBAL LANDS	LUSTR06	0	0	0.5000
OPEN DUMP INVENTORY ON TRIBAL LANDS	ODINDIAN	0	0	0.5000
INDIAN RESERVATIONS	INDIANRES	0	0	1.0000
SUB-TOTAL		**0**	**0**	

TOTAL	**3**	**13**	

LOCATABLE DATABASE FINDINGS

ACRONYM	Target Property	SEARCH RADIUS (miles)	1/8 Mile (> TP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
FEDERAL								
AIRSAFS		.0200	0	0	0	0	NS	0
BRS		.0200	0	0	0	0	NS	0
CDL		.0200	0	0	0	0	NS	0
DOCKETS		.0200	0	0	0	0	NS	0
EC		.0200	0	0	0	0	NS	0
ERNSTX		.0200	0	0	0	0	NS	0
FRSTX		.0200	0	0	0	0	NS	0
HMIRSR06		.0200	0	0	0	0	NS	0
ICIS		.0200	0	0	0	0	NS	0
ICISNPDES		.0200	0	0	0	0	NS	0
MLTS		.0200	0	0	0	0	NS	0
NPDESR06		.0200	0	0	0	0	NS	0
PADS		.0200	0	0	0	0	NS	0
PCSR06		.0200	0	0	0	0	NS	0
RCRASC		.0200	0	0	0	0	NS	0
SFLIENS		.0200	0	0	0	0	NS	0
SSTS		.0200	0	0	0	0	NS	0
TRI		.0200	0	0	0	0	NS	0
TSCA		.0200	0	0	0	0	NS	0
NLRRCRAG		.1250	0	0	0	0	NS	0
RCRAGR06		.1250	0	0	0	0	NS	0
BF		.5000	0	0	0	0	NS	0
CERCLIS		.5000	0	0	0	0	NS	0
LUCIS		.5000	0	0	0	0	NS	0
NFRAP		.5000	0	0	0	0	NS	0
NLRRCRAT		.5000	0	0	0	0	NS	0
ODI		.5000	0	0	0	0	NS	0

LOCATABLE DATABASE FINDINGS

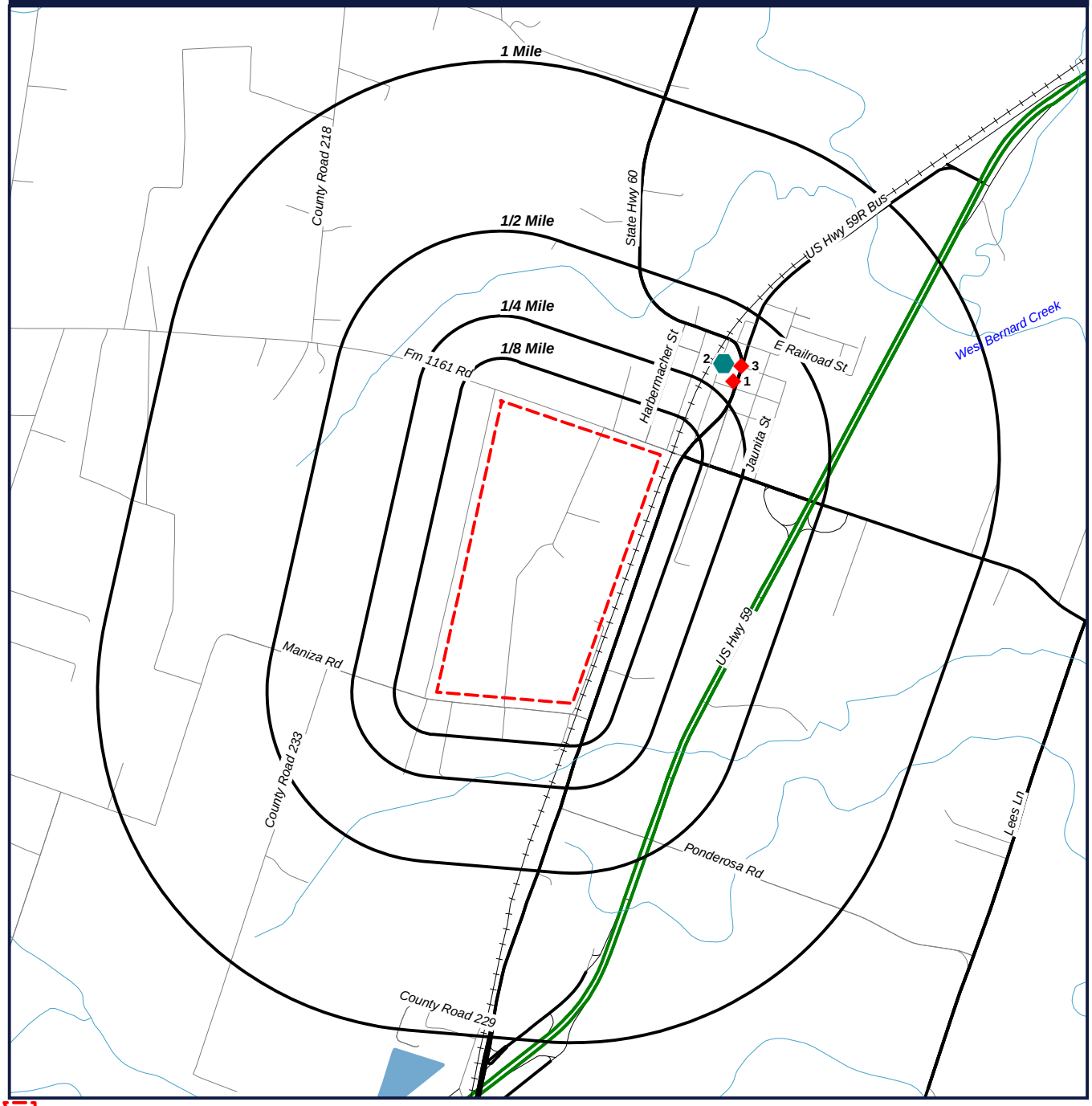
ACRONYM	Target Property	SEARCH RADIUS (miles)	1/8 Mile (> TP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
RCRAT		.5000	0	0	0	0	NS	0
DNPL		1.000	0	0	0	0	NS	0
DOD		1.000	0	0	0	0	NS	0
FUDS		1.000	0	0	0	0	NS	0
NLRRCRAC		1.000	0	0	0	0	NS	0
NPL		1.000	0	0	0	0	NS	0
PNPL		1.000	0	0	0	0	NS	0
RCRAC		1.000	0	0	0	0	NS	0
RODS		1.000	0	0	0	0	NS	0
SUB-TOTAL			**0**	**0**	**0**	**0**	**0**	**0**
STATE (TX)								
GWCC		.0200	0	0	0	0	NS	0
HISTGWCC		.0200	0	0	0	0	NS	0
LIENS		.0200	0	0	0	0	NS	0
MSD		.0200	0	0	0	0	NS	0
NOV		.0200	0	0	0	0	NS	0
SIEC01		.0200	0	0	0	0	NS	0
SPILLS		.0200	0	0	0	0	NS	0
DCR		.2500	0	0	0	0	NS	0
IHW		.2500	0	0	0	0	NS	0
PIHW		.2500	0	0	0	0	NS	0
PST		.2500	0	0	0	0	NS	0
APAR		.5000	0	0	0	0	NS	0
BSA		.5000	0	0	0	0	NS	0
CALF		.5000	0	0	0	0	NS	0
IOP		.5000	0	0	1	0	NS	1
LPST		.5000	0	0	2	0	NS	2

LOCATABLE DATABASE FINDINGS

ACRONYM	Target Property	SEARCH RADIUS (miles)	1/8 Mile (> TP)	1/4 Mile (> 1/8)	1/2 Mile (> 1/4)	1 Mile (> 1/2)	> 1 Mile	Total
MSWLF		.5000	0	0	0	0	NS	0
RRCVCP		.5000	0	0	0	0	NS	0
RWS		.5000	0	0	0	0	NS	0
TIERII		.5000	0	0	0	0	NS	0
VCP		.5000	0	0	0	0	NS	0
WMRF		.5000	0	0	0	0	NS	0
SF		1.000	0	0	0	0	NS	0
SUB-TOTAL			**0**	**0**	**3**	**0**	**0**	**3**
TRIBAL								
USTR06		.2500	0	0	0	0	NS	0
LUSTR06		.5000	0	0	0	0	NS	0
ODINDIAN		.5000	0	0	0	0	NS	0
INDIANRES		1.000	0	0	0	0	NS	0
SUB-TOTAL			**0**	**0**	**0**	**0**	**0**	**0**
TOTAL			**0**	**0**	**3**	**0**	**0**	**3**

NOTES:
NS = NO SEARCH REQUESTED BY CUSTOMER

RADIUS MAP



Target Property (TP)
LPST
IOP

+/-270 Acres
619 FM 1161 RD
Hungerford, Texas
77488

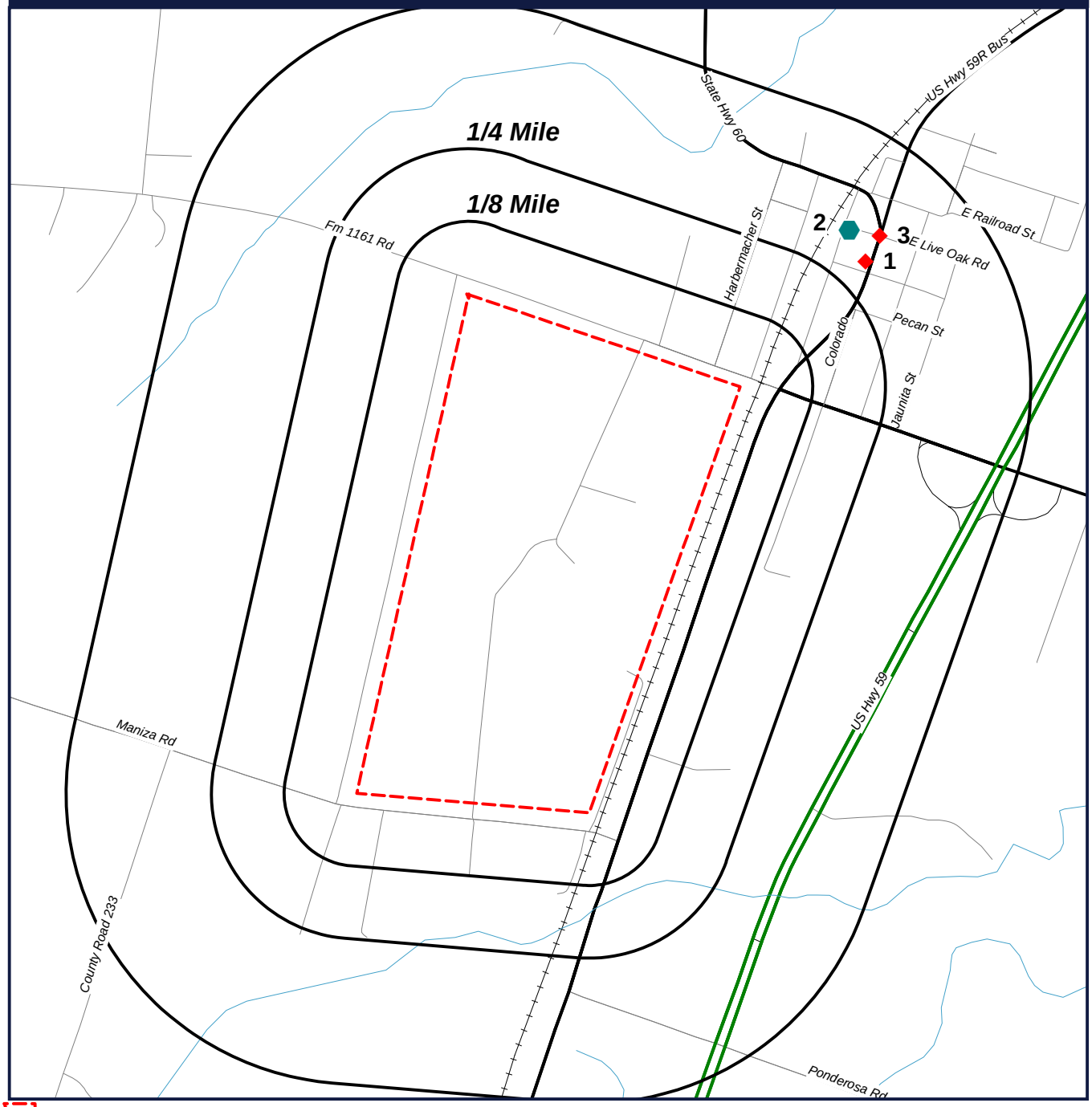
N
W E
S

0' 1200' 2400' 3600'
SCALE: 1" = 2400'

GeoSearch *www.geo-search.net - phone: 888-396-0042 - fax: 512-472-9967*

JOB #: 38357 - 2/3/2012

RADIUS MAP



Target Property (TP)
LPST
IOP

+/-270 Acres
619 FM 1161 RD
Hungerford, Texas
77488

N
W E
S

0' 700' 1400' 2100'
SCALE: 1" = 1400'

GeoSearch *www.geo-search.net - phone: 888-396-0042 - fax: 512-472-9967*

JOB #: 38357 - 2/3/2012

ORTHOPHOTO MAP

Target Property (TP)
LPST
IOP

Quadrangle(s): Hungerford
Source: USDA (2010)
+/-270 Acres
619 FM 1161 RD
Hungerford, Texas
77488

N
W E
S

0' 700' 1400' 2100'
SCALE: 1" = 1400'

GeoSearch *www.geo-search.net - phone: 888-396-0042 - fax: 512-472-9967*

JOB #: 38357 - 2/3/2012

TOPOGRAPHIC MAP

Target Property (TP)

Quadrangle(s): Hungerford
Source: USGS, 1980
+/-270 Acres
619 FM 1161 RD
Hungerford, Texas
77488

N
W E
S

0' 1200' 2400' 3600'

SCALE: 1" = 2400'

GeoSearch *www.geo-search.net - phone: 888-396-0042 - fax: 512-472-9967*

JOB #: 38357 - 2/3/2012

REPORT SUMMARY OF LOCATABLE SITES

MAP ID#	DATABASE NAME	SITE ID#	DISTANCE FROM SITE	SITE NAME	ADDRESS	CITY, ZIP CODE	PAGE #
1	LPST	102191	0.310 E	SABRSULA GROCERY	7809 HWY 59	HUNGERFORD, 77448	1
2	IOP	594	0.340 E	T-MOBILE HUDDLESTON TOWER	110 EAST LIVE OAK STREET	HUNGERFORD, 77448	2
3	LPST	109264	0.360 E	HENREYS GENERAL STORE	HWY 59	HUNGERFORD, 77448	3

LEAKING PETROLEUM STORAGE TANKS (LPST)

MAP ID# 1 **Distance from Property: 0.31 mi. E**

FACILITY INFORMATION

LPST ID#: **102191** FACILITY ID#: **0060752**
REPORTED DATE: **11/25/1991**
NAME: **SABRSULA GROCERY**
ADDRESS: **7809 HWY 59**
HUNGERFORD ,TX
FACILITY LOCATION: **7809 HWY 59**
PRIORITY CODE: **(5) MINOR SOIL CONTAMINATION - DOES NOT REQUIRE A REMEDIAL ACTION PLAN (RAP)**
STATUS CODE: **(6A) FINAL CONCURRENCE ISSUED, CASE CLOSED**

PRP INFORMATION

NAME: **KONVICKA ELSIE**
ADDRESS: **PO BOX 122**
HUNGERFORD, TX 77448
CONTACT: **ELSIE KONVICKA**
PHONE: **409-532-3312**

TANK INFORMATION

TANKID#/TYPE: **2/UST** INSTALLED: **NOT REPORTED** STATUS(DATE): **REMOVED FROM GROUND (11/30/1991)**
CAPACITY(gal.): **0** CONTENTS: **UNKNOWN**
TANK MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **NOT REPORTED / NOT REPORTED**
TANK/PIPE RELEASE DETECTION:
NOT REPORTED / NOT REPORTED
TANK/PIPE CORROSION PROTECTION:
NOT REPORTED / NOT REPORTED
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

INNOCENT OWNER / OPERATOR DATABASE (IOP)

MAP ID# 2 **Distance from Property: 0.34 mi. E**

FACILITY INFORMATION

ID#: **594**
DATE IOP RECIEVED: **11/29/2006**
CERTIFICATE ISSUED: **7/2/2007**
NAME: **T-MOBILE HUDDLESTON TOWER**
ADDRESS: **110 EAST LIVE OAK STREET**
HUNGERFORD, TX
CONTAMINANTS: **VOCS, TPH**
MEDIA AFFECTED: **SOILS/GROUNDWATER**
PHASE: **COMPLETED**
PROPERTY USE: **CELL PHONE TOWER**
ACRES: **65 x 65 ft**

APPLICANT INFORMATION

ORGANIZATION: **JOHN AND CAROL DORNAK**
EDWARD W. JAMES, PG, OWNERS
ADDRESS: **P.O. BOX 223**
HUNGERFORD, TX 77448
INTEREST IN SITE: **OWNER**
PHONE: **713-921-7266** FAX: **NOT REPORTED**

OTHER CONTACTS (CONSULTANT/ATTORNEY)

ORGANIZATION: **TERRACON CONSULTANTS, INC.**
EDWARD W. JAMES, PG, SENIOR PROJECT MANAGER
11555 CLAY ROAD
HOUSTON, TX 77043
PHONE: **713-690-8989** FAX: **713-690-2055**

LEAKING PETROLEUM STORAGE TANKS (LPST)

MAP ID# 3 **Distance from Property: 0.36 mi. E**

FACILITY INFORMATION

LPST ID#: **109264** FACILITY ID#: **0033311**
REPORTED DATE: **3/10/1995**
NAME: **HENREYS GENERAL STORE**
ADDRESS: **HWY 59**
HUNGERFORD ,TX
FACILITY LOCATION: **HWY 59 & LIVE OAK**
PRIORITY CODE: **(2.5) GROUNDWATER IMPACT, PUBLIC/DOMESTIC WATER SUPPLY WELL W/IN 0.25 MILES**
STATUS CODE: **(6A) FINAL CONCURRENCE ISSUED, CASE CLOSED**

PRP INFORMATION

NAME: **EDCO**
ADDRESS: **PO BOX 2600**
BAY CITY, TX 77404-2600
CONTACT: **STEVE CORNETT**
PHONE: **409-245-4891**

TANK INFORMATION

TANKID#/TYPE: **1/UST** INSTALLED: **01/01/1978** STATUS(DATE): **REMOVED FROM GROUND (03/02/1995)**
CAPACITY(gal.): **1000** CONTENTS: **GASOLINE**
TANK MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
PIPE MATERIAL/CONTAINMENT: **STEEL / NOT REPORTED**
TANK/PIPE RELEASE DETECTION:
NOT REPORTED / NOT REPORTED
TANK/PIPE CORROSION PROTECTION:
NOT REPORTED / NOT REPORTED
SPILL/OVERFILL PROTECTION: **NOT REPORTED**

REPORT SUMMARY OF UNLOCATABLE SITES

DATABASE TYPE	SITE ID#	SITE NAME	ADDRESS	CITY	ZIP CODE
CERCLIS	TXD051888733	NGPL #301	ROUTE 3 BOX 359	WHARTON	77488
NFRAP	TXD051888733	NGPL #301	ROUTE 3 BOX 359	WHARTON	77488
PST	0033297	GULF COAST EXPRESS	FM 1161	HUNGERFORD	77448
TIERII	26DH3D06E5ZD	MEANS C #1	HUNGERFORD N.	WHARTON	77488
TIERII	4W0J7A2AD652	BROCKMAN LEASE	COUNTY RD.	WHARTON	77488
TIERII	4W0J922CKPSK	DORNAK UNIT LEASE	COUNTY RD.	WHARTON	77488
TIERII	4W0JCF2K3MTA	VINEYAD ESTATE LEASE	COUNTY RD.	WHARTON	77488
TIERII	4XMQGZ0PZ3UB	HAWES	COUNTY RD.	WHARTON	77488
TIERII	4Y7AG42KG975	HLAVINKA LEASE	COUNTY RD.	HUNGERFORD	77448
TIERII	4YDL6T02V65M	EGYPT SWD	COUNTY RD.	WHARTON	77488
TIERII	6BBPCR01C36B	JENKINS	COUNTY RD.	WHARTON	77488
TIERII	6BBSN816JJVZ	ELOISE LENTZ	COUNTY RD.	WHARTON	77488
TIERII	7QBRPF0CUYAZ	WHARTON COUNTY PROPERTIES	SEE LAT/LONG	WHARTON	77488

FACILITY INFORMATION

EPA ID#: **TXD051888733**
SITE ID#: **603957**
NAME: **NGPL #301**
ADDRESS: **ROUTE 3 BOX 359**
WHARTON, TX 77488
COUNTY: **WHARTON**
NATIONAL PRIORITY LISTING: **N - NOT ON THE NPL**
FEDERAL FACILITY CLASSIFICATION: **N - NOT A FEDERAL FACILITY**
NON-NPL STATUS: **NF - NFRAP**
PHYSICAL CLASSIFICATION OF SITE / INCIDENT: **NO INFORMATION AVAILABLE**
SITE DESCRIPTION **- NO SITE DESCRIPTION INFORMATION AVAILABLE -**
SITE HISTORY **- NO SITE HISTORY INFORMATION AVAILABLE -**
ACTIONS

START DATE	COMPLETION DATE	TYPE
02/11/1991	**03/17/1993**	**BB - POTENTIALLY RESPONSIBLE PARTY REMOVAL TIME CRITICAL**
NR	**05/01/1989**	**DS - DISCOVERY**
04/19/1991	**04/19/1991**	**PA - PRELIMINARY ASSESSMENT**
04/19/1991	**04/19/1991**	**SI - SITE INSPECTION**
NR	**03/17/1993**	**VS - ARCHIVE SITE**

FACILITY INFORMATION

EPA ID#: **TXD051888733**
SITE ID#: **0603957**
NAME: **NGPL #301**
ADDRESS: **ROUTE 3 BOX 359**
WHARTON, TX 77488
COUNTY: **WHARTON**

ACTION	START DATE	COMPLETION DATE	RESPONSIBILITY
DS - DISCOVERY	**NOT REPORTED**	**5/1/1989 00:00:00**	**EPA FUND**
BB - POTENTIALLY RESPONSIBLE	**2/11/1991 00:00:00**	**3/17/1993 00:00:00**	**PRP RSP FED**
PA - PRELIMINARY ASSESSMENT	**4/19/1991 00:00:00**	**4/19/1991 00:00:00**	**EPA FUND**
SI - SITE INSPECTION	**4/19/1991 00:00:00**	**4/19/1991 00:00:00**	**EPA FUND**
VS - ARCHIVE SITE	**NOT REPORTED**	**3/17/1993 00:00:00**	**EPA IN-HOUSE**

ACTION DESCRIPTIONS

DS - (DISCOVERY) - THE PROCESS BY WHICH A POTENTIAL HAZARDOUS WASTE SITE IS BROUGHT TO THE ATTENTION OF THE EPA. THE PROCESS CAN OCCUR THROUGH THE USE OF SEVERAL MECHANISMS SUCH AS A PHONE CALL OR REFERRAL BY ANOTHER GOVERNMENT AGENCY.

BB - (POTENTIALLY RESPONSIBLE PARTY REMOVAL) - PROVIDES FOR OVERSIGHT OF POTENTIALLY RESPONSIBLE PARTY (PRP) RESPONSE ACTION FOR REMOVALS, INCLUDING ALL ACTIVITIES FOR MONITORING AND SUPERVISING THE PERFORMANCE OF PRPS TO DETERMINE WHETHER SUCH PERFORMANCE IS CONSISTENT WITH THE REQUIREMENTS OF THE ADMINISTRATIVE ORDERS ON CONSENT, UNILATERAL ADMINISTRATIVE ORDERS, CONSENT DECREES, JUDICIAL DECREES, INFORMATION AGREEMENTS, AND COMPLIANCE SCHEDULES.

PA - (PRELIMINARY ASSESSMENT) - COLLECTION OF DIVERSE EXISTING INFORMATION ABOUT THE SOURCE AND NATURE OF THE SITE HAZARD. IT IS EPA POLICY TO COMPLETE THE PRELIMINARY ASSESSMENT WITHIN ONE YEAR OF SITE DISCOVERY.

SI - (SITE INSPECTION) - THE PROCESS OF COLLECTING SITE DATA AND SAMPLES TO CHARACTERIZE THE SEVERITY OF THE HAZARD FOR THE HAZARD RANKING SCORE AND/OR ENFORCEMENT SUPPORT.

VS - (ARCHIVE SITE) - THE DECISION IS MADE THAT NO FURTHER ACTIVITY IS PLANNED AT THE SITE.

FACILITY INFORMATION

FACILITY ID #: **0033297**
NAME: **GULF COAST EXPRESS**
ADDRESS: **FM 1161**
HUNGERFORD, TX 77448
TYPE: **UNIDENTIFIED**
TCEQ REGION: **12**
FACILITY IN OZONE NON-ATTAINMENT AREA: **NO**
NUMBER OF UNDERGROUND TANKS AT FACILITY: **1**
NUMBER OF ABOVEGROUND TANKS AT FACILITY: **0**
FACILITY CONTACT: **PHILLIP KOONCE, VP**
PHONE: **409-532-3902**
DATE REGISTRATION FORM RECEIVED: **05/01/86**
SIGNATURE ON REGISTRATION FORM: **RON FERRESTER, VP**
DATE OF SIGNATURE ON REGISTRATION FORM: **05/01/86**

OWNER INFORMATION

CUSTOMER #: **15538**
NAME: **GP LEASING OF WHARTON INC**
ADDRESS: **609 W 10TH ST**
AUSTIN, TX 78701
TYPE: **CORPORATION**
NUMBER OF FACILITIES REPORTED BY CURRENT OWNER: **4**
NUMBER OF UNDERGROUND TANKS FOR CURRENT OWNER: **9**
NUMBER OF ABOVEGROUND TANKS FOR CURRENT OWNER: **0**
OWNER CONTACT: **DONALD GRISSOM**
PHONE: **512-478-4059**

SELF-CERTIFICATION INFORMATION

NO SELF-CERTIFICATION DATA REPORTED FOR THIS FACILITY

UNDERGROUND STORAGE TANK INFORMATION

TANK ID #: **1**
TANK STATUS: **IN USE**
INSTALL DATE: **01/01/1985**
STATUS DATE: **NOT REPORTED**
REGISTRATION DATE: **05/01/1986**
CAPACITY: **12000 GALLONS**
SUBSTANCE STORED: **DIESEL**
TANK DESIGN AND EXTERNAL CONTAINMENT (I thru IV)
NOT REPORTED
PIPING DESIGN AND EXTERNAL CONTAINMENT (I thru IV)
NOT REPORTED
TYPE OF PIPING: **NOT REPORTED**
TANK INTERNAL PROTECTION (INTERNAL LINING) DATE: **NOT REPORTED**
TANK MATERIAL: **STEEL**
OTHER TANK MATERIAL:
PIPE MATERIAL: **STEEL**
OTHER PIPE MATERIAL:
PIPE CONECTORS AND VALVES (I thru III)
NOT REPORTED
TANK CORROSSION PROTECTION (I thru III)
NOT REPORTED
TANK CORROSSION PROTECTION VARIANCE: **NO VARIANCE**
PIPE CORROSSION PROTECTION (I thru III)
NOT REPORTED
PIPE CORROSSION PROTECTION VARIANCE: **NO VARIANCE**
STAGE 1 VAPOR RECOVERY EQUIPMENT STATUS: **NOT REPORTED**
STAGE 1 EQUIPMENT INSTALL DATE: **NOT REPORTED**
STAGE 2 VAPOR RECOVERY EQUIPMENT STATUS:
STAGE 2 EQUIPMENT INSTALL DATE: **NOT REPORTED**
TANK TESTED ?: **NO**
INSTALLER NAME:

UNIT ID: **00088000** TANK ID: **1** COMPARTMENT LETTER: **A**

TANK RELEASE DETECTION METHOD
NOT REPORTED
TANK RELEASE DETECTION VARIANCE: **NO VARIANCE**
PIPE RELEASE DETECTION METHOD
NOT REPORTED
PIPE RELEASE DETECTION VARIANCE: **NO VARIANCE**
SPILL AND OVERFILL PREVENTION
NOT REPORTED
SPILL AND OVERFILL PREVENTION VARIANCE: **NO VARIANCE**

PETROLEUM STORAGE TANKS (PST)

ABOVEGROUND STORAGE TANK INFORMATION

NO ABOVEGROUND STORAGE TANK DATA REPORTED FOR THIS FACILITY

SITE INFORMATION

UNIQUE ID: **26DH3D06E5ZD**
SITE ID: **FATR200526DH3D06E5ZD**
NAME: **MEANS C #1**
ADDRESS: **HUNGERFORD N.**
WHARTON, TX 77488
SIGNED DATE: **2/28/2006**
VALIDATION REPORT: **THIS FACILITY PASSED ALL VALIDATION CHECKS.**
MAILING ADDRESS: **701 CEDAR LAKE BLVD.**
OKLAHOMA CITY, OK 73114

SITE DETAILS

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**
CHEMICAL LOCATION:
AT BATTERY
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
AT BATTERY
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL NAME: **CRUDE OIL**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

SITE INFORMATION

UNIQUE ID: **4W0J7A2AD652**

SITE ID: **FATR20084W0J7A2AD652**

NAME: **BROCKMAN LEASE**

ADDRESS: **COUNTY RD.**
WHARTON, TX 77488

SIGNED DATE: **2/12/2009**

VALIDATION REPORT: **THIS FACILITY PASSED ALL VALIDATION CHECKS.**

MAILING ADDRESS: **P. O. BOX 3910**
VICTORIA, TX 77093

SITE DETAILS

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**

SITE INFORMATION

UNIQUE ID: **4W0J922CKPSK**
SITE ID: **FATR20094W0J922CKPSK**
NAME: **DORNAK UNIT LEASE**
ADDRESS: **COUNTY RD.**
WHARTON, TX 77488
SIGNED DATE: **2/7/2010**
VALIDATION REPORT: **THIS FACILITY PASSED ALL VALIDATION CHECKS.**
MAILING ADDRESS: **P. O. BOX 3910**
VICTORIA, TX 77093

SITE DETAILS

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**
SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**
SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**
CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

TIER I I CHEMICAL REPORTING PROGRAM FACILITIES (TIERII)

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**

SITE INFORMATION

UNIQUE ID: **4W0JCF2K3MTA**

SITE ID: **FATR20084W0JCF2K3MTA**

NAME: **VINEYAD ESTATE LEASE**

ADDRESS: **COUNTY RD.**
WHARTON, TX 77488

SIGNED DATE: **2/12/2009**

VALIDATION REPORT: **THIS FACILITY PASSED ALL VALIDATION CHECKS.**

MAILING ADDRESS: **P. O. BOX 3910**
VICTORIA, TX 77093

SITE DETAILS

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

MIXTURE CHEMICAL: **NOT REPORTED**

MIXTURE CHEMICAL: **NOT REPORTED**

MIXTURE CHEMICAL: **NOT REPORTED**

MIXTURE CHEMICAL: **NOT REPORTED**

SITE INFORMATION

UNIQUE ID: **4XMQGZ0PZ3UB**

SITE ID: **FATR20084XMQGZ0PZ3UB**

NAME: **HAWES**

ADDRESS: **COUNTY RD.**
WHARTON, TX 77488

SIGNED DATE: **2/12/2009**

VALIDATION REPORT: **THIS FACILITY PASSED ALL VALIDATION CHECKS.**

MAILING ADDRESS: **P. O. BOX 3910**
VICTORIA, TX 77093

SITE DETAILS

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**

SITE INFORMATION

UNIQUE ID: **4Y7AG42KG975**

SITE ID: **FATR20084Y7AG42KG975**

NAME: **HLAVINKA LEASE**

ADDRESS: **COUNTY RD.**
HUNGERFORD, TX 77448

SIGNED DATE: **2/11/2009**

VALIDATION REPORT: **THIS FACILITY PASSED ALL VALIDATION CHECKS.**

MAILING ADDRESS: **P. O. BOX 4085**
VICTORIA, TX 77093

SITE DETAILS

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**

SITE INFORMATION

UNIQUE ID: **4YDL6T02V65M**

SITE ID: **FATR20094YDL6T02V65M**

NAME: **EGYPT SWD**

ADDRESS: **COUNTY RD.**
WHARTON, TX 77488

SIGNED DATE: **2/22/2010**

VALIDATION REPORT: **THIS FACILITY PASSED ALL VALIDATION CHECKS.**

MAILING ADDRESS: **P. O. BOX 3910**
VICTORIA, TX 77093

SITE DETAILS

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

SITE TYPE: **CRUDE PETROLEUM AND NATURAL GAS EXTRACTION**

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

SITE TYPE: **CRUDE PETROLEUM AND NATURAL GAS EXTRACTION**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**

SITE INFORMATION

UNIQUE ID: **6BBPCR01C36B**
SITE ID: **FATR20096BBPCR01C36B**
NAME: **JENKINS**
ADDRESS: **COUNTY RD.**
WHARTON, TX 77488
SIGNED DATE: **2/7/2010**
VALIDATION REPORT: **THIS FACILITY PASSED ALL VALIDATION CHECKS.**
MAILING ADDRESS: **P. O. BOX 3910**
VICTORIA, TX 77093

SITE DETAILS

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**
SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**
CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

MIXTURE CHEMICAL: **NOT REPORTED**

MIXTURE CHEMICAL: **NOT REPORTED**

MIXTURE CHEMICAL: **NOT REPORTED**

MIXTURE CHEMICAL: **NOT REPORTED**

SITE INFORMATION

UNIQUE ID: **6BBSN816JJVZ**
SITE ID: **FATR20086BBSN816JJVZ**
NAME: **ELOISE LENTZ**
ADDRESS: **COUNTY RD.**
WHARTON, TX 77488
SIGNED DATE: **2/12/2009**
VALIDATION REPORT: **THIS FACILITY PASSED ALL VALIDATION CHECKS.**
MAILING ADDRESS: **P. O. BOX 3910**
VICTORIA, TX 77093

SITE DETAILS

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**

CHEMICAL LOCATION:
DRILLILNG, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODCUTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
DRILLING, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
PRODUCTION, WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL LOCATION:
WORKOVER/COMPLETION
CHEMICAL AMOUNT: **NOT REPORTED**

CHEMICAL NAME: **ACID, INORGANIC-HYDROFLOURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SULFURIC ACID**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CEMENT & ASSOCIATED ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **CORROSION INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DEFOAMING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **DETERGENTS/FOAMERS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **EXPLOSIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **FUELS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **GELLING AGENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **HERBICIDES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **HYDRAULIC FLUIDS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, DRILLING MUD ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **LUBRICANTS, ENGINE**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **MISCELLANEOUS DRILLING ADDITIVES**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **PAINT & PAINT THINNER**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PIPE JOINT COMPOUND**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **YES** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **RESIN & RESIN SOLUTIONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **YES**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SCALE INHIBITORS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

CHEMICAL NAME: **SILICA**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SOLVENTS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **NOT REPORTED** MIXTURE: **YES**

CHEMICAL NAME: **SURFACTANTS, MISCELLANEOUS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **YES**

TIER I I CHEMICAL REPORTING PROGRAM FACILITIES (TIERII)

CHEMICAL NAME: **WELDING MATERIALS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **NOT REPORTED** GAS: **NOT REPORTED** LIQUID: **NOT REPORTED** SOLID: **YES**
PURE: **NOT REPORTED** MIXTURE: **YES**
MIXTURE CHEMICAL: **NOT REPORTED**
MIXTURE CHEMICAL: **NOT REPORTED**

SITE INFORMATION

UNIQUE ID: **7QBRPF0CUYAZ**
SITE ID: **FATR20107QBRPF0CUYAZ**
NAME: **WHARTON COUNTY PROPERTIES**
ADDRESS: **SEE LAT/LONG**
WHARTON, TX 77488
SIGNED DATE: **2/9/2011**
VALIDATION REPORT: **NOT REPORTED**
MAILING ADDRESS: **607 RAILROAD AVENUE**
PORTLAND, TX 78374

SITE DETAILS

SITE TYPE: **CRUDE PETROLEUM & NATURAL GAS**
SITE TYPE: **CRUDE PETROLEUM AND NATURAL GAS EXTRACTION**
CHEMICAL LOCATION:
JONES 1
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL LOCATION:
RASMUSSEN NO. 1
CHEMICAL AMOUNT: **NOT REPORTED**
CHEMICAL NAME: **PRODUCED HYDROCARBONS**
MAXIMUM AMOUNT: **NOT REPORTED**
FIRE: **YES** GAS: **NOT REPORTED** LIQUID: **YES** SOLID: **NOT REPORTED**
PURE: **YES** MIXTURE: **NOT REPORTED**

ENVIRONMENTAL RECORDS DEFINITIONS - FEDERAL

AIRSAFS Aerometric Information Retrieval System / Air Facility Subsystem

VERSION DATE: 8/2011

The United States Environmental Protection Agency (EPA) modified the Aerometric Information Retrieval System (AIRS) to a database that exclusively tracks the compliance of stationary sources of air pollution with EPA regulations: the Air Facility Subsystem (AFS). Since this change in 2001, the management of the AIRS/AFS database was assigned to EPA's Office of Enforcement and Compliance Assurance.

BF Brownfields Management System

VERSION DATE: 12/2011

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. The United States Environmental Protection Agency maintains this database to track activities in the various brown field grant programs including grantee assessment, site cleanup and site redevelopment.

BRS Biennial Reporting System

VERSION DATE: 1/2003

The United States Environmental Protection Agency (EPA), in cooperation with the States, biennially collects information regarding the generation, management, and final disposition of hazardous wastes regulated under the Resource Conservation and Recovery Act of 1976 (RCRA), as amended. The Biennial Report captures detailed data on the generation of hazardous waste from large quantity generators and data on waste management practices from treatment, storage and disposal facilities. Currently, the EPA states that data collected between 1991 and 1997 was originally a part of the defunct Biennial Reporting System and is now incorporated into the RCRAInfo data system.

CDL Clandestine Drug Laboratory Locations

VERSION DATE: 5/2011

The U.S. Department of Justice ("the Department") provides this information as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments. The Department does not establish, implement, enforce, or certify compliance with clean-up or remediation standards for contaminated sites; the public should contact a state or local health department or environmental protection agency for that information.

ENVIRONMENTAL RECORDS DEFINITIONS - FEDERAL

CERCLIS Comprehensive Environmental Response, Compensation & Liability Information System

VERSION DATE: 9/2011

CERCLIS is the repository for site and non-site specific Superfund information in support of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This United States Environmental Protection Agency database contains an extract of sites that have been investigated or are in the process of being investigated for potential environmental risk.

DNPL Delisted National Priorities List

VERSION DATE: 9/2011

This database includes sites from the United States Environmental Protection Agency's Final National Priorties List (NPL) where remedies have proven to be satisfactory or sites where the original analyses were inaccurate, and the site is no longer appropriate for inclusion on the NPL, and final publication in the Federal Register has occurred.

DOCKETS EPA Docket Data

VERSION DATE: 12/2005

The United States Environmental Protection Agency Docket data lists Civil Case Defendants, filing dates as far back as 1971, laws broken including section, violations that occurred, pollutants involved, penalties assessed and superfund awards by facility and location. Please refer to ICIS database as source of current data.

DOD Department of Defense Sites

VERSION DATE: 12/2005

This information originates from the National Atlas of the United States Federal Lands data, which includes lands owned or administered by the Federal government. Army DOD, Army Corps of Engineers DOD, Air Force DOD, Navy DOD and Marine DOD areas of 640 acres or more are included.

EC Federal Engineering Institutional Control Sites

VERSION DATE: 12/2011

This database includes site locations where Engineering and/or Institutional Controls have been identified as part of a selected remedy for the site as defined by United States Environmental Protection Agency official remedy decision documents. A site listing does not indicate that the institutional and engineering controls are currently in place nor will be in place once the remedy is complete; it only indicates that the decision to include either of them in the remedy is documented as of the completed date of the document. Institutional controls are actions, such as legal controls, that help minimize the potential for human exposure to contamination by ensuring appropriate land or resource use. Engineering controls include caps, barriers, or other device engineering to prevent access, exposure, or continued migration of contamination.

ERNSTX Emergency Response Notification System

VERSION DATE: 12/2011

This National Response Center database contains data on reported releases of oil, chemical, radiological, biological, and/or etiological discharges into the environment anywhere in the United States and its territories. The data comes from spill reports made to the U.S. Environmental Protection Agency, U.S. Coast Guard, the National Response Center and/or the U.S. Department of Transportation.

FRSTX Facility Registry System

VERSION DATE: 12/2011

The United States Environmental Protection Agency's Office of Environmental Information (OEI) developed the Facility Registry System (FRS) as the centrally managed database that identifies facilities, sites or places subject to environmental regulations or of environmental interest. The Facility Registry System replaced the Facility Index System or FINDS database.

FUDS Formerly Used Defense Sites

VERSION DATE: 10/2011

The 2010 FUDS inventory includes properties previously owned by or leased to the United States and under Secretary of Defense jurisdiction. The remediation of these properties is the responsibility of the Department of Defense.

HMIRSR06 Hazardous Materials Incident Reporting System

VERSION DATE: 12/2011

The HMIRS database contains unintentional hazardous materials release information reported to the U.S. Department of Transportation located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

ICIS Integrated Compliance Information System (formerly DOCKETS)

VERSION DATE: 8/2011

ICIS is a case activity tracking and management system for civil, judicial, and administrative federal Environmental Protection Agency enforcement cases. ICIS contains information on federal administrative and federal judicial cases under the following environmental statutes: the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, the Emergency Planning and Community Right-to-Know Act - Section 313, the Toxic Substances Control Act, the Federal Insecticide, Fungicide, and Rodenticide Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Safe Drinking Water Act, and the Marine Protection, Research, and Sanctuaries Act.

ICISNPDES Integrated Compliance Information System National Pollutant Discharge Elimination System

VERSION DATE: 8/2011

In 2006, the Integrated Compliance Information System (ICIS) - National Pollutant Discharge Elimination System (NPDES) became the NPDES national system of record for select states, tribes and territories. ICIS-NPDES is an information management system maintained by the United States Environmental Protection Agency's Office of Compliance to track permit compliance and enforcement status of facilities regulated by the NPDES under the Clean Water Act. ICIS-NPDES is designed to support the NPDES program at the state, regional, and national levels.

LUCIS Land Use Control Information System

VERSION DATE: 9/2006

The LUCIS database is maintained by the U.S. Navy and contains information for former Base Realignment and Closure (BRAC) properties across the United States.

MLTS Material Licensing Tracking System

VERSION DATE: 2/2011

MLTS is a list of approximately 8,100 sites which have or use radioactive materials subject to the United States Nuclear Regulatory Commission (NRC) licensing requirements.

NFRAP No Further Remedial Action Planned Sites

VERSION DATE: 9/2011

This database includes sites which have been determined by the United States Environmental Protection Agency, following preliminary assessment, to no longer pose a significant risk or require further activity under CERCLA. After initial investigation, no contamination was found, contamination was quickly removed or contamination was not serious enough to require Federal Superfund action or NPL consideration.

NLRRCRAC No Longer Regulated RCRA Corrective Action Facilities

VERSION DATE: 10/2011

This database includes RCRA Corrective Action facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements.

NLRRCRAG No Longer Regulated RCRA Generator Facilities

VERSION DATE: 10/2011

This database includes RCRA Generator facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements. This listing includes facilities that formerly generated hazardous waste.

Large Quantity Generators: Generate 1,000 kg or more of hazardous waste during any calendar month; or Generate more than 1 kg of acutely hazardous waste during any calendar month; or Generate more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month; or Generate 1 kg or less of acutely hazardous waste during any calendar month, and accumulate more than 1kg of acutely hazardous waste at any time; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulated more than 100 kg of that material at any time.
Small Quantity Generators: Generate more than 100 and less than 1000 kilograms of hazardous waste during any calendar month and accumulate less than 6000 kg of hazardous waste at any time; or Generate 100 kg or less of hazardous waste during any calendar month, and accumulate more than 1000 kg of hazardous waste at any time.
Conditionally Exempt Small Quantity Generators: Generate 100 kilograms or less of hazardous waste per calendar month, and accumulate 1000 kg or less of hazardous waste at any time; or Generate one kilogram or less of acutely hazardous waste per calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste.

NLRRCRAT No Longer Regulated RCRA Non-CORRACTS TSD Facilities

VERSION DATE: 10/2011

This database includes RCRA Non-Corrective Action TSD facilities that are no longer regulated by the United States Environmental Protection Agency or do not meet other RCRA reporting requirements. This listing includes facilities that formerly treated, stored or disposed of hazardous waste.

NPDESR06 National Pollutant Discharge Elimination System

VERSION DATE: 4/2007

Information in this database is extracted from the Water Permit Compliance System (PCS) database which is used by United States Environmental Protection Agency to track surface water permits issued under the Clean Water Act. This database includes permitted facilities located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas. The NPDES database was collected from December 2002 until April 2007. Refer to the PCS and/or ICIS-NPDES database as source of current data.

NPL National Priorities List

VERSION DATE: 9/2011

This database includes United States Environmental Protection Agency (EPA) National Priorities List sites that fall under the EPA's Superfund program, established to fund the cleanup of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action.

ODI Open Dump Inventory

VERSION DATE: 6/1985

The open dump inventory was published by the United States Environmental Protection Agency. An “open dump” is defined as a facility or site where solid waste is disposed of which is not a sanitary landfill which meets the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944) and which is not a facility for disposal of hazardous waste. This inventory has not been updated since June 1985.

PADS PCB Activity Database System

VERSION DATE: 10/2011

The PCB Activity Database System (PADS) is used by the United States Environmental Protection Agency to monitor the activities of polychlorinated biphenyls (PCB) handlers.

PCSR06 Permit Compliance System

VERSION DATE: 8/2011

The Permit Compliance System is used in tracking enforcement status and permit compliance of facilities controlled by the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act and is maintained by the United States Environmental Protection Agency's Office of Compliance. PCS is designed to support the NPDES program at the state, regional, and national levels. This database includes permitted facilities located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

PNPL Proposed National Priorities List

VERSION DATE: 9/2011

This database contains sites proposed to be included on the National Priorities List (NPL) in the Federal Register. The United States Environmental Protection Agency investigates these sites to determine if they may present long-term threats to public health or the environment.

RCRAC Resource Conservation & Recovery Act - Corrective Action Facilities

VERSION DATE: 10/2011

This database includes hazardous waste sites listed with corrective action activity in the RCRAInfo system. The Corrective Action Program requires owners or operators of RCRA facilities (or treatment, storage, and disposal facilities) to investigate and cleanup contamination in order to protect human health and the environment. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS).

RCRAGR06 Resource Conservation & Recovery Act - Generator Facilities

VERSION DATE: 10/2011

This database includes sites listed as generators of hazardous waste (large, small, and exempt) in the RCRAInfo system. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS). This database includes sites located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.
Large Quantity Generators: Generate 1,000 kg or more of hazardous waste during any calendar month; or Generate more than 1 kg of acutely hazardous waste during any calendar month; or Generate more than 100 kg of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste during any calendar month; or Generate 1 kg or less of acutely hazardous waste during any calendar month, and accumulate more than 1kg of acutely hazardous waste at any time; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste during any calendar month, and accumulated more than 100 kg of that material at any time.
Small Quantity Generators: Generate more than 100 and less than 1000 kilograms of hazardous waste during any calendar month and accumulate less than 6000 kg of hazardous waste at any time; or Generate 100 kg or less of hazardous waste during any calendar month, and accumulate more than 1000 kg of hazardous waste at any time.
Conditionally Exempt Small Quantity Generators: Generate 100 kilograms or less of hazardous waste per calendar month, and accumulate 1000 kg or less of hazardous waste at any time; or Generate one kilogram or less of acutely hazardous waste per calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous waste; or Generate 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, or acutely hazardous

waste during any calendar month, and accumulate at any time: 1 kg or less of acutely hazardous waste; or 100 kg or less of any residue or contaminated soil, waste or other debris resulting from the cleanup of a spill, into or on any land or water, of acutely hazardous waste.

RCRASC RCRA Sites with Controls

VERSION DATE: 10/2010

This list of Resource Conservation and Recovery Act sites with institutional controls in place is provided by the U.S. Environmental Protection Agency.

RCRAT Resource Conservation & Recovery Act - Treatment, Storage & Disposal Facilities

VERSION DATE: 10/2011

This database includes Non-Corrective Action sites listed as treatment, storage and/or disposal facilities of hazardous waste in the RCRAInfo system. The United States Environmental Protection Agency defines RCRAInfo as the comprehensive information system which provides access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS) and the Biennial Reporting System (BRS).

RODS Record of Decision System

VERSION DATE: 9/2011

These decision documents maintained by the United States Environmental Protection Agency describe the chosen remedy for NPL (Superfund) site remediation. They also include site history, site description, site characteristics, community participation, enforcement activities, past and present activities, contaminated media, the contaminants present, and scope and role of response action.

SFLIENS CERCLIS Liens

VERSION DATE: 8/2011

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which United States Environmental Protection Agency has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties. This database contains those CERCLIS sites where the Lien on Property action is complete.

SSTS Section Seven Tracking System

VERSION DATE: 12/2009

The United States Environmental Protection Agency tracks information on pesticide establishments through the Section Seven Tracking System (SSTS). SSTS records the registration of new

establishments and records pesticide production at each establishment. The Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) requires that production of pesticides or devices be conducted in a registered pesticide-producing or device-producing establishment. ("Production" includes formulation, packaging, repackaging, and relabeling.)

TRI Toxics Release Inventory

VERSION DATE: 12/2010

The Toxics Release Inventory, provided by the United States Environmental Protection Agency, includes data on toxic chemical releases and waste management activities from certain industries as well as federal facilities. This inventory contains information about the types and amounts of toxic chemicals that are released each year to the air, water, and land as well as information on the quantities of toxic chemicals sent to other facilities for further waste management.

TSCA Toxic Substance Control Act Inventory

VERSION DATE: 12/2006

The Toxic Substances Control Act (TSCA) was enacted in 1976 to ensure that chemicals manufactured, imported, processed, or distributed in commerce, or used or disposed of in the United States do not pose any unreasonable risks to human health or the environment. TSCA section 8(b) provides the United States Environmental Protection Agency authority to "compile, keep current, and publish a list of each chemical substance that is manufactured or processed in the United States." This TSCA Chemical Substance Inventory contains non-confidential information on the production amount of toxic chemicals from each manufacturer and importer site.

APAR Affected Property Assessment Reports

VERSION DATE: 12/2011

As regulated by the Texas Commission on Environmental Quality, an Affected Property Assessment Report is required when a person is addressing a release of chemical of concern (COC) under 30 TAC Chapter 350, the Texas Risk Reduction Program (TRRP). The purpose of the APAR is to document all relevant affected property information to identify all release sources and COCs, determine the extent of all COCs, identify all transport/exposure pathways, and to determine if any response actions are necessary. The Texas Administrative Code Title 30 §350.4(a)(1) defines affected property as the entire area (i.e. on-site and off-site; including all environmental media) which contains releases of chemicals of concern at concentrations equal to or greater than the assessment level applicable for residential land use and groundwater classification.

BSA Brownfields Site Assessments

VERSION DATE: 11/2011

The Brownfields Site Assessments database is maintained by the Texas Commission on Environmental Quality (TCEQ). The TCEQ, in close partnership with the U.S. Environmental Protection Agency (EPA) and other federal, state, and local redevelopment agencies, and stakeholders, is facilitating cleanup, transferability, and revitalization of brownfields through the development of regulatory, tax, and technical assistance tools.

CALF Closed & Abandoned Landfill Inventory

VERSION DATE: 11/2005

The Texas Commission on Environmental Quality, under a contract with Texas State University, and in cooperation with the 24 regional Council of Governments in the State, has located over 4,000 closed and abandoned municipal solid waste landfills throughout Texas. This listing contains "unauthorized sites". Unauthorized sites have no permit and are considered abandoned. The information available for each site varies in detail.

DCR Dry Cleaner Registration Database

VERSION DATE: 11/2011

The database includes dry cleaning drop stations and facilities registered with the Texas Commission on Environmental Quality.

GWCC Groundwater Contamination Cases

VERSION DATE: 12/2010

This report contains a listing of groundwater contamination cases which were documented for the 2010 calendar year. Texas Water Code, Section 26.406 requires the annual report to describe the current status of groundwater monitoring activities conducted or required by each agency at

regulated facilities or associated with regulated activities. The agencies reporting these contamination cases include the Texas Commission on Environmental Quality, Railroad Commission of Texas, Texas Alliance of Groundwater Districts, and Department of State Health Services.

HISTGWCC Historic Groundwater Contamination Cases

VERSION DATE: NR

This historic report contains all agency groundwater contamination cases documented from 1994 to 2009. The agencies that reported these contamination cases included the Texas Commission on Environmental Quality, Railroad Commission of Texas, Texas Alliance of Groundwater Districts, and Department of State Health Services.

IHW Industrial and Hazardous Waste Sites

VERSION DATE: 11/2011

Owner and facility information is included in this database of permitted and non-permitted industrial and hazardous waste sites. Industrial waste is waste that results from or is incidental to operations of industry, manufacturing, mining, or agriculture. Hazardous waste is defined as any solid waste listed as hazardous or possesses one or more hazardous characteristics as defined in federal waste regulations. The IHW database is maintained by the Texas Commission on Environmental Quality.

IOP Innocent Owner / Operator Database

VERSION DATE: 11/2011

Texas Innocent Owner / Operator (IOP), created by House Bill 2776 of the 75th Legislature, provides a certificate to an innocent owner or operator if their property is contaminated as a result of a release or migration of contaminants from a source or sources not located on the property, and they did not cause or contribute to the source or sources of contamination. The IOP database is maintained by the Texas Commission on Environmental Quality.

LIENS TCEQ Liens

VERSION DATE: 10/2011

Liens filed upon State and/or Federal Superfund Sites by the Texas Commission on Environmental Quality.

LPST Leaking Petroleum Storage Tanks

VERSION DATE: 11/2011

The Leaking Petroleum Storage Tank listing is derived from the Petroleum Storage Tank (PST) database and is maintained by the Texas Commission on Environmental Quality. This listing includes aboveground and underground storage tank facilities with reported leaks.

MSD Municipal Setting Designations

VERSION DATE: 1/2012

The Texas Commission on Environmental Quality defines an MSD as an official state designation given to property within a municipality or its extraterritorial jurisdiction that certifies that designated groundwater at the property is not used as potable water, and is prohibited from future use as potable water because that groundwater is contaminated in excess of the applicable potable-water protective concentration level. The prohibition must be in the form of a city ordinance, or a restrictive covenant that is enforceable by the city and filed in the property records. The MSD property can be a single property, multi-property, or a portion of property.

MSWLF Municipal Solid Waste Landfill Sites

VERSION DATE: 1/2012

The municipal solid waste landfill database is provided by the Texas Commission on Environmental Quality. This database includes active landfills and inactive landfills, where solid waste is treated or stored.

NOV Notice of Violations

VERSION DATE: 1/2012

This database containing Notice of Violations (NOV) is maintained by the Texas Commission on Environmental Quality. An NOV is a written notification that documents and communicates violations observed during an inspection to the business or individual inspected.

PIHW Permitted Industrial Hazardous Waste Sites

VERSION DATE: 11/2011

Owner and facility information is included in this database of all permitted industrial and hazardous waste sites. Industrial waste is waste that results from or is incidental to operations of industry, manufacturing, mining, or agriculture. Hazardous waste is defined as any solid waste listed as hazardous or possesses one or more hazardous characteristics as defined in federal waste regulations. Permitted IHW facilities are regulated under 30 Texas Administrative Code Chapter 335 in addition to federal regulations. The IHW database is maintained by the Texas Commission on Environmental Quality.

PST Petroleum Storage Tanks

VERSION DATE: 11/2011

The Petroleum Storage Tank database is administered by the Texas Commission on Environmental Quality (TCEQ). Both Underground storage tanks (USTs) and Aboveground storage tanks (ASTs) are included in this report. Petroleum Storage Tank registration has been a requirement with the TCEQ since 1986.

RRCVCP Railroad Commission VCP and Brownfield Sites

VERSION DATE: 10/2011

According to the Railroad Commission of Texas, their Voluntary Cleanup Program (RRC-VCP) provides an incentive to remediate Oil & Gas related pollution by participants as long as they did not cause or contribute to the contamination. Applicants to the program receive a release of liability to the state in exchange for a successful cleanup.

RWS Radioactive Waste Sites

VERSION DATE: 7/2006

This Texas Commission on Environmental Quality database contains all sites in the State of Texas that have been designated as Radioactive Waste sites.

SF State Superfund Sites

VERSION DATE: 10/2011

The state Superfund program mission is to remediate abandoned or inactive sites within the state that pose an unacceptable risk to public health and safety or the environment, but which do not qualify for action under the federal Superfund program (NPL - National Priority Listing). As required by the Texas Solid Waste Disposal Act, Texas Health and Safety Code, Chapter 361, the Texas Commission on Environmental Quality identifies and evaluates these facilities for inclusion on the state Superfund registry. This registry includes any recent developments and the anticipated action for these sites.

SIEC01 State Institutional/Engineering Control Sites

VERSION DATE: 11/2011

The Texas Risk Reduction Program (TRRP) requires the placement of institutional controls (e.g., deed notices or restrictive covenants) on affected property in different circumstances as part of completing a response action. In its simplest form, an institutional control (IC) is a legal document that is recorded in the county deed records. In certain circumstances, local zoning or ordinances can serve as an IC. This listing may also include locations where Engineering Controls are in effect, such as a cap, barrier, or other engineering device to prevent access, exposure, or continued migration of contamination. The sites included on this list are regulated by various programs of the Texas Commission on Environmental Quality.

SPILLS Spills Listing

VERSION DATE: 1/2012

This Texas Commission on Environmental Quality database includes releases of hazardous or potentially hazardous materials into the environment.

TIERII Tier I I Chemical Reporting Program Facilities

VERSION DATE: 12/2010

The Texas Tier II Chemical Reporting Program in the Department of State Health Services (DSHS) is the state repository for EPCRA-required Emergency Planning Letters (EPLs), which are one-time notifications to the state from facilities that have certain extremely hazardous chemicals in specified amounts. The Program is also the state repository for EPCRA/state-required hazardous chemical inventory reports called Texas Tier Two Reports. This data contains those facility reports for the 2005 through the 2010 calendar years.

VCP Voluntary Cleanup Program Sites

VERSION DATE: 11/2011

The Texas Voluntary Cleanup Program (VCP) provides administrative, technical, and legal incentives to encourage the cleanup of contaminated sites in Texas. Since all non-responsible parties, including future lenders and landowners, receive protection from liability to the state of Texas for cleanup of sites under the VCP, most of the constraints for completing real estate transactions at those sites are eliminated. As a result, many unused or underused properties may be restored to economically productive or community beneficial uses. The VCP database is maintained by the Texas Commission on Environmental Quality.

WMRF Recycling Facilities

VERSION DATE: 10/2011

This listing of recycling facilities is provided by the Texas Commission on Environmental Quality's Recycle Texas Online service. The company information provided in this database is self-reported. Since recyclers post their own information, a facility or company appearing on the list does not imply that it is in compliance with TCEQ regulations or other applicable laws.

INDIANRES Indian Reservations

VERSION DATE: 1/2000

The Department of Interior and Bureau of Indian Affairs maintains this database that includes American Indian Reservations, off-reservation trust lands, public domain allotments, Alaska Native Regional Corporations and Recognized State Reservations.

LUSTR06 Leaking Underground Storage Tanks On Tribal Lands

VERSION DATE: 7/2010

This database, provided by the United States Environmental Protection Agency (EPA), contains leaking underground storage tanks on Tribal lands located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

ODINDIAN Open Dump Inventory on Tribal Lands

VERSION DATE: 11/2006

This Indian Health Service database contains information about facilities and sites on tribal lands where solid waste is disposed of, which are not sanitary landfills or hazardous waste disposal facilities, and which meet the criteria promulgated under section 4004 of the Solid Waste Disposal Act (42 U.S.C. 6944).

USTR06 Underground Storage Tanks On Tribal Lands

VERSION DATE: 8/2010

This database, provided by the United States Environmental Protection Agency (EPA), contains underground storage tanks on Tribal lands located in EPA Region 6. This region includes the following states: Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

APPENDIX E

RECORDS OF COMMUNICATION

HALFF

OWNER / OPERATOR ENVIRONMENTAL QUESTIONNAIRE

±270 Acres
619 W. F.M. 1161
Hungerford, Texas 77448

The following pages comprise an Environmental Questionnaire to facilitate the completion of the Environmental Due Diligence for the property. Please answer all questions as completely as possible. If the spaces provided for your detailed responses are not sufficient, please attach additional pages to this questionnaire as necessary.

PART I - GENERAL BACKGROUND INFORMATION

Owner of Property: Julius + Mary Matula Family Trust

Property Address: 619 W. FM. 1161

Site Manager or Site Contact: Mark Matula (Truster)

Telephone Number of Manager/Contact: (979) 532-4281

Current Tenants: Tim Krenek

Number and size (square feet) of buildings: One — Small storage building (8x10?)

Date(s) of Construction: unknown (move there-

Type of Construction (slab-on-grade, basement, masonry block walls): Wood

HALFF

PART I - GENERAL BACKGROUND INFORMATION - *Continued*

Property Acreage ± 270 Acres

Utilities (water, sewer, heat, etc.) Water Well

Septic system(s) previously in use at property? If yes, please supply number, locations, and approximate dates.
None

Current use(s) of property (as specifically as possible) Farming

Past use(s) of property (as specifically as possible) Farming

Planned future uses of property (as specifically as possible) Farming

Is excavation, earth moving, or laying of utilities expected? (Provide details.) No

Is significant demolition or renovation planned? (Provide details.) No

HALFF

PART II: QUESTIONNAIRE

Please check the correct response and provide detailed answers for all questions answered with "Yes."

1. Is the property or any adjoining property currently used for an industrial use? **If so, please describe.**

SUBJECT SITE			ADJOINING		
☐ Yes	☒ No	☐ Unknown	☐ Yes	☐ No	☒ Unknown

2. To the best of your knowledge, has the property or any adjoining property been used for an industrial use in the past? **If so, please describe.**

SUBJECT SITE			ADJOINING		
☐ Yes	☒ No	☐ Unknown	☐ Yes	☐ No	☒ Unknown

3. Do current or past uses of the property include any of the following dry cleaning, furniture stripping, vehicle maintenance and repair, production or application of paints and lacquers, ink production and formulation, photo developing, printing, tanning, wood treatment and preservation, or any other operation which involves the generation of regulated amounts of hazardous waste? **If so, please describe.**

☐ Yes ☒ No ☐ Unknown

HALFF

4. Is the property or adjoining property currently an active or abandoned gas station, junkyard, landfill, or waste treatment storage, disposal, processing, or recycling facility? **If so, please describe.**

SUBJECT SITE			ADJOINING		
☐Yes	☒No	☐Unknown	☐Yes	☐No	☒Unknown

5. To the best of your knowledge, has the property or any adjoining property been used in the past as a gas station, junkyard, landfill, or waste treatment, storage, disposal, processing, or recycling facility? **If so, please describe.**

SUBJECT SITE			ADJOINING		
☐Yes	☒No	☐Unknown	☐Yes	☐No	☒Unknown

6. Are there currently, or to the best of your knowledge have there been previously, any automotive or industrial batteries in significant quantities, or pesticides, paints or other chemical in individual containers of greater than five gallons in volume of 50 gallons in the aggregate, stored on or used at the property or at the facility? **If so, please describe.**

☐Yes ☒No ☐Unknown

7. Are there currently or to the best of your knowledge have there been previously, any industrial drums (typically 55-gallon) or sacks of chemicals located on the property or at the facility? **If so, please describe.**

☐Yes ☒No ☐Unknown

8. Has fill dirt been brought onto the property which originated from a contaminated site or which is of an unknown origin? **If so, please describe.**

☐Yes ☒No ☐Unknown

HALFF

9. Are there currently, or to the best of your knowledge have there been previously, any pits, ponds or lagoons located on the property in connection with waste treatment or waste disposal? **If so, please describe.**
☐Yes ☒No ☐Unknown

10. Is there currently, or to the best of your knowledge has there been previously, any stained soil on the property? **If so, please describe.**
☐Yes ☒No ☐Unknown

11. Is there currently, or to the best of your knowledge has there been previously, any registered or unregistered storage tanks (underground or above ground) located on the property? **If so, please describe.**
☐Yes ☒No ☐Unknown

12. Is there currently, or to the best of your knowledge has there been previously, any vent pipes, fill pipes or access ways indicating a fill pipe protruding from the ground on the property or adjacent to any structure located on the property? **If so, please describe.**
☐Yes ☒No ☐Unknown

13. Is there currently, or to the best of your knowledge has there been previously, any flooring, drains, or walls located within the facility that are stained by substances other than water or which are emitting foul odors? **If so, please describe.**
☐Yes ☒No ☐Unknown

14. If the property is served by a private well or non-public water system, have contaminants been identified in the well or system that exceed guidelines applicable to the water system or has the well been designated as contaminated by any government environmental/health agency? **If so, please describe.**
☐Yes ☒No ☐Unknown

HALFF

15. Does the owner or occupant of the property have any knowledge of environmental liens or governmental notification relating to past or current violations of environment laws with respect to the property or any facility located on the property? **If so, please describe.**

☐Yes ☒No ☐Unknown

16. Has the owner or occupant of the property been informed of the past or current existence of hazardous substances or petroleum products on or beneath the property or of environmental violations with respect to the property or any facility located on the property? **If so, please describe.**

☐Yes ☒No ☐Unknown

17. Does the owner or occupant of the property have any knowledge of any environmental site assessment of the property or facility that indicated the presence of hazardous substances or petroleum products on, or contamination of, the property or recommended further assessment of the property? **If so, please describe.**

☐Yes ☒No ☐Unknown

18. Does the owner or occupant of the property know of any past, threatened, or pending lawsuits or administrative proceedings concerning a release or threatened release of any hazardous substance or petroleum products involving the property by any owner or occupant of the property?

☐Yes ☒No ☐Unknown

19. Does the property discharge wastewater, other than stormwater, directly to a ditch or stream on or near the property? **If so, please describe.**

☐Yes ☒No ☐Unknown

HALFF

20. To the best of your knowledge, have any hazardous substances or petroleum products, unidentified waste materials, tires, automotive or industrial batteries or any other waste materials been dumped above grade, buried and/or burned on the property? **If so, please describe.**
☐Yes ☒No ☐Unknown

21. Is there a transformer, capacitor, or any hydraulic equipment for which there are any records indicating the presence of PCBs? **If so, please describe.**
☐Yes ☒No ☐Unknown

22. Does the owner or occupant of the site presently have, is it required to have, or has it applied for any environmental licenses or permits issued by any Federal, state, or local governmental body, including air or water permits? **If so, please describe and attach copies of licenses or permits.**
☐Yes ☒No ☐Unknown

23. To the best of your knowledge, have pesticides, herbicides, or other agricultural chemicals been applied to the property? **If so, please describe.**
☐Yes ☐No ☒Unknown
Is Farm Land

24. Is the property located near a floodplain, wetland, lake, river, stream, or other sensitive ecological area? **If so, please describe.**
☐Yes ☒No ☐Unknown

25. To the best of your knowledge, has a survey ever been conducted to determine whether asbestos-containing materials may be present on the property or to determine the type, amount, location, and condition of such materials? **If so, please describe and please attach a copy of the survey results.**
☐Yes ☒No ☐Unknown

HALFF

26. Are there currently, or to the best of your knowledge have there ever been asbestos-containing materials in the building(s) at the property? **If so, please describe.**
☐Yes ☒No ☐Unknown

27. To the best of your knowledge, has a survey, assessment, or any testing ever been performed to evaluate the potential for lead-based paint or other lead hazards at the property? **If so, please describe and please attach any assessment or testing results.**
☐Yes ☒No ☐Unknown

The undersigned represents and warrants, individually and on behalf of the Owner, that the information provided in response to this Questionnaire is true and accurate to the best information, knowledge, and belief of the undersigned. The undersigned further represents that (s)he is authorized to provide the information requested on this questionnaire, and that the information provided herein has been disclosed after all appropriate inquiry necessary to confirm its accuracy and completeness. The undersigned recognizes that the Environmental Professional will rely upon the truth and accuracy of all information contained in this Questionnaire in evaluating the property.

Signature of Preparer	Date	Print Name & Title of Preparer
Mark T. Matula	2-6-12	MARK T. MATULA (Trustee)

Signature of Property Owner (If different from Preparer)	Date	Print Name & Title of Owner

USER QUESTIONNAIRE
±270 Acres
619 W. F.M. 1161
Hungerford, Texas 77448
Phase I Environmental Site Assessment
ASTM E1527–05

Date: February 9, 2012

Client Representative: David L. Schroeder

Company Name: Wharton Economic Development Corporation

Company Address: 1944 N. Fulton

Wharton, Texas 77488

Telephone Number: 979-532-9015

INTRODUCTION

In order to qualify for one of the Landowner Liability Protections (LLPs) offered by the Small Business Liability Relief and Brownfields Revitalization Act of 2001 (the "Brownfields Amendments"), the user of the Phase I Environmental Site Assessment (ESA) must provide the following information (if available) to the environmental professional. Failure to provide this information could result in a determination that "all appropriate inquiry" is not complete.

(1.) Environmental cleanup liens that are filed or recorded against the site (40 CFR 312.25).

Are you aware of any environmental cleanup liens against the property that are filed or recorded under federal, tribal, state or local law?

No

(2.) Activity and land use limitations (AULs) that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26).

Are you aware of any AULs, such as engineering controls, land use restrictions or institutional controls that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

No

(3.) Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).

As the user of this ESA do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

No

(4.) Relationship of the purchase price to the fair market value of the property if it were not contaminated (40 CFR 312.29).

Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

Yes

There is no conclusion of contamination known or believed on this property

(5.) Commonly known or reasonably ascertainable information about the property (40 CFR 312.30).

Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user,

(a.) Do you know the past uses of the property?

No

(b.) Do you know of specific chemicals that are present or once were present at the property?

No

(c.) Do you know of spills or other chemical releases that have taken place at the property?

No

(d.) Do you know of any environmental cleanups that have taken place at the property?

No

(6.) The degree of obviousness of the presence of likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).

As the user of this ESA, based on your knowledge and experience related to the property are there any obvious indicators that point to the presence or likely presence of contamination at the property?

No

Additional Information

In addition, certain information should be collected, if available, and provided to the environmental professional selected to conduct the ESA. This information is intended to assist the environmental professional but is not necessarily required to qualify for one of the LLPs. The information includes:

(a) The reason why the ESA is required;
Used in selling the property

(b) The type of property and type of property transaction, for example, sale, purchase, exchange, etc.;
Purchase property

(c) The complete and correct address for the property (a map or other documentation showing property location and boundaries is helpful);
619 N. FM 1161, Hungerford, Texas 77448 See attached yellow coloring of site.

(d) The scope of services desired for the ESA (including whether any parties to the property transaction may have a required standard scope of services on whether any considerations beyond the requirements of Practice E 1527 are to be considered);

Normal ESA scope

(e) Identification of all parties who will rely on the ESA report;

Wharton Economic Development Corporation and potential buyers

(f) Identification of the site contact and how the contact can be reached;

Realtor is Raymond Harrison, Jr 979-532-8000

(g) Any special terms and conditions which must be agreed upon by the environmental professional; and

No

(h) Any other knowledge or experience with the property that may be pertinent to the environmental professional (for example, copies of any available prior environmental site assessment reports, documents, correspondence, etc., concerning the property and its environmental condition).

None that we are aware of

HALFF

14800 St. Mary's Lane, Ste. 160
Houston, TX 77079-2943
(713) 588-2450
Fax (713) 588-2488

COMMUNICATION RECORD

To: Jason York/Enterprise Products 877-243-2255 **Date:** 2/13/2012

From: Al Brunson **AVO:** 28673

Email: **Project:** 28673/Wharton Economic Development Corporation/± 207 AC

☐ LETTER DATED: ☐ FAX DATED:

☒ TELEPHONE CALL DATED: 2/13/2012 CONTACT: Jason York

This confirms and records our interpretation of the understanding reached concerning matters indicated. Unless notified in writing within three days of date noted above, it is agreed that the following interpretation or description is complete and accurate.

Comments:

Pipline crosses S.W. corner of Property
Identified as 17B-100. Constructed in the 1940s as a crude gathering line. Now transports natural gas.

- Active line
- ± 4' bgs
- 16" Diameter
- no known releases in the area of the Property.
- Inspected and brought up to DOT standards in August 2011

☐ ATTACHMENTS

SIGNED: Al Brunson

Cc:

HALFF

14800 St. Mary's Lane, Ste. 160
Houston, TX 77079-2943
(713) 588-2450
Fax (713) 588-2488

COMMUNICATION RECORD

To: JOHN STOLLE 979-531-9432
HOUSTON PIPELINE COMPANY

Date: 2.15.2011

From: AL BRUNSON

AVO: 28673

Email:

Project: WHARTON ECONOMIC DEVELOPMENT CORPORATION / ± 220 AC

☐ LETTER DATED:

☐ FAX DATED:

☒ TELEPHONE CALL DATED: 2.15.2011

CONTACT: JOHN STOLLE

This confirms and records our interpretation of the understanding reached concerning matters indicated. Unless notified in writing within three days of date noted above, it is agreed that the following interpretation or description is complete and accurate.

Comments:

PIPELINE RUNS EAST/WEST ON NORTH END OF SITE. ORIGINALLY INSTALLED IN 1964. REPLACED IN 1981. PIPELINE CONSTRUCTED 6" DIA. STEEL, APPROXIMATELY 4' bgs. LINE WAS INSPECTED AND TESTED IN 2011. NO RELEASES REPORTED.

☐ ATTACHMENTS

SIGNED: al Brunson

Cc:

HALFF

February 13, 2012

Mr. Andy Kirkland
116 E. Burleson, Rm 102
Wharton, TX 77488
LEPC Phone: 979-532-1123
Spill Phone: 713-884-4227
E-Mail: andykirkland@co.wharton.tx.us

Mr. Andy Kirkland:

Halff Associates, Inc. has been retained to conduct a Phase 1 Environmental Site Assessment of ±270 acres addressed 619 F.M. 1161 in the City of Hungerford, Wharton County, Texas. The site is located in the southwest quadrant of F.M. 1161 and U.S. Business Highway 59. The purpose of this assessment is to identify potential environmental contamination or risk associated with the property.

I would like to request information your records may have concerning the property or adjacent properties, particularly those records pertaining to landfills, gravel mining activities, permit violations, citations, complaints, HAZMAT responses, hazardous material storage or disposal, fires, spills, chemical hazards, past remediation work, or underground storage tank installations/removals. At a minimum, we would like to obtain a listing of Hazardous Material Releases for the property and adjacent properties.

Transmitted is a copy of the site location map indicating the location of the study area. If you have any questions or need any additional information, please do not hesitate to contact me. I can be reached at (713) 588-2444. Thank you for your assistance

Sincerely,

HALFF ASSOCIATES

Al Brunson

Al Brunson
Environmental Scientist

HALFF ASSOCIATES, INC.
14800 ST. MARY'S LANE, SUITE 160
HOUSTON, TX 77079-2943
TEL (713) 588-2450
FAX (713) 588-2488
WWW.HALFF.COM

HALFF

February 13, 2012
AVO 28637

Chief Abbot
Wharton Fire department
Fax: (979) 532-0181

Dear Chief Abbot

Halff Associates, Inc. has been retained to conduct a Phase 1 Environmental Site Assessment of a ±270 acre tract of vacant land addressed 619 F.M. 1161 in the City of Hungerford, Wharton County, Texas. The purpose of this assessment is to identify potential environmental contamination or risk associated with the property.

Halff Associates, Inc. is requesting any information the Wharton Fire Department may have concerning potential environmental concerns (i.e. fires, chemical spills, underground storage tank releases, etc.) associated with this property or adjacent properties. At a minimum, we would like to obtain a listing of Hazardous Material Releases for the area surrounding the property.

Transmitted is a map of the study area indicating the location of the property. If you have any questions or need any additional information, please do not hesitate to contact me. I can be reached at (713) 588-2444. Thank you for your assistance.

Sincerely,

HALFF ASSOCIATES, INC.

Al Brunson

Al Brunson
Environmental Scientist

HALFF ASSOCIATES, INC.

3701 KIRBY DRIVE, SUITE 860
HOUSTON, TX 77098-3916

TEL (713) 523-7161
FAX (713) 523-4373

WWW.HALFF.COM

HALFF

14800 St. Mary's Lane, Ste. 160
Houston, TX 77079-2943
(713) 588-2450
Fax (713) 588-2488

COMMUNICATION RECORD

To: WHARTON FIRE DEPT
CHIEF ABBOT
979.532.2491

From:

Email:

Date: 2.21.2012

AVO: 28637/EA01

Project: W.E.D.C ± 270 AC
HUNGERFORD TX

☐ LETTER DATED:

☐ FAX DATED:

☒ TELEPHONE CALL DATED: 2.21.2012

CONTACT:

This confirms and records our interpretation of the understanding reached concerning matters indicated. Unless notified in writing within three days of date noted above, it is agreed that the following interpretation or description is complete and accurate.

Comments:

PHONE INTERVIEW W/ CHIEF ABBOT

CHIEF ABBOT REPORTED THAT THE W.F.D. HAD NO RECORDS CONCERNING FIRES, HAZARDOUS MATERIAL RESPONSES, USTS FOR THE CLOSED JUNKYARD ON U.S. BUS 59 N. (EAST OF PROPERTY. CHIEF ABBOT WAS NOT SURE WHY THE FACILITY HAD CLOSED, BUT IT WAS NOT THE RESULT OF ANY CITY/COUNTY ACTIONS (FORECLOSURE, EMINENT DOMAIN, ETC). CHIEF ABBOT HAD NO KNOWLEDGE/~~OF ANY~~ OF REPORTS OF HAZARDOUS MATERIAL DUMPING AT THE CLOSED JUNKYARD

☐ ATTACHMENTS

SIGNED: Al Bruno

Cc:

APPENDIX F

REFERENCES AND BIOGRAPHY

GeoSearch
On time. On target. In touch.™

Date: February 14, 2012

GS Job Number: 16572

Client Contact: Al Brunson

Client Information: Halff Associates, Inc.
14800 St. Mary's Lane Suite 160
Houston, TX 77079

Project Number: 28637

Site Information: +/- 270 Acres

The collection of Sanborn fire insurance maps has been reviewed according to the site information listed above. Based on the information provided, no coverage is available.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Wharton County, Texas

270 Acres in Hungerford, TX

February 6, 2012

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://soils.usda.gov/sqi/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means

for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Units

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other

Special Line Features
- Gully
- Short Steep Slope
- Other

Political Features
- Cities

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

MAP INFORMATION

Map Scale: 1:6,930 if printed on B size (11" × 17") sheet.

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: UTM Zone 14N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Wharton County, Texas
Survey Area Data: Version 6, Oct 26, 2009

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Wharton County, Texas (TX481)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
LcA	Lake Charles clay, 0 to 1 percent slopes	337.4	100.0%
Totals for Area of Interest		**337.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Wharton County, Texas

LcA—Lake Charles clay, 0 to 1 percent slopes

Map Unit Setting

Elevation: 10 to 100 feet
Mean annual precipitation: 42 to 55 inches
Mean annual air temperature: 68 to 70 degrees F
Frost-free period: 250 to 280 days

Map Unit Composition

Lake charles and similar soils: 100 percent

Description of Lake Charles

Setting

Landform: Flats
Landform position (three-dimensional): Talf
Microfeatures of landform position: Gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Clayey fluviomarine deposits of late pleistocene age

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water capacity: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability (nonirrigated): 2w
Ecological site: Blackland 24-44" PZ (R150AY526TX)

Typical profile

0 to 38 inches: Clay
38 to 63 inches: Clay
63 to 80 inches: Clay

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://soils.usda.gov/

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://soils.usda.gov/

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://soils.usda.gov/

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.glti.nrcs.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://soils.usda.gov/

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://soils.usda.gov/

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210.

Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the "National Soil Survey Handbook."

ABC soil

A soil having an A, a B, and a C horizon.

Ablation till

Loose, relatively permeable earthy material deposited during the downwasting of nearly static glacial ice, either contained within or accumulated on the surface of the glacier.

AC soil

A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil

The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil

Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial cone

A semiconical type of alluvial fan having very steep slopes. It is higher, narrower, and steeper than a fan and is composed of coarser and thicker layers of material deposited by a combination of alluvial episodes and (to a much lesser degree) landslides (debris flow). The coarsest materials tend to be concentrated at the apex of the cone.

Alluvial fan

A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium

Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Alpha,alpha-dipyridyl

A compound that when dissolved in ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction implies reducing conditions and the likely presence of redoximorphic features.

Animal unit month (AUM)

The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions

Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon

A subsoil horizon characterized by an accumulation of illuvial clay.

Arroyo

The flat-floored channel of an ephemeral stream, commonly with very steep to vertical banks cut in unconsolidated material. It is usually dry but can be transformed into a temporary watercourse or short-lived torrent after heavy rain within the watershed.

Aspect

The direction toward which a slope faces. Also called slope aspect.

Association, soil

A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity)

The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low: 0 to 3
Low: 3 to 6
Moderate: 6 to 9
High: 9 to 12
Very high: More than 12

Backslope

The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Backswamp

A flood-plain landform. Extensive, marshy or swampy, depressed areas of flood plains between natural levees and valley sides or terraces.

Badland

A landscape that is intricately dissected and characterized by a very fine drainage network with high drainage densities and short, steep slopes and narrow interfluves. Badlands develop on surfaces that have little or no vegetative cover overlying unconsolidated or poorly cemented materials (clays, silts, or sandstones) with, in some cases, soluble minerals, such as gypsum or halite.

Bajada

A broad, gently inclined alluvial piedmont slope extending from the base of a mountain range out into a basin and formed by the lateral coalescence of a series of alluvial fans. Typically, it has a broadly undulating transverse profile, parallel to the mountain front, resulting from the convexities of component fans. The term is generally restricted to constructional slopes of intermontane basins.

Basal area

The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation

The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology)

A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding plane

A planar or nearly planar bedding surface that visibly separates each successive layer of stratified sediment or rock (of the same or different lithology) from the preceding or following layer; a plane of deposition. It commonly marks a change

in the circumstances of deposition and may show a parting, a color difference, a change in particle size, or various combinations of these. The term is commonly applied to any bedding surface, even one that is conspicuously bent or deformed by folding.

Bedding system

A drainage system made by plowing, grading, or otherwise shaping the surface of a flat field. It consists of a series of low ridges separated by shallow, parallel dead furrows.

Bedrock

The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography

A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bench terrace

A raised, level or nearly level strip of earth constructed on or nearly on a contour, supported by a barrier of rocks or similar material, and designed to make the soil suitable for tillage and to prevent accelerated erosion.

Bisequum

Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.

Blowout (map symbol)

A saucer-, cup-, or trough-shaped depression formed by wind erosion on a preexisting dune or other sand deposit, especially in an area of shifting sand or loose soil or where protective vegetation is disturbed or destroyed. The adjoining accumulation of sand derived from the depression, where recognizable, is commonly included. Blowouts are commonly small.

Borrow pit (map symbol)

An open excavation from which soil and underlying material have been removed, usually for construction purposes.

Bottom land

An informal term loosely applied to various portions of a flood plain.

Boulders

Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breaks

A landscape or tract of steep, rough or broken land dissected by ravines and gullies and marking a sudden change in topography.

Breast height

An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management

Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Butte

An isolated, generally flat-topped hill or mountain with relatively steep slopes and talus or precipitous cliffs and characterized by summit width that is less than the height of bounding escarpments; commonly topped by a caprock of resistant material and representing an erosion remnant carved from flat-lying rocks.

Cable yarding

A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil

A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Caliche

A general term for a prominent zone of secondary carbonate accumulation in surficial materials in warm, subhumid to arid areas. Caliche is formed by both geologic and pedologic processes. Finely crystalline calcium carbonate forms a nearly continuous surface-coating and void-filling medium in geologic (parent) materials. Cementation ranges from weak in nonindurated forms to very strong in indurated forms. Other minerals (e.g., carbonates, silicate, and sulfate) may occur as accessory cements. Most petrocalcic horizons and some calcic horizons are caliche.

California bearing ratio (CBR)

The load-supporting capacity of a soil as compared to that of standard crushed limestone, expressed as a ratio. First standardized in California. A soil having a CBR of 16 supports 16 percent of the load that would be supported by standard crushed limestone, per unit area, with the same degree of distortion.

Canopy

The leafy crown of trees or shrubs. (See Crown.)

Canyon

A long, deep, narrow valley with high, precipitous walls in an area of high local relief.

Capillary water

Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Catena

A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material and under similar climatic conditions but that have different characteristics as a result of differences in relief and drainage.

Cation

An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity

The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Catsteps

See Terracettes.

Cement rock

Shaly limestone used in the manufacture of cement.

Channery soil material

Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment

Control of unwanted vegetation through the use of chemicals.

Chiseling

Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Cirque

A steep-walled, semicircular or crescent-shaped, half-bowl-like recess or hollow, commonly situated at the head of a glaciated mountain valley or high on the side of a mountain. It was produced by the erosive activity of a mountain glacier. It commonly contains a small round lake (tarn).

Clay

As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions

See Redoximorphic features.

Clay film

A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Clay spot (map symbol)

A spot where the surface texture is silty clay or clay in areas where the surface layer of the soils in the surrounding map unit is sandy loam, loam, silt loam, or coarser.

Claypan

A dense, compact subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. The layer restricts the downward movement of water through the soil. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community

The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil

Sand or loamy sand.

Cobble (or cobblestone)

A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material

Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility)

See Linear extensibility.

Colluvium

Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope

Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil

A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions

See Redoximorphic features.

Conglomerate

A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation cropping system

Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the effects of the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage

A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil

Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Contour stripcropping

Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section

The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Coprogenous earth (sedimentary peat)

A type of limnic layer composed predominantly of fecal material derived from aquatic animals.

Corrosion (geomorphology)

A process of erosion whereby rocks and soil are removed or worn away by natural chemical processes, especially by the solvent action of running water, but also by other reactions, such as hydrolysis, hydration, carbonation, and oxidation.

Corrosion (soil survey interpretations)

Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop

A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crop residue management

Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cropping system

Growing crops according to a planned system of rotation and management practices.

Cross-slope farming

Deliberately conducting farming operations on sloping farmland in such a way that tillage is across the general slope.

Crown

The upper part of a tree or shrub, including the living branches and their foliage.

Cryoturbate

A mass of soil or other unconsolidated earthy material moved or disturbed by frost action. It is typically coarser than the underlying material.

Cuesta

An asymmetric ridge capped by resistant rock layers of slight or moderate dip (commonly less than 15 percent slopes); a type of homocline produced by differential erosion of interbedded resistant and weak rocks. A cuesta has a long, gentle slope on one side (dip slope) that roughly parallels the inclined beds; on the other side, it has a relatively short and steep or clifflike slope (scarp) that cuts through the tilted rocks.

Culmination of the mean annual increment (CMAI)

The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age,

the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.

Cutbanks cave

The walls of excavations tend to cave in or slough.

Decreasers

The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing

Postponing grazing or resting grazing land for a prescribed period.

Delta

A body of alluvium having a surface that is fan shaped and nearly flat; deposited at or near the mouth of a river or stream where it enters a body of relatively quiet water, generally a sea or lake.

Dense layer

A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression, closed (map symbol)

A shallow, saucer-shaped area that is slightly lower on the landscape than the surrounding area and that does not have a natural outlet for surface drainage.

Depth, soil

Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement

A natural, residual concentration or layer of wind-polished, closely packed gravel, boulders, and other rock fragments mantling a desert surface. It forms where wind action and sheetwash have removed all smaller particles or where rock fragments have migrated upward through sediments to the surface. It typically protects the finer grained underlying material from further erosion.

Diatomaceous earth

A geologic deposit of fine, grayish siliceous material composed chiefly or entirely of the remains of diatoms.

Dip slope

A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace)

A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Divided-slope farming

A form of field stripcropping in which crops are grown in a systematic arrangement of two strips, or bands, across the slope to reduce the hazard of water erosion. One strip is in a close-growing crop that provides protection from erosion, and the other strip is in a crop that provides less protection from erosion. This practice is used where slopes are not long enough to permit a full stripcropping pattern to be used.

Drainage class (natural)

Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the “Soil Survey Manual.”

Drainage, surface

Runoff, or surface flow of water, from an area.

Drainageway

A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw

A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Drift

A general term applied to all mineral material (clay, silt, sand, gravel, and boulders) transported by a glacier and deposited directly by or from the ice or transported by running water emanating from a glacier. Drift includes unstratified material (till) that forms moraines and stratified deposits that form outwash plains, eskers, kames, varves, and glaciofluvial sediments. The term is generally applied to Pleistocene glacial deposits in areas that no longer contain glaciers.

Drumlin

A low, smooth, elongated oval hill, mound, or ridge of compact till that has a core of bedrock or drift. It commonly has a blunt nose facing the direction from which the ice approached and a gentler slope tapering in the other direction. The longer axis is parallel to the general direction of glacier flow. Drumlins are products of

streamline (laminar) flow of glaciers, which molded the subglacial floor through a combination of erosion and deposition.

Duff

A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Dune

A low mound, ridge, bank, or hill of loose, windblown granular material (generally sand), either barren and capable of movement from place to place or covered and stabilized with vegetation but retaining its characteristic shape.

Earthy fill

See Mine spoil.

Ecological site

An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation

The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation

A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian deposit

Sand-, silt-, or clay-sized clastic material transported and deposited primarily by wind, commonly in the form of a dune or a sheet of sand or loess.

Ephemeral stream

A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation

A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion

The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (accelerated)

Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion (geologic)

Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion pavement

A surficial lag concentration or layer of gravel and other rock fragments that remains on the soil surface after sheet or rill erosion or wind has removed the finer soil particles and that tends to protect the underlying soil from further erosion.

Erosion surface

A land surface shaped by the action of erosion, especially by running water.

Escarpment

A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Escarpment, bedrock (map symbol)

A relatively continuous and steep slope or cliff, produced by erosion or faulting, that breaks the general continuity of more gently sloping land surfaces. Exposed material is hard or soft bedrock.

Escarpment, nonbedrock (map symbol)

A relatively continuous and steep slope or cliff, generally produced by erosion but in some places produced by faulting, that breaks the continuity of more gently sloping land surfaces. Exposed earthy material is nonsoil or very shallow soil.

Esker

A long, narrow, sinuous, steep-sided ridge of stratified sand and gravel deposited as the bed of a stream flowing in an ice tunnel within or below the ice (subglacial) or between ice walls on top of the ice of a wasting glacier and left behind as high ground when the ice melted. Eskers range in length from less than a kilometer to more than 160 kilometers and in height from 3 to 30 meters.

Extrusive rock

Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth’s surface.

Fallow

Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grain is grown.

The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fan remnant

A general term for landforms that are the remaining parts of older fan landforms, such as alluvial fans, that have been either dissected or partially buried.

Fertility, soil

The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat)

The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity

The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fill slope

A sloping surface consisting of excavated soil material from a road cut. It commonly is on the downhill side of the road.

Fine textured soil

Sandy clay, silty clay, or clay.

Firebreak

An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom

An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material

Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone

A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain

The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Flood-plain landforms

A variety of constructional and erosional features produced by stream channel migration and flooding. Examples include backswamps, flood-plain splays, meanders, meander belts, meander scrolls, oxbow lakes, and natural levees.

Flood-plain splay

A fan-shaped deposit or other outspread deposit formed where an overloaded stream breaks through a levee (natural or artificial) and deposits its material (commonly coarse grained) on the flood plain.

Flood-plain step

An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by floodwater from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or deposition. May occur individually or as a series of steps.

Fluvial

Of or pertaining to rivers or streams; produced by stream or river action.

Foothills

A region of steeply sloping hills that fringes a mountain range or high-plateau escarpment. The hills have relief of as much as 1,000 feet (300 meters).

Footslope

The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb

Any herbaceous plant not a grass or a sedge.

Forest cover

All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type

A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan

A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil

The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gilgai

Commonly, a succession of microbasins and microknolls in nearly level areas or of microvalleys and microridges parallel with the slope. Typically, the microrelief of clayey soils that shrink and swell considerably with changes in moisture content.

Glaciofluvial deposits

Material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice. The deposits are stratified and occur in the form of outwash plains, valley trains, deltas, kames, eskers, and kame terraces.

Glaciolacustrine deposits

Material ranging from fine clay to sand derived from glaciers and deposited in glacial lakes mainly by glacial meltwater. Many deposits are bedded or laminated.

Gleyed soil

Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Graded stripcropping

Growing crops in strips that grade toward a protected waterway.

Grassed waterway

A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel

Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravel pit (map symbol)

An open excavation from which soil and underlying material have been removed and used, without crushing, as a source of sand or gravel.

Gravelly soil material

Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Gravelly spot (map symbol)

A spot where the surface layer has more than 35 percent, by volume, rock fragments that are mostly less than 3 inches in diameter in an area that has less than 15 percent rock fragments.

Green manure crop (agronomy)

A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water

Water filling all the unblocked pores of the material below the water table.

Gully (map symbol)

A small, steep-sided channel caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage whereas a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock

Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim

Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan

A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology)

A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hemic soil material (mucky peat)

Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

High-residue crops

Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill

A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope

A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil

A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon: An organic layer of fresh and decaying plant residue.

L horizon: A layer of organic and mineral limnic materials, including coprogenous earth (sedimentary peat), diatomaceous earth, and marl.

A horizon: The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon: The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon: The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon: The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon: Soft, consolidated bedrock beneath the soil.

R layer: Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

M layer: A root-limiting subsoil layer consisting of nearly continuous, horizontally oriented, human-manufactured materials.

W layer: A layer of water within or beneath the soil.

Humus

The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups

Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties include depth to a seasonal high water table, the infiltration rate, and depth to a layer that significantly restricts the downward movement of water. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock

Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation

The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil

A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Increasers

Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration

The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity

The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate

The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate

The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Very low: Less than 0.2
Low: 0.2 to 0.4
Moderately low: 0.4 to 0.75
Moderate: 0.75 to 1.25
Moderately high: 1.25 to 1.75
High: 1.75 to 2.5
Very high: More than 2.5

Interfluve

A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology)

A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream

A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders

On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions

See Redoximorphic features.

Irrigation

Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin: Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border: Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding: Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation: Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle): Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow: Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler: Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation: Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding: Water, released at high points, is allowed to flow onto an area without controlled distribution.

Kame

A low mound, knob, hummock, or short irregular ridge composed of stratified sand and gravel deposited by a subglacial stream as a fan or delta at the margin of a melting glacier; by a supraglacial stream in a low place or hole on the surface of the glacier; or as a ponded deposit on the surface or at the margin of stagnant ice.

Karst (topography)

A kind of topography that formed in limestone, gypsum, or other soluble rocks by dissolution and that is characterized by closed depressions, sinkholes, caves, and underground drainage.

Knoll

A small, low, rounded hill rising above adjacent landforms.

Ksat

See Saturated hydraulic conductivity.

Lacustrine deposit

Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Lake plain

A nearly level surface marking the floor of an extinct lake filled by well sorted, generally fine textured, stratified deposits, commonly containing varves.

Lake terrace

A narrow shelf, partly cut and partly built, produced along a lakeshore in front of a scarp line of low cliffs and later exposed when the water level falls.

Landfill (map symbol)

An area of accumulated waste products of human habitation, either above or below natural ground level.

Landslide

A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones

Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Lava flow (map symbol)

A solidified, commonly lobate body of rock formed through lateral, surface outpouring of molten lava from a vent or fissure.

Leaching

The removal of soluble material from soil or other material by percolating water.

Levee (map symbol)

An embankment that confines or controls water, especially one built along the banks of a river to prevent overflow onto lowlands.

Linear extensibility

Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^{1}/_{3}$- or $^{1}/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit

The moisture content at which the soil passes from a plastic to a liquid state.

Loam

Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess

Material transported and deposited by wind and consisting dominantly of silt-sized particles.

Low strength

The soil is not strong enough to support loads.

Low-residue crops

Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Marl

An earthy, unconsolidated deposit consisting chiefly of calcium carbonate mixed with clay in approximately equal proportions; formed primarily under freshwater lacustrine conditions but also formed in more saline environments.

Marsh or swamp (map symbol)

A water-saturated, very poorly drained area that is intermittently or permanently covered by water. Sedges, cattails, and rushes are the dominant vegetation in marshes, and trees or shrubs are the dominant vegetation in swamps. Not used in map units where the named soils are poorly drained or very poorly drained.

Mass movement

A generic term for the dislodgment and downslope transport of soil and rock material as a unit under direct gravitational stress.

Masses

See Redoximorphic features.

Meander belt

The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar

A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Meander scroll

One of a series of long, parallel, close-fitting, crescent-shaped ridges and troughs formed along the inner bank of a stream meander as the channel migrated laterally down-valley and toward the outer bank.

Mechanical treatment

Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil

Very fine sandy loam, loam, silt loam, or silt.

Mesa

A broad, nearly flat topped and commonly isolated landmass bounded by steep slopes or precipitous cliffs and capped by layers of resistant, nearly horizontal rocky material. The summit width is characteristically greater than the height of the bounding escarpments.

Metamorphic rock

Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth’s crust. Nearly all such rocks are crystalline.

Mine or quarry (map symbol)

An open excavation from which soil and underlying material have been removed and in which bedrock is exposed. Also denotes surface openings to underground mines.

Mine spoil

An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil

Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage

Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area

A kind of map unit that has little or no natural soil and supports little or no vegetation.

Miscellaneous water (map symbol)

Small, constructed bodies of water that are used for industrial, sanitary, or mining applications and that contain water most of the year.

Moderately coarse textured soil

Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil

Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon

A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Moraine

In terms of glacial geology, a mound, ridge, or other topographically distinct accumulation of unsorted, unstratified drift, predominantly till, deposited primarily by the direct action of glacial ice in a variety of landforms. Also, a general term for a landform composed mainly of till (except for kame moraines, which are composed mainly of stratified outwash) that has been deposited by a glacier. Some types of moraines are disintegration, end, ground, kame, lateral, recessional, and terminal.

Morphology, soil

The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil

Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain

A generic term for an elevated area of the land surface, rising more than 1,000 feet (300 meters) above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range. Mountains are formed primarily by tectonic activity and/or volcanic action but can also be formed by differential erosion.

Muck

Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Mucky peat

See Hemic soil material.

Mudstone

A blocky or massive, fine grained sedimentary rock in which the proportions of clay and silt are approximately equal. Also, a general term for such material as clay, silt, claystone, siltstone, shale, and argillite and that should be used only when the amounts of clay and silt are not known or cannot be precisely identified.

Munsell notation

A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon

A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil

A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules

See Redoximorphic features.

Nose slope (geomorphology)

A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant

Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter

Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low: Less than 0.5 percent
Low: 0.5 to 1.0 percent
Moderately low: 1.0 to 2.0 percent
Moderate: 2.0 to 4.0 percent
High: 4.0 to 8.0 percent
Very high: More than 8.0 percent

Outwash

Stratified and sorted sediments (chiefly sand and gravel) removed or “washed out” from a glacier by meltwater streams and deposited in front of or beyond the end moraine or the margin of a glacier. The coarser material is deposited nearer to the ice.

Outwash plain

An extensive lowland area of coarse textured glaciofluvial material. An outwash plain is commonly smooth; where pitted, it generally is low in relief.

Paleoterrace

An erosional remnant of a terrace that retains the surface form and alluvial deposits of its origin but was not emplaced by, and commonly does not grade to, a present-day stream or drainage network.

Pan

A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material

The unconsolidated organic and mineral material in which soil forms.

Peat

Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped

An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment

A layer of sediment, eroded from the shoulder and backslope of an erosional slope, that lies on and is being (or was) transported across a gently sloping erosional surface at the foot of a receding hill or mountain slope.

Pedon

The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation

The movement of water through the soil.

Perennial water (map symbol)

Small, natural or constructed lakes, ponds, or pits that contain water most of the year.

Permafrost

Ground, soil, or rock that remains at or below 0 degrees C for at least 2 years. It is defined on the basis of temperature and is not necessarily frozen.

pH value

A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil

A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping

Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting

Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plastic limit

The moisture content at which a soil changes from semisolid to plastic.

Plasticity index

The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology)

A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Playa

The generally dry and nearly level lake plain that occupies the lowest parts of closed depressions, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff. Playa deposits are fine grained and may or may not have a high water table and saline conditions.

Plinthite

The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan

A compacted layer formed in the soil directly below the plowed layer.

Ponding

Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded

Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings

See Redoximorphic features.

Potential native plant community

See Climax plant community.

Potential rooting depth (effective rooting depth)

Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning

Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil

The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil

A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use

Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland

Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil

A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid: Less than 3.5
Extremely acid: 3.5 to 4.4
Very strongly acid: 4.5 to 5.0
Strongly acid: 5.1 to 5.5
Moderately acid: 5.6 to 6.0
Slightly acid: 6.1 to 6.5
Neutral: 6.6 to 7.3
Slightly alkaline: 7.4 to 7.8
Moderately alkaline: 7.9 to 8.4
Strongly alkaline: 8.5 to 9.0
Very strongly alkaline: 9.1 and higher

Red beds

Sedimentary strata that are mainly red and are made up largely of sandstone and shale.

Redoximorphic concentrations

See Redoximorphic features.

Redoximorphic depletions

See Redoximorphic features.

Redoximorphic features

Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they

form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:
   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*
   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*
   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.
2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:
   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*
   B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).
3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix

See Redoximorphic features.

Regolith

All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief

The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material)

Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill

A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser

The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut

A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments

Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop (map symbol)

An exposure of bedrock at the surface of the earth. Not used where the named soils of the surrounding map unit are shallow over bedrock or where “Rock outcrop” is a named component of the map unit.

Root zone

The part of the soil that can be penetrated by plant roots.

Runoff

The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil

A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Saline spot (map symbol)

An area where the surface layer has an electrical conductivity of 8 mmhos/cm more than the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has an electrical conductivity of 2 mmhos/cm or less.

Sand

As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone

Sedimentary rock containing dominantly sand-sized particles.

Sandy spot (map symbol)

A spot where the surface layer is loamy fine sand or coarser in areas where the surface layer of the named soils in the surrounding map unit is very fine sandy loam or finer.

Sapric soil material (muck)

The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturated hydraulic conductivity (Ksat)

The ease with which pores of a saturated soil transmit water. Formally, the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Commonly abbreviated as "Ksat." Terms describing saturated hydraulic conductivity are:

Very high: 100 or more micrometers per second (14.17 or more inches per hour)

High: 10 to 100 micrometers per second (1.417 to 14.17 inches per hour)

Moderately high: 1 to 10 micrometers per second (0.1417 inch to 1.417 inches per hour)

Moderately low: 0.1 to 1 micrometer per second (0.01417 to 0.1417 inch per hour)

Low: 0.01 to 0.1 micrometer per second (0.001417 to 0.01417 inch per hour)

Very low: Less than 0.01 micrometer per second (less than 0.001417 inch per hour).

To convert inches per hour to micrometers per second, multiply inches per hour by 7.0572. To convert micrometers per second to inches per hour, multiply micrometers per second by 0.1417.

Saturation

Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification

The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sedimentary rock

A consolidated deposit of clastic particles, chemical precipitates, or organic remains accumulated at or near the surface of the earth under normal low temperature and pressure conditions. Sedimentary rocks include consolidated equivalents of alluvium, colluvium, drift, and eolian, lacustrine, and marine deposits. Examples are sandstone, siltstone, mudstone, claystone, shale, conglomerate, limestone, dolomite, and coal.

Sequum

A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil

A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Severely eroded spot (map symbol)

An area where, on the average, 75 percent or more of the original surface layer has been lost because of accelerated erosion. Not used in map units in which “severely eroded,”“very severely eroded,” or “gullied” is part of the map unit name.

Shale

Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion

The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Short, steep slope (map symbol)

A narrow area of soil having slopes that are at least two slope classes steeper than the slope class of the surrounding map unit.

Shoulder

The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell

The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Shrub-coppice dune

A small, streamlined dune that forms around brush and clump vegetation.

Side slope (geomorphology)

A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica

A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio

The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt

As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone

An indurated silt having the texture and composition of shale but lacking its fine lamination or fissility; a massive mudstone in which silt predominates over clay.

Similar soils

Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Sinkhole (map symbol)

A closed, circular or elliptical depression, commonly funnel shaped, characterized by subsurface drainage and formed either by dissolution of the surface of underlying bedrock (e.g., limestone, gypsum, or salt) or by collapse of underlying caves within bedrock. Complexes of sinkholes in carbonate-rock terrain are the main components of karst topography.

Site index

A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic)

Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slide or slip (map symbol)

A prominent landform scar or ridge caused by fairly recent mass movement or descent of earthy material resulting from failure of earth or rock under shear stress along one or several surfaces.

Slope

The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope alluvium

Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds

and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill

The slow filling of ponds, resulting from restricted water transmission in the soil.

Slow water movement

Restricted downward movement of water through the soil. See Saturated hydraulic conductivity.

Sodic (alkali) soil

A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodic spot (map symbol)

An area where the surface layer has a sodium adsorption ratio that is at least 10 more than that of the surface layer of the named soils in the surrounding map unit. The surface layer of the surrounding soils has a sodium adsorption ratio of 5 or less.

Sodicity

The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to Ca^{++} + Mg^{++}. The degrees of sodicity and their respective ratios are:

Slight: Less than 13:1

Moderate: 13-30:1

Strong: More than 30:1

Sodium adsorption ratio (SAR)

A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soft bedrock

Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil

A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates

Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand: 2.0 to 1.0
Coarse sand: 1.0 to 0.5
Medium sand: 0.5 to 0.25
Fine sand: 0.25 to 0.10
Very fine sand: 0.10 to 0.05
Silt: 0.05 to 0.002
Clay: Less than 0.002

Solum

The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Spoil area (map symbol)

A pile of earthy materials, either smoothed or uneven, resulting from human activity.

Stone line

In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial. Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones

Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony

Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stony spot (map symbol)

A spot where 0.01 to 0.1 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surrounding soil has no surface stones.

Strath terrace

A type of stream terrace; formed as an erosional surface cut on bedrock and thinly mantled with stream deposits (alluvium).

Stream terrace

One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents

the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Stripcropping

Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil

The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are:

Platy: Flat and laminated
Prismatic: Vertically elongated and having flat tops
Columnar: Vertically elongated and having rounded tops
Angular blocky: Having faces that intersect at sharp angles (planes)
Subangular blocky: Having subrounded and planar faces (no sharp angles)
Granular: Small structural units with curved or very irregular faces

Structureless soil horizons are defined as follows:

Single grained: Entirely noncoherent (each grain by itself), as in loose sand
Massive: Occurring as a coherent mass

Stubble mulch

Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil

Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling

Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum

The part of the soil below the solum.

Subsurface layer

Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summer fallow

The tillage of uncropped land during the summer to control weeds and allow storage of moisture in the soil for the growth of a later crop. A practice common in semiarid regions, where annual precipitation is not enough to produce a crop every year. Summer fallow is frequently practiced before planting winter grain.

Summit

The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer

The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil

The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus

Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts

Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terminal moraine

An end moraine that marks the farthest advance of a glacier. It typically has the form of a massive arcuate or concentric ridge, or complex of ridges, and is underlain by till and other types of drift.

Terrace (conservation)

An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geomorphology)

A steplike surface, bordering a valley floor or shoreline, that represents the former position of a flood plain, lake, or seashore. The term is usually applied both to the relatively flat summit surface (tread) that was cut or built by stream or wave action and to the steeper descending slope (scarp or riser) that has graded to a lower base level of erosion.

Terracettes

Small, irregular steplike forms on steep hillslopes, especially in pasture, formed by creep or erosion of surficial materials that may be induced or enhanced by trampling of livestock, such as sheep or cattle.

Texture, soil

The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,”“fine,” or “very fine.”

Thin layer

Otherwise suitable soil material that is too thin for the specified use.

Till

Dominantly unsorted and nonstratified drift, generally unconsolidated and deposited directly by a glacier without subsequent reworking by meltwater, and consisting of a heterogeneous mixture of clay, silt, sand, gravel, stones, and boulders; rock fragments of various lithologies are embedded within a finer matrix that can range from clay to sandy loam.

Till plain

An extensive area of level to gently undulating soils underlain predominantly by till and bounded at the distal end by subordinate recessional or end moraines.

Tilth, soil

The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope

The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil

The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements

Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread

The flat to gently sloping, topmost, laterally extensive slope of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural steplike landforms, such as successive stream terraces.

Tuff

A generic term for any consolidated or cemented deposit that is 50 percent or more volcanic ash.

Upland

An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Valley fill

The unconsolidated sediment deposited by any agent (water, wind, ice, or mass wasting) so as to fill or partly fill a valley.

Variegation

Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Varve

A sedimentary layer or a lamina or sequence of laminae deposited in a body of still water within a year. Specifically, a thin pair of graded glaciolacustrine layers seasonally deposited, usually by meltwater streams, in a glacial lake or other body of still water in front of a glacier.

Very stony spot (map symbol)

A spot where 0.1 to 3.0 percent of the soil surface is covered by rock fragments that are more than 10 inches in diameter in areas where the surface of the surrounding soil is covered by less than 0.01 percent stones.

Water bars

Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering

All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth’s surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded

Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wet spot (map symbol)

A somewhat poorly drained to very poorly drained area that is at least two drainage classes wetter than the named soils in the surrounding map unit.

Wilting point (or permanent wilting point)

The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow

The uprooting and tipping over of trees by the wind.

ALAN BRUNSON
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Bachelor of Science/Environmental Science — Texas Christian University (1995)

Licenses and Registrations

Licensed Asbestos Consultant
Texas Department of State Health Services – No. 105645

Mr. Brunson joined Halff Associates in 1997, bringing two years of experience. He has performed Phase I Site Assessments and Phase II Site Investigations for various financial, legal, and industrial clients. His experience includes environmental reviews of both active and inactive residential, commercial, and industrial properties. In addition, Mr. Brunson has provided environmental support in the completion of hazardous waste site cleanup and removal assessments; remedial design/remedial actions, subsurface investigations, UST removals, emergency response, groundwater recovery system installations, provided project oversight, and comprehensive multi-media sampling investigations. Mr. Brunson is an accredited asbestos inspector under Section 206 of TSCA, Title II, and has completed asbestos surveys in public schools, Federal buildings, and industrial facilities. Mr. Brunson is a Texas Department of State Health Services (TDSHS) licensed Asbestos Consultant. Representative projects include:

- **San Jacinto River Authority Comprehensive Asbestos Surveys & Asbestos Abatement Specifications, Dallas, Texas** – Lead Environmental Professional providing asbestos inspection and consulting services to SJRA for the demolition of a residential structure and renovation of two office buildings located on the SJRA campus. Services included comprehensive asbestos surveys, the production of CAD drawings, detailing the location and extent of asbestos containing materials (ACM), and the implementation of appropriate response actions, as well as consultation regarding compliance with state and federal regulations, standards and abatement options for the removal of asbestos containing materials. (9/2009) and 6/2010)

- **San Antonio River Authority - Phase I Environmental Site Assessment for a Semi Conductor Manufacturing Facility in Arlington, Texas** – Environmental Scientist and Project Manager for the performance of environmental due diligence services for a real estate transaction involving a 28-acre retail site. Recognized environmental conditions included: historic gas stations, dry cleaners, and automotive repair facilities. The Phase I ESA was performed in accordance with the American Society for Testing and Materials (ASTM) E1527-05 Standard Practice. (6/2009)

- **Phase I Environmental Site Assessment for a Semi Conductor Manufacturing Facility in Arlington, Texas** – Environmental Scientist and Project Manager for the performance of environmental due diligence services for a real estate transaction involving a 330,000 sf semi conductor manufacturing facility on a 65-acre site. On-site environmental concerns included: Total Metals (RCRA 8), Total Petroleum Hydrocarbons (TPH), and Volatile Organic Compounds (VOC) affected soil and groundwater. The Phase I ESA was performed in accordance with the American Society for Testing and Materials (ASTM) E1527-05 Standard

Practice. (2/2010)

- **DART, Miscellaneous Environmental Compliance Contract, Dallas, Texas** – Environmental Scientist on a team for a multiple work order Indefinite Delivery Miscellaneous Environmental Site Compliance Contract for Dallas Area Rapid Transit (DART) involving environmental services required for the current and future phases of light rail transit build out, bus operations, and commuter rail operations in the Dallas Metroplex. Services provided included the completion of site investigations/contamination assessments to fully evaluate impacted properties, developing and implementing remedial actions under the TCEQ PST/TRRP rules to close sites with contaminated soil and/or groundwater under the VCP, IOP, PST, or Corrective Action (CA) programs, providing comprehensive management and construction associated with petroleum storage or fueling system services, NPDES/TPDES/SW3P compliance, and support required for emergency response services. Fifty two task orders have been issued under the contract and include the following services:
  - **Storm Water Management, Multiple Sites DFW Area** – Completed storm water management services to meet TPDES/SW3P requirements for bus maintenance facilities, light rail/commuter rail facilities, and HOV facilities. The services included the periodic inspections to evaluate best management practices, visual monitoring and reporting, and storm water sampling and laboratory analyses.
  - **Phase I Environmental Site Assessments (ESAs) and Environmental Site Screenings (ESSs), Irving and Rowlett, Texas** – Completed ESAs and ESSs for properties including vacant land, residential properties, retail properties, commercial facilities, and industrial properties for future Blue and Orange Light Rail Lines.
  - **Comprehensive Asbestos Surveys, Dallas, Texas** – Completed Comprehensive Asbestos Surveys required for the demolition of structures. Asbestos surveys were completed at bridges, retail properties, commercial office buildings, and warehouse facilities.
  - **Surface and Subsurface Site Investigations, Dallas, Texas** – Completed surface and subsurface investigations at four properties to evaluate potential impacts associated with releases of organic and inorganic contaminants. Data developed during site investigations were utilized to evaluate remedial alternatives, develop remedial plans, prepare cost analyses, and support TCEQ regulatory submittals required for closure of affected sites.
  - **Environmental Remediation and TCEQ Closures, Dallas, Texas** – Provided remedial oversight and remedial construction services, performed verification sampling, and prepared regulatory submittals for cleanup and closure of affected media at PST/LPST and industrial facilities through the PST Program, Corrective Action Program, and Voluntary Cleanup Program. Sites were evaluated in accordance with the applicable risk-based rules (i.e., TRRP, RRR, PST) and response actions implemented during the closure of the facilities included source control/excavation and disposal, Monitored Natural Attenuation (MNA), institutional controls, and engineering controls.

- **Dallas Area Rapid Transit System Comprehensive Asbestos Surveys & Asbestos Abatement Specifications, Dallas, Texas** – Lead Environmental Professional providing asbestos inspection and consulting services to DART for two commercial buildings. Services included comprehensive asbestos surveys to identify and quantify asbestos

containing materials (ACM), production of CAD drawings detailing the location and extent of ACMs and preparation of asbestos abatement specifications for the removal of ACMs prior to demolition of the two buildings to facilitate construction activities related to the construction of the DART Inwood Light Rail Transit Station. (5/2010)

- **Phase I and Subsurface Investigation for the Capital Well Service Facility in Jourdanton and Carrizo Springs, Texas** – Environmental Scientist and Project Manager for the performance of environmental due diligence services for a real estate transaction involving two oil field service facilities. The results of the Phase I investigation resulted in further investigation of the site in Jourdanton. Technical services included: subsurface investigation, risk assessments, and contractor procurement. Environmental concerns included: Total Metals (RCRA 8), Total Petroleum Hydrocarbons (TPH), and Volatile Organic Compounds (VOC) affected soil and groundwater. Work included the collection of soil samples for laboratory analysis for metals, TPH, and VOCs. A final report of the findings was prepared.

- **TPDES Storm Water Evaluation – the city of The Colony, Texas** – Project Manager in charge of field activities to evaluate 15 municipal sites to identify industrial conditions impacting stormwater quality discharge problems. Potential sources of storm water pollution identified during the evaluation included vehicle maintenance practices, above ground petroleum storage tanks, household hazardous waste storage, waste oil and battery storage, and stock piled sand. A final report of the findings was prepared outlining potential sources for impacts to stormwater runoff and Best management Practices (BMPs) to meet the requirements of the Texas Commission on Environmental Quality (TCEQ) Texas Pollutant Discharge Elimination System (TPDES).

- **Oil Field Services, Multi-Site Environmental Due Diligence Services; North Texas** – Performed environmental due diligence services for a business transaction involving 23 oil and gas well sites located in six north Texas counties. The environmental services provided included Site investigations and reviews of regulatory databases to assess compliance issues associated with the on-site oil and gas operations and to identify evidence of suspected contamination on the subject properties.

- **Dallas Area Rapid Transit, Abandoned UST Removal; Dallas Texas** – Project manager in charge of the removal of three abandoned USTs at two sites. The abandoned USTS were discovered during construction activities associated with the DART light rail line. Responsible for emergency response actions, contractor coordination and oversight, coordination with the appropriate regulatory agencies, and implementation of sampling and analysis plans for site closure.

- **University of Texas System, Environmental Due Diligence Services, Multiple locations throughout Texas –** Environmental Scientist and field supervisor for multiple projects for The University of Texas System (UT) involving environmental services required for the acquisition of real estate to support expansion. Services were provided at several UT campuses located in Houston, San Antonio, Tyler, Palestine, Harlingen, and McAllen, Texas. Services included the preparation of environmental site assessments, completion of subsurface investigations, and remedial alternative evaluations in accordance with TRRP requirements. The projects were performed in compliance with TCEQ, Environmental

Protection Agency (EPA), and other regulatory agency guidelines. Surface and subsurface investigations involving the installation of soil borings and monitor wells were completed to evaluate potential impacts associated with releases of organic and inorganic contaminants. Data developed during site investigations were utilized to evaluate remedial alternatives, develop remedial plans, prepare cost analyses, and prepare TCEQ regulatory submittals required for closure of affected sites. Fifteen projects were performed for the University of Texas System.

- **Former Truck Yard and Solvent Facility Property, University of Texas MD Anderson Cancer Center, Houston, Texas** – Environmental Scientist on acquisition team for environmental services associated with the redevelopment of approximately 2.4 acres of industrial property for a hospital campus development. The site included a historical solvent facility and a truck yard and warehouse facility. Potential off-site facilities included a dry cleaners and petroleum storage tank facility. Environmental concerns included heavy metals, petroleum hydrocarbon, and chlorinated solvent contaminated soil and groundwater. Chlorinated solvent and petroleum hydrocarbon affected soil and groundwater were identified at the site. Various remedial alternatives were evaluated to meet the cleanup objectives for the impacted media at the site. The site was entered into the Texas VCP and response actions are being completed under TRRP. Technical services provided included a review of previous Phase I Environmental Site Assessments and subsurface investigation reports, additional subsurface investigation, preparation of an Affected Property Assessment Report, regulatory coordination, feasibility studies, and remedial alternatives evaluation. The project included detailed evaluation of the use limitations and economic impacts of environmental issues on site redevelopment. Additional services include the preparation of a MSD application for affected groundwater at the site. The project is currently ongoing.

- **University of Texas MD Anderson Cancer Center 28-Acre Site, Houston, Texas** – Environmental Scientists on acquisition team for environmental services associated with the redevelopment of approximately 28 acres of industrial and residential property for a hospital campus development. The site included a historical residential development and an industrial facility with an underground storage tank (UST). Potential off-site concerns included an adjacent property that was historically occupied by a solvent facility and a truck yard and warehouse facility. A petroleum storage tank facility was also an off-site concern. Environmental concerns included petroleum hydrocarbon, and chlorinated solvent contaminated soil, and groundwater. Chlorinated solvent and petroleum hydrocarbon contaminated groundwater originating from the adjacent solvent and truck yard warehouse facility property were identified at the site. The site was entered into the Texas VCP and response actions are being completed under TRRP. Technical services provided included a review of previous Phase I Environmental Site Assessments, subsurface investigations, additional subsurface investigation, preparation of an Affected Property Assessment Report, regulatory coordination, feasibility studies, and remedial alternatives evaluation. The project included detailed evaluation of the use limitations and economic impacts of environmental issues on site redevelopment. Additional services include the preparation of a MSD application for affected groundwater at the site. The project is currently ongoing.

- **Pepsi-Cola Concentrate Facility Asbestos Surveys & Operations & Maintenance Program, Arlington, Texas** – Licensed Asbestos Consultant for providing consulting

services to Pepsi for the 131,000 sf Arlington facility. Services included evaluation of the client's past asbestos related activities and the performance of a needs assessment to characterize areas to improve the existing program, the development of a comprehensive survey strategy to identify and quantify the asbestos containing building materials, the implementation of appropriate response actions, and the production of CAD drawings detailing the location and extent of asbestos containing materials, and design an Operations and Maintenance Program for the facility. Halff Associates also provided project management services to Pepsi in order to facilitate the removal of identified asbestos containing materials to facilitate ongoing renovation and improvement programs.

- **Phase I and Subsurface Investigation for the Western Energy Services Facility in Clyde, Texas** – Environmental Scientist and Project Manager for the performance of environmental due diligence services for a real estate transaction involving an oil field service facility. Technical services included: subsurface investigation, risk assessments, and contractor procurement. Environmental concerns included: Total Metals (RCRA 8), Total Petroleum Hydrocarbons (TPH), and Volatile Organic Compounds (VOC) affected soil and groundwater. Work included the collection of soil samples for laboratory analysis for metals, TPH, and VOCs. A final report of the findings was prepared.

- **TPDES Storm Water Management Services, Dallas Area Rapid Transit (DART), Dallas Texas** – Project Manager in charge of field activities for storm water management services to meet the Texas Commission on Environmental Quality (TCEQ) Texas Pollutant Discharge Elimination System (TPDES) requirements for DART bus service, inspection and vehicle maintenance facilities that included periodic facility inspections to verify compliance with facility Storm Water Pollution Prevention Plans (SWP3), quarterly visual inspections to monitor effluent storm water during rain events, and bi-annual storm water sample collection to meet TCEQ yearly reporting requirements. Services included the identification of facility storm water outfalls, observing overall site conditions/operations, preparation of periodic inspection reports to identify potential compliance issues, and storm water sampling from designated storm water outfalls during rain events for visual observations and laboratory analysis for potential constituents of concern (COCs) and water quality parameters.

- **Oil Field Services, Multi-Site Environmental Due Diligence Services, Odessa, Texas** – Performed environmental due diligence services for a business/property transaction involving seven sites in Odessa, Texas. The environmental services provided included site investigations and reviews of regulatory databases that potentially included the sites and surrounding properties. Processes identified in the area included: machine shop processes, welding, under ground storage tanks, plating facilities, and freight trucking / repair facilities. Environmental concerns identified were heavy metals, petroleum, hydrocarbons and chlorinated solvents in the subsurface soil and groundwater. As a result of the property investigations, all properties were included in the business transaction.

- **Dallas Area Rapid Transit System Comprehensive Asbestos Surveys & Operations & Maintenance Program, Dallas, Texas** – Lead Environmental Professional providing asbestos inspection and consulting services to DART for the demolition of commercial and residential structures located on property acquired for the construction of a light rail system.

Services included comprehensive asbestos surveys, the production of CAD drawings, detailing the location and extent of asbestos containing materials (ACM), and the implementation of appropriate response actions, as well as consultation regarding compliance with state and federal regulations, standards and abatement options for the removal of asbestos containing materials.

- **USACE Dyess AFB, Abilene, Texas** – Lead Environmental Professional providing asbestos inspection services to USACE for the demolition of residential structures. Services included comprehensive asbestos surveys, the production of CAD drawings detailing the location and extent of asbestos containing materials, and the implementation of appropriate response actions.

- **Dallas Center for Performing Arts Foundation Comprehensive Asbestos Surveys and Abatement Specifications, Dallas, Texas** – Lead Environmental Professional providing asbestos inspection and consulting services to DCPAF for five buildings. Services included comprehensive asbestos surveys to identify and quantify asbestos containing materials (ACM), production of CAD drawings detailing the location and extent of ACMs and preparation of asbestos abatement specifications for the removal of ACMs prior to demolition of the five buildings.

- **United States Postal Service Asbestos Abatement, Marlin, Texas** – Provided asbestos inspection and consulting services to the UPS for the abatement of approximately 4,000 sf of asbestos containing acoustic ceiling texture and approximation 6,000 sf of asbestos containing floor tile and mastic. Halff Associates provided detailed abatement specifications for the identified ACMs prior to the renovation of the Marlin main post office.

- **Raytheon Systems Comprehensive Asbestos Survey & Operation & Maintenance Program, Garland, Texas** – Lead Environmental Professional providing asbestos inspection and management planner consultation services to Raytheon for 20 buildings totaling approximately 1.2 million sf. Services included evaluation of the client's operation and maintenance program performance of a needs assessment to characterize areas to improve the existing program, the development of a comprehensive survey strategy to qualify and quantify the asbestos containing building materials, the implementation of appropriate response actions, and the production of CAD drawings detailing the location and extent of asbestos containing materials, Halff Associates also provided project management services to Raytheon in order to facilitate the removal of damaged asbestos containing materials. These materials posed a potential exposure risk to personnel working in proximity to the damaged materials. The project objectives were completed and available to Raytheon in 60 days for an internal corporate facilities audit. The project performed by Halff Associates allowed Raytheon to receive an excellent score on the asbestos portion on the audit.

- **USACE Fort Bliss Defense Charrette Project, El Paso, Texas** – Assessed regulated hazardous materials, to include asbestos and lead. The project was accomplished by performing visual assessments and the collection of appropriate material samples to characterize the type and quantity of hazardous or other regulated materials present in two defense vehicle repair facilities. Based upon the visual assessments and interpretation of

laboratory data, appropriate corrective actions were implemented to assist the client in assuring compliance with local, state and federal to demolish the subject properties. A comprehensive formal project report was issued to the client.

- **United States Postal Service Asbestos Inspection, Texas** – Provided asbestos inspection and management planner consultation to the USPS in Texas as part of a multi-year indefinite delivery contract. Services included the development of a comprehensive survey strategy to qualify and quantify the asbestos containing building materials, the implementation of appropriate response actions, and the production of CAD drawings detailing the location and extent of asbestos containing materials. Halff Associates provided project management consulting services to facilitate the removal of asbestos containing materials prior to building renovation or demolition.

- **Remediation of a Warehouse Facility, Cedar Hill, Texas** – Conducted a Phase 1 ESA, Level II subsurface investigative activities, prepared plans and specifications for remedial contractor procurement, and provided regulatory compliance services that resulted in receipt of a TCEQ VCP Certificate of Completion.

- **Ethylene Glycol Release, Dallas, Texas** – Responded to an industrial client regarding a release of ethylene glycol. Halff performed a subsurface investigation, prepared plans and specifications, conducted remedial contractor procurement, and corrective actions, and received closure through the TCEQ.

- **Warehouse Distribution Facility, Dallas, Texas** – Conducted a Phase I ESA and subsequent risk-based subsurface investigation for a warehouse distribution facility. Prepared plans and specifications for the removal of 6 PSTs, provided construction management and verification sampling services, and prepared TCEQ required documentation, and closed the site in accordance with 30 TAC 334.

- **Multi-Site Environmental Services, North Texas** – Performed environmental subsurface investigations for the redevelopment of approximately 60 acres of industrial property for a hospital campus development. The area of development included: historical lead battery manufacturing, food processing, steel manufacturing, freight trucking / repair facilities and railroad spurs. Environmental concerns identified were heavy metals, petroleum, hydrocarbons, and chlorinated solvents in the subsurface soil and groundwater. The sites were evaluated under the TCEQ Texas Risk Reduction Program.

- **Trinity Industries, Dallas, Texas** – Review of third party asbestos inspection report for a former rail car manufacturing facility. Responsibilities included verifying quantities of identified friable, Class I non-friable, and Class II non-friable building materials. Subsequently finding, mapping, and quantifying approximately 800 lf of friable Thermal System Insulation in facility Administration Building.

- **Asbestos Management Planner Services** – Responsible for conducting AHERA surveys in Federal buildings for the USPS in Texas and Oklahoma. Other responsibilities included conducting asbestos surveys for the purpose of obtaining building permits for the demolition/renovation of commercial properties. Other responsibilities included review of

third party asbestos inspections and Operations and Maintenance Plans for existing clients.

- **Solvent Affected Media Remediation, Lewisville, Texas** – Project Scientist for conducting groundwater monitoring for parameters such as dissolved oxygen, oxygen reduction potential pH, and conductivity to evaluate the potential for natural attenuation of a groundwater aquifer impacted by waste dry cleaning solvents. Site was evaluated in accordance with Risk Assessment procedures and contaminant fate and transport modeling. Remedial actions were implemented through the Voluntary Cleanup Program of the TCEQ in accordance with the Risk Reduction Rules.

- **City of Alvin, Alvin, Texas** – Performed contamination assessment of subsurface media associated with the construction of underground utilities in the vicinity the major intersection of SH 35 By-Pass and East SH 6 in Alvin, Texas. Environmental concerns included groundwater impacted by benzene associated with an abandoned gas station, impacts to soil and groundwater from an abandoned crude oil pipeline, and impacts to soil and groundwater associated with mercury contamination from an adjacent industrial facility. Technical services included delineation of subsurface contaminants, risk assessment, contractor procurement, and construction management. Remedial action plan was designed for areas identified as having been impacted by subsurface contaminants. Construction of subsurface utilities was successfully completed through contaminant plumes identified during investigation activities.

- **Storm Water Management, Multiple Sites, DFW Area** – Project Scientist for storm water management services to meet Municipal Separate Storm Sewer System (MS4) and Texas Pollutant Discharge Elimination System (TPDES) requirements for retail facilities, vehicle maintenance facilities, metal recycling facilities, warehouse/maintenance facilities, and construction projects. Services included evaluation and implementation of best management practices, identification of facility storm water outfalls, development of storm water sampling protocols, and storm water sampling for specific contaminants identified by TPDES requirements.

- **University of Houston, Houston, Texas** – Project Manager in charge of field activities for the environmental services associated with the development of a 12-acre student-housing site. The site was historically occupied by a city of Houston sewage treatment plant and a staging area for undocumented fill material. Technical services included: subsurface investigation, risk assessments, corrective action, remediation design, regulatory coordination, contractor procurement, construction management, and remedial oversight. Environmental concerns included total metals, total petroleum hydrocarbons, and sludge associated with the former sewage treatment plant. The project included the remediation of approximately 4,000 cy of soil contaminated with heavy metals.

- **Hitachi Semiconductor (America) Facility Environmental Remediation, Irving, Texas** – Project Scientist for the environmental services associated with the closure of the former semiconductor assembly facility. Performed various affected property assessment activities, including delineation of impacted groundwater and surficial grid sampling for the closure of the facility in accordance with the Texas Risk Reduction Program (TRRP) rules and the Voluntary Cleanup Program (VCP). Technical services included construction

management and remedial oversight. Environmental concerns on the site included releases of chlorinated solvents in two areas of the property. The site was closed under the TRRP Standard A residential levels without requiring institutional or engineering controls.

- **Mansfield Farm, Mansfield, Texas** – Project Scientist in charge of investigation activities for the environmental services associated with the development of a 274-acre mixed-use property located south of Fort Worth, Texas. Four waste pits at the subject property were historically used for the disposal of drummed paint waste from trailer manufacturing operations and municipal solid wastes from various business operations. Performed various affected property assessment activities including the supervision of the excavation of 28 exploratory trenches at four sites located on the site, and groundwater sampling for the closure of the facility in accordance with the Texas Risk Reduction Program (TRRP) rules and the Voluntary Cleanup Program (VCP).

- **American Airlines Center, Dallas Texas** – Project Manager in charge of field activities for the environmental services associated with the development of approximately 60 acres of historically industrial property for the downtown arena and ancillary development. The project was included in the Federal Brownfields Program and the state Voluntary Cleanup Program (VCP). Technical services included: subsurface investigation, risk assessments, corrective action, remediation design, regulatory coordination, contractor procurement, construction management, and remedial oversight. Environmental concerns included: Total Metals (RCRA 8), Polynuclear Aromatic Hydrocarbons (PAH), and Total Petroleum Hydrocarbons affected soil and groundwater. The project included the remediation of approximately 200,000 cy of soil and 4,000,000 gallons of contaminated groundwater. ***Halff Associates, Inc. received the 2000 Environmental Engineering Excellence Award from the Consulting Engineers Council of Texas for this project, the 2001 Phoenix Award from EPA Region VI, and the 2002 TCEQ Environmental Award***.

- **UST Management Services, United Sates Postal Service, Coppell Texas** – Field Supervisor in charge of UST removal activities at the North Texas Bulk Mail facility. Responsible for removal/bid specifications, emergency response actions, contractor oversight, and implementation of sampling and analysis plans with state regulators for site closure.

- **Maintenance Facilities, UST Management Services: Texas Department of Transportation** – Field Supervisor in charge of UST removal activities in the Lubbock and Childress Districts. Responsible for emergency response actions, contractor oversight, and implementation of sampling and analysis plans with state regulators for site closure.

- **NAS Kingsville and NAS Orange Grove, Aviation Fuel Storage Facility** – Provided environmental consulting and engineering services for the Environmental Division of the NAS. Collected data and produced site plans and specifications for compliance with the TCEQ's UST regulations.

- **Baylor Health Care System, Multi-Site Environmental Due Diligence Services** – Performed environmental due diligence services for facilities involved in a $133,000,000 real estate transaction between Baylor Health Care System and a Nashville real estate investment

trust. The environmental services provided included Phase I Environmental Site Assessments and asbestos surveys for 20 medical office buildings covering more than 1 million sf of space located on or near Baylor hospital campuses in Dallas, Garland, Southlake, Colleyville, Mesquite, Grapevine, Terrell, Waxahachie, and Midlothian, Texas.

- Project oversight for the removal and bioremediation of 12,000 cy of contaminated soil for United States Postal Service.

- Performance of Environmental Site Assessments for various financial, legal, and industrial clients. This includes reviewing the history of the site and surrounding properties, land use, geologic setting, and a regulatory and special resources review.

- Geological and hydrological interpretation of sampling data collected near leaking underground storage tanks to assess the potential subsurface soil and/or groundwater contamination.

- Reviewing technical reports for PST and non-PST related projects including remedial investigations, subsurface investigations, environmental assessments, UST removals, lead-based paint surveys, and asbestos surveys.

- Performance and/or review of environmental assessment documents in accordance with NEPA (41 USC 4321, et.seq). Areas of expertise include environmental regulations, secondary and cumulative effects, and natural and physical environment impacts. Current projects include proposed SH 183 improvements in Dallas, County.

- Coordinating, managing, and conducting Environmental Site Assessments/Environmental Assessments, Remedial Activities, Asbestos Surveys, and Air Conformity Analysis for United States Postal Service facilities in Texas and Oklahoma.

Technical Training

Asbestos Inspector Training, EPA 40 CFR 763 – 24 Hours
Asbestos Project Manager, EPA 40 CFR 763 –24 Hours
Asbestos Project Designer, EPA 40 CFR 763 – 24 Hours
Asbestos Management Planner EPA 40 CFR 763 – 24 Hours
Asbestos Management Planner, EPA 40 CFR 763 – 24 Hours
NIOSH 582 Equivalency Course, OSHA 29 CFR 1926 and 1910 – 40 Hours
Hazardous Materials Safety Training - OSHA 29 CFR 1910.120 – 40 Hours
Hazwoper (8 Hours) Refresher in Accordance with 29 CFR 1910.120 Hours

07/2010