July 11, 2007

*VIA ALAMEDA COUNTY FTP SITE*

Mr. Barney Chan
Alameda County Health Care Services Agency
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Comments on Revised Remediation Work Plan**
1230 14th Street, Oakland, California
ACEH Case No. 295

Dear Mr. Chan:

On behalf of Andy Saberi, Pangea Environmental Services, Inc. (Pangea) prepared this letter to comment on the *Response Letter and Revised Remediation Work Plan* (Revised Work Plan) dated May 16, 2007. The Work Plan was prepared by Conestoga-Rovers Associates (CRA; formerly Cambria Environmental Technology) on behalf of Equilon Enterprises LLC dba Shell Oil Products US (Shell). Presented below is background reporting information, a summary of CRA's revised remediation work plan, an overview of our comments, and detailed comments on the Revised Work Plan.

## BACKGROUND REPORTING INFORMATION

To facilitate review of our letter, Pangea summarizes the recent remediation reporting efforts herein:

- On December 27, 2006, Cambria submitted the *Dual-Phase Extraction Pilot Test Report and Groundwater Monitoring Report – Fourth Quarter 2006,* which presents the results of dual-phase extraction (DPE) testing conducted at the site in August 2006. The report concluded that DPE was not appropriate and proposed interim groundwater extraction (GWE) from two wells.

- On February 15, 2007, Pangea commented on Cambria's report in its response letter *Comments on Dual-Phase Extraction Pilot Test Report.* Pangea's letter expressed considerable concern about Cambria's approach of GWE and presented a more aggressive and more appropriate interim remedial action plan of DPE/AS. Pangea's letter was prepared at the request of Mr. Barney Chan of Alameda County Environmental Health (ACEH).

- On March 26, 2007, the ACEH issued a letter to Cambria and Shell during a meeting at the ACEH office. The ACEH letter stated that 'Our office believes there is substance in the Pangea comment letter. We request that Shell review the letter and provide written comment.' *The letter requested preparation of a revised plan that is mutually agreeable to both Shell and Mr. Saberi.* The ACEH added that *'Although the County finds substance in the Pangea comments, we cannot comment or approve of Pangea's alternate proposal since we must abide by the stipulated final judgement* where Shell retains remediation lead.' Lastly, the letter encouraged 'communication, discussion and concurrence on *expedited* remediation'.

- On May 16, 2007, CRA (formerly Cambria) submitted its *Response Letter and Revised Remediation Work Plan* (Revised Work Plan). The revised plan proposes more feasibility testing and implementation of soil vapor extraction (SVE) and air sparging (AS) in lieu of GWE. However, *if limited and short-term AS testing does not meet CRA's stringent evaluation criteria, CRA will not implement SVE/AS and will presumably prepare yet another revised remedial action plan.*

While CRA's revised remedial approach is more aggressive than the groundwater extraction (GWE) method originally proposed in Cambria's December 2006 report, Pangea has several concerns about the revised remedial approach and strongly recommends implementation of Pangea's DPE/AS approach.

## SUMMARY OF CRA's REVISED REMEDIATION WORK PLAN

CRA proposes to conduct SVE and AS to remediate petroleum hydrocarbons in soil and groundwater beneath the site. The revised work plan states that the primary target zone is the zone between 16 to 18 feet below grade (fbg) estimated to contain residual non-aqueous phase liquid (NAPL, also known as free product). The new AS wells will be screened from 16-18 fbg, and the SVE wells will be screened from 5-11.5 fbg. Their remedial approach involves the following:

- Installing two test air sparge wells and two vapor extraction wells.

- Conducting a brief one-day AS test to further evaluate the sparging feasibility at the site (No SVE testing is proposed at this time). If CRA deems that AS is feasible based on its narrow criteria, CRA will install a full-scale AS/SVE system that includes an additional three AS and two SVE wells.

- Conducting additional testing during system start up. If the SVE system does not provide adequate vacuum influence during start up, CRA will install additional SVE wells and connect them to the system.

- However, if the limited short-term AS testing conducted within the sandy site soil does *not meet* CRA's stringent criteria for AS feasibility, CRA will not implement AS/SVE. CRA will *need to prepare yet another remedial work plan.*

## COMMENT OVERVIEW

Based on our review of the Revised Work Plan, Pangea concludes that our proposed DPE/AS approach is more appropriate than CRA's proposed approach for SVE/AS for the following reasons:

1. Contaminant removal rates would be up to ***200 times higher with DPE*** than SVE based on test data, and DPE removal rates could be up to 75 pounds per day initially.

2. SVE/AS will therefore likely be slower and more costly than DPE.

3. Test results indicate that the probability of success using SVE is less than DPE due to water upwelling in SVE wells and likely short-circuiting of air flow in the subsurface (CRA concurred that short-circuiting likely occurred during testing).

4. SVE/AS could cause spreading of the contaminant plume due to SVE's limited vacuum influence and potential limited capture of contaminant vapors created by sparging.

5. SVE/AS could pose a significant risk to human health if vapors created by sparging are not adequately captured by SVE, potentially leading to vapor intrusion into any of the nine (9) half or full basements in the nearby site vicinity identified by CRA's survey.

6. SVE/AS does not aggressively target the primary contaminant zone estimated by CRA to contain free product (non-aqueous phase liquid – NAPL) at 16 to 18 feet. Both the extraction (SVE) and injection (AS) wells proposed by CRA are shallower and less effective than Pangea's proposed DPE and AS wells. The proposed approach does not sufficiently address shallower and deeper contaminants.

7. CRA's approach includes unnecessary, insufficient and time consuming testing that is not required by Pangea's DPE/AS approach. CRA first proposes test well installation followed by short-term air sparge feasibility testing (note this test does not include additional SVE testing which is delayed until system startup). The second test involves operation of an initial SVE/AS system and subsequent vacuum influence monitoring, with additional SVE wells installed and connected to the system if insufficient vacuum influence is observed.

8. Pangea is surprised that AS testing of the two installed AS wells was not conducted during any of the prior testing at the site, and that prior injection activities did not provide sufficient information about the injection feasibility. Pangea is also surprised that CRA doubts the feasibility of AS in the site soil type classified by CRA as Merritt Sand. This soil type should be very amenable to air sparging.

9. The proposed AS feasibility testing does not adequately evaluate AS effectiveness, and the feasibility criteria are too limited. The proposed AS test involves only short-term testing at low pressures and limited monitoring to evaluate AS effectiveness. The testing does *not* include the following items that are recommended by Pangea to more fully evaluate AS effectiveness: longer-term testing, testing at pressures higher than 10 pounds per square inch (if necessary), monitoring of dissolved oxygen concentrations, and groundwater monitoring to evaluate reduction of contaminant concentrations. If CRA is

uncertain about AS in the Merritt Sands, AS testing at higher pressure and for a longer-term would be appropriate (if necessary).

10. *Most importantly, CRA states that if short-term AS testing does not satisfy their limited criteria for successful sparging, they will not implement SVE/AS.* At that point CRA would need to go back to the drawing board (so to speak) and *prepare yet another remedial work plan.*

11. Again, Pangea's DPE/AS approach does not require additional testing and can be implemented immediately. Pangea's DPE/AS approach will allow fast and cost-effective remediation of site contaminants while safeguarding human health more effectively than CRA's SVE/AS approach.

In conclusion, Pangea hopes that Shell and the court return control of site corrective action to Mr. Andy Saberi. For the numerous reasons stated above and detailed below, Pangea's proposed DPE/AS approach should provide faster and more cost-effective remediation of site contaminants than CRA's SVE/AS approach while simultaneously safeguarding human health more effectively. The ACEH is free to comment on or approve Pangea's DPE/AS approach proposed in our February 15, 2007 letter report, in the event Mr. Saberi is granted the opportunity to clean up his site.

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## DETAILED COMMENTS ON THE REVISED REMEDIAL WORK PLAN

In this section Pangea provides supporting information for our above conclusion that Pangea's proposed DPE/AS approach is more appropriate than CRA's proposed approach of SVE/AS. The comment numbers follow the enumeration used above in the 'Comment Overview' section.

### Comment #1 - Contaminant Removal Rates Would be up to *200 Times Higher* with DPE than SVE Based on Test Data. DPE Removal Rates could be up to 75 Pounds per Day.

To compare contaminant removal rates for SVE and DPE, Pangea evaluated the August 2006 test data prepared by Cambria. The most appropriate data for comparison of SVE and DPE is data from well MW-1, since initial testing was conducted before sufficient dewatering was conducted by the pneumatic pump (considered as SVE for discussion purposes) while subsequent testing was conducted after more effective dewatering with an electric pump (considered DPE). The comparison of maximum removal rates for TPHg and benzene from Table 2 of Cambria's test report is presented below in Table A.

**Table A –Contaminant Removal During SVE/DPE Testing of Source Well MW-1**

| Compound | SVE Removal Rate (Vapor Phase) (lbs/hour) | DPE Removal Rate (Vapor Phase) (lbs/hour) | Relative Removal of DPE vs SVE |
|---|---|---|---|
| TPHg | 0.003<br><br>(0.07 lbs/day) | 0.637<br><br>(15 lbs/day) | DPE about ***200 times*** More Effective than SVE for TPHg Removal |
| Benzene | 0.0001 | 0.0014 | DPE about ***14 times*** More Effective than SVE for Benzene Removal |

The test removal rates indicate that ***DPE*** would be up to ***two hundred (200) times more effective for TPHg removal*** and up to ***fourteen (14) times more effective for benzene removal than SVE***. The maximum observed TPHg removal rate during testing from one well was 15 pound per day. It is possible that a DPE system connected to five DPE wells could have an initial maximum TPHg removal rate of five times 15, or ***75 pounds per day***. Removal rates would likely be greater with air sparging (AS), which would volatilize hydrocarbons for vapor-phase removal by the DPE system, and would tend to decrease with time.

The greater contaminant removal achieved by DPE is attributed to exposing of the contaminated zone by the dewatering process, allowing DPE to expeditiously remediate the zone of concern. Relying on contaminant removal by AS alone with subsequent capture by SVE (if effective), would most certainly result in significantly lower removal rates and slower site remediation.

Pangea would like to add that CRA's Site History discussion references Cambria' one-day SVE test conducted at the site on October 16, 2000. Although Cambria concluded that SVE might be an effective method to remove hydrocarbons from soils above the groundwater table, Cambria noted that groundwater upwelling interfered with SVE testing, and that subsequent investigations

detected little to no hydrocarbon impact in the vadose zone. Cambria concluded that SVE was not an appropriate alternative. Under CRA's proposed approach, SVE would be conducted in conjunction with AS not to remediate site soil, but to hopefully capture vapors created by sparging. Since there is no SVE/AS data (nor any combined SVE/AS testing planned until after installation of a full-scale system), we can only estimate contaminant removal rates for SVE/AS. We do know that with combined SVE/AS contaminant removal rates generally increase temporarily shortly after sparging, but then quickly decrease after initial sparging efforts.

**Comment #2 - SVE/AS will likely be Slower and More Costly than DPE**

Due to the significantly greater removal rates for DPE versus SVE, the SVE/AS approach will likely take considerably longer than the DPE/AS approach proposed by Pangea. While treatment and disposal of groundwater does increase site remediation costs, these costs will be offset by the shorter duration of site remediation. Longer active remediation requires monthly operation, maintenance and reporting costs, as well as ongoing groundwater monitoring costs.

Furthermore, in the revised plan CRA notes that residual non-aqueous phase liquid (NAPL) is trapped in the approximately 16-18 ft depth interval, and that their proposed AS effort is designed to target this residual zone to maximize mass removal and attain site closure. However, the SVE/AS approach does not provide the necessary dewatering to expose submerged, hydrocarbon-impacted soils and maximize hydrocarbon mass removal like the DPE/AS would. If remediation efforts are ***not*** focused on ***directly*** targeting submerged hydrocarbon-impacted soils beneath the site (such as aggressive dewatering for treatment via vapor extraction: DPE), the amount of time required to remediate submerged hydrocarbon-impacted soils will be greatly increased, driving up costs and causing further site cleanup delay.

Note that the March 26, 2007 letter from the ACEH encouraged 'communication, discussion and concurrence on *expedited* remediation'. The DPE/AS approach will expedite site remediation to help meet ACEH goals.

**Comment #3 – The Probability of Success with SVE is Less Than DPE due to Water Upwelling and Likely Air Flow Short-Circuiting**

The CRA/Cambria Site History section states that 'groundwater interfered with SVE testing' in their discussion of the August 2000 SVE testing. Test results from the August 2006 DPE test also indicate that *water upwelling in extraction wells was a key issue*. Cambria conducted dewatering with pneumatic and electric pumps to allow the DPE test system to achieve better vapor extraction rates.

Based on test results, operation of SVE alone (without dewatering provided by DPE) as proposed by CRA, will be affected by water upwelling. Water upwelling will reduce vapor extraction flow rates and the effective vacuum influence extending from the SVE wells. During the August 2006 testing of well MW-1 the minimum applied vacuum was 40 inches of water (or approximately 3.5 feet), which would yield a corresponding 3.5 feet of water upwelling. Given the proposed top of the SVE well screen of 5 fbg, *it's likely that during periods of seasonal high water that the upwelling water will completely submerge the well screens* (the historic high groundwater elevation corresponds to approximately 6.5 fbg) so no well screen is exposed for vapor extraction.

*Water upwelling will also limit the ability to capture vapors created by air sparging, and will increase the likelihood for air flow short-circuiting to shallower materials or the ground surface.*

Short-circuiting to shallower materials is a concern since CRA proposes to install the top of the SVE well screens up to 5 fbg. In their May 16, 2007 letter, CRA concurs, "As suggested by Pangea, vacuum short-circuiting to more permeable soils could have occurred.' With water upwelling and shallow wells, induced air could short-circuit to the surface, or to submerged permeable materials around the former fueling system (piping and UST area).

DPE is designed to specifically address the water upwelling issue. Under Pangea's approach, DPE would be conducted to dewater the site subsurface and expose the target zone for rapid remediation. DPE would be conducted with stingers, with contingency use of a submersible pump to dewater the UST pit if merited.

### Comment #4 – SVE/AS Could Cause Spreading of Contaminant Plume Due to Limited Vacuum Influence and Capture of Contaminant Vapors

(See Comment #5 below)

### Comment #5 – SVE/AS Could Pose a Risk to Human Health via Vapor Intrusion into Identified Nearby Basements

Performing SVE/AS could cause spreading of the contaminant plume due to SVE's limited effective vacuum influence and potential limited capture of contaminant vapors created by AS. *This is an important consideration at this site due to the proximity of nearby residences and nine (9) half or full basements identified near and downgradient of the site.*

In July 2002, Cambria conducted a door-to-door well survey that included the residential block north-northeast (downgradient) of the site to determine whether there were any active water wells or basements in the survey area. A response was obtained from 23 of the 36 properties included in the survey. None of the respondents indicated the presence of water wells on their properties, but nine respondents reported that either a half or a full basement was present beneath their dwelling. SVE/AS could pose a significant risk to human health if vapors created by AS are not adequately captured by SVE, potentially leading to vapor intrusion into any of the nine (9) half or full basements in the nearby site vicinity identified by CRA's survey.

CRA's plan states that SVE will be performed in the vadose zone from wells screened from 5-11.5 fbg, and air sparging wells will be constructed to sparge at depths of 16-18 fbg. With high water table season water levels as high as 6.5 fbg, this means that up to 9.5 feet of submerged soils could be located above the top of the screened interval of the AS wells, and not exposed for vapor extraction. Lateral channels from AS could develop in this 9.5-foot submerged zone, allowing uncontrolled vapor migration offsite, impacting neighboring properties.

Pangea's DPE/AS design locates the top of the proposed AS well screens about 2 ft below the bottom of the DPE well screens for optimum vapor recovery via vacuum extraction from the DPE system (see Comment #6). In addition, Pangea's report presented a phased startup approach and plan to evaluate the capture of hydrocarbon vapors created by AS. CRA's proposed scope of work does not provide a plan to fully assess the occurrence of vapor intrusion, despite the fact that vapor intrusion has a higher likelihood of occurring with SVE/AS than it does with DPE/AS. With less vapor capture, the SVE/AS approach has the potential to cause subsurface contaminants to spread laterally.

**Comment #6 – SVE/AS Does Not Aggressively Target the Primary Contaminant Zone at 16-18 ft Depth or Deeper Contaminants**

SVE/AS does not aggressively target the primary contaminant zone estimated by CRA to contain free product (NAPL) at 16 to 18 feet depth. Both the extraction (SVE) and injection (AS) wells proposed by CRA are shallower and less effective than Pangea's deeper proposed DPE and AS wells. The proposed approach does not sufficiently address shallower and deeper contaminants.

Cambria's December 2006 DPE test report stated that low hydrocarbon concentrations in groundwater are present beneath the site during the high water table season, and that their plan to operate a GWE system (since superseded by the plan to perform SVE and AS at the site) would likely include operation of the system only when water levels beneath the site were deeper than 9 fbg. According to groundwater monitoring data, historical water levels in site wells have fluctuated between approximately 6.5 to 13.5 fbg.

Note that the *revised work plan does not address the significant water table fluctuation* in its proposed operation section. Given the historical water level fluctuations and water upwelling issues, SVE would be largely ineffective during the moderate to high water table seasons due to site conditions noted in the previous section (6 months of the year or longer?). Also, operating SVE during the low water table season would likely result in higher vapor-phase hydrocarbon removal rates due to more of the smear zone being exposed between about 6.5 and 13.5 ft, but *the 16-18 ft depth interval where the residual NAPL is located would never be exposed for vapor extraction at any time.* Even with the AS to target the 16-18 fbg zone, remediation would not be achieved as rapidly as with DPE/AS. DPE/AS will volatilize and remove NAPL more rapidly than SVE/AS by exposing impacted soil for direct extraction via a high applied vacuum. Less aggressive SVE/AS approach will require additional time and expense to remediate the site.

Pangea's proposed DPE approach and well screens provides greater remedial effectiveness while simultaneously addressing these key risks of plume spreading and vapor intrusion. *Pangea's proposed well screen intervals are 8 to 20 fbg for DPE and 22 to 25 fbg for AS.* Inherent to the DPE approach, DPE wells provide dewatering to expose well screen and impacted soil. With the top of the DPE well screen starting at 8 fbg (3 feet deeper than the SVE well top), *there is less chance for short-circuiting to the surface or shallower materials.* The deeper depth of the DPE wells allows greater targeting of the primary impact zone, as well as deeper contaminants. Pangea's deeper AS well screen intervals provide for greater effective influence areas during sparging. AS wells are commonly installed 10 feet or more below the top of the water table, and are typically installed below the primary contaminant zone to allow injected air to travel up through the impacted material. *It is possible that sparging in a CRA well screened from 16 to 18 fbg would exit near the top of the 16 ft depth, and potentially <u>not</u> significantly influence the primary impacted zone of NAPL at 16-18 fbg identified by CRA.*

Contaminants *deeper* than the 16-18 fbg zone (estimated to contain residual NAPL) will not be aggressively targeted by CRA's AS wells, which are proposed for 16-18 fbg. As described above, Pangea's wells screened down to 25 fbg will provide remediation of the target zone and any deeper diffused contamination. Also, CRA's proposed approach may not sufficiently address *shallower* contaminants for reasons expressed in Comments 3, 4 and 5 regarding uncertain capture of sparge flow and potential short-circuiting.

**Comment #7 – CRA's Approach Includes Unnecessary, Insufficient, and Time-Consuming Testing that is not Required by Pangea's DPE/AS Approach**

CRA has already performed *two rounds* of remediation pilot testing at the site to evaluate SVE (October 2000) and DPE (August 2006). CRA's revised plan proposes an additional *third* round of testing to evaluate AS, and does not propose testing of combined SVE/AS before full-scale system installation. CRA effectively proposes *another* round of testing in conjunction with full-scale SVE/AS startup; CRA proposes to operate the initial SVE/AS system and conduct subsequent vacuum influence monitoring, with additional SVE wells installed and connected to the system if insufficient vacuum influence is observed. Additional testing and evaluation will likely result in significant delays before a reliable, full-scale remediation can be implemented at the site.

*Finally, if the proposed AS feasibility test results are not favorable, CRA will need to prepare another revised remedial approach* (see Comment #10 below). Pangea's proposed scope of work outlined in our February 15, 2007 *Comments on Dual-Phase Extraction Pilot Test Report* requires no additional pilot testing to evaluate the proposed plan, and can be implemented immediately upon receipt of regulatory approval. It is a possibility that the site could be extensively remediated with Pangea's proposed approach in the same time it would take CRA to conduct well installation and feasibility testing for their proposed SVE/AS system.

**Comment #8 – Surprised AS Testing Not Conducted Previously**

Pangea is surprised that AS testing of the two installed AS wells was not conducted during any of the prior testing at the site. Cambria installed the AS wells, and recognized the potential applicability of air sparging. Why didn't Cambria conduct AS testing in conjunction with other testing? Prior injection activities (hydrogen peroxide injection) likely provided useable information about injection feasibility and subsurface yield. Finally, Pangea is surprised that CRA doubts the feasibility of AS in the site soil type classified by CRA as Merritt Sand. This soil type should be very amenable to air sparging.

**Comment #9 – Proposed AS Feasibility Test does not Adequately Evaluate AS Effectiveness**

*Pangea finds that the proposed AS test is too short-term and includes limited monitoring to properly evaluate AS effectiveness*. CRA's revised work plan provides the following criteria to conclude that sparging is feasible in their pilot test section:

- Achieving a sparge flow rate between 10 to 15 cubic feet per minute (cfm) (under maximum test pressure of 10 pound per square inch);
- A minimum 15-foot radius of influence; and
- Increased hydrocarbon vapor concentrations in vapor extraction wells once sparging is initiated.

Regarding the first criteria, more than 10 pounds per square inch (psi) may be required to induce their target flow of 10 to 15 cfm. Depending on the water table elevation at the time of testing, up to 5 psi could be required to overcome the water in the well. The remaining 5 psi or more may be insufficient to overcome the entry pressure into the formation, and to achieve the 10 or more cfm

designated by CRA to be considered effective. Sparging is commonly performed effectively at greater than 10 psi at other sites. *It would seem inappropriate to deem AS infeasible if this limited criterion is not fully satisfied.*

Regarding the second criteria, a 15-foot radius will be based solely on air pressure observations in nearby wells. It is possible that air flow short-circuiting could occur to limit the observance of air pressure influence. Also, the use of relatively shallow AS wells proposed by CRA may limit the effective radius of influence. Deeper wells would have a greater chance of achieving a larger influence area. If a smaller radius of influence were observed, closer spacing of AS wells could result in effective air sparging.

In addition, longer-term testing is typically merited to more fully evaluate the effective influence area for air sparging. The best indicators of AS effectiveness are reduced concentrations of dissolved contaminants and increased dissolved oxygen concentrations within groundwater. This evaluation typically requires longer-term evaluation of AS.

In conclusion, the proposed testing does *not* include the following items that are recommended by Pangea to more fully evaluate AS effectiveness: longer-term testing, testing at pressures higher than 10 pounds per square inch (if necessary), monitoring of dissolved oxygen concentrations, and groundwater monitoring to evaluate reduction of contaminant concentrations. If CRA is uncertain about AS in the Merritt Sands, AS testing at higher pressure and for a longer-term would be appropriate (if necessary). Pangea's reliance on DPE and deeper AS wells and possible higher air injection pressures effectively negates the need for AS testing.

### Comment #10 – If Short-Term AS Testing does not Satisfy CRA's Limited Criteria, They will need to Prepare Another Revised Remedial Action Plan

Again, CRA states that if short-term AS testing does not satisfy their limited criteria for successful sparging (Comment #9), *Shell will not implement SVE/AS.* At that point CRA would need to go back to the drawing board (so to speak) and prepare yet another remedial work plan. See Comment #11 for additional comments.

### Comment #11 – Pangea's DPE/AS Approach Does Not Require Additional Testing and Can Be Implemented Immediately

After all the prior testing and remedial efforts conducted at the site, Pangea recommends implementing a cost-effective remedial approach with an excellent chance for success. As stated above, CRA's approach requires test well installation, AS feasibility testing, possible preparation of another revised work plan after AS testing, and SVE/AS vacuum influence monitoring and possible additional SVE well installation. Pangea's proposed approach of DPE/AS does not require additional testing and can be implemented immediately. Pangea's approach will also target shallower and deeper contamination more thoroughly than the SVE/AS approach. Pangea's DPE/AS approach will allow fast and cost-effective remediation of site contaminants while safeguarding human health more effectively than CRA's SVE/AS approach.

## CONCLUSION

In conclusion, Pangea hopes that Shell and the court return control of site corrective action to Mr. Andy Saberi. For the numerous reasons stated above, Pangea's proposed DPE/AS approach should provide faster and more cost-effective remediation of site contaminants than CRA's SVE/AS approach while simultaneously safeguarding human health more effectively.

The ACEH is free to comment on or approve Pangea's DPE/AS approach proposed in our February 15, 2007 letter report, in the event Mr. Saberi is granted the opportunity to clean up his site.

If you have any questions or comments, please feel free to contact me at (510) 435-8664 or briddell@pangeaenv.com.

Sincerely,
**Pangea Environmental Services, Inc.**

Bob Clark-Riddell, P.E.
Principal Engineer

Cc: Andy Saberi, 1045 Airport Blvd, South San Francisco, CA 94080