

**PHASE I ENVIRONMENTAL
SITE ASSESSMENT**

**GONZALES COUNTY CARRIZO
AQUIFER PROGRAM
WELL FIELD PROJECT
SAN ANTONIO, BEXAR COUNTY, TEXAS**

**Prepared for:
Black and Veatch Corporation
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**Prepared by:
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**DCE Project N^o 204H1024
July 28, 2004**



Geotechnical • Construction Materials • Environmental • Forensic

July 28, 2004

Mr. Bill Davis, P.E.
Black and Veatch Corporation
14100 San Pedro Avenue
San Antonio, Texas 78232

SUBJECT
Phase I Environmental Site Assessment
Gonzales County Carrizo Aquifer
Water Field Project
Gonzales County, Texas
DCE Project N^o 204H1024

Dear Mr. Davis:

Drash Consulting Engineers, Inc. (DCE) is pleased to submit the enclosed Phase I Environmental Site Assessment report conducted for the above referenced site. This study was performed in general accordance with DCE Proposal N^o H041011 and the Sub Contract Agreement dated January 30, 2004. The attached report has been prepared using *American Society of Testing and Materials (ASTM) E 1527-00; Environmental Site Assessments: Phase I Environmental Site Assessment Process* as a guide. This work is based on a review of specified and reasonably obtainable listings and on site visits to identify recognized environmental conditions (REC).


In addition, DCE performed two additional evaluations for the site. DCE conducted a Preliminary Surface Water Assessment and a Threatened and Endangered Species Evaluation. The items are non-ASTM and requested by Black and Veatch Corporation.


We have observed the standard of care generally exercised by the profession under similar circumstances and conditions to complete this Phase I ESA. A number of derivations from the ASTM standard are documented in the report.

Information accumulated for this assessment will be retained with your project file. The report and information in your file are considered confidential and will not be released without your authorization.

We appreciate the opportunity to perform these services for Black and Veatch Corporation. Please contact the undersigned if you have questions regarding this report.

Very Truly Yours,
Drash Consulting Engineers, Inc.


for: Jorge Flores, P.G.
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TH/JAL/th - 204H1024

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DEFINITIONS AND ACRONYMS

Regulatory Review: The purpose of the regulatory review is to obtain reasonably ascertainable records that will help identify pre-existing or potential environmental conditions within a defined radius of the site. The approximate maximum search distance used for each database is noted. The distance from the site to the listed facility represents the distance from the center of the site to the facility's address and may not represent the actual distance from property boundary to property boundary. For this review, records were obtained from GeoSearch.

Recognized Environmental Conditions: A recognized environmental condition (REC) means "...the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a 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 of the property." Recognized environmental conditions do not "...include *de-minimus* conditions that generally do not present a material risk of harm to public health or the environment, and that generally would not be subject of an enforcement action if brought to the attention of appropriate government agencies. Conditions determined to be *de-minimus* are not recognized environmental conditions." (ASTM E1527 ¶3.3.31)

Historical Recognized Environmental Condition: A historical recognized environmental condition means an "... environmental condition which in the past would have been considered a recognized environmental condition, but which may or may not be considered a recognized environmental condition currently." (ASTM E 1527 ¶ 3.3.16) The use of this term largely depends on the current impact of the condition on the Site. For example, if a Site remediation had occurred and the overseeing government agency accepted the remediation, the condition may be considered a 'historical recognized condition'.

AST	Aboveground Storage Tank
bgs	below ground surface
BTEX	Benzene, Toluene, Ethyl-benzene and Total Xylenes
CALF	Closed and Abandoned Landfill Inventory
FEMA	United States Federal Emergency Management Agency
FM	Farm-to-Market Road
^{GW} Soil_{Ing}	Soil Protective of Groundwater
^{GW} GW_{Ing}	Groundwater Protective of Groundwater
IH	Interstate Highway
LEL	Lower Explosive Limit
LPST	Leaking Petroleum Storage Tank
MTBE	Methyl Tertiary Butyl-Ether
MSD	Maximum Search Distance
MSWL	Municipal Solid Waste Landfills
NORM	Natural Occurring Radioactive Material
NPL	National Priority List for EPA's Superfund program

NWP	Nationwide Permit
PAH	Poly-Aromatic Hydrocarbon
PID	Photo-Ionization Detector
PST	Petroleum Storage Tank
RBDM	Risk-Based Decision Making
RCAS	Registered Corrective Action Specialist
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RRCT	Railroad Commission of Texas
SHPO	State Historical Preservation Office
SPILLS	Spills Listing
SVOC	Semi-Volatile Organic Carbons
SWR	Statewide Rule
TCEQ	Texas Commission on Environmental Quality
TPH	Total Petroleum Hydrocarbons
TRRP	Texas Risk Reduction Program
TXSF	Texas State Superfund
USACE	United States Army Corp of Engineers
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UST	Underground Storage Tank
VCP	Voluntary Cleanup Program
VOC	Volatile Organic Carbons
WFP	Water Field Project
WIP	Water Integration Pipeline
WSP	Water Supply Pipeline

EXECUTIVE SUMMARY

Drash Consulting Engineers, Inc. (DCE) performed a Phase I Environmental Site Assessment (ESA) using the ASTM 1527-00 *Environmental Site Assessment, Phase I Environmental Site Assessment Process* as a guide. The subject site consists of approximately 25 miles of pipeline for 16 production wells as part of the Gonzales County Carrizo Aquifer Program (GCCAP). The ESA is divided into three sections: from the Well Field Project (WFP) to the Water Supply Pipeline (WSP) and to the Water Integration Pipeline (WIP). The WIP and the WSP reports will be presented in separate cover. The scope of work performed, objectives, extent and limitations of the services are described in more detail in the text of the report.

In summary, our findings are:

ASTM 1527-00 Findings

- The subject site is approximately 25 miles of pipeline for 16 production wells in Gonzales County, Gonzales, Texas.
- The site is not located over a sole source aquifer according to the EPA Region VI, Sole Source Aquifer Office.
- According to the FEMA National Flood Insurance Program maps for the area, the western section of the site incorporates several sections of Zone A, which is directly connected to Sandies Creek. Zone A is defined as areas of 100-year flood; base flood elevations and flood hazard factors not determined. Middle and eastern sections of the site are designated as Zone C. Zone C are areas of minimal flooding.
- The site extends over three structures. Identification of the structures could not be determined from the aerial photograph interpretation.
- No recognized environmental condition (RECs) were noted on the site based on the limited aerial interpretation site reconnaissance and regulatory database review. However, numerous un-locatable facilities were noted by regulatory review and are noted below.
 - Five un-locatable **Petroleum Storage Tank (PST)** facilities were identified during the regulatory review.
 - One un-locatable **No Further Remedial Action Planned (NFRAP)** facility was identified during the regulatory review.
- One hundred and ten **oil and gas wells** were identified; approximately three oil and gas structures are either on the site or within 100 ft. of the site.

Non-ASTM 1527-00 Consideration Findings

- The WFP impacts about 9.870 acres of surface waters.
- The site is not located on a federal or state wilderness area or wildlife preserve. However, the site is located in an area that may have suitable habitat for a few federally endangered species as well as a few federally and state rare species listed for Gonzales County.

Based on review of available data, the following presents DCE recommendations in addressing the Phase I ESA identified issues:

ASTM 1527-00 Recommendations

- The site extends over three structures, which could not be identified from the aerial photograph interpretation. Black and Veatch may want to consider altering the route to avoid these areas.
- Fifteen oil and gas wells were identified by the regulatory review. DCE recommends conducting a thorough *ground truth* site reconnaissance in order to identify those wells that pose an environmental concern to the project. During the site reconnaissance, DCE further recommends conducting monitoring for organic vapors, hydrogen sulfide gas and naturally occurring radioactive material (NORM).

After conducting an aerial photography reconnaissance, approximately five oil and gas structures are either on the site or within 100 feet of the proposed pipeline route. DCE recommends contacting the exploration and production oil companies in advance to identify any underground infrastructure (product/brine flowlines and pipelines) that may be encountered during soil excavations or altering the pipeline route in order to avoid those structures or underground infrastructure that are in direct obstruction of the project area.

If impacted soils related to oilfield production are encountered during excavation activities, the remediation of soils comes under the jurisdiction of the Railroad Commission of Texas (RRCT).

Non-ASTM 1527-00 Consideration Recommendations

- This project will likely qualify for Nationwide Permit 12 (NWP-12) as long as specific criteria are met (A copy of NWP-12 is attached). Otherwise, an individual permit may be required. Because of the size of the project, a preconstruction notification is advisable. The United States Army Corp of Engineers (USACE) may require mitigation for impacted waters because the ROW will be maintained.

Several portions of the pipeline route runs parallel to stream channels. A preconstruction notification (PCN) is required where the pipeline runs parallel with a stream.

Clearance from the State Historical Preservation Office (SHPO) is mandatory for all USACE permits including NWP-12. In addition, potential impacts to endangered and threatened species must be coordinated with the USFWS and Texas Parks and Wildlife.

Coordination of the project with the USACE should be initiated as soon as possible to determine if the project requires an individual permit and if mitigation is necessary. A meeting with the USACE prior to fieldwork is strongly recommended and may prevent unnecessary delays in processing of the permit. Regardless of the outcome, approximately 8-12 months should be allowed for permit review and approval. Construction activities in waters of the United States cannot be initiated until the permit is fully approved.

- Archeological studies should be initiated as soon as the project area is defined by the USACE.
- Based on the threatened and endangered species and critical habitat review, DCE recommends that the site be surveyed for suitable habitat for the Bald Eagle and the Whooping Crane.

DCE also recommends that the site be evaluated for potential habitat for several state threatened and endangered species

INTRODUCTION AND SCOPE OF SERVICE

In general accordance with DCE Proposal N^o H041011 and the Subcontract Agreement dated January 30, 2004, DCE performed a Phase I Environmental Site Assessment (ESA) of 25 miles of pipeline for 16 production wells as part of the Gonzales County Carrizo Aquifer Program (GCCAP), for Black and Veatch Corporation. The original ESA is divided into three sections: from the Well Field Project (WFP) to the Water Transmission Pipeline (WSP) and to the Water Integration Pipeline (WIP). The WSP and the WIP reports will be presented in separate cover. A Site Layout (Figure 1) and Topographic Map (Figure 2) are provided at the end of this report.

Non-ASTM Considerations

Pursuant to scope of service presented to DCE and required by Black and Veatch, Corporation, two additional evaluations were conducted for the site. The first includes a preliminary surface water evaluation. The evaluation included identifying wetlands and other surface waters of the United States as defined by the U.S. Army Corps of Engineers that would potentially impact the construction and operation of a water collection pipeline to be installed in Gonzales County. The second included a threatened and endangered species evaluation. This evaluation was requested to determine the likelihood of disturbing or destroying threatened and endangered species or their habitats.

ASTM 1527-00 Deviations

At the request of the client, DCE was instructed not to trespass on any private land pursuant to conducting the Phase I Environmental Site Assessment. Consequently only publicly accessible portions of the proposed pipeline route were visually observed during the site reconnaissance conducted for this project. Similarly, DCE was not provided property owner contact information and we told not to conduct owner interviews. Historical aerials and topographic maps were not obtained for the site. The cost and practicability of acquiring this information was determined to be not cost-effective and time consuming for such a large site.

SITE DESCRIPTION

The subject site is approximately 25 miles of pipeline for 16 production wells in Gonzales County, Gonzales, Texas.

Physical Setting Information

- **Topography:** The site is located approximately 420 feet above mean sea level around the northwest corner of the well field and approximately 280 feet above mean sea level around the east-southeast portions according to the *Smiley, Pilgrim, Leesville, and Cost, Texas 7.5 minute USGS Topographic Quadrangle Map, 1987*. The general direction of area runoff drainage appears to be directed from northeast to southeast of the subject area.
- **Soil Conditions:** No Soil Survey has been completed or published according to the United States Department of Agriculture (USDA) Natural Resource Conservation Commission (NRCC) database.
- **Site Geology:** The site is located on the Alluvium, Yegua Formation, Cook Mountain Formation, Weches Formation, and Queen City Formation according to the *Geologic Atlas of Texas, Seguin Sheet, 1979*, published by the University of Texas at Austin, Bureau of Economic Geology. The following describes each formation:

Alluvium – Generally located along creeks includes floodplain deposits including low terrace deposits above floodplain subject to flooding; clay, silt, sand, gravel, and organic matter; silt and clay, calcareous, dark gray to dark brown; sand, largely quartz; gravel, siliceous, mostly chert, quartzite, and petrified wood, along Colorado River much limestone, igneous, and metamorphic rock, probably mostly reworked from terrace deposits; fluvial morphology well preserved with point bars, oxbows, and abandoned channel segments.

Yegua Formation – Sandstone, clay, and lignite; sandstone, mostly quartz, some chert, fine grained, subangular to subrounded, indurated to friable, calcareous, glauconitic, massive, laminated, crossbedded; clay, lignitic, sandy, bentonitic, silty, mostly well laminated, chocolate brown to reddish brown, lighter colored upward; lentils of lignite common; flat ironstone concretions and spherical calcareous concretions a foot or more in diameter common; some fossil wood; thickness 1000 ± feet.

Cook Mountain Formation – Clay and sandstone; clay gypsiferous, slightly silty and lignitic, minor glauconite, brown to brownish gray,

weathers brownish gray to yellowish gray; sandstone very fine grained, calcareous, glauconitic, gray to yellowish brown; marine megafossils and microfossils abundant; thickness 200-300 feet.

Weches Formation – Greensand, sand, and clay; greensand mostly glauconite, in part marly, quartz sand common, pale green to yellowish brown; interbedded clay, silty, glauconitic, dark brown to chocolate brown; weathers light to dark reddish brown; abundant marine megafossil fragments; thickness 30-50 feet.

Queen City Sand – Sandstone, fine to medium grained quartz, well sorted, near friable, noncalcareous, commonly massive, may be finely laminated, crossbedded, light gray to yellow-orange, thin interbeds of clay, sandy, silty, light gray to olive green; weathers red and white mottled; thickness 200-250 feet.

- **Regional Groundwater Conditions:** The site is not located over a sole source aquifer according to the EPA Region VI, Sole Source Aquifer Office, Dallas, Texas.
- **Floodplain Information:** The site is located on the FEMA National Flood Insurance Program *Flood Insurance Rate Map*, Panel 125 of 275, for unincorporated areas of Gonzales County, Texas, Community Panel Number 480253 0125 A, effective August 15, 1978. The western section of the site incorporates several sections of Zone A, which is directly connected to Sandies Creek. Zone A is defined as areas if 100-year flood; base flood elevations and flood hazard factor not determine. Middle and eastern sections of the site are designated as Zone C areas. These areas are areas of minimal flooding.

SITE RECONNAISSANCE

The objective of the site reconnaissance is to obtain information indicating the likelihood of identifying American Society of Testing and Materials (ASTM) recognized environmental conditions in connection with the site to the extent not obstructed by bodies of water, adjacent buildings, or other obstacles.

For this project effort, the site reconnaissance (office-based) for both the site and adjacent properties was limited to aerial interpretation and a site visit of approximately 70 percent of the site. The purpose of the reconnaissance was to note aerial visual evidence of RECs.

Site Observations

The subject site is approximately 25 miles of pipeline for 16 production wells in Gonzales County, Gonzales, Texas. Due to the lack of rights-of-entry, the site observations were limited to aerial interpretation. The following summarizes our findings.

Description of Specific Site Features:

- **Topographic Observations:** The site is located approximately 420 feet above mean sea level around the northwest corner of the well field and approximately 280 feet above mean sea level around the east-southeast portions according to the *Smiley, Pilgrim, Leesville and Cost, Texas 7.5* minute USGS Topographic Quadrangle Map, 1992. The general direction of area runoff drainage appears to be directed from northeast to southeast of the subject area.
- **Source of Drinking Water:** Not Applicable
- **Sewage Disposal/Septic System:** Not Applicable
- **Structures:** The site appears to come in contact with several structures including the following:

STRUCTURE COORDINATES		
Structure	Latitude	Longitude
Building	29° 21' 50"	-97° 24' 01"
Building	29° 22' 10"	-97° 41' 09"
Building	29° 23' 31"	-97° 36' 23"

The identity of the structures could not be determined with the visual aerial interpretation.

- **Hazardous Substances and Petroleum Products associated with Operations other than Storage Tanks:** See Regulatory Review Section within this report for sites that may potentially environmentally adversely affect the site.
- **Storage Tanks and Associated Equipment:** See Regulatory Review Section within this report and Oil and Gas Review for sites that may potentially adversely affect the site.
- **Odors:** Not Applicable
- **Surficial Staining and Stressed Vegetation:** No surficial staining or stressed vegetation was observed on the site.
- **Drums and Other Containers:** See Regulatory Review Section within this report for sites that may potentially environmentally adversely affect the site.
- **Polychlorinated Biphenyls (PCBs):** See Regulatory Review Section within this report for sites that may potentially environmentally adversely affect the site.
- **Heating and Cooling Systems:** Not Applicable
- **Drains or Sumps:** See Regulatory Review Section within this report for sites that may potentially environmentally adversely affect the site.
- **Pits, Ponds or Lagoons:** This is addressed in the Preliminary Surface Water Assessment section
- **Solid Waste Disposal:** See Regulatory Review Section within this report for sites that may potentially environmentally adversely affect the site.
- **Wastewater Discharges:** See Regulatory Review Section within this report for sites that may potentially environmentally adversely affect the site.
- **Hydraulic Lifts:** See Regulatory Review Section within this report for sites that may potentially environmentally adversely affect the site.

RECORDS REVIEW

Limited information regarding use of the site and adjoining properties was obtained from reviewing reasonably obtainable records such as topographic maps and aerial photographs sources listed below.

Topographic Map Review: A reasonably available topographic map depicting the site and surrounding areas were reviewed and summarized below.

TOPOGRAPHIC MAP SUMMARY		
Date	Source of Topographic Map	Scale
1987	USGS- Smiley, Pilgrim, Leesville, and Cost	1:24,000
The site is undeveloped rangeland and some cultivated farmland located north-northeast of Smiley, Texas and west of Gonzales, Texas. The west and north sections of the site is bordered by State Highway 97, the east section is bordered by Farm-to-Market Road 108. In addition, several creeks border the site including Sandies Creek (west), Buckhorn Creek (middle and east) and Cottonwood, Alligator, Sugar and Sally Creek (east).		

Based on review of the topographic maps, there does not appear to be RECs associated with the site other than those listed below in the regulatory review section.

Aerial Photograph Review: Publicly available aerial photographs depicting current development of the site was reviewed as summarized below. The information obtained from the evaluation of aerial photographs depends upon their scale and quality.

AERIAL PHOTOGRAPH SUMMARY		
Date	Source of Aerial	Scale
2000	Unknown	Scale: 1 inch = 500 feet
The subject site is approximately 25 miles of pipeline for 16 production wells in Gonzales County, Gonzales, Texas. The site is undeveloped rangeland and some cultivated farmland located north-northeast of Smiley, Texas and west of Gonzales, Texas. The west and north sections of the site is bordered by State Highway 97, the east section is bordered by Farm-to-Market Road 108.		

Based on review of the aerial maps, there does not appear to be RECs associated with the site other than those listed below in the regulatory review section.

REGULATORY DATABASE REVIEW

The purpose of the record review is to obtain and examine reasonably obtainable records to help identify recognized environmental conditions in connection with the site. For this review, records were obtained from GeoSearch. As noted under ASTM, information requested and not received within 20 days will not be incorporated into this report. The approximate maximum search distance (MSD) radius for the site vicinity review is noted under each database listed below. The distance from the site to the listed facility represents the approximate distances from the center of the site to the identified facility addresses and may not represent the actual distance from the boundary of the site to the boundary of the listed facility. A regulatory database map is presented as Figure 1. Regulatory data for facilities with RECs are provided in Appendix A.

A summary of the federal and state databases searched is provided below:

Leaking Petroleum Storage Tank (LPST)

State LPST (MSD = 0.5 mile): The Texas Commission on Environmental Quality (TCEQ) Petroleum Storage Tank Division maintains a database of Leaking Petroleum Storage Tank (LPST) facilities. No LPST facilities were identified by the regulatory database within 0.50 miles of the site.

Petroleum Storage Tank (UST/AST)

State PST (MSD = 0.25 mile): Inclusion on the PST registry does not necessarily imply that an environmental release/problem exists at the facility. By statute, owners of PST systems must register the system with the TCEQ. Based on the current status, these facilities are not considered a recognized environmental concern to the site at this time.

Five PST sites have been identified in the vicinity of the site. The sites are found to be unlocatable due to vague or incomplete location information. In addition, sites on this list may or may not be located within the area searched for this report.

Municipal Solid Waste Landfill (MSWLF)

Sites listed within a solid waste landfill database may include active landfills and inactive landfills, where solid waste is treated or stored. No MSWLF facilities were identified by the regulatory database within 0.50 miles of the site.

Closed and Abandoned Landfill (CALF)

TCEQ, 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. No CALF facilities were identified by the regulatory database within 0.50 miles of the site.

Spills Listing (SPILLS)

The Texas Commission on Environmental Quality provides this database. Information includes releases of hazardous or potential hazardous chemical/materials into the environment. No SPILLS facilities were identified by the regulatory database within 0.50 miles of the site.

Resource Conservation & Recovery Act Information System, Generator (RCRISG)

This database includes handlers, generators (large, small and exempt), transporters, violations, corrective actions, and treatment, storage & disposal facilities (TSD) (this database includes selective information on sites which handle, generate, transport, store, treat, or dispose of hazardous wastes). Eight un-locatable sites have been identified in the vicinity of the site. The sites are found to be un-locatable due to vague or incomplete location information. In addition, sites on this list may or may not be located within the area searched for this report.

Texas State Superfund (TXSF)

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). No TXSF facilities were identified by the regulatory database within 1.0 miles of the site.

No Further Remedial Action Planned (NFRAP)

This database includes sites, which have been determined by the EPA, 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. One un-locatable site has been identified in the vicinity of the site. The site is found to be un-locatable due to vague or incomplete location information. In addition, the site on this list may or may not be located within the area searched for this report.

Oil and Gas Database Review

An oil and gas database search was requested from GeoSearch identifying oil and gas production wells within 0.50 miles of the site. The wells are identified using the RRCT Report Form P-5. Organization operators who desire to have oil and gas wells in the State of Texas submit this report form. One hundred and ten wells were located by the search. An oil and gas database map is presented as Figure 2. The oil and gas database review is presented in Appendix A. Information regarding the oil and gas wells is presented in the appendices of this report. The following are what appear to be aerially identified wellheads, tank batteries and possible sludge pits in the route or close vicinity of the pipeline:

Table 1. Three structures were identified and located with latitude and longitude coordinates based on structure type.

STRUCTURE COORDINATES		
Structure	Latitude	Longitude
Tank Battery	29° 21' 14"	-97° 39' 60"
Sludge Pit	29° 20' 55"	-97° 39' 50"
Well Head	29° 23' 31"	-97° 36' 23"

NON-ASTM CONSIDERATIONS

Preliminary Surface Water Assessment

Introduction

Adams Environmental, Inc. was requested by Drash Consulting Engineers, Inc., to assess wetlands and other surface waters of the U.S. potentially impacted by the construction and operation of a water collection pipeline to be installed in Gonzales County. The Adams report is presented as Appendix B. Figures pertaining to this report are presented within the Adam’s report. The pipelines will be placed in a maintained 100 ft. wide Right-of-Way (ROW). The location of the pipeline route is shown on a county map in Figure 1. The Well Field Project (WFP) consists of 25 miles of pipeline that connects 16 water production wells to the transmission line.

The information contained in this report is based on visual assessment of topographic maps and orthoquad aerial photographs prepared by the USGS in 1995. No field observations were made to support the conclusions of the report. Information included in this report is to be used for determining potential impacts to surface waters of the U.S. and potential permitting issues. Surface water delineations will be required to obtain data acceptable for use in preparation of a permit application for the U.S. Army Corps of Engineers (USACE).

Surface Waters Impacted

The total area of surface waters impacted by installation of the pipeline is shown in Table 1. The WFP impacts several surface waters including ephemeral, intermittent, open water habitat and wetlands. All of these waters are potentially jurisdictional if connected to other waters of the U.S. via a stream having a defined channel or exhibiting an ordinary high water mark (OHWM). Intermittent streams and perennial streams typically have defined OHWM. Ephemeral streams usually have defined OHWM caused by the periodic passage of storm waters through their channels. These streams are not jurisdictional above the point where the OHWM is no longer discernable. It is difficult to determine if the OHWM is defined by use of aerial photographs, thus, field observation is required for a final determination.

Open water habitat is jurisdictional, but often, the USACE does not require compensatory mitigation for impacts to these waters unless the habitat is considered quality wildlife habitat or serves other significant functional values in the ecosystem. *Preliminary Surface Water Assessment Report Page 3 SAWS Gonzales Carrizo Aquifer Program*

Table 1. Acreage of wetlands and other waters of the U.S. impacted by the SAWS Gonzales Carrizo Aquifer Program as determined by review of aerial photographs.

Surface Water	Area (Acres)
Well Field Project	
Ephemeral Streams	6.013
Intermittent Streams	1.675
Open Water Habitat	0.344
Wetlands	1.837
TOTAL	9.870

Figures 2 - 42 visually show the surface waters impacted by construction of the pipeline.

Permitting Issues

Based on the findings of this report, this project will probably qualify for Nationwide Permit 12 (NWP-12) as long as specific criteria are met (A copy of NWP-12 is attached). Otherwise, an individual permit may be required. The most important criterion is that the area is brought back to the original grade after excavation is complete. This is especially important in areas where floodplains are impacted. Although the USACE does not have jurisdiction over floodplains, they require that areas be brought back to grade in floodplains for approval of an NWP-12. Because of the size of the project, a preconstruction notification will probably be required. The USACE may require mitigation for impacted waters because the ROW will be maintained.

Several portions of the pipeline route runs parallel to stream channels. The USACE does not consider this situation desirable because it can result in significant degradation of the stream channel and erosion to the area excavated for the pipeline. Precautionary measures must be taken to prevent damage to the streambed. The USACE's preferred method is to avoid alignment of ROWs in and parallel to streambeds. A preconstruction notification (PCN) is required where the pipeline runs parallel with a stream.

SAWS must notify the District Engineer in accordance with General Condition 13 (attached), if any of the following occur as a result of the project:

- A forested wetland must be cleared for the utility line right-of-way;

- A Section 10 permit is required (navigable waters are crossed);
- The pipeline impacts over 500 ft. of waters of the U.S.
- The pipeline is placed within a water of the U.S. and runs parallel to a stream channel
- Permanent access roads are constructed above grade in waters of the U.S. for a distance of more than 500 feet; or
- Permanent access roads area constructed in waters of the U.S. with impervious materials.

The most critical part of Section 404 permitting will involve coordination with the Texas State Historic Preservation Officer (SHPO) and the U.S. Fish and Wildlife Service (USFWS). The area for the pipeline is an area rich in historic and archeological features. These features are especially common along streams and rivers. Clearance for the SHPO is mandatory for all USACE permits including NWP-12. In addition, potential impacts to endangered and threatened species must be coordinated with the USFWS and Texas Parks and Wildlife.

Coordination of the project with the USACE should be initiated as soon as possible to determine if mitigation will be required and if the project will not require an individual permit. A meeting with the USACE prior to fieldwork is strongly recommended and may prevent unnecessary delays in processing of the permit. Regardless of the outcome, approximately 8-12 months should be allowed for permit review and approval. Archeological studies should be initiated as soon as the project area is defined by the USACE. Construction activities in waters of the U.S. cannot be initiated until the permit is fully approved.

Threatened And Endangered Species Evaluation

A threatened species, endangered species, and critical habitat review was conducted by GeoSearch and is presented in Appendix C. An endangered species database map is presented as Figure 3. The following summarizes our findings.

Wilderness Areas and Wildlife Preserves

The site is not located on a federal or state wilderness area or wildlife preserve according to a review of the Texas Parks and Wildlife Department, the United States Forest Service, the United States Bureau of Land Management, the United States Fish and Wildlife Service, and the United States National Park Service databases conducted by GeoSearch. A copy of this report is provided in the appendices.

Threatened Species, Endangered Species and Critical Habitat Review

The site is not in an area determined to be critical habitat according to a threatened species, endangered species, and critical habitat review conducted by GeoSearch. A review of the Texas Parks and Wildlife Department databases (TPWD) and the Texas Biological and Conservation

Data System (TBCDS) indicates that no endangered species have been documented at the site. According to these sources, federally threatened and endangered species occurring in Gonzales County include the Bald Eagle (*Haliaeetus leucocephalus*) and the Whooping Crane (*Grus americana*). A copy of this report is provided in the appendices.

Habitat for the above-mentioned species may be present along the proposed pipeline. Therefore, DCE recommends that the site be surveyed for suitable habitat for the Bald Eagle and the Whooping Crane. DCE can ascertain the presence or absence of habitat for these species along the proposed pipeline route. Note: These species and their habitat are federally protected.

DCE also recommends that the site be evaluated for potential habitat for the following state threatened and endangered species: American Peregrine Falcon (*Falco peregrinus anatum*), Arctic Peregrine Falcon (*Falco peregrinus tundrius*), Wood Stork (*Mycteria americana*), Texas Horned Lizard (*Phrynosoma cornutum*), Timber/Canebrake Rattlesnake (*Crotalus horridus*), Cagle's Map Turtle (*Graptemys caglei*), and the Blue Sucker (*Cycleptus elongates*). DCE can ascertain the presence or absence of habitat for these species along the proposed pipeline route. Note: Although habitat for these species is not regulated at this time, the Texas Parks and Wildlife Department prohibits accidental take of these species.

FINDINGS AND CONCLUSIONS

In summary, our findings are:

ASTM 1527-00 Findings

- The subject site is approximately 25 miles of pipeline for 16 production wells in Gonzales County, Gonzales, Texas.
- The site is not located over a sole source aquifer according to the EPA Region VI, Sole Source Aquifer Office, Dallas, Texas.
- The western section of the site incorporates several sections of Zone A, which is directly connected to Sandies Creek. Zone A is defined as areas if 100-year flood; base flood elevations and flood hazard factor not determine. Middle and eastern sections of the site are designated as Zone C areas. These areas are areas of minimal flooding.
- The site extends over three structures. The identity of the structures could not be determined from the aerial photograph interpretation.
- No RECs were noted on the site based on the limited aerial interpretation site reconnaissance and regulatory database review. However, numerous un-locatable facilities were noted by regulatory review and are noted below.
 - Five un-locatable **Petroleum Storage Tank (PST)** facilities were identified during the regulatory review.
 - One un-locatable **No Further Remedial Action Planned (NFRAP)** facility was identified during the regulatory review.
- One hundred and ten **oil and gas wells** were identified within 0.50 mile of the site, some of which are on the proposed pipeline route. Approximately three oil and gas structures are either on the site or within 100 ft. of the site.

Non-ASTM 1527-00 Consideration Findings

- The WFP impacts about 9.870 acres of surface waters.
- The site is not located on a federal or state wilderness area or wildlife preserve. However, the site is located in an area that may have suitable habitat for a few federally endangered species as well as a few federally and state rare species listed for Gonzales County.

RECOMMENDATIONS

Based on review of available data, the following presents DCE recommendations in addressing the Phase I ESA identified issues:

ASTM 1527-00 Recommendations

- The site extends over three structures of which the identities could not be determined from the aerial photograph interpretation. Black and Veatch may want to consider altering the route to avoid these areas.
- Fifteen oil and gas wells were identified by the regulatory review. DCE recommends conducting a thorough *ground truth* site reconnaissance in order to identify those wells that pose an environmental threat. During the site reconnaissance, DCE further recommends conducting monitoring for hydrogen sulfide gas and naturally occurring radioactive material (NORM).

After conducting an aerial photography reconnaissance, approximately five oil and gas structures are either on the site or within 100 feet of the proposed pipeline route. DCE further recommends contacting the exploration and production oil companies in advance to identify any underground infrastructure (product/brine flowlines and pipelines) that may be encountered during excavating soils or altering the pipeline route for those structures or underground infrastructure that are in direct obstruction of the pipeline route.

If impacted soils are encountered during excavation activities, the remediation of soils comes under the jurisdiction of the Railroad Commission of Texas (RRCT). The following is a limited scope of work to address this issue:

- Call in utility locate, Texas One Call 1-800-245-4545
- Collect soil samples using a rotary drill rig or Geoprobe, if possible, in conjunction with Geotechnical Survey. Locate soil borings every 50 to 100 feet along the impacted areas. Extend borings to approximately 15 feet below ground surface (bgs) or until groundwater is encountered, whichever comes first. Additional soil borings may be needed to adequately delineate the extent of soil and groundwater impact.
- Containerize soil sample exhibiting highest PID reading and soil sample from total depth of the soil boring into laboratory approved sampling jars. In addition, if groundwater is encountered, collect groundwater sample into approved sampling jars.
- Submit soil samples to environmental chemical laboratory and analysis for benzene, toluene, ethyl-benzene and total xylenes (BTEX) and Texas total petroleum hydrocarbons (TPH) 1005 extended to C35. In addition, analyze the soil and groundwater sample exhibiting the highest total TPH concentration (C6-C35) for Texas TPH 1006.

- Evaluate analytical results to RRCT Risk-Based Decision Making Program (RBDM).

If the site is a non-sensitive site (crude oil non-sensitive environment, i.e. streams) and soil is only impacted, the site can be addressed as Option 1 under Statewide Rule (SWR) 91. The following assures compliance for reportable spills or releases that comply with SWR 91 criteria:

- Notice to the RRC.
- Removal of all free oil immediately.
- Horizontal and vertical delineation of all areas with more than one percent weight of TPH, ie. 10,000 mg/kg.
- Proper reporting.

Once horizontal and vertical delineation of all areas is achieved, soils can be removed under a RRCT Minor Permit and disposed at a TCEQ regulated landfill. If soil impact is surficial, tilling of soils with fertilizer can be conducted to enhance naturally occurring microbes biodegrade the crude oil release. Confirmation sampling is required demonstrating remain soils are below one percent weight of TPH (<10,000 mg/kg).

If the site is a sensitive area or groundwater is encountered and determined to be impacted, Option 2 would apply. Option 2 includes an extensive site assessment including a comparison to risk-based Initial Default Standards would apply.

Non-ASTM 1527-00 Consideration Recommendations

- This project will probably qualify for Nationwide Permit 12 (NWP-12) as long as specific criteria are met (A copy of NWP-12 is attached). Otherwise, an individual permit may be required. The most important criterion is that the area is brought back to the original grade after excavation is complete. This is especially important in areas where floodplains are impacted. Although the USACE does not have jurisdiction over floodplains, they require that areas be brought back to grade in floodplains for approval of an NWP-12. Because of the size of the project, a preconstruction notification will probably be required. The USACE may require mitigation for impacted waters because the ROW will be maintained.

Several portions of the pipeline route runs parallel to stream channels. The USACE does not consider this situation desirable because it can result in significant degradation of the stream channel and erosion to the area excavated for the pipeline. Precautionary measures must be taken to prevent damage to the streambed. The USACE's preferred method is to avoid alignment of ROWs in and parallel to streambeds. A preconstruction notification (PCN) is required where the pipeline runs parallel with a stream.

SAWS must notify the District Engineer in accordance with General Condition 13 (attached), if any of the following occur as a result of the project:

- A forested wetland must be cleared for the utility line right-of-way;
- A Section 10 permit is required (navigable waters are crossed);
- The pipeline impacts over 500 ft. of waters of the U.S.
- The pipeline is placed within a water of the U.S. and runs parallel to a stream channel.
- Permanent access roads are constructed above grade in waters of the U.S. for a distance of more than 500 feet; or
- Permanent access roads area constructed in waters of the U.S. with impervious materials.

The most critical part of Section 404 permitting will involve coordination with the Texas State Historic Preservation Officer (SHPO) and the U.S. Fish and Wildlife Service (USFWS). The area for the pipeline is an area rich in historic and archeological features. These features are especially common along streams and rivers. Clearance for the SHPO is mandatory for all USACE permits including NWP-12. In addition, potential impacts to endangered and threatened species must be coordinated with the USFWS and Texas Parks and Wildlife.

Coordination of the project with the USACE should be initiated as soon as possible to determine if mitigation will be required and if the project will not require an individual permit. A meeting with the USACE prior to fieldwork is strongly recommended and may prevent unnecessary delays in processing of the permit. Regardless of the outcome, approximately 8-12 months should be allowed for permit review and approval. Archeological studies should be initiated as soon as the project area is defined by the USACE. Construction activities in waters of the U.S. cannot be initiated until the permit is fully approved.

- Based on the threatened and endangered species and critical habitat review, DCE recommends that the site be surveyed for suitable habitat for the Bald Eagle and the Whooping Crane. DCE can ascertain the presence or absence of habitat for these species along the proposed pipeline route. Note: These species and their habitat are federally protected.

DCE also recommends that the site be evaluated for potential habitat for the following state threatened and endangered species: American Peregrine Falcon (*Falco peregrinus anatum*), Arctic Peregrine Falcon (*Falco peregrinus tundrius*), Wood Stork (*Mycteria americana*), Texas Horned Lizard (*Phrynosoma cornutum*), Timber/Canebrake Rattlesnake (*Crotalus horridus*), Cagle's Map Turtle (*Graptemys caglei*), and the Blue Sucker (*Cycleptus elongates*). DCE can ascertain the presence or absence of habitat for these species along the proposed pipeline route. Note: Although habitat for these species is not regulated at this time, the Texas Parks and Wildlife Department prohibits accidental take of these species.

OBJECTIVES AND LIMITATIONS OF ASSESSMENT

DCE has endeavored to meet what it believes is the standard of care for the services performed and, in doing so, is obliged to advise Black and Veatch Corporation of ESA limitations. DCE believes that providing information about limitations is essential to help clients identify and thereby manage risks. These risks can be mitigated, but not eliminated, through additional research. DCE will, upon request, advise Black and Veatch Corporation of the additional research opportunities available and the associated costs.

This report is an instrument of service of DCE and includes limited research, a review of specified and reasonably ascertainable listings and a site reconnaissance to identify "recognized environmental conditions" using the *ASTM E 1527-00; Environmental Site Assessments: Phase I Environmental Site Assessment Process* as a guide. "Recognized environmental conditions" are defined by the ASTM as "the presence or likely presence of any hazardous substances or petroleum products on a site under conditions that indicate an existing release, a past release, or a material threat of release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property." The ESA was performed in accordance with generally accepted practices of the profession undertaken in similar studies at the same time and in the same geographical area. DCE has observed a standard of care generally exercised by the profession under similar circumstances and conditions.

The study and report have been prepared on behalf of and for the exclusive use of Black and Veatch Corporation solely for its use and reliance in the environmental assessment of this site. Black and Veatch Corporation is the only party to which DCE has explained the risks involved and which has been involved in the shaping of the scope of services needed to satisfactorily manage those risks, if any, from Black and Veatch Corporation point of view. Accordingly, reliance on this report by any other party may involve assumptions whose extent and nature lead to a distorted meaning and impact of the findings and opinions related herein. DCE's findings and opinions related in this report may not be relied upon by any party except Black and Veatch Corporation. With the consent of Black and Veatch Corporation and DCE, we may be available to contract with other parties to develop findings and opinions that relate specifically to such other parties' unique risk management concerns related to the site.

This ESA did not include any inquiry with respect to asbestos, radon, methane, lead based paint, lead in drinking water, formaldehyde, endangered species, wetlands, subsurface investigation activities or other services or potential conditions or features not specifically identified and discussed herein. In those instances where additional services or service enhancements are included in the report as requested or authorized by the client, specific limitations attendant to those services are presented in the text of the report.

The findings and opinions presented in this Phase I ESA report are based upon information obtained on a particular date from a variety of sources enumerated herein, and which our firm believes are reliable. Nonetheless, DCE cannot and does not warrant the authenticity or reliability of the information sources it has relied upon.

This report represents DCE's service to Black and Veatch Corporation as of the report date. In that regard, the report constitutes DCE's final document, and the text of the report may not be altered in any manner after final issuance of the same. Opinions relative to environmental conditions given in this report are based upon information derived from the most recent site reconnaissance date and from other activities described herein. Black and Veatch Corporation is herewith advised that the conditions observed by our firm are subject to change. Certain indicators of the presence of hazardous materials may have been latent or not present at the time of the most recent site reconnaissance and may have subsequently become observable. In a similar manner, the research effort conducted for a Phase I ESA is limited. Accordingly, it is possible that DCE's research, while fully appropriate for a Phase I ESA and in compliance with the scope of service, may not include other important information sources. Assuming such sources exist, their information could not have been considered in the formulation of our findings and conclusions.

This report is not a comprehensive site characterization or regulatory compliance audit and should not be construed as such. The opinions presented in this report are based upon findings derived from a site reconnaissance, a review of specified records and sources and comments made by interviewees. Specifically, DCE does not and cannot represent that the site contains no hazardous or toxic materials, products, or other latent conditions beyond that observed by our company during the site assessment. Further, the services herein shall in no way be construed, designed or intended to be relied upon as legal interpretation or advice.