

**Phoenix-Goodyear Airport (PGA) Area/Western Avenue Plume  
Community Advisory Group (CAG) Meeting**

**Thursday, January 09, 2014  
6:00 p.m. to 8:30 p.m.  
Goodyear Justice Center  
195 N. 145<sup>th</sup> Avenue, Goodyear, AZ**

**DRAFT MINUTES**

**CAG Members in Attendance:**

Diane Krone  
Lisa Amos  
Jeff Raible - Co-chair  
Frank Scott – Co-chair  
Karl Havlicek – Alternate  
David Ellis  
Earl Smith  
Tim Birdsall

**ADEQ Staff in Attendance:**

Travis Barnum, PGA North Project Manager  
Wendy Flood, Community Involvement Coordinator  
Harry Hendler, Federal Projects Unit Manger

**Facilitator:**

Marty Rozelle

**EPA Staff in Attendance:**

Cathrine Brown  
Amanda Pease

**Others in Attendance:**

Ailiang Gu, ITSI Gilbane; Nancy Nesky, ITSI Gilbane; Kent Baugh, ITSI Gilbane; Harry Brenton, Matrix New World Engineering; Stephanie Lyn Koehne, AMEC; Nadine Scouden, ECO; Randy McElroy, ECO; Mark Holmes, City of Goodyear; Ron Clark, Goodyear Tire & Rubber Company; Briana Velasco, AMEC; Paula Chang Haley & Aldrich; Tom Surraro, Clear Creek Associates; Dave Brubaker, CACE; Brian Waggle, Hargis+Associates, Inc.; Michael R. Long, Hargis+Associates, Inc.; Kathy Hunter, Hargis+Associates, Inc.; Marilyn Havlicek; Diane Burnett; John Creedon.

**Welcome and Introductions** – Co-Chair called meeting to order. Introductions were made by CAG Members and audience.

**PGA North Source Area Remediation Focused Feasibility Study Overview - CAG Discussion and Answer Session - Catherine Brown, EPA.**

Ms. Brown reviewed the investigation process and phases for soil, soil gas and groundwater; reviewed historical data, the historical process on how the clean-up progressed to its existing status and how the EPA developed the Proposed Plan (PP). Ms. Brown reviewed the seven technologies evaluated in Source Area Remediation Focused Feasibility Study (SARFFS) and outlined EPA's preferred alternatives, the process to notify and acquire community comments and concerns in order to finalize the PP, and how the current Record of Decision (ROD) is amended in order to implement the PP.

A CAG member asked if the proposed remediation technology would be selected after input from the public meeting. EPA stated that their preferred alternatives would be selected and posted prior to the public meeting, then introduced at the public meeting for collecting official comments and to answer questions. The CAG member wanted to confirm that they had selected the alternative but that it wasn't published yet. EPA indicated that was correct and the PP will explain EPA's preferred alternative and why it was chosen. The formal selection will become a ROD amendment and that would be legally binding.

A CAG member asked if the suggested technologies were representative of EPA's best guess as to the technologies that would achieve the best results. EPA indicated yes. During the screening process EPA looked at a wider number of remedial technologies but had to determine if they would treat the site specific pollutants and the concentrations present. EPA suggested that the CAG reference the Preliminary Remedial Technology Screening Table provided in the packets received at the meeting.

A CAG member asked if Crane Co. was involved in the PP or was it prepared solely by the EPA. EPA stated that Crane Co. and/or their subcontractors did not contribute to the PP but they did produce the SARFFS with the EPA's oversight.

**Alternative 1 – No Action**

EPA clarified the meaning of the "No Action" alternative. This is a required alternative and included as a baseline condition for the PP. The no action alternative at PGAN assumes that the existing pump and treat and Soil Vapor Extraction (SVE) systems would continue without modification.

**Alternative 2 – In-Well Air Stripping (IWAS) + Hydraulic Barrier Q&A**

An EPA Consultant explained the IWAS technology and its pros and cons.

A CAG member asked about the difference of Alternative 2 since there is the understanding of the hydraulic barrier already in place and the water is already being pumped out and stripped before being replaced. EPA consultant confirmed the hydraulic barrier along Van Buren. The difference is an injection/pump barrier and that the importance of the hydraulic barrier for all the alternatives is, as they treat in the source area, the barrier will function as a backstop for anything not caught in the pump and treat. Another CAG member asked if the hydraulic barrier has always been in place. EPA responded that it has been there for a very long time.

A CAG member asked if EPA has an understanding of the degree of the ongoing contamination from the area. EPA responded that their understanding of the source area is the culmination of all the investigations which led to an understanding of where the contamination is located and what it consists of. This is based on various well drilling and soil borings used in the investigations.

A CAG member wanted to confirm their understanding of the air stripping inside the well. EPA confirmed and noted that contaminants become volatile and rise and then will be collected at the surface. The CAG member stated a concern that it appears that water was being returned to the same area from which it was retrieved. EPA stated the key is that uncontaminated water is returned to the well. The CAG member also asked whether there would be enough circulation to draw the contaminants from outside areas. He thought that process was different than what was currently in place. An EPA consultant stated that the technology in this process is similar to the SVE systems but using it in the well. Pump and treat uses carbon filtration, and this system would volatilize contaminants and vaporize them as the treatment.

A CAG member asked if the existing SVE units would be used for this process on the water. EPA stated no.

A CAG member questioned why the verbiage “the potential for spreading contaminants” is listed in alternative 2, but no other alternative (listed on table 6). The member wanted to know if the options were free of that type of reaction. EPA stated yes, this technology is more likely to spread contaminants than the other alternatives. Further discussion was held and EPA explained that all alternatives have some potential for contamination spreading; it was identified specifically for this alternative because of the higher potential.

### **Alternative 3 – Anaerobic Reductive Dechlorination (ARD) + Hydraulic Barrier Q&A**

An EPA Consultant explained the ARD process.

A CAG member asked for clarification on the time frame to initiate the pilot test program and how long to completion. An EPA consultant stated that pilot tests can take any length of time from a few months to several years. It depends on when the organisms would be distributed and the time it takes for the biological population to expand while observing the decline of concentrations. That process usually takes a few months and then there is pre-preparation for the introduction of the biologicals to the contaminated areas.

A CAG member asked if there have already been successful pilot programs at sites of a similar size with similar contaminants to this one, why would it be necessary for an extensive program for this site. EPA consultant responded the biggest issue with the pilot program would be to ascertain if the natural bacteria population at the site could be stimulated or if there was a need for the introduction of additional lab cultured bacteria.

A CAG member questioned the risks of moving forward without a pilot program as it appeared that the program seemed to slow down the remediation process. EPA responded if the native bacteria are not active enough or there are not enough of them to consume all of the contamination at the site, the process wouldn't be as effective. An EPA consultant stated the pilot test should be considered phase 1 of the remedial process. In addition, bacteria can't be introduced in a mass, it takes too long. An EPA consultant stated that incremental introductions accelerate the growth process and allow review of data to optimize the overall approach.

The CAG member asked about it taking two years. EPA consultant clarified his initial comment by saying the timeframe is a range based on existing project data and depends on how the bacteria expand and reduce contaminants.

A CAG member asked if this technology has been used successfully before in a desert environment. EPA consultant stated that it had, and that there were a number of sites around the country and overseas where this technology has been used particularly for TCE and has been used successfully with perchlorate.

A CAG member asked about the risk of mobilization of arsenic at the site. EPA consultants explained the pros and cons of biodegradation and stated that there are other sites in Arizona using this alternative. EPA also said this site was unusual as it doesn't show degradation or daughter products in the groundwater monitoring. However, the application of a new technology might change that which would be monitored. An EPA consultant continued to say that if arsenic was mobilized, or other contaminants were formed, the hydraulic barrier would capture anything that wasn't treated or was generated during the biological processes.

#### **Alternative 4 – Nano-Scale Zero Valent Iron (nZVI) + Zero Valent Iron (ZVI) + ARD + Hydraulic Barrier Q&A**

An EPA Consultant explained the technology and its pros and cons.

A CAG member asked how long the molecules stay active in the system. EPA stated that the ZVI is longer lasting than NZVI. NZVI can last for weeks, up to several months and ZVI can last for years.

A CAG member asked why this alternative with the multiple additives and the difficulty in handling them is less expensive. EPA stated it is due to the shorter timeframe needed for remediation and the injection is easier to accomplish.

A CAG member asked for timelines for alternatives four and five. EPA CIC stated that alternative four should be completed in eight years with a cost of 11.14 million dollars and alternative five would be eleven years at 12.65 million.

A CAG member asked if the budget indicated for the alternatives covered all the necessary costs (construction, maintenance and operations) for the life cycle of the selected remediation. EPA confirmed that it included all cost.

A CAG member asked about the evidence supporting the results of this alternative. EPA clarified that the interpretation of the pilot test results showed it reduced TCE concentration, the disagreement was about how long that affect lasted. The outcome was the combination of these items may be longer lasting than just the NZVI.

An audience member asked for a clarification of the last sentence on page four of six under short-term effectiveness that states, "There is a slight potential for short circuiting the creation of preferential pathways." An EPA consultant stated that during the injection of the ZVI it could fracture and bypass the preferential pathway. The risk exists with several of the alternatives and is something that the agency has to pay close attention to.

### **Alternative 5 –Zero Valent Iron (ZVI) + ARD + Hydraulic Barrier Q&A**

An EPA Consultant explained the technology and its pros and cons.

A CAG member asked if the ZVI and ARD work against each other. EPA stated that ZVI is a chemical reduction and ARD is a biological reduction. The ARD in combination with the ZVI will help create reducing conditions that bacteria prefer and then will consume the contaminants. ZVI itself will act very quickly to destroy the TCE. This combination will also produce a geo-chemical environment that is good for the bacteria and will increase the likelihood that ARD will address the perchlorate as well.

A CAG member asked if perchlorate develops and dissipates the same way in the atmosphere and if so, could it be removed faster. An EPA consultant responded it's a gas and can be removed faster and is captured by the SVE system. EPA stated that the SVE system at the source area is continuing to treat soil gas.

### **Alternative 6 –In-Situ-Chemical Oxidation (ISCO) with Permanganate + Hydraulic Barrier Q&A**

An EPA Consultant explained the ISCO process and indicated that ISCO does not treat the perchlorate.

A CAG member asked if this alternative had more potential of flowing to and fouling the extraction wells. EPA responded that permanganate is a very strong oxidizer for TCE but does not treat for perchlorate. It has a tendency to foul the extraction wells at other sites. There have been many cases that the use of this remediation has resulted in discolored water showing up in extraction wells.

A CAG member asked about the fact that ISCO will not treat perchlorate. EPA indicated that the perchlorate would still be captured by the hydraulic barrier and treated by the current process.

### **Alternative 7 –Electrical Resistance Heating + Steam + Hydraulic Barrier Q&A**

An EPA Consultant explained the technology and its pros and cons.

A CAG member asked if this technology does not treat perchlorate, would adding another remediation technology need to be implemented in combination and was that considered in the cost analysis. EPA stated that perchlorate is already being treated in the existing system and it was considered in all the cases. EPA also stated that if perchlorate was not addressed by the alternatives, the hydraulic barrier would remain in place to capture and treat.

A CAG member asked if the perchlorate was being addressed in a timely manner. EPA stated that because it was discovered later in the investigation it is being treated through a removal action from 2005. EPA never actually defined a remedy, but it is being treated.

A CAG member asked EPA to share the weight they give to each of the criteria. All cannot be equally weighted or of the same importance. EPA did not respond directly but did say that the first two criteria (protection of health and environment and compliance with ARARs) are required and must be met.

EPA stated that a final remedy had not been selected because, out of the nine criteria required by law, two of them are not completed. One of those is the comment period. The agency looks very closely at the advantages and disadvantages, including circumstances at the site, what the pollutants are, what the geology is, possible risks and community and state comments. A final decision will not be determined until after the comment period. As long as there are no strong objections to their preferred selection that will most likely be chosen.

A CAG member asked what the difference was between jet injection and fracturing. EPA consultant explained that the jet assisted injection has a much higher pressure at 10,000 pounds per square inch (PSI) as a conduit for the water. Fracturing is pressure assisted but not at the same PSI; both are fracturing techniques.

A CAG member wondered about the difference between high pressure injection and fracturing and asked if it is the same as fracking and does this technique create a potential for creating a pathway from Subunit B to Subunit C? EPA responded that the treatment will be in Subunit A and the tendency for any fractures would be that they bend towards the surface and not downward. That is something they must pay attention to regardless of the technique selected.

A CAG member asked how they monitor for fractures to the lower subunits. EPA responded saying the monitor wells will be used to determine where the fracturing occurs. A Crane consultant stated that there were other geophysical methods that can be used to get real time data when injecting.

A CAG member asked how EPA was going to present such complicated material to the public to ensure responsiveness. EPA stated this issue is ongoing for all Superfund sites, and they are working hard to make the presentation clear and succinct to the public. The meeting will include availability sessions with experts who can address specific topics. This will help the public to become more comfortable, and they can ask their questions one-on-one with those individuals.

The ADEQ consultant asked if the presentation was going to focus on the preferred technology, the reasons for it and why it performs well. EPA stated that it would not. The presentation would focus on the entire process of how EPA came to the decision on the technology selected and the pros and cons of each alternative.

A CAG member asked how the public would be notified, outside of going to a website, about the community meeting to receive comments on the plan. EPA stated it is developing a strategy starting with their mailing list for a postcard notification in English and Spanish to 10,000 residents adjacent to the plume. The postcard informs those residents about the PP and an invitation and location details about the public meeting. EPA CIC has also made contact with several schools and home owner associations with the hopes of increasing awareness. The postcard also will inform the community where to view the PP.

A CAG member asked if the mailer included the residents of Goodyear. EPA responded that it did not. EPA stated that another important route of communication is contact with boards like the CAG, community leaders, city councils and other organizations that are already knowledgeable about the site and EPA's activities.

An audience member asked if the public meeting dates have been determined and if there is a possibility for an extension of the comment period. EPA responded that they haven't finalized the dates as the publication of the document needs to align with start of the public comment period. EPA continued to say that the comment period is set at thirty days so that the process can move forward. However, if the community needs more time an extension can be requested.

An audience member asked who's responsible to educate and inform the public about this site, who makes the decisions on remediation, clean up or the process used and who is responsible for paying for it. EPA stated it was their responsibility and that Superfund law requires they maintain community involvement and outreach so that the community can comment and contribute. They are continually working to inform and update the community in that regard.

### **CAG Business:**

- ✓ Unanimous acceptance of Karl Havlicek to board as full member.
- ✓ ADEQ CIC informed the board that contact had been made with the Pebble Creek community and they are willing to let the CAG meet at their location. The CIC reminded the board that the meeting room there will not have the same technical options as the Justice Center. The board agreed to hold the November 6th meeting at Pebble Creek.
- ✓ Discussion on how to increase attendance at meetings and notify the public of the issues through extended processes (public notices and letters to the editors through newspapers; water bills inserts; notices in community magazines) as well as moving the meeting locations throughout the site.
- ✓ Change of meeting format to include thirty minutes before the board meeting for a community education poster session with a question and answer period
- ✓ ECO clarified their relationship with EPA and the grant status. The grant ends in February 2014, and a decision has not been made if they will be renewing the grant.

### **Future Meeting Agenda Discussion**

The next CAG meeting is scheduled for Thursday, February 6, 2014 at the Goodyear Justice Center beginning at 6:00 p.m.

Action items:

1. WQARF update.
2. Pre Meeting discussion format, start time (6:00 - 6:30) and materials required.
3. Review of what the CAG would like to see and in what format from the EPA due to reduced availability (twice a year).
4. Discuss CIP, Appendix 17 questions that Karl Havlicek had from November Meeting.

### **Adjournment**