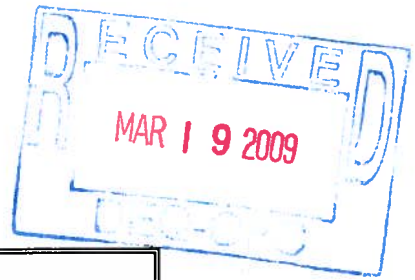


GULFPORT FERTILIZER  
GULFPORT, MISSISSIPPI  
CORRECTIVE ACTION PLAN  
2008

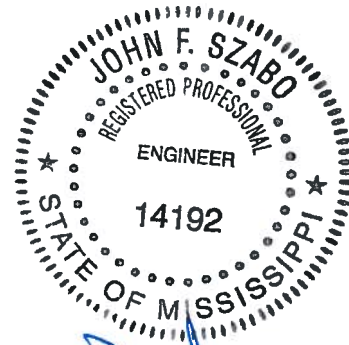


# **FINAL CORRECTIVE ACTION PLAN**

**Former Gulfport Fertilizer Site  
33<sup>rd</sup> Street  
Gulfport, Mississippi**

**Presented on Behalf of:  
*Hancock Bank  
2510 14<sup>th</sup> Street  
Gulfport, MS 39501***

**March 2009**



  
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## 1.0 INTRODUCTION

Hancock Bank owns approximately 145 acres of unimproved, vacant property in Gulfport, MS bounded on the south by 33<sup>rd</sup> Street, on the west by 34<sup>th</sup> Avenue, on the north by North Gulfport Subdivision and on the east by the railroad (Figure 1). The property is located in Section 33, Township 7 South, Range 11 West, City of Gulfport, Harrison County, Mississippi. The property consists of approximately 33-acre tract (Former Gulfport Fertilizer Site) owned by Hancock Bank since the late 1970s on which the Gulfport Fertilizer Company operated a super-phosphate fertilizer operation from about 1914–1920. The remaining approximately 112 acre tract was acquired by Hancock Bank in late March 2005 from the Harrel Family Trust and is a vacant, undeveloped, heavily wooded property (Figure 2). Since Hurricane Katrina in August 2005, the southern portion of the Harrel Family Trust property has been cleared (along 33<sup>rd</sup> Street and partially along 34<sup>th</sup> Avenue). The remainder of the property (e.g. northern portion) has remained heavily wooded.

The Former Gulfport Fertilizer Site, the original 33 acres (Figure 2), was found to have contamination in the soil and groundwater, probably as a result of the super-phosphate operations on the site. Beginning in September 1998, Butler Services of Mississippi, Inc. (Butler Services), on behalf of Hancock Bank, began a site characterization investigation to determine the nature and extent of contamination on the site. Butler Services collected 260 soil samples on the site from 0'-2' and 2'-4' below the ground surface (BGS). The collected soil samples were analyzed for arsenic and lead.



The results of the Butler Services investigation were presented in the *Site Characterization Report* for the site dated October 25, 1999. The report concluded that there were four (4) major source areas on the site where the arsenic and/or lead regulatory limits were exceeded in the site soils from 0'-4' BGS. The report recommended that additional soil samples be collected to determine the vertical extent of the arsenic and/or lead soil contamination. Installation of monitoring wells and collecting groundwater samples was also recommended in order to evaluate the extent of groundwater contamination at the site, refer to Section 2.

After reviewing the *Site Characterization Report* for the subject site, the Mississippi Department of Environmental Quality (MDEQ) required that:

- the horizontal and vertical extent of soil contamination along the western boundary of the Former Gulfport Fertilizer site be determined;
- six (6) monitoring wells be installed on the site; and
- all borings be advanced to approximately fifteen (15) feet below ground surface.

Butler Services prepared a work plan for this supplemental investigation – *Work Plan Off-Site/Source Area Soils and Groundwater Sampling* – addressing MDEQ's requirements.

Hancock Bank hired Covington and Associates Corporation (CAC) in late October 2001 to replace Butler Services in implementing the Work Plan for the supplemental site investigation. CAC advanced forty-three (43) on-site geoprobe borings and twenty-two (22) off-site geoprobe

borings. Soil samples were collected at 2' intervals from 0' – 8' below the ground surface (BGS) and at 4' intervals from 8' BGS to 8'-16' BGS or to the low permeability confining clay layer, whichever was less. The soil samples collected from the 0'-2' BGS and 2'-4' BGS soil intervals were analyzed to determine the arsenic and lead concentration in each soil interval. At those locations where the arsenic and/or lead concentration exceeded the site's regulatory limits (7.18 mg/kg for arsenic and 400 mg/kg for lead, assuming the site would be used for unrestricted – residential - purposes in the future), samples from subsequent soil intervals were analyzed until the arsenic and/or lead concentration were below the site's regulatory limits. Two-foot (2') stream sediment samples were taken from four (4) locations along the stream located west of the western boundary of the Former Gulfport Fertilizer Site. Each stream sediment sample was analyzed for arsenic and lead. Groundwater samples were taken from twelve (12) of the boring locations.

The supplemental site investigation findings were presented in the *Supplemental Site Characterization Report* prepared by CAC and submitted to MDEQ on November 8, 2002. The supplemental site investigation determined:

- The low permeability confining clay layer is 20'-26.5' BGS.
- The horizontal and vertical extent of the arsenic soil concentrations exceeding the site's regulatory limit for arsenic in soil (7.18 mg/kg) has been adequately defined, except in a small area on the off-site property (the Harreld Family Trust property) at 0'-2' BGS and 2'-4' BGS. It is felt that the horizontal and vertical extent in these off-site areas is within

100' of the last boring location advanced.

- The majority of the soil exceeding the site's regulatory limit for arsenic in soil occurs in the 0'-6' BGS soil interval.
- The total arsenic concentrations found in soil samples at the site do not exceed arsenic's TCLP regulatory limit (5.0 mg/l). Therefore, the site soils are not considered to be hazardous for arsenic.
- The horizontal and vertical extent of the lead soil concentrations exceeding the site's regulatory limit for lead in soil for unrestricted (residential) sites (400 mg/kg) has been adequately defined, except in a small area on the off-site property (the Harreld Family Trust Property) at 0'-2' BGS. It is felt that the horizontal and vertical extent in these off-site areas is within 100' of the last boring location advanced.
- The majority of the soil exceeding the regulatory limit for lead in soil at restricted (residential) sites occurs in the 0'-2' BGS soil interval.
- Sub-surface soils exceeding 3,800 mg/kg total lead concentration will be considered hazardous for lead (TCLP lead > 5.0 mg/l).
- All collected stream sediment samples were below the site's regulatory limit for arsenic in soil (7.18 mg/kg) and below the regulatory limit for lead in soil at unrestricted (residential) sites (400 mg/kg). It is concluded that the stream has not been impacted by previous site operations.
- All of the "unfiltered" (Total) groundwater samples collected exceeded MDEQ's Tier 1 TRG for arsenic in groundwater (0.010 mg/l) and for lead in groundwater (0.015 mg/l). It



is felt that this is due to the presence of soil particles in the “unfiltered” groundwater samples.

- Arsenic and lead analytical results for “filtered” (Dissolved) groundwater samples exceeded MDEQ’s Tier 1 TRG in the northwest and west area of the site.

A naturally occurring radioactive material (NORM) survey was performed on the site by CAC. The survey included identifying two “hot spot” areas (areas where field radioactive readings exceeded 20 uR/hr) on the site. Following NORM survey procedures, soil samples were collected in a 100-meter sampling area east of the fertilizer production concrete slab. The soil samples were collected from 0”-6” BGS and from 6”-12” BGS. The collected soil samples were analyzed to determine the concentration of Radium-226 and Radium-228 in the soil samples in pico-curies per gram (pCi/gm).

The NORM survey determined the following:

- The horizontal and vertical extent of two (2) areas of the property where NORM concentrations exceeded the NORM regulatory limit for transfer of property for unrestricted (residential) uses were identified and adequately defined.

The two NORM areas have been fenced to minimize potential human contact and signs installed identifying the area.

In order to determine the extent of soil contamination off-site, on the adjacent Harreld Family Trust property, which is now part of the overall site, CAC proposed to perform a supplemental off-site soil investigation. MDEQ approved CAC's plan for collecting additional off-site soil borings on April 21, 2003. From April 2003 to November 2003, CAC advanced seventy (70) additional borings on the Harreld Family Trust property. On July 29, 2003, CAC submitted a *Supplemental Off-Site Characterization Report*. The report was revised and re-submitted on December 1, 2003.

The supplemental off-site soil investigation determined the following:

- The horizontal and vertical extent of the arsenic soil concentrations exceeding the site's regulatory limit for arsenic in off-site soil (7.18 mg/kg) has been defined.
- The majority of the off-site soil exceeding the site's regulatory limit for arsenic in soil occurs in the 0'-4' BGS soil intervals.
- The horizontal and vertical extent of the off-site lead soil concentrations exceeding the site's regulatory limit for lead in soil at unrestricted (residential) sites (400 mg/kg) has been defined.
- The off-site soil exceeding the regulatory limit for lead in soil at unrestricted (residential) sites occurs in the 0'-2' BGS soil interval, only.
- Off-site soils exceeding 3,800 mg/kg total lead concentration occurred at one location, only – OS-6, 0'-2' BGS – and will be considered hazardous for lead (TCLP lead > 5.0 mg/l), if excavated.

Figure 3 shows the horizontal extent of arsenic and lead contaminated soil identified on the site.

CAC collected groundwater samples from seven (7) monitoring wells located on the Former Gulfport Fertilizer site for eight consecutive quarters from June 19, 2002 (First Sampling Round) to March 4, 2004 (Eighth Sampling Round). Each groundwater sample was analyzed for lead and arsenic concentrations. pH readings of each groundwater sample were also collected. CAC presented conclusions about the groundwater on the Former Gulfport Fertilizer site in a letter report entitled "Historical Groundwater Monitoring Report" dated August 10, 2004.

The data presented in this "Historical Groundwater Monitoring Report" for the Gulfport Fertilizer site demonstrated the following:

- The groundwater flow direction at this site has consistently followed a north to northwesterly path.
- Total Arsenic concentrations in the groundwater consistently exceeded the Tier 1 TRG of 0.010 mg/L at MW-2, MW-4 and MW-6, with minor excursions reported at MW-1, MW-3 and MW-7.
- Arsenic-contaminated groundwater potentially migrated onto the adjacent Harreld Family Trust (off-site) property, which, at the time, was not owned by Hancock Bank.
- Total Lead concentrations in the groundwater consistently exceeded the Tier 1 TRG of 0.015 mg/L at MW-1.
- Lead-contaminated groundwater is confined to the Former Gulfport Fertilizer site.
- Total metals data generally suggests that arsenic and lead concentrations in the

groundwater are influenced most by the associated metals concentrations in the soils, as opposed to the pH levels in the soil or groundwater.

- Soil analytical information presented in the November 8, 2002 *Supplemental Site Characterization Report* demonstrates that the arsenic in the soil is not highly mobile and does not leach into the groundwater.
- The soil TCLP data presented in the *Supplemental Site Characterization Report* does, however, support that lead may be leachable at high concentrations (above 3,800 mg/kg).

In order to estimate the extent of groundwater contamination on the Harreld Family Trust Property (off-site property), CAC advanced twelve (12) borings on the Harreld Family Trust Property on October 20 and 21, 2004. Groundwater samples were collected from each boring and analyzed for arsenic and lead. CAC estimated the extent of groundwater contamination based on the samples collected from the twelve (12) borings. Figure 3 shows the estimated extent of groundwater contamination on Hancock Bank property based on previous groundwater studies performed by CAC.

Hancock Bank is seeking to sell the property to a potential purchaser. It is still anticipated that the purchaser of the property will use the property for industrial purposes, only. As part of the purchase agreement, Hancock Bank is proposing to implement the activities presented in this Corrective Action Plan (CAP). Hancock Bank implemented activities required in the *Interim Corrective Action Plan (ICAP)*, dated September 27, 2007, revised February 18, 2008 to address

comments from MDEQ and approved by MDEQ on March 18, 2008. The *ICAP* was implemented from May through July 2008.

This *Final Corrective Action Plan (FCAP)* presents the remaining activities to be implemented on the site.

### **1.1 Objectives and Rationale**

It is anticipated that the property will be utilized for industrial purposes and that there will be controlled access to the property, this FCAP will present engineering and institutional controls, which will be implemented by Hancock Bank, in preparation for selling the property.

The engineering and institutional controls presented in this FCAP will protect human health and the environment since the soil contamination is confined to the site and has been shown not to be mobile - arsenic is not leachable at soil concentrations found on the site and concentrations of lead, which are leachable (above 3,800 mg/kg), have been removed from the site under the previously approved ICAP. Additionally, a large portion of the soil contamination is located in a wetlands area, which will remain. The wetlands minimize the potential for contaminated soil to migrate from the site.

The groundwater contamination is also confined to the site. Groundwater data collected during the site characterization investigations shows the groundwater concentrations to be stable, indicating that the soil is not a continuing source of contamination to the groundwater. It is anticipated that the engineering and institutional controls presented in this FCAP will show that the groundwater has been stabilized through source removal presented in ICAP and the capping of the contaminated soil portions of the site in this FCAP will further insure that the groundwater contamination does not increase or migrate, thus it is felt that long-term monitoring of the groundwater is not necessary.



## **2.0 CONCEPTUAL DESIGN**

The following engineering and institutional controls will be implemented in accordance with the Schedule presented in Section 4.0 of this Corrective Action Plan.

### **2.1 Use Restrictions**

It is anticipated that Use Restrictions will be placed on the property through a property deed restriction executed between Hancock Bank and MDEQ. It is anticipated that the Use Restrictions will include a survey plat showing the limits of soil contamination (Figure 3), the proposed soil cap area (Figure 4) and the limits of groundwater contamination (Figure 3).

### **2.2 Security Fencing**

Under the Final Corrective Action Plan, a 6' tall, chain link security fencing will be placed around the limits of the 10" clay soil cap (Figure 4). There will be one gate that will allow access to the area inside the fence for maintenance and inspection work. The gate will be locked at all times other than when maintenance and inspection work is being done. There will be signs on the fence warning unauthorized personnel to stay out of the fenced area. Figure 4 shows the approximate layout of the security fence around the 10" clay cap.

### **2.3 Monitoring Well Installation and Monitoring**

A total fourteen (14) monitoring wells have been installed to monitor the groundwater contamination at the site. The first seven (7) monitoring wells were installed on the original Gulfport Fertilizer site (e.g. original 33 acres) in 2001 and 2002. Each well was installed to a depth of 15' below ground surface (BGS) in accordance with the Work Plan Off-Site/Source Area Soils and Groundwater Sampling (the Work Plan) prepared by Butler Services of Mississippi, Inc. as approved by MDEQ on January 31, 2002. A formal groundwater monitoring program was subsequently initiated that included the collection of groundwater samples on a quarterly basis. Sampling events were conducted every 3-months (quarterly). This program was initiated in May 2002 and was concluded in March 2004, and incorporated eight rounds of groundwater samples from the seven original monitoring wells. The summation of this groundwater monitoring program was documented in a report that was submitted to the MDEQ in August 2004. A ninth or "Supplementary" sampling event was conducted in February 2006 to assess the groundwater quality in the aftermath of Hurricane Katrina. The results of that sampling event demonstrated that no appreciable change to the groundwater quality occurred as a result of Hurricane Katrina.

Seven additional monitoring wells (e.g. MW 9 through MW 14) were installed in October 2007 to delineate the extent of groundwater impacts from lead and arsenic on the annexed property (Harreld Family Property) to the north and west of the original fertilizer site, and for monitoring

the long-term groundwater quality of the entire 145-acre site. All fourteen (14) on-site monitoring wells were sampled in October 2007 and December 2008. The results of these sampling rounds confirm that the groundwater contamination remains onsite, has not migrated and is not significantly increasing in concentration or horizontal extent. In fact, the extent of groundwater contamination is significantly less than "Limit of Groundwater Contamination" estimated on Figure 3.

### **2.3.1 Proposed Long Term Groundwater Monitoring**

It is proposed that sampling of the groundwater monitoring system (e.g. the fourteen monitoring wells) be conducted semi-annually for a period of three years after the installation of the 10" clay cap is completed. The monitoring wells will be sampled for pH, Arsenic and Lead.

After three years of groundwater monitoring, five (5) monitoring wells (MW-1, MW-2, MW-8, MW-11 and MW-12) along the long axis of the groundwater plume that runs southeast to northwest will be sampled. Refer to attached Figure 7- Groundwater monitoring after three years. The five monitoring wells will be sampled once every three years for two additional rounds of sampling (e.g. a total of six years). CCE proposes that if, after the nine years (three of semi-annual and once every three years for two rounds {e.g. six years} of groundwater sampling, and the groundwater plume remains unchanged and the potential purchaser has not replaced the 10" clay cap with pavement (e.g. asphalt or concrete) that monitoring of the five long term

monitoring wells (MW-1, MW-2, MW-8, MW-11 and MW-12) will be conducted once every five years until final closure is obtained.

## **2.4 On-Site NORM Contamination**

Two areas of Naturally Occurring Radioactive Material (NORM) contaminated soil have been identified on the original 33 acres. Although the NORM contamination at this site is not regulated by the Mississippi State Department of Health (MSDH), Hancock Bank has taken measures to identify the NORM areas and to warn site personnel and contractors not to enter these areas. A 6-foot chain-link security fence has been installed around these two areas. Signs have been placed on the fence warning persons about the presence of NORM contamination and telling site personnel and contractors to keep out. The two NORM areas are within the site area that will be covered by the proposed 10" clay cap and contained within the security fence proposed in Section 2.2, above. The fencing around the two NORM areas will be removed when the clay cap is installed. The two NORM areas will be surveyed so they can be documented in the Use Restriction document.

## **2.5 Capping of Arsenic/Lead Contaminated Soil**

A 10" clay cap will be placed over areas outside the wetlands where soil lead and arsenic containing soils exceed regulatory limits (7.18 mg/kg for arsenic and 1,700 mg/kg for lead on

industrial sites). Figure 4 shows the proposed 10" clay cap. Areas of soil contamination outside the limits of the 10" clay cap will be excavated and moved into the cap area, prior to constructing the 10" clay cap. The excavated areas will be sampled in accordance with confirmation sampling procedures presented in the approved ICAP. Once the confirmation sampling shows that all contaminated soil has been removed from an area, the area will be backfilled. The existing concrete slab will remain in place and the clay cap will be tied into the edge(s) of the concrete slab. The existing concrete slab will be cleaned and pressure washed. The existing concrete slab will be inspected to insure integrity and that no significant cracks exist. Any significant cracks will be sealed and areas of the exiting concrete slab that may not have sufficient integrity will be removed and either replaced with new concrete or a 10" clay cap. The proposed soil cap will not extend into the wetlands to the north or west of the original Gulfport Fertilizer Site (Figure 4).

The cap area will be prepared by scrapping vegetation off the area, smoothing out the area, proof-rolling with a loaded dump truck to identify any "soft" areas and undercutting "soft" areas (if necessary) and backfilling with clay. The excavated material from the "soft" area will be spread over the cap area. The 10" clay cap will be constructed by placing two (2) lifts of clay. Each lift will be compacted to 95% density based on the Standard Proctor test. Each lift will be tested at one (1) density test per 1,000 square feet (100'X100') to confirm the required density has been achieved, prior to constructing the next lift. Any cap area that does not meet the density requirements will be re-worked until required density is achieved. Once the cap construction is completed, a 4" layer of topsoil will be placed over the area and compacted to 85% density on the

Standard Proctor Test. The topsoil will act as a seed bed for vegetation. The topsoil will be prepared (disked, fertilized, etc.), a mixture of grass and clover seed will be planted and then the area strawed to prevent erosion.

The anticipated surface area to be disturbed by the proposed clay cap and soils to be excavated and consolidated under the cap is approximately seven acres. CCE will obtain the appropriate and required storm water permit and develop a storm water pollution prevention plan (SWP3).

The cap area will be inspected weekly and after each major rain event (greater than 0.5") until the vegetation is established, then monthly, thereafter, for one (1) year after completion of the cap. Long-Term monitoring of the cap area is presented in Section 8.0 of this FCAP.

## **2.6 Protection of Existing Wetlands**

Wetlands are located on the portion of the site designated the Harreld Family Trust Property (e.g. northern portion, the 112 acres), as well as a small wetlands area on the site designated the Former Gulfport Fertilizer property, the original 33 acres (Figure 5). The existing wetlands have served a very valuable function at this site. It is suspected that the wetlands have prevented contaminated soil from the Original Gulfport Fertilizer Site from migrating off-site. The wetlands will continue to provide this valuable function in the future and are, therefore, to be protected. The limits of the wetlands will be delineated, surveyed and included in the proposed



Use Restriction Documentation. Should a future user of the property need to cross the wetlands, they will be required to receive the proper permit from the U.S. Corps of Engineers, Mobil District, the Mississippi Department of Marine Resources and the MDEQ. Additionally, they will be required to present their plans to MDEQ, Uncontrolled Sites to gain approval and modification of Use Restriction associated with wetlands.

## **2.7 Stormwater Run-off Controls**

Stormwater run-off controls will be constructed prior to constructing the 10" clay cap (Section 2.6). Ditches will be constructed outside the cap area to intercept and redirect stormwater runoff from the remainder of the existing sites. The cap area will be graded to direct stormwater runoff from the 10" clay cap to the ditches. Silt fencing will be installed along the ditches and along the top bank of the diversion ditches to control erosion and minimize silt entering the sediment ponds.

Sediment ponds will be constructed at the terminus of each diversion ditch (Figure 6). The sediment pond will have a 24-inch corrugated metal, slotted riser pipe with an 18-inch corrugated metal outfall pipe. The riser pipe will be wrapped with geotechnical fabric to filter as much sediment as possible out of the stormwater before discharging through an 18-inch corrugated metal pipe into the adjacent wetlands. At high flows, the stormwater will flow over the west end of the sediment pond into the wetlands. The sediment ponds will be inspected and, when

significant sediment collects in the pond, the pond will be cleaned. The sediment will be placed within the cap area and vegetated.

## **2.8 Health and Safety Issues**

A Health and Safety Plan was included with the ICAP, which was approved March 19, 2008. All on-site work proposed under this FCAP will be performed in accordance with that approved Health and Safety Plan.

### **3.0 SYSTEM COMPONENTS**

None of the proposed Final Corrective Action Measures include system components.

#### 4.0 SCHEDULE

The schedule for implementing the *Final Corrective Action Plan* is shown below.

| <b>Final Corrective<br/>Action Measure</b>   | <b>Completion after<br/>MDEQ Approval of<br/>Final Corrective Action Plan<br/>(Calendar Days)</b>  |
|--|--|
| Use Restriction                              | 30 days after receipt of "Draft" Use Restriction Document from MDEQ, including surveys showing Limits of Soil and Groundwater Contamination per Figure 3. Survey showing limit of cap shall be included 60 days after cap completed. |
| 6-foot Security Fence                        | Installed during Capping Operations.   |
| On-Site NORM Contamination                   | Covered during Capping Operations. Will be included in survey of cap to be attached to Use Restriction   |
| Monitoring Well Installations and Monitoring | Monitoring Wells installed. Will be sampled semi-annually for 3 years after completion of Capping Operations.  |
| Capping of Arsenic/Lead Contaminated Soil    | 6 months after Approval  |
| Protection of Existing Wetlands              | In accordance with Use Restriction   |
| Stormwater Run-off Controls                  | Installed during Capping Operations  |
| Health and Safety Plan                       | Completed and Approved   |

## 5.0 REMEDIAL GOALS (RGs)

The remedial goals for the *Final Corrective Action Plan* are background levels of arsenic naturally occurring in the soil in the area of the site and the Tier 1 Target Remedial Goals (TRGs) established by the MDEQ for lead in soil on restricted use sites (commercial/industrial sites) and arsenic and lead in groundwater. For soils the remedial goals (RGs) are:

Arsenic in soil – 7.18 mg/kg (background), and

Lead in soil – 1,700 mg/kg (restricted use).

Additionally, testing performed under Site Characterization Studies have shown that soils having a lead concentration greater than 3,800 mg/kg are potentially hazardous (TCLP > 5.0 mg/l). Under implementation of the approved *Interim Corrective Action Plan*, soils having a concentration of 3,800 mg/kg of lead or greater have been excavated, treated (where necessary) and disposed at a permitted non-hazardous landfill, except for those soils located in the wetlands.

The RGs for groundwater are:

Arsenic in groundwater – 0.010 mg/l and

Lead in groundwater – 0.015 mg/l.

A groundwater study conducted during the Site Characterization investigation concluded that the contaminated groundwater is confined to the site and is not significantly increasing in

concentration or horizontal extent. Additionally, there are no potable water supply wells on the site or the surrounding area. It is anticipated that city water will be supplied to the site should any future development occur. Initial two rounds of sampling on the additional monitoring wells installed at the site show area of contaminated groundwater to be significantly smaller in area than estimated on Figure 3. Therefore, the *Final Corrective Action Plan* proposes semi-annual monitoring of the on-site monitoring wells for three (3) years after the 10" clay cap is installed. It is anticipated that an analysis of all of the groundwater data, at that time, will indicate that the groundwater contamination is not migrating nor significantly increasing in size.



## **6.0 OPERATION AND MONITORING PLAN**

Given the activities summarized in Section 2.0, an operation and monitoring plan (O&M) is not required since no operating systems are proposed at this time. A Performance Monitoring Plan for final corrective activities proposed is presented in Section 7.0 and in more detail under separate cover.

## 7.0 PERFORMANCE MONITORING PLAN

In order to ensure that the engineering and institutional controls proposed under the approved *Interim Corrective Action Plan* have been effective in meeting the Remedial Goals (RGs) presented in Section 5.0, the following activities contained in the Performance Monitoring Plan were implemented in 2008. The following is a brief summary of activities. A complete report of the interim corrective activities (excavation, soil stockpiling, analytical data, processes, procedures, site photographs, etc.) will be submitted separately to MDEQ.

### 7.1 Monitoring Wells

All on-site monitoring wells (14) have been sampled within fifteen (15) days of completing the installation of the seven (7) new monitoring wells presented required under the approved ICAP, following sampling procedures established under the *Work Plan for Off-Site/Source Area Soils and Groundwater Sampling*, approved by MDEQ. A groundwater sampling report will be prepared and submitted to MDEQ for this sampling round on January 31, 2008. The groundwater monitoring system (e.g. the fourteen monitoring wells) was sampled in December 2008 with the results to be submitted in late January 2009. Both groundwater sampling events show the groundwater contamination remains onsite, has not migrated and is not significantly increasing in size or concentration.

## **7.2 Excavation of Lead-Contaminated Soil above 3,800 mg/kg**

The areas of soil with a Lead concentration greater than 3,800 mg/kg had been identified during previous investigations. There were five areas identified to be excavated. These areas were located just north and west of the concrete slab in the center of the original Gulfport Fertilizer property. There was little to no site preparation required, except re-establishing the limits of excavation, as established during previous investigations. Any removed vegetation was placed in the soil stockpile area where excavated soils were stored, characterized, treated as necessary, and disposed.

The previously identified areas to be excavated were in areas of the site where no known utilities were located. Previous sampling activities during the characterization process had confirmed that no utilities were located in these areas. As a precaution, Mississippi One Call was contacted prior to implementing excavation and soil handling activities as part of the Interim Corrective Action Plan. Various utility providers confirmed that no underground utilities existed in the previously identified areas to be excavated.

The identified areas to be excavated were marked with stakes and flagging to notify unauthorized personnel not to enter the area.

Temporary storm water control measures were implemented to prevent storm water from entering the areas being excavated, the soil stockpiles and treatment areas. These measures included diversion ditches and silt fencing.

A soil stockpile storage area, measuring approximately 75' by 100' was constructed near the front gate on the southern portion of the property. The stockpile was placed in the southern portion of the property, because it is topographically "high ground" and facilitated truck transport. The area within the diversion ditches were overlaid with two (2) layers of 6-mil polyethylene sheeting. The joints in each layer of sheeting were overlapped, at least 12" and secured with spray adhesive. The diversion ditches were sloped so any rainwater within the diversion ditches would run towards the storage stockpile area. As an added precaution, the excavated soil stockpiles were covered with plastic until characterization analyses showed the soil stockpile could be disposed in an off-site permitted landfill as a non-hazardous material or required on-site treatment to render it non-hazardous prior to disposal in an off-site permitted landfill as a non-hazardous material.

Area air monitoring (background, both upwind and downwind) were performed during initial excavation activities. In addition, the construction workers most likely exposed (e.g. backhoe operator) to the soil during excavation wore personnel monitoring pumps, in accordance with the approved Health and Safety Plan. The analytical results of the area and personnel air monitoring

were well below the OSHA time-weighted average for arsenic and lead. Dust control measures during excavation were not needed since ample rain showers during site activities prevented any fugitive dust emissions. Level D personnel protection was the appropriate level for site workers based on low dust conditions and the area and personnel air monitoring data from the initial monitoring.

Characterization sampling and analyses were conducted on the stockpiled soil so decisions could be made whether the soils could be disposed as non-hazardous material or required on-site treatment to render the soils non-hazardous. Each characterization sample from the individual soil stockpiles consisted of ten (10) discrete grab samples. The discrete samples collected were placed in a properly decontaminated mixing bowl and then thoroughly mixed using EPA's "Quarter Method" to form one representative composite sample for each stockpile. The composite soil samples were placed in an appropriate container. The container label was marked with all of the necessary information regarding the sample, as prescribed in SW-846, Test Methods for Evaluating Solid Waste, Physical/Chemical Test Methods, 3rd Edition (USEPA 1986). Collection of a sample initiated the Chain-of-Custody process. The completed chain-of-custody form included information regarding the sample type, sampling location, date and time of collection, type of container, preservative, and the name of the person collecting the sample. All samples collected and labeled were then transferred to a cooler, with ice to maintain 4° C. The samples were shipped via Federal Express for next morning delivery to Environmental Science Corporation (ESC) in Mt. Juliet, Tennessee for Total Characteristic Leaching Procedure

(TCLP) analyses for arsenic and lead.

A total of ten (10) soil stockpiles (e.g. approximately 1,000 cubic yards of soil) were excavated from the five identified areas on the property. Seven (7) of the ten (10) soil stockpiles exceeded TCLP regulatory limits for either arsenic or lead. The seven (7) soil stockpiles were treated on-site following a Waste Analysis Plan (WAP) submitted to and approved by MDEQ. The soil stockpiles requiring treatment were mixed with Enviro-Blend, a proprietary additive that has been shown to make many heavy metals (e.g. lead and/or arsenic) containing soils non-leachable, so the soils can be classified as a non-hazardous waste. A treatment area and stockpile area for treated soil piles was constructed in a similar manner as the original soil stockpile area. Three (3) soil stockpiles (e.g. in the original soil stockpile area) were shown to be non-hazardous and were disposed off-site in a permitted landfill as a non-hazardous material.

Once the initial "limits of excavation" of the identified area had been excavated, clearance soil samples were collected from the bottom and sidewalls of the excavated areas. These samples were analyzed for total lead concentrations to determine if the remaining unexcavated soil was above or below 3,800 mg/kg total lead. One composite soil sample was collected from every 1,000 square feet of area in the bottom of the excavation and one composite soil sample was collected for every 100 linear feet of sidewall excavation. Each sample was composited into a sample consisting of soil collected from eight (8) to ten (10) discrete locations within the sampling area. Each soil sample was collected within 2 inches of the soil surface. The soil



collected from the eight (8) to ten (10) sampling locations within a sampling area were mixed into a composite sample utilizing EPA's "Quarters Method" of mixing. If an analyzed sample showed an excavated area to be above 3,800 mg/kg, that area was excavated and re-sampled until the remaining, unexcavated soil was less than 3,800 mg/kg. All identified areas passed the 3,800 mg/kg total lead criteria with the first excavation pass (e.g. 18"); except for one portion of one area requiring a second 18" excavation pass.

Once clearance/confirmatory sampling had shown all lead containing soils greater than 3,800 mg/kg total lead had been excavated and once all excavated, stockpiled material had been shipped to a permitted landfill for disposal, the soil stockpiles area were dismantled and disposed. The polyethylene sheeting was folded in, so as to prevent any soil or water from falling on the "clean" soil below the sheeting. The used polyethylene sheeting was placed in a lined, dump truck for delivery to a permitted, non-hazardous landfill along with excavated soil. Confirmatory soil samples were taken of the native soil under the polyethylene sheeting following the soil stockpiling procedures and frequency presented above. All analytical results of native soil sampled under the polyethylene sheeting in the soil stockpile area were very low and did not require any excavation.

All equipment used during the soil excavation and handling activities that had come in contact with potentially contaminated soil were decontaminated before leaving the site. The equipment was steamed and washed and the rinse water was used in the last soil stockpiles to be treated.

The previously identified excavated areas were backfilled with clean, off-site soil (soil with total lead concentration less than 1,700 mg/kg). Twelve-inch (12") layers of backfill were placed in the excavation areas and compacted to the density of the adjacent, unexcavated soils. The excavated area were roughly graded to prevent ponding of rainwater and to promote drainage. The off-site soil backfill was sampled and analyzed for total lead and arsenic. The analytical results showed the off-site soil backfill contained very low concentrations for total lead and arsenic.

### **7.3 Health and Safety Plan**

The approved Health and Safety Plan was followed by the construction workers implementing the approved ICAP.

## 8.0 COMPLIANCE MONITORING PLAN

The following compliance monitoring plan will be implemented to insure that the identified groundwater contamination has stabilized or will not migrate off the site.

- The on-site groundwater monitoring well system (total 14 monitoring wells) will be sampled as specified in Section 2.3.1.
- During the sampling of each monitoring wells, water level readings will be collected. The monitoring well will then be purged until field parameters (temperature, conductivity, pH and turbidity) have stabilized before sample collection.
- A groundwater sample will be collected from each monitoring well and analyzed for lead and arsenic. A minimum of four (4) “blind” duplicate samples will be collected during each sampling round.
- Within sixty (60) days following each sampling round, a groundwater report will be prepared and submitted to the Owner and MDEQ. The report will present data collected during the sampling round (groundwater elevations, field parameters and analytical data) as well as drawings showing the groundwater elevations, limits of arsenic contamination and limits of lead contamination for the sampling round and previous sampling rounds. The report will present conclusions and recommendations concerning the groundwater conditions, especially if a statistically significant change occurs.

- If a statistically significant change occurs or if the perimeter monitoring wells are breached, the Contingency Plan presented in Section 9.0 will be implemented.

The following compliance monitoring plan will be implemented for the 10" clay cap area.

- The clay cap will be inspected monthly or after each significant rainfall event (>0.5") for a period of one year. The clay cap will be inspected for washouts, cracks, erosion, etc. Repairs will be made within seven days.
- After the first year, the clay cap will be inspected annually for five (5) years. The inspection will determine the condition of the security fence, the condition of the clay cap (vegetation is established, minimal erosion occurring, ditches and erosion control measures are operating properly and sediment ponds are functioning properly). In addition the grass cover over the cap will be mowed as needed as part of routine maintenance. Photos documenting the conditions of the area will be taken and included with a letter report to the MDEQ.
- Any site condition that affects the integrity of the 10" clay cap will be reported, along with recommendations for addressing the site condition, to MDEQ. The recommendations for improving the site condition will be implemented within forty-five (45) days of MDEQ's approval of the report's recommendations.

## 9.0 CONTINGENCY PLAN

Should the Compliance Monitoring Plan presented in Section 8.0 show a statistically significant trend or shows the groundwater contamination plume to potentially be migrating off-site, the following Contingency Plan will be implemented.

- An additional sampling round will be collected to confirm the change in the statistically significant trend. If the data from the additional sampling round confirms that a statistically significant trend change has occurred, sampling of all the on-site monitoring wells (14 total) will be performed quarterly for one year (4 additional rounds) to gain more knowledge about the trend change.
- If necessary, Additional monitoring wells will be installed on the site to monitor the trend change or migration of the groundwater contamination plume.
- A report will be prepared and submitted to MDEQ with recommendations for addressing the changed groundwater condition and for keeping the groundwater contamination plume on the site (not allow the plume to migrate off-site). The recommendations would include long-term monitoring of measures taken to prevent the groundwater contamination plume from migrating off-site.

## **FIGURES**



Figure 1  
SITE LOCATION



# HANCOCK BANK OWNED PROPERTY

## TOTAL AREA— 145.721 ACRES

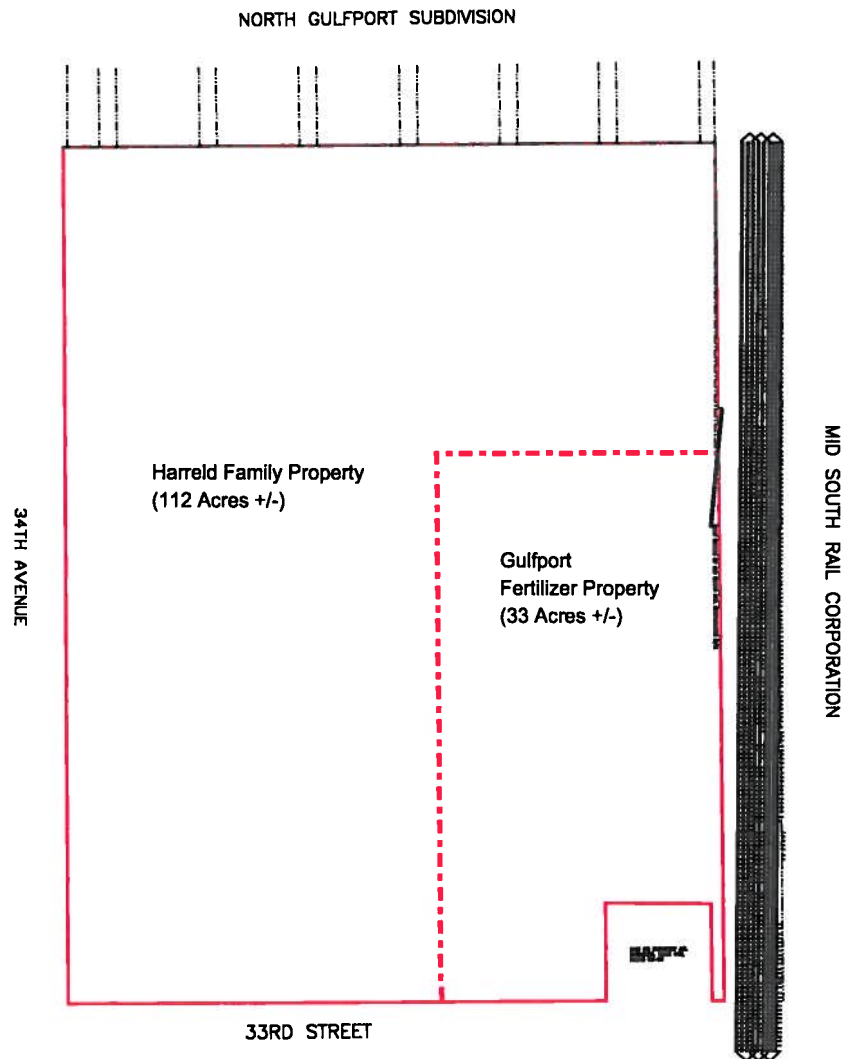
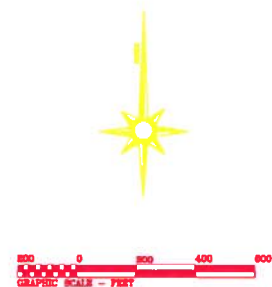
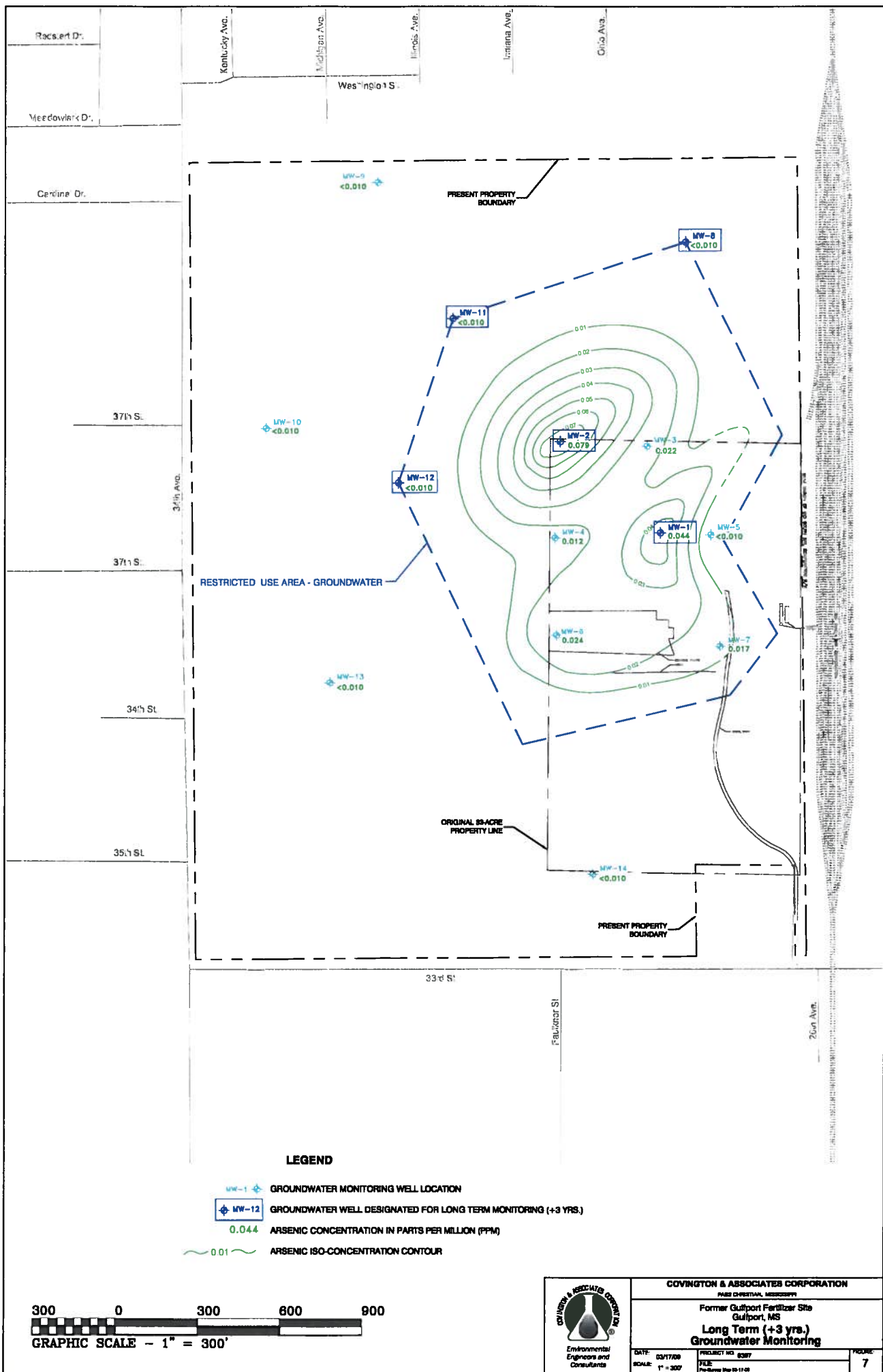


Figure 2  
PROPERTY









# HANCOCK BANK OWNED PROPERTY

## TOTAL AREA- 145.721 ACRES

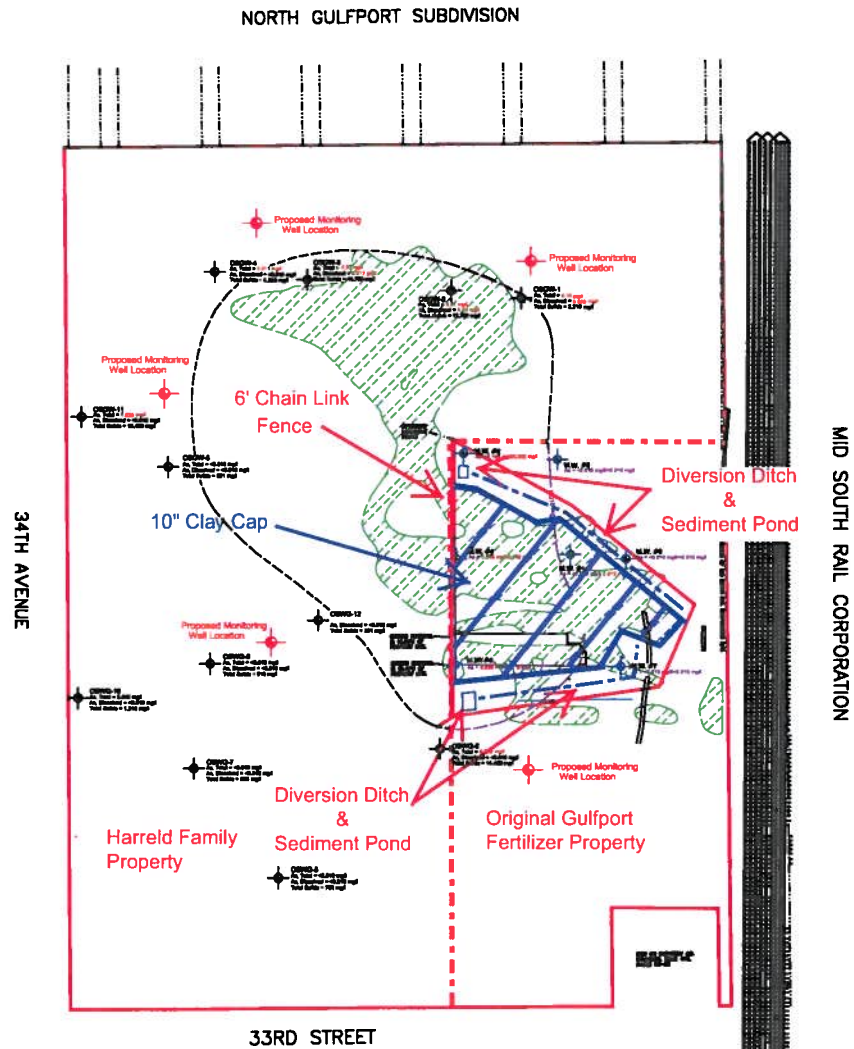


Figure 6  
Stormwater Run-Off  
Controls



**APPENDIX A**  
**SITE HEALTH AND SAFETY PLAN**

**SITE SAFETY AND HEALTH PLAN**  
**FOR**  
**INTERIM CORRECTIVE ACTION PLAN ACTIVITIES**

**FORMER GULFPORT FERTILIZER SITE**  
**GULFPORT, MS**

**BY**  
**CONVINGTON & ASSOCIATES CORPORATION**

**February 2008**

APPROVED: \_\_\_\_\_  
PROJECT S&H SUPERVISOR

APPROVED: \_\_\_\_\_  
PROJECT MANAGER


## ACRONYMS AND INITIALISMS

|              |   |
|--------------|---|
| ALARA        | as low as reasonably achievable                                       |
| ASESHP       | area-specific environmental, safety, and health plan                  |
| CERCLA       | Comprehensive Environmental Response, Compensation, and Liability Act |
| CRZ          | contamination reduction zone  |
| EPA          | U.S. Environmental Protection Agency                                  |
| ES&H Officer | Environmental, Safety, and Health Officer                             |
| FM           | Factory Mutual Engineering Corp.                                      |
| GFCI         | ground fault circuit interrupters                                     |
| HEPA         | high-efficiency particulate air                                       |
| HWP          | hazardous work permits  |
| IHS          | industrial hygiene supervisor   |
| LEL          | lower explosive limit   |
| NEC          | National Electric Code  |
| NESC         | National Electric Safety Code   |
| NIOSH        | National Institute of Occupational Safety and Health                  |
| NPL          | National Priorities List  |
| NYDEC        | New York Department of Environmental Conservation                     |
| OSHA         | Occupational Safety and Health Administration                         |
| PAPR         | powered air-purifying respirator                                      |
| PEL          | permissible exposure limit  |
| PEHP         | program environmental, safety, and health plan                        |
| PI           | project instruction   |
| PM           | project manager   |
| PP           | project procedure   |
| QA           | quality assurance   |
| QC           | quality control   |
| RCRA         | Resource Conservation and Recovery Act                                |
| S&H          | safety and health   |
| SARA         | Superfund Amendments and Reauthorization Act                          |
| SCBA         | self-contained breathing apparatus                                    |
| SSHR         | Contractor's Safety and Health Representative                         |
| STEL         | short-term exposure limit   |
| TLV®         | threshold limit value   |
| UL           | Underwriters Laboratories   |
| VOC          | volatile organic compound   |



## UNITS OF MEASURE

|      |                             |
|------|-----------------------------|
| μg   | microgram                   |
| f/cc | fibers per cubic centimeter |
| ft   | foot                        |
| gal  | gallon                      |
| in.  | inch                        |
| kg   | kilogram                    |
| m    | meter                       |
| ppm  | parts per million           |



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## **1.0 INTRODUCTION**

### **1.1 PURPOSE OF THE SAFETY AND HEALTH PLAN**

The purpose of this document is to describe the mandatory requirements for the safety and health (S&H) process with which each entity must comply to meet the intent of Covington & Associates Corporation's requirements.

This S&H plan has been developed to provide the safety and health framework for all potential field activities. This plan will be revised as necessary as conditions change.

This plan complies with OSHA's 29 CFR 1910.120 standards for Hazardous Waste Operations and Emergency Response (HAZWOPER). All other applicable OSHA standards and Covington & Associates Corporation requirements will apply as necessary.

### **1.2 PROGRAM OVERVIEW**

In support of the S&H Policy, the following principles have been developed to provide additional direction on accountability and on specific issues. These principles are:

- Everyone is accountable for conforming to the S&H Policy.
- All accidents are preventable; everyone will work diligently to prevent all incidents.
- The project will practice sound environmental, safety and health management.
- The project will comply with all applicable laws, regulations, and permits and will develop and employ more restrictive internal standards where necessary to conform to the S&H Policy.
- The project will report on activities.
- The project will audit operations and report findings.
- The project will sponsor activities to improve the environmental, safety, and health protection.

Covington & Associates Corporation's (CAC's) commitment to zero accidents shall be adopted by CAC's employees, contractors, subcontractors, and contracted service vendors utilized on project. The "Zero Accident Philosophy" includes the following criteria:

- Safety and health of the employee, contractors, subcontractors, visitor, and the public are first priority
- All accidents are preventable
- No unsafe act is tolerated or accepted

- Site management requires total compliance with safety and health regulations and requirements and enforces such requirements
- Managers, contractors, subcontractors and supervisors are proactive in safety and health
- Management of contractors and subcontractors are held responsible for safety and health and shall coach employees in the safety and health philosophy
- Safety and health are planned into all activities prior to execution
- Employees of contractors and subcontractors are trained and qualified commensurate with their responsibilities
- Resources are adequate to protect employees, contractors, subcontractors and the public
- Accidents are immediately reported, investigated, and followed by timely corrective actions

CAC, contractors and subcontractors will comply with the following standards and regulations and shall be fully and solely responsible for conducting all operations under the contract at all times in such a manner as to avoid the risk of bodily harm to persons and damage to property or the environment. CAC, contractors and subcontractors shall continually and diligently inspect all work, materials, and equipment to discover any conditions that might involve such risks and shall be solely responsible for discovery and correction of any such conditions.

- 29 CFR Part 1910
- 29 CFR Part 1926
- 40 CFR Part 50
- 40 CFR Part 264
- 40 CFR Part 270
- 46 CFR Part 197
- 49 CFR Part 172.700 series
- National Environmental Policy Act
- Resource Conservation and Recovery Requirements
- Safe Drinking Water Requirements
- Other relevant federal, state, or local laws or regulations

### **1.3 FIELD OPERATIONS**

Field activities shall be done in accordance with this plan and any applicable safety procedures.

#### **Field Activities**

The following activities will be conducted under this plan:

- Mobilization/Staging of Equipment
- Site Preparation, including work areas, decontamination areas and soil storage areas
- Excavation, Stockpiling, Transportation, and Disposal of Lead Contaminated Soil
- Backfill and Compaction

- Demobilization, including decontamination of equipment

## **1.4 ORGANIZATION AND RESPONSIBILITIES**

### **1.4.1 ENVIRONMENTAL, SAFETY, AND HEALTH ORGANIZATION AND RESPONSIBILITIES**

Safety and health personnel and their responsibilities are defined in the following subsections.

#### **PROJECT MANAGER**

John Szabo will be designated as the Project Manager (PM). The PM is responsible for all work activities and is responsible for ensuring a safe and healthy work environment. The PM will also ensure that adequate budget; manpower, equipment, and procedures are provided to implement onsite work. The PM will ensure that the S&H Supervisor or designee reviews and approves work plans, contractor and subcontractor packages, budgets, and project instructions.

#### **SITE SUPERVISOR**

Anthony Damiano, Wendell Larson or Todd Hairston will be designated as the Safety and Health (S&H) Supervisors. The S&H Supervisors will ensure that all work is carried out according to the S&H requirements. These individuals are responsible for coordination, guidance, and motivation of the onsite field staff (CAC), contractors, subcontractors and site visitors. These individuals will coordinate with the PM.

The S&H Supervisors will:

- Perform the appropriate Safety Hazard Assessment(s) for all phases of its work, including any work conducted by contractors or subcontractors.
- Enforce the necessary level of hazard control.
- Ensure that the project meets the mandatory requirements of this document.
- Ensure that contractual and regulatory S&H obligations applicable to the work are met.
- Conduct appropriate self-assessments to confirm on-going compliance with contractual S&H obligations.
- Provide a general S&H Orientation and policies, principles, and standards.
- Monitor the field activities for compliance.
- Perform self-audits during execution of the work. Copies of self-audits and implemented corrective actions shall be provided upon request.
- Provide necessary personnel monitoring, as required.
- Require specific S&H precautions prior to site entry by personnel and visitors.
- Require any personnel to obtain immediate medical attention, if warranted.
- Restrict access to the site or to a portion thereof based on hazard.

- Order the immediate evacuation of personnel from any area.
- Stop work when the safety, health, and well being of site personnel or the public is jeopardized.

## **1.5 SAFETY AND HEALTH EXPECTATIONS**

### **1.5.1 CONDUCT OF PERSONNEL**

While on the site (Former Gulfport Fertilizer property), employees, contractors, subcontractors and visitors shall not engage in any dangerous, illegal, or outrageous conduct, including but not limited to the following:

- Violating safety rules or common safety practices, or causing a safety threat to anyone else.
- Creating or contributing to any unsafe or unsanitary condition.
- Unnecessarily distracting the attention of anyone who is working or participating in a non-work related activity that interferes with job.
- Using abusive language.
- Threatening, intimidating, harassing, coercing, or interfering with others.
- Discriminating by talk or action against groups or individuals on the basis of race, color, sex, age, religion, disability, veteran's status, pregnancy, or national origin.
- Immoral conduct or indecency, sexual harassment, or possessing or displaying offensive verbal, visual, or physical material or objects of any kind.
- Fighting or instigating a fight.
- Theft, abuse, or deliberate destruction of property, tools, or equipment of anyone else.
- Gambling of any type.
- Possessing or consuming any intoxicating beverage or illegal substance on the premises.
- Reporting for work in an unfit condition, including being under the influence of intoxicants or controlled substances, or misuse of any prescription drug.
- Refusing to submit to drug and/or alcohol testing when properly directed by Site Supervisor or supervisor of contractor or subcontractor. Test results showing the presence of alcohol or illegal drugs in any amount will be grounds for dismissal.
- Possessing firearms or other weapons on premises.
- Making false or malicious statements concerning anyone else, CAC, any contractor or subcontractor, or any products of CAC, contractor or subcontractor.
- Falsifying records or making untrue statements that may result in the falsification of records.
- Misusing or removing from premises, without permission, employee lists, blueprints, records, or confidential information of any nature, in any form.

- Soliciting, collecting contributions, or distributing written or printed matter without permission Site Supervisor or Project Manager.
- Posting or removing notices, signs or writing in any form on bulletin boards or property without specific permission of Site Supervisor or Project Manager.
- Possessing or using televisions, radios, VCRs, or cameras for personal use on premises without permission.
- Horseplay or throwing materials on premises or not giving attention to job during working hours.
- Failure to obey Site Supervisor or supervisor or contractor or subcontractor or other forms of insubordination.
- Frequent tardiness or absences from work.
- Leaving job or work area during working hours without permission.
- Any action or behavior illegal under local, state, or federal law.
- Smoking in areas not designated for smoking.

#### **1.5.2 SUBSTANCE ABUSE**

Covington & Associates Corporation, contractors and subcontractors will monitor their respective employees prior to their entry to the job site and also in the course of their work. Those found to be under the influence of alcohol or drugs will be removed from the premises and will be denied future admittance. Employees may be required to submit to drug and/or alcohol testing in compliance with Covington & Associates Corporation policy and governmental regulations. Test results showing the presence of alcohol or illegal drugs in any amount will be grounds for dismissal.



## **2.0 SITE DESCRIPTION AND HISTORY**

The site is located one 33<sup>rd</sup> Street, Gulfport, Mississippi. Site investigations have revealed areas of lead and arsenic contaminated soil on the site. The approved Interim Corrective Action Plan is to excavate lead-contaminated soils above 3,800 mg/kg lead and backfill with clean soil.



### **3.0 HAZARD ANALYSIS**

The physical hazards associated with the project include eye injury, cuts, noise, falling, slipping, tripping, back injury and heat stress. Specific physical hazards are discussed in the following sections.

#### **3.1 NOISE**

Working can subject workers to noise exposures in excess of allowable limits. Non-essential personnel who do not need to be next to loud equipment will remain away from such sources to lower the risk of noise-induced hearing loss. Additionally, considerations will be taken to keep the noise level to a minimum. The S&H Supervisor will ensure noise levels remain below those specified in 29 CFR 1910.95.

Personnel who operate or must work next to noisy equipment will be required to wear hearing protection (earplugs or muffs) to reduce their exposure to excessive noise. Specifically, persons who enter areas with noise in excess of 85-dB (A) will use protection. Workers exposed to noise levels at or above 85 dB (A) will be enrolled in a hearing conservation program.

#### **3.2 FALLING, SLIPPING, AND TRIPPING**

Work zone surfaces will be maintained in a neat and orderly state. The Project Manager and S&H Supervisor and contractor or subcontractor supervisor will inspect and ensure that the work areas are neat and orderly. Pedestrian traffic will avoid areas where materials are stored on the ground. Tools and materials will not be left randomly on surfaces when not in direct use. Hoses and cables will be grouped, routed to minimize hazards or clearly marked with hazard flags if those hoses and cables will remain in place for more than one shift.

#### **3.3 MANUAL LIFTING TECHNIQUES**

Before any manual material handling tasks, personnel will be trained to lift with the force of the load suspended on their legs and not on their backs. An adequate number of personnel or an appropriate mechanical device will be used to safely lift or handle heavy equipment. When heavy objects must be lifted manually, workers will keep the load close to their bodies and will avoid any twisting or turning motions to minimize stress on the lower back. The S&H Supervisor or contractor or subcontractor supervisor may provide lifting orientation and specific back stretching and warm-up exercises to help minimize the potential for back injuries. The S&H Supervisor or contractor or subcontractor supervisor will encourage use of these exercises by all field personnel at the start of each shift.

#### **3.4 HEAT STRESS**

Heat stress is known to become a significant risk factor for personnel wearing protective clothing and equipment, especially when ambient temperatures and humidity are elevated. Personnel will

be made aware of the symptoms of heat stress so they can recognize it and seek treatment immediately.

### **3.5 EQUIPMENT GUARD**

Engineering controls, administrative procedures, and equipment-guarding techniques will be implemented to prevent injuries from excavation hazards. Additionally, PPE will be issued when engineering controls alone cannot reduce exposure hazards to acceptable levels.

The overall risks presented by construction equipment associated with treatment, cleaning, decontamination, excavation, and vehicle operation are normally greater than those presented by potential exposure to chemicals. Compliance with all safety rules and procedures will be of paramount importance.

### **3.6. ELECTRICAL HAZARDS.**

For general electrical safety, the S&H Supervisor and the contractor and subcontractor supervisors will ensure that all on-site personnel comply with OSHA requirements for electrical branch circuits. Use of electrical extension cords will not be expected throughout the work.

### **3.7 CHEMICAL HANDLING**

The S&H Supervisor will evaluate the need for special chemical handling procedures during the chemical use review process (i.e., review of material safety data sheets). Engineering controls and/or PPE will be required to protect against exposure. Chemical handling is not anticipated during this project.

### **3.8 EXCAVATION**

Any excavation over 4 foot deep will require sloping, trench box or trench shields if any personnel are required to enter the space. Open trenches or excavations will be surrounded with orange construction barricade fencing and multi strands of barricade tape. No excavation will be conducted on site unless approval from the Project Manager is obtained prior to commencement.

## **4.0 CHEMICAL HAZARDS**

This section describes the toxicological (health) hazards associated with exposure to organic and inorganic chemicals that may be encountered. Detailed information on chemicals potentially expected to be present at the site is provided in the S&H Plan or Activity Hazards Analysis. The chemicals that may be encountered on this project include, but is not limited to, the following:

- Lead in soil
- Arsenic in soil
- Diesel

Specific chemicals commonly encountered at the site area are discussed in the following sections. Without proper controls, exposures can occur principally by dust inhalation, skin contact, or ingestion.

### **4.1 FLAMMABILITY**

Fire or explosion can occur from working with flammable tanks, drums, or pipes without proper safeguards. Accordingly, monitoring will be conducted to identify locations where sparks generated by equipment could trigger fires or explosions.

### **4.2 CARCINOGENS**

Additional information on the above chemicals is found on the following Table 4.1 Chemical Hazards. Carcinogens are any chemicals or products capable of causing or inducing cancer or leukemia in humans. Carcinogens are classified, for program purposes, based on OSHA, American Conference of Governmental Industrial Hygienists (ACGIH), the Environmental Protection Agency (EPA), International Agency for Research on Cancer, Cancer Disease Center, or National Toxic Pollutant classifications into the following recognized or confirmed human carcinogens:

Class I – known human carcinogens

Class II – suspected carcinogens (causes cancer in animals)

**Table 4.1**  
**CHEMICAL HAZARDS**

| Chemical Name | OSHA PEL              | Concentration Present |             | Health Hazards/<br>Target Organs                        | Symptoms Of<br>Overexposure                                       |
|---------------|-----------------------|-----------------------|-------------|---|---|
|               |                       | Soil                  | Water       |   |   |
| Lead          | 0.5 mg/m <sup>3</sup> | <20,000 mg/kg         | <0.042 mg/l | Inhalation & Irritant<br>Eye Contact Irritant           | Headache, Nausea,<br>Dizziness<br>& Blurred Vision                |
| Arsenic       | 10 ug/m <sup>3</sup>  | <1,400 mg/kg          | <0.100 mg/l | Eye & Throat Irritant<br>Acute Exposure                 | Headache, Nausea,<br>Dizziness<br>& Blurred Vision                |
| Gasoline      | 300 ppm               | N/A                   | N/A         | Eye & Throat Irritant                                   | Headache, Nausea,<br>Dizziness<br>& Blurred Vision                |
| Diesel        | None                  | N/A                   | N/A         | Skin Irritant &<br>Central Nervous System<br>Depressant | Headache, Nausea,<br>Dizziness, Un-<br>coordination<br>& Vomiting |

## **5.0 BIOLOGICAL HAZARDS**

Dangerous wildlife that may be encountered at the site includes insects, poisonous snakes, and rodents. Before work begins, the S&H Supervisor and supervisor for contractor and subcontractor will inspect the work area for dangerous wildlife and instruct workers on the best strategy to avoid contact. Workers will be trained to identify dangerous wildlife and in the general precautions to be followed. The S&H Supervisor will screen the area for biological hazards during the initial site visit and will discuss any problems with field personnel during the pre-work review. The most common hazards anticipated are discussed below.

### **5.1 INSECTS**

Stinging insects may be found where work will be performed. CAC, the contractor and subcontractors will provide an appropriate repellent against mosquitoes and other nuisance insects for their workers. Workers will be instructed to report the presence of large numbers of bees or other stinging insects at the work site. The S&H Supervisor, contractor and/or subcontractors will determine whether removal of the insect nests is required for work to proceed.

Bees present a potential hazard, especially for those individuals sensitized to bites or stings. Before initial assignment on this project, personnel with known allergic responses to insect stings or bites will be identified, and field supervisors will be made aware of this condition. These personnel will also carry an antidote kit, if so advised by their physician. The S&H Supervisor or contractor or subcontractor will confirm that the antidote kit is accessible for their workers and will notify the emergency medical service providers in the event of any incident.

Protection against insects may be employed, such as protective clothing, repellents, extermination, and training in recognition and identification of harmful insects.

### **5.2 TICKS**

Ticks transmit many diverse etiologic agents. Diseases transmitted by ticks include Lyme disease, Rocky Mountain spotted fever, and other viral and rickettsial diseases.

Ticks are normally found in wooded and bushy areas. When walking through tall brush areas, coworkers should periodically check themselves and each other for the presence of ticks. It is essential to remove the entire tick as soon as it is found. Ticks burrow into the skin; if the head of the tick cannot be removed, medical treatment will be obtained. If severe signs of infection or fever develop, the patient should seek prompt medical care. Follow-up surveillance may continue at the discretion of the examining physician.

### **5.3 VERMIN AND POISONOUS SNAKES**

Rats, mice, squirrel, non-poisonous snakes and rabbits are carriers of disease. Where vermin are identified in the work area, the S&H Supervisor will be immediately notified. Bites will be reported immediately and medical care obtained. Disease can be transmitted through broken skin, contact with conjunctivae, ingestion of contaminated food or water, or inhalation of aerosols. Prevention is through environmental hygiene practices that deter rodents from colonizing the work environment.

Workers will be advised of the hazard if vermin are present in the work area and will be required to immediately report any bite to the S&H Supervisor.

Poisonous snakes (timber rattlesnakes, water moccasins, coral snakes, copperheads, etc.) may be present in the work area, particularly in brush and debris. Workers will approach these areas with caution and, if a snake is identified, will not approach.

Workers will be advised of the hazard of poisonous snakes and will be required to immediately report any bite to the S&H Supervisor or contractor or subcontractor supervisor. CAC, the contractor and subcontractor shall have a snake bite kit on-site at all times.

### **5.4 INFECTIOUS BLOODBORNE PATHOGENS**

First aid and other emergency response personnel will be informed of preventative measures for protection in compliance with OSHA'S "Blood borne Pathogens."

## **6.0 SITE CONTROL**

### **6.1 GENERAL REQUIREMENTS**

The S&H Supervisor and Project Manager will implement a Site Control Program in accordance with CACs requirements and OSHA's standards found in 29 CFR 1910.120.

### **6.2 SITE WORK AUTHORIZATION**

No work will proceed without authority from CAC's Project Manager.

### **6.3 HAZARDOUS WORK PERMITS**

#### **6.3.1 GENERAL**

Hazardous work permits (HWPs) are required for site tasks that present an unusual safety and health problem (e.g., entry into confined spaces, work in high airborne contamination, and work in flammable atmospheres). A careful review of the potential hazard is to be completed by the Safety and Health Officer.

Normally, the HWP will address:

- Medical surveillance
- Personnel exposure monitoring program
- Respiratory protection
- Personnel protective equipment and clothing
- Compliance with rules regarding prohibited activities
- Hygiene facilities and practices
- Employee information and training
- Documentation.

#### **6.3.2 APPLICABILITY**

An approved and active HWP will be required prior to any work activity that could result in serious injury, illness, or death. HWPs shall be required whenever the following conditions may be present:

- Chemical exposures
- Oxygen deficiency
- Electrical hazards
- Fire and explosion
- Physical hazards
- Extreme temperatures
- Excessive noise

- Biological hazards
- Waste treatment
- Other work determined to require an HWP by the Safety and Health Officer

The S&H Officer will determine when the HWP will be implemented based on the degree of hazard. Generally, the only exceptions to requiring an HWP for the above conditions are:

- Surveys and sample collection in support of establishing and monitoring restricted work areas
- Emergency responses when serious impacts could result if time were taken for HWP preparation and approval.

### **6.3.3 SPECIFICATION OF CONTROL CONDITIONS**

The S&H Officer will include the following information on the HWP form:

- The next sequential HWP number
- Hazardous conditions and maximum doses expected at the work location
- Recent chemical and/or biological surveys and their results
- Additional chemical and/or biological surveys, if needed
- Protective apparel and equipment required because of chemical, biological, or physical hazards (e.g., confined space with lack of oxygen)
- Special instructions required, such as watchmen for confined space entry
- Expiration date
- Names and signatures of workers involved in work activity covered by an HWP.

## **6.4 CONTROLLED AREA DESIGNATION AND ACCESS**

Typically, site activities use a barrier (e.g., fence or tape) to delineate the construction/contaminated area from other parts of the site. The entire site is remote and is not frequented by the public. These zones also include a small decontamination corridor. A separate vehicle entrance may be established if necessary. A decontamination station for personnel will be established at the entrance of each contamination reduction zone. Additional stations may be established at each access-control point.

### **6.4.1 ACCESS CONTROLS/CONTAMINATION**

Access to controlled areas where exposure to hazardous materials above guidelines is possible will be accomplished through a program that controls the activities and movements of people and equipment at the project site. Included in this program are controls for chemical, biological, and



construction safety hazards. If contaminants are encountered, the following procedures may be used:

- Maintain an authorized personnel list
- Maintain an access-control register at the controlled area boundary to record the number and identity of individuals in the area
- Require personnel to sign the access-control log before they enter and leave the controlled areas
- Require personnel and equipment to enter the site through the access-control point.
- Require personnel decontamination stations to be provided and maintained where contact with removable contamination is possible.

High concentrations of airborne contaminants (lead and arsenic in dust) are anticipated at this site. Due to the remoteness of the site and the protective vegetation (heavy woods between the site and off-site areas), it is anticipated that the public will not be effected by this dust. Workers will, however, be warned to protect food and water from dust in the immediate vicinity of the work area. Additionally, workers will be required to wear protective clothing (tyvek suits and respirators), until area and personnel air monitoring has shown that the concentrations of airborne contaminants (lead and arsenic) are below OSHA Permissible Exposure Limits (PELs).

#### **6.4.2 ACCESS CONTROL/CONSTRUCTION HAZARDS**

An exclusion zone will be established around each work area before intrusive work begins. The exclusion zone will be posted and physically barricaded, if the S&H Supervisor so requires, based on site conditions. The site access control points are typically posted as follow:

**DANGER**  
**Controlled Area**  
**Authorized Personnel Only**



## **7.0 SITE COMMUNICATION**

The buddy system will be used during work in exclusion zones and remote locations. The primary means of communication for workers out of visual range will be two-way radios.

## **8.0 DECONTAMINATION**

### **8.1 PERSONNEL DECONTAMINATION**

A two-station decontamination system will typically be established for personnel exiting exclusion zones. Personnel will always wash hands and exposed skin areas upon removing protective clothing or leaving controlled work areas.

### **8.2 EQUIPMENT DECONTAMINATION**

Small equipment will be decontaminated at the site using the three-wash system. Large equipment will be wrapped before transport to the decontamination area.

### **8.3 APPAREL DECONTAMINATION**

Specific procedures for apparel decontamination may be established in the Constructor/Subcontractor S&H Plan. The following standard practices will be followed:

- The S&H Supervisor will establish a minimum of one safety apparel decontamination station at the site.
- Soap/detergent, rinse water, towels, wash pans, and brushes for scrubbing boots will be available.
- Wastes generated from decontamination will be properly disposed in accordance with EPT procedures.
- Outer protective clothing will be removed and placed in plastic bags for disposal or retained for future use, depending on the contamination potential.

### **8.4 PERSONNEL DECONTAMINATION AND PERSONAL HYGIENE**

Site personnel may be subject to potential skin or eye irritation. An eye wash station and an appropriate method for decontaminating the skin will be available in areas where eye and skin contamination may result from contact with corrosive or toxic chemicals. Portable eye wash bottles will be available at each location where corrosive chemicals may be present.

Water from portable showers, hoses, or other sources for washing/rinsing will be available at locations near where skin contamination may occur. Toilet and hand washing facilities will also be available onsite but away from the contaminated areas for sanitary and hygienic purposes. Whenever the work area has been determined to be chemically or biologically contaminated, each employee will be required to wash prior to eating, drinking, smoking, or chewing. These activities will only be permitted in designated areas outside the work area.

A temporary decontamination station will be set up at the edge of the restricted zone. A contamination reduction corridor will lead from the station to the exclusion zone. Entrance to

the exclusion zone will be controlled so that all foot traffic enters and exits through the decontamination station. The station will be stocked with needed personnel protective equipment.

Personnel leaving the exclusion zone will remove gross contamination before exiting by scraping mud off boots, etc. At the head of the contamination reduction corridor, personnel will wash boots and gloves. Three tubs will be provided: one with soapy water and two with rinse water. Contaminated water will be transferred to the on-site storage/treatment area.

Entering the decontamination station, personnel will remove outer boots, outer gloves, and protective coveralls. Soiled coveralls will be deposited in a trash container lined with a plastic garbage bag. The trash container will be emptied daily or as required. If respirators are worn, they will be removed. Finally, inner gloves will be removed and discarded in the trash container.

## **9.0 VISITOR REQUIREMENTS**

Visitors will follow the directions of the S&H Supervisor regarding decontamination of personnel and equipment brought inside controlled areas. Equipment will be wrapped and taped to the maximum practicable extent, as directed by the S&H Supervisor, to minimize the need for decontamination.

## **10.0 FIRST AID AND MEDICAL SURVEILLANCE**

### **10.1 GENERAL**

Emergency planning and notification is discussed in Appendix A. A 5-gal supply of emergency deluge water will be available and reserved for emergency use. Each contractor shall maintain at each work location standby first-aid kits and at least two eyewash bottles (1-qt capacity each) available for immediate use. The S&H Supervisor will verify weekly that the first-aid supplies are available.

### **10.2 FIRST AID**

Qualified personnel may use the first-aid kits to administer first aid to any workers who are injured. When responding to serious personnel injuries, the emergency coordinator or the S&H Supervisor will achieve contact by land line or cell phone for activation of emergency response by local fire, medical, or police services.

Severely injured personnel will be transported to the hospital by ambulance service. Life-saving care will be provided immediately, without consideration of decontamination requirements. In the presence of strong acid or caustics, caregivers will don appropriate protection.

A full medical examination shall be required should exposure symptoms be exhibited. .

### **10.3 EXPOSURE CONTROL FOR BLOODBORNE PATHOGENS**

All site personnel shall follow OSHA's "Blood borne Pathogens" standards. All personnel should be aware of the potential for transmission of disease from contact with body fluids. Assume all body fluids are potentially infectious and use appropriate precautions. Controls to be considered are:

- Use the victim's hand to control initial bleeding
- Use available protective gear (gloves, etc.) to prevent contact with body fluids
- Promptly wash after contact with body fluids
- Use rescue breather for CPR.

### **10.4 MEDICAL SURVEILLANCE**

Contractor and subcontractor personnel shall follow the BSII Core Process "Medical Surveillance" and requirements found in OSHA standards 29 CFR 1910.120. A qualified physician will examine personnel. The physician will perform medical examinations specified in this section and review the medical examination results to determine whether each worker is medically qualified to perform the proposed hazardous work. If the contractor and subcontractor personnel have up-to-date medical surveillance in accordance with OSHA Standard 29 CFR 1910.120, provided documentation of up-to-date medical surveillance is provided S&H

Supervisor prior to personnel entering restricted areas. The S&H Supervisor or S&H Representative will determine the need for subsequent medical examinations.

The purposes of the medical surveillance program are: (1) to assess the individual's health prior to handling hazardous materials, (2) to determine the individual's suitability for work assignments requiring the use of personal protection clothing and equipment, and (3) to monitor for evidence of changes in the individual's medical indicators that could be related to the work. This assessment will address expected conditions that would predispose the employee to illness upon exposure to hazardous substances or from the physical demands of using PPE, such as respirators and protective clothing. A physician's statement, certifying that the employee is physiologically fit to work in a restricted area and wear a negative-pressure respirator, will be received before the employee starts work.

#### **10.4.1 BASELINE AND ANNUAL HEALTH ASSESSMENT**

The baseline and annual health assessment will include the following:

- A complete medical and occupational history
- Physical examination
- Urinalysis
- Chemistry panel (SMAC)
- Pulmonary function testing (FEV and FVC)
- Audiometry and visual screening
- Chest x-ray (PA) and/or electrocardiogram when determined to be necessary by the physician
- Serum PCB

#### **10.4.2 TERMINATION EXAMINATION**

Upon termination of employment, personnel who have worked continuously at the project site for more than 6 months will be required to undergo an examination equivalent to the baseline health assessment. All personnel who terminate employment within a 6-month period will undergo an examination based upon their exposure at the site. Specific examination tests will be determined by the physician and the Project Manager.

#### **10.4.3 SUPPLEMENTAL EXAMINATION**

Any worker receiving a potentially harmful level of exposure to hazardous chemical/biological material will undergo a supplemental examination if deemed appropriate by the examining or consulting physician.

#### **10.4.4 PHYSICIAN'S EVALUATION**

The occupational medical physician will determine any medical limitations of site workers. The provider will submit a physician's statement to the S&H Supervisor for all site employees and to the contractor for its employees.



## **11.0 HAZARD MONITORING PROGRAM**

### **11.1 GENERAL**

Hazard monitoring will be performed at the site, as described in the following sections. The S&H Supervisor will assure that hazards are monitored and assure the implementation of all necessary controls to minimize the hazards.

### **11.2 MONITORING STRATEGY**

Personnel and area monitoring strategies have been devised to ensure the identification of areas and work activities for which engineering controls and/or respiratory protection are required. Monitoring will be conducted to confirm that the levels of protection provided by the respiratory protection program and by engineering controls are adequate to protect the worker, the environment, and the public.

Respiratory protection will be mandatory for tasks involving potential for significant airborne exposure(s) unless monitoring results indicate that protection is not required. Breathing zone samples will be analyzed by a method approved by the National Institute of Occupational Safety and Health (NIOSH).

### **11.3 MONITORING EQUIPMENT**

The S&H Supervisor will ensure that an adequate supply of monitoring equipment is available before work begins. The S&H Supervisor will ensure that the instruments are used only by persons with training and experience in the care, calibration, operation, and limitation of the equipment. Work involving potential exposure to hazardous materials will not be performed unless properly maintained and calibrated monitoring equipment is being used to monitor the work area and the personnel in the work area.

To help evaluate potential health hazards at the site, the S&H Supervisor may use the following monitoring equipment:

- High Volume Air Sampling Pump: The instrument will have a Rotometer to measure air flow.
- Personnel Air Sampling Pump: The instrument will be calibrated to manufacturer's recommendations for air flow recommended by NIOSH.

A copy of instrument calibration records will be maintained on site for all instrument calibrations. Calibration data will be recorded on field data collection forms. Air sampling pumps flow rates will be recorded to ensure accuracy in determining sampled air volumes.

## **11.4 RESPONSES TO ABNORMAL CONDITIONS OBSERVED BY MONITORING**

The S&H Supervisor has the authority to investigate and implement protective measures necessary to protect the health and wellbeing of site personnel and the community.

### **11.4.1 DUST CONTROL/FUGITIVE EMISSIONS**

S&H Supervisor may require contractor/subcontractors to modify excavation and soil handling procedures to reduce/minimize dust and fugitive emissions. This may include wetting soil or modifying procedures.

## 12.0 PERSONAL PROTECTIVE EQUIPMENT (PPE) PROGRAM

### 12.1 GENERAL

PPE consists of three components: standard safety equipment required on the site, special PPE (e.g., fall protection, water safety), and respiratory protective equipment.

Standard safety equipment is described in 29 CFR 1910.120 Appendix A. In addition, all project and contractor personnel entering the site will comply with all task-specific safety requirements. The protective apparel and equipment requirements for personnel working in restricted areas will be determined by the S&H Officer and will be based on four levels of protection (Levels A through D). Equipment used will be listed in the "NIOSH Certified Equipment List." The level of protection will be based on the type of hazardous material, its concentration and toxicity, and the potential for exposure through inhalation, ingestion, skin absorption, direct contact, splash, or impact. The levels of protection are described below.

### 12.2 LEVELS OF PROTECTION

The Contractor and Subcontractor S&H Plans will establish the proposed initial PPE ensemble for tasks with exposure potential. The various types of PPE and definitions of the standard ensembles available are discussed in BSII Core Process. The levels of protection are:

- **Level A:** maximum available protection for the respiratory tract, skin, and eyes. Positive pressure, pressure-demand SCBA and a totally encapsulating, chemically resistant suit is required. Normally, the SCBA unit is worn inside the suit to decrease the chance of contamination and possible damage to the unit. An intrinsically safe, two-way radio must be worn inside the suit. Covington & Associates Corporation does not anticipate that this level of protection will be required for this site.
- **Level B:** maximum respiratory protection but a lesser degree of skin protection. This is the minimum level recommended when the contaminant(s) are unknown or when toxic airborne concentrations of known contaminants exceed the protection factor of the full face piece, air purifying respirator, or when there is an oxygen-deficient atmosphere. Positive pressure, pressure-demand SCBA or supplied air respirator with escape capability will be worn. Breathing air will at least meet the requirements for Grade D breathing air. Protective clothing will include polyethylene or Saranex®, hooded, disposable coveralls; chemical resistance boots; and nitrile or vinyl gloves. Covington & Associates Corporation does not anticipate that this level of protection will be required at this site.
- **Level C:** for use when toxic substances and/or concentrations are known and criteria for using air-purifying respirators can be met. This level of protection includes half-face piece, air-purifying respirators and appropriate disposable coveralls. Chemical-resistant gloves and boots, along with hard hats, will be required. Covington & Associates Corporation anticipates that this level of protection will be initially required at this site, until air monitoring results show that a lesser degree of PPE (Level D) can be substituted.

- **Level D:** the minimum level recommended when a respirator is not required but skin protection must be controlled. Typically this level will include chemical-resistant boots, disposable Tyvek®, and gloves, along with hard hat and safety glasses. Covington & Associates Corporation anticipates that this level of protection will be required once air monitoring results show that Level C PPE is not required.
- **Construction attire:** is the minimal protection level when respiratory or skin protection is not required. Normally, all that is needed is a basic work uniform (i.e., work clothes, work boots, safety glasses, and hard hat). Optional equipment may include work gloves, rubber boots, and a rain suit. Covington & Associates Corporation anticipates that this level of protection may be allowed in areas other than restricted work areas.

PPE can reduce the possibility of contact with hazardous materials, but it should be used in conjunction with proper site entry protocols and other safety considerations. No single combination of protective apparel and equipment is capable of protecting against all hazards. The use of protective apparel and equipment is not capable of protecting against all hazards. The use of protective apparel and equipment can create significant work hazards (e.g., heat stress, physical and psychological stress, and impaired vision, mobility, and communications). For any given situation, apparel and equipment should be selected to provide a level of protection commensurate with the degree of hazard. Overprotection, as well as under-protection, can be hazardous and should be avoided.

Protective apparel and equipment should be selected using the following criteria:

- Permeability, degradability, and penetrability by specific agents expected on the site
- Heat/cold (thermal effects)
- Durability
- Flexibility
- Ease of decontamination
- Compatibility with other equipment
- Duration of use
- Special conditions (fire, explosion, electrical, solar radiation, and confined space)

**NOTE:** The S&H Officer may authorize downgrade or upgrade from the initial proposed level of protection based on actual site conditions.

### 12.3 PROTECTIVE CLOTHING/EQUIPMENT

Typically, Level C protection will initially be worn in the restricted work areas. Level C protection will generally include the following protective clothing and equipment unless otherwise approved by the S&H Officer:

- Sturdy leather work shoes
- Hard hat

- Eye protection (e.g., safety glasses, goggles, and/or face shield)
- Disposable Regular Tyvek<sup>®</sup> suit
- Nitrile or vinyl glove inside a more durable glove
- Half-face, negative pressure respirator, until ambient air monitoring indicates a respirator is not needed
- Noise protection as required by monitoring.

Specific clothing will be identified based on the permeability of the contaminants and the potential degradation of the clothing.

**Note:** Levels D, C and B protection will require all connecting parts (e.g., wrist, ankles) to be taped unless determined unnecessary by the S&H Supervisor.

## **12.4 HAND PROTECTION**

To protect hands and arms from chemical contamination, chemically resistant gloves will be used as integral, attached, or separate items from other protective clothing. Disposable gloves should be used whenever possible, to reduce decontamination needs.

- Cotton inner liner gloves are used to absorb perspiration and are optional.
- Neoprene or rubber gloves are to be used whenever (1) aqueous conditions exist, (2) non-permeable chemicals such as inorganic acids, caustics, and heavy metals are encountered, and (3) heavy-duty wear is required.

## **12.5 BODY CLOTHING**

Various types of protective clothing are designed to prevent contamination of the body. At the Gulfport Fertilizer site, disposable Tyvek construction attire will be used for most work; however, the following clothing typically will be available onsite:

- Rain suits for protection against the elements.

### **12.5.1 REGULAR TYVEK<sup>®</sup>**

Tyvek<sup>®</sup> will be used on the Gulfport Fertilizer site.

### **12.5.2 POLYETHYLENE TYVEK<sup>®</sup>**

Polyethylene-coated Tyvek<sup>®</sup> will be used where hydrocarbons are present in soil, liquid, or air. It may be used for acids of a pH greater than or equal to 2 or bases of pH less than or equal to 9 ( $5 \geq \text{pH} \geq 9$ ). These conditions are not anticipated to be encountered during this project.

### **12.5.3 SARANEX® TYVEK®**

Saranex® Tyvek® will be used when highly toxic chemicals, such as benzene, vinyl chloride, and acrylonitrile, are encountered. These conditions are not anticipated to be encountered during this project.

### **12.5.4 RAIN SUITS**

Rain suits may be used outside of chemically contaminated areas.

## **12.6 FOOT PROTECTION**

Sturdy work shoes or boots will be worn to protect feet from contact with chemicals, compression, crushing, or puncture. Shoe covers, made of a variety of materials, protect boots from contamination and protect feet from chemicals. Shoe covers may be disposable. Foot covers must include one or more of the following:

- Sturdy work boots worn with protective rubber overshoes
- Sturdy chemically protective boots
- Disposable polyvinyl chloride bootie over sturdy work shoes.

Over boots shall be worn where hydrocarbon contaminated water may come into contact with shoes. These conditions are not anticipated to be encountered during this project.

## **12.7 EYE AND FACE PROTECTION**

Employees will wear approved eye protection (e.g., glasses, goggles, face shield) whenever there is potential for exposure to the following:

- Flying objects
- Dust
- Chemicals
- Harmful rays (e.g., welding, ultra-violet radiation).

Face shield and chemical splash-proof goggles will be worn when face and eyes are vulnerable to acidic or caustic material, or as directed by the S&H Supervisor. This protection is mandatory when working with acids and caustics ( $5 \leq \text{pH} \leq 9$ ). Contact lenses will not be worn in restricted areas.

## **12.8 HEAD PROTECTION**

Safety helmets (hard hats) protect the head from impact. Helmet liners, hoods, and protective hair coverings protect the head from chemical splashes and entanglement of hair in machinery or

equipment. Industrial safety hard hats will be worn by all workers at all times while onsite, except in designated areas.



## **13.0 RESPIRATORY PROTECTION**

### **13.1 GENERAL**

Use of respiratory protection, if necessary, will be in accordance with 29 CFR 1910.134. Respirators will be selected from program-approved devices based on an assessment of the nature and extent of hazardous atmospheres that are anticipated during field activity. The initial respirator assignment for each operation is provided in the S&H Plans and Activity Hazards Analysis and on the HWP. Respiratory protection is anticipated to be required during the initial stages of the project, until and unless air monitoring sampling shows that respiratory protection is not required.

### **13.2 MEDICAL SURVEILLANCE**

Workers who are required to use respiratory protection will be fully qualified in accordance with 29 CFR 1910.134 before beginning work.

### **13.3 FIT TESTING**

All respiratory protection program participants will receive an annual fit test in accordance with 29 CFR 1910.134.

### **13.4 RESPIRATOR CLEANING, MAINTENANCE, SANITATION, AND STORAGE**

Routine cleaning during fieldwork will be accomplished at the respirator cleaning station located adjacent to the access-control point or other designated areas. All necessary supplies will be provided for workers to clean and sanitize their respirators. (Note: Decontamination does not constitute respirator cleaning but is always performed before cleaning). Supplies provided by the Contractor and Subcontractors for its employees will include:

- Moist treated wipes
- Cleaning/sanitizing solution
- Cleaning solution basins
- Soft-bristle scrub brushes
- Rinse basins
- Drying area
- Clean storage bags (zip-lock type).

Respirators that are used either occasionally or daily will be cleaned, sanitized, inspected, assembled, and maintained ready for use daily. Each respirator will be stored in a clean and sanitary container. Parts that require inspection include the valves, valve covers, nosepiece, straps, eyepiece, face-piece and its snaps, cylinders, and canisters. The individual responsible for the cleaning, inspection, maintenance, sanitation, and storage of respirators will be trained in the proper methods and procedures.



Each respirator user will store his/her respirator in a clean, sealed plastic bag when it is not in use, unless it has been determined that the respirator is contaminated or is returned at the end of its use. If a respirator becomes chemically contaminated, it will be replaced with a clean and sanitized respirator. The respirator wearer will inspect the replacement respirator for defective parts and leaks.

### **13.5 SPECIAL TRAINING**

Special training is required for the use of Type C (airline supplied) respirator and SCBA. Personnel will demonstrate training as evidenced by a copy of the training certificate or a letter or certificate from their employer stating that they are trained in the use of this equipment.

Each respirator user will be issued a respirator for exclusive personal use and will be trained in its use, care, and maintenance in accordance with 29 CFR 1910.134. Each respirator user will be instructed to inspect his/her respirator before each use, after each use, and after cleaning.

### **13.6 RESPIRATOR SELECTION**

The S&H Supervisor will select respiratory protection based on whether:

- The estimated contaminant concentration is in the range requiring respiratory protection as determined by monitoring information.
- The PEL, threshold limit value, short-term exposure limit, or ceiling value may be exceeded.
- The contaminant is a gas, vapor, mist, dust, or fume.
- The contaminant concentration could be termed immediately dangerous to life or health.
- The warning properties (e.g., irritation, odor) of the chemical contaminants are not detectable.

NIOSH approves respirators using test certification numbers; only NIOSH-approved equipment, components, and replacement parts will be accepted. In addition, respirators are approved as a system. Cartridges, canisters, filters, air lines, corrective lens holders, adapters, and regulators cannot be interchanged among different brands of equipment or even among equipment of a given manufacturer unless specifically approved. No disposable respirators will be used.

The various types of respirators and their specific uses are described in the following sections.

### **13.7 HALF-FACE, NEGATIVE-PRESSURE RESPIRATOR**

A HALF-face, negative-pressure respirator will be used under the following conditions.

- Ambient air concentrations of known contaminants in the breathing zone exceed the PEL but are less than 10 times the PEL (a new PEL will be calculated for multiple contaminants based on synergistic effects).

- Specific tasks where this respirator has been approved by the S&H Supervisor.

### 13.8 GENERAL CONSIDERATIONS AND LIMITATIONS FOR RESPIRATOR USE

The following criteria will be followed.

- **Oxygen deficient atmospheres:** Atmosphere-supplying respirators will be used in environments immediately dangerous to life or health (atmospheres containing less than 19.5% oxygen at sea level). These conditions are not anticipated to be encountered during this project.
- **Eye irritation:** When working in contaminated environments or where there is potential for eye irritation, a full-face unit will be used.
- **Nuisance dust:** Any approved filter respirator can be used for nuisance dusts.
- **Warning properties of contaminant:** Chemical cartridge respirators will not be used for exposures to air contaminants that cannot be easily detected by odor or irritations. For example, cartridge respirators will not be used to protect against methyl chloride or hydrogen sulfide. The former is odorless, and the latter, while foul smelling at low concentrations, will paralyze the olfactory nerve system at high concentrations, thereby rendering odor detection unreliable.
- Chemical cartridge respirators will not be used for protection against gases or vapors that are not effectively stopped (i.e., carbon monoxide). Do not use chemical cartridge respirators in the presence of the following materials:
  - Arsine Phosphorus
  - Carbon monoxide
  - Hydrogen cyanide
  - Hydrogen fluoride
  - Hydrogen sulfide
  - Methanol
- Airline or supplied-air, positive-pressure, pressure-demand respirators or special-use respirators will be used for protection against materials in the above list.
- Chemical cartridges will be used only for those contaminants and concentrations for which they are certified.

## **14.0 TRAINING REQUIREMENTS**

### **14.1 GENERAL**

Personnel working at a site must recognize and understand the potential risks to safety and health associated with the work at that site. Workers involved in remedial action must be thoroughly familiar with programs and procedures and must be trained to work safely in controlled areas

### **14.2 GENERAL SITE WORKERS**

All site workers that may be exposed to hazardous conditions will be trained to work in compliance with 29 CFR 1910.120. Each site worker conducting activities inside a chemically restricted area will receive 40 hours of hazardous waste site training and 3 days of supervised on-the-job training. Site workers who do not enter restricted work areas and who have minimal exposure potential will receive a minimum of 24 hours of hazardous waste site training. Employees will not engage in field activities associated with hazardous materials until they have been trained to a level commensurate with their job function and responsibilities and with the degree of anticipated hazard, including site-specific hazards.

General laborers, technicians, and other personnel will attend training sessions that apply to their individual jobs and responsibilities, as well as training sessions that provide an overview of the site hazards and the means to control those hazards. Their training will include classroom instruction in the following subject areas, depending upon their individual jobs:

- Hazardous chemical notification
- Details of the safety and health plan
- Employee rights and responsibilities
- Safe work practices
- Nature of anticipated hazards
- Handling emergencies and accidents
- Rules and regulations for vehicle use
- Safe use of field equipment
- Handling, storage, and transportation of hazardous materials
- Use, care, and limitations of personal protective clothing and equipment
- Safe sampling techniques.

Retraining will be required annually, or more frequently if significant changes occur in conditions affecting the safety and health of the workers. As a minimum, retraining will consist of 8 hours of discussion about the same topics discussed in the 40-hour or 24-hour training course.

### **14.3 ORIENTATION**

Orientation attendees shall include all Contractor and Subcontractor employees. No work may be performed prior to attending an orientation by the S&H Supervisor.

The S&H Supervisor shall present the orientation. The orientation shall be specific for the project location and may be in the form of overheads, videos, or other prepared material. Information on S&H aspects of the job or task, Site Conditions, emergency procedures, permit requirements, traffic patterns, adjacent operating production equipment, and waste disposal shall all be included in the orientation.

### **14.4 SAFETY MEETINGS**

Safety meetings will be conducted to reemphasize the salient points of the S&H program and existing site conditions and to inform team members of changing site conditions. These meetings will be conducted weekly by each on-site employer, or more frequently if needed, to ensure proper safety and health of personnel in the performance of regular work activities and in emergency situations. Contractors, if they choose, may attend meetings conducted by Covington & Associates Corporation. Safety meetings will be documented on the appropriate training form.

### **14.5 VISITORS**

All visitors to the site, even if escorted, must receive a briefing on safety. These visitors will not be permitted in the restricted work areas unless they have been respirator-trained, fit-tested, and medically approved. Visitors not complying with the above requirements will not enter the restricted work areas; however, they may observe site conditions from a safe distance.

## **15.0 HAZARD COMMUNICATION**

The S&H Supervisor will provide all personnel with site specific training and documentation advising them of the potential hazardous materials in the workplace. A list of such materials will be posted at the work site and copies of appropriate material safety data sheets will be available to site workers upon request. The project will comply with 29 CFR1910.1200.

## **16.0 FORBIDDEN PRACTICES**

The forbidden practices listed below are applicable to all restricted areas. In addition, no worker may engage in any activity for which the consequences of his actions are unclear without the approval of the S&H Supervisor. If such activities become necessary to complete any phase of the work, the necessary safety and health requirements and an approved HWP will be prepared by the S&H Supervisor.

The following practices will be strictly forbidden during any work in restricted access areas.

- Horseplay
- Fighting
- Eating
- Drinking
- Smoking
- Chewing gum, tobacco, or any other substances
- Use of facial cosmetics
- Wearing contact lenses
- Unnecessary sitting or kneeling on contaminated surfaces
- Placing equipment on contaminated surfaces (when practicable)
- Climbing on or over obstacles
- Starting or maintaining an open flame of any type unless authorized by the H&S Supervisor
- Entering the work site with safety equipment that has not been determined to be in proper working condition immediately prior to entry
- Entry of the work site, under any circumstances, by any employee or visitor without prior approval.

In addition to the forbidden practices, the S&H Supervisor may impose other prohibitions that may be required for safe operations.

## **17.0 AS LOW AS REASONABLY ACHIEVABLE POLICY**

Covington & Associates Corporation's policy is to maintain exposures to hazardous chemical at levels that are as low as reasonably achievable (ALARA). ALARA is achieved through proper training of employees, adequate work procedures, adequate engineering controls, good personal hygiene practices, and, when required, use of protective equipment. Each individual working in a restricted area is required to adhere to established ALARA rules, regulations, and concepts.

## 18.0 THE BUDDY SYSTEM

The buddy system is a safety practice in which each individual is concerned with the health and well-being of co-workers. The buddy system will be implemented during all onsite activities and will be incorporated whenever workers may be isolated or as determined by the S&H Supervisor. Two-way radio communication should be established when deemed necessary by the S&H Supervisor. The following standard hand signals will be used in case of failure of other communication.

### Hand Signal

Hand gripping throat  
Grip partner's wrist or both hands around waist  
Hands on top of head  
Thumbs up  
Thumbs down

### Meaning

Out of air, can't breathe  
Leave area immediately  
Need assistance  
OK, I am all right, I understand  
No, Negative



## **19.0 GENERAL SITE SAFETY REQUIREMENTS**

Frequent and regular S&H inspections will be conducted at each work site. The S&H Supervisor and contractor and subcontractor supervisors will conduct a daily inspection of the workplace, document on standard forms, and track deficiencies until corrected. The contractor and subcontractor supervisors should also participate in a weekly inspection. In addition to the daily inspections performed by the field team, the program S&H managers or designees will perform audits to ensure compliance with program requirements. Audits will be similarly documented and deficiencies tracked until documented closure.

Hazards, due to normal site activities, can be reduced by using common sense and following the safe practices listed below.

- All equipment and tools will be used only by authorized personnel familiar with its use.
- Safety devices on equipment will be left intact and used as designed.
- Equipment and tools will be kept clean and in good repair and used only for their intended purpose.
- Good housekeeping practices will be followed.
- Use of chemicals will be limited to authorized personnel familiar with their use and associated hazards.

### **19.1 LADDERS**

Ladders and scaffolds, if needed to conduct the work required for this project, will be used in accordance with the following.

- Manufactured ladders will be constructed of heavy-duty grade; Type II minimum, conforming to applicable ANSI standards.
- Ladders will not be spliced together to make a longer ladder.
- Straight ladders for access will extend at least 3 ft above the landing.
- The base of straight ladders will be set back a safe distance from the vertical; approximately one-fourth the working height of the ladder.
- Stepladders will be fully opened to permit the spreader to lock. Stepladders will not be closed and leaned against an object for access.
- Metal ladders or other conductive ladders will not be used for electrical work or in areas where they could contact energized wiring.
- "Job-made" ladders will be constructed in accordance with OSHA 1926.450(b) (DOL 1989f).

## **19.2 HOUSEKEEPING**

Housekeeping procedures contained herein pertain to uncontaminated trash, debris, and rubbish. Drilling waste or chemically contaminated materials must be handled in accordance with applicable regulatory requirements.

The following housekeeping rules will apply at the jobsite, as applicable.

- Have a daily clean-up plan.
- Work areas must be kept clean and free from trash and debris. Trash containers must be located throughout the jobsite.
- Excess scrap material and rubbish must be removed from the work area.
- Maintain unobstructed passageways.
- Obtain Covington & Associates Corporation approval of storage areas.
- Immediately remove or bend over any protruding nails.
- Remove loose overhead materials.
- Maintain hoses and cords so not to create tripping hazards.
- All surplus materials must be returned to a designated area of the site at the completion of a job.
- Tools and materials must be put in tool boxes or returned to the tool room after use to avoid creation of a hazard for others.
- Oily rags must be placed in approved non-combustible metal containers.
- Toilets, wash-up facilities, and drinking fountains must be kept clean and sanitary; problems must be reported to the supervisor.
- PPE will be returned to the designated area at the end of the work period and will be placed in designated receptacles.
- Eating, drinking, use of tobacco products, chewing gum, etc., is permitted only in designated break areas. These activities are not permitted in change or shower areas, toilet facilities, etc.

## **19.3 FIRE PREVENTION AND PROTECTION**

### **Fire Prevention**

The following rules will be enforced to prevent fires:

- Smoking will be prohibited at or in the vicinity of operations that may present a fire hazard. "No Smoking" or "Open Flame" markings will be conspicuously posted.

- Flammable and/or combustible liquids must be handled only in approved; properly labeled metal safety cans equipped with flash arrestors and self-closing lids.
- Transfer of flammable liquids from one container to another will be done only when the containers are electrically interconnected (bonded).
- The motors of all equipment being fueled will be shut off during the fueling operations.
- Flammable/combustible liquids stored in metal drums will be equipped with self-closing safety faucets, vent bung fittings, and drip pans. Such containers will be stored outside buildings in an area approved by the SSHR and the Plant Fire Marshall whenever working within an operating facility. Such metal drums will be properly grounded.

### **Fire Protection**

The following measures will be used to protect against fires:

- All construction equipment (cranes, bulldozers, track hoes, etc.) will be equipped with a fire extinguisher of 10 ABC units or higher.
- All vehicles will be equipped with a fire extinguisher of 5 ABC units or higher.
- Temporary offices will be equipped with a fire extinguisher of 10 ABC units or higher.

At least one portable fire extinguisher of 20 ABC units will be located not less than 25 ft or more than 75 ft from any flammable liquid storage area.

## **EMERGENCY CONTACTS**

### **Covington & Associates Corporation**

Project Manager: John Szabo (228) 396-0486  
(228) 216-1158

S&H Supervisors:  
Anthony Damiano (228) 396-0486  
(228) 861-2402

Wendell Larson (228) 396-0486  
(228) 216-7981

Todd Hairston (228) 396-0486  
(228) 216-7983

### **Response Teams**

US EPA Environmental Response Team 908/548-8730  
US Coast Guard Environmental Response Team 800/424-8802

### **Site Emergency Numbers**

Ambulance 911  
Fire Department 911

### **Offsite Emergency Numbers**

Gulfport Police Department 228-868-5959  
or 911

Gulfport Fire Department 228-863-5953  
or 911

Mississippi State Police 228-539-4881  
or 911

Harrison County Sheriff 228-89-3000  
or 911

### **Medical Emergency**

Memorial Hospital Gulfport, MS 228-867-4000

### **Health Emergency**

Poison Control Center (800) 222-1222  
ToxLine (301) 496-1131

CHEMTREC (24hr)

1-800-424-9300



**Start:** [2500-2599] 33rd St  
Gulfport, MS 39501, US

**End:** Memorial Hospital At Gulfport:  
228-867-4000  
4500 13th St, Gulfport, MS  
39501, US

**Notes:**  
Only text visible within note field will print.

### What is Your Credit Score?

TransUnion

Experian

Equifax

100 90 80 70 60 50 40 30 20 10 0

100 90 80 70 60 50 40 30 20 10 0

100 90 80 70 60 50 40 30 20 10 0

Click Here to Find Out!

Based on your credit report data, this is a numerical depiction of your creditworthiness. High scores are better.

privacy.mattm.com

#### Directions

#### Distance

**Total Est. Time:** 8 minutes      **Total Est. Distance:** 3.70 miles

- |  |   |            |
|--|---|------------|
|  | <b>1:</b> Start out going EAST on 33RD ST toward US-49 S.                               | <0.1 miles |
|  | <b>2:</b> Turn RIGHT onto US-49 S.  | 1.6 miles  |
|  | <b>3:</b> Turn RIGHT onto W BEACH BLVD / US-90 W.                                       | 1.2 miles  |
|  | <b>4:</b> Turn RIGHT onto BROAD AVE.  | 0.6 miles  |
|  | <b>5:</b> Turn RIGHT onto 13TH ST.  | 0.1 miles  |
|  | <b>6:</b> End at Memorial Hospital At Gulfport:<br>4500 13th St, Gulfport, MS 39501, US |            |

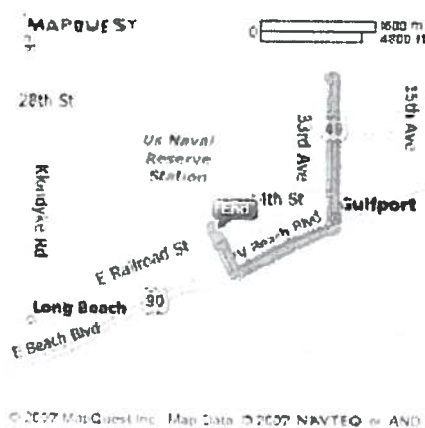
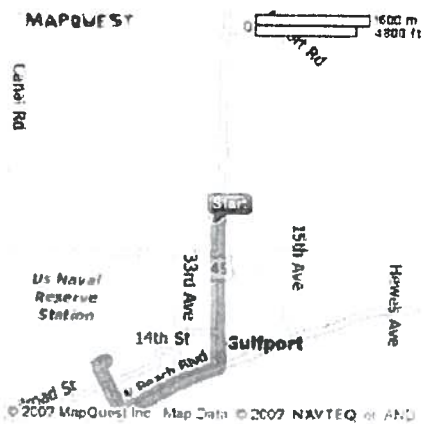
**Total Est. Time:** 8 minutes      **Total Est. Distance:** 3.70 miles

<http://www.mapquest.com/directions/main.adp?do=prt&2ct=NA&mo=ma&un=m&go=1&1...> 2/8/2008



**Start:**  
[2500-2599] 33rd St  
Gulfport, MS 39501, US

**End:**  
Memorial Hospital At Gulfport:  
228-867-4000  
4500 13th St, Gulfport, MS 39501, US



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## ATTACHMENT 1

### Job Safety Analysis

| Work Activity           | HAZARD  | Reason  |
|-------------------------|---|---|
| Site Preparation        | Heavy Equipment;<br>slip, trip, fall hazards  | This phase will require the utilization of equipment that can pose risks.   |
| Soil Excavation         | Cave in and falling underground utilities;<br>excessive noise;<br>pinch points, airborne objects, and overhead hazards;<br>contact with contaminated soil and groundwater;<br>spreading of site contaminants;<br>inhalation of site contaminants. | Follow required excavation safety procedure under guidance of competent person obtain utility clearance before breaking ground;<br>wear appropriate PPE and hearing protection;<br>perform equipment and personnel protective equipment |
| Backfill and Compaction | excessive noise;<br>pinch points,<br>overhead hazards   | Heavy equipment   |